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## Copyright Statement

# INVESTIGATING E-COMMERCE ADOPTION IN SMALL AND MEDIUM-SIZED TOURISM ENTERPRISES: A CASE OF TRAVEL AGENTS IN EGYPT

**by**

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# Investigating E-Commerce Adoption in Small and Medium-Sized Tourism Enterprises: A Case of Travel Agents in Egypt

**Mohamed Ahmed Abd-Elraouf Abou-Shouk**

## Abstract

SMEs are often described as slow adopters of technology. However, adopting e-commerce is one of many strategies taken by travel agents to re-intermediate themselves in the global travel market against the threat of disintermediation. Exploratory studies have revealed that Egyptian travel agents are laggards when it comes to technology adoption, although they perceive e-commerce as a beneficial tool that can increase their chances of survival. As many as 59.2% of Egyptian travel agents were found not to have websites (Egyptian Travel Agents Association, 2008), this study investigates the factors affecting e-commerce adoption by travel agents.

Past literature has shown that there are three main factors affecting the adoption of e-commerce by SMEs. Environmental pressures push SMEs to adopt in order to bolster their survival chances. The benefits of adoption are critical factors considered by managers when making the adoption decision. Finally, there are barriers to e-commerce adoption. By modifying the technology acceptance model, this research conceptualizes the causal relationships amongst these three types of factors. The benefits and barriers to e-commerce adoption are found to mediate the relationship between environmental pressures and e-commerce adoption.

This study employs mixed methods starting with a quantitative survey and following it up with qualitative interviews. A questionnaire was used to collect data from 411 adopter and non-adopter e-commerce travel agents. Later, 22 interviews were conducted with the managers of travel agents. Structural equation modelling produced findings reveal that environmental pressures significantly affect the perceived benefits of and barriers to adoption, in addition to having an indirect effect on adoption behaviour.

This study contributes to theory as it responds to the claim that the factors affecting e-commerce adoption have not been well documented in the travel sector (Hung et al., 2011, Thomas et al., 2011), especially in the context of developing countries (Thulani et al., 2010). The findings reveal that the modified technology acceptance model successfully interprets e-commerce adoption. The study compares other adoption models with the research model and provides statistical criteria for this comparison.

Its contribution to practice is twofold, affecting the managers of travel agencies and policy makers. Recognizing the factors affecting adoption would enable managers to devise strategies and prepare better agendas for expanding their businesses, while at the same time identifying any defects and training needs that present barriers. Meanwhile, recognizing the barriers to adoption could encourage government bodies and policy makers to implement appropriate measures, such as introducing protective and financial legislation to encourage SMEs to adopt technology, or to formulate national policies and initiatives aimed specifically at supporting the adoption of e-commerce by SMEs.

## DEDICATION

*To the soul of my father, my great mother,*

*To my wonderful wife, my family, and friends*

*A special dedication to my supervisors,*

*Phil Megicks and Wai Mun Lim*

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# List of Abbreviations

| Abbreviation | Full term |
|---|---|
| SMEs | Small and medium-sized enterprises |
| ICTs | Information and communication technologies |
| SWOT | Strengths, weaknesses, opportunities and threats |
| GNI | Gross national income |
| GDSs | Global distribution systems |
| CRSs | Computer reservation systems |
| IT/IS | Information technology/ Information system |
| EDI | Electronic data interchange |
| TRA | Theory of reasoned action |
| TPB | Theory of planned behaviour |
| TAM | Technology acceptance model |
| QUAN/ QUAL | Quantitative/ Qualitative |
| SEM | Structural equation modelling |
| EFA/ CFA | Exploratory factor analysis/ Confirmatory factor analysis |
| WLSMV | Robust weighted least squares estimation |
| MLR | Robust maximum likelihood |
| RMSEA | Root mean square error of approximation |
| CI | Confidence intervals |
| SRMR | Standardized root mean square residual |
| CFI | Comparative fit index |
| TLI | Tucker-Lewis index |
| WRMR | Weighted root mean square residual |
| AVE | Average variance extracted |
| SIC | Squared inter-construct correlation |
| CR | Composite reliability |
| ESEM | Exploratory structural equation modelling |
| AIC | Akaike information criterion |
| EP | Environmental pressure |
| BE | Benefits of adoption |
| BA | Barriers to adoption |
| AD | Adoption |
| NM | Nested model |

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## Author's Declaration

At no time during the registration for the degree of Doctor of Philosophy has the author been registered for any other University award.

This study was fully financed by the Egyptian Government. Relevant scientific seminars and conferences were regularly attended at which work was often presented.

The following activities were undertaken in connection with the program of the study:

- Attendance in a number of courses in data analysis, in particular, courses on 'Quantitative Analysis 3: Multivariate Analysis', and 'Structural Equation Modelling for Cross-Sectional and Panel Data'.
- Participating in the Plymouth University Post Graduate Symposium 2010 and presented a paper titled 'E-commerce and travel agents: validating the data collection tool'. 2010. (Selected as a top five presentation).
- Attendance of 'PhD Networking Conference, Exploring Tourism III', Nottingham University Business School, Christel DeHaan Tourism and Travel Research Institute, 2009, and presented a paper titled 'Internet usage amongst Egyptian travel agencies: A pilot study'.

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A. Refereed Journal Articles:

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Abou-Shouk, M. with Lim, WM. & Megicks, P. 2012. Reviewing the web features of travel agents in Singapore. *Tourism Analysis: An Interdisciplinary Journal.* In Press.

Abou-shouk, M. with Megicks, P. & Lim, WM. 2012. Perceived benefits and e-commerce adoption by SME travel agents in developing countries: evidence from Egypt. *Journal of Hospitality & Tourism Research.* In press.

Abou-Shouk, M. with Lim, WM. & Megicks, P. 2012. Internet adoption by travel agents: a case of Egypt. *International Journal of Tourism Research.* In press.

B. Refereed Book Chapters and Conference Presentations:

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Abou-Shouk, M. 2011. Factor analysis of e-commerce adoption benefits: A case of Egyptian travel agents. *In:* Gretzel, U., Law, R. and Fuchs, M. (ed.) *Information and Communication Technologies in Tourism 2011.* Innsbruck, Austria: Springer-Verlag, U.S.A.

Abou-Shouk, M. with Lim, WM. 2010. Egyptian travel agents and e-commerce. *In:* Gretzel, U., Law, R. and Fuchs, M. (ed.) *Information and Communication Technologies in Tourism 2010.* Lugano, Switzerland: Springer-Verlag, U.S.A.

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# CHAPTER1. INTRODUCTION

## 1.1 Definition of e-commerce

E-commerce has a wide range of definitions. One comprehensive definition is ‘the use of electronic communications and digital information processing technology in business transactions to create, transform, and redefine relationships for value creation between or among organizations, and between organizations and individuals’ (Bakshi et al., 2009, p.58, Ahmed et al., 2011, p.321). Based on this definition, e-commerce is adopted via all electronic communications and technologies and has many types, categorized by the technology used, such as TV shopping, internet commerce (i-commerce), mobile commerce (m-commerce), and voice commerce (v-commerce) (Hamed, 2003). The various electronic devices used for e-commerce include bar-code machines, vending machines, telephones and telegraphs, fax machines, televisions, standalone computers, computer networks, the internet and e-mail (Gandhi, 2006).

TV shopping refers to using a television to market products and services and provides details of how the customer can order the product or service. Payment can then be made directly to the agent who delivers the product (Hamed, 2003). I-commerce is defined as ‘the use of the Internet for creating and carrying out online transactions’ (Hamed, 2003, p.22). I-commerce is also extended to include any transactions made by means of internet-based technology (Poon and Joseph, 2001). M-commerce is ‘the use of handheld wireless devices to communicate, interact, and transact via high-speed connection to the Internet’ (Abdelkarim and Nasereddin, 2010, p.51). V-commerce means ‘using speech recognition to allow voice transactions such as an order or query to be made over the phone, via a PC using the Internet or any other audio-enabled device that communicates with a network’ (Hamed, 2003, p.24).

E-commerce and i-commerce are often used interchangeably (Webster et al., 2006). However, m-commerce also makes use of internet-based technologies and v-commerce too can be conducted via the internet. I-commerce and m-commerce are considered to be further developments of e-commerce (Wu and Hisa, 2008). Therefore, the definition of e-commerce adopted in this thesis includes activities such as reservations and payments made online, or more specifically, the use of websites for online booking and transaction purposes.

## 1.2 Types of e-commerce

The main parties involved in transaction processes are businesses, consumers and governments. The relationships amongst these parties are known as business-to-business (B2B), business-to-consumer (B2C), and business-to-government (B2G). Table (1-1) gives details of the types of e-commerce (Schniederjans and Cao, 2002). The focus of this study is e-commerce relationships between businesses and consumers (B2C).

| From/ To | Customer | Business | Government |
|---|---|---|---|
| **Customer** | Customer-to-Customer (C2C) | Customer-to-Business (C2B) | Customer-to-Government (C2G) |
| **Business** | Business-to-Customer (B2C) | Business-to-Business (B2B) | Business-to-Government (B2G) |
| **Government** | Government-to- Customer (G2C) | Government-to-Business (G2B) | Government-to-Government (G2G) |

Table 1 - 1. Types of e-commerce according to parties involved

## 1.3 E-commerce versus e-business

There is some confusion caused by the synonyms use of the terms e-commerce and e-business. In practice, e-commerce is only one part of e-business (Simpson and Docherty, 2004). It has been described as one external component of e-business, the others being e-marketing and e-procurement (WTO, 2001). Furthermore, while e-

business includes both internal and external processes. These processes are: within establishments, between establishments, between partners in the value chain, B2B, B2G, and B2C, e-commerce includes the latter four processes only (Figure 1-1) (Koellinger, 2005). Therefore, this study makes the distinction between e-business and e-commerce.

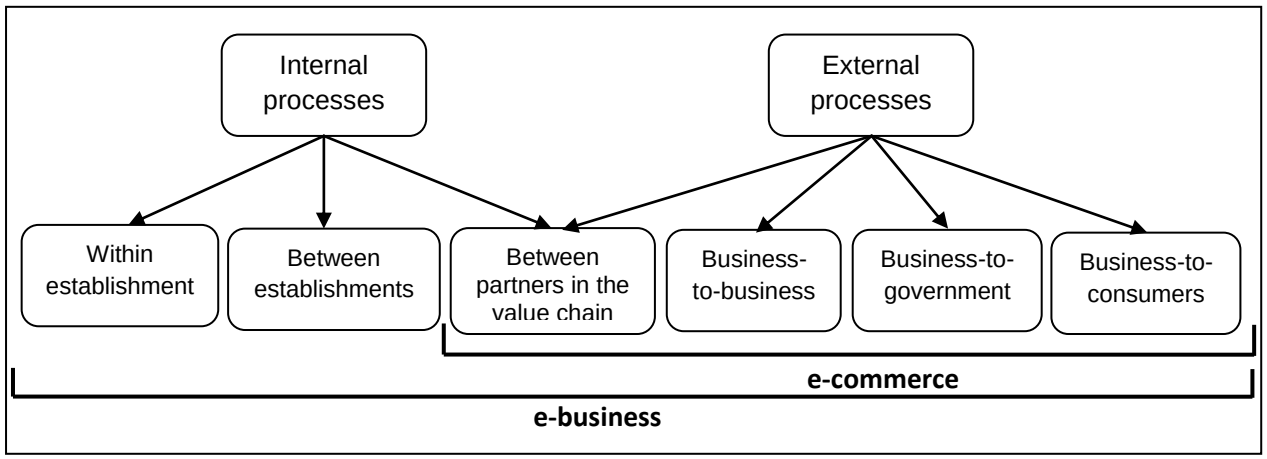



Figure 1 - 1. The difference between e-business and e-commerce (Koellinger, 2005)

## 1.4 Small and medium-sized enterprises (SMEs)

The African private sector consists mostly of SMEs. These businesses are widely seen as a potential engine of growth in the information economy (Mensah et al., 2005). SMEs have many definitions, differing according to the time, place or sector to which they are applied (Alasrag, 2007). In this study, the operational definition of SMEs is based on the number of employees. In Egypt, according to law no. 141/2004, a small enterprise is 'any company or individual firm exercising an economic activity, including productive, service or commercial activities, whose paid up capital ranges between EGP 50,000 and 1 million and whose workforce does not exceed 50 workers'. Medium enterprises are those with capital in the range EGP1 million – EGP 5 million and 50–100 employees, and micro enterprises are those with paid up capital less than EGP 50,000 (Alasrag, 2007, p.31). The focus of this study

is travel agents, most of which are classified as SMEs (Gammack et al., 2004, Karanasios, 2008).

## 1.5 Research Background

The study incorporates three areas of research: travel agents as SMEs, Egypt as a developing country, and e-commerce as a technology to support travel agents facing the threat of disintermediation. This section, looking at the research background, explains the rationale behind selecting travel agents, Egypt and e-commerce as the research topics.

### 1.5.1 Why Travel Agents?

Travel and tourism is a fragmented industry. Its components are attractions, accommodation and catering, transportation, tourist information and guiding services, tour operators, and travel agents. The travel agent is 'a middleman; a business or a person selling the travel services to the consumer' (Goeldner and Ritchie, 2009, p.183). Travel agents are the link between consumers and the travel suppliers such as airlines, hotels, package tours, car rentals, cruise lines, and railways, and they traditionally work on a commission basis.

With the global business climate moving towards innovation and the development of advanced information technology improving productivity and competitiveness, travel agents must reposition their traditional retail role, change their ways of doing business and become less dependent on the wholesale suppliers they are currently tied through exploiting internet technologies. The travel and tourism industry is ranked among the top three product/service categories purchased via the internet (Heung, 2003).

Bricks-and-mortar travel agents are a sector of the travel industry whose future is under threat because of competition from online rivals (Heung, 2003, Standing et al., 1999). Changes in consumer behaviour and in the distribution structure of travel products, have led to the disintermediation of travel agents from the global travel market (Deng et al., 2000, Goldmanis et al., 2010, Andreu et al., 2010, Gratzer and Winiwarter, 2003).

Furthermore, it is claimed that travel agents lack awareness of the benefits they, as small businesses, could gain from using the internet (Simmons et al., 2008, Stockdale and Standing, 2006, Chen and McQueen, 2008, Apulu and Ige, 2011, Thulani et al., 2010), and that they do not have the resources and expertise to recognize the potential benefits (Skoko et al., 2008, Thulani et al., 2010, Samoilenko and Osei-Bryson, 2008, Voges and Pulakanam, 2011). Besides this, the factors affecting technology adoption in the travel and tourism sector, and particularly by travel agents, has not been investigated or documented thoroughly up until now (Hung et al., 2011, Thomas et al., 2011). Meanwhile, information and communications technology (ICT) adoption in the tourism sector is highlighted as an emergent area, with limited research having been carried out so far (Thomas et al., 2011). On the back of the above arguments, this study selects travel agents so as to investigate the potential benefits and challenges of technology adoption. Among the three categories of travel agents licensed by the Egyptian Ministry of Tourism, Category A is selected in this study. This is the most general group of agents, with a licence to work in a wide range of activities in the travel and tourism sector. Category A travel agents are companies that organize packages for groups or/and individuals, inside or outside Egypt; organize all other related items of these packages such as

accommodation, transportation and other facilities; and execute planned packages of other tour operators based inside or outside Egypt (Ministry of Tourism, 2008).

### 1.5.2 Why Egypt?

This study uses the context of developing countries, for the following reasons: (1) it is claimed that SMEs and the private sector in Africa have not been active initiators of e-commerce (Mensah et al., 2005); (2) developing countries, as the world's least prepared physically, institutionally, and in terms of human infrastructure to realize the advantages of the internet, have the greatest need to take advantage of its potential (Ayeh, 2006); (3) it is also claimed that economic growth in Africa can be achieved through strong SMEs (Apulu and Ige, 2011, Thomas et al., 2011). Additionally, while many studies have explored factors affecting technology adoption by SMEs, these have mostly been set in developed countries, and few have examined these factors in developing countries (Thulani et al., 2010, Thomas et al., 2011). In response to the claim of several researchers that generalizing such studies to the context of developing countries is not rigorous without empirical findings (Lawrence and Tar, 2010, MacGregor and Kartiwi, 2010, Andreu et al., 2010), Egypt, as a developing country, is selected as the country of focus for this study.

What supports the selection of Egypt is the descriptive statistics regarding travel agents with a web presence. It is found that 34% of travel agents in Egypt have websites, while 27.8% have e-mail only and 38.2% have neither websites nor e-mail. Within the group of Category A travel agents, 418 (40.8%) have websites, while 605 agents (59.2%) do not (Egyptian Travel Agents Association, 2008). These statistics highlight the aforementioned lack of awareness of the benefits of the internet or the lack of sufficient resources to adopt internet technologies.

Further evidence in support of the selection of Egypt was based on the statement that companies use the internet to perform four major commercial functions: global and local marketing, gathering requisite information and consumer feedback, providing customer service and support, and carrying out electronic transactions (Soh et al., 1997), while travel agents in Egypt are still in their infancy stages of internet adoption (Egyptian Travel Agents Association, 2008). Therefore, it was felt that further investigation of the adoption of internet commerce by travel agents in Egypt was required, in terms of what pushes agents to adopt e-commerce technologies, what benefits they perceive there to be from adoption and what barriers they feel prevent them from adopting e-commerce. It was decided that these factors should be examined from the perspective of agents with websites versus those without.

### 1.5.3 Why e-commerce?

The call for travel agents to radically changing their role in order to survive started many years ago as a result of changes in the global travel industry, especially the growth of the Internet (Barnett and Standing, 2001). Over time, it is said, technology (mostly e-commerce) has changed tourists' buying behaviour and tourism and travel distribution structures (Buhalis and Law, 2008, Kim, 2005, Heung, 2003, Deng et al., 2000, Liao and Par, 2006). Furthermore, it is claimed that these changes have resulted in what is called the disintermediation of travel agents from the global travel market, by breaking the traditional distribution processes, especially through the emergence of online intermediaries (Álvarez et al., 2007, Patricia, 2008, Bennett and Lai, 2005, Andreu et al., 2010). Additionally, is it believed that small travel agents have suffered most from the changes e-commerce has made to the travel distribution structure (Goldmanis et al., 2010, Warden and Tunzelana, 2004). Travel

agents have been advised to reposition their roles in order to survive (Barnett and Standing, 2001) and to adopt the strategy of reintermediation instead of disintermediation in order to continue competing in the global travel market (Bennett and Lai, 2005). Targeting and expanding on inbound markets, as well as focusing on products and customers, are some of the suggestions aimed at helping travel agents to survive (Liao and Par, 2006). Forming strategic alliances with industry players may also help gurantee future stability, by enhancing customer loyalty and expanding distribution channels (Huang, 2006).

In addition, there is agreement among researchers that the key strength of traditional agents is the ability to provide personal advice to customers. However, automation and technology adoption, especially e-commerce, could help travel agents to effectively reintermediate themselves into the global travel market (Andreu et al., 2010, Cheung and Lam, 2009, Álvarez et al., 2007, Patricia, 2008, Thulani et al., 2010, Azam, 2007). E-commerce can support the survival of travel agents as SMEs by increasing their competitive position (Estebanez, 2010, McAdam et al., 2010, Thulani et al., 2010, Kartiwi and MacGregor, 2007, Simpson and Docherty, 2004); improving their distribution channels (Saffu and Walker, 2008, Ayeh, 2006, Hung et al., 2011); helping them to penetrate global markets (Migiro and Ocholla, 2005, Çakar and Ertürk, 2010, Thulani et al., 2010); improving customer service and satisfaction (Dyerson and Harindranath, 2007, Jin, 2007, Scupola, 2009); enabling collaboration (Mehrtens et al., 2001, Bourgouin, 2002, Kvainauskaite et al., 2005); enhancing their operational efficiency and performance (Collins et al., 2003, Harindranath et al., 2008, Lin et al., 2009, Thulani et al., 2010); and improving decision-making processes and managers' productivity (Grandon and Pearson, 2004, Kajogbola, 2004, Saffu and Walker, 2008).

As e-commerce in general supports most of the activities travel agents need to undertake in order to survive, it is considered in this study to be a gateway for their survival in the global market. The level of e-commerce adoption is explored in the next section.

### 1.5.4 The profile of travel agents in Egypt

According to Law 38 regarding the definition and licenses of travel agents in Egypt, travel agents are companies set up to practise tourism activities in some fields of tourism. They are further split and licensed as category A, B or C travel agents (Ministry of Tourism, 2008).

Category A travel agents are those companies that organize packages for groups and/or individuals, either incoming or outgoing outside of Egypt, organize all of the other related components of these packages, such as accommodation, transportation and other related facilities, and execute the packages of other tour operators based inside or outside Egypt. These companies should have capital of EGP 2 million (excluding means of transportation owned by the company), have an Egyptian general manager, and should be based in Egypt. Category A travel agents are the only category allowed to engage in religious tourism activities (i.e., pilgrimages) and then only after they have been licensed as Category A for five years.

Category B travel agents are those companies that sell and/or book travel tickets and baggage transfers on different means of transportation. This can include those working as agents for airlines, water-based transportation or other means of transport. Category B travel agents should have EGP 175,000 in insurance with the Ministry of Tourism. Category C travel agents are air, sea or land transport

companies that transfer tourists and their luggage. Category C travel agents should have EGP 150,000 in insurance with the Ministry of Tourism.

While travel agents are described as middlemen linking consumers to travel suppliers (i.e., tour operators, airlines, and others) and taking the retailer role, working on a commission basis, on the other side there are the tour operators. Tour operators are 'organizations combining several elements of travel arrangements and offering them as inclusive tours for sale at a single price' (Beaver, 2005, p.308). Travel agents work on a retailing basis. They obtain packages from tour operators and sell them to tourists. However, tour operators can also sell their inclusive packages directly to the public (i.e., tourists) rather than via travel agents. Figure 1-2 depicts the intermediary role travel agents play between travel suppliers and tourists.

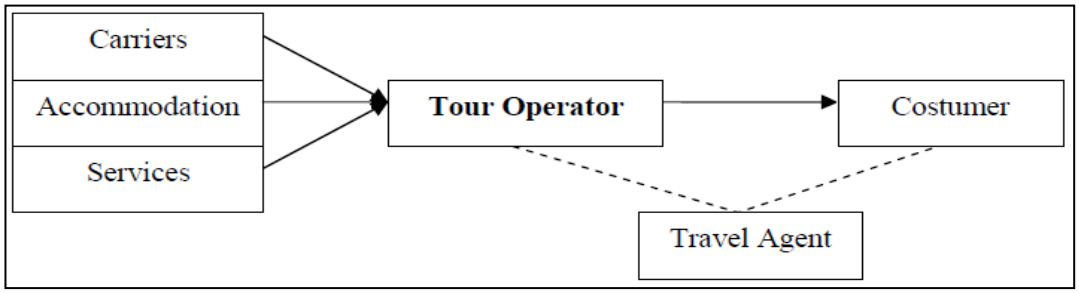



Figure 1 - 2. Tour operator and travel agent's role in the travel distribution chain

Source: (Meyer, 2003, p.3)

Figure 1-2 depicts how tour operators sell their services either directly to tourists or via travel agents. Travel agents play the intermediary role between suppliers and clients, and take commissions. To survive, travel agents depend on tour operators as one of the major travel suppliers. It should be noted that the Egyptian travel agents cannot be classified as tour operators, as the latter are considered large companies

that specialize in designing and selling inclusive tours. Tour operators are beyond the scope of this study.

The majority of international travel takes place in developed countries, and specifically intra-regional countries. The majority of international tourists arriving in developing countries come from developed countries, and particularly Europe. The vast majority of travel and tourism arrangements to developing countries are organized by tour operators based in developed countries. Europeans and Britons in particular form the majority of inbound tourists to developing countries, especially in the Middle East. Package holidays from the UK are typically organized by the UK's four dominant tour operators: Thomson, First Choice, MyTravel, and Thomas Cook. The UK tour operators use local travel agents (i.e., in Egypt) to distribute and execute their package tours. The difference between travel agents in the UK and those in Egypt is that the largest tour operators in the UK have their own travel agents (e.g., Lunn Poly is owned by Thomson) (Meyer, 2003), while the Egyptian travel agents work for the UK tour operators for agreed commissions. This integration between tour operators and travel agents shows how the local travel agents depend on the tour operators to survive and the size of the threat to independent travel agents if tour operators decided to bypass them and sell their packages directly to customers (i.e., tourists) online. As a result, travel agents are being encouraged to create online portals to attract customers independently from tour operators, in order to re-intermediate themselves into the industry in a new way, in parallel to their traditional approach.

## 1.6 E-commerce adoption among Egyptian travel agents

One of this study's outcome variables is the level of e-commerce adoption. To identify this, it is necessary to specify the implementation stage of e-commerce (Walcott, 2007). To do so, the researcher built upon the e-commerce adoption strategies among SMEs gained from the literature review (e.g., Al-Qirim, 2007, Beck et al., 2005, Chan and Swatman, 2004, Chen and McQueen, 2008, Daniel et al., 2002, Gandhi, 2006, Heeks, 2000, NCC, 2009, Rao et al., 2003, Rayport and Jaworski, 2002). Most studies agree that e-mail interaction with customers and static websites providing information about a company is the first implementation stage of e-commerce among SMEs, which is known as 'static web presence'. The second stage, 'interactive online presence', involves the use of dynamic websites to support negotiations with customers, enabling them to place orders and allowing the company to respond to enquiries. 'Electronic transactions' is the third stage, in which websites enable online orders, sales, and payment. The final stage is 'electronic integration', comprising ICT- mediated service delivery, after-sales services, and an intranet and extranet to support electronic integration and collaboration with partners (Abou-Shouk and Lim, 2010). The first and the second stages are classified as low-level e-commerce practices, while the third and fourth are labeled advanced-level (Al-Qirim, 2007, Bigne-Alcaniz et al., 2009).

## 1.7 Aims and objectives of the study

Before a business can decide whether to adopt new technology, it must first evaluate the benefits it will gain, and compare them to the costs or risks involved (Nemoto et al., 2010). In other words, weighing the benefits of a new technology against its costs helps businesses to make the adoption decision (Hall and Khan, 2003). In fact, it is

one of the key criteria in the decision over whether or not to adopt new information technology (Sieber and Valor, 2008).

In addition, Rogers (1995) mentions that the decision to adopt innovation is made through a cost-benefit analysis in an uncertain environment. Benefits refer to the relative advantages the innovation can provide to the business, while costs/risks include incompatibility with existing habits and values, difficulty of use, unavailability of a trial, and the lack of a visible effect on the business.

Furthermore, in terms of e-commerce, as one form of innovation, the adoption decision process for SMEs has five steps. The first step is for the SME to identify the perceived benefits offered by adoption. The second step, based on the first, is to determine the level of adoption that will produce the perceived benefits. In the third step, the SME takes note of any inhibitors, preventing it from implementing its selected level of adoption. The fourth step involves identifying the measures that governments and stakeholders should take to facilitate adoption and overcome the inhibitors noted in the previous step. In the fifth step, the SME perceives the enabled benefits, based on the inhibitors experienced and the level of adoption implemented (APEC, 1999).

On the other hand, SMEs also have external pressures pushing them to adopt technology. These pressures have been given various labels in the literature, such as the environment, or environmental characteristics (Premkumar and Roberts, 1999, Thong, 1999, Lacovou et al., 1995, Kuan and Chau, 2001, Grandon and Pearson, 2004). These pressures push SMEs to adopt technology so as to overcome challenges. This is indeed the case for many SME travel agents, who face a serious threat from the disintermediation of the global travel market as a result of

changes in the distribution structure caused by the emergence of online intermediaries and e-commerce (Goldmanis et al., 2010, Andreu et al., 2010). These pressures can also be seen as forcing travel agents to adopt technology in order to enhance their competitive positions. E-commerce adoption is one of the strategies travel agents can use to effectively re-intermediate themselves in the travel market (Álvarez et al., 2007, Patricia, 2008).

Building upon the above argument, and to understand why SMEs do not always fully implement e-commerce technologies, three main constructs have an effect on the adoption of e-commerce by SMEs: perceived benefits of adoption, perceived barriers to adoption, and environmental pressures to adopt e-commerce. This study aims to investigate the factors affecting e-commerce adoption/ adoption level in SME travel agents in the context of a developing country. The investigation will provide a comprehensive understanding of how travel agents evaluate the benefits of and barriers to adoption, considering the environmental pressures, and how they then make their decision to adopt or not. The specific objectives of the study are as follows:

- To identify the factors affecting e-commerce adoption/adoption level in SME travel agents.
- To identify the perceived benefits of the adoption of e-commerce by SME travel agents and how it affects the adoption decision in managers' viewpoint.
- To identify the barriers to e-commerce adoption by SME travel agents and how influential these barriers are on the adoption decision from the managerial perspective.

- To identify the environmental pressures pushing travel agents to adopt e-commerce in order to stay ahead of their counterparts and competitors and survive in the global travel market.
- To specify a framework that conceptualizes the causal interactive relationships between the environmental pressures, the perceived benefits of adoption, and the perceived barriers to adoption, and how these factors together affect the e-commerce adoption/ adoption level decisions of travel agents.
- To establish the level of e-commerce adoption in Egyptian SME travel agents.
- To propose recommendations for practice and policy to enhance future success of SME travel agents in Egypt and more undelay.

## 1.8 Overview of study

The study uses the mixed-methods approach (both quantitative and qualitative methods). A sequential explanatory design strategy is used: the quantitative stage is followed by the qualitative stage, and then the findings of the two stages are interpreted. The idea of the mixed-methods strategy is that first quantitative results (questionnaire-based) are obtained, then the qualitative findings (interview-based) are used to explain and interpret the quantitative findings. The strength of this strategy is its straightforward design with clear and separate stages. Its main weakness is that the data collection processes take a long time (Creswell, 2009).

The mixed-methods approach is based on the pragmatism paradigm, using both quantitative and qualitative data to provide the best understanding of the research problem (Creswell, 2003). It is believed that pragmatism is applicable to social and

behavioural research (Moon and Moon, 2004) as it considers the research question to be more important than the method used, and its main aim is to generate information and new research ideas so as to find solutions to problems (Pansiri, 2005). This means that researchers using the pragmatic approach can focus on and emphasize the research problem and use all available approaches to fully understand it (Creswell, 2009). Additionally, there is a strong belief that basing future tourism research on the pragmatism paradigm could yield better research outcomes (Pansiri, 2006).

## 1.9 Research outline

In addressing the aim and objectives of the study, this thesis is divided into four main parts: the literature review, the research methodology, the research findings, and the discussion of research findings, conclusion, and implications for theory and practice.

**The first part, the literature review,** contains two chapters. **Chapter 2** covers the ICT strategy in Egypt, strategic initiatives for ICT in Egypt, a SWOT analysis of the ICT sector, an internet profile of Egypt, an analysis of internet use by governmental and private sectors, ICT and human resources, and ICT sector revenues in Egypt, and ICT adoption by travel agents in Egypt. **Chapter 3** reviews innovation theories and models and the stages of e-commerce adoption. It depicts the benefits of e-commerce adoption, barriers to adoption, and environmental pressures of adoption. Furthermore, it conceptualizes the causal relationships among the study's main constructs and identifies the research hypotheses.

**The second part, the research methodology,** includes two chapters: **Chapter 4,** covers the research philosophy and methods, and **Chapter 5** the piloting of the questionnaire. This part of the thesis discusses the research paradigm and the

mixed-methods approach (quantitative-qualitative), provides operational definitions of the study's variables and the questionnaire form (the data collection tool for the quantitative stage), and describes the procedures used to pilot and validate the form.

**The third part, research findings,** encompasses two chapters. **Chapter 6** presents the quantitative findings, including an illustration of the descriptive statistics of the data, the exploratory factor analysis, the measurement model and the structural model. **Chapter 7** contains the qualitative findings, presenting the qualitative analysis of the personal interviews with the managers of travel agents in Egypt.

**The fourth part: discussion, conclusion, and implications. Chapter 8** presents the discussion of findings, in which the quantitative and qualitative results are combined to provide the overall findings of the study. **Chapter 9** covers the conclusion of the study, implications to theory and practice, recommendations to travel agents and governmental bodies, and limitations and future research areas.

# PART I. LITERATURE REVIEW

**Chapter 2. ICT and Egypt: An Overview**

**Chapter 3. Antecedents to Adoption, Conceptual Model and Hypotheses**

# CHAPTER 2. ICT AND EGYPT: AN OVERVIEW

**2.1 Introduction**

**2.2 ICT strategy in Egypt**

**2.2 Strategic initiatives for ICT in Egypt**

**2.3 SWOT analysis of the ICT sector in Egypt**

**2.4 Internet profile in Egypt**

**2.5 Internet use by governmental and private sectors**

**2.6 ICT and human resources in Egypt**

**2.7 ICT sector revenues in Egypt**

**2.8 Travel agents and internet adoption**

**2.9 Travel agents and e-commerce adoption**

**2.10 Travel agents and internet adoption in Egypt**

**2.11 Government policies and ICT adoption in travel agents**

**2.12 Conclusion**

## 2.1 Introduction

Since the beginning of the 1990s, Egypt has adopted a comprehensive programme of economic reform. As a result of this programme, Egypt is now considered one of the most attractive investment destinations in the Middle East and North African region. Over the past decade, one of the ways used to support the economic reform programme was to provide support for the ICT sector, which later became one of the key drivers of economic and social development in Egypt. The ICT sector contributed 4% of Egypt's gross domestic product in 2009/2010, and is expected to contribute 5.5% in 2015 and 7.5% in 2020 (MCIT and TIEC, 2011). It is believed that, after the revolution of 25 of January in Egypt, the telecommunications sector will continue to be one of the fastest growing markets in Africa and the Middle East (Rao, 2011). This chapter looks at the ICT strategy in Egypt, strategic initiatives for ICT, provides a SWOT analysis of the ICT sector and an internet profile of Egypt, investigates internet use by the governmental and private sectors, and looks at ICT and human resources, ICT sector revenues, and ICT adoption in travel agents in Egypt.

## 2.2 ICT strategy in Egypt

Egypt has decided to enhance its global competitiveness in the ICT sector so as to be the primary regional hub for innovation by 2020. To achieve this position, the technology innovation and entrepreneurship strategy 2011-2014 focuses on four goals: enabling ICT companies to become established, to operate and to innovate in Egypt, enticing foreign and local ICT companies to generate, enrich and expand on innovative ideas, building Egypt's brand as the regional hub for innovation, and engaging diverse stakeholders in the task of generating, financing and supporting ICT-related innovation (MCIT and TIEC, 2011).

The strategy is based on six pillars: stimulating a culture of innovation at the national and firm levels, branding Egypt's ICT sector, facilitating intellectual property management, establishing innovation clusters and offering a common infrastructure, creating a business environment that enables innovation practices and improving resources. In addition to the four goals and six pillars, thirteen initiatives were identified to guide the strategy. These initiatives can be categorized into three groups; the foundation of innovation and entrepreneurship, empowering businesses, and recognizing innovation and entrepreneurship. The initiatives are described in detail in the next section (MCIT and TIEC, 2011).

## 2.2 Strategic initiatives for ICT in Egypt

Egypt has set out 13 initiatives to support its ICT strategy, divided into three categories. Figure 2-1 shows the classification of the initiatives.

The first category, establishing the foundation of innovation and entrepreneurship includes four initiatives. The first is innovation assessment and certification. This aims to help firms develop capabilities in innovation management and increasing their competitiveness. It starts with an assessment of the firm's innovation capabilities using a programme first implemented in Malaysia. The main capabilities assessed include ICT infrastructure and knowledge management.

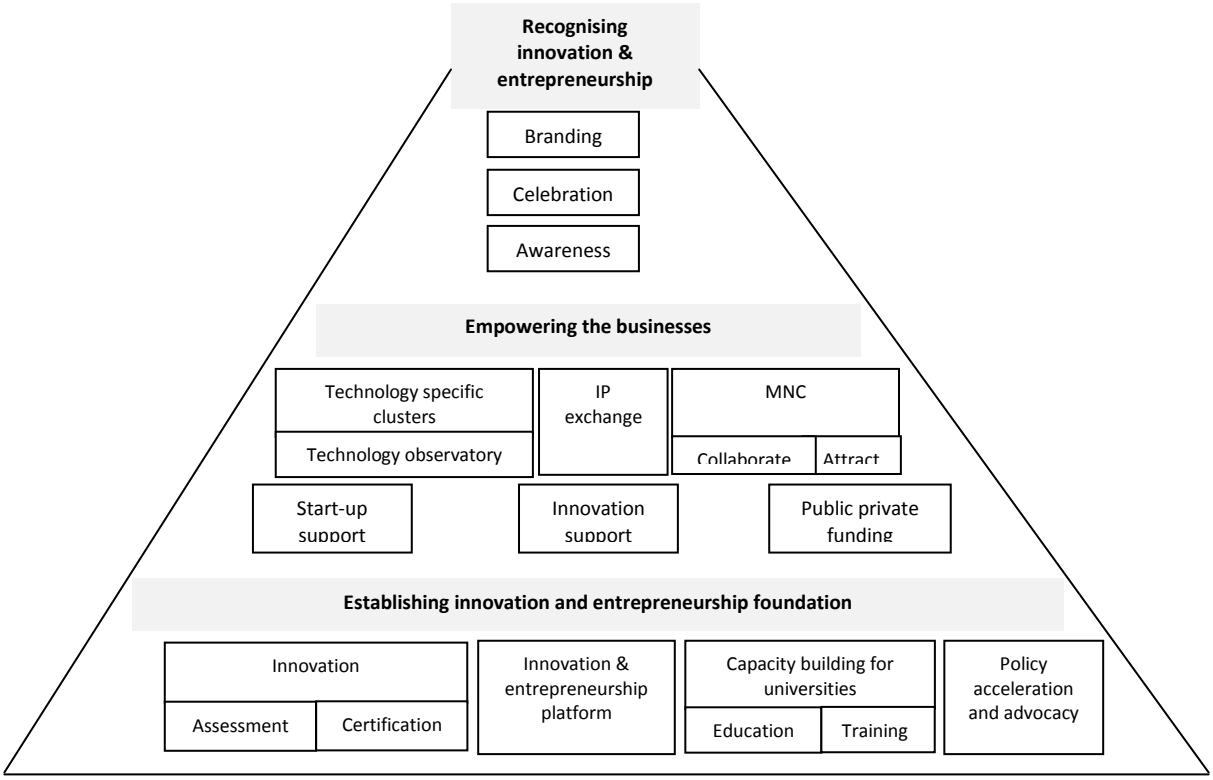



Figure 2 - 1. Strategic initiatives categories (MCIT and TIEC, 2011)

The assessment is carried out by an independent entity. The next step is to offer companies a certification of their innovation maturity level. These certificates could then be used by foreign companies seeking partnerships with Egyptian SMEs. The second initiative is the ICT innovation and entrepreneurship platform. It aims to connect nodes in the national innovation system and provide examples of best practices and practical support. The nodes are points of access to businesses and entrepreneurs. It is hope that the platform will act as a gateway, enabling firms to find out about best practices, training and support. Additionally, the platform should help to create a network of companies, technologies and people working in the ICT sector, hence establishing social interaction.

The third initiative is capacity building through education and training. The purpose of this initiative is to provide education and training to academics and researchers to enable university students to found innovative businesses. This is achieved by providing courses and training on emerging technologies for graduates, and raising the attractiveness of ICT education and careers for young Egyptians. The fourth initiative is policy acceleration and advocacy. This initiative aims to make significant policy changes to support technological development. It is hoped that such changes will lead to improvements in the country's innovation competitiveness. The changes include legal reform, incentives for innovation, tax changes, and changes to the financial regulations.

Empowering businesses is the second category, and includes six initiatives. The first is start-up support, which aims to empower entrepreneurship in the ICT sector by supporting start-ups, so as to attract entrepreneurs to set up businesses in Egypt. The initiative supports business set-up plans, training concerns, equipment and internet services. The second initiative in this category is innovation support for business. This is again aimed at encouraging entrepreneurs to invest in Egypt, by promoting and providing assistance for innovative start-ups. It targets the continuous improvement of incentives, policies and processes aimed at creating an innovative ICT environment for businesses. This includes providing incentives for investing in innovation, providing support to industry and research and development, and creating innovation courses for ICT firms.

The next initiative is public-private funding, which seeks to encourage foreign investors and partners to invest in the ICT sector in Egypt. Aspects of this initiative could include organizing Egyptian investment fairs to promote investment, creating an attractive scheme of public-private funding for investors, and increasing

government funding allocated to ICT businesses. Next, the technology-specific clusters and technology observatory initiative aims to identify ICT trends and assess their potential impact on the economy. Considering the ICT trends, specific clusters need to be identified. Some of these clusters include social networking and mobile technologies. A research framework then has to be prepared for each cluster. The next step is creating a network among the clusters to exchange knowledge at a national level. The other part of this initiative is the establishment of a technology observatory to scan and identify future technologies that Egypt's ICT industry should develop.

Intellectual property exchange, the next initiative, aims to facilitate and reduce the costs of registering and exchanging intellectual property, in addition to providing guidance to companies about intellectual property. Help is provided with patenting, and education is provided on patenting, licensing, and managing intellectual property. Furthermore, this initiative is aimed at promoting Egypt's competence in ICT patenting and intellectual property management to investors and partners. Attracting and encouraging collaboration with multinational companies is the tenth initiative. This initiative aims to encourage local firms to increase their ability to work and collaborate with multinational companies, absorb technology and form strategic alliances, in the hope that the multinational companies will transfer high-level technologies to their Egyptian partners and subsidiaries.

The final category, recognizing innovation and entrepreneurship, includes three initiatives. The first of these is branding. The aim is to promote Egypt as an innovation destination on the global map. The initiative seeks to expand Egypt's relationship with global organizations, creating a brand strategy for each innovation cluster identified earlier, and promoting innovation success stories and role models.

The celebration of innovation and entrepreneurship is the next initiative, based on promoting a culture of celebrating innovation and its achievements. Examples include awards for small and large innovative enterprises, prizes to encourage innovation, and awards for innovation in universities. The final initiative is awareness. Here, the aim is to raise the awareness of innovation and entrepreneurship in universities and the ICT sector in Egypt by creating 'an innovative ICT' campaign to encourage and educate the public in Egypt, and support their contribution of innovative ideas.

## 2.3 SWOT analysis of the ICT sector in Egypt

Egypt's ICT sector has a number of strengths, weaknesses, opportunities and threats (SWOT) (MCIT and TIEC, 2011). Examples of strengths are as follows: reduced costs due to the relatively competitive wages, a large and young population with multilingual capabilities, increased support from the government for the ICT sector and investment in infrastructure, and the existence of specialized education in engineering and computer science, resulting in highly educated and qualified graduates.

On the other hand, the sector's weaknesses include an insufficient number of qualified graduates in ICT to accompany the continuous development of the sector, the relatively low quality of education in management, the lack of actual practical applications in some of the supposedly practice-based schools, the current political instability in Egypt which is a deterrent to foreign investment, the fact that a large number of talented Egyptians leave the country to take jobs abroad that offer better working conditions, and the high turnover at the multinational corporation level resulting from workers looking for better deals.

Opportunities in the Egypt's ICT sector include the rising ICT costs in other destinations such as India, due to increased labour costs, offering significant opportunities for Egypt as an ICT destination, and the potential for public-private partnerships with multinational companies already based in Egypt, such as Microsoft and IBM.

Finally, threats include competition from other developing countries, such as China, India, Brazil and Malaysia, all of which support and encourage ICT investment and entrepreneurs, competitive ICT products entering the Egyptian market from abroad, and the speedy development of technology worldwide combined with the difficulty local companies face in adapting to technology changes.

Overall, Egypt must brand itself as a hub of innovation in order to benefit from the strengths and opportunities in its ICT sector.

### 2.4 Internet profile in Egypt

The internet bandwidth in Egypt expanded with an average annual growth rate of 105% in the period 2001-2010. The number of Egyptians using the internet has jumped from 0.65 million users in 2000 to 23.2 million users in 2010, with an average annual growth rate of 64% in this period. The users of broadband account for 86.5% of internet users, and this group has seen an annual average growth rate of 71% since 2007. About 57% of broadband subscribers use the speed of 512 MB. Half of subscribers have packages allowing unlimited downloads. Modem subscribers more than doubled between 2009 (434,200 subscribers) and 2010 (1,310,500), a growth rate of 202% (MCIT, May 2011).

The fixed price for broadband in Egypt fell to 5.46% of per capita gross national income (GNI) in 2009, from 6.3% in 2008. Looking at Figure 2-2, which compares

Egypt to some other developing countries, it is clear that Egypt broadband price is more competitive than India, Indonesia, China, and Morocco. The cost for individuals to access fixed broadband was USD 8.30 per month in 2008 according to the World Bank, which is relatively low compared to the cost per person in other countries in the region.

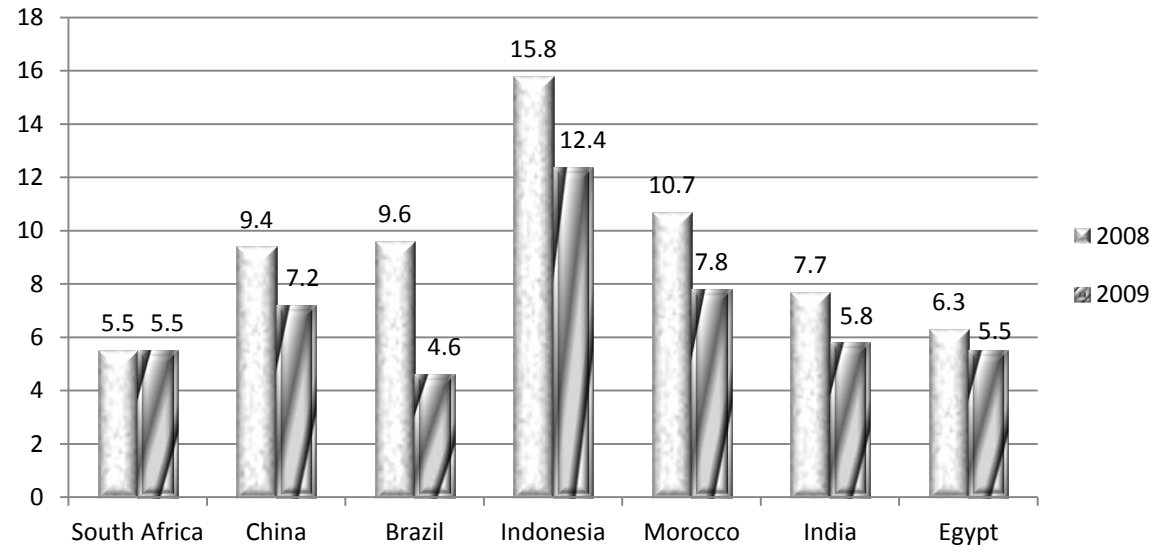



Figure 2 - 2. Broadband price basket as a percentage of GNI per capita (MCIT, May 2011)

Overall, 30.2% of households in Egypt used the internet in 2009, an increase of 6.2% over 2008 figures. 44.3% of households had the use of a computer in 2009 compared to 42.5% in 2008. The most common means of accessing the internet for Egyptian households is again fixed broadband; 98% of households used it in 2010 (MCIT, May 2011). The internet is no longer limited to computers though; mobile phones are an alternative means of accessing the internet. Mobile internet users accounted for 34% of all mobile users in 2011, up from11% at the end of 2010 and 8.6% in 2009.

In terms of the places in which the internet is accessed, as of December 2009, 80.6% of internet users in Egypt accessed it from home, 42.3% in an educational establishment, 40.3% via mobile phones, 11.6% via mobile access devices, and 5.6% at work. Regarding frequency of use, 59.7% of individuals stated that they accessed the internet on a daily basis, 14.1% weekly, and 24.2% monthly. Regarding purpose, 80% said they used the internet to send and receive e-mails, 55.3% to use internet telephony services, 55.1% to post information or instant messages, 49.7% to download multimedia, 39.1% for learning and educational activities, 34.4% for online reading and downloading information, 25.5% to access information about health and health services, 24.4% to play online games or to download video games, and 9.1% to access information from government institutions (MCIT, May 2011).

Among Egypt's mobile data service users, 35% are under 18, 43% are aged between 25 and 34 years, and the usage rates above this age category are low. About 51% of mobile data service users are male and 49% female. 59% of households with computers and internet access are located in urban areas, 41% in rural areas. Around 41% of private enterprises using the internet are located in urban areas. 11% of IT clubs mostly use the internet to carry out transactions with the government (MCIT, May 2011).

### 2.5 Internet use by governmental and private sectors

According to MCIT (May 2011), approximately two thirds of Egyptian government institutions were found to be using computers in 2010. Around 94% of those government institutions with computers accessed the internet via broadband connections. 67% of governmental entities had websites. 84% of governmental entities used the internet to send and receive emails. Around one third of

government organizations were using the internet to provide e-government services. Among governmental organizations with websites, 84% were providing information about services on their websites, 70% were using them to disseminate media statements about the organization, 68% were receiving citizens' enquiries via email, 31% provided forms to the public, 19% provided e-government services, 12% were participating in e-commerce services, and 12% were providing employment services. The most common e-commerce activity by government organizations was advertising goods and services; this was followed by receiving financial offers or bids, receiving orders for goods and offering services.

Turning to private sector organizations, in 2009, 64% were found to be using computers, compared to 51% in 2008, while 35% were using the internet compared to 31% in 2008. Internet use in the private sector was found to increase with the size of the firm; 71% of large enterprises (100+ employees), 55% of medium-sized enterprises (50-100 employees), and 29% of small enterprises (10-49 employees) were found to be using the internet. Around 95% of private enterprises were accessing the internet via broadband. 62% of private enterprises using the internet had websites in 2009, compared to 60% in 2008. Many private enterprises were using their websites to carry out business operations such as placing/receiving orders, or providing customer services. Approximately 82.7% of private enterprises were using the internet to send/receive emails in 2009, 68% to obtain information about goods/services, 46% for providing customer services, 36.6% to obtain information from government authorities, 23.1% for internet banking or financial services, 17.8% to deliver products online, and 15.6% to interact with government organizations. Private sector enterprises engaged in e-commerce listed the following benefits: 86% said it increased transaction speed, 55% said it helped them reach

new customers, and 36% said it reduced transaction costs. The private sector organizations involved e-commerce, 21.3% of total sales is done online, while e-procurement accounted for 23.8% of total purchases. Regarding ICT expenditure by private sector enterprises, 34.2% spent money on hardware in 2010, 23.4% on software, 14.4% on maintenance, 9% on networks, 5.4% on training, and 5.4% on research and development. 11% of private sector organizations undertook research and development, 5% of which were supported by the government, while 95% were self-financed. The monthly expenditure by private sector enterprises on research and development was USD 35,581 (MCIT, May 2011).

## 2.6 ICT and human resources in Egypt

Egypt is emphasizing the need to integrate the internet into education so that future graduates, as future human resources, will have the necessary computer and internet skills. In 2010, 97% of Egyptian schools, in pre-university education, were equipped with computers and 66.2% had internet access. However, large class sizes and a lack of ICT infrastructure in classrooms are two barriers to the use of computers and the internet by students. The use of ICT in education has led to better student comprehension, more interesting materials, and better course delivery. For teachers, ICT has improved their efficiency, and clarified the content of their course materials. For the school management, ICT has improved work speed, enhanced the efficiency of the administrative process, and provided information that has made decision making more efficient. Around 53% of students use computers in schools, of whom 66% use the internet. Turning to higher education, all Egyptian universities are equipped with computers, and labs increased from 85% in 2009 to 89% in 2011. 91% of university faculties and institutes had access to the internet and were using it

in educational activities. The number of university faculties offering ICT specialization (degrees in ICT) increased from 176 in 2007 to 224 in 2010 (MCIT, May 2011).

The number of employees working in ICT was 205,000 in 2010, an increase of 8.4% from 2009. The number of graduates from ICT training programmes provided by the Information Technology Institute and the National Telecommunication Institute was 40,800 in 2010 compared to 31,500 in 2007. The ICDL (International Computer Driving License) is just one initiative adopted by the Ministry of Communications and Information Technology in Egypt to improve computer skills among Egyptians; approximately 520,000 certificates were awarded in 2010 (MCIT, May 2011).

## 2.7 ICT sector revenues in Egypt

The ICT sector generated revenues of EGP 44.7 billion in 2010, an increase of 13.4% from 2007 (see Table 2-1). The contribution of ICT to Egypt's GDP was 4% in 2010 compared to 2.4% in 2007. There was a significant increase in the number of ICT companies, from 2,348 in 2007 to 3,889 in 2010, in addition to the significant increase in the number of people employed in the ICT sector from 162,300 employees in 2007 to 204,500 in 2010.

| | **2006-07** | **2007-08** | **2008-09** | **2009-10** |
|---|---|---|---|---|
| ICT sector revenues (billion EGP) | 30.55 | 35.95 | 40.97 | 44.7 |
| ICT contribution to GDP (%) | 2.4 | 3.5 | 3.8 | 4.0 |
| Annual growth rate of ICT sector | - | 14.3 | 14.6 | 13.4 |
| ICT operating companies | 2348 | 2938 | 3470 | 3889 |
| Employed in ICT sector (000) | 162.3 | 175.1 | 181.7 | 204.5 |

Table 2 - 1. Economic indicators of ICT in Egypt (MCIT and TIEC, 2011)

Egypt's exports of ICT also increased, from USD 450 million in 2007 to USD 1.1 billion in 2010, a growth rate of 36% per year. The aim is to achieve USD 2 billion of ICT exports by 2013.

## 2.8 Travel agents and internet adoption

The late 1990s witnessed the development of the internet and e-commerce and its adoption in the travel and tourism industry. These developments rapidly changed the way travel and tourism products were distributed (O'Connor and Frew, 2000). Travel suppliers started to use their websites to offer their services, and airlines used the internet to disintermediate travel agents (Buhalis and Licata, 2002). Consumers, on the other hand, gained the ability to search for, arrange, compare, and book services online. To avoid disintermediation, online travel agents such as Expedia.com and Travelocity.com emerged, while traditional travel agents started to create their own websites as well. Websites such as priceline.com allowed customers to search for services and choose suppliers based on price. Global distribution systems (GDSs) began to gradually enter the online market, creating interfaces through which customers could use the internet to purchase travel and tourism services (Buhalis, 2001).

Computer reservation systems (CRSs) were originally designed and operated by airlines to store and retrieve information and carry out transactions through terminals at travel agencies and were then extended to work globally and include several airlines, becoming known as GDSs. They were then extended still further, and used by travel agents to book hotels, rental cars and other tourist services for their customers. Examples include Amadeus, Galilio, WorldSpan, and Sabre (Hamed, 2003). Nowadays, the travel agents are bypassed, and GDSs offer customers an interface to book their services directly.

According to Buhalis and Licata (2002), travel agents gain some advantages from using the internet, namely the flexibility and convenience of service distribution, reaching customers, decreased distribution costs, customer interaction, and

identifying target customers. Customers, meanwhile, enjoy direct contact with the travel suppliers, and are able to request information and purchase services online at a convenient time and place (Olmeda and Sheldon, 2001).

In the past, travel agents were a major player in the supply chain as they were handling more than 85% of all transactions with customers. However, the advent of internet technologies presented a challenge in the form of disintermediation for traditional travel agents unwilling to use these technologies. In response, travel agents have now begun to see the potential capabilities of the internet (Carson and Sharma, 2004).

## 2.9 Travel agents and e-commerce adoption

Although online travel is one of the leading applications of e-commerce (Law, 2007), few studies have investigated e-commerce adoption in the travel agency sector. Raymond (2001) investigated the determinants of e-commerce adoption by Canadian travel agents, looking at informational, transactional, and strategic websites. The findings revealed that business partners' influence and environmental uncertainty (environmental context) affect informational and transactional implementation, whereas the travel agencies' marketing strategies, type of ownership, nature of business, perceived advantages and technology attributes (in the organizational context) all affect strategic implementation.

Exploring the barriers to the implementation of e-commerce by travel agencies in Hong Kong, Heung (2003) indicated that Hong Kong travel agents are mostly concerned with management support and partner's participation when deciding whether to implement e-commerce.

Additionally, Álvarez et al. (2007) studied the effect of the internet on customer trust in travel agents in Spain. The findings revealed that the existence of personalized services on a website and the perceived ease of buying via the internet positively affect customers' trust in travel agents.

Studying the antecedents and consequences of e-business adoption in travel agents in Spain, Andreu et al. (2010) found that customer pressure affects e-communication practices with travel agents' suppliers. E-communication and industry pressure are antecedents of e-procurement. E-procurement influences trust negatively, while e-communication does so positively. Additionally, examining the acceptance of online trading systems by travel agencies in Taiwan, Hung et al. (2011) found that compatibility, formalization of organization, organization scale, and pressure from the industry are the factors that affect adoption.

Although a number of studies in the last two years have focused on the determinants of e-commerce adoption in SMEs in developing countries (see section 3-5), there is a call for urgent rigorous research into technology adoption in the tourism sector (Thomas et al., 2011), and particularly in the travel sector, where the factors of e-commerce adoption are not well-documented (Hung et al., 2011). Further research into the travel agency sector is still needed to identify the factors that affect e-commerce adoption, particularly in the developing economy context.

## 2.10 Travel agents and internet adoption in Egypt

According to Mavromatis and Buhalis (2003), internet adoption in Egypt would enhance the competitiveness of tourism, and improve the efficiency of local suppliers. Furthermore, they stated, Egyptian travel agents perceive the internet as a global interface to the world, providing information and a tool for increasing sales and

improving business efficiency. They use the internet to advertise their services and receive customer enquiries and feedback. Travel agents see competitive pressures as the main driver encouraging them to use the internet and build websites.

According to the Egyptian Travel Agents Association (2008), 34% of all travel agents in Egypt have websites, 27.8% have email addresses only, and 38.2% have neither a website nor email (Table 2-2). In total, 440 out of 1293 travel agents have website while the rest does not. Therefore travel agents in Egypt are seen as laggards in terms of internet adoption.

| Category | A | | B | | C | | Total | |
|---|---|---|---|---|---|---|---|---|
| | F | % | F | % | F | % | F | % |
| Have website | 418 | 40.8 | - | - | 22 | 8.4 | 440 | 34 |
| Have e-mail only | 308 | 30.1 | - | - | 51 | 19.5 | 359 | 27.8 |
| Neither website nor e-mail | 297 | 29.1 | 8 | 100 | 189 | 72.1 | 494 | 38.2 |
| Total | 1023 | 100 | 8 | 100 | 262 | 100 | 1293 | 100 |

Table 2 - 2. Statistics of Egyptian travel agents and their web presence

Source: Manually retrieved from (Egyptian Travel Agents Association, 2008)

Among category A travel agents, 40.8% (418 out of 1023 agents) have websites, 30.1% (308 agents) have email addresses only, and 29.1% (297 agents) have neither. In total 59.2% of category A travel agents do not have websites. This indicates that travel agents in Egypt are still a long way away from using the full capabilities and potential of the internet.

## 2.11 Government policies and ICT adoption in travel agents

Government support is a common variable in the extant studies on the adoption of technology in SMEs (i.e., AlGhamdi et al., 2011, Apulu and Ige, 2011, Hung et al., 2011, Lawrence and Tar, 2010, Scupola, 2009). According to APEC (1999), it is claimed that government policies aimed at helping SMEs to overcome the barriers to

e-commerce adoption represent one of the main factors that managers consider when making the adoption decision. In his recent study of e-commerce adoption in Egyptian SMEs, Zaied (2012) highlighted that changes in regulations and policies with each new government, and a lack of e-commerce legislation, are significant barriers to e-commerce adoption.

Despite the aforementioned initiatives by the Egyptian government to encourage SMEs to adopt ICT, the current situation lacks the e-readiness that is required in order for SMEs to adopt e-commerce. It is claimed that the Egyptian environment is lacking in some areas required to support e-commerce among SMEs, such as e-leadership, information security and skilled human resources (Warden and Motjolopane, 2007).

The policies of the government are focused broadly on the development of e-commerce among Egyptian enterprises as a whole. There are no specific government strategies to develop e-commerce among travel agents. However, public education is concerned with producing skilled graduates to work in travel and tourism. There are seven governmental faculties of tourism and hotels in Egypt. Some of the modules in these faculties' courses focus on information and communication technologies for travel and tourism. Students are trained on the demos of programs used by travel agents for ticketing, such as Galileo and Amadeus. However, these training workshops are not sufficient to make graduates familiar with travel agents' daily business.

The researcher's personal communications with the managers of travel agents revealed that the travel agents suffer from a shortage of government support with adopting e-commerce. Managers claim that the governmental bodies responsible for

tourism do not offer training programmes for employees on how to use e-commerce technologies. The training programmes on offer are modest and mostly concerned with communication with foreign travel companies, crisis management, airline ticketing, land and sea transport, and dealing with customer enquiries and complaints. The managers of the travel agents say that they need more specialized training programmes to provide them with skills relating to e-commerce and e-marketing technologies.

Other issues relate to the lack of banks that are able to deal with online transactions (Zaied, 2012). In addition, those that do exist, impose high fees on the travel agents for conducting the transactions. Furthermore, they impose fines on the travel agents if tourists cancel their payments or in fraud cases. In these three aspects, therefore, the government is still failing to adequately support travel agents, as SMEs, in adopting e-commerce.

The managers also need government help in terms of improving the technology infrastructure, including the availability and stability of high-speed internet services. Security concerns regarding the internet are one of the barriers to e-commerce adoption among SMEs. Managers claim that privacy and security laws and other protective legislation for enterprises adopting e-commerce need to be enacted.

Overall, there is agreement amongst travel agents that government support is crucial factor in helping them to adopt e-commerce. This includes raising awareness among SMEs regarding the culture of e-commerce and its potentials for their business. Additionally, the government needs to provide an adequate infrastructure for the adoption of e-commerce among travel agents, especially for internet services and ensuring that banks support online transactions legislation to protect SMEs adopting

e-commerce is also being urged. Training programmes to help travel agents adapt to technology changes are also needed to help travel agents survive in the global travel market.

## 2.12 Conclusion

The ICT sector in Egypt is improving. The ICT infrastructure, internet usage in the public and private sectors, and the number of ICT companies are all increasing. The Egyptian government is paying a lot of attention to the ICT sector; it has an ICT strategy supported by 13 initiatives, aimed at branding Egypt as an ICT hub, empowering business and supporting foreign investment in the sector. The ICT sector contributes significantly to Egypt's GDP, employing around 204,500 employees in 3,889 ICT companies. In short, Egypt is promoting itself as an ICT hub for investors and entrepreneurs, and is encouraging partnerships between the public and private sectors. Travel agents in Egypt are laggards of internet adoption and they use the internet to promote their services, find out about customers, competitors, and suppliers. The Egyptian government needs to support travel agents to adopt e-commerce and decrease the inhibitors they suffer.

# CHAPTER 3. ANTECEDENTS TO ADOPTION, CONCEPTUAL MODEL AND HYPOTHESES

## 3.1 Introduction

This chapter reviews innovation adoption theories and models and aims to highlight the similarities among them. The operational definition of innovation used in this study encompasses information technology (IT), information systems (IS), ICT, the internet, electronic data interchange (EDI) and e-commerce. Furthermore, it describes the models relating to the stages of e-commerce adoption, antecedents to e-commerce adoption, the conceptual model, and hypotheses for the study.

## 3.2 General theories and models of technology adoption

### 3.2.1 Theory of reasoned action/ theory of planned behaviour

The theory of reasoned action (TRA) has its origins in the field of social psychology, developed by Fishbein and Ajzen (1975). The theory posits that the behaviour of individuals is determined by their behavioural intentions. Attitude (the beliefs that have been accumulated over a lifetime) towards the behaviour, and subjective norms (the individual's perception that most people who are important to him think he should or should not perform the behaviour) are the determinants of behavioural intention. Therefore, behavioural intention plays a causal mediating role between attitude, subjective norms, and behaviour. TRA has some limitations; attitude and subjective norms are not adequate predictors of behaviour and there are other factors such as personality traits and demographic variables that are considered to indirectly affect intention and behaviour (Bohner and Wänke, 2002). Additionally, it is acknowledged that subjective norms are one of the least understood aspects of TRA (Davis et al., 1989).

The theory of planned behaviour (TPB) is an extension of TRA, aimed at addressing its limitations. In addition to an individual's attitude towards performing the behaviour,

and their subjective norms, from TRA, TPB also includes the perceived behavioural control construct. Perceived behavioural control is the individual's belief about how easy or difficult it will be to perform the behaviour (Ajzen, 1991). Recently, Ajzen (2006) added different combinations of antecedents to the original constructs of the theory (Ajzen, 2006), namely, behavioural beliefs (beliefs about the behaviour), normative beliefs (beliefs about what others think about the behaviour), and control beliefs (beliefs about one's level of control over one's behaviour). Actual behavioural control is another determinant of behaviour and refers to the individual's control over behavioural factors such as resources (e.g. money, time, skills) or the cooperation of others.

Although adding perceived behavioural control enhances the prediction of actual behaviour in TPB, the diversity of labels and operational definitions of this construct used in empirical research means that it is still controversial, and there are doubts over the ability to discriminate between perceived behaviour control and intentions (Kraft et al., 2005). Additionally, the predictability of intention is expected to vary across behaviours and situations, and in institutions where attitude is strong, and subjective norms are powerful, perceived behavioural control would be less predictive of intention (Armitage and Conner, 2001).

### 3.2.2 Diffusion of innovation

Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system. Supposing that the decision to adopt (an innovation) is authoritative or collective, the innovation decision by members of a social system is made through four stages (Rogers, 1995). Knowledge is the first stage, in which members of the social system start to get an

idea about the innovation and how it functions. Persuasion is the second stage, in which they form an attitude (favourable or not) towards the innovation. Deciding to adopt or not to adopt is the third stage, ‘decision’. Implementing the innovation occurs in the fourth stage, ‘confirmation’, in which users also evaluate the innovation based on the decision they have made.

The diffusion of innovation theory encompasses some characteristics of innovation that affect the persuasion stage, based on cost-benefit analysis. These characteristics are as follows: the relative advantage (the degree to which the innovation is perceived to be better than others and thus may yield some relative advantage over them), compatibility (consistency with the organization’s existing values and habits, past experiences and needs), complexity (the effort required to use the innovation without difficulty), trialability (the degree to which the organization can experiment with it on a limited basis), and observability (the tangibility and visibility of its results for the institution).

A communication channel is used to transfer messages from one individual to another; this could mean mass media channels, which tend to be more effective at spreading the knowledge of innovations, or interpersonal channels, which are more effective at changing attitudes towards a new idea, and thus influencing the decision to adopt or reject a new idea. Rogers (1995) classified adopters of an innovation, along what is known as the innovation adoption curve, into five categories: (1) Innovators are the first to adopt the innovation; they are venturesome, educated, and are not reluctant to take risks. (2) Early adopters have the greatest degree of opinion leadership in most systems, and serve as role models for other members of society. (3) The early majority engage in more deliberation before adopting a new idea and

typically constitute around a third of the members of a system, making this category the largest. (4) The late majority make up another third; they are cautious and encouraged to adopt by their peers. (5) Finally, laggards are resource limited, innovation suspicious and take a long time to make the adoption decision. On the whole, the diffusion of innovations is a robust theory; however, it is worth mentioning that diffusion of innovation is different from adoption in that the former is the process by which new technologies are spread among users while the latter is an individual and internal decision (Fisher et al., 2000).

### 3.2.3 Technology acceptance model (TAM)

Davis (1986) adapted TRA to form TAM, which aims to predict computer usage behaviour and is thus less general than TRA. TAM specifies the causal relationships between perceived usefulness (the belief by users that using innovation will enhance the processes they use to complete tasks, e.g., increasing job performance), perceived ease-of-use (people's belief that they will not have to make an effort to use the innovation), and users' attitudes, intentions and actual computer adoption behaviour. A key purpose of TAM is to trace how external factors influence beliefs, attitudes and intentions (Davis et al., 1989). It is claimed that people form intentions towards behaviour they believe will enhance their performance (usefulness) more than their positive or negative feelings towards the behaviour. Ease-of-use has a direct effect on behavioural intention and there is also a belief that the ease-of-use of a system contributes to improved performance, thereby having a direct effect on usefulness.

System characteristics, as external variables, have a direct effect on the perceived usefulness of a system, whereas system features and usability have a direct

influence on the perceived ease-of-use. External variables also have an indirect relationship with perceived usefulness via perceived ease-of-use. Finally, perceived usefulness has a direct effect on attitude towards using a system.

TAM was seen to have limited explanatory power (Chuttur, 2009). Thus, TAM2 includes additional variables as antecedents of perceived usefulness and usage intentions. Empirical results have shown that TAM2 provides detailed reasons about why users find a system useful. The model has been examined in both mandatory and voluntary environments. It has been proven that subjective norms have no effect in voluntary environments but do have an effect in mandatory environments.

The antecedents of perceived usefulness included in TAM2 are subjective norms, voluntariness, image, job relevance, output quality, and result demonstrability. Voluntariness is the extent to which users perceive the innovation adoption decision to be non-mandatory. Image refers to how users perceive it to be useful in the social system and how it enhances one's status. Experience is continuing to use a certain innovation as a result of previous experience with it. Job relevance is how users perceive the innovation as having the ability to enhance their performance. Output quality relates to the tasks that the innovation can perform and how they match the user's job goals. Result demonstrability denotes the tangible positive benefits that can be achieved through using the innovation (Venkatesh and Davis, 2000).

TAM2 was further extended to TAM3, which includes antecedents of ease-of-use, namely, computer self-efficiency, perception of external control, computer anxiety, computer playfulness, perceived enjoyment, and objective usability. Computer self-efficiency is an individual's belief in their ability to use a computer to perform specific tasks or jobs. Perception of external control is their belief that the organizational and

technical resources exist to support the use of the system. Computer anxiety is the individual's fear of using computers. Computer playfulness refers to a person's cognitive spontaneity when engaged in microcomputer interactions. Perceived enjoyment denotes how enjoyable an individual finds using the system itself, regardless of its usefulness. Objective usability refers to the actual level of effort required to complete specific tasks (Venkatesh and Bala, 2008).

TAM has received criticism, particularly regarding the theoretical relationships between the constructs. One of these relationships is the linkage between intention and actual use. The time between intention and actual use is full of uncertainties. It is thus argued that the actual use should be the fundamental goal and not intention. Another limitation is that perceived usefulness and perceived ease-of-use may not mediate all the impacts of external variables on system use; some external variables, such as age, culture or education level, may have direct effect on a system's use (Chuttur, 2009, Straub et al., 1997).

### 3.2.4 Unified theory of acceptance and use of technology

The unified theory was based on a review of the constructs of eight earlier models used to explain information system usage behaviour (TRA, TAM, the theory of planned behaviour, a combined theory of planned behaviour/TAM, the model of PC utilization, innovation diffusion theory and social cognitive theory). The theory includes four determinants of intentions towards and use of information systems (Venkatesh et al., 2003): performance expectancy (the degree to which an individual believes that using the system improves job performance), effort expectancy (the degree of ease associated with the system), social influence (how others believe the individual should use the new system), and facilitating conditions (the extent to which organizational and technical infrastructure exist to support the use of the system).

Gender, age, experience and voluntariness of use mediate the relationships between the aforementioned constructs and intention and behaviour. Criticisms of the theory were that most of the independent variables affect the intention to use and not actual use (Bagozzi, 2007), and that the high prediction power of the theory depends on the mediating variables (van Raaij and Schepers, 2008).

### 3.3 IT and IS adoption models in SMEs

Premkumar and Roberts (1999) presented a model of IT adoption decision in rural SMEs. The model includes three categories of determinant latent variables, comprising ten factors: innovation characteristics (relative advantage, cost, complexity and compatibility), organizational characteristics (top management support, size and IT expertise) and environmental characteristics (competitive pressure, external pressure and vertical linkages).

Studying IS adoption in SMEs, Thong (1999) identified four main factors affecting the adoption decision: CEO characteristics (innovativeness and knowledge), IS characteristics (relative advantages, compatibility and complexity), organizational characteristics (business size, employees' knowledge and information intensity) and environmental characteristics (competition). Here, information intensity is the degree to which information is present in the product or the service.

In their model of IT adoption, Moore and Benbasat (2001) showed that relative advantage, compatibility, ease-of-use, result demonstrability, image, visibility, trialability and voluntariness are the main factors in IT adoption. Visibility is the extent to which potential adopters see the innovation as being visible in the adoption context.

By combining TPB and TAM, a new model of IT adoption in SMEs was developed using the constructs of both theories (Riemenschneider et al., 2003). Although the model showed a better fit to the data and the explanatory power of the constructs for intention, it was still only measuring intention to use and not behavioural usage.

EDI has also been studied in terms of its use as an information system. Lacovou et al. (1995) investigated three factors affecting EDI adoption: perceived benefits, organizational readiness and external pressure. Perceived benefits include direct benefits (internal efficiency) and indirect benefits (tactical and competitive advantages). Organizational readiness includes financial and technological resources. External pressure comes from both competitors and trading partners. The model also deals with the EDI impact after adoption, meaning the actual perceived benefits to the firm after EDI adoption. The model was tested by Chwelos et al. (2001), who showed that the three factors were significant. Within the main factors, significant items were found to be direct and indirect benefits, competitive pressure, financial resources, IT sophistication and trading partners' readiness.

Kuan and Chau (2001) introduced three contexts that could affect EDI adoption by SMEs: the technological context, the organizational context, and the environmental context. The technological context refers to direct and indirect technological perceived benefits. Organizational context includes perceived financial cost and technical competence. Environmental context refers to the environmental pressures coming from the industry and the government.

To sum up, the aforementioned models include three broad constructs affecting innovation adoption. These constructs are organizational readiness (top management support, employee knowledge and business size), technology/

innovation attributes (relative advantages, trialability, compatibility and ease of use) and environmental pressures (external and competitive pressure). Although different studies mostly use the same constructs, the items within each construct can vary.

### 3.4 Internet and e-commerce adoption models in SMEs

Perceived benefits, organizational compatibility, technical compatibility, complexity, and top management support are the constructs of the website adoption model in medium enterprises suggested by Beatty et al. (2001). Perceived benefits include reduced transaction costs, improved cash flow, increased productivity, better customer service, ability to compete, reaching new customers, and enhanced operational efficiency. Organizational compatibility includes a firm's culture, values, work practices and IS infrastructure. Technical compatibility refers to the ability to integrate the new technology into the existing IS infrastructure. Complexity denotes the level of skill required to adopt an innovation. Top management support includes the commitment to support technology adoption in the organization.

Mehrtens et al. (2001) introduced a three-factor model of internet adoption in SMEs. The factors are perceived benefits, organizational readiness and external pressure. Perceived benefits include communicating with customers, employees' ability to gather information and building the firm's image, or promotion. Organizational readiness includes the IT and internet knowledge of the owners or managers, and employees. External pressures include those from customers, suppliers and potential employees.

Adoption options (plain access, promotional websites, and e-commerce procurement and sales) are affected by adoption factors, mediated through perceived benefits and perceived necessities (Wiertz, 2001). Adoption factors are divided into four

categories: business environmental factors (competitive pressures, geographical spread, technology readiness and external support), internet factors (advantages, adoption cost and security), organizational factors (organizational technology readiness and growth aspirations), and offering factors (service and product characteristics). Moreover, perceived benefits can be either direct or indirect and can be received over the short or the long term. Perceived necessities are based on supplier, customer and competitor pressure.

Internet and e-business technology adoption in Canadian SMEs is investigated in a three-context model by Ifinedo (2011). Technological context is represented in the perceived benefits of adoption. Management commitiment and support, and organizational IT competence reflect the organizational context. Environmental context encompasses external pressure, IS vendor support and pressure, and available financial resources. The author added the following adoption control variables: firm size, firm age, industry type and competition level.

Looking at e-commerce adoption in SMEs, Mirchandani and Motwani (2001) suggested that the enthusiasm of top managers/CEOs, the compatibility of e-commerce with the company's activities, the perceived relative advantage of e-commerce adoption and the knowledge of computers among the company's employees were all factors affecting the decision to adopt.

Moreover, Grandon and Pearson (2004) proposed an adoption model of e-commerce from the SME managers' viewpoint. They stated that e-commerce adoption is affected by perceived usefulness, ease-of-use, organizational readiness, external pressure, compatibility, and the perceived strategic value of e-commerce. In their model, organizational readiness reflects the financial and technological

resources the company needs in order to develop e-commerce processes. Compatibility is whether e-commerce fits with the company's existing infrastructure and technology, and its values and culture. External pressure is a driver behind adopting e-commerce; it encompasses competition, social factors, dependency on other firms using e-commerce, the industry pressure, and governmental pressure. The perceived strategic value of e-commerce includes organizational support (how e-commerce enhances a firm's operational performance), managerial productivity (how e-commerce supports managers by giving them the information required to make decisions), and strategic decision aids (how e-commerce supports the strategic decisions of managers).

Nikolaeva (2006) produced a three-construct model of e-commerce adoption in the retail sector: perceived benefits, organizational readiness and external influences. Perceived benefits, in this model, are market growth, market expectations and industry advertising. Firm size and product fit make up organizational readiness. Density dependence and publicly traded companies reflect the external influences.

Oh et al. (2009) tested the effect of perceived advantage (usefulness and convenience), and industry environment (IT maturity, innovative character of the firm and the degree of industry competition) on e-commerce adoption in Korean SMEs.

Scupola (2009) investigated e-commerce adoption in SMEs through a three-construct model, using external environment (government and technology-supported infrastructure), organizational context (top management support, employees' IS knowledge, and resources), and technological context (relative advantage of e-commerce, barriers and benefits, and e-commerce-related technologies

Wang and Ahmed (2009) investigated SMEs' strategic orientation as a mediator of e-commerce adoption in the UK. Their adoption model consists of three constructs: external pressure, organizational readiness and perceived benefits. Their external pressure construct contains industry, competitor, customer, supplier and government pressure, and the legal environment. Organizational readiness encompasses financial resources, technological resources, experience and compatibility with the company's culture, values, internal processes and technical systems. Perceived benefits are improving sales revenue, reducing cost of operations, promoting efficiency of services, offering an after-sales service, seeking new customers and suppliers, effectively communicating with customers and suppliers, and establishing better relationships with customers and suppliers.

To sum up, models of internet and e-commerce adoption focus on the perceived benefits gained from adoption, organizational readiness to adopt internet technologies, and external pressure driving SMEs to adopt such technologies. There is a focus on business environment, financial resources and top management support in the aforementioned models. There is not a big difference between e-commerce adoption models and IS/IT adoption models; the two consider almost the same factors in terms of adopting innovation in an SME context.

## 3.5 E-commerce adoption in SMEs in developing countries

It is believed that e-commerce adoption contributes to the development of small business in developing countries with its promise to reduce costs and improve operational efficiency (Ghobakhloo et al., 2011). E-commerce provides great opportunities for business organizations to gain access to global markets and reduce transaction costs. Altogether, this could form a new driver of the economies of developing countries (Lawrence and Tar, 2010, Molla and Licker, 2005, Al-

Hudhaif and Alkubeyyer, 2011). However, e-commerce adoption in developing countries is generally slower than it is in developed ones (Suryani and Subagyo, 2011). Developing countries are thought to be far behind their peers in developed countries, despite government attempts to encourage technology adoption (Mohanna et al., 2011). Added to this, SMEs in particular are found to have a slower rate of adoption of e-commerce (Alam et al., 2011).

Scanning the literature review, it is noticeable that studies investigating e-commerce adoption in SMEs are limited to the barriers to e-commerce adoption. Very few studies look at the benefits. Molla and Licker (2005) studied the adoption of e-commerce in Southern African businesses. They found that a lack of organizational and external readiness was behind the slow adoption of e-commerce. The framework of Molla and Licker was tested later in the context of Saudi SMEs and was found significant (Al-Hudhaif and Alkubeyyer, 2011). Studying the effects of technological, organizational and environmental factors on e-commerce adoption in New Zealand SMEs, Al-Qirim (2007) found complexity, compatibility, and the cost of technology to affect adoption levels. Pressure from suppliers/buyers was also found to be a significant environmental factor influencing e-commerce adoption.

Studying the attitude towards e-commerce in Chinese SMEs in New Zealand, Chen and McQueen (2008) found that the owner's attitude has an influence on the firm's e-commerce growth process. The higher is the stage of e-commerce adoption, the greater is the need for owners to have a more positive attitude towards e-commerce. Organizational readiness refers to the availability and capacity of human, business and technological resources. External readiness encompasses governmental and market forces readiness.

Additionally, Elahi and Hassanzadeh (2009) introduced a framework for e-commerce adoption at the organizational level in Iranian companies. Their framework has three main constructs: technical, organizational and inter-organizational. The technical construct encompasses compatibility, internet security, computers, internet network speed, interoperability and access to communication services. The organizational construct includes management, financial structure, organizational culture, human resources, organizational domain and products factors. The inter-organizational construct incorporates factors related to customers, competitors and suppliers.

Lawrence and Tar (2010) found that a lack of adequate basic infrastructure, socio-economic factors, and a lack of a national governmental ICT strategy were all significant barriers to e-commerce adoption in developing countries. Additionally, Ghobakhloo et al. (2011) investigated the adoption and non-adoption of e-commerce in Iranian SMEs. Using the technology-environment-organization (TEO) framework, the study revealed that business size, relative advantage, compatibility, cost, information intensity, buyer/supplier pressure, technology vendors' support, competition, management innovativeness and technology knowledge all affect initial adoption of e-commerce in SMEs. Halaweh (2011) studied security barriers to the adoption of e-commerce for customers and organizations in Jordan and revealed that security concerns were mainly behind the non-adoption of e-commerce by both customers and organizations in the country.

Additionally, cultural, business and technical issues were reported as barriers to adoption among Saudi retailers, while access to educational programmes and awareness-building, government support, secure online payment options, a strong

ICT infrastructure, and the availability of sample e-commerce software for trials were all named as facilitators of adoption (AlGhamdi et al., 2011).

Mohanna et al. (2011) introduced a three-construct model to investigate e-commerce implementation in Iran. Their three constructs are managerial-organizational, technical infrastructures, and social-cultural background. The managerial-organizational variables are IT investment, international e-commerce strategy, establishing an e-commerce department, managers' commitment, and legal issues. Technical infrastructure includes IT experts, speed of internet connection, internet connectivity, an e-commerce public database and logistics. Social-cultural background includes e-commerce training, cultural acceptance of e-commerce, e-commerce awareness, trust in e-commerce, and IT literacy.

Studying e-commerce adoption in Malaysian SMEs, Alam et al. (2011) found that relative advantage, compatibility, organizational readiness, manager's characteristics and security all have a significant impact on e-commerce adoption. From the customers' perspective, assessing the challenges of e-commerce adoption in Nigerian organizations, Ayo et al. (2011) added task-technology fit (the matching of the capabilities of the technology with the demands of the task, that is, the ability of IT to support a task) (p.5111) as a predictor of perceived usefulness in TAM. Trust and perceived risk were used in TAM as predictors of intention-to-use and shown to have an effect with low significance. Perceived usefulness and perceived ease-of-use were shown to have a significant impact on intention-to-use.

In addition, the level of e-commerce adoption amongst SMEs in Zimbabwe was found to be in its infancy, Thulani et al. (2010) found that quality of information and communication with suppliers and customers were the benefits derived from

adoption, while high costs and compatibility concerns were found to be significant barriers. Furthermore, studying the ICT usage among Nigerian SMEs, Apulu and Ige (2011) found that instability of the electricity supply and inadequate infrastructure were the most significant factors preventing the utilization of ICT. The most recent study was conducted in the context of Egyptian SMEs by Zaied (2012). The study looked at the barriers to e-commerce adoption amongst adopter and non-adopter e-commerce SMEs. Technical (infrastructure and qualified labour), legal and regulatory, and security concerns and the limited use of internet banking were the most significant barriers to adoption.

To sum up, most of these studies focused on the barriers to e-commerce adoption in developing countries, finding that various challenges hinder the adoption of e-commerce in SMEs caused by limited resources and a lack of technological and organizational readiness. However, it is claimed that the factors affecting e-commerce adoption in developing countries are not well documented (Thulani et al., 2010), and there is a call for research in the area of technology adoption in the travel sector (Thomas et al., 2011) to investigate these factors in tourism context.

## 3.6 E-commerce implementation models

The decision makers at e-business-based companies are still learning about the factors that are important in website and e-business success (Lee & Kozar, 2006). Effective websites have become one of the critical factors supporting business success (Jeong et al., 2003). The evaluation of websites is one method for businesses to identify their strengths and weaknesses, and to determine tools for enhancing performance (Liu & Arnett, 2000; Lu & Deng 2007; Walcott, 2007). Evaluating the readiness of a website for e-commerce requires the identification of

the stage of implementation of e-commerce it has achieved (Walcott, 2007). This secion describes various models of e-commerce adoption used by SMEs.

Various models of e-commerce implementation identified from the literature. Moersch (1995) developed seven sequential levels of e-commerce development. The first level (0) denotes a lack of technology-based tools. Level (1) depicts awareness, at which level information dissemination occurs and lower level skills are developed. Level (2) denotes exploration but a lower level of skill processing. Level (3) includes a higher level of e-commerce adoption and in-depth processing. Level (4) includes integration, where a high level of content processing and in-depth examination is achieved. Level (5) refers to expansion via collaboration with other business establishments. Finally, level (6) is refinement, where advanced digital tools are used along with resources for information queries and creative problem solving and/or product development.

Burgess and Cooper (1998) described a three-stage model: The first stage is the promotion of products via electronic channels. The second stage, provision, incorporates interaction with customers including frequently asked questions (FAQ) and e-mail enquiries. The third stage is processing, where online orders/sales/payments and more integration with partners is achieved.

Allock et al. (1999) developed a model with various stages. The first stage, ‘threshold’, simply depicts a stage where computer-based activities are going on. ‘Beginner’, includes one or two e-mail addresses and a few networked computers. ‘Intermediate’ includes e-mail contact with suppliers and static websites. At the ‘advanced’ stage, there is full use of e-mail, intranet and extranet.

Earl (2000) described e-commerce implementation as consisting of the following stages: (1) External communications through homepages used as corporate brochures for customers. (2) Internal communications, where organizational restructuring is the focus. (3) Online buying or selling. (4) Movements are made towards e-business, through the building of e-processes. (5) E-enterprise, where the development of operations and business occurs. (6) The transformation stage, in which continuous reinvention goes on.

Heeks (2000) described four steps of e-commerce development. The first two steps are precursor activities; first, 'simple interaction' involves using e-mail and a website, then, 'dynamic information' involves the use of a dynamic website. The last two steps are e-commerce based and denote that ICT-mediated transactions and ICT-mediated service delivery can be supported, respectively.

Mckay et al. (2000) developed a six-stage model. In stage (1), there is no online presence as the SMEs take the 'wait and see' approach. A static online presence is developed in stage (2), as a form of brochure or corporate catalogue and a one-way communication channel between the enterprise and its customers. In stage (3), an interactive online presence, two-way communication channels and traditional payment methods are supported. The presence of internet commerce is found in stage (4), with complete internet transactions, online enquiries, orders and payments being conducted. Stage (5) denotes internal integration, at which point front-to-back-office internet transaction capabilities are integrated. Finally, stage (6) is external integration, when inter-networking goes on among trading partners, and extranet technologies are used to achieve the concept of the 'extended enterprise'.

In Willcocks' (2000) four-stage model, enterprises classified in the first stage use basic internet tools and develop web pages. In the second stage, termed 'transacting

business', web business systems are built. The third stage is labelled 'further integration'; here, changes to processes, structures, skills and technologies are constantly undertaken. The final stage is e-business, at which point the internet is used as an aid to develop new markets and products and carry out marketing activities.

Wiertz (2001) also cited four main steps of e-commerce development: (1) 'Access' involves retrieving information from the internet and enabling communication activities. (2) 'E-procurement' is where internet transactions are carried out. (3) 'Promotional' websites are built, providing information to customers. (4) E-sales are enabled, including online ordering.

Four sequential clusters are developed by Daniel et al. (2002). In the first cluster, developers put minimal levels of operational e-commerce services on the website. E-mail is used for communication with customers and suppliers, information is provided about the company and its products/goods for advertising and brand-building purposes. The second cluster, communications, is where websites are developed to include extensive use of e-mail for communication, even amongst employees; the web is used for market research, and exchanging documents and designs with customers/suppliers. The third cluster is web presence. Here, in addition to what is done in the previous cluster, orders are received online and companies prepare to develop online transactional capabilities. 'Transactors' is the fourth cluster, which further includes the provision of after-sales services, online recruitment, online payments, online ordering and payment for inventory and online delivery of digital goods and services.

The e-commerce implementation process often appears to begin with the brochureware stage, where e-mail and websites are used for the communication and

presentation of firm information. Implementation then moves on to the business opportunity stage, where businesses communicate internally and with customers. These two stages are perceived as ‘no plans for growth’ stages of an enterprise’s e-commerce strategy. Moving to the stage of ‘planned growth’, first, e-mail and research are used extensively (the business support stage) and this is followed by the business network stage where online integration of the firm’s retail sales with its back office is achieved; here, all staff make use of an effective network, as well as using EDI systems (Levy and Powell, 2002).

A four-stage model was also developed by Rayport and Jaworski (2002). ‘Broadcast’ is their first stage. It encompasses a webpage with static information on the company and its products/services, and using the internet to interact with customers. The third stage is to ‘transact’, in which online ordering systems are supported and collaboration takes place through the internet in inter-organizational activities with business partners.

Four strategies were also discussed by Rao et al. (2003). Each strategy has its own benefits and barriers to development. The first is having a presence on the web, where content is created and e-mail is used. Next portals are developed, two-way communication takes place and e-mail orders and reservations are conducted. The third strategy is transaction integration, where e-marketplace auctions and online transactions are supported. Enterprise integration is the fourth strategy, in which the full integration of enterprises is developed to achieve all the capabilities of e-business and enable a high level of collaboration.

Similarly, Chan and Swatman (2004) developed four stages of e-commerce progression. E-commerce adoption is implementation amongst departments, with a focus on enhancing efficiency with suppliers. Centralized e-commerce is where

implementation goes company-wide with a focus towards customers. Next is looking inwards at the enterprise itself for benefits; new technologies are adopted and the use of internet applications enables broad e-commerce coverage of trading partners, with an emphasis on customer satisfaction.

The next framework considers five stages: (1) online advertising, (2) online sales, (3) after-sales customer services, (4) online procurement, and finally (5) EDI with suppliers and customers to enable internet-based supply chain management (Beck et al., 2005).

The first two stages of Lefebvrea et al's (2005) six-stage model are the e-commerce non-adopters: stage (00) is non-adopters with no interest in e-commerce and stage (0) is non-adopters that do have an interest. The first stage for e-commerce adopters is electronic information search and content creation, where new suppliers, products, services and customers are sought, and the company and/or its products are advertised; also, information is converted to a digital form. The second stage is electronic transactions, where e-catalogues are used to buy/sell services/products, orders with suppliers are placed and managed, suppliers' service/product databases are accessed, customer orders are received, and after-sales services are offered to customers. The third stage is complex electronic transactions, where contracts with customers are negotiated and e-payments from customers are made available. Electronic collaboration is the fourth stage, involving more complex integration with customers and suppliers.

Gandhi (2006) uses the concepts of 'attract', 'interact', 'act' and 'react' to encapsulate e-commerce adoption in four stages. Extensive promotion is used to attract customers, which is then followed by interactions between the business and the customers. Successful interaction would then lead to the acts of order

processing, delivery and realization of payment. The reaction stage includes customer feed-back and after-sales services. Also, adopters are classified as starters (using internet and e-mails), also considered the low level of e-commerce, medium level where they use e-mail and websites to sell and collect money online, or advanced/extended adopters, who also use intranet and extranet (Al-Qirim, 2007).

Chen and McQueen (2008) suggest that there are four levels of e-business. The first level entails information search, and e-mail use to communicate with customers and suppliers. The second stage is online marketing through a static website and the extensive use of e-mail. Third is online ordering and order placing with manual payment. The fourth level includes online transactions, comprising receiving orders, confirming orders and issuing invoices, in addition to supporting online payment and the integration of front-end and back-end systems to enable expansion into the international market.

A recent model, developed by NCC (2009) has five stages of e-commerce development. In the first stage, there is no use of e-mail, no internet access and no company website. In the second stage, e-mail and websites are widely used as marketing tools. Third, the internet is used to interact with customers. The fourth stage includes online relationships with business partners. In the fifth stage, online exchange and an e-marketplace for customers, suppliers and business partners are available.

To sum up, the implementation models are built on a step-by-step basis. Enterprises mostly start with a simple static website, often called brochureware. This gives the business an online presence, providing information about the company, its services, and contact details. Next, businesses may introduce an interactive online presence in which a two-way communication channel is built between the company and its

customers, enabling comments and feedback from customers, tailoring and requests for different packages. The third stage incorporates electronic transactions. Here, businesses have online booking systems supporting online payment and customers can search, customize, choose and buy services online. The final stage is the mature stage, at which point businesses electronically integrate with supply chain partners and suppliers, constituting an online collaboration.

## 3.7 Antecedents of e-commerce adoption in SMEs

Based on the argument in section 3.2, and the review of adoption models, the most commonly agreed upon factors affecting the adoption of e-commerce are the recognized benefits of adoption, environmental pressures pushing adoption, and the organizational and technical readiness to adopt. These are the three constructs that are included in the vast majority of technology adoption models. This reflects the importance of the three constructs in the adoption decision-making process. Managers must evaluate the perceived benefits and barriers for their enterprises and how they can overcome these barriers. At the same time, they cannot ignore the environmental changes and pressures pushing firms to adopt technology, improve their competitive positions and enhance their performance.

### 3.7.1 Benefits of e-commerce adoption in SMEs

The recognized benefits are the first factor considered by the managers of SMEs when making the e-commerce adoption decision (APEC, 1999). The benefits of e-commerce for SMEs have been referred to using a broad variety of terms in the previous literature, including usefulness (Davis et al., 1989, Riemenschneider et al., 2003, Venkatesh and Bala, 2008, Venkatesh and Davis, 2000), job relevance and output quality (Venkatesh and Bala, 2008), relative advantage (Moore and Benbasat,

2001, Premkumar and Roberts, 1999, Rogers, 1995, Thong, 1999, Alam et al., 2011, Azad and Hasan, 2011, Ghobakhloo et al., 2011), perceived benefits (Beckinsale et al., 2011, Ifinedo, 2011, Wang and Ahmed, 2009, Nikolaeva, 2006), and perceived advantage (Oh et al., 2009).

The benefits of e-commerce to SMEs in general have been found to be significant and wide-ranging and are relevant within the travel agency sector as e-commerce adoption determinants (Abou-Shouk et al., 2012, Voges and Pulakanam, 2011). The perceived benefits, as an enabling factor stimulating e-commerce adoption in the travel agent sector, have not been investigated in any detail up until now (Hung et al., 2011, Thomas et al., 2011). It is possible to broadly classfying the perceived benefits of e-commerce adoption for SMEs into the following categories:

**(a) *Essential benefits***

The essential benefits of technology adoption are those benefits targeted by all SMEs, with a focus on increasing SMEs' revenue and profit growth (Heung, 2003, Karagozoglu and Lindell, 2004, Straub and Klein, 2001, Ifinedo, 2011), supporting their current and future survival by allowing them to continue to reap existing benefits (Poon and Joseph, 2001), and guaranteeing stability and future survival in a dynamic competitive environment (Stansfield and Grant, 2003a). Such benefits can create an opportunity for re-intermediation rather than disintermediation from the global travel market, for SMEs in general and travel agents in particular (Álvarez et al., 2007).

Examples of essential benefits include attracting new investment, creating new products and services to ensure future survival and maintaining the SME's competitive position in the market (APEC, 1999, Azam, 2007, Patricia, 2008, Thulani et al., 2010). Enabling collaboration with business partners is one factor that can

help to support SMEs' survival in the face of competition (Bourgouin, 2002, Kvainauskaite et al., 2005, Mehrtens et al., 2001, Pease and Rowe, 2005, Quayle, 2002). Thus, interacting with current business partners and finding new ones to strengthen the firm's position would be considered an essential benefit (Kim, 2006). Targeted benefits also include increasing productivity/sales, realizing economies of scale by increasing sales and reducing costs across all operational processes (Beatty et al., 2001, Beekhuyzen et al., 2005, Bourgouin, 2002, Buhalis, 2002, Dyerson and Harindranath, 2007, Harindranath et al., 2008, Karanasios, 2008, Migiro and Ocholla, 2005, Simpson and Docherty, 2004, Stansfield and Grant, 2003b, Straub and Klein, 2001, Wiertz, 2001), and expanding the customer base by penetrating global markets, due to the easy access to information on an international scale (APEC, 1999, Beekhuyzen et al., 2005, Daniel et al., 2002, Jin, 2007, Karagozoglu and Lindell, 2004, Kim, 2005, MacGreogor, 2004, Migiro and Ocholla, 2005, Simpson and Docherty, 2004, Zheng et al., 2004).

**(b)** ***Marketing-related benefits***

Marketing benefits are crucial to SMEs' survival and competitiveness. Marketing efforts help firms to achieve essential benefits such as increasing sales and revenue growth and thus profits. For SMEs, the use of technology could improve their distribution channels and help them to realize cost reductions (Saffu and Walker, 2008, Apulu and Ige, 2011, Quaddus and Avhjari, 2005). Enhancing the company image and establishing a reputation in the international market are other potential benefits that can support an SME's competitive position (Ayeh, 2006, Beckinsale and Levy, 2004, Bourgouin, 2002, Collins et al., 2003, Kajogbola, 2004, Karagozoglu and Lindell, 2004, Saffu and Walker, 2008, Scarborough and Zimmerer, 2003). Further benefits of e-commerce adoption could include developing new markets

(MacGreogor, 2004, Thulani et al., 2010) and penetrating global markets (Jin, 2007, Apulu and Ige, 2011).

Adopting e-commerce can also lead to enhanced customer satisfaction and can help to create a loyal customer base by improving customer service (APEC, 1999, Daniel and Wilson, 2002, Dyerson and Harindranath, 2007, Harindranath et al., 2008, Jin, 2007, Karagozoglu and Lindell, 2004, Migiro and Ocholla, 2005, Quayle, 2002, Saffu and Walker, 2008, Stansfield and Grant, 2003b, Teo et al., 2009, Wesrthner and Klein, 1999). Technology adoption, especially e-commerce, increases an SME's ability to customize its services to its customers' needs, by enhancing the communication between the SME and its customers (Pease and Rowe, 2005, The e-Regions Trust, 2006). Customer loyalty and satisfaction are proven benefits of the efficient use of technology to serve customers (APEC, 1999).

**(c) *Competition-related benefits***

Additionally, It is widely accepted that technology can help SMEs to improve their competitive positions (Beatty et al., 2001, Daniel and Wilson, 2002, Karagozoglu and Lindell, 2004, Kartiwi and MacGregor, 2007, Lacovou et al., 1995, MacGreogor, 2004, Migiro and Ocholla, 2005, Quayle, 2002, Raymond, 2001, Simpson and Docherty, 2004). Competitive advantage can be achieved by 'e-competitive transformation' (Straub and Klein, 2001); thus, competitive advantage can be achieved over competitors that are not online (Poon and Joseph, 2001), while one's position against online competitors is maintained (Dyerson and Harindranath, 2007, Harindranath et al., 2008). In other words, e-commerce adoption allows SMEs to stay ahead of the competition (Kvainauskaite et al., 2005).

**(d) *Business internal efficiency benefits***

Technology adoption can help SMEs to improve many aspects of their operations and thus their internal efficiency (Beatty et al., 2001, Collins et al., 2003, Dyerson and Harindranath, 2007, Harindranath et al., 2008, Karanasios, 2008, Kuan and Chau, 2001, Saffu and Walker, 2008, Teo et al., 2009, Scupola, 2009). This leads to improved business performance (Jin, 2007, Poon and Joseph, 2001) and enhances the efficiency of the supply chain (Quayle, 2002), namely, relationships with the suppliers who make up the second part of the SME relations equation, and hold almost as much importance for SMEs as the customers. Technology adoption supports more effective cooperative supply partnerships and relationships (Daniel and Wilson, 2002, Dyerson and Harindranath, 2007, Harindranath et al., 2008, MacGreogor, 2004, Saffu and Walker, 2008, Usoro, 2007, Ifinedo, 2011). This has been shown to lead to improved performance for travel agencies (Heung, 2003). Enhanced performance can also be achieved through improving business knowledge (APEC, 1999). Furthermore, technology adoption can improve inventory control, order processing, accountability, employment growth and online staff recruitment, which, in turn, will lead to improved internal efficiency (Collins et al., 2003, Daniel and Wilson, 2002, Kajogbola, 2004, Quayle, 2002). Enhanced staff satisfaction is seen as another benefit of technology adoption (Dyerson and Harindranath, 2007, Harindranath et al., 2008).

Further benefits of adoption include improvements to the decision-making process and managers' productivity, since technology supports enterprises by providing managers with better access to information, and better methods and models for making functional and strategic decisions (Grandon and Pearson, 2004, Kajogbola, 2004, Saffu and Walker, 2008). Communications with customers, suppliers and

partners are also enhanced (Azam, 2007, Beckinsale and Levy, 2004, Beekhuyzen et al., 2005, Daniel and Wilson, 2002, Karanasios, 2008, Poon and Joseph, 2001, Quayle, 2002, Saffu and Walker, 2008, Simpson and Docherty, 2004, Stansfield and Grant, 2003b, Wesrthner and Klein, 1999, Elahi and Hassanzadeh, 2009). SMEs' technology adoption supports the reshaping and development of both customer and supplier relationships. It also helps SMEs to swap information with their customers, and promote offers (Raymond, 2001). Moreover, these benefits help SMEs to improve their relationships with business partners (APEC, 1999, Teo et al., 2009). For SMEs in the tourism field, in particular, internet technologies have been shown to assist them with gathering and diffusing information on a broad, international scale, and to provide easy access to information on tourism services (Bourgouin, 2002, Kim, 2006). Further benefits include enhancing SMEs' business knowledge by building their general technology capabilities (APEC, 1999, The e-Regions Trust, 2006), improving the process of internal knowledge sharing (Daniel and Wilson, 2002), and carrying out online transactions (Álvarez et al., 2007, Raymond, 2001), including both order taking and tracking processes (Ayeh, 2006, Migiro and Ocholla, 2005, Stansfield and Grant, 2003b, Wesrthner and Klein, 1999, Zheng et al., 2004).

To summarize the benefits of for SMEs of adopting e-commerce, the Essential Benefits include sales, revenue and profit growth, a continuation of current benefits, a guarantee of stability and future survival, support for re-intermediation, attracting new services and investment, enabling collaboration with business partners and suppliers, and interacting with current and future partners. Marketing Benefits encompass improving distribution channels, penetrating and establishing a reputation in global markets, customizing services to customer needs, increasing customer's base, improving customer satisfaction and encouraging customer loyalty.

Competition-related Benefits include increasing one's competitive advantage, and staying ahead of competitors. Finally, benefits relating to the Business Internal Efficiency of SMEs include improving internal operations efficiency, improving accountability, enhancing relationships with partners and suppliers, enhancing staff satisfaction, providing support for strategic managerial decisions, building the firm's ICT capabilities, improving internal knowledge sharing and flow, and making it easier to carry out transactions.

### 3.7.2 Barriers to e-commerce adoption in SMEs

SMEs are characterised by their reluctance to take risks (Small Business Advisory Group, 2004) and they are cost-conscious (Zhang and Morrison, 2007), due to their limited access to capital resources (Hausman, 2005, Oyelaran-Oyeyinka and Lal, 2006, Grandón et al., 2011). These characteristics have supported the description of SMEs as slow adopters of technology in general and e-commerce in particular (Alam et al., 2011, Beekhuyzen et al., 2005). However, this slow growth has been attributed to various adoption barriers faced by SMEs (Kartiwi and MacGregor, 2007). Examples of such barriers are the cost of technology implementation (Apulu and Ige, 2011, Kim, 2006, Kuan and Chau, 2001, MacGreogor and Vrazalic, 2005, Migiro and Ocholla, 2005, Voges and Pulakanam, 2011), the aforementioned limited resources of SMEs (Scupola, 2009, Skoko et al., 2008, Stockdale and Standing, 2006, Thulani et al., 2010), and the infrastructure and technological readiness of SMEs (Alam et al., 2011, Ayeh, 2006, Azam, 2007, Wahid, 2007). The broad groups of barriers identified in previous research are as follows:

**(a) *Lack of knowledge and awareness of technology adoption***

An SMEs' lack of awareness of the benefits of technology could be due to the owner and/or manager's level of education and computer literacy (Apulu and Ige, 2011,

Ayeh, 2006, Kula and Tatoglu, 2003, Lawrence and Tar, 2010, Simmons et al., 2008, Stansfield and Grant, 2003a, Stansfield and Grant, 2003b, Stockdale and Standing, 2006, Thong, 1999). The term '*lack of e-Awareness'* is a label sometimes applied in this case (Chen and McQueen, 2008, Zheng et al., 2004). The lack of actual technical knowledge in SMEs (Apulu and Ige, 2011, Lawrence and Tar, 2010, AlGhamdi et al., 2011), particularly regarding what technology to adopt and how to adopt it, also falls into this category (Kartiwi and MacGregor, 2007, MacGreogor and Vrazalic, 2005, Migiro and Ocholla, 2005, Mirchandani and Motwani, 2001, Scarborough and Zimmerer, 2003, Warden and Tunzelana, 2004, Webster et al., 2006). Another aspect is customers' knowledge and readiness to use such technologies (Kamel and Hussein, 2002). For travel agents, the lack of awareness about the benefits of e-commerce and its implementation has been noted in the literature (Heung, 2003).

**(b) *SMEs' limited resources***

The restriction on finance in SMEs is a crucial factor affecting technology adoption (Ayeh, 2006, Grandon and Pearson, 2004, Jin, 2007, Migiro and Ocholla, 2005, Skoko et al., 2008, Stansfield and Grant, 2003b, Stockdale and Standing, 2006, Thulani et al., 2010, Grandón et al., 2011). The costs of adoption are often perceived to be too high (AlGhamdi et al., 2011, Ghobakhloo et al., 2011). These costs include technological equipment (Anand et al., 2010, Ayeh, 2006, Beck et al., 2005, Chen and McQueen, 2008, Lawrence and Tar, 2010, Migiro and Ocholla, 2005, Olatokun and Kebonye, 2010, Pilat, 2003, Rao et al., 2003, Thulani et al., 2010, Wahid, 2007, Webster et al., 2006), development costs such as information infrastructure (Kula and Tatoglu, 2003), building, managing websites, and adopting online technologies (MacGreogor and Vrazalic, 2005, Nour, 2002, Riquelme, 2002), and building and

maintaining e-commerce systems (Apulu and Ige, 2011, Hung et al., 2011, Kim, 2006). For travel agents specifically, the costs of the adoption of e-commerce, and its implementation and integration are a significant barrier to adoption (Heung, 2003).

**(c) *Resistance to change and risk taking reluctance***

The resistance to move away from traditional ways of doing business towards automated methods is the third barrier (Thulani et al., 2010, AlGhamdi et al., 2011). This incorporates not only the negative attitudes of staff towards technology adoption, and their resistance to change, especially among those lacking technical skills, but also the negative attitudes of the businesses themselves towards technology in general, which constitutes a significant barrier to technology adoption (Dyerson and Harindranath, 2007, Heung, 2003, Thulani et al., 2010, Warden and Tunzelana, 2004). Furthermore, some labour market institutions have commented that the adoption of technology by SMEs is an attempt to save on labour costs (Crespo-Cuaresma et al., 2008). Additionally, the reluctance of SMEs to take risks (Jehangir et al., 2010, Pilat, 2003) added to their uncertainty about the benefits that technology could bring to their business (Azad and Hasan, 2011, Dyerson and Harindranath, 2007, Olatokun and Kebonye, 2010) further explains their slow adoption of technology. SMEs demonstrate a lack of confidence in the benefits e-commerce can bring to them (Kim, 2006).

**(d) *Business characteristics, business planning and strategy***

Firm characteristics constitute another barrier to SMEs' technology adoption. These characteristics vary at different stages of economic growth (Nour, 2002, Zheng et al., 2004). Business size and institutional conditions have been shown to affect technology adoption (Ayeh, 2006, Premkumar and Roberts, 1999, Rogers, 1995,

Thong, 1999). The small size, especially for travel agents, forms another important barrier of technology adoption, particularly regarding e-commerce (Beckinsale and Levy, 2004, Heung, 2003, Simmons et al., 2008). In addition, the absence of a defined strategy is a critical factor affecting technology adoption in SMEs (Zheng et al., 2004). Most have weak IT strategies if they have them at all (Dutta and Coury, 2003, Skoko et al., 2008, Zheng et al., 2004). Some also lack strategic business planning (Kamel and Hussein, 2002). What is more, the high rates of software piracy in less developed countries encourage some SMEs to use pirated software, however, they do not have a strategy for dealing with subsequent technological issues (Dutta and Coury, 2003).

**(e) *Lack of technological readiness***

SMEs' technology readiness in terms of infrastructure can be another important factor (Lawrence and Tar, 2010, Nour, 2002, Rao et al., 2003, Voges and Pulakanam, 2011). Adoption may depend on the availability and quality of networks among institutions in the same field (Ayeh, 2006, Azam, 2007, Bourgouin, 2002, Dutta and Coury, 2003, Nour, 2002). A lack of internet access is a significant barrier (Chen and McQueen, 2008, Olatokun and Kebonye, 2010, Samoilenko and Osei-Bryson, 2008, Stockdale and Standing, 2006, Wahid, 2007). The lack of internal IT expertise in SMEs is also a major factor; many SMEs do not have a dedicated IT department and would have to depend on technology suppliers (Beck et al., 2005, Chen and McQueen, 2008, Dyerson and Harindranath, 2007, Warden and Tunzelana, 2004). In addition, there can be problems with hardware and software compatibility when adopting new technologies (Alam et al., 2011, Azad and Hasan, 2011, Azam, 2007, Grandon and Pearson, 2004, Hernandez-Ortega, 2011, Heung,

2003, Hung et al., 2011, Kendall et al., 2001, Kuan and Chau, 2001, Nour, 2002, Wang and Ahmed, 2009).

**(f) *Lack of skilled labour***

This factor relates to the available number of technology-qualified personnel in the area of business of the SME (Apulu and Ige, 2011, Hadjimanolis, 1999, Olatokun and Kebonye, 2010, Samoilenko and Osei-Bryson, 2008, Skoko et al., 2008, Thulani et al., 2010). Travel agent personnel, in particular, rarely combine both IT and travel knowledge (Heung, 2003, Warden and Tunzelana, 2004). This could be due to the lack of e-commerce culture, education, and staff training (Heung, 2003, Lawrence and Tar, 2010). Prior literature comments that the issues and barriers relating to labour skills include a lack of IT skills, as well as poor individual technical capabilities (Dutta and Coury, 2003, Scupola, 2009) and insufficient marketing skills (Stansfield and Grant, 2003a) are significant barrier to adoption. The fast progress of technology development continually makes new requirements of personnel and constitute a challenge of adoption (Gratzer and Winiwarter, 2003). Staff lacking proficient English, for instance, is a significant factor in internet technology adoption in SMEs in many countries (Azam, 2007, Rao et al., 2003, Wahid, 2007).

There is also a focus in the literature on staff culture and a failure to take the local language into account in technology implementation policies (Aleke et al., 2011, Beatty et al., 2001, Dutta and Coury, 2003, Grandon and Pearson, 2004, Lawrence and Tar, 2010, Moore and Benbasat, 2001, Zheng et al., 2004).

**(g) *Time required to make changes***

The time required to diffuse or replace technologies in SMEs is another factor that has a negative effect on technology adoption. This includes the time it takes to

implement technology and ensure it works perfectly. This is of particular relevance for travel agencies, who will need to ensure their online booking process and responses to customers are adequate (Heung, 2003, Kartiwi and MacGregor, 2007, MacGreogor, 2004). Many SMEs have reported that they do not have time to spend on implementing e-commerce technologies since it would involve restructuring their business processes and possibly result in losing customers (Kartiwi and MacGregor, 2007, Stockdale and Standing, 2006, Thulani et al., 2010, Wahid, 2007).

**(h) *Legal concerns, and security issues***

Legal concerns can have a significant effect on whether SMEs adopt technology (Azam, 2007, Hung et al., 2011, AlGhamdi et al., 2011). For travel agencies, the rules and regulations of the legal system have a crucial impact, especially in terms of e-commerce (Aleke et al., 2011, Heung, 2003, Hung et al., 2011). Taxation issues, liability issues, privacy legislation, and financial laws in relation to the IT environment are sub-factors (Heung, 2003, Warden and Tunzelana, 2004). Inadequate legal protection for e-commerce might have a further negative impact on the likelihood of SMEs adopting internet technologies (Gilaninia et al., 2011, OECD, 2004).

Additionally, lack of security and confidentiality in internet technology transactions is another barrier (Azad and Hasan, 2011, Chen and McQueen, 2008, Kula and Tatoglu, 2003, Lawrence and Tar, 2010, MacGreogor and Vrazalic, 2005, Mirchandani and Motwani, 2001, Webster et al., 2006, Halaweh, 2011). For travel agents, there can be a lack of trust in commercial exchanges made through the internet (Álvarez et al., 2007, Chen and McQueen, 2008, Heung, 2003). Various labels of security are found in literature, for example; insecure transactions (Aleke et al., 2011, Nour, 2002, Olatokun and Kebonye, 2010, Voges and Pulakanam, 2011),

a lack of confidence in internet transactions, payment security and delivery systems (Buhalis and Laws, 2001, Zheng et al., 2004), perceived security (Hernandez-Ortega, 2011), and incredible channels of online payment (Lawrence and Tar, 2010).

**(i) *Customer issues***

Customer lack of trust and satisfaction in their internet experiences, are important barriers to technology adoption by SMEs (AlGhamdi et al., 2011). The immediate availability of information, interactive contact with customers, and the possibility of completing an entire transaction online could however lead to increased customer satisfaction, especially in the case of travel agencies (Álvarez et al., 2007). In turn, this customer satisfaction would increase their trust in SMEs and encourage them to incorporate these technologies into their buying habits in the future (Lawrence and Tar, 2010, Scupola, 2009, Zeithaml et al., 2002). Additionally, in some developing countries, the trend of adopting e-commerce technologies is relatively new (Anand et al., 2010, Nour, 2002). This newness can lead to some online customers becoming 'lost in cyberspace' as they fail to complete online transactions (Tucker, 2008), and this would reflect that customers may not be ready to adopt such technologies (AlGhamdi et al., 2011).

**(j) *Business environment***

The business environment is another factor that has a vital impact on technology adoption in SMEs. It could include the political system and the regulatory environment (Ayeh, 2006) as well as the separation of the private and public sectors, and governmental and market regulations and policies (Aleke et al., 2011, Beckinsale and Levy, 2004, Hung et al., 2011, Rao et al., 2003, Skoko et al., 2008). Additionally, customer culture and industry context can both constitute significant

barriers to technology adoption if there is a lack of familiarity and trust in the technology (Heung, 2003, Simmons et al., 2008).

**(k) *Lack of public infrastructure readiness***

A lack of public infrastructure is widely cited as a vital obstacle to technology adoption, particularly in less developed countries (Apulu and Ige, 2011, Azam, 2007, Chen and McQueen, 2008, Dutta and Coury, 2003, Rao et al., 2003, Voges and Pulakanam, 2011, AlGhamdi et al., 2011). Infrastructure includes the availability of internet access (Ayeh, 2006, Chen and McQueen, 2008, Samoilenko and Osei-Bryson, 2008) and internet service quality (Wahid, 2007, Mohanna et al., 2011). In addition, other forms of infrastructure may be lacking, such as networks among institutions in the same field (Bourgouin, 2002), and poor interconnectivity of internet providers systems amongst countries in the same region, for example, the Arab countries (Dutta and Coury, 2003).

**(l) *Lack of external support and successful role models***

A lack of external support applies strongly to travel agencies (Heung, 2003). There is a lack of advice and support for adopting e-commerce, particularly in areas relating to what technology to adopt and how to adopt (Apulu and Ige, 2011, Chen and McQueen, 2008, Stansfield and Grant, 2003a, Mohanna et al., 2011). Moreover, SMEs would typically have to rely on external resources and support to manage their websites (dependency) (Warden and Tunzelana, 2004). Limited governmental initiatives can also be included as a barrier to SMEs adopting technology, particularly in developing countries (Apulu and Ige, 2011, Dutta and Coury, 2003, Hung et al., 2011, Lawrence and Tar, 2010, Scupola, 2009). Add to this, the role models could be considered as a form of external support for SMEs looking to use internet

technologies in their businesses. A lack of successful and proven business models is a crucial factor behind SMEs' reluctance to adopt new technology (Zheng et al., 2004).

**(m) *Technology attributes***

The adopted-technology attributes are a frequently-mentioned factor in the literature regarding technology adoption by SMEs. Such factors could include trialability, which refers to whether the technology could be adopted in a trial (Azad and Hasan, 2011, Azam, 2007, Kendall et al., 2001, MacGreogor and Vrazalic, 2005, Moore and Benbasat, 2001, Rogers, 1995). A second aspect is technology complexity, particularly in terms of ease of use, since complexity is considered by many researchers to be an obstacle to adoption in SMEs (Alam et al., 2011, Azad and Hasan, 2011, Azam, 2007, Beckinsale and Levy, 2004, Davis et al., 1989, Dyerson and Harindranath, 2007, Hernandez-Ortega, 2011, MacGreogor and Vrazalic, 2005, Moore and Benbasat, 2001, Rao et al., 2003, Venkatesh and Davis, 2000), especially to the adoption of e-commerce (MacGreogor and Vrazalic, 2005).

Other aspects include reversibility, that is whether the technology can be discontinued easily, and modifiability, which refers to whether it can be updated and modified over time (Azad and Hasan, 2011, MacGreogor and Vrazalic, 2005). Observability denotes the ease with which adopters can observe and measure the impact of the technology on their firm (Azad and Hasan, 2011, Azam, 2007, Kendall et al., 2001, MacGreogor and Vrazalic, 2005, Rogers, 1995).

It is also important to consider whether the technology is suitable for the culture of the customers, as well as to that of the suppliers and partners of the SMEs (Álvarez et al., 2007, Ayeh, 2006, Heung, 2003, Kartiwi and MacGregor, 2007, MacGreogor

and Vrazalic, 2005). Additionally, literature studies cited the concerns of suitability, where there are some SMEs consider e-commerce as not a suitable technology to the nature of their services (Chen and McQueen, 2008, Ghamatrasa, 2006, Kartiwi and MacGregor, 2007, Wiertz, 2001, AlGhamdi et al., 2011). One example is some travel agents specialising in religious tourism (e.g. pilgrimage) believe that e-commerce is not a suitable technology for the target audience who seeks to speak with a human and asks for the personal advice and trust the traditional processes rather than using technology and computers.

Barriers to adoption are represented in many studies as the lack of organizational and technological readiness to adopt e-commerce. The organizational/ technological readiness was used in this study in its negative format to express the barriers to adoption, which in turns, help to explain why the majority of travel agents are reluctant to adopt e-commerce in a time they are in critical need to improve their competitive positions and support their future survival in the global travel market. To sum up, the most frequent barriers are: lack of Knowledge and/or awareness of e-commerce benefits, limited available resources versus high cost of e-commerce adoption, employees' resistance to change from traditional ways of doing work, risk taking reluctance and uncertainty of gaining e-commerce benefits, business characteristics (small size, remote location), lack of technological readiness (quality and compatibility of software), lack of IT-travel skilful labour, lack of business planning and strategy (no IT strategy, no wish to expand), required time to replace/change from traditional methods to new ones, legal concerns (taxation, liability issues, privacy legislations, financial), security concerns (lack of confidentiality, insecure transactions, trust), business environment (political, regulatory systems& consumer culture), lack of external support (limited

governmental initiatives and support), lack of public infrastructure readiness (available and speed internet access), lack of e-commerce successful and proven business models, customer issues (culture, trust and satisfaction, readiness), inability of e-commerce trialability, ecommerce complexity (not easy to be used), inability of e-commerce reversibility, observability, modifiability, and e-commerce is not suitable to the nature of services of SMEs.

### 3.7.3 Environmental pressures on SMEs

Environmental pressures are another set of factors that influence e-commerce adoption by SMEs. They mostly comprise external pressure from customers, suppliers, competitors and sometimes business partners (Beekhuyzen et al., 2005, Poon and Joseph, 2001, Simpson and Docherty, 2004). Such pressures have been given various labels in the literature, such as the environment, or environmental characteristics (Premkumar and Roberts, 1999, Thong, 1999, Lacovou et al., 1995, Kuan and Chau, 2001, Grandon and Pearson, 2004). Here we define them as anything that forces travel agents to adopt technology in order to enhance their competitive position and effectively re-intermediate themselves in the travel market (Álvarez et al., 2007, Patricia, 2008).

The literature mentions general external pressures (Premkumar and Roberts, 1999, Voges and Pulakanam, 2011, Wang and Ahmed, 2009), those coming from competitors (Buhalis and Deimezi, 2004, Simpson and Docherty, 2004), from industry (Grandon and Pearson, 2004, Andreu et al., 2010), suppliers and trading partners (Lacovou et al., 1995, Poon and Joseph, 2001, Elahi and Hassanzadeh, 2009), employees (Mehrtens et al., 2001, Beckinsale and Levy, 2004), and customers (Wiertz, 2001, Dyerson and Harindranath, 2007).

According to Porter (1980) the outside forces usually affect all firms in the industry. These forces determine the potential profit of firms in the industry. These outside forces are the threat of potential entrants, the threat of substitute products or services, the bargaining power of suppliers, the bargaining power of buyers, and the degree of competition between existing competitors.

Travel agents face the disintermediation threat from new virtual agents, the new entrants. Current competitors, customers, and suppliers constitute a part of outside forces pushing agents to adopt e-commerce in order to survive and potentially continue in the future travel market. Environmental pressures can be generally classified into the following groupings:

**(a) *Customer pressure***

Pressure from customers is the first type of environmental pressures; it comes from the continuous demand for improved product/service quality (Poon and Joseph, 2001) from existing customers (Beckinsale and Levy, 2004, Beekhuyzen et al., 2005, Bigne et al., 2008, Daniel and Wilson, 2002, Dyerson and Harindranath, 2007, Nour, 2002, Quayle, 2002).

Customer pressure takes various forms, such as external pressure, the need to attract new types of customers (Simpson and Docherty, 2004), and the demand for a higher level of buyer-seller interaction (Vrana and Zafiropoulos, 2006). Additionally, market demand is seen as another form of customer pressure (Buhalis and Deimezi, 2004, Hung et al., 2011).

**(b) *Competitor pressure***

This type of pressures relates to competitors, and is crucial for SMEs when it relates to ICT (Beekhuyzen et al., 2005, Daniel and Wilson, 2002, Poon and Joseph, 2001,

WTO, 2001, Hung et al., 2011, Warnaby et al., 2008). The fear of being left behind is one such pressure, and the level of competition intensity in the industry can influence the degree of pressure on SMEs to adopt technology (Bigne et al., 2008, Patricia, 2008, Teo et al., 2009, Wesrthner and Klein, 1999, Ifinedo, 2011). Responding to competitors is frequently observed to be a reason for adoption among SMEs (Simpson and Docherty, 2004, Ghobakhloo et al., 2011). Jin (2007) mentioned threats from industry competitors as a driver of technology adoption. For travel agents, the emergence of new virtual intermediaries forms an essential pressure to adopt ICTs (Barnett and Standing, 2001). It is not just the fear of traditional competitors, but also the fear of new, innovative ones that adopt ICTs (Buhalis and Deimezi, 2004).

**(c) *Supplier and partner pressures***

This type of pressure comes as a result of the continuous demand for improved product/service quality from business partners (Beckinsale and Levy, 2004, Beekhuyzen et al., 2005, Buhalis and Deimezi, 2004, Nour, 2002, Poon and Joseph, 2001, Raymond, 2001, Simpson and Docherty, 2004, Teo et al., 2009). One reason for technology adoption in SMEs is the development programmes run by suppliers to enhance their performance (Quayle, 2002). Another reason is the need to procure new suppliers and upgrading by those suppliers to newer technologies (Vrana and Zafiropoulos, 2006, Ahmed et al., 2011). Fast development in the industry, growing markets and demands from business partners, suppliers, and alliance members are all cited as crucial pressures driving technology adoption in SMEs (Rao et al., 2003, Lacovou et al., 1995, Raymond, 2001, Simpson and Docherty, 2004, Teo et al., 2009).

**(d) *Business environment and industry changes***

One of the main environmental pressures on SMEs to adopt technology is the rapidly changing business environment (Grandon and Pearson, 2004, Kuan and Chau, 2001, Saffu and Walker, 2008, Simpson and Docherty, 2004). According to Raymond (2001), environmental uncertainty pushes SMEs to use technology. Furthermore, adapting to technology changes in the industry and business environment leads to the necessity to upgrade in order to maintain improved business operations (Karagozoglu and Lindell, 2004, Law et al., 2004, El-Gohary, 2011). Globalization and modernization (Totonchi and Kakamanshadi, 2011), leading to industry changes, are among the other pressures pushing enterprises to adopt technology and keep it up-to-date (Nour, 2002, Poon and Joseph, 2001, Buhalis and Deimezi, 2004, Andreu et al., 2010). Issues related to government rules and regulations can also act as drivers for SMEs (Grandon and Pearson, 2004, Kuan and Chau, 2001, Saffu and Walker, 2008, Teo et al., 2009, Hung et al., 2011).

**(e) *Internal business priorities***

Some enterprises will have set out their own objectives to achieve a better market position, and will have strategies in place to ensure these objectives are achieved in the right way. Quayle (2002) sees business strategy as an internal pressure on the SME to develop its performance and competitive position by using technological tools to achieve its aims. One such tool would be to implement advanced technologies. In addition, employees can also put pressure on firms to provide them with the latest, effective and technology-based tools, so that they can do their jobs (Beckinsale and Levy, 2004). Other environmental pressures include the development and growth of the business, manager push and the SME's owner/manager's positive attitude towards technology diffusion and its benefits

(Beckinsale and Levy, 2004, Scupola, 2009). Travel agents, in particular, face critical threats from online intermediaries. Therefore, their stability and future survival may be dependent on the adoption of technology, especially the internet and e-commerce, which would enable them to restructure themselves as cyber-mediaries (Barnett and Standing, 2001, Bigne et al., 2008, Heung, 2003, Law et al., 2004, Standing et al., 1999, Stansfield and Grant, 2003b, Warden and Tunzelana, 2004).

To sum up, environmental pressures constitute a crucial push on SMEs to adopt technology. To improve their competitive position, SMEs have to respond to environmental changes and technology updates. This section has demonstrated five broad categories of environmental pressures pushing SMEs to adopt technology, particularly e-commerce in the case of travel agents. These five categories are customer pressures (consumer demand for enhanced service quality, increased pressures from new and/or existing customers and a higher level of buyer-seller interaction), competitor pressures (responding to competitors, the fear of being left behind and the emergence of new virtual intermediaries), supplier and trade partner pressures (suppliers' development programmes, business partner influence and growing markets' changes and demands), business environment and industry changes (business environment uncertainty, adapting to technological change, rapid industry changes, globalization/modernization issues and government rules and regulations) and internal business priorities (business strategy, that is, plans to expand or develop, pressure from employees, owner/manager and/or IT manager push and supporting the future survival of the business).

## 3.8 Conceptual framework specification

In addition to the comparison of benefits and costs of adoption, SMEs also face environmental pressures, pushing them to adopt technology. Based on the theories and models reviewed earlier, the review presented in Table 3-1 shows that benefits, organizational and technological readiness, and environmental pressures are included in the majority of technology adoption models.

| Researchers | Benefits of adoption | Organizational & technical factors | Environmental factors |
|---|---|---|---|
| (Fishbein and Ajzen, 1975) | | √ | √ |
| (Davis et al., 1989) | √ | √ | √ |
| (Lacovou et al., 1995) | √ | √ | |
| (Rogers, 1995) | √ | √ | √ |
| (Premkumar and Roberts, 1999) | √ | √ | √ |
| (Thong, 1999) | √ | √ | √ |
| (Venkatesh and Davis, 2000) | √ | √ | √ |
| (Beatty et al., 2001) | √ | √ | |
| (Kuan and Chau, 2001) | √ | √ | √ |
| (Mehrtens et al., 2001) | √ | √ | √ |
| (Mirchandani and Motwani, 2001) | √ | √ | |
| (Moore and Benbasat, 2001) | √ | √ | |
| (Wiertz, 2001) | √ | √ | √ |
| (Riemenschneider et al., 2003) | √ | √ | √ |
| (Venkatesh et al., 2003) | √ | √ | √ |
| (Grandon and Pearson, 2004) | √ | √ | √ |
| (Molla and Licker, 2005) | √ | √ | √ |
| (Ajzen, 2006) | | √ | √ |
| (Nikolaeva, 2006) | √ | √ | √ |
| (Venkatesh and Bala, 2008) | √ | √ | √ |
| (Elahi and Hassanzadeh, 2009) | | √ | √ |
| (Oh et al., 2009) | √ | | √ |
| (Scupola, 2009) | √ | √ | √ |
| (Wang and Ahmed, 2009) | √ | √ | √ |
| (Al-Hudhaif and Alkubeyyer, 2011) | √ | √ | √ |
| (Ghobakhloo et al., 2011) | √ | √ | √ |
| (Hung et al., 2011) | √ | √ | √ |
| (Ifinedo, 2011) | √ | √ | √ |
| (Mohanna et al., 2011) | | √ | √ |

Table 3 - 1. Review of technology adoption models

Including those three factors in most adoption models reflects the importance of those constructs in the adoption decision-making process. The three constructs and how they affect e-commerce adoption/ adoption level constitute the main constructs of the conceptual framework. The next section conceptualizes the relationships among the main constructs.

## 3.9 The conceptual framework and hypotheses of e-commerce adoption for travel agents

This study investigates e-commerce adoption, non-adoption, and the level of adoption amongst SME travel agents in Egypt. Organizational and technical readiness is the variable that is most likely to influence the reluctance of non-adopting agents, who may not be (or think they are not) ready to adopt technology. This construct was therefore described in this study as the barriers negatively affecting adoption as a result of SME non-readiness. Meanwhile, benefits and environmental pressures are assumed to positively affect adoption. The conceptualization of the relationships among the benefits, barriers and environmental pressures to adopt technology is clearly incorporated in TAM described in Section 3.2.

TAM states that the perceived usefulness and perceived ease-of-use of innovation affect firms' attitudes over whether or not to adopt it. Additionally, some antecedents of perceived usefulness and perceived ease-of-use are given, in the form of external variables. By developing TAM, this study extends perceived usefulness to cover the perceived benefits of adoption, and perceived lack of ease-of-use to denote perceived barriers to adoption; meanwhile, external variables are taken to mean the environmental pressures driving SMEs to adopt technologies.

Based on TAM, people form intentions to behave in ways that they believe will enhance their performance; this creates a relationship between perceived benefits and adoption. In addition, the belief that ease-of-use has a direct effect on behavioural intention helps to explain the relationship between perceived barriers and adoption. Additionally, the belief that the ease-of-use of a system contributes to improved performance and, therefore, will have a direct effect on usefulness implies a relationship between the perceived barriers and perceived benefits of adoption. System characteristics, as external variables, have a direct effect on the perceived usefulness of a system, whereas system features and usability have a direct influence on the perceived ease-of-use. This indicates the presence of a relationship between environmental factors and both perceived benefits and perceived barriers. These relationships are shown in Figure 3-1.

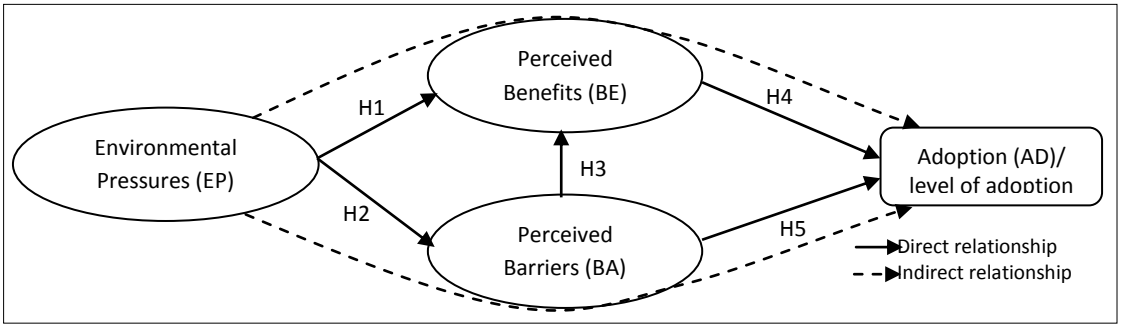



Figure 3 - 1. The conceptual framework

According to these conceptualized relationships, the study investigates five proposed hypotheses (Figure 3-1):

**H1.** There is a positive causal relationship between the perceived environmental pressures and the perceived benefits of e-commerce adoption.

**H2.** There is a negative causal relationship between the perceived environmental pressures and the perceived barriers to e-commerce adoption.

**H3.** There is a negative causal relationship between the perceived barriers to adoption and the perceived benefits of adoption.

**H4.** There is a positive causal relationship between the perceived benefits of adoption and e-commerce adoption/ adoption level.

**H5.** There is a negative causal relationship between the perceived barriers to adoption and e-commerce adoption/ adoption level.

In addition to the direct causal relationships between the constructs, two indirect causal relationships between the perceived environmental pressures and e-commerce adoption are proposed (see Figure 3-1). The first is via the perceived benefits of adoption and the second is via the perceived barriers to adoption. According to these indirect relationships, it is proposed that increasing the perceived benefits through the push of environmental pressures leads managers to make positive decisions to adopt, while the existence of environmental pressures pushing adoption also motivates managers to overcome the barriers to adoption, also contributing towards a positive decision to adopt.

The operational definitions of the main constructs in this study are as follows:

Perceived benefits: all benefits that managers perceive could be achieved through the adoption/ adoption level of e-commerce, which would improve the competitive position of their firm in the global travel market. These benefits could relate to sales and revenues, the future survival of the business, marketing and competitive advantages, internal processes and performance, or relationships between the travel agent and its customers, suppliers and partners.

Barriers to adoption: organizational and technological factors negatively affecting the adoption decision. These factors are perceived by managers as inhibitors,

dissuading them from adopting e-commerce or from achieving its perceived benefits. These barriers can be related to the availability of resources, skilled labour, the internal organizational readiness of the firm, or the attributes of the adopted technology itself, in terms of its compatibility, trialability or complexity. The barriers could also be external, relating to the readiness of government, customers or suppliers, or security and legal concerns regarding online transactions.

Environmental pressures are the forces pushing firms to adopt e-commerce. These pressures are perceived by managers as push factors, motivating or even forcing them to make the decision to adopt. These pressures could come from current or potential customers, competitors, suppliers or partners, the fashion or the need to adapt to the continuous changes in technology, the consequences of globalization, or the threat of disintermediation of the global market and thus the future survival of their agencies.

The e-commerce adoption/ adoption level is the outcome variable in this study, distinguishing the agents who adopt e-commerce from those who do not. Those who do adopt e-commerce are further divided into those who adopt a low level of e-commerce practices and those who adopt an advanced level. Based on the argument in Section 3.3, Table 3-2 shows the common four stages of e-commerce adoption in literature models of adoption. These stages are static websites to provide information on the company and the simple use of e-mail to communicate with customers, dynamic websites that support two-way communication with customers and enable order placing and responding to enquiries, websites enable electronic transactions and comprise advanced website capabilities including integrated bookings, sales, and payments, and electronic integrated websites have ICT-mediated service delivery and after-sales services, supported by intranet and

extranet, which help to enable global e-commerce and support integration and collaborations with business partners.

| Researchers | Stage 1 Static web presence | Stage 2 Interactive online presence | Stage 3 Electronic transactions | Stage 4 Electronic integration |
|---|---|---|---|---|
| Burgess and Cooper (1998) | | √ | √ | |
| Allcock *et al.* (1999) | | | | √ |
| Earl (2000) | √ | | √ | |
| Heeks (2000) | √ | √ | √ | √ |
| Mckay *et al.* (2000) | | √ | | |
| Daniel and Wilson (2002) | √ | | √ | √ |
| Levy and Powell (2002) | √ | √ | | √ |
| Rayport and Jaworski (2002) | √ | √ | √ | |
| Rao *et al.* (2003) | √ | √ | √ | √ |
| Chan and Swatman (2004) | | | √ | √ |
| Beck *et al.* (2005) | | | | √ |
| Gatautis and Neverauskas (2005) | | | | √ |
| Lefebvrea *et al.* (2005) | | √ | √ | √ |
| Gandhi (2006) | | √ | √ | √ |
| Al-Qirim (2007) | √ | | √ | √ |
| Chen and McQueen (2008) | | | | √ |
| NCC (2009) | | | | √ |

Table 3 - 2. Stages of e-commerce adoption in literature models

Based on the four stages in Table 3-2, operational definitions of these stages are given in Table 3-3. The first and second stages (static web presence and interactive online presence) can be classified as low-level e-commerce, while the third and fourth stages can be classified as advanced-level e-commerce (Abou-Shouk and Lim, 2010, Al-Qirim, 2007, Bigne-Alcaniz et al., 2009).

| Stage | Description | Level |
|---|---|---|
| 1. static web presence | Using internet to search customers and suppliers; homepage for information dissemination purposes; and using e-mail to communicate customers, suppliers and business partners. | Low-level e-commerce practices |
| 2. interactive online presence | Two-way interactions via the company portal (company-customers); placing and managing orders with suppliers; using e-mail to receive customers' orders; and digital transfer of documents within the company. | |
| 3. electronic transactions | Order receiving and processing; online booking; and online payment and digital services delivery. | Advanced-level e-commerce practices |
| 4. electronic integration | After sales services; full internal and external use of e-mail; intranet; extranet for inter-organizational interaction with business partners; and high level of collaboration. | |

Table 3 - 3. The operational definitions of e-commerce adoption stages

Low-level adopters are those who have static or simple interactive websites and use email to deal with their customers' enquiries and complaints, and deal with suppliers and partners. Advanced adopters are essentially agents with interactive websites enabling online booking and payment.

Building upon this, adopters of e-commerce are those agents adopting one or more of the adoption stages shown in Table 3-3. While non-adopters are those who do not adopt any level, most probably, they do not even have websites.

Excluding the causal relationship between ease of use and usefulness in TAM based on literature studies (i.e., Usoro et al., 2010, Ayo et al., 2011, Lacovou et al., 1995) results in a new nested model, and based on the definition of enabling factors of adoption as a combination of environmental pressures and benefits of adoption (Voges and Pulakanam, 2011, Lacovou et al., 1995) reveals another nested model.

To sum up, TAM conceptualizes the causal relationships among this study's constructs: environmental pressures, perceived benefits, perceived barriers, and adoption of e-commerce. This study tests five hypotheses regarding the causal effects between the four constructs. Perceived benefits and perceived barriers to adoption mediate the causal relationships between environmental pressures and the actual adoption of e-commerce.

# PART II. RESEARCH METHODOLOGY

**Chapter 4. Methodology and Research Design**

**Chapter 5. Questionnaire Pilot Testing**

# CHAPTER 4. METHODOLOGY AND RESEARCH DESIGN

## 4.1 Introduction

This chapter introduces the research philosophy, research approach, and research methods of this study. It presents in detail the ideas behind mixed methods, questionnaire surveys, and personal interviews and deals with the issues concerning the sample frame, sample size, and sampling techniques. Structural equation modelling, the procedure used for the quantitative analysis, is presented. The design of the qualitative data collection tool, personal interviews, and a discussion of the validity and reliability of the tool are also included.

## 4.2 Research philosophy

Creswell (2009) distinguishes between four research philosophies: positivism, social constructivism, advocacy/participatory, and pragmatism. Positivism (alternatively postpositivism or the scientific method philosophy) assumes that causes probably determine outcomes in the form of causal relationships but the absolute truth can never be found. In this philosophy, researchers start with a theory, collect data, and then conclude that the findings either support or refute the theory. The assumptions of this philosophy mostly apply to quantitative research, in which researchers describe causal relationships in terms of research questions or hypotheses. The researcher must be objective and check the methods for bias.

The second philosophy is social constructivism; this is the typical approach used in qualitative research. In this philosophy, individuals try to understand the world in which they live and work. Qualitative open-ended questions are used to enable the participants to share their views and construct the meaning in a situation. The process of qualitative research according to this philosophy is inductive; meaning is generated from the data that are collected and shaped according to the researcher’s experience and background.

The third philosophy, advocacy/participatory, is again typically seen in qualitative research although it can also act as a foundation for quantitative research. Under this philosophy, the research contains an action agenda which may help to change the lives of the participants and the institutions in which they work. Advocacy research is a voice through which participants can raise their agenda for change. Participatory studies often begin with an important issue or problem in society and aim to create political debate and discussion leading to change.

Pragmatism, the fourth philosophy, focuses on the research problem rather than the methods used to understand the problem. Many approaches can be used to derive knowledge about the problem. This philosophy applies to mixed methods research comprising both quantitative and qualitative approaches. According to pragmatism, the researcher is free to choose the research methods, techniques and procedures that best meet their purposes. Mixed method researchers use a variety of methods to best understand the research problem.

Pragmatism can be defined as research that mixes quantitative and qualitative methods when this is beneficial (Leech et al., 2010). Therefore, pragmatism is referred to as the partner of mixed-methods research (Johnson and Onwuegbuzie, 2004). Pragmatism has emerged as an alternative to positivism and constructivism, in which a flexible approach is used instead of the deductive approach based on the general premise of reaching specific conclusions or the inductive approach that seeks to draw general conclusions based on specific premises (Wheeldon, 2010). Thus, pragmatism is a rejection of a forced choice between positivism and constructivism and considers quantitative and qualitative methods as compatible (Molina Azorín and Cameron, 2010). Employing pragmatism in research implies that the researcher is free to use methods, techniques and procedures that best meet his/her purpose. Thus, pragmatism allows the researcher to use multiple methods,

different worldviews, assumptions, data collection forms and analysis in a mixed-method study (Creswell, 2003).

It is believed that pragmatism is an applicable philosophy in social and behavioural research, of which business research is a branch (Moon and Moon, 2004). Pragmatism's main essence is generating information and new research ideas so as to find solutions to problems by combining quantitative and qualitative methods in which the research inquiry is addressed in different stages (Pansiri, 2005). Furthermore, there is a strong belief that basing future tourism research on the pragmatism paradigm could yield better research outcomes when mixed methods are applied (Pansiri, 2006). In investigating the adoption of e-commerce by travel agents, its perceived benefits, the perceived external pressures on the travel agents, and the perceived barriers to adoption, this study employs the pragmatism philosophy with mixed methods in order to fully understand the factors affecting the adoption of e-commerce by travel agents.

### 4.3 Research approach

There are two research approaches: deductive and inductive. Deductive is defined as 'the inference by reasoning from generals to particulars' (Rothchild, 2006, p.3). The deductive approach relates mainly to testing a theory, with a theory and hypotheses developed and a strategy designed to test these hypotheses (Bryman, 2004, Lawson, 2005). The deductive approach includes three main characteristics. First, it uses hypotheses to explain the causal relationships among variables, mostly using quantitative methods. Second, it requires concepts to be operationalized in order that they can be measured quantitatively. Finally, the sample must be large enough to allow the statistical findings to be generalized (Saunders et al., 2009).

On the other hand, the inductive approach is defined as 'the process of inferring a general law or principle from observation of particular instances' (Rothchild, 2006, p.2). It is more concerned with building a theory. The researcher starts by collecting data and then makes sense of these data in order to understand the nature of the problem. The result of analyzing the collected data is the building of a theory. The inductive approach is said to be concerned with why something is happening while the deductive approach is concerned with describing what is happening (Saunders et al., 2009).

It is useful to attach the research approach to the research philosophy. The choice of research approach then enables the researcher to decide on the research design, that is, the techniques for collecting data, and the procedures of analysis. Furthermore, the chosen research approach helps the researcher to select the appropriate research strategy and method. Although there are significant differences between the two approaches described above, it is not only possible to combine both approaches in the same piece of research (Williams, 2007), but it is often advantageous to do so (Saunders et al., 2009). This thesis employs mixed methods based on the pragmatism paradigm and combines both deductive and inductive approaches. The deductive approach is used to test the conceptual framework of this thesis and the statistical results revealed from quantitative stage are used to support the generalization of the study's findings, while the inductive approach is used to collect the respondents' (managers') opinions, ideas and understanding of the adoption of e-commerce based on the interviews with managers of travel agents.

## 4.4 Research methods

There are three research methods that can be used in human and social science research: quantitative, qualitative and mixed methods (Creswell, 2003). Quantitative research is mostly attached to the positivist philosophy and tends to follow the deductive approach, while qualitative is related to the advocacy or constructivist research philosophies and

typically uses the inductive approach as noted earlier. The use of mixed methods can corroborate the research findings. This could involve using different sources of data, complementing qualitative findings with quantitative findings, using qualitative data to aid in the interpretation of the relationships between quantitative variables, or using different methods for different purposes within a single study (e.g., quantitative to explain the causal relationships between variables and qualitative to understand the meanings in the data and help explain the quantitative results) (Saunders et al., 2009). Given the advantages of using mixed methods with the pragmatism research philosophy, the mixed methods approach is used in this study.

The sequential explanatory design is popular when using mixed methods. Here, quantitative data collection and analysis is conducted first, followed by qualitative (see Figure 4-1). The weight in this design is given to the quantitative data. The two types of data (quantitative and qualitative) are separate but connected. In the sequential explanatory design, the quantitative results are explained; then the qualitative data is used to help further explain and interpret the findings arising from the quantitative stage, including any surprising results. The strength of this strategy is its straightforward design and clear, separate stages; its main weakness is the long time spent on data collection (Creswell, 2009).

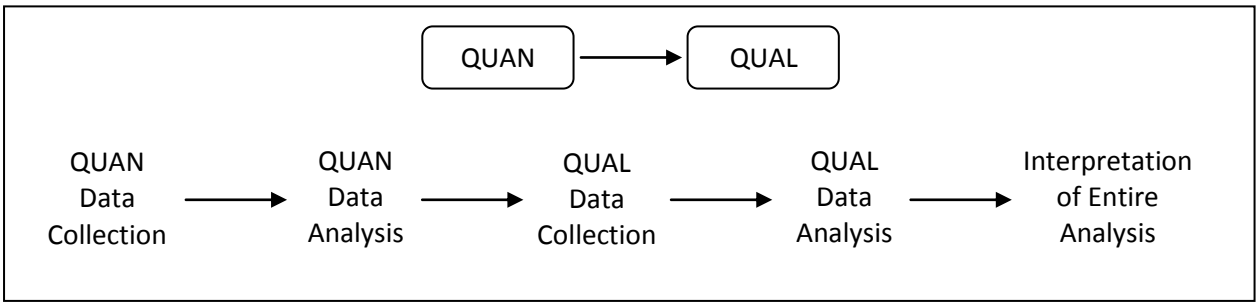



Figure 4 - 1. Sequential explanatory design (Creswell, 2009)

The terms quantitative and qualitative are widely used in business research. Quantitative is mostly used to refer to certain data collection techniques (e.g., questionnaires) or data

analysis procedures (e.g., statistics), while qualitative denotes data collection methods such as interviews or data analysis procedures such as non-numerical analysis (Saunders et al., 2009). In this study, questionnaire surveys are used to collect the quantitative data while personal interviews are used to collect the qualitative data. The following sections describe the methods used to carry out the survey and interview data collection techniques.

In this study, the quantitative research included three stages. Stage 1 was an exploratory study, exploring the reasons why travel agents in Egypt use the internet. Perceived benefits and barriers were also addressed at this point. A questionnaire form (Appendix 1) was used to collect responses from 287 out of 826 travel agents with or without an internet website based in Greater Cairo, selected using a stratified sampling technique to reduce the heterogeneity of the population and increase the efficiency of the estimates. Stage 2 consisted of another exploratory study of those travel agents with websites only, to explore the features offered on their websites and identify the e-commerce adoption level. Using a checklist (see Appendix 2), all the 418 websites of travel agents were checked. Stage 3 involved using the main questionnaire (see Appendix 3) to measure three constructs: perceived benefits, perceived barriers and perceived environmental factors of e-commerce adoption amongst travel agents. This stage included 411 travel agents in Greater Cairo, details of which will be provided later in this chapter.

## 4.5 Questionnaire surveys

The questionnaire survey is the most commonly-used data collection tool in leisure and tourism research (Veal, 1997). Questionnaires can be divided into two main types according to their administration method: self-administered and interviewer-administered. The self-administered questionnaire is usually completed by the respondents, and includes three sub-categories: the internet-mediated questionnaire (via e-mail or a website), the postal questionnaire (hard copy with a cover letter, sent by post), and the delivery-and-

collection questionnaire (hand delivered, then collected later). For the interviewer-administered questionnaire, the interviewer must record the responses; this could take the form of a telephone questionnaire (the interviewer telephones the respondent and completes the questionnaire based on their answers) or an interview questionnaire (where the interviewer completes the questionnaire will face-to-face with the respondent; also called 'interview schedules') (Saunders et al., 2007). An e-survey initially implemented by the researcher failed to collect any responses for this study. This could be because managers are busy, in addition privacy and security concerns of respondents (Conway and Thomas, 2003), and inability of distinguishing researcher's surveys from commercial surveys (Schonlau et al., 2002) could be other reasons of low response rate in e-surveys and thus, a self-administered questionnaire, hand-delivered and later hand-collected, is used in this study as it has been found to be more effective at collecting data within the Egyptian culture and managers are more familiar with paper work. In addition, face-to-face communication in hand-delivered questionnaire helps to enhance the response rate (Babbie, 2010b).

#### 4.5.1 Questionnaire design

Survey questions can take three possible structures: closed, open-ended, and contingency questions. Closed (or multiple choice) questions ask the respondent to tick or circle a choice from a set of answers; the respondent is restricted to the offered choices which introduces bias to some extent and does not allow any creativity on the part of the respondents. The answers to closed questions can simply be yes/no, or a range of positive to negative responses, represented by three, five or more answers. Open-ended questions on the other hand give respondents the chance to supply their own answers, by writing a number, word or some text. This type of question can help the researcher to gather new information on the topic studied. However they can be difficult to answer and to analyse. Contingency questions are a special case of closed questions; also called filter questions,

they are directed at a sub-category of respondents, and seek extra or more detailed information about a previously-answered question (Siniscalco and Auriat, 2005).

There are three types of questionnaire that can be used: structured, semi-structured, and unstructured. A structured questionnaire consists of questions with predefined answers. This type is suitable for quantitative studies. Semi-structured questionnaires comprise a mixture of closed-ended, open-ended and sometimes partially closed-ended questions. These questionnaires are suitable for investigative studies. The unstructured questionnaire is made up of questions that allow free responses and is often referred to as a 'topic guide'. This type of questionnaire is most suitable for qualitative studies (Hague, 2002). The semi-structured questionnaire is used in this study; a mixture of closed-ended, open-ended and partially closed-ended questions are used to allow the respondents to choose the most relevant answers and also add extra information if they wish, representing their opinions.

Four types of information are requested in the questionnaire: knowledge, beliefs/attitudes/opinions, behaviour, and attributes. Knowledge information is about what people know, or how well they understand something (awareness, for example). Beliefs/attitudes/opinions type of information relates to perceptions of people, thoughts, ideas, feelings or judgements. Behavioural information is concerned with what people do or have done, in the present or past, or plan to do in the future. Finally, attributes-related information is people's personal demographic characteristics, such as age, education, income or occupation (Taylor-Powell, 1998). A mixture of these types of information is requested in the questionnaire designed for this study. Before moving on to the questionnaire layout, the variables of the conceptual framework developed in Chapter 3 are operationalized in the following section.

### 4.5.2 Variables for the study

Looking back at the conceptual framework developed in Chapter 3 of this study, the main constructs of the study are the perceived benefits of e-commerce adoption, the perceived environmental pressures, the perceived barriers to adoption, and e-commerce adoption and the adoption level. This section starts by looking at the dependent variable and then moves on to the independent variables.

The dependent variable is the adoption of e-commerce and the e-commerce adoption level. The variable is measured using two questions. The first is "Has your company adopted e-commerce?" This determines whether or not e-commerce has been adopted and has a dichotomous outcome. The second is "How do you define e-commerce as adopted in your agency?" This represents the e-commerce adoption level. There are four possible answers from which the respondent can choose: (1) using the internet to promote your agency and/or services, (2) using the internet for communicating with customers and/or suppliers, (3) using the internet to provide online booking with payment services, and (4) providing online booking with payment, after-sales services and an Intranet for employees. Choices (1) and (2) reflect a low level of e-commerce adoption while (3) and (4) denote an advanced level. The low and advanced levels are used as a dichotomous outcome.

The independent variables are developed from the literature review (see Chapters 3) and some variables are also replicated from previous studies' questionnaires, with written permission from the authors. These are Stansfield and Grant (2003a) and (2003b) and MacGreogor (2004), whose studies relate to e-commerce adoption by SMEs. The perceived benefits, perceived environmental pressures, and perceived barriers to adoption are shown in Tables 4-1, 4-2, and 4-3, together with their sources. Five-point Likert scales (1 for strongly disagree to 5 for strongly agree) were used to collect the perceptions of the travel agency managers. Table 4-1 shows twenty-four perceived benefits of e-commerce,

categorised under four categories: essential benefits, marketing benefits, competition-related benefits, and business internal efficiency benefits.

| Question items | Researchers |
|---|---|
| **Essential benefits:** | |
| Sales, revenue and profits growth | (Heung, 2003, Karagozoglu and Lindell, 2004, Straub and Klein, 2001) |
| Continuation of current benefits | (Poon and Joseph, 2001) |
| Guarantee of stability and future survival | (Stansfield and Grant, 2003a) |
| Support effective re-intermediation | (Álvarez et al., 2007) |
| Attracting new services/ investment | (APEC, 1999, Azam, 2007, Patricia, 2008) |
| Enable and facilitate collaboration | (Bourgouin, 2002, Kvainauskaite et al., 2005, Mehrtens et al., 2001, Pease and Rowe, 2005) |
| Interacting with current & future partners | (Kim, 2004) |
| **Marketing benefits:** | |
| Improve distribution channels | (Ayeh, 2006, Beckinsale and Levy, 2004, Bourgouin, 2002, Collins et al., 2003, Kajogbola, 2004, Karagozoglu and Lindell, 2004, Saffu and Walker, 2008, Scarborough and Zimmerer, 2003) |
| Establish reputation in the global markets | |
| Customizing services to customer needs | (Pease and Rowe, 2005) |
| Improve customer satisfaction | (Daniel et al., 2002, Dyerson and Harindranath, 2007, Harindranath et al., 2008, Jin, 2007, Karagozoglu and Lindell, 2004, Migiro and Ocholla, 2005, Quayle, 2002, Saffu and Walker, 2008, Stansfield and Grant, 2003b, Teo et al., 2009, Wesrthner and Klein, 1999) |
| Encouraging customer loyalty | (APEC, 1999) |
| Penetration of global markets | (Migiro and Ocholla, 2005, Çakar and Ertürk, 2010, Thulani et al., 2010) |
| Increase customer base | (Jin, 2007, MacGreogor, 2004, Zheng et al., 2004, Kim, 2005) |
| **Competition-related benefits:** | |
| Increase competitive advantages | (Beatty et al., 2001, Daniel et al., 2002, Karagozoglu and Lindell, 2004, Kartiwi and MacGregor, 2007, Lacovou et al., 1995, MacGreogor, 2004, Migiro and Ocholla, 2005, Quayle, 2002, Raymond, 2001, Simpson and Docherty, 2004) |
| Staying ahead of competitors | (Kvainauskaite et al., 2005) |
| **Business internal efficiency** | |
| improving internal operations efficiency | (Beatty et al., 2001, Collins et al., 2003, Harindranath et al., 2008, Teo et al., 2009) |
| Effective partnerships with partners and suppliers | (Daniel et al., 2002, Dyerson and Harindranath, 2007, Harindranath et al., 2008, MacGreogor, 2004, Saffu and Walker, 2008) |
| Improve accountability | (Quayle, 2002) |
| Enhance staff satisfaction | (Dyerson and Harindranath, 2007, Harindranath et al., 2008) |
| Ease of carrying out transactions | (Álvarez et al., 2007, Raymond, 2001) |
| Improve internal knowledge flow & sharing | (Daniel and Wilson, 2002) |
| Provide support for strategic decisions | (Grandon and Pearson, 2004, Kajogbola, 2004, Saffu and Walker, 2008) |
| Building the firm's ICT capabilities | (The e-Regions Trust, 2006) |

Table 4 - 1. Perceived benefits of e-commerce adoption

Table 4-2 lists eighteen perceived environmental pressures, categorized into five categories: customer pressures, competitor pressures, supplier and business partners, business environment and industry changes, and business internal priorities.

| Environmental pressures | Researchers |
|---|---|
| **Customer pressures:** | |
| Continuous demand for improved service quality | (Poon and Joseph, 2001, Beckinsale and Levy, 2004, Bigne et al., 2008, Daniel et al., 2002, Dyerson and Harindranath, 2007, Nour, 2002, Quayle, 2002) |
| Increased pressures from new types of customers | (Simpson and Docherty, 2004, Vrana and Zafiropoulos, 2006, Buhalis and Deimezi, 2004) |
| Higher level of buyer-seller interaction | (Vrana and Zafiropoulos, 2006) |
| **Competitor pressures:** | |
| Responding to competitor pressures | (Beekhuyzen et al., 2005, Daniel et al., 2002, Poon and Joseph, 2001, WTO, 2001, Buhalis and Deimezi, 2004, Simpson and Docherty, 2004, Jin, 2007) |
| The fear of being behind and level of competition among the industry firms | (Bigne et al., 2008, Patricia, 2008, Teo et al., 2009, Wesrthner and Klein, 1999) |
| Emergence of new virtual intermediaries | (Barnett and Standing, 2001) |
| **Suppliers and partner pressures:** | |
| Business partner influence | (Beckinsale and Levy, 2004, Beekhuyzen et al., 2005, Poon and Joseph, 2001, Raymond, 2001, Teo et al., 2009, Rao et al., 2003) |
| Suppliers' development programmes | (Quayle, 2002, Vrana and Zafiropoulos, 2006) |
| Growing market changes | (Rao et al., 2003) |
| **Business environment and industry changes:** | |
| Rapidly industry changes | (Saffu and Walker, 2008, Simpson and Docherty, 2004, Kuan and Chau, 2001, Grandon and Pearson, 2004) |
| Business environmental uncertainty | (Raymond, 2001) |
| Adapting to changes in technology | (Karagozoglu and Lindell, 2004, Law et al., 2004) |
| Globalization & modernisation consequences | (Nour, 2002, Poon and Joseph, 2001) |
| Governmental rules and regulations | (Kuan and Chau, 2001, Saffu and Walker, 2008, Teo et al., 2009, Grandon and Pearson, 2004) |
| **Business internal priorities:** | |
| Business strategy and planning | (Quayle, 2002) |
| Employees' pressure | (Beckinsale and Levy, 2004) |
| Owner/manager Push | (Beckinsale and Levy, 2004) |
| Future survival of travel agents | (Bennett and Lai, 2005, Bigne et al., 2008, Heung, 2003, Law et al., 2004, Stansfield and Grant, 2003b, Warden and Tunzelana, 2004) |

Table 4 - 2. Perceived environmental pressures of e-commerce adoption

Table 4-3 shows twenty-two perceived barriers to e-commerce adoption together with their sources drawn from the literature review.

| Barriers to adoption | Researchers |
|---|---|
| Lack of awareness of e-commerce benefits | (Ayeh, 2006, Kula and Tatoglu, 2003, Simmons et al., 2008, Stansfield and Grant, 2003b, Stockdale and Standing, 2006, Thong, 1999, Chen and McQueen, 2008, Zheng et al., 2004). |
| Limited available resources | (Ayeh, 2006, Grandon and Pearson, 2004, Hadjimanolis, 1999, Heung, 2003, Jin, 2007, Lacovou et al., 1995, Migiro and Ocholla, 2005, Skoko et al., 2008, Stansfield and Grant, 2003b, Stockdale and Standing, 2006, Zheng et al., 2004) |
| Employees' resistance | (Dyerson and Harindranath, 2007, Heung, 2003, Warden and Tunzelana, 2004) |
| Risk taking reluctance | (Pilat, 2003, Zheng et al., 2004) |
| Business Characteristics (Small size, remote location...) | (Beckinsale and Levy, 2004, Heung, 2003, Simmons et al., 2008) |
| Lack of technological readiness | (Nour, 2002, Rao et al., 2003, Anckar, 2003, Chen and McQueen, 2008, SAGE, 1996, Samoilenko and Osei-Bryson, 2008, Stockdale and Standing, 2006, Wahid, 2007) |
| Lack of IT-travel skilful labour | (APEC, 1999, Hadjimanolis, 1999, SAGE, 1996, Samoilenko and Osei-Bryson, 2008, Skoko et al., 2008, Heung, 2003, Warden and Tunzelana, 2004) |
| Lack of business planning and strategy | (Skoko et al., 2008, Zheng et al., 2004) |
| The required time to make changes and replace technologies in SMEs | (Heung, 2003, MacGreogor, 2004, APEC, 1999, Hadjimanolis, 1999, Kartiwi and MacGregor, 2007, Wahid, 2007). |
| Legal concerns | (Azam, 2007, Dowler and Lawrence-Slater, 1998, Heung, 2003, Ghamatrasa, 2006, Warden and Tunzelana, 2004) |
| Insecurity and lack of confidentiality in online transactions | (Azam, 2007, Chen and McQueen, 2008, Dowler and Lawrence-Slater, 1998, Ghamatrasa, 2006, Hadjimanolis, 1999, Kula and Tatoglu, 2003, MacGreogor and Vrazalic, 2005, Mirchandani and Motwani, 2001, Rao et al., 2003, SAGE, 1996, Webster et al., 2006, Nour, 2002) |
| Business environment (governments and markets regulations) | (Ayeh, 2006, Dutta and Coury, 2003) |
| Lack of external advice and support | (Chen and McQueen, 2008, Stansfield and Grant, 2003a, Dutta and Coury, 2003) |
| Lack of public infrastructure readiness | (APEC, 1999, Azam, 2007, Chen and McQueen, 2008, Dutta and Coury, 2003, Rao et al., 2003) |
| Lack of proven successful role models | (SAGE, 1996, Zheng et al., 2004) |
| Customer issues( trust & satisfaction) | (Álvarez et al., 2007, Zeithaml et al., 2002) |
| Inability of e-commerce trialability | (Azam, 2007, Kendall et al., 2001, MacGreogor and Vrazalic, 2005, Moore and Benbasat, 2001, Rogers, 1995) |
| Complexity (not easy to use) | (Azam, 2007, Beckinsale and Levy, 2004, Davis et al., 1989, Dyerson and Harindranath, 2007, Kendall et al., 2001, MacGreogor and Vrazalic, 2005, Moore and Benbasat, 2001, Rao et al., 2003, Venkatesh and Davis, 2000) |
| Inability of e-commerce reversibility | (MacGreogor and Vrazalic, 2005) |
| Inability of e-commerce modifiability | (MacGreogor and Vrazalic, 2005) |
| Inability of e-commerce observability | (Azam, 2007, MacGreogor and Vrazalic, 2005, Rogers, 1995) |
| E-commerce is not suitable to the nature of services | (Álvarez et al., 2007, Ayeh, 2006, Hadjimanolis, 1999, Heung, 2003, Kartiwi and MacGregor, 2007, Nour, 2002, Tucker, 2008) |

Table 4 - 3. Perceived barriers to e-commerce adoption

In addition to addressing the main variables of the study, the questionnaire form included further questions relating to the computer usage in the travel agencies, internet access, internet use, and the features offered on the agencies' websites. This is discussed further in the next section: Questionnaire layout.

### 4.5.3 Questionnaire layout

The initial questionnaire form was designed and then procedures were followed to validate the form and ensure that it measured what it was supposed to measure. The detailed procedures used to ascertain the questionnaire validity, and the pilot testing, are discussed in Chapter 5. The final questionnaire form is divided into four parts as follows (see Appendix 3):

**Part 1** requests the required information about the use of computers by the travel agents. It addresses computer use in daily business activities, how long they have been used for, who is responsible for providing technical support in the company and the ranking of the employees based on their knowledge of computers. This part includes five questions, a mixture of closed and open-ended questions with two or multiple choices.

**Part 2** is concerned with the issue of internet access and use by the travel agents. It includes four questions, some closed and some open-ended. It explores internet access and investigates internet usage patterns among the travel agents, and the information offered on their websites. This part helps to establish the current status of internet use by the travel agents.

**Part 3** is concerned with e-commerce adoption by travel agents. It comprises six closed/open-ended questions, investigating whether or not the agents have adopted e-commerce, if so, which level they have adopted, the factors affecting the adoption decision, the perceived benefits of adoption (Table 4-1), the perceived environmental pressures (Table 4-2), the perceived barriers to adoption (Table 4-3), and

recommendations for the successful implementation of e-commerce by travel agents. A combination of single and multiple-scale responses is used in these questions. Most have multiple sub-items, and the response for each item ranges from strongly disagree (1) to strongly agree (5).

**Part 4** requests general information from the respondents; this includes the manager's years of experience in the tourism industry, his/her age and most recent academic qualification, the number of employees in the company, and the market it serves. Most of the questions in this part are closed-ended with either a single number requested or multiple options from which to choose.

### 4.5.4 Analysis procedures for the survey questionnaire

Structural equation modelling (SEM) is used for the quantitative data analysis. SEM is a confirmatory multivariate technique that includes the measurement errors in the model, and allows the researcher to measure the relationships between the latent (i.e., benefits of adoption) and the observed variables (indicators) (Robson, 2002). SEM establishes both measurement and structural models to address complicated relationships (Hair et al., 2010). In this study, it is used to investigate the effect of perceived environmental pressures on e-commerce adoption by travel agents via two mediating variables: the perceived benefits of and perceived barriers to adoption. According to Schreiber et al. (2006), SEM results should be reported in two main parts, pre-analysis and post-analysis. Exploratory factor analysis (EFA) is the approved data-screening procedure to be used prior to SEM analysis (Kline, 2005).

This study uses a five-point Likert scale for the independent variables in addition to a dichotomous scale (values of 1 and 0) for the dependent variable. By definition, these are not normally distributed scales, and thus the assumption of normally distributed data is violated (Hoe, 2008, Kaplan, 2000, Stevens, 1996). However, treating ordinal data with at

least five categories (strongly disagree to strongly agree) as a continuous scale will not cause great distortion to the model fit indices (Hoe, 2008). One technique for addressing non-normal and categorical data in SEM is to use robust weighted least squares estimation methods, known as WLSMV in the Mplus software (Enders, 2005, Finney and DiStefano, 2006, Hoe, 2008, Muthén, 1998-2004). Robust maximum likelihood (MLR) is used in the measurement instead of WLSMV which is not applicable to EFA. The Mplus (version 6.1) software program is used for analysis purposes where it is best software when there are binary outcomes.

Based on recommendations in the literature (i.e., Boomsma, 2000, Breckler, 1990, Hayduk et al., 2007, Hooper et al., 2008, Kline, 2005), the following criteria are used for the model fit indices: Chi-squared statistics ($X^2$) with $p > 0.05$, $X^2/df < 2$ (Crowley et al., 2000, Schermelleh-Engel et al., 2003, Schreiber et al., 2006), the root mean square error of approximation (RMSEA) < 0.05 (Browne and Cudeck, 1993, Byrne, 2009, Hox, 2010, Kaplan, 2000), 90% confidence intervals (CI) < 0.05 (MacCallum et al., 1996), the standardized root mean square residual (SRMR) < 0.08 (Breckler, 1990, Schreiber et al., 2006), the comparative fit index (CFI) > 0.90 (Hatcher, 1994, Hox, 2010, Kline, 2005) close to 0.95 (Breckler, 1990, Muthén, 1998-2004), and the Tucker-Lewis index (TLI) > 0.90 (Golob, 2003, Hox, 2010) close to 0.95 (Breckler, 1990, Muthén, 1998-2004). These have been found to be most insensitive to sample size, model misspecification and parameter estimates. Using the WLSMV estimator in Mplus provides a new index for categorical and non-normal data, the weighted root mean square residual (WRMR) (Finney and DiStefano, 2006, Hox, 2010). WRMR value < 0.90 is the rule of thumb used (Enders, 2005, Muthén, 1998-2004). Table 4-4 summarizes and describes these indices and rules of thumb.

| Indices | Description | Target |
|---|---|---|
| Chi-square ($x^2$) | Tests to what extent the estimates and model specifications are true. (this index has a limitation of its dependence to sample size) | p>.05 The model is still accepted fitting if the p < .05 (Barrett, 2007) |
| $x^2$/df | An alternative to $X^2$. It is used to avoid $x^2$ sensitivity to the sample size. | <2 (Schreiber et al., 2006, Crowley et al., 2000, Schermelleh-Engel et al., 2003). |
| RMSEA | Tests how parameters would fit the population covariance matrix | <.05 (Byrne, 2009, Browne and Cudeck, 1993, Kaplan, 2000, Hox, 2010), 90% confidence interval (C.I.) <= 0.05, RMSEA p>.05 (MacCallum et al., 1996). |
| SRMR | The overall difference between observed and predicted correlations | <.08 (Schreiber et al., 2006, Breckler, 1990) |
| CFI | Compares the sample covariance matrix in both the model and the null model | >.90 (Kline, 2005, Hatcher, 1994, Hox, 2010). Close to .95 (Breckler, 1990, Muthén, 1998-2004) |
| TLI | It has a correction of complex models fit as a result of more variance produced naturally in these models | >.90 (Hox, 2010, Golob, 2003). Close to .95 (Breckler, 1990, Muthén, 1998-2004) |
| WRMR | Suitable for categorical and non-normal data, it involves the asymptotic variance in the computations. | <1 (Breckler, 1990, Hoe, 2008, Kline, 2005). <.90 (Enders, 2005, Muthén, 1998-2004) |

Table 4 - 4. Summary and description of model fit indices

The construct validity of the measurement model is assessed by looking at both the discriminant and convergent validities. Discriminant validity means that the constructs must be different from other related constructs; it is examined separately for each pair of constructs (Hair et al., 2010, Tanaka, 1987, Tarling, 2009). Convergent validity refers to the extent of correlation between measures of the same construct, which should be related in reality (Grob, 2003). Average variance extracted (AVE) is used to assess discriminant and convergent validity (Dalgaard, 2008, Fornell and Larcker, 1981). AVE refers to the overall amount of variance in the items accounted for by a latent construct (Bland and Altman, 1994). Convergent validity is adequate if AVE ≥ 0.50 and discriminant validity exists if the AVE values are greater than the squared inter-construct correlation (SIC) (Dalgaard, 2008). Furthermore, composite reliability (CR) verifies the validity of the constructs, reflecting how error affects the scale (Field, 2009). A CR index of 0.70 is acceptable according to Hair et al. (1998).

Three strategies of model specification and evaluation have been described in the literature (Hair et al., 2010, Joreskog and Sorbom, 1996, MacCallum and Austin, 2000): confirmatory modelling, the competing models strategy, and the model development strategy. Confirmatory modelling is a strategy in which the researcher specifies a single model and assesses how well it fits the data. In the competing models strategy, the estimated model is compared with alternative competing models. In model development, the proposed model is improved by modifying the measurement or the structural model (Hair et al., 2010). MacCallum and Austin (2000) state that the competing model strategy is an attractive alternative to confirmatory modelling and model development. They remark that the confirmatory modelling strategy is highly restrictive and requires the investigator to evaluate a single model in isolation, with a low probability that the model will fit the data, while in the model development strategy model generation depends on modifications that may lack validity and must be conditioned. Meanwhile, the competing model strategy avoids the difficulties of the model development strategy and the bias of confirmatory modelling and provides comparative information about competing explanations of the data.

This study thus follows the competing models strategy, comparing the research model against two competing models. Because the competing models are non-nested, three steps are involved in comparing the model. First, the fit indices of the models are assessed to check whether the models are appropriate. Then, if the competing models fit the data, the next step is to compare the models' path coefficients and predictive power or variance explained ($R^2$). Finally, if the fit indices and explanatory power are equivalent, then the best model is the one that is most parsimonious. Because $R^2$ tends to overestimate the variance, the adjusted $R^2$ is used (Lee and Back, 2008).

When investigating the effect of perceived environmental pressures, perceived benefits, and perceived barriers to e-commerce adoption on the e-commerce adoption level (low versus advanced), because the sample of adopter travel agents is insufficient to fit a

structural model, a binary logistic regression model is used instead. Logistic regression is a multiple regression with a categorical outcome variable and continuous or categorical predictor variables (Field, 2009). What distinguishes logistic regression from linear regression models is that the outcome variable (dependent variable) is binary or dichotomous (Hosmer and Lemeshow, 2000). Logistic regression could be binary logistic when the dependent variable takes the values of 0 and 1 (dummy variable) or could be multinomial logistic regressions when the dependent variable becomes more than two categories (Chatterjee and Hadi, 2006). To test the significance of the logistic regression model, the 2logliklihood statistic and chi-square are used to judge whether independents variables significantly affect the dependent variable. To explore the overall goodness of fit, Chi-square for Hosmer and Lemeshow and $R^2$ for Nagelkerke are adopted (Tarling, 2009).

### 4.5.5 Population and sample size for questionnaire survey

The full set of cases or elements from which a sample is drawn is called the population. Time and budget constraints, and the impracticality of surveying the entire population are reasons for using samples. Selecting the sample to study is important in all types of research; amongst the criteria that define a good sample is the degree of certainty that generalizations can be made from the sample to the entire population (external validity); this depends on the size of the sample and how representative it is. Of these two factors, sample representativeness is the more important (Vogt, 2007).

There are two main categories of sampling: probability (also called representative sampling), where each case has a known probability of being selected, usually the same for all cases, and non-probability (also called judgemental sampling), where the probability of selecting a given case from the population is not known (Saunders et al., 2007, Vogt, 2007). According to Vogt (2007), probability sampling is always preferable in research as it helps to remove bias from the case selection process, and maximizes the external validity. Probability sampling can be further divided into four main types: random, stratified,

systematic, and cluster sampling. There are many varieties of non-probability sampling but the two most common types are convenience and purposive sampling.

According to Saunders et al. (2007), probability sampling is most commonly used in survey-based research. In addition to Vogt's (2007) sampling types, they describe the quota, snowball and self-selection types of non-probability sampling. The probability sampling procedure consists of four stages: identify a suitable sampling frame, decide on a suitable sample size, select the most appropriate sampling technique, and check that the sample is representative of the population. Many criteria are used to choose between probability and non-probability sampling, amongst them the degree of accuracy and allowed margin of error, the research objectives, and the need for subsequent statistical analysis (Zikmund, 2000). For the questionnaire survey and the first exploratory study in this research, based on the aforementioned criteria, probability sampling is chosen.

#### *4.5.5.1 Sampling frame*

The sampling frame for a probability sample is 'a complete list of all the cases in the population from where the sample will be drawn' (Saunders et al., 2007, p.208). For this study, category (A) travel agents is the sampling frame. A complete list of these travel agents is available from the Egyptian Travel Agents Association (ETAA) (part of the Egyptian Ministry of Tourism), which publishes a directory of all travel agents in Egypt by category. According to the Egyptian Travel Agents Association (2008), there are 1,023 category (A) travel agents in Egypt. They are located in 22 of Egypt's 29 governorates (see Table 4-5).

| No | Governorates | Category A | % |
|---|---|---|---|
| 1. | Cairo | 645 | 63.05% |
| 2. | Giza | 180 | 17.60% |
| 3. | Alexandria | 51 | 4.99% |
| 4. | Red Sea | 18 | 1.76% |
| 5. | Gharbia | 18 | 1.76% |
| 6. | Sharkia | 17 | 1.66% |
| 7. | Dakahlia | 17 | 1.66% |
| 8. | South Sinai | 14 | 1.37% |
| 9. | Beheira | 12 | 1.17% |

| | | | |
|---|---|---|---|
| 10. | Kafr El-Sheikh | 11 | 1.08% |
| 11. | Luxor | 8 | 0.78% |
| 12. | Port Said | 7 | 0.68% |
| 13. | Monoufia | 5 | 0.49% |
| 14. | Wadi El-Gedied | 5 | 0.49% |
| 15. | Sohag | 3 | 0.29% |
| 16. | Aswan | 3 | 0.29% |
| 17. | Assuit | 2 | 0.20% |
| 18. | Matrough | 2 | 0.20% |
| 19. | Damietta | 2 | 0.20% |
| 20. | Qena | 1 | 0.10% |
| 21. | Menia | 1 | 0.10% |
| 22. | Qaliubia | 1 | 0.10% |
| | Total | 1023 | 100.00% |

Table 4 - 5. Category (A) travel agents in the Egyptian governorates

It can be observed that 63.05% of Egypt's category (A) travel agents is located in Cairo. Furthermore, 826 (80.74%) of the 1,023 category (A) travel agents are based in Greater Cairo, which is made up of the whole of Cairo Governorate and the urban parts of Giza Governorate, and Qaliubia Governorate. Greater Cairo is a distinct entity in terms of its geographical features, divided for physical planning purposes into the three governorates, which deal with local administration (Sims, 2003). Given the high concentration of agents in Greater Cairo, and the geographical spread of the other governorates throughout Egypt, significant time, costs and difficulties could be involved in delivering and collecting questionnaires outside Greater Cairo. Thus, category (A) travel agents in Greater Cairo is selected as the sampling frame for both the first exploratory study and the main survey of this research.

#### *4.5.5.2 Sample size*

The choice of sample size depends on many factors, including the level of certainty (confidence) and margin of error required, the types of analyses to be run, and the size of the total population (Saunders et al., 2007). Researchers normally work to a 95% level of certainty. Regarding margin of error, in terms of the precision of the estimates made about the population, most business and management research uses a margin of plus or minus

3-5% of the true value. According to Saunders et al. (2003), the actual sample size that should be used ($n^a$) can be calculated by the formula:

$$n^a = \frac{\mathbf{n} \times \mathbf{100}}{\mathbf{re\%}}$$

where
n is the sample size required, defined according to the margin of error and a confidence level of 95%,

re% is the estimated response rate, represented as percentage.

Based on Saunders et al. (2003), if the margin of error is selected to be 5% and the population size is between 750-1000, then the required sample size is 254-287. Supposing that the response rate in this study is 90%, as the questionnaire will be delivered and collected by hand, to travel agents who have agreed in advance that they will fill in the form, and then according to the sample size formula, the sample size that should be used is as follows:

$$\mathbf{n^a} = \frac{\mathbf{287 \times 100}}{\mathbf{90}} = \frac{\mathbf{28700}}{\mathbf{90}} = \mathbf{309\ subjects}$$

#### *4.5.5.3 Sampling technique*

This study compares perceptions of e-commerce adoption between adopters and non-adopters. Therefore, the questionnaire of the study is distributed to travel agents who have been categorized as either adopters or non-adopters of e-commerce. Initially, it is supposed that travel agents with websites could be thought of as adopters of e-commerce, while those without them are non-adopters. Table 4-5 shows that according to this rule, 387 out of the 826 agents based in Greater Cairo would be adopters of e-commerce (n1) while 439 agents would be non-adopters (n2) (Egyptian Travel Agents Association, 2008).

Clearly, the two groups (n1 and n2) are not equally represented in the sampling frame. Therefore, stratified sample is employed in this study as it can reduce the heterogeneity of

the population and increase the efficiency of the estimates. To calculate sample size of the strata, the following formula is used:

$$Stratum\ sample\ size = \frac{n_i}{N} \times total\ sample\ size$$

Where: $n_i$ is the stratum size and N is the total size of the sampling frame (population).

For adopters of e-commerce (Stratum1= n1):

$$Stratum1\ sample\ size = \frac{387}{826} \times 309 = 145\ \mathbf{subjects}$$

For non-adopters (Stratum2= n2):

$$Stratum2\ sample\ size = \frac{439}{826} \times 309 = 165\ \mathbf{subjects}$$

A technique of simple random sampling with replacement is used within each stratum to select the sample subjects. As for the first exploratory study, and using the same formulas and sample technique mentioned above, 287 forms were collected for both categories; adopters (135 forms) and non-adopters of e-commerce (152 forms).

#### *4.5.5.4 Is the sample representative?*

A stratified sample is more likely to be representative of the entire population, especially when proportionally selected, as the population is divided into relevant strata that represent all the categories or groups in the population and this ensures that the sample is representative (Saunders et al., 2003, Barnett, 2004, Caskie and Willis, 2006, Fink, 2006). As will be described later on, 411 valid responses, free of missing data, were collected, with 202 responses from adopters and 209 from non-adopters.

Reviewing the SEM literature, there are various rules regarding sample size, although it is difficult to define it absolutely as several factors are involved, such as the level of complexity of the measured model and the estimation method used (Kline, 2010).

Examples of the ratios of sample size to parameters ratio used in previous studies include 20:1 or 10:1 (Schreiber et al., 2006, Hair et al., 1992) and 5:1 (Bentler and Chou, 1987). Another standard is 15 cases for each indicator/variable measured (Stevens, 1996). The sample size used in this study is 411 cases, which follows the large sample concept mentioned by Finny and DiStefano (2006) and represents around 10.5 cases for each measured indicator. This should confirm the sample's representativeness of the population.

## 4.6 Personal interviews

Face-to-face, one-to-one, and in-person interviews are all synonyms for personal interviews. Interviews are useful in general as participants can provide historical information, while the researcher can control the line of questioning (Creswell, 2009). Furthermore, they provide the opportunity for respondents to provide feedback or to clarify questions or instructions (Zikmund, 2000). Personal interviews are used for the qualitative research as the second stage of the research design. There are many classifications of interview typologies; some researchers have divided interviews into standardized and non-standardized (Healey and Rawlinson, 1993). Others refer to respondent versus informant interviews (Robson, 2002).

Interviews can be grouped into structured, semi-structured, and unstructured interviews, while qualitative interviews can be divided into two types according to the type of interaction: one-to-one (face-to-face and telephone interviews), and one-to-many (focus group interviews). Structured interviews are questionnaire-based, using a standardized set of questions, while semi-structured and unstructured interviews are non-standardized and can be led by a list of themes and questions. Semi-structured interviews are most frequently used in explanatory studies as they are useful for understanding the relationships between variables (Saunders et al., 2007). In this study, semi-structured face-to-face interviews are used to gather data for the qualitative stage of the research.

### 4.6.1 Sampling for qualitative interviews

The population used for the study and the sample frame were defined at the quantitative stage of the research, making the process of selecting interviewees for the qualitative stage easier. Geographically, the sample frame was limited to Category A travel agents located in Greater Cairo, and the study targets were the managers of the travel agents as they are the decision-makers when it comes to e-commerce adoption in their enterprises. Obtaining access to interviewees was not easy, however; very few managers agreed to be interviewed when they were asked to during the quantitative stage. Therefore, the snowball technique, a non-probability type of sampling (Saunders et al., 2007), was adopted. Snowball sampling is appropriate when members of a particular population are difficult to reach. The process starts with the researcher accessing a few members of the target population, and then asking them to suggest peers in the population (Babbie, 2010a) who might also participate. The accumulative process of locating respondents eventually provides the required size of respondents needed by the researcher. Building upon interviews with the few managers from the quantitative stage who did agree to participate, snowball sampling allowed the researcher to find other managers. Recommendations and personal communications among the managers facilitated the process. In the end, 22 managers were interviewed whose agencies had websites with different levels of e-commerce adoption. Although snowballing, as a non-probability sampling technique, leads to questionable representativeness of the population, the qualitative data in this study are only being used to provide more explanation and understanding of the quantitative results and are not the core data source for the study. In addition, including managers whose enterprises had adopted different levels of e-commerce provided valuable data as a result of their practical involvement in e-commerce adoption and their experience of the benefits and barriers involved.

### 4.6.2 Interview design and data collection

Semi-structured interviews are often used to explain the themes emerging from a questionnaire, or to help interpret quantitative findings (Creswell, 2009). The general aim of a semi-structured interview will often be to focus on a specific object and its meaning (Flick, 2002). Unstructured, general questions are used to find out participants' opinions and views in these interviews, according to Creswell (2009). Hence, this study makes use of an interview schedule with both open and closed-ended questions, developed based on the themes of the questionnaire. After permission was obtained to use a voice recorder , note-taking and a tape recorder are used to record the interview data as, according to Saunders et al. (2003), these methods allow the interviewee to concentrate, give the researcher the ability to listen to the interview again, and provide an accurate and unbiased record. The interview schedule (see Appendix 4) includes questions about e-commerce adoption, the information offered on the agents' websites, factors affecting the decision to adopt e-commerce, the perceived benefits of e-commerce adoption, perceived environmental pressures, perceived barriers to e-commerce adoption, and recommendations for successful e-commerce websites.

### 4.6.3 Interview validity and reliability

Qualitative validity and reliability is not achieved in the same way as in quantitative research, where validity refers to applying certain procedures to ensure the accuracy of the findings (Creswell, 2009). Reliability in qualitative research refers to whether other researchers would be able to reveal similar information. According to Saunders et al. (2007), researchers should include notes about the approaches used in their studies, the design of the research process, and their methodology, so that other researchers can understand how to reuse the data collected in the study.

Another issue in interviews is bias, from both interviewer and interviewee. Some methods of avoiding this bias are suggested by Saunders et al. (2007): the preparation and readiness of the interviewer, providing participants with a copy of the interview schedule before the event to promote the validity and reliability of the information given, adopting a similar style of dress to those being interviewed, developing positive relationships, speaking in a friendly manner to the interviewee before beginning the interview, using clear, open questions to reduce bias, avoiding too many theoretical concepts and specific terms, concentrate listening, taking a full record of the interview, and checking that the interviewee has understood the questions. The abovementioned considerations can also help to ensure the internal validity of the research. Integrating the results of the interviews with other data, such as that gathered through the questionnaire in this research, can also help to ensure the validity and reliability of the findings.

### 4.6.4 Qualitative analysis

There are various generic steps that are usually followed in qualitative data analysis. According to Creswell (2003), the first step is transcribing the interviews. Second, a general sense of information should be extracted to identify the ideas the participants are conveying. Third, the data should be coded into categories; data are organized into chunks and similar texts and comments are put into the same category and given a label. Still within the coding stage, the fourth step is to cluster similar topics and assign bits of text from each interview to various topics. Fifth, the researcher groups interrelated topics into themes, which form the major findings of the qualitative research. Discussion of the themes follows, and tables and figures are often useful ways to describe and interpret the findings.

In this study, the interviews were transcribed and then printed out to be scanned by the researcher so as to identify the key ideas in each single transcript. The audio files were listened to many times so that the researcher could familiarize himself with the data. The

transcribed interviews were then entered into NVivo software version 9. Themes had already been defined in the quantitative stage; the perceived benefits of e-commerce adoption, the perceived barriers to adoption and the perceived environmental pressures relating to adoption. Next, topics were listed under each theme using the 'Node' function in the software. Nodes were then assigned to each theme. Findings were extracted and quotations from the respondents were included in the analysis to ensure validity and reliability.

### 4.7 Summary

This study uses mixed methods based on the pragmatism philosophy. The deductive-inductive approach is employed to test the causal relationships amongst the quantitative variables and qualitative data is used to help interpret the quantitative findings. A questionnaire survey is used to collect the quantitative data from managers of category A travel agents based in Greater Cairo. Stratified sampling based on simple random techniques is used to select the subjects. Personal interviews with the managers of some of the travel agents are used to collect the qualitative data.

The study uses a sequential explanatory design beginning with a quantitative approach and ending with a qualitative approach. The interview schedule is designed and the gathered data used to help explain the quantitative findings.

# CHAPTER 5. QUESTIONNAIRE PILOT TESTING

## 5.1 Introduction

Questionnaire surveys are the most common data collection tool used in leisure and tourism research. One way to ensure that a questionnaire will answer the research question is to pilot it. Questionnaire piloting aims to refine the questionnaire so that the respondents will have no problems answering it, to assess the validity of the questions, and to investigate the reliability of the collected data. This chapter describes the testing of the questionnaire's content validity, translation validity, construct validity and reliability.

## 5.2 Content validity

Validity refers to the extent to which the measuring instrument accurately measures what it is supposed to measure (Bryman and Bell, 2007). Regarding validity issues, there is evidence that using mixed methods achieves the validity of the measures and ensures the credibility of the research findings (Pansiri, 2005, Pansiri, 2006). Content validity refers to the extent to which the measurement instrument adequately covers the measured questions. Content validity can be achieved in various ways; for example, the research topic should be defined carefully, and the questionnaire should be assessed by a panel of individuals to determine whether the questionnaire measures what it should measure (Vogt, 2007, DeVellis, 2003, Netemeyer et al., 2003, Ruane, 2005). The point of this research is to look at the factors that affect travel agents' decisions to adopt e-commerce. An extensive review of literature was conducted and showed that these factors encompass the perceived benefits of adoption, the perceived barriers to adoption and perceived environmental pressures.

The first draft of the questionnaire was checked by 15 doctorate students specializing in business to see how well they could understand the questions, and judge the

design of the questionnaire and its readability. Most of the feedback related to the order of the questions on the questionnaire form, which resulted in the design of a new form. The second draft of the questionnaire was then sent to six professional and academic people to check its validity: four senior lectures in the UK (one specializing in information systems management, one in business, one in information strategy, and one in tourism) and two professors in Egypt, specializing in tourism and hospitality. The comments from this panel included the following: (1) the use of technical terminology in the form, such as reversibility, trialability, modifiability and observability, might not be understood by the respondents; (2) answering the questions about personal information, which was needed for the study, should not be optional; (3) the rationale for each part of the questionnaire should be explained to the participants; (4) the format of the questionnaire form was very tight and the questions should be spread out more; (5) the personal data section should be divided into two categories, one relevant to the travel agency and the other to the manager them self; (6) a question should be added asking whether the respondent's qualification was related to tourism, or not; (7) tourism-related terms, such as tourist, traveller, and travel agents, should be used instead of business and respondents. All of the members of the panel recommended piloting the questionnaire on travel agents. The experts' comments were considered, technical terms were explained and a third draft of the questionnaire produced. One member of the panel recommended translating the form into the Arabic language, the mother tongue of the respondents. Therefore, it was decided to translate the form before proceeding to pilot it on travel agents.

### 5.3 Questionnaire translation

It is extremely important in international research that translated questions have the same meaning as the source questionnaire. Validating the source questionnaire is not a guarantee that the translated form will be valid unless translation validity procedures are followed. There are a number of techniques used in translating a source questionnaire: (1) translating the source questionnaire directly to produce the target questionnaire, (2) back-translation – translating the target questionnaire back into the original language and comparing it to the source, (3) parallel translation – having the source questionnaire translated by two independent translators, comparing the two resulting questionnaires and creating a final version from them, and (4) the mixed technique – follow the parallel translation method, then have the resulting target questionnaire translated back into the source language by two other independent translators, and compare the two resulting source questionnaires, then create the final version (Saunders et al., 2009, Usunier, 1998). Although back-translation can correct most translation problems, the mixed technique has the advantages of back-translation but also ensures the best match between the source and the target. In this study, therefore, the mixed technique was used to translate the English source questionnaire into the Arabic target questionnaire then back translation. The two resulting source questionnaires were compared by a specialist British native speaker (with a PhD in Linguistics). Four items were found to have different meanings in the new source questionnaires. The four items were rephrased in the development of the final questionnaire.

### 5.4 Construct validity

Construct validity refers to how the constructs are measured by the instrument. Construct is another term for concept (Vogt, 2007). Construct validity is based on the

theoretical background used to conceptualize the causal relationships among the constructs and how they correlate with each other (Bryman and Bell, 2007). Construct validity includes two sub-types, discriminant and convergent validity, which are addressed in detail in Chapter 6. However, during the piloting of the questionnaire, it was recommended by all members of the panel that the questionnaire should be piloted on travel agents to assess the construct validity. Although a sample of ten is considered adequate for piloting questionnaires (Saunders et al., 2003), for this study copies of the questionnaire were sent to 50 travel agents for piloting purposes. They were distributed using the stratified sampling basis: to 23 adopters and 27 non-adopters. Corrected item-total correlations were used to measure the constructs of the study and its indicators. Indicator loadings between 0.35 and 0.80 in corrected item-total correlations are deemed to show that the retained indicators are valid for measuring the one construct in question (Netemeyer et al., 2003).

As the corrected item-total correlations are calculated jointly within the reliability statistics, the next two sections present the descriptive statistics that show for each item whether the respondents agreed or disagreed with it, the mean scaled responses, the reliability statistics, Cronbach's alpha if the item was deleted, and the corrected item-total correlations.

## 5.5 Reliability statistics

Reliability refers to 'a statistical measure of how reproducible the survey instrument's data are' (Litwin, 1995). One type of reliability is internal consistency; it is measured by calculating Cronbach's alpha, which measures the homogeneity of a scale formed of multiple items. Cronbach's alpha takes values ranging from 0 (measures are totally inconsistent) to 1 (items correlate perfectly). A high value reflects good internal

consistency of the items in the scale (George and Mallery, 2003). Many researchers agree that a value of 0.5 or less indicates an unacceptable scale, some have stated that a value of 0.6 is required (Liu and Arnett, 2000, Leblanc, 1992, Heung and Chu, 2000), while others have stated that it should be at least 0.7 (Hair et al., 2010, Field, 2009, Vogt, 2007).

The values of Cronbach's alpha for the three main constructs of this study are 0.860 for the perceived benefits of e-commerce adoption, 0.942 for the perceived barriers to adoption, and 0.705 for the perceived environmental pressures to adopt. These values highlight the reliability of the constructs in the questionnaire form.

Corrected item-total correlations are obtained from reliability statistics. The values of these correlations reflect how one item is correlated with the other items in a given set of items. It is used to determine a set of candidate items to be retained in a scale, which will achieve construct validity (see Section 5-4). There is much discussion over the exact values of these correlations that should be used to determine which items to retain in a scale; one rule states that the correlations should be above 0.30 (Field, 2009), another that they should be greater than 0.35, others that they should be between 0.50 and 0.80. The rule used in this study to achieve construct validity is that item ($i$) should be retained if $0.35 < i < 0.80$ (Netemeyer et al., 2003).

Beginning with the 24 benefits, Table 5-1 shows that seven items had values below 0.35. These seven items were deleted and the construct was re-run; this placed two more items as candidates for deletion: guarantee of stability in the market, and encouraging customer loyalty.

| Perceived benefits of e-commerce adoption | Corrected item-total correlation | Cronbach's alpha if item deleted |
|---|---|---|
| Sales, revenue and profits growth | .386 | .856 |
| ~~Continuation of current benefits~~ | ~~.226~~ | .864 |
| Guarantee of stability in the market | .373 | .859 |
| Support effective re-intermediation | .698 | .846 |
| Attracting new services/ investment | .400 | .856 |
| Enable and facilitate collaboration | .449 | .854 |
| ~~Interacting with current & future partners~~ | ~~.005~~ | .866 |
| Improve distribution channels | .360 | .857 |
| Establish reputation in the global markets | .465 | .854 |
| Customizing services to customer needs | .589 | .851 |
| Improve customer satisfaction | .607 | .850 |
| Encouraging customer loyalty | .363 | .859 |
| ~~Penetration of global markets~~ | ~~.173~~ | .861 |
| ~~Increase customer base~~ | ~~.109~~ | .863 |
| Increase competitive advantages | .644 | .849 |
| ~~Staying ahead of competitors~~ | ~~.267~~ | .859 |
| ~~improving internal operations efficiency~~ | ~~.277~~ | .859 |
| Effective partnerships with partners and suppliers | .641 | .848 |
| Improve accountability | .554 | .851 |
| Enhance staff satisfaction | .543 | .851 |
| Ease of carrying out transactions | .613 | .848 |
| Improve internal knowledge flow and sharing | .628 | .849 |
| Provide support for strategic decisions | .678 | .846 |
| ~~Building the firm's ICT capabilities~~ | ~~.262~~ | .861 |

Table 5 - 1. Corrected item-total correlations for perceived benefits of adoption

Excluding these nine items from the benefits construct, Table 5-2 shows the 15 retained benefits with values exceeding 0.35. Cronbach's alpha for the revealed construct becomes 0.862 instead of 0.890. Therefore, these nine items were deleted from the final questionnaire form, leaving 15 items.

| Perceived benefits of e-commerce adoption | Corrected item-total correlation | Cronbach's alpha if item deleted |
|---|---|---|
| Sales, revenue and profits growth | .417 | .889 |
| Support effective re-intermediation | .696 | .878 |
| Attracting new services/ investment | .403 | .890 |
| Enable and facilitate collaboration | .547 | .885 |
| Improve distribution channels | .407 | .891 |
| Establish reputation in the global markets | .459 | .888 |
| Customizing services to customer needs | .602 | .882 |
| Improve customer satisfaction | .625 | .882 |
| Increase competitive advantages | .622 | .882 |
| Effective partnerships with partners/ suppliers | .650 | .880 |
| Improve accountability | .579 | .883 |
| Enhance staff satisfaction | .518 | .885 |
| Ease of carrying out transactions | .624 | .881 |
| Improve internal knowledge flow and sharing | .606 | .882 |
| Provide support for strategic decisions | .716 | .877 |

Table 5 - 2. Retained benefits of e-commerce in the final questionnaire version

Table 5-3 shows that four out of the 22 barriers were invalid, according to the corrected item-total correlations rule given above. Therefore, those four invalid items were also removed from the final version of the questionnaire.

| Perceived barriers to e-commerce adoption | Corrected item-total correlation | Cronbach's alpha if item deleted |
|---|---|---|
| Lack of awareness of e-commerce benefits | .404 | .942 |
| Limited available resources | .746 | .937 |
| Employees resistance to change from traditional ways of doing work | .572 | .940 |
| Risk taking reluctance and uncertainty of e-commerce benefits | .616 | .939 |
| Business characteristics (small size, remote location) | .583 | .940 |
| Lack of technological readiness | .555 | .940 |
| Lack of IT-travel skilful labour | .581 | .940 |
| Business planning and strategy (no IT strategy, no wish to expand) | .633 | .939 |
| Required time to replace/change from traditional methods to new ones | .632 | .939 |
| Legal concerns (taxation, liability issues, privacy legislations, financial) | .711 | .938 |
| ~~Security concerns (lack of confidentiality, insecure transactions, trust)~~ | ~~.811~~ | .936 |
| Business environment (political, regulatory systems& consumer culture) | .706 | .938 |
| Lack of external support (Limited governmental initiatives, & support) | .638 | .939 |
| Lack of public infrastructure readiness (available& speed internet access) | .752 | .937 |
| Lack of E-commerce successful and proven business models | .591 | .940 |
| Customer issues (culture, trust and satisfaction) | .625 | .939 |
| Inability of E-commerce trialability (adopting its software in trial) | .422 | .942 |
| Ecommerce complexity (complicated technology and not easy to be used) | .472 | .942 |
| ~~Inability of e-commerce reversibility (inability to be discontinued easily)~~ | ~~.813~~ | .936 |
| ~~Inability of e-commerce observability (observe, measure impacts to the firm)~~ | ~~.826~~ | .936 |
| ~~Inability of e-commerce modifiability(updating & modifying it over time)~~ | ~~.838~~ | .935 |
| E-commerce is not suitable to the nature of services | .436 | .942 |

Table 5 - 3. Corrected item-total correlations for barriers to e-commerce adoption

After excluding those four items, the retained items all had loading values greater than 0.35 (see Table 5-4). Cronbach's alpha for the amended construct was 0.912 compared to 0.942 for the original construct. Thus 18 barriers were retained in the final questionnaire form.

| Perceived barriers to e-commerce adoption | Corrected item-total correlation | Cronbach's alpha if item deleted |
|---|---|---|
| Lack of awareness of e-commerce benefits | .428 | .911 |
| Limited available resources | .716 | .903 |
| Employees resistance to change from traditional ways of doing work | .548 | .908 |
| Risk taking reluctance and uncertainty of e-commerce benefits | .579 | .907 |
| Business characteristics (small size, remote location) | .588 | .907 |
| Lack of technological readiness | .561 | .908 |
| Lack of IT-travel skilful labour | .589 | .907 |
| Business planning and strategy (no IT strategy, no wish to expand) | .625 | .906 |
| Required time to replace/change from traditional methods to new ones | .630 | .906 |
| Legal concerns (taxation, liability issues, privacy legislations, financial) | .720 | .903 |
| Business environment (political, regulatory systems& consumer culture) | .655 | .905 |
| Lack of external support (Limited governmental initiatives, & support) | .596 | .907 |
| Lack of public infrastructure readiness (available& speed internet access) | .693 | .904 |
| Lack of E-commerce successful and proven business models | .587 | .907 |
| Customer issues (culture, trust and satisfaction) | .639 | .905 |
| Inability of E-commerce trialability (adopting its software in trial) | .449 | .910 |
| Ecommerce complexity (complicated technology and not easy to be used) | .508 | .910 |
| E-commerce is not suitable to the nature of services | .408 | .913 |

Table 5 - 4. Retained barriers to e-commerce adoption

Finally, Table 5-5 shows that only six out of the 18 environmental pressures obeyed the retaining rule.

| Perceived environmental pressures of e-commerce | Corrected item-total correlation | Cronbach's alpha if item deleted |
|---|---|---|
| ~~Consumer demand for service quality~~ | ~~.285~~ | .693 |
| ~~Increased pressures from new customers~~ | ~~-.029~~ | .734 |
| ~~Higher level of buyer-seller interaction~~ | ~~-.056~~ | .710 |
| Responding to competitor pressures | .457 | .680 |
| ~~Fear of being left behind~~ | ~~-.035~~ | .713 |
| ~~Emergence of new virtual intermediaries~~ | ~~.138~~ | .705 |
| Supplier's development programmes | .583 | .663 |
| Business partner influence | .516 | .663 |
| ~~Growing markets changes~~ | ~~.061~~ | .709 |
| ~~Business environmental uncertainty~~ | ~~.278~~ | .696 |
| Adapting technology changes | .484 | .679 |
| ~~Rapidly industry changes~~ | ~~.000~~ | .708 |
| Globalization and/or modernization issues | .560 | .667 |
| ~~Governmental rules and regulations~~ | ~~.274~~ | .694 |
| ~~Business strategy (planning to expand and development)~~ | ~~.178~~ | .702 |
| ~~Pressure from employees~~ | ~~.268~~ | .703 |
| ~~Owner/manager and/or IT manager push~~ | ~~.305~~ | .697 |
| Future survival of travel agency | .716 | .637 |

Table 5 - 5. Corrected item-total correlations for environmental pressures of adoption

After excluding these 12 items, Table 5-6 shows the valid six items and that Cronbach's alpha for the amended construct is 0.788 compared to 0.705 previously. The construct of perceived environmental pressures thus encompass only six items in the final questionnaire form.

| Perceived environmental pressures of e-commerce | Corrected item-total correlation | Cronbach's alpha if item deleted |
|---|---|---|
| Responding to competitor pressures | .424 | .781 |
| Supplier's development programmes | .630 | .735 |
| Business partner influence | .516 | .774 |
| Adapting technology changes | .505 | .768 |
| Globalization and/or modernization issues | .520 | .761 |
| Future survival of travel agency | .714 | .707 |

Table 5 - 6. Retained items of environmental pressures of e-commerce adoption

## 5.6 Summary

To sum up, both the content and construct validity of the questionnaire form were addressed to ensure that the measuring instrument measured what it was supposed to measure. The questionnaire form was first checked by 15 PhD students to determine how readable it was. Next, the questionnaire was sent to a panel of academics to ensure that the form properly covered the concepts it was meant to investigate. The questionnaire was then translated into Arabic to ensure that the questions would be fully comprehended by the respondents, whose mother tongue is Arabic. The mixed technique of translation was used to validate the Arabic copy and ensure it matched the original as well as possible. To validate the three main constructs of the study, the perceived benefits of e-commerce adoption, the perceived barriers to adoption, and perceived environmental pressures, corrected item-total correlations were calculated. As a result, 15 perceived benefits, 18 perceived barriers, and six perceived environmental pressures were retained. The reliability statistics show that the retained items in all the constructs were adequate.

# PART III. RESEARCH FINDINGS

## Chapter 6. Quantitative Findings

## Chapter 7. Qualitative Findings

# CHAPTER 6. QUANTITATIVE FINDINGS

## 6.1 Introduction

Using the questionnaire form built upon conceptual framework developed in chapter 3, this chapter presents the quantitative statistics as the first stage of data analysis in this thesis. It begins with the descriptive statistics on the computer use by travel agents, internet usage, information offered on agents' websites, the perceived benefits of e-commerce adoption by travel managers, the perceived environmental pressures, perceived barriers to e-commerce adoption, and T-test to check the difference between the perceptions of adopter travel agents of e-commerce versus non-adopters. The chapter moves afterwards to the exploratory factor analysis of the study's variables, it depicts the exploratory factor analysis conducted in SPSS and Mplus software. Confirmatory factor analyses of the measurement models come next. A structural model conceptualizing the causal relationships among the study's main constructs: perceived benefits of adoption, perceived environmental pressures, and perceived barriers to adoption, is then presented. Following this a comparison with competing models is undertaken. The chapter concludes with the quantitative statistics, the logistic regression model, for the level of e-commerce adoption among the adopter travel agents.

## 6.2 Findings of questionnaire piloting and exploratory studies

This section presents the frequencies and mean statistics for the respondents' responses of the exploratory studies and questionnaire piloting. The first pilot study explores the Internet adoption of the Egyptian travel agents, patterns of usage, perceived benefits, and barriers to e-commerce adoption. 300 questionnaire forms were distributed among a sample of travel agents who have websites versus those who do not using stratified sample to keep the sample representative, a total of 287 forms valid and free of missing data were collected from adopters (135 forms) and

non-adopter travel agents of e-commerce (152) forms. Results revealed that travel agents use the internet to provide agencies' information (90.9%), communicate with customers (89.2%), find out about competitors (88.9%), receive customer bookings (88.3%), find out about customers (88.2%), find out about suppliers (77.7%), bid for contracts (66.6%), monitor hits on website (55.1%), and provide staff formal training (7%).

For the perceived benefits of e-commerce adoption, Table 6-1 using T-test shows that there is a significant difference between travel agents who have and who do not have websites. It is found that the first category of agents have opinions range from 'Agree' to 'Neutral' on the perceived benefits, while the second category have responses range from 'Neutral to 'Disagree'.

| Benefits | Category | N | Mean | Std. Dev. | Mean Difference | T-test, df=285 | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|
| Sales, revenue and profits growth | Have website | 135 | 3.60 | 1.186 | .922 | 7.082 | .000 |
| | Without website | 152 | 2.68 | 1.020 | | | |
| Easiness of carrying out transactions | Have website | 135 | 3.04 | 1.278 | .590 | 4.631 | .000 |
| | Without website | 152 | 2.45 | .860 | | | |
| Increase competitive advantages | Have website | 135 | 3.78 | 1.268 | 1.159 | 8.613 | .000 |
| | Without website | 152 | 2.62 | 1.009 | | | |
| Improve customer satisfaction | Have website | 135 | 3.00 | 1.234 | .336 | 2.389 | .018 |
| | Without website | 152 | 2.66 | 1.145 | | | |
| Improve distribution channels | Have website | 135 | 3.63 | 1.262 | .913 | 6.413 | .000 |
| | Without website | 152 | 2.72 | 1.142 | | | |
| Effective partnerships with supplier/partners | Have website | 135 | 3.24 | 1.290 | .738 | 5.607 | .000 |
| | Without website | 152 | 2.51 | .928 | | | |
| Customizing services to customer needs | Have website | 135 | 3.29 | 1.263 | .769 | 6.011 | .000 |
| | Without website | 152 | 2.52 | .891 | | | |
| Establish reputation in the global markets | Have website | 135 | 3.53 | 1.208 | .829 | 6.128 | .000 |
| | Without website | 152 | 2.70 | 1.085 | | | |
| Enhance staff satisfaction | Have website | 135 | 3.36 | 1.255 | .862 | 6.745 | .000 |
| | Without website | 152 | 2.49 | .899 | | | |

Table 6 - 1. Perceived benefits of e-commerce by travel agents

Running the logistic regression model to identify the significant benefits of e-commerce adoption, results showed that increasing competitive advantages,

improving distribution channels, sales, revenue and profits growth, and establishing reputation in global markets are the perceived benefits of e-commerce adoption by travel agents.

For perceived barriers to adoption, Table 6-2 depicts that there is a significant difference in responses among agents who have websites and those who do not. It is revealed that the agents with websites have 'Neutral' opinions on the perceived barriers, while the second category have responses range from 'Neutral to 'Agree'.

| Barriers | Category | N | Mean | Std. Dev. | Mean Difference | T-test, df=285 | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|
| Limited resources versus high cost | Have website | 135 | 3.29 | 1.112 | -.514 | -3.877 | .000 |
| | Without website | 152 | 3.80 | 1.128 | | | |
| Lack of customer readiness | Have website | 135 | 2.69 | 1.096 | -.870 | -6.304 | .000 |
| | Without website | 152 | 3.56 | 1.227 | | | |
| Unskilled labour | Have website | 135 | 3.14 | 1.121 | -.563 | -4.157 | .000 |
| | Without website | 152 | 3.70 | 1.167 | | | |
| No competitors are online | Have website | 135 | 3.36 | 1.181 | -.375 | -2.741 | .007 |
| | Without website | 152 | 3.73 | 1.133 | | | |
| Lack of infrastructure readiness | Have website | 135 | 2.63 | 1.013 | -.739 | -5.390 | .000 |
| | Without website | 152 | 3.37 | 1.275 | | | |
| Internet is not relevant to business | Have website | 135 | 3.14 | 1.121 | -.320 | -2.243 | .000 |
| | Without website | 152 | 3.46 | 1.276 | | | |
| No wish to expand | Have website | 135 | 3.04 | 1.149 | -.516 | -3.754 | .000 |
| | Without website | 152 | 3.55 | 1.172 | | | |
| Lack of advice and support | Have website | 135 | 3.29 | 1.112 | -.514 | -3.877 | .000 |
| | Without website | 152 | 3.80 | 1.128 | | | |
| Security concerns | Have website | 135 | 3.10 | 1.174 | -.554 | -4.002 | .000 |
| | Without website | 152 | 3.66 | 1.169 | | | |

Table 6 - 2. Barriers to e-commerce adoption by travel agents

The regression results showed that unskilled labour, limited resources, lack of public infrastructure, and lack of customer readiness are the significant barriers to e-commerce adoption.

The second exploratory study was to explore the current status of Egyptian travel agents' web presence and their level of e-commerce adoption, looking at 418

Egyptian travel agents' websites (Egyptian Travel Agents Association, 2008). A preliminary checklist of 37 features was used, reduced to 34 features after an initial test on 50 websites (see Appendix 2). The first 19 features measure the first stage, 'static websites', using four categories of information: company information (features 1-4), packages and services information (5-9), contact information (10-14), and other information (15-19). 'Interactive online presence' is measured by 8 features (features 20-27). The third stage, 'electronic transactions', is measured by 5 features (features 28-32). The final stage, 'electronic integration', is represented by 2 features (33 and 34).

Table 6-3 shows the most frequent features offered on the Egyptian travel agents' websites. 317 of the initial 418 websites were successfully investigated; 62 websites were not accessible, 17 did not load, and 22 were found to be under construction.

| Feature | % | Feature | % | Feature | % |
|---|---|---|---|---|---|
| 1. Company info. | 75.1 | 13. E-mail | 81.4 | 25. Feedback forms | 26.5 |
| 2. Financial facts | 02.5 | 14. Distribution info. | 42.3 | 26. Chat/forum/e-cards | 08.5 |
| 3. Photos gallery | 37.5 | 15. Transportation | 20.5 | 27. Online finder | 08.8 |
| 4. virtual tours | 04.4 | 16. Links to other sites | 34.7 | 28. Online booking | 02.8 |
| 5. Packages info. | 77.0 | 17. Currency converter | 02.8 | 29. Online payment | 03.5 |
| 6. Prices | 13.6 | 18. Weather info. | 30.3 | 30. Cards accepted | 06.6 |
| 7. Promotions | 20.2 | 19. Distances | 07.6 | 31. Online accounts | 06.3 |
| 8. Future packages | 04.1 | 20. Database search facility | 25.9 | 32. Order tracking | 04.5 |
| 9. Sightseeing areas | 58.4 | 21. Virtual brochures | 0.3 | 33. Collaboration/group member | 09.2 |
| 10. Address | 77.3 | 22. Interactive trip planner | 0.9 | | |
| 11. Phone numbers | 79.5 | 23. Reservation request form | 38.3 | 34. Intranet | 01.6 |
| 12. Fax numbers | 78.2 | 24. FAQs | 04.1 | | |

Table 6 - 3. Features of travel agents' websites

It is clear from Table 6-3 that contact information is the most frequently found feature, with e-mail addresses appearing on 81.4% of the websites, phone numbers on

79.5%, fax numbers on 78.2%, and company addresses on 77.3%. Regarding company information, the most frequent feature is a description of the company (75.1%). In terms of information about services provided, travel package information appeared on 77% of the websites, and sightseeing destinations (58.4%) were also high up on the list. Other information found on websites included weather forecasts (30.3%), and transportation information (20.5%). All these features are classified as indicators of the first stage of e-commerce.

Turning to the second stage of e-commerce, frequently-occurring features included the online reservation request form (38.3%), feedback forms (26.5%), and an interactive database search box (25.9%). The third stage of e-commerce was represented by websites accepting card payments (6.6%), online accounts for buyers (6.3%), order tracking (4.5%), the receipt of online payments (3.5%), and online booking services (2.8%). Features found on the websites indicating the final stage of e-commerce included information about the company's membership of an alliance or group (9.2%) and reference to an intranet for use by company staff (1.6%).

Based on this exploratory study, it was found that 104 out of 317 websites indicated that the company was a low-level adopter of e-commerce, having at least 50% of the features of both the first and second stages, while 9 travel agents offered the option of online bookings and 11 agents online payments on their websites (indicating that the companies were advanced-level adopters of e-commerce). The rest of websites are brochureware. A reliability test of the findings revealed Cronbach's alphas of 0.758 and 0.823 respectively for the low-level and advanced-level features of e-commerce (Abou-Shouk and Lim, 2010). This exploratory study confirms that travel agents are in their infancy stages of e-commerce adoption, and the factors affecting the adoption of e-commerce need further investigation.

For the questionnaire piloting, in the first part of the questionnaire, which asked about the use of computers by travel agents, it is found that 74% of the surveyed agents use computers in their daily activities, while 26% do not. Out of the travel agents that do use computers, 27% have been using them for more than 10 years, 43% for 6-10 years, 22% for 3-5 years, and 8% for less than a year. Around 65% of the travel agents that use computers have an IT department. The managers of 36% of the travel agents ranked their employees' computer skills at a high level, 34% ranked them as average, 26% as low, and 4% said their employees had no computer skills.

The second part of the form asked about internet access and usage in travel agents. 68% of those surveyed indicated that they had internet access. The internet is used to search for customers and/or suppliers (91%), collect information about competitors (85%), bid for contracts (82%), collect information about customers (76%), provide formal training to staff (76%), receive bookings from customers (73%), communicate with customers (70%), market the agency (61%), and monitor hits on the internet (20%). Furthermore, 46% of the surveyed agents had websites. All of the respondents said that they used them to provide information about their agency and its services, about 95.6% of them use websites to receive enquiries and customer feedback, 73.9% use them to offer a trip planner service, 56.5% to offer a database search facility, 56.5% offer brochures, 56.5% have an intranet, 52.2% provide reservation request forms, 39.1% provide online bookings, 30.4% provide after-sales services, and 26.1% an online finder service.

In the third part of the questionnaire, concerning implementing e-commerce, about 46% of those surveyed agents said that they had adopted e-commerce. They defined their adoption of e-commerce activities as follows: using the internet to promote their agency (91%), using the internet to communicate with customers and/or suppliers

(86.9%), providing an online booking and payment service (86.9%), and using the internet for online booking and to provide after-sales services (78%). 54% of the mangers of the surveyed agencies said that the perceived benefits of e-commerce were the main factor in their decision to adopt e-commerce. About 42% of the managers put environmental pressures (i.e., competitors, customers, suppliers and partners) as the second factor. The third most important factor was barriers to adopting e-commerce, as indicated by 40% of the managers. E-commerce implementation came fourth in order of importance, as indicated by 60% of travel agents' managers.

Regarding the benefits brought by e-commerce adoption, we report the mean scores (1 being strongly disagree and 5 being strongly agree). The managers of the travel agents gave responses ranging from 4.66 (indicating fairly strong agreement) regarding whether sales, revenue and profits growth was one of the benefits, to 4 (indicating agreement) for encouraging customer loyalty (see Table 6-4). The other scores were 4.57 for competition-related benefits (increasing competitive advantages, and staying ahead of competitors), 4.47 for marketing benefits (improving distribution channels, establishing a reputation in the global markets, customizing services to meet customer needs, improving customer satisfaction, encouraging customer loyalty, penetrating global markets, and increasing the customer base), 4.46 for business internal efficiency (improving internal operations efficiency, effective partnerships with partners and suppliers, improving accountability, enhancing staff satisfaction, ease of carrying out transactions, improving internal knowledge flow and sharing, providing support for strategic decisions, and building the firm's ICT capabilities), and 4.40 for essential benefits (sales, revenue and profits growth, continuation of current benefits, guarantee of

stability and future survival, supports effective re-intermediation, attracting new services/investment, enabling and facilitating collaboration, and interacting with current and future partners). The overall mean was 4.45, which means that the managers generally agreed with the proposed benefits derived from e-commerce adoption.

| Perceived benefits of e-commerce adoption | Strongly Agree | | Agree | | Neither nor | | Disagree | | Strongly Disagree | | Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | F | % | F | % | F | % | F | % | F | % | |
| Sales, revenue and profits growth | 34 | 68 | 15 | 30 | 1 | 2 | - | - | - | - | 4.66 |
| Continuation of current benefits | 23 | 46 | 18 | 36 | 3 | 6 | 6 | 12 | - | - | 4.16 |
| Guarantee of stability in the market | 28 | 56 | 15 | 30 | 1 | 2 | 3 | 6 | 3 | 6 | 4.24 |
| Support effective re-intermediation | 33 | 66 | 12 | 24 | 4 | 8 | 1 | 2 | - | - | 4.54 |
| Attracting new services/ investment | 29 | 58 | 16 | 32 | 4 | 8 | 1 | 2 | - | - | 4.46 |
| Enable and facilitate collaboration | 22 | 44 | 16 | 32 | 9 | 18 | 3 | 6 | - | - | 4.14 |
| Interacting with current & future partners | 35 | 70 | 11 | 22 | 4 | 8 | - | - | - | - | 4.62 |
| Improve distribution channels | 33 | 66 | 10 | 20 | 5 | 10 | 2 | 4 | - | - | 4.48 |
| Establish reputation in the global markets | 33 | 66 | 12 | 24 | 4 | 8 | 1 | 2 | - | - | 4.54 |
| Customizing services to customer needs | 30 | 60 | 17 | 34 | 3 | 6 | - | - | - | - | 4.54 |
| Improve customer satisfaction | 34 | 68 | 13 | 26 | 3 | 6 | - | - | - | - | 4.62 |
| Encouraging customer loyalty | 20 | 40 | 18 | 36 | 6 | 12 | 4 | 8 | 2 | 4 | 4.00 |
| Penetration of global markets | 30 | 60 | 18 | 36 | 2 | 4 | - | - | - | - | 4.56 |
| Increase customer base | 30 | 60 | 18 | 36 | 2 | 4 | - | - | - | - | 4.56 |
| Increase competitive advantages | 29 | 58 | 18 | 36 | 3 | 6 | - | - | - | - | 4.52 |
| Staying ahead of competitors | 32 | 64 | 17 | 34 | 1 | 2 | - | - | - | - | 4.62 |
| improving internal operations efficiency | 33 | 66 | 12 | 24 | 5 | 10 | - | - | - | - | 4.56 |
| Effective partnerships with partners & suppliers | 31 | 62 | 11 | 22 | 8 | 16 | - | - | - | - | 4.46 |
| Improve accountability | 29 | 58 | 13 | 26 | 8 | 16 | - | - | - | - | 4.42 |
| Enhance staff satisfaction | 28 | 56 | 13 | 26 | 9 | 18 | - | - | - | - | 4.38 |
| Ease of carrying out transactions | 27 | 54 | 15 | 30 | 7 | 14 | 1 | 2 | - | - | 4.34 |
| Improve internal knowledge flow and sharing | 28 | 56 | 17 | 34 | 5 | 10 | - | - | - | - | 4.46 |
| Provide support for strategic decisions | 34 | 68 | 8 | 16 | 8 | 16 | - | - | - | - | 4.52 |
| Building the firm's ICT capabilities | 33 | 66 | 11 | 22 | 5 | 10 | 1 | 2 | - | - | 4.50 |

Table 6 - 4. Respondents' opinions on benefits of e-commerce adoption in travel agents

Regarding the barriers to e-commerce adoption, the managers of the travel agents gave responses ranging from 4.66 regarding the lack of awareness of e-commerce benefits to 3.66 for e-commerce's complexity (Table 6-5). The overall mean was (4.01), again indicating agreement with the listed barriers.

| Perceived barriers to e-commerce adoption | Strongly Agree | | Agree | | Neither nor | | Disagree | | Strongly Disagree | | Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | F | % | F | % | F | % | F | % | F | % | |
| Lack of awareness of e-commerce benefits | 38 | 76 | 8 | 16 | - | - | 4 | 8 | - | - | 4.60 |
| Limited available resources | 30 | 60 | 11 | 22 | 2 | 4 | 6 | 12 | 1 | 2 | 4.26 |
| Employees resistance to change | 26 | 52 | 8 | 16 | 5 | 10 | 6 | 12 | 5 | 10 | 3.88 |
| Risk taking reluctance and uncertainty | 28 | 56 | 11 | 22 | 5 | 10 | 5 | 10 | 1 | 2 | 4.20 |
| Business characteristics | 25 | 50 | 13 | 26 | 5 | 10 | 6 | 12 | 1 | 2 | 4.10 |
| Lack of technological readiness | 23 | 46 | 19 | 38 | 4 | 8 | 4 | 8 | - | - | 4.22 |
| Lack of IT-travel skilful labour | 17 | 34 | 20 | 40 | 6 | 12 | 6 | 12 | 1 | 2 | 3.92 |
| Business planning and strategy | 26 | 52 | 11 | 22 | 6 | 12 | 6 | 12 | 1 | 2 | 4.10 |
| Required time to change | 20 | 40 | 17 | 34 | 8 | 16 | 5 | 10 | - | - | 4.04 |
| Legal concerns | 19 | 38 | 16 | 32 | 5 | 10 | 8 | 16 | 2 | 4 | 3.84 |
| Security concerns | 28 | 56 | 10 | 20 | 3 | 6 | 7 | 14 | 2 | 4 | 4.10 |
| Business environment | 26 | 52 | 12 | 24 | 7 | 14 | 5 | 10 | - | - | 4.18 |
| Lack of external support | 29 | 58 | 14 | 28 | 3 | 6 | 3 | 6 | 1 | 2 | 4.34 |
| Lack of public infrastructure readiness | 23 | 46 | 16 | 32 | 4 | 8 | 5 | 10 | 2 | 4 | 4.06 |
| Lack of successful business models | 19 | 38 | 13 | 26 | 6 | 12 | 9 | 18 | 3 | 6 | 3.72 |
| Customer issues (trust and satisfaction) | 15 | 30 | 18 | 36 | 8 | 16 | 6 | 12 | 3 | 6 | 3.72 |
| Inability of e-commerce trialability | 13 | 26 | 19 | 38 | 12 | 24 | 3 | 6 | 3 | 6 | 3.72 |
| E-commerce complexity | 16 | 32 | 12 | 24 | 5 | 10 | 8 | 16 | 9 | 18 | 3.36 |
| Inability of e-commerce reversibility | 30 | 60 | 6 | 12 | 2 | 4 | 7 | 14 | 5 | 10 | 4.10 |
| Inability of e-commerce observability | 31 | 62 | 6 | 12 | 4 | 8 | 5 | 10 | 4 | 8 | 4.16 |
| Inability of e-commerce modifiability | 33 | 66 | 4 | 8 | 3 | 6 | 8 | 16 | 2 | 4 | 3.98 |
| E-commerce is not suitable for services | 20 | 40 | 10 | 20 | 8 | 16 | 7 | 14 | 5 | 10 | 3.66 |

Table 6 - 5. Respondents' opinions on barriers to e-commerce adoption in travel agents

Regarding the environmental pressures to adopt, the managers of the travel agents gave responses ranging from 4.96 for a higher level of buyer-seller interaction to approximately 4 for pressures from employees (see Table 6-6). The remaining scores were 4.72 for competitor pressures (responding to competitor pressures, the fear of being behind competitors, and the emergence of new virtual intermediaries), 4.67 for customer pressures (customer demand for improved services, increased pressures from new customers, and a higher level of buyer-seller interaction), 4.45 for supplier and partner pressure (business partner influence, suppliers' development programmes, and growing market changes), 4.42 for business environment and

industry changes (rapid industry changes, business environmental uncertainty, adapting to changes in technology, globalization and modernization consequences, governmental rules and regulations), and 4.11 for business internal priorities (business strategy and planning, employee pressure, owner/manager push, and the survival of the travel agent). The overall mean was 4.45, showing that the managers agreed in general that the given environmental pressures push agency managers to adopt e-commerce.

| Perceived environmental pressures of e-commerce adoption | Strongly Agree | | Agree | | Neither nor | | Disagree | | Strongly Disagree | | Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | F | % | F | % | F | % | F | % | F | % | |
| Customer demand for improved service | 44 | 88 | - | - | 3 | 6 | 1 | 2 | 2 | 4 | 4.66 |
| Increased pressures from new customers | 41 | 82 | - | - | 3 | 6 | - | - | 6 | 12 | 4.40 |
| Higher level of buyer-seller interaction | 49 | 98 | - | - | 1 | 2 | - | - | - | - | 4.96 |
| Responding to competitor pressure | 36 | 72 | 6 | 12 | 7 | 14 | 1 | 2 | - | - | 4.54 |
| Fear of being left behind | 48 | 96 | - | - | 1 | 2 | 1 | 2 | - | - | 4.90 |
| Emergence of new virtual intermediaries | 43 | 86 | - | - | 7 | 14 | - | - | - | - | 4.72 |
| Suppliers' development programmes | 41 | 82 | - | - | 7 | 14 | - | - | 2 | 4 | 4.56 |
| Business partner influence | 30 | 60 | 2 | 4 | 11 | 22 | 2 | 4 | 5 | 10 | 4.00 |
| Growing markets changes | 45 | 90 | - | - | 5 | 10 | - | - | - | - | 4.80 |
| Business environmental uncertainly | 32 | 64 | - | - | 11 | 22 | 2 | 4 | 5 | 10 | 4.04 |
| Adapting to technology changes | 45 | 90 | - | - | 4 | 8 | - | - | 1 | 2 | 4.76 |
| Rapidly industry changes | 31 | 62 | 1 | 2 | 12 | 24 | 2 | 4 | 4 | 8 | 4.06 |
| Globalization and/or modernisation | 45 | 90 | - | - | 2 | 4 | 1 | 2 | 2 | 4 | 4.70 |
| Governmental rules and regulations | 39 | 78 | - | - | 8 | 16 | 3 | 6 | - | - | 4.50 |
| Business strategy and planning | 45 | 90 | - | - | 5 | 10 | - | - | - | - | 4.80 |
| Pressures from employees | 27 | 54 | - | - | 7 | 14 | 6 | 12 | 10 | 20 | 3.56 |
| Owner/manager and /or IT manager push | 30 | 60 | - | - | 5 | 10 | 6 | 12 | 9 | 18 | 3.72 |
| Future survival of travel agency | 38 | 76 | 1 | 2 | 6 | 12 | 1 | 2 | 4 | 8 | 4.36 |

Table 6 - 6. Respondents' opinions on environmental pressures of e-commerce adoption

## 6.3 The main survey: descriptive statistics

Among the 411 travel agents who responded, it was found that 386 agents use computers in their daily activities, compared to 25, who use traditional paper-based methods. Out of the 386 agents, 60.1% of the managers said that computers had been used in their company for 6-10 years, 19.9% that they had been used for 3-5

years, 15.5% more than 10 years, 2.8% for 1-2 years, and 1.6% said they had been used for less than a year.

Of all agents, 34.8%indicated that they have an IT department, against 65.2% who said that they did not. Ranking the computer skills of employees in travel agents, 54% of the agents said that their employees have an average level of skills, 27.5% said that their employees have a high level of skills, 14.6% ranked their employees as having a low level of skills, 3.6% indicated that their employees have no such skills, and 0.2% stated that their employees have an expert level of computer skills.

Of the 411 surveyed agents, 374 agents have internet access in their companies and 37 do not. Among the 374 with internet access, 94.7% use the internet to collect information about competitors, 92.2% use it to communicate and respond to customers, 91.4% to collect information about customers, 89% of them use it to promote their agencies, 85.3% use the internet to search for customers and/or suppliers, 73% use it to bid for contracts, 55.9% use it to receive customer bookings, 54.8% to monitor hits on websites, and 52.1% use the internet to provide formal staff training. Asking the agents whether or not they have a web site revealed that 202 out of the 411 agents surveyed do have their own websites, while 209 do not. The information offered on the agents' websites is as follows:

- agency and service information 100%
- receiving enquiries and feedback 97%
- online reservation request form 89.1%
- interactive data base search facility 78.7%
- interactive trip planner 76.7%
- virtual brochures 72.8%
- online finder 57.9%
- after-sales services 37.1%
- online booking/payment 28.2%
- Intranet 24.8%

According to the results, 202 of the agents have adopted either low or advanced level of e-commerce, while 209 have not. When the managers were asked to rank the factors they consider in making the decision to adopt e-commerce, a majority of 260 out of the 411 managers said that the first factor they consider is to look at the benefits they will gain from adopting e-commerce. Ranked second by 209 managers was the environmental pressures to adopt e-commerce. Considering barriers to adoption was ranked third by 223 managers, while 290 agents ranked e-ecommerce implementation as the fourth factor considered in making the decision to adopt.

### 6.3.1 Perceived benefits of e-commerce

Generally, the adopters' responses average on the perceived benefits of adoption ranged from 'Neutral' (3.14) on 'improve customer satisfaction' to 'Agree' (3.69) on 'support effective re-intermediation of travel agents in the global travel market', while the non-adopters' responses average is 'Neutral' (2.53) on 'customizing services to customer needs' to (2.86) on 'sales, revenue and profits growth'. These responses justify the adoption of e-commerce by the adopter travel agents, who believe they will benefit from e-commerce, versus the uncertainty of these benefits for non-adopters. Table 6-7 shows the descriptive statistics of perceived benefits of e-commerce by adopter versus non-adopter travel agents in Egypt.

| Perceived benefits | Category | SA | | A | | N | | D | | SD | | Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | F | % | F | % | F | % | F | % | F | % | |
| Sales, revenue and | Adopters | 55 | 27.2 | 87 | 43.1 | - | - | 59 | 29.2 | 1 | .5 | 3.67 |
| profits growth. | Non-adopters | 13 | 6.2 | 70 | 33.5 | - | - | 126 | 60.3 | - | - | 2.86 |
| Support effective re- | Adopters | 73 | 36.1 | 61 | 30.2 | - | - | 68 | 33.7 | - | - | 3.69 |
| intermediation. | Non-adopters | 10 | 4.8 | 55 | 26.3 | - | - | 144 | 68.9 | - | - | 2.67 |
| Attracting new services | Adopters | 66 | 32.7 | 66 | 32.7 | - | - | 69 | 34.2 | 1 | .5 | 3.63 |
| and investment. | Non-adopters | 27 | 12.9 | 37 | 17.7 | - | - | 145 | 69.4 | - | - | 2.74 |
| Enable and facilitate | Adopters | 52 | 25.7 | 79 | 39.1 | - | - | 71 | 35.1 | - | - | 3.55 |
| collaboration. | Non-adopters | 21 | 10 | 44 | 21.1 | - | - | 144 | 68.9 | - | - | 2.72 |
| Customizing services to | Adopters | 54 | 26.7 | 41 | 20.3 | - | - | 105 | 52 | 2 | 1 | 3.20 |
| customer needs. | Non-adopters | 13 | 6.2 | 34 | 16.3 | 3 | 1.4 | 159 | 76.1 | - | - | 2.53 |
| Improve customer | Adopters | 43 | 21.3 | 51 | 25.2 | - | - | 107 | 53 | 1 | .5 | 3.14 |
| satisfaction. | Non-adopters | 27 | 12.9 | 31 | 14.8 | - | - | 151 | 72.2 | - | - | 2.68 |
| Increase competitive | Adopters | 55 | 27.2 | 58 | 28.7 | - | - | 88 | 43.6 | 1 | .5 | 3.39 |
| advantages. | Non-adopters | 12 | 5.7 | 58 | 27.8 | - | - | 139 | 66.5 | - | - | 2.73 |
| Establish reputation in | Adopters | 56 | 27.7 | 51 | 25.2 | - | - | 94 | 46.5 | 1 | .5 | 3.33 |
| the global markets. | Non-adopters | 15 | 7.2 | 49 | 23.4 | - | - | 145 | 69.4 | - | - | 2.68 |
| Improve distribution | Adopters | 52 | 25.7 | 64 | 31.7 | - | - | 85 | 42.1 | 1 | .5 | 3.40 |
| channels. | Non-adopters | 11 | 5.3 | 48 | 23 | - | - | 150 | 71.8 | - | - | 2.62 |
| Effective partnerships | Adopters | 49 | 24.3 | 62 | 30.7 | - | - | 91 | 45 | - | - | 3.34 |
| | Non-adopters | 23 | 11 | 51 | 24.4 | - | - | 135 | 64.6 | - | - | 2.82 |
| Improve accountability | Adopters | 49 | 24.3 | 51 | 25.2 | - | - | 102 | 50.5 | - | - | 3.23 |
| | Non-adopters | 30 | 14.4 | 32 | 15.3 | - | - | 147 | 70.3 | - | - | 2.74 |
| Enhance staff satisfaction | Adopters | 50 | 24.8 | 54 | 26.7 | - | - | 98 | 48.5 | - | - | 3.28 |
| | Non-adopters | 41 | 19.6 | 17 | 8.1 | - | - | 151 | 72.2 | - | - | 2.75 |
| Ease of carrying out | Adopters | 51 | 25.2 | 81 | 40.1 | - | - | 70 | 34.7 | - | - | 3.56 |
| transactions. | Non-adopters | 18 | 8.6 | 53 | 25.4 | - | - | 138 | 66 | - | - | 2.77 |
| Improve internal | Adopters | 53 | 26.2 | 54 | 26.7 | - | - | 95 | 47 | - | - | 3.32 |
| knowledge flow & sharing | Non-adopters | 24 | 11.5 | 42 | 20.1 | - | - | 143 | 68.4 | - | - | 2.75 |
| Provide support for | Adopters | 46 | 22.8 | 56 | 27.7 | - | - | 100 | 49.5 | - | - | 3.24 |
| strategic decisions. | Non-adopters | 37 | 17.7 | 32 | 15.3 | - | - | 140 | 67 | - | - | 2.84 |

Table 6 - 7. Descriptive statistics of perceived benefits of e-commerce in travel agents

### 6.3.2 Perceived environmental pressures

In terms of the perceived environmental pressures, the adopter travel agents mostly agree (3.61) on 'future survival of travel agents' to (3.85) on 'globalization consequences', while the non-adopters responses ranged from 'Disagree' (2.19) on

'adapting to technology changes' to 'Neutral' (2.67) on 'responding to competitor pressures'. Table 6-8 shows the descriptive statistics of perceived environmental pressures of e-commerce adoption in adopter versus non-adopter travel agents. These responses of non-adopters are further justification of the non-belief of the perceived environmental pressures push agents to adopt e-commerce.

| Perceived environmental pressures | Category | SA | | A | | N | | D | | SD | | Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | F | % | F | % | F | % | F | % | F | % | |
| Responding to competitor pressures. | Adopters | 60 | 29.7 | 82 | 40.6 | - | - | 60 | 29.7 | - | - | 3.70 |
| | Non-adopters | 5 | 2.4 | 36 | 30.1 | - | - | 141 | 67.5 | - | - | 2.67 |
| Supplier's development programmes. | Adopters | 68 | 33.7 | 79 | 39.1 | - | - | 55 | 27.2 | - | - | 3.79 |
| | Non-adopters | 6 | 2.9 | 56 | 26.8 | - | - | 147 | 70.3 | - | - | 2.62 |
| Business partner influence. | Adopters | 59 | 29.2 | 82 | 40.6 | - | - | 61 | 30.2 | - | - | 3.69 |
| | Non-adopters | 3 | 1.4 | 62 | 29.7 | - | - | 144 | 68.9 | - | - | 2.64 |
| Adapting to technology changes. | Adopters | 47 | 23.3 | 75 | 37.1 | - | - | 80 | 39.6 | - | - | 3.44 |
| | Non-adopters | 1 | .5 | 18 | 8.6 | - | - | 190 | 90.9 | - | - | 2.19 |
| Globalization consequences. | Adopters | 76 | 37.6 | 73 | 36.1 | - | - | 53 | 26.2 | - | - | 3.85 |
| | Non-adopters | 2 | 1 | 28 | 13.4 | - | - | 179 | 85.6 | - | - | 2.30 |
| Future survival of travel agency. | Adopters | 61 | 30.2 | 71 | 35.1 | - | - | 70 | 34.7 | - | - | 3.61 |
| | Non-adopters | 1 | .5 | 31 | 14.8 | - | - | 177 | 84.7 | - | - | 2.31 |

Table 6 - 8. Descriptive statistics of perceived environmental pressures of e-commerce

Looking at the perception of 'future survival of travel agency' as a pressure pushing agents to adopt e-commerce, Table 6-9, and using crosstabulation between adopter and non-adopter travel agents, shows that 177 out of 209 non-adopters disagree to this pressure while only 70 out of 202 adopter travel agents disagree. Furthermore, 144 out of 209 non-adopters disagree to the claim that e-commerce support the effective re-intermediation of travel agents, while only 68 out of 202 adopters disagree to this claim. These results support the above mentioned descriptive statistics that non-adopter travel agents are uncertain that adopting e-commerce is a

way supports the effective re-intermediation and the future survival of their companies in the global travel market.

| | | Has your agency implemented E-commerce? | | |
|---|---|---|---|---|
| | | **Non-adopters** | **Adopters** | Total |
| Future survival of travel agency | Disagree | 177 | 70 | 247 |
| | Agree | 32 | 132 | 164 |
| Total | | 209 | 202 | 411 |
| Support effective re-intermediation | Disagree | 144 | 68 | 212 |
| | Agree | 65 | 134 | 199 |
| Total | | 209 | 202 | 411 |

Table 6 - 9. Crosstabulation of future survival of agents and e-commerce adoption

### 6.3.3 Perceived barriers to e-commerce adoption

For perceived barriers to adoption, Table 6-10 shows that adopters have opinions range from ‘Neutral’ (2.68) on ‘e-commerce is not suitable to the nature of services’ to ‘Agree’ (3.56) on ‘reluctance to risk taking‘, non-adopters have average opinions of ‘Neutral’ (3.33) on ‘time required to changing’ to ‘Agree’ (3.96) on ‘lack of external support’, which, for them, justify the non-adoption of e-commerce.

Running t-test for the equality of means shows significant differences between the responses of adopters and non-adopters on the perceived benefits, perceived environmental pressures and perceived barriers to adoption, with all p-values less than 0.05 except for risk taking reluctance which means adopters and non-adopters as SMEs are reluctant to take risks in adopting new technologies (Table 6-11). These findings reveal that adopters hold different opinions on the benefits, barriers to adoption and environmental pressures that justify their adoption versus their peers of non-adopters.

| Perceived barriers to e-commerce adoption | Category | SA | | A | | N | | D | | SD | | Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | F | % | F | % | F | % | F | % | F | % | |
| Limited available resources | Adopters | 20 | 9.9 | 64 | 31.7 | - | - | 116 | 57.4 | 2 | 1 | 2.92 |
| | Non-adopters | 44 | 21.1 | 74 | 35.4 | - | - | 91 | 43.5 | - | - | 3.34 |
| Lack of IT/travel skilled | Adopters | 22 | 10.9 | 39 | 19.3 | - | - | 139 | 68.8 | 2 | 1 | 2.70 |
| labour. | Non-adopters | 53 | 25.4 | 67 | 32.1 | - | - | 89 | 42.6 | - | - | 3.40 |
| Time required to changing | Adopters | 22 | 10.9 | 55 | 27.2 | - | - | 123 | 60.9 | 2 | 1 | 2.86 |
| | Non-adopters | 52 | 24.9 | 61 | 29.2 | - | - | 96 | 45.9 | - | - | 3.33 |
| Employee resistance to | Adopters | 23 | 11.4 | 45 | 22.3 | - | - | 132 | 65.3 | 2 | 1 | 2.78 |
| change . | Non-adopters | 52 | 24.9 | 75 | 35.9 | - | - | 82 | 39.2 | - | - | 3.46 |
| Lack of technological | Adopters | 22 | 10.9 | 57 | 28.2 | 2 | 1 | 116 | 57.4 | 5 | 2.5 | 2.88 |
| readiness | Non-adopters | 60 | 28.7 | 65 | 31.1 | - | - | 84 | 40.2 | - | - | 3.48 |
| Business characteristics | Adopters | 17 | 8.4 | 62 | 30.7 | 3 | 1.5 | 115 | 56.9 | 5 | 2.5 | 2.86 |
| (small size, remote location) | Non-adopters | 54 | 25.8 | 74 | 35.4 | - | - | 81 | 38.3 | - | - | 3.48 |
| Business planning and | Adopters | 29 | 14.4 | 81 | 40.1 | 3 | 1.5 | 84 | 41.6 | 5 | 2.5 | 3.22 |
| strategy. | Non-adopters | 60 | 28.7 | 70 | 33.5 | - | - | 79 | 37.8 | - | - | 3.53 |
| Lack of awareness of E- | Adopters | 29 | 14.4 | 81 | 40.1 | 2 | 1 | 85 | 42.1 | 5 | 2.5 | 3.22 |
| commerce benefits. | Non-adopters | 57 | 27.3 | 93 | 44.5 | - | - | 59 | 28.2 | - | - | 3.71 |
| Reluctance to risk taking | Adopters | 45 | 22.3 | 93 | 46 | - | - | 59 | 29.2 | 5 | 2.5 | 3.56 |
| | Non-adopters | 60 | 28.7 | 91 | 43.5 | - | - | 58 | 27.8 | - | - | 3.73 |
| Lack of successful and | Adopters | 30 | 14.9 | 95 | 47 | 3 | 1.5 | 72 | 35.6 | 2 | 1 | 3.39 |
| proven business models. | Non-adopters | 62 | 29.7 | 109 | 52.2 | - | - | 38 | 18.2 | - | - | 3.93 |
| Lack of external support | Adopters | 26 | 12.9 | 101 | 50 | - | - | 72 | 35.6 | 3 | 1.5 | 3.37 |
| | Non-adopters | 70 | 33.5 | 100 | 47.8 | - | - | 39 | 18.7 | - | - | 3.96 |
| Business environment | Adopters | 35 | 17.3 | 99 | 49 | 2 | 1 | 63 | 31.2 | 3 | 1.5 | 3.50 |
| (regulatory systems…). | Non-adopters | 65 | 31.1 | 92 | 44 | - | - | 52 | 24.9 | - | - | 3.81 |
| Customer issues (culture, | Adopters | 36 | 17.8 | 88 | 43.6 | - | - | 74 | 36.6 | 4 | 2 | 3.39 |
| trust & satisfaction). | Non-adopters | 63 | 30.1 | 83 | 39.7 | - | - | 63 | 30.1 | - | - | 3.70 |
| Legal concerns (taxation, | Adopters | 26 | 12.9 | 77 | 38.1 | - | - | 93 | 46 | 6 | 3 | 3.12 |
| liability issues…). | Non-adopters | 55 | 26.3 | 90 | 43.1 | - | - | 64 | 30.6 | - | - | 3.65 |
| Lack of public infrastructure | Adopters | 22 | 10.9 | 68 | 33.7 | - | - | 105 | 52 | 7 | 3.5 | 2.97 |
| readiness. | Non-adopters | 48 | 23 | 93 | 44.5 | - | - | 68 | 32.5 | - | - | 3.58 |
| Inability of E-commerce | Adopters | 18 | 8.9 | 62 | 30.7 | 1 | .5 | 116 | 57.4 | 5 | 2.5 | 2.86 |
| trialability. | Non-adopters | 44 | 21.1 | 86 | 41.1 | - | - | 79 | 37.8 | - | - | 3.45 |
| Ecommerce complexity | Adopters | 12 | 5.9 | 55 | 27.2 | - | - | 120 | 59.4 | 15 | 7.4 | 2.65 |
| | Non-adopters | 45 | 21.5 | 84 | 40.2 | - | - | 80 | 38.3 | - | - | 3.45 |
| E-commerce is not suitable | Adopters | 10 | 5 | 62 | 30.7 | - | - | 113 | 55.9 | 17 | 8.4 | 2.68 |
| to the nature of services | Non-adopters | 55 | 26.3 | 75 | 35.9 | - | - | 75 | 35.9 | 4 | 1.9 | 3.49 |

Table 6 - 10. Descriptive statistics of perceived barriers to e-commerce adoption

| | Adopters | | Non-adopters | | T-Test for Equality | |
|---|---|---|---|---|---|---|
| | Mean | Std. Dev. | Mean | Std. Dev. | T value | Sig |
| Sales, revenue and profits growth | 3.67 | 1.17 | 2.86 | 1.08 | 7.327 | .000 |
| Support effective re-intermediation | 3.69 | 1.27 | 2.67 | 1.02 | 8.935 | .000 |
| Attracting new services and investment | 3.63 | 1.26 | 2.74 | 1.15 | 7.416 | .000 |
| Enable and facilitate collaboration | 3.55 | 1.21 | 2.72 | 1.10 | 7.259 | .000 |
| Customizing services to customer needs | 3.20 | 1.34 | 2.53 | 0.976 | 5.787 | .000 |
| Improve customer satisfaction | 3.14 | 1.28 | 2.68 | 1.13 | 3.797 | .000 |
| Increase competitive advantages | 3.39 | 1.30 | 2.73 | 1.05 | 5.640 | .000 |
| Establish reputation in the global markets | 3.33 | 1.32 | 2.68 | 1.05 | 5.472 | .000 |
| Improve distribution channels | 3.40 | 1.27 | 2.62 | 1.01 | 6.886 | .000 |
| Effective partnerships (supplier/partners relationships) | 3.34 | 1.27 | 2.82 | 1.14 | 4.384 | .000 |
| Improve accountability | 3.23 | 1.29 | 2.74 | 1.17 | 4.006 | .000 |
| Enhance staff satisfaction | 3.28 | 1.29 | 2.75 | 1.23 | 4.208 | .000 |
| Ease of carrying out transactions | 3.56 | 1.20 | 2.77 | 1.10 | 6.981 | .000 |
| Improve internal knowledge flow and sharing | 3.32 | 1.30 | 2.75 | 1.13 | 4.773 | .000 |
| Provide support for strategic decisions | 3.24 | 1.27 | 2.84 | 1.23 | 3.236 | .000 |
| Responding to competitor pressures | 3.70 | 1.18 | 2.67 | .985 | 9.550 | .000 |
| Supplier's development programmes | 3.79 | 1.17 | 2.62 | .974 | 10.988 | .000 |
| Business partner influence | 3.69 | 1.187 | 2.64 | .957 | 9.869 | .000 |
| Adapting to technology changes | 3.44 | 1.22 | 2.19 | .595 | 13.089 | .000 |
| Globalization consequences | 3.85 | 1.18 | 2.30 | .733 | 15.910 | .000 |
| Future survival of travel agency | 3.61 | 1.24 | 2.31 | .736 | 12.831 | .000 |
| Limited available resources | 2.92 | 1.15 | 3.34 | 1.23 | -3.554 | .000 |
| Lack of IT/travel skilled labour | 2.70 | 1.12 | 3.40 | 1.26 | -5.908 | .000 |
| Time required to changing | 2.86 | 1.15 | 3.33 | 1.28 | -3.889 | .000 |
| Employee resistance to changing from traditional ways | 2.78 | 1.15 | 3.46 | 1.24 | -5.819 | .000 |
| Lack of technological readiness | 2.88 | 1.17 | 3.48 | 1.27 | -5.012 | .000 |
| Business characteristics (small size, remote location) | 2.86 | 1.13 | 3.48 | 1.24 | -5.321 | .000 |
| Business planning and strategy | 3.22 | 1.20 | 3.53 | 1.26 | -2.536 | .012 |
| Lack of awareness of e-commerce benefits | 3.22 | 1.20 | 3.71 | 1.15 | -4.215 | .000 |
| Reluctance to risk taking | 3.56 | 1.19 | 3.73 | 1.15 | -1.447 | .149 |
| Lack of successful and proven business models | 3.39 | 1.14 | 3.93 | 1.01 | -5.074 | .000 |
| Lack of external support | 3.37 | 1.14 | 3.96 | 1.04 | -5.476 | .000 |
| Business environment (regulatory systems…) | 3.50 | 1.14 | 3.81 | 1.13 | -2.834 | .005 |
| Customer issues (culture, trust and satisfaction) | 3.39 | 1.20 | 3.70 | 1.19 | -2.641 | .009 |
| Legal concerns (taxation, liability issues…) | 3.12 | 1.21 | 3.65 | 1.17 | -4.522 | .000 |
| Lack of public infrastructure readiness | 2.97 | 1.19 | 3.58 | 1.16 | -5.258 | .000 |
| Inability of E-commerce trialability | 2.86 | 1.15 | 3.45 | 1.19 | -5.120 | .000 |
| Ecommerce complexity | 2.65 | 1.13 | 3.45 | 1.20 | -6.949 | .000 |
| E-commerce is not suitable to the nature of services | 2.68 | 1.14 | 3.49 | 1.27 | -6.798 | .000 |

Table 6 - 11. T-test statistics

## 6.4 Structural equation model results

According to Schreiber, Stage, King, Nora and Barlow (2006), structural equation model results should be presented in two main parts, the pre-analysis and post-analysis procedures. These two procedures should include detailed information on why the SEM technique was used, sufficient information on the measurement model, sample size, normality assumptions, missing data, the software program used and the estimation method and assessment of model fit. This study follows these guidelines, in addition to defining the general rules for acceptable fit indices.

### 6.4.1 Pre-analysis procedures

The pre-analysis procedures include data preparation and screening (Kline, 2010). Data preparation and screening include highlighting the sample size, normality issues, missing data, the software and estimation method used, the general rules for acceptable fit indices, and the measurement model. Exploratory factor analysis is an approved data screening procedure prior to SEM analysis (Kline, 2005).

***(a) Factor analysis***

Factor analysis is a technique that is used to identify groups or clusters of variables. It has three main uses: understanding the structure of a set of variables, constructing a questionnaire to measure specific variables, and reducing the data set to a manageable size (Field, 2009). Factor analysis can take the form of exploratory analysis, in which it explores the structure of a set of variables or is used as a data reduction method. In other situations, factor analysis is used to assess the degree to which the data fits an expected structure. This expected structure is set by a researcher who has pre-conceived ideas about the actual structure of the data, based on theory or prior research. In this case, confirmatory factor analysis (CFA)

(Hair et al., 2006) is run to explore the structure of a set of variables. The factor analysis was run in SPSS software for 15 benefits, 6 environmental pressures, and 18 barriers to e-commerce adoption, the main constructs of the study's conceptual model. The Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) revealed a value of 0.876, meaning that the variables are meritorious and are valid for factor analysis. Bartlett's test of sphericity was used to check the significance of the validity of the initial variables, to ensure this was adequate to continue with the factor analysis. The results showed that Chi-square = 7020.820, df=741 and $p<0.01$ (Table 6-12), leading to a rejection of the null hypothesis that the correlation matrix was an identity matrix with all initial variables uncorrelated. Therefore, it was possible to continue with the factor analysis. Moreover, the determinant value = 2.01E-004, which is not equal to zero, meaning there were no linear dependences in the correlation matrix.

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy | | 0.873 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 7020.820 |
| | Df | 741 |
| | Sig. | .000 |

Table 6 - 12. KMO and Bartlett's Test

Using principle component analysis, there are 39 common factors explain 100% of the variance, with a communality value of 1 for each (Table 6-13). Factor extraction is 'a method that minimizes the sum of squared differences between observed and reproduced correlation matrices' (Pett et al., 2003, p.113). The communality value after extraction reflects the smaller amount of variance that is explained by each variable. Variables with low communality values are candidates for exclusion, depending on which value is considered low. According to Table 6-13, the lowest

value (0.326) is for ‘reluctance to risk taking’; however, it is not excluded from the analysis as it is a common barrier in the literature.

| Items | Initial | Extraction |
|---|---|---|
| Sales, revenue and profits growth | 1.000 | .459 |
| Support effective re-intermediation | 1.000 | .643 |
| Attracting new services and investment | 1.000 | .691 |
| Enable and facilitate collaboration | 1.000 | .700 |
| Customizing services to customer needs | 1.000 | .606 |
| Improve customer satisfaction | 1.000 | .455 |
| Increase competitive advantages | 1.000 | .712 |
| Establish reputation in the global markets | 1.000 | .669 |
| Improve distribution channels | 1.000 | .653 |
| Effective partnerships (supplier/partners relationships) | 1.000 | .645 |
| Improve accountability | 1.000 | .525 |
| Enhance staff satisfaction | 1.000 | .553 |
| Ease of carrying out transactions | 1.000 | .626 |
| Improve internal knowledge flow and sharing | 1.000 | .660 |
| Provide support for strategic decisions | 1.000 | .567 |
| Responding to competitor pressures | 1.000 | .548 |
| Supplier’s development programmes | 1.000 | .565 |
| Business partner influence | 1.000 | .540 |
| Adapting to technology changes | 1.000 | .641 |
| Globalization issues | 1.000 | .687 |
| Future survival of travel agency | 1.000 | .606 |
| Limited available resources | 1.000 | .458 |
| Lack of IT/travel skilled labour | 1.000 | .739 |
| Time required to changing | 1.000 | .621 |
| Employee resistance to changing from traditional ways of doing work | 1.000 | .738 |
| Lack of technological readiness (quality and compatibility of software) | 1.000 | .663 |
| Business characteristics (small size, remote location) | 1.000 | .542 |
| Business planning and strategy (no IT strategy, no wish to expand) | 1.000 | .793 |
| Lack of awareness of E-commerce benefits | 1.000 | .804 |
| Reluctance to risk taking | 1.000 | .326 |
| Lack of successful and proven business models | 1.000 | .434 |
| Lack of external support (Limited governmental initiatives & support) | 1.000 | .517 |
| Business environment (political, regulatory systems& consumer culture) | 1.000 | .595 |
| Customer issues (culture, trust and satisfaction) | 1.000 | .659 |
| Legal concerns (taxation, liability issues, privacy legislations, financial) | 1.000 | .670 |
| Lack of public infrastructure readiness (available& speed internet access) | 1.000 | .686 |
| Inability of E-commerce trialability (adopting its software in trial) | 1.000 | .674 |
| Ecommerce complexity (complicated technology and not easy to be used) | 1.000 | .694 |
| E-commerce is not suitable to the nature of services | 1.000 | .656 |

Extraction Method: Principal Component Analysis.

Table 6 - 13. Communalities values of factor analysis

Eigenvalues are one of the most popular criteria for addressing the number of items to be retained in factor analysis, with a value greater than 1 indicating that the component should be retained (Kim and Mueller, 1978). According to this rule, eight main components should be retained (Table 6-14). The percentage of variance for each component is its eigenvalue divided by the total number of variables (39 variables). About 61.59% of variance is explained by the first eight components, in other words 61.59% of the information contained in the 39 original variables can be explained by eight unrelated components. The geometric technique 'Varimax' was used for this analysis.

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 8.483 | 21.751 | 21.751 | 8.483 | 21.751 | 21.751 | 3.642 | 9.339 | 9.339 |
| 2 | 3.467 | 8.891 | 30.642 | 3.467 | 8.891 | 30.642 | 3.601 | 9.234 | 18.574 |
| 3 | 2.778 | 7.124 | 37.766 | 2.778 | 7.124 | 37.766 | 3.561 | 9.131 | 27.705 |
| 4 | 2.328 | 5.968 | 43.734 | 2.328 | 5.968 | 43.734 | 3.140 | 8.051 | 35.756 |
| 5 | 2.230 | 5.718 | 49.452 | 2.230 | 5.718 | 49.452 | 3.019 | 7.742 | 43.498 |
| 6 | 1.855 | 4.757 | 54.209 | 1.855 | 4.757 | 54.209 | 2.578 | 6.609 | 50.108 |
| 7 | 1.486 | 3.810 | 58.019 | 1.486 | 3.810 | 58.019 | 2.405 | 6.167 | 56.275 |
| 8 | 1.394 | 3.573 | 61.593 | 1.394 | 3.573 | 61.593 | 2.074 | 5.317 | 61.593 |
| 9 | .914 | 2.343 | 63.936 | | | | | | |
| 10 | .847 | 2.172 | 66.107 | | | | | | |
| 11 | .801 | 2.055 | 68.162 | | | | | | |
| 12 | .742 | 1.902 | 70.065 | | | | | | |
| 13 | .698 | 1.790 | 71.855 | | | | | | |
| 14 | .672 | 1.724 | 73.579 | | | | | | |
| 15 | .652 | 1.672 | 75.251 | | | | | | |
| 16 | .583 | 1.495 | 76.746 | | | | | | |
| 17 | .583 | 1.494 | 78.240 | | | | | | |
| 18 | .567 | 1.454 | 79.694 | | | | | | |
| 19 | .553 | 1.419 | 81.113 | | | | | | |
| 20 | .533 | 1.366 | 82.478 | | | | | | |
| 21 | .516 | 1.323 | 83.801 | | | | | | |
| 22 | .496 | 1.271 | 85.072 | | | | | | |
| 23 | .488 | 1.252 | 86.324 | | | | | | |
| 24 | .462 | 1.186 | 87.510 | | | | | | |
| 25 | .446 | 1.145 | 88.655 | | | | | | |
| 26 | .428 | 1.097 | 89.752 | | | | | | |
| 27 | .423 | 1.086 | 90.837 | | | | | | |

| | | | |
|---|---|---|---|
| 28 | .406 | 1.040 | 91.878 |
| 29 | .400 | 1.026 | 92.904 |
| 30 | .367 | .940 | 93.844 |
| 31 | .339 | .870 | 94.714 |
| 32 | .327 | .839 | 95.552 |
| 33 | .314 | .804 | 96.356 |
| 34 | .298 | .765 | 97.121 |
| 35 | .270 | .694 | 97.815 |
| 36 | .243 | .622 | 98.437 |
| 37 | .229 | .586 | 99.023 |
| 38 | .216 | .553 | 99.576 |
| 39 | .165 | .424 | 100.000 |

Extraction Method: Principal Component Analysis.

Table 6 - 14. Total variance explained

Figure 6-1 contains a scree plot that shows the eight components with eigenvalues greater than 1. A scree plot is a visual representation of how a component should be included in a model.

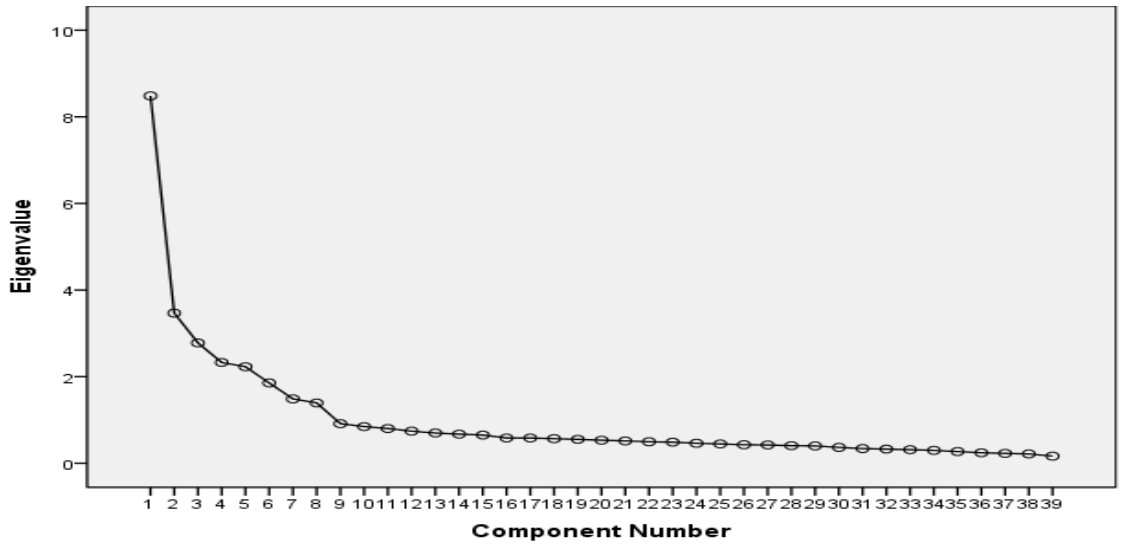



Figure 6 - 1. Scree plot of component number in factor analysis

A rotated component matrix shows how the factors are included or classified into components. From Table 6-15, after excluding the variables with loadings below 0.4, it is found that each component includes some of the original items included in the analysis.

| Items↓/ components→ | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Sales, revenue and profits growth | .570 | | | | | | | |
| Support effective re-intermediation | .711 | | | | | | | |
| Attracting new services and investment | .759 | | | | | | | |
| Enable and facilitate collaboration | .782 | | | | | | | |
| Customizing services to customer needs | | .717 | | | | | | |
| Improve customer satisfaction | | .569 | | | | | | |
| Increase competitive advantages | | .803 | | | | | | |
| Establish reputation in the global markets | | .741 | | | | | | |
| Improve distribution channels | | .748 | | | | | | |
| Effective partnerships (supplier/partners relationships) | | | .762 | | | | | |
| Improve accountability | | | .675 | | | | | |
| Enhance staff satisfaction | | | .717 | | | | | |
| Ease of carrying out transactions | | | .727 | | | | | |
| Improve internal knowledge flow and sharing | | | .769 | | | | | |
| Provide support for strategic decisions | | | .732 | | | | | |
| Responding to competitor pressures | | | | .704 | | | | |
| Supplier's development programmes | | | | .706 | | | | |
| Business partner influence | | | | .666 | | | | |
| Adapting to technology changes | | | | .748 | | | | |
| Globalization issues | | | | .752 | | | | |
| Future survival of travel agency | | | | .700 | | | | |
| Limited available resources | | | | | .646 | | | |
| Lack of IT/travel-skilled labour | | | | | .845 | | | |
| Time required to replace/change | | | | | .769 | | | |
| Employee resistance to changing from traditional ways | | | | | .832 | | | |
| Lack of technological readiness | | | | | | .790 | | |
| Business characteristics | | | | | | 720 | | |
| Business planning and strategy | | | | | | 378 | | |
| Lack of awareness of e-commerce benefits | | | | | | 384 | | |
| Reluctance to risk taking | | | | | | .502 | | |
| Lack of successful and proven business models | | | | | | | .626 | |
| Lack of external support | | | | | | | .705 | |
| Business environment | | | | | | | .750 | |
| Customer issues | | | | | | | .796 | |
| Legal concerns | | | | | | | .796 | |
| Lack of public infrastructure readiness | | | | | | | .794 | |
| Inability of e-commerce trialability | | | | | | | | .807 |
| E-commerce complexity | | | | | | | | .786 |
| E-commerce is not suitable to the nature of services | | | | | | | | .763 |

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 6 iterations.

Essential benefits

Competition and marketing benefits

Business internal Efficiency

**Construct 1: Benefits of adoption**

**Construct 2: Environmental pressures**

Resource limitations

Business internal environment

**Construct 3: Barriers of adoption**

Business external environment

Adopted-technology attributes

Table 6 - 15. Rotated component matrix

Factor loadings are the correlations between each variable and the common factor (component), factor loading needs to greater than 0.35 before the variable is said to belong to the factor (Field, 2009). The first construct; perceived benefits of adoption includes three factors: Essential Benefits, Competition and Marketing Benefits, and Business Internal Efficiency Benefits. Environmental Pressures is the second construct of the study. Resource Limitations, Business Internal Environment, Business External Environment, and Adopted-Technology Attributes represent the third construct of the study; perceived barriers to e-commerce adoption.

Statistically, the components can be formulated as follows:

Essential benefits of adoption (x1-x4)

= 0.570 sales, revenue and profits growth
+ 0.711 support effective re-intermediation
+ 0.759 attracting new services and investment
+ 0.782 enable and facilitate collaboration

Competition and marketing benefits of adoption (x5-x9)

= 0.717 customizing services to customer needs
+ 0.569 improve customer satisfaction
+ 0.803 increase competitive advantages
+ 0.741 establish reputation in the global markets
+ 0.748 improve distribution channels

Business internal efficiency (x10-x15)

= 0.762 effective partnerships
+ 0.675 improve accountability
+ 0.717 enhance staff satisfaction
+ 0.727 ease of carrying out transactions
+ 0.769 improve internal knowledge flow and sharing
+ 0.732 provide support for strategic decisions

Perceived environmental pressures (x16-x21)

= 0.704 responding to competitor pressure
+ 0.706 supplier's development programmes
+ 0.666 business partner influence
+ 0.748 adapting to technology changes
+ 0.752 globalization issues
+ 0.700 future survival of travel agency

Resource limitations (x22-x25)

= 0.646 limited available resources
+ 0.845 lack of IT/travel-skilled labour
+ 0.769 time required to replace/change from traditional methods
+ 0.832 employee resistance to changing from traditional ways of working

Business internal environment (x26-x30)

= 0.790 lack of technological readiness
+ 0.720 business characteristics
+ 0.878 business planning and strategy
+ 0.884 lack of awareness of e-commerce benefits
+ 0.502 reluctance to take risks

Business external environment (x31-x36)

= 0.626 lack of successful and proven business models using e-commerce
+ 0.705 lack of external support
+ 0.750 business environment
+ 0.796 customer issues
+ 0.796 legal concerns
+ 0.794 lack of public infrastructure readiness

Adopted technology attributes (x37-x39)

= 0.807 inability of e-commerce trialability
+ 0.786 e-commerce complexity
+ 0.763 e-commerce is not suitable to the nature of their services

***(b) Reliability of factor analysis components***

Table 6-16 shows the values of Cronbach's alpha for the factors which resulted from the factor analysis. It also shows the Cronbach's alpha if item was deleted, and corrected-item-total correlations. All values of Cronbach's alpha are above 0.70, and all corrected-item-total correlations are above 0.35, which demonstrates the reliability and validity of the constructs.

| Items | Cronbach's alpha | Cronbach's alpha if Item Deleted | Corrected Item-total Correlation |
|---|---|---|---|
| Sales, revenue and profits growth | .794 | .795 | .492 |
| Support effective re-intermediation | | .742 | .605 |
| Attracting new services and investment | | .710 | .667 |
| Enable and facilitate collaboration | | .716 | .656 |
| Customizing services to customer needs | .837 | .807 | .631 |
| Improve customer satisfaction | | .834 | .530 |
| Increase competitive advantages | | .789 | .694 |
| Establish reputation in the global markets | | .793 | .682 |
| Improve distribution channels | | .798 | .663 |
| Effective partnerships (supplier/partners relationships) | .856 | .824 | .690 |
| Improve accountability | | .841 | .599 |
| Enhance staff satisfaction | | .841 | .597 |
| Ease of carrying out transactions | | .827 | .675 |
| Improve internal knowledge flow and sharing | | .821 | .703 |
| Provide support for strategic decisions | | .840 | .605 |
| Responding to competitor pressures | .857 | .843 | .590 |
| Supplier's development programmes | | .838 | .616 |
| Business partner influence | | .838 | .616 |
| Adapting to technology changes | | .827 | .680 |
| Globalization issues | | .822 | .703 |
| Future survival of travel agency | | .829 | .668 |
| Limited available resources | .804 | .819 | .476 |
| Lack of IT/travel-skilled labour | | .711 | .704 |
| Time required to replace/change | | .758 | .610 |
| Employee resistance to changing from traditional ways | | .718 | .692 |
| Lack of technological readiness | .832 | .789 | .664 |
| Business characteristics | | .817 | .564 |
| Business planning and strategy | | .757 | .770 |
| Lack of awareness of e-commerce benefits | | .757 | .777 |
| Reluctance to risk taking | | .858 | .401 |

| | | | |
|---|---|---|---|
| Lack of successful and proven business models | .856 | .852 | .529 |
| Lack of external support | | .840 | .601 |
| Business environment | | .835 | .627 |
| Customer issues | | .824 | .687 |
| Legal concerns | | .820 | .706 |
| Lack of public infrastructure readiness | | .819 | .714 |
| Inability of e-commerce trialability | .754 | .684 | .570 |
| E-commerce complexity | | .647 | .603 |
| E-commerce is not suitable to the nature of services | | .681 | .574 |

Table 6 - 16. Reliability statistics of factor analysis's components

***(c) Exploratory factor analysis (EFA) using Mplus***

The EFA model was run in Mplus, and the output for the eight factors shows satisfactory fit indices. Exploratory SEM (ESEM) is another approach has recently been used in Mplus to run exploratory factor analysis, it classifies the indicators among latent variables and reveals standard error of indicators accompanied by p value (Asparohov and Muthén, 2009). ESEM was run and revealed the same eight factors resulted in EFA. Table 6-17 gives the EFA and ESEM fit indices. All fit indices show a good fit except for the Chi-squared value that is validated by its alternative $X^2$/df. The EFA and ESEM estimator is MLR (Maximum Likelihood Robust), rotation is Geomin, and the type of rotation is oblique. Geomin rotation is recommended when indicators have substantial loadings on more than one factor and oblique rotation allows factors to be correlated (Muthén and Muthén, 1998-2010).

| Indices | Output | Target |
|---|---|---|
| Chi-square ($x^2$) | $x^2$= 624.581, df=457, p<.05 | p>.05 |
| $x^2$/df | 1.37 | <2 |
| RMSEA | .030, C.I. =.024 and .036 | <.05, 90% C.I. < 0.05 |
| CFI | .972 | >.90 or close to .95 |
| TLI | .954 | >.90 or close to .95 |
| SRMR | .022 | <.08 |
| | ESEM | |
| Chi-square ($x^2$) | $x^2$= 624.567, df=457, p<.05 | p>.05 |
| $x^2$/df | 1.37 | <2 |
| RMSEA | .030, C.I. =.024 and .036 | <.05, 90% C.I. < 0.05 |
| CFI | .972 | >.90 or close to .95 |
| TLI | .954 | >.90 or close to .95 |
| SRMR | .022 | <.08 |

Table 6 - 17. Fit indices of EFA and ESEM models

The factor structure matrix resulting from the EFA and ESEM models (Tables 6-18 and 6-19) has the same structure as the EFA conducted in SPSS (Table 6-15). However, the loadings are different as a result of the different rotation and estimator used.

| Items↓/ components→ | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| Sales, revenue and profits growth | Benefits of e-commerce adoption | 0.545 | 0.370 | 0.318 | 0.353 | -0.205 | -0.131 | -0.140 | -0.070 |
| Support effective re-intermediation | | 0.711 | 0.347 | 0.368 | 0.350 | -0.116 | -0.202 | -0.167 | -0.261 |
| Attracting new services /investment | | 0.771 | 0.380 | 0.340 | 0.370 | -0.187 | -0.195 | -0.163 | -0.131 |
| Enable and facilitate collaboration | | 0.773 | 0.324 | 0.343 | 0.338 | -0.204 | -0.116 | -0.138 | -0.160 |
| Customizing services to customer needs | | 0.364 | 0.672 | 0.266 | 0.402 | -0.115 | -0.125 | -0.217 | -0.105 |
| Improve customer satisfaction | | 0.359 | 0.558 | 0.372 | 0.370 | -0.087 | -0.076 | -0.180 | -0.072 |
| Increase competitive advantages | | 0.331 | 0.804 | 0.331 | 0.370 | -0.050 | -0.117 | -0.058 | -0.062 |
| Establish reputation in the global markets | | 0.376 | 0.760 | 0.364 | 0.425 | -0.050 | -0.116 | -0.195 | -0.036 |
| Improve distribution channels | | 0.370 | 0.759 | 0.335 | 0.392 | -0.072 | -0.158 | -0.114 | -0.068 |
| Effective partnerships | | 0.366 | 0.330 | 0.749 | 0.301 | -0.090 | -0.039 | -0.049 | -0.092 |
| Improve accountability | | 0.336 | 0.320 | 0.652 | 0.280 | -0.111 | -0.101 | -0.021 | -0.167 |
| Enhance staff satisfaction | | 0.245 | 0.269 | 0.654 | 0.205 | -0.015 | -0.106 | -0.035 | -0.198 |
| Ease of carrying out transactions | | 0.385 | 0.319 | 0.748 | 0.332 | -0.181 | -0.163 | -0.120 | -0.229 |
| Improve internal knowledge flow & sharing | | 0.385 | 0.322 | 0.768 | 0.280 | -0.060 | -0.079 | -0.122 | -0.180 |
| Provide support for strategic decisions | | 0.262 | 0.293 | 0.678 | 0.197 | -0.094 | -0.056 | -0.092 | -0.120 |
| Responding to competitors pressures | Environmental pressures | 0.286 | 0.335 | 0.248 | 0.595 | -0.024 | -0.199 | -0.133 | -0.118 |
| Supplier's development programmes | | 0.285 | 0.390 | 0.253 | 0.608 | -0.084 | -0.216 | -0.176 | -0.106 |
| Business partner influence | | 0.341 | 0.403 | 0.313 | 0.628 | -0.099 | -0.167 | -0.205 | -0.134 |
| Adapting to technology changes | | 0.338 | 0.376 | 0.248 | 0.765 | -0.171 | -0.180 | -0.194 | -0.208 |
| Globalization issues | | 0.379 | 0.365 | 0.259 | 0.832 | -0.184 | -0.151 | -0.245 | -0.284 |
| Future survival of travel agency | | 0.363 | 0.421 | 0.306 | 0.774 | -0.151 | -0.180 | -0.209 | -0.209 |
| Limited available resources | Barriers to e-commerce adoption | -0.224 | -0.152 | -0.144 | -0.174 | 0.057 | 0.508 | 0.126 | 0.119 |
| Lack of IT/travel-skilled labour | | -0.178 | -0.123 | -0.102 | -0.185 | 0.078 | 0.835 | 0.153 | 0.181 |
| Time required to replace/change | | -0.160 | -0.111 | -0.058 | -0.173 | 0.086 | 0.666 | 0.169 | 0.173 |
| Employee resistance to changing | | -0.152 | -0.119 | -0.091 | -0.200 | 0.191 | 0.838 | 0.152 | 0.162 |
| Lack of technological readiness | | -0.172 | -0.009 | -0.143 | -0.133 | 0.702 | 0.140 | 0.139 | 0.209 |
| Business characteristics | | -0.161 | -0.045 | -0.136 | -0.165 | 0.620 | 0.098 | 0.075 | 0.158 |
| Business planning and strategy | | -0.191 | -0.090 | -0.068 | -0.131 | 0.889 | 0.084 | 0.192 | 0.068 |
| Lack of awareness of e-commerce benefits | | -0.224 | -0.108 | -0.115 | -0.186 | 0.899 | 0.089 | 0.094 | 0.072 |
| Reluctance to risk taking | | -0.213 | -0.100 | -0.075 | -0.137 | 0.436 | 0.073 | 0.211 | 0.167 |
| Lack of successful business models | | -0.144 | -0.184 | -0.104 | -0.237 | 0.087 | 0.156 | 0.543 | 0.164 |
| Lack of external support | | -0.151 | -0.145 | -0.077 | -0.204 | 0.086 | 0.125 | 0.618 | 0.163 |
| Business environment | | -0.191 | -0.124 | -0.033 | -0.145 | 0.130 | 0.136 | 0.674 | 0.097 |
| Customer issues | | -0.172 | -0.207 | -0.067 | -0.184 | 0.109 | 0.130 | 0.770 | 0.111 |
| Legal concerns | | -0.167 | -0.133 | -0.105 | -0.261 | 0.163 | 0.147 | 0.803 | 0.202 |
| Lack of public infrastructure readiness | | -0.152 | -0.147 | -0.162 | -0.244 | 0.141 | 0.175 | 0.804 | 0.275 |
| Inability of e-commerce trialability | | -0.078 | -0.051 | -0.131 | -0.139 | 0.099 | 0.142 | 0.163 | 0.695 |
| E-commerce complexity | | -0.190 | -0.047 | -0.213 | -0.272 | 0.153 | 0.133 | 0.200 | 0.752 |
| E-commerce is not suitable to nature of services | | -0.227 | -0.155 | -0.209 | -0.243 | 0.073 | 0.230 | .0157 | 0.687 |

Table 6 - 18. Factor structure matrix revealed in Mplus

| Items↓/ components→ | | F1 | F2 | F3 | F4 | F5 | F6 | F7 | F8 | SE | Est./SE | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sales, revenue and profits growth | Benefits of e-commerce adoption | 0.419 | | | | | | | | 0.073 | 5.723 | 0.000 |
| Support effective re-intermediation | | 0.666 | | | | | | | | 0.060 | 11.021 | 0.000 |
| Attracting new services /investment | | 0.744 | | | | | | | | 0.060 | 12.356 | 0.000 |
| Enable and facilitate collaboration | | 0.779 | | | | | | | | 0.063 | 12.276 | 0.000 |
| Customizing services to customer needs | | | 0.627 | | | | | | | 0.052 | 11.965 | 0.000 |
| Improve customer satisfaction | | | 0.428 | | | | | | | 0.065 | 6.606 | 0.000 |
| Increase competitive advantages | | | 0.841 | | | | | | | 0.044 | 18.894 | 0.000 |
| Establish reputation in the global markets | | | 0.698 | | | | | | | 0.059 | 11.851 | 0.000 |
| Improve distribution channels | | | 0.740 | | | | | | | 0.053 | 14.077 | 0.000 |
| Effective partnerships | | | | 0.739 | | | | | | 0.047 | 15.663 | 0.000 |
| Improve accountability | | | | 0.601 | | | | | | 0.055 | 10.944 | 0.000 |
| Enhance staff satisfaction | | | | 0.661 | | | | | | 0.050 | 13.176 | 0.000 |
| Ease of carrying out transactions | | | | 0.704 | | | | | | 0.046 | 15.243 | 0.000 |
| Improve internal knowledge flow and sharing | | | | 0.748 | | | | | | 0.042 | 17.817 | 0.000 |
| Provide support for strategic decisions | | | | 0.698 | | | | | | 0.046 | 15.108 | 0.000 |
| Responding to competitors pressures | Environmental pressures | | | | 0.571 | | | | | 0.074 | 7.684 | 0.000 |
| Supplier's development programmes | | | | | 0.550 | | | | | 0.086 | 6.384 | 0.000 |
| Business partner influence | | | | | 0.545 | | | | | 0.068 | 8.054 | 0.000 |
| Adapting to technology changes | | | | | 0.764 | | | | | 0.047 | 16.127 | 0.000 |
| Globalization issues | | | | | 0.841 | | | | | 0.057 | 14.652 | 0.000 |
| Future survival of travel agency | | | | | 0.738 | | | | | 0.061 | 12.031 | 0.000 |
| Limited available resources | Barriers to e-commerce adoption | | | | | 0.681 | | | | 0.039 | 17.664 | 0.000 |
| Lack of IT/travel-skilled labour | | | | | | 0.606 | | | | 0.046 | 13.220 | 0.000 |
| Time required to replace/change | | | | | | 0.893 | | | | 0.025 | 35.160 | 0.000 |
| Employee resistance to changing | | | | | | 0.903 | | | | 0.027 | 33.438 | 0.000 |
| Lack of technological readiness | | | | | | 0.391 | | | | 0.052 | 7.548 | 0.000 |
| Business characteristics | | | | | | | 0.481 | | | 0.053 | 9.104 | 0.000 |
| Business planning and strategy | | | | | | | 0.833 | | | 0.032 | 25.990 | 0.000 |
| Lack of awareness of e-commerce benefits | | | | | | | 0.648 | | | 0.045 | 14.324 | 0.000 |
| Reluctance to risk taking | | | | | | | 0.835 | | | 0.035 | 23.830 | 0.000 |
| Lack of successful & proven business models | | | | | | | | 0.506 | | 0.048 | 10.483 | 0.000 |
| Lack of external support | | | | | | | | 0.602 | | 0.046 | 13.219 | 0.000 |
| Business environment | | | | | | | | 0.676 | | 0.040 | 16.960 | 0.000 |
| Customer issues | | | | | | | | 0.775 | | 0.034 | 22.780 | 0.000 |
| Legal concerns | | | | | | | | 0.788 | | 0.033 | 24.163 | 0.000 |
| Lack of public infrastructure readiness | | | | | | | | 0.783 | | 0.034 | 22.933 | 0.000 |
| Inability of e-commerce trialability | | | | | | | | | 0.706 | 0.051 | 13.957 | 0.000 |
| E-commerce complexity | | | | | | | | | 0.716 | 0.059 | 12.183 | 0.000 |
| E-commerce is not suitable to the nature of services | | | | | | | | | 0.663 | 0.054 | 12.172 | 0.000 |

Table 6 - 19. ESEM using Mplus

***(d) The measurement model***

SEM is composed of two models, the measurement model and the structural model. The measurement model measures the relationships between the observed variables (indicators) and the unobserved variables (constructs); in other words, it represents the CFA model. Meanwhile, the structured model looks at the causal relationships among the unobserved variables (Van de Wijngaert, 2010, Hox, 2010, Hair et al., 2010).

The measurement model is a pre-cursor to structural equation modelling. The constructs of a measurement model cannot be validated by definition; the confirmation of the validity and reliability of the developed scales is the rationale used to label a measurement model as valid (Carmines and Zeller, 1979). The measurement model provides an assessment of how the newly developed constructs fit together and whether they are linked sufficiently to their items (Hair et al., 2006). Before proceeding with the structural modelling, the measurement model should be assessed in relation to validity and reliability concerns (Brown, 2006). These include construct validity (discriminant and convergent) and composite reliability for all constructs in the measurement model. Key factor and composite latent models are two types of measurement model distinguished by the application of reflective and formative indicators, respectively. The key factor model with reflective indicators uses the covariance between indicators and is often preferred when measuring human behaviour. Meanwhile, composite latent model is preferred in economic modelling, where it is useful for measuring causal changes in specific indicators (Jarvis et al., 2003). The key factor model with reflective indicators is used in this study as the aim is to measure (human) e-commerce adoption behaviour by travel agents.

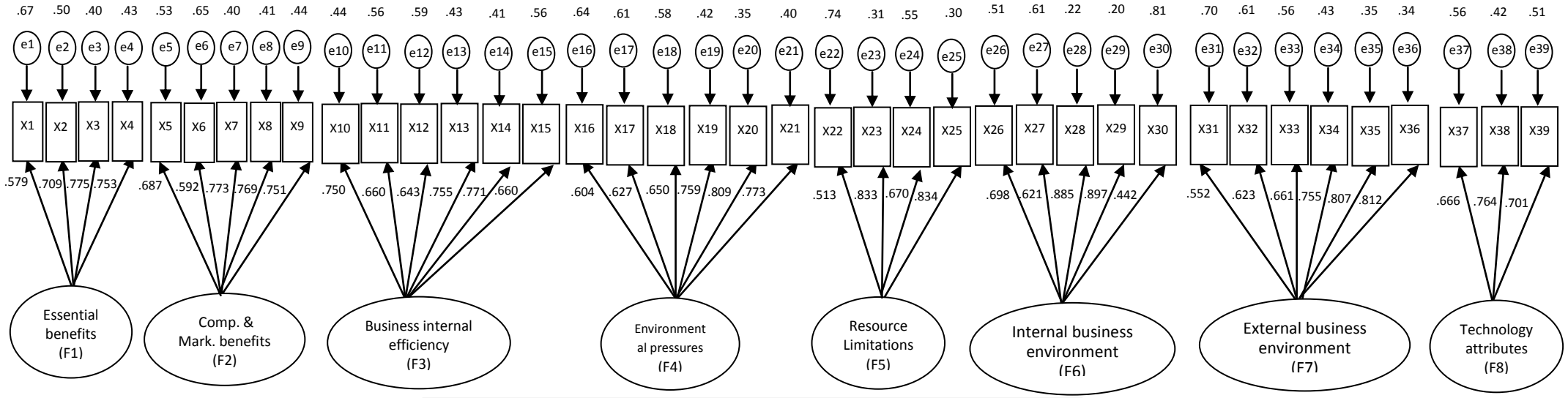
*(d-1) The first-order model*

The measurement model combines the perceived benefits, perceived environmental pressures and the perceived barriers to adoption. The first-order model includes and measures the covariance relationships amongst the eight latent variables revealed from EFA and measuring the perceived benefits, perceived environmental pressures, and perceived barriers to adoption models (Figure 6-2). Table 6-20 shows the statistics obtained from running CFA on the first-order model.

| **Indices** | **Output** | **Target** |
|---|---|---|
| Chi-square ($x^2$) | $x^2$= 905.616, df=674, p<.05 | p>.05 |
| $x^2$/df | 1.35 | <2 |
| RMSEA | .029, C.I. =.024 and .034 | <.05, 90% C.I. < 0.05 |
| CFI | .961 | >.90 or close to .95 |
| TLI | .957 | >.90 or close to .95 |
| SRMR | .043 | <.08 |

Table 6 - 20. Fit indices of CFA first-order model

It is clear from Table 6-20 that the first -order model shows a good fit to the data. In other words, the perceived benefits, perceived environmental pressures, as well as the perceived barriers to e-commerce adoption, are represented by the model.




**Covariance**

| | F1 | F2 | F3 | F4 | F5 | F6 | F7 |
|---|---|---|---|---|---|---|---|
| **F2** | 0.31 | | | | | | |
| **F3** | 0.33 | 0.37 | | | | | |
| **F4** | 0.26 | 0.34 | 0.27 | | | | |
| **F5** | -0.11 | -0.09 | -0.08 | -0.12 | | | |
| **F6** | -0.16 | -0.09 | -0.12 | -0.13 | 0.09 | | |
| **F7** | -0.10 | -0.12 | -0.09 | -0.14 | 0.08 | 0.10 | |
| **F8** | -0.16 | -0.10 | -0.21 | -0.20 | 0.12 | 0.10 | 0.14 |

Figure 6 - 2. CFA-first-order model

x1= Sales, revenue and profits growth, x2= Support effective re-intermediation x3= Attracting new services and investment, x4= Enable and facilitate collaboration, x5= Customizing services to customer needs, x6= Improve customer satisfaction, x7= Increase competitive advantages, x8= Establish reputation in the global markets, x9= Improve distribution channels, x10= Effective partnerships x11= Improve accountability, x12= Enhance staff satisfaction, x13= Ease of carrying out transactions, x14= Improve internal knowledge flow and sharing, x15=Provide support for strategic decisions, x16= Responding to competitors pressures, x17= Supplier's development programmes, x18= Business partner influence, x19= Adapting to technology changes, x20= Globalization issues, x21= Future survival of travel agency, x22= Limited available resources, x23= Lack of IT/travel skilled labour, x24= Time required to replace/change, x25= Employee resistance to changing from traditional ways, x26= Lack of technological readiness, x27= Business characteristics, x28= Business planning and strategy, x29= Lack of awareness of e-commerce benefits, x30= Risk taking reluctance, x31= Lack of e-commerce successful and proven business models, x32= Lack of external support, x33= Business environment, x34= Customer issues, x35= Legal concerns, x36= Lack of public infrastructure readiness, x37= Inability of e-commerce trialability, x38= E-commerce complexity, and x39= E-commerce is not suitable to the nature of services.

*(d-2) The second-order model*

The second-order model involves and measures the covariance among the three constructs of the study: perceived benefits of adoption, perceived environmental pressures and perceived barriers to adoption (Figure 6-3). Table 6-21 depicts the fit indices of the CFA second order model.

| Indices | Output | Target |
|---|---|---|
| Chi-square ($x^2$) | $x^2$= 930.906, df=692, p<.05 | p>.05 |
| $x^2$/df | 1.35 | <2 |
| RMSEA | .029, C.I. =.024 and .034 | <.05, 90% C.I. < 0.05 |
| CFI | .960 | >.90 or close to .95 |
| TLI | .957 | >.90 or close to .95 |
| SRMR | .046 | <.08 |

Table 6 - 21. Fit indices of CFA second-order model

It is obvious that the fit indices are within the target values and the three constructs of the study are well represented in the model. Thus, the next question is which model would it be better to use in the structural model, first-order or second-order? it is claimed that the second-order is supported to be used (Hair et al., 2010), additionally, the Akaike information criterion (AIC) can be used to determine the optimal model within a single research framework to be chosen, with the smallest AIC indicating the preferred model (Kline, 2005, Schreiber et al., 2006). The AIC values are 45825.406 for the first-order model and 45814.809 for the second-order model. Therefore, the second-order model is selected.

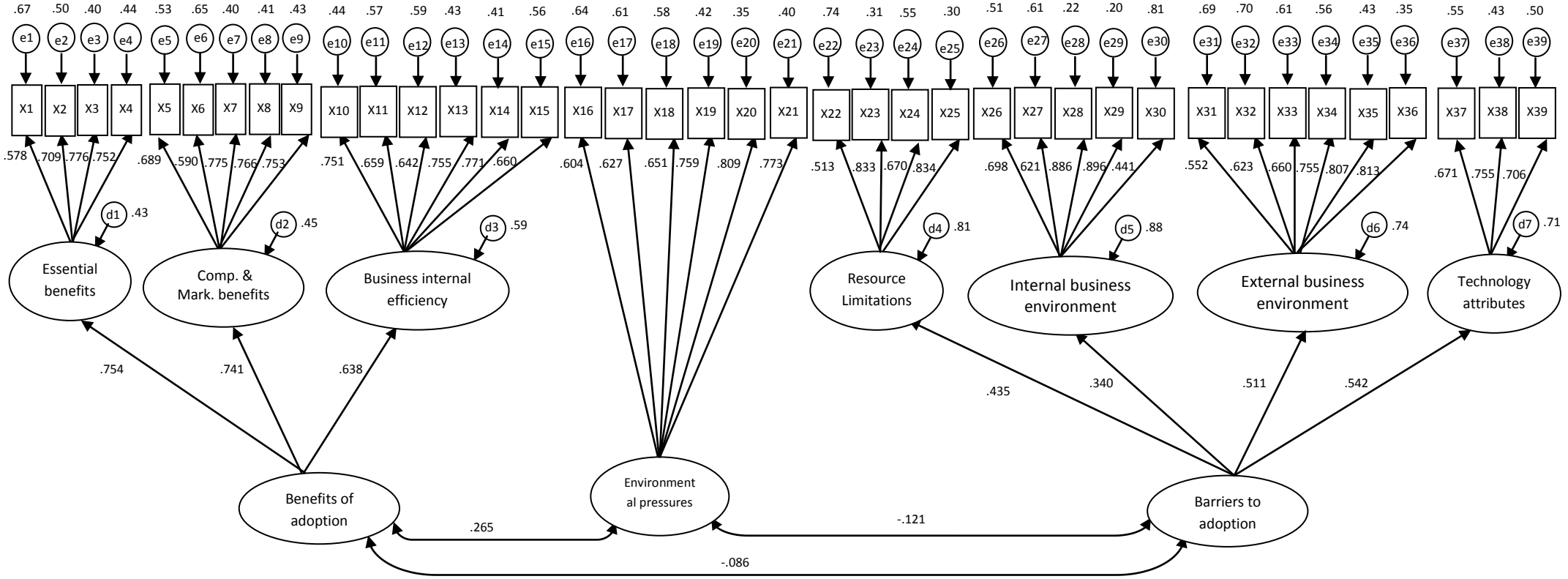



Figure 6 - 3. CFA-second-order model

x1= Sales, revenue and profits growth, x2= Support effective re-intermediation x3= Attracting new services and investment, x4= Enable and facilitate collaboration, x5= Customizing services to customer needs, x6= Improve customer satisfaction, x7= Increase competitive advantages, x8= Establish reputation in the global markets, x9= Improve distribution channels, x10= Effective partnerships x11= Improve accountability, x12= Enhance staff satisfaction, x13= Ease of carrying out transactions, x14= Improve internal knowledge flow and sharing, x15=Provide support for strategic decisions, x16= Responding to competitors pressures, x17= Supplier's development programmes, x18= Business partner influence, x19= Adapting to technology changes, x20= Globalization issues, x21= Future survival of travel agency, x22= Limited available resources, x23= Lack of IT/travel skilled labour, x24= Time required to replace/change, x25= Employee resistance to changing from traditional ways, x26= Lack of technological readiness, x27= Business characteristics, x28= Business planning and strategy, x29= Lack of awareness of e-commerce benefits, x30= Risk taking reluctance, x31= Lack of e-commerce successful and proven business models, x32= Lack of external support, x33= Business environment, x34= Customer issues, x35= Legal concerns, x36= Lack of public infrastructure readiness, x37= Inability of e-commerce trialability, x38= E-commerce complexity, and x39= E-commerce is not suitable to the nature of services.

Table 6-22 shows the results of checking the discriminant and convergent validity and composite reliability of the measurement model. It can be seen that the Cronbach's alphas and composite reliability (CRs) for all factors are greater than 0.7, indicating the variables are reliable. The AVE values for all factors are above 0.5, as recommended by Fornell and Larcker (1981), and are greater than the squared inter-construct correlations (SICs), which confirms the existence of both the convergent and discriminant validity of the whole model.

| Factors | Items | Standardized Loadings | Cronbach's alpha | AVE | CR | SIC | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | F1 | F2 | F3 | F4 | F5 | F6 | F7 | F8 |
| Essential benefits (F1) | Sales, revenue and profits growth | .579 | .794 | .501 | .799 | - | .281 | .262 | .263 | .061 | .070 | .060 | .081 |
| | Support effective re-intermediation | .709 | | | | | | | | | | | |
| | Attracting new services and investment | .775 | | | | | | | | | | | |
| | Enable and facilitate collaboration | .753 | | | | | | | | | | | |
| Competition and marketing benefits (F2) | Customizing services to customer needs | .687 | .837 | .515 | .840 | .281 | - | .233 | .319 | .031 | .015 | .052 | .022 |
| | Improve customer satisfaction | .592 | | | | | | | | | | | |
| | Increase competitive advantages | .773 | | | | | | | | | | | |
| | Establish reputation in the global markets | .769 | | | | | | | | | | | |
| | Improve distribution channels | .751 | | | | | | | | | | | |
| Business internal efficiency (F3) | Effective partnerships | .750 | .856 | .502 | .857 | .262 | .233 | - | .161 | .019 | .021 | .023 | .078 |
| | Improve accountability | .660 | | | | | | | | | | | |
| | Enhance staff satisfaction | .643 | | | | | | | | | | | |
| | Ease of carrying out transactions | .755 | | | | | | | | | | | |
| | Improve internal knowledge flow &sharing | .771 | | | | | | | | | | | |
| | Provide support for strategic decisions | .660 | | | | | | | | | | | |
| Perceived environmental pressures (F4) | Responding to competitors pressures | .604 | .857 | .501 | .856 | .263 | .319 | .161 | - | .067 | .040 | .101 | .120 |
| | Supplier's development programmes | .627 | | | | | | | | | | | |
| | Business partner influence | .650 | | | | | | | | | | | |
| | Adapting to technology changes | .759 | | | | | | | | | | | |
| | Globalization issues | .809 | | | | | | | | | | | |
| | Future survival of travel agency | .773 | | | | | | | | | | | |
| Resource limitations (F5) | Limited available resources | .513 | .804 | .525 | .811 | .061 | .031 | .019 | .067 | - | .025 | .048 | .060 |
| | Lack of IT/travel skilled labour | .833 | | | | | | | | | | | |
| | Time required to changing | .670 | | | | | | | | | | | |
| | Employee resistance to changing | .834 | | | | | | | | | | | |
| Business internal environment (F6) | Lack of technological readiness | .698 | .832 | .529 | .841 | .070 | .015 | .021 | .040 | .025 | - | .034 | .022 |
| | Business characteristics | .621 | | | | | | | | | | | |
| | Business planning and strategy | .885 | | | | | | | | | | | |
| | Lack of awareness of e-commerce benefits | .897 | | | | | | | | | | | |
| | Risk taking reluctance | .442 | | | | | | | | | | | |
| Business external environment (F7) | Lack of successful &proven business models | .552 | .856 | .502 | .856 | .060 | .052 | .023 | .101 | .048 | .034 | - | .080 |
| | Lack of external support | .623 | | | | | | | | | | | |
| | Business environment | .661 | | | | | | | | | | | |
| | Customer issues | .755 | | | | | | | | | | | |
| | Legal concerns | .807 | | | | | | | | | | | |
| | Lack of public infrastructure readiness | .812 | | | | | | | | | | | |
| Adopted technology attributes (F8) | Inability of e-commerce trialability | .666 | .754 | .506 | .754 | .081 | .022 | .078 | .120 | .060 | .022 | .080 | - |
| | E-commerce complexity | .764 | | | | | | | | | | | |
| | E-commerce is not suitable to services | .701 | | | | | | | | | | | |

Table 6 - 22. The whole model's validities and reliabilities

### 6.4.2 Post-analysis procedures

***(a) The structural model***

The aim of the post-analysis procedures is to examine the fit of the hypothesized research model (RM) (Schreiber et al., 2006). The structural model investigates the relationships between the perceived environmental pressures (EP) and perceived benefits (BE), and perceived barriers (BA) on the one hand, and perceived benefits and barriers to adoption and actual e-commerce adoption (AD) by travel agents, on the other (Figure 6-4). In this model, the WLSMV estimation is used, as it is suitable when including a categorical outcome, and when violation of the normality assumption occurs (Muthén, 1998-2004, Finney and DiStefano, 2006). The WRMR index is used to evaluate the structural model, since it is suitable for categorical and non-normal data (Breckler, 1990, Hoe, 2008, Kline, 2005, Muthén, 1998-2004, Enders, 2005, Finney and DiStefano, 2006).

Perceived benefits and perceived barriers are mediating the causal relationship between environmental pressures and actual adoption of e-commerce. Kock (2011) has mentioned that the mediators will have significant effect between the independent and outcome variables if three criteria are met. Firstly, if the direct relationship between the independent variable (perceived environmental pressures) and the dependent variable (e-commerce adoption) is significant excluding mediators from the model. Secondly, if the relationships between the independent variable (perceived environmental pressures) and mediators (perceived benefits and perceived barriers) is significant; and the third criterion is if the relationship between mediators (perceived benefits and perceived barriers) and the dependent variable (e-commerce adoption) is significant. Prior to running the structural model, these three criteria were measured and were met and it can be proceeding with the structural

model. For the first criterion, it is found that $\beta_{EP \rightarrow AD}$=0.969, P<.01. For the second criterion, $\beta_{EP \rightarrow BE}$=0.699, P<.01, and $\beta_{EP \rightarrow BA}$=-0.617, P<.01. For the third criterion, $\beta_{BE \rightarrow AD}$=0.270, P<.01, and $\beta_{BA \rightarrow AD}$=-0.642, P<.01.

Running the structural model, the fit indices shown in Table 6-23 demonstrate that the structural model fits the data and that the perceived environmental pressures affect perceived benefits maximization positively, while perceived environmental pressures have a negative effect on perceived barriers to adoption (decreasing/overcoming barriers), in addition to the negative relationship between perceived barriers to adoption and perceived benefits on the one hand. On the other hand, perceived benefits have a positive effect on actual adoption of e-commerce while perceived barriers to adoption have a negative impact.

| Indices | Output | Target |
|---|---|---|
| Chi-square ($x^2$) | $x^2$= 818.264, df=729, p <.05 | p>.05 |
| $x^2$/df | 1.12 | <2 |
| RMSEA | .017, C.I. =.009 and .023 | <.05, 90% C.I. < 0.05 |
| CFI | .936 | >.90 or close to .95 |
| TLI | .931 | >.90 or close to .95 |
| WRMR | .688 | <.90 or <1 |

Table 6 - 23. Fit indices of the hypothesised e-commerce structural model (RM)

From Table 6-23, it is shown that fit indices are all within the target values. It is found that the perceived environmental pressures are positively affecting the perception of benefits ($\beta_{EP \rightarrow BE}$=0.557, P<.01) supporting the first hypothesis, the perception of environmental pressures is negatively affecting the perception of barriers ($\beta_{EP \rightarrow BA}$=-0.631, P<.01) validating the second hypothesis, the perception of barriers is negatively affecting the perception of benefits ($\beta_{BA \rightarrow BE}$=-0.247, P<.05) supporting the third hypothesis. The indirect relationship of perceived environmental pressures to adoption via perceived benefits is $\beta_{EP\_BE \rightarrow AD}$=0.170, P<.05, and via perceived

barriers is $\beta_{EP\_BA \rightarrow AD}$=0.424, P<.01. The total indirect effects between perceived environmental pressures and adoption via perceived benefits and perceived barriers are $\beta_{EP\_(BE \text{ and } BA) \rightarrow AD}$=0.594, P<.01. The total effects of perceived environmental pressures on e-commerce adoption equal the sum of total indirect effects between environmental pressures and adoption via perceived benefits and perceived barriers. Total effects = $(\beta_{EP \rightarrow BA} * \beta_{BA \rightarrow AD}) + (\beta_{EP \rightarrow BE} * \beta_{BE \rightarrow AD})$= 0.595.

Using WLSMV with a categorical outcome variable results in a probit regression of u on x (Muthén and Muthén, 1998-2010). The probit regression model of u on x is presented as: P (u = 1 | x) = F (a + b*x) where F is the standard normal distribution function, a is the probit regression intercept, b is the probit regression slope, -a is the probit threshold called t. P (u= 0|x) =1 – P (u = 1 | x). Z table is used to calculate P as probability of adoption/non-adoption (Muthén and Muthén, 1998-2010). Converting P to Z values reveals the probability of adoption. For the causal relationships between perceived benefits and perceived barriers to adoption:

$$P (AD=1|x) = F (-0.021 + 0.305 * BE - 0.673 * BA)$$

This means that one unit increase in perceived benefits increases Z score by 0.305 and the one unit increase in perceived barriers decreases Z score by 0.673. Instead of x values and where perceived benefits and perceived barriers are constructs and they include latent variables, so the mean values of perceived benefits and perceived barriers are used to get the probability of adoption in travel agents.

To sum up, the perceived benefits of adoption are positively affecting the adoption of e-commerce (validating the fourth hypothesis), and the perceived barriers to adoption are negatively affecting the adoption of e-commerce (supporting the fifth hypothesis of the study).

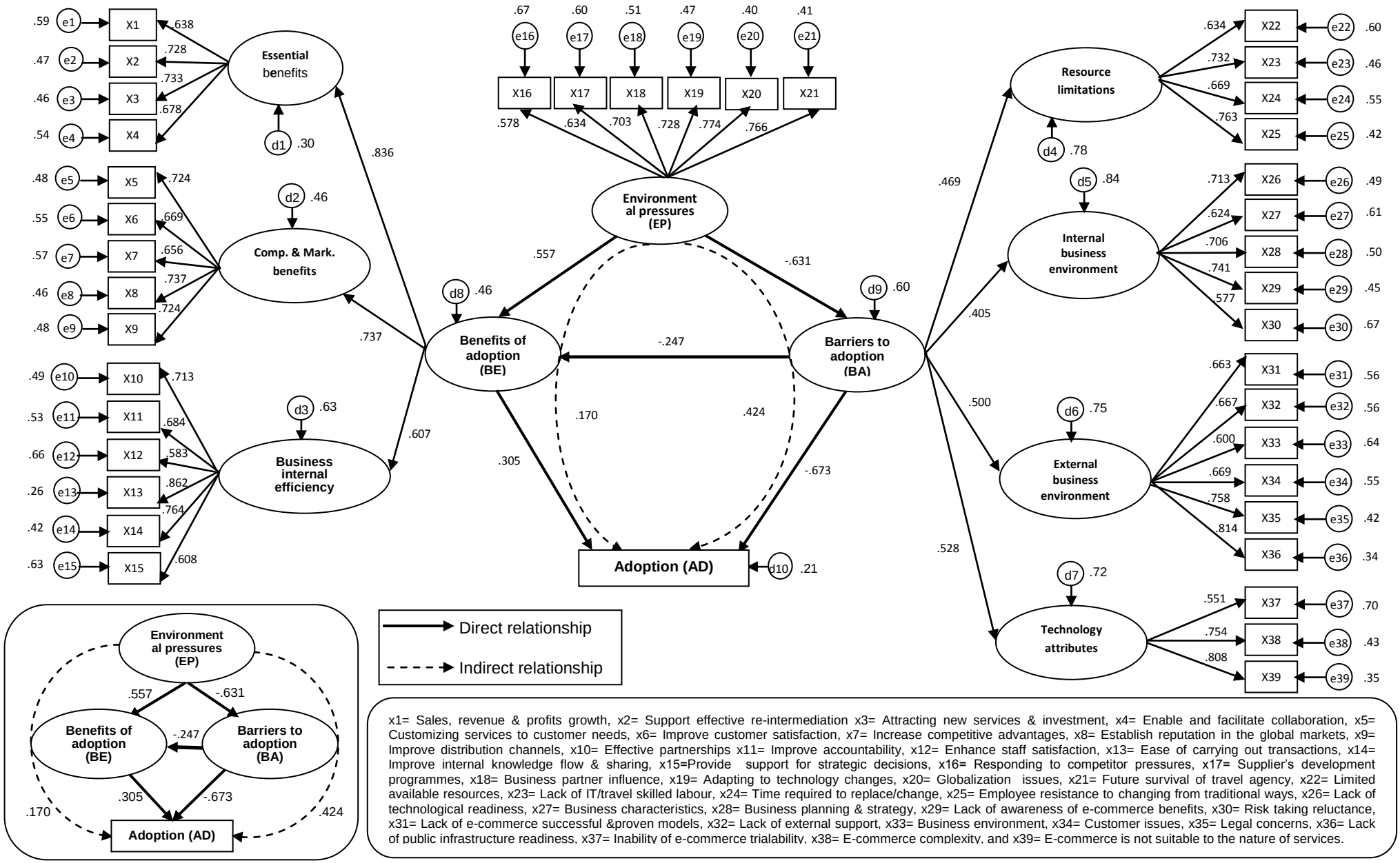



Figure 6 - 4. The hypothesised e-commerce adoption structural model (RM)

## 6.5 Competing models

Fixing one or more parameters of one model (the full model) results in a more restricted model called the nested model (NM), and computing the Chi square difference used to compare the two models (Bentler and Satorra, 2010). If the Chi square difference value is significant, then the full model fits the data better than the nested model (Hair et al., 2010). Using Mplus, and the WLSMV estimator, the DIFFTEST function is used to calculate the Chi square difference between the full model and the nested model (Muthén and Muthén, 1998-2010). There are two nested models proposed in this study. The first nested model (NM1) (Figure 6-5) is defined by restricting (excluding) the relationship between BA and BE based on some literature studies in which the relationship between ease of use and perceived usefulness was excluded (Klloppiing and McKiinneyy, 2004, Usoro et al., 2010, Ayo et al., 2011, Hernandez et al., 2009). The second nested model (figure 6-6) depends on literature models that include perceived benefits and perceived environmental pressures as enablers of adoption (EN) (Voges and Pulakanam, 2011, Lacovou et al., 1995). Table 6-24 depicts the fit indices to the first and the second nested models.

| Indices | NM1 | NM2 |
|---|---|---|
| Chi-square (x2) | $x^2$= 825.292, df=730, p <.05 | $x^2$= 841.345, df=730, p<.05 |
| x2/df | 1.13 | 1.15 |
| RMSEA | .018, C.I. =.010 and .024 | .019, C.I. =.012 and .025 |
| CFI | .931 | .920 |
| TLI | .926 | .914 |
| WRMR | .697 | .711 |

Table 6 - 24. Fit indices of the nested structural models

Table 6-24 also shows that the Chi-squared fit index still has a p-value less than 0.05 for both the nested models; however $x^2$/df is less than 2. RMSEA, CFI, TLI, and WRMR are all within target values.

For the NM1, perceived environmental pressures are positively affecting perceived benefits of adoption ($\beta_{EP \rightarrow BE}$=0.800, P<.01), and the perception of environmental pressures is negatively affecting the perception of barriers to adoption ($\beta_{EP \rightarrow BA}$=-0.715, P<.01). Where the perceived benefits and perceived barriers to adoption are mediating the causal relationship between environmental pressures and e-commerce adoption, this mediation effect forms two positive indirect relationships between environmental pressures and e-commerce adoption. The first indirect effect is via perceived benefits of adoption ($\beta_{EP \rightarrow BE \rightarrow AD}$=0.253, P<.01), and the second is via barriers to e-commerce adoption ($\beta_{EP \rightarrow BA \rightarrow AD}$=0.479, P<.01). The causal relationships between perceived benefits and perceived barriers on adoption are represented as: P (AD=1|x) = F (-0.021 + 0.316 * BE - 0.670 * BA). For the NM2, it is found that enabling factors are affecting the adoption positively ($\beta_{EN \rightarrow AD}$=0.457, P<.01), while the perceived barriers are negatively affecting the adoption ($\beta BA_{\rightarrow AD}$=-0.493, P<.01). This relationship can be presented as: P (AD = 1 | x) = -.021 + 0.457 * EN -0.493 * BA.

To compare the research model (Figure 4) with the nested models (Figures 5 and 6) based on Chi square difference test, it is revealed that Chi square difference value between the research model and the first nested model is 6.945 with 1 degree of freedom difference and p value of 0.0084 <0.01, while the Chi square difference value between the research model and the second nested model is 8.964 with 1 degree of freedom difference and p value of 0.0028 <0.01. These results confirm that that the full research model proves to be better fit the data than the two nested models.

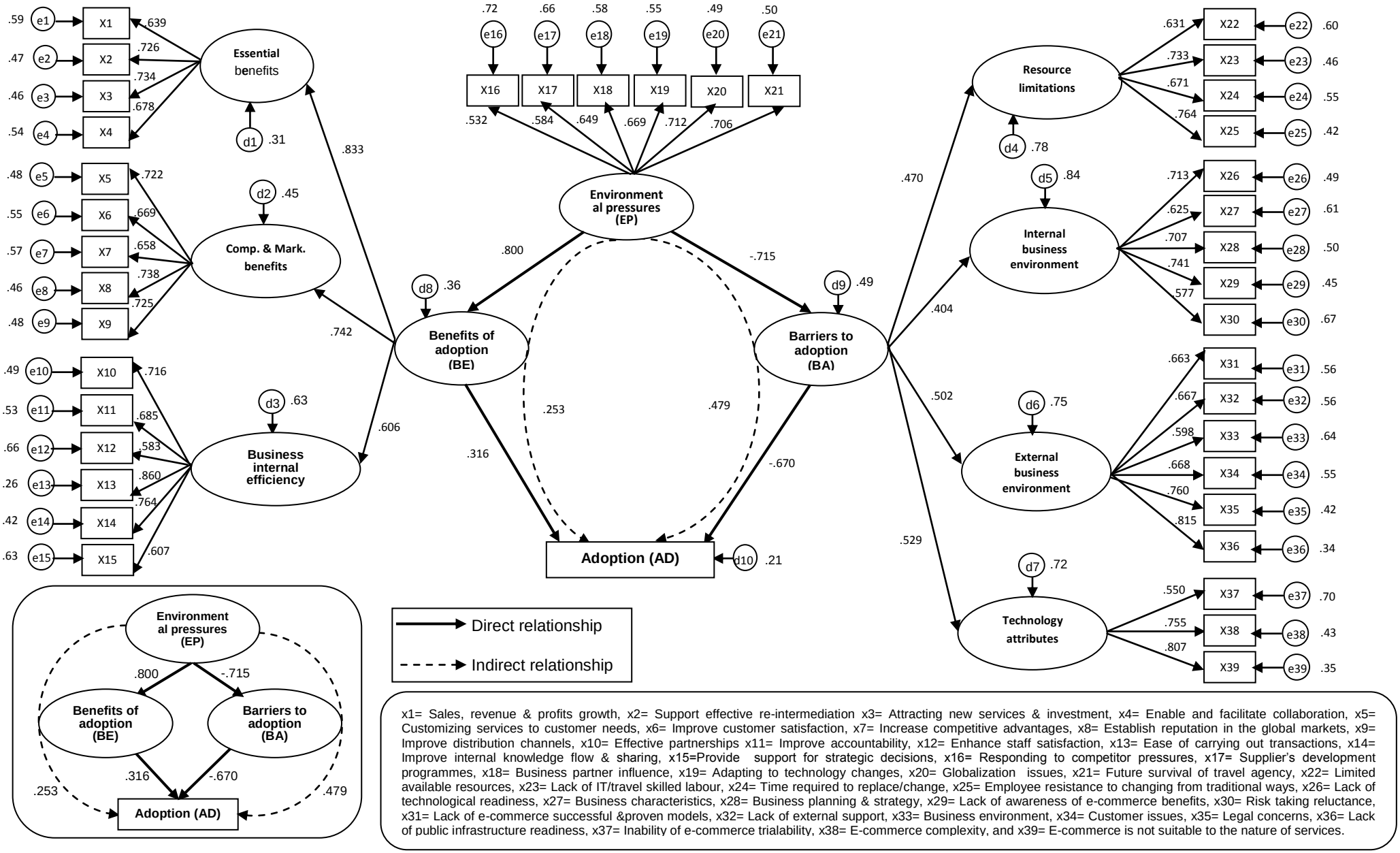
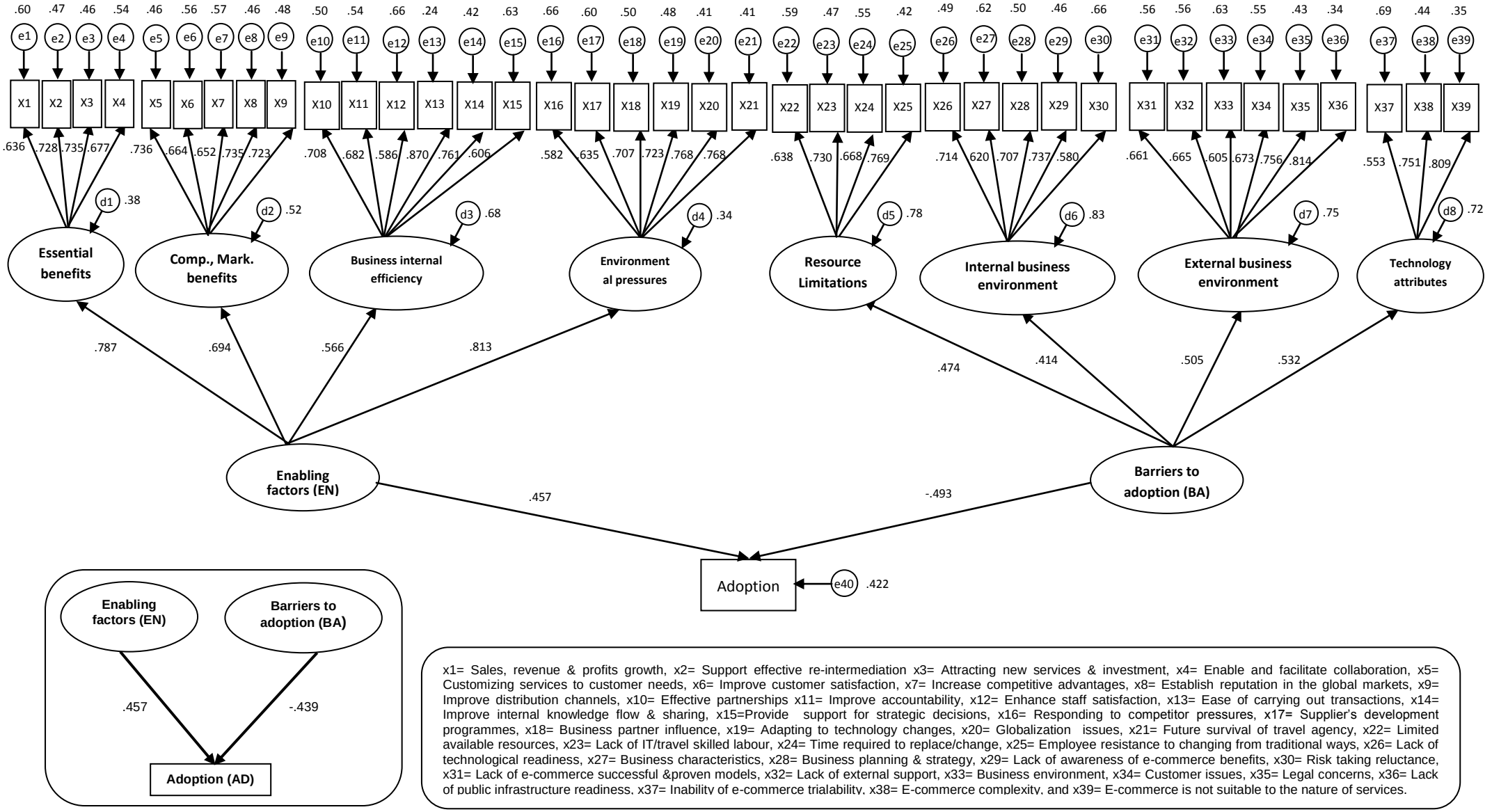



Figure 6 - 5. The first competing nested model (NM1)




x1= Sales, revenue & profits growth, x2= Support effective re-intermediation x3= Attracting new services & investment, x4= Enable and facilitate collaboration, x5= Customizing services to customer needs, x6= Improve customer satisfaction, x7= Increase competitive advantages, x8= Establish reputation in the global markets, x9= Improve distribution channels, x10= Effective partnerships x11= Improve accountability, x12= Enhance staff satisfaction, x13= Ease of carrying out transactions, x14= Improve internal knowledge flow & sharing, x15=Provide support for strategic decisions, x16= Responding to competitor pressures, x17= Supplier's development programmes, x18= Business partner influence, x19= Adapting to technology changes, x20= Globalization issues, x21= Future survival of travel agency, x22= Limited available resources, x23= Lack of IT/travel skilled labour, x24= Time required to replace/change, x25= Employee resistance to changing from traditional ways, x26= Lack of technological readiness, x27= Business characteristics, x28= Business planning & strategy, x29= Lack of awareness of e-commerce benefits, x30= Risk taking reluctance, x31= Lack of e-commerce successful &proven models, x32= Lack of external support, x33= Business environment, x34= Customer issues, x35= Legal concerns, x36= Lack of public infrastructure readiness, x37= Inability of e-commerce trialability, x38= E-commerce complexity, and x39= E-commerce is not suitable to the nature of services.

Figure 6 - 6. The second competing nested model (NM2)

## 6.6 Comparing the competing models

Comparing the research model with the two competing models using Chi square difference test as aforementioned, it is found that the research model is a better fit to the data. In this step, the first nested model is compared with the second nested model. Where the competing models are non-nested within each other, there are three steps to compare non-nested models (Table 6-25): comparing the fit indices of both models, path coefficients in the two models; and variance explained ($R^2$) for both models (Lee and Back, 2008).

| **Indices** | **NM1** | **NM2** |
|---|---|---|
| Fit Indices (recommended value) | | |
| Chi-square ($x^2$) | 825.292 | 841.34 |
| $x^2$/df (<2) | 1.13 | 1.15 |
| RMSEA (<.05) | 0.018 | 0.019 |
| CFI (>.90, close to .95) | 0.931 | 0.920 |
| TLI (>.90, close to .95) | 0.926 | 0.914 |
| WRMR (<.9) | 0.697 | 0.711 |
| Path Coefficients | | |
| EP-BE | 0.800 (17.10) | - |
| EP-BA | -0.715 (-11.48) | - |
| BE-AD | 0.316 (3.22) | - |
| BA-AD | -0.670 (-6.65) | -0.493 (-4.14) |
| EN-AD | - | 0.457 (4.38) |
| EP-BE-AD | 0.253 (3.15) | - |
| EP-BA-AD | 0.479 (4.75) | - |
| EP-AD: total effects | 0.732 (16.63) | - |
| Explanatory Power (Adjusted $R^2$) | | |
| AD | 0.790 (0.767) | 0.756 (0.730) |
| BE | 0.641 (0.603) | - |
| BA | 0.511 (0.459) | - |

Note: AD=Adoption, BA=Barriers, BE=Benefits, EP=Environmental pressures, EN=Enabling factors.

Table 6 - 25. Comparing the nested models (NM1 and NM2)

From Table 6-25, it is clear that the NM1 is superior to the NM2. In addition to better fit indices of the NM1 compared to the NM2, it is revealed that NM1 is accounting for more variance in explaining adoption of e-commerce (AD), where the adjusted $R^2$ for the NM1 is 0.790 while it is 0.756 for the NM2. This comparison confirms that

investigating the impact of perceived environmental pressures (EP) on the adoption of e-commerce (AD) via the mediating variables; perceived benefits (BE) and perceived barriers to adoption (BA) has improved the variance explained in AD compared to measuring the impact of enabling factors and perceived barriers directly on adoption.

## 6.7 Level of e-commerce adoption

Among the 411 agents responded, it is revealed that 202 agents are adopters of e-commerce. As the sample size is not sufficient to fit the structural model to the adopter travel agents only, a logistic regression model is used to identify the significant factors affecting the level of e-commerce practice among travel agents. This section is concerned with the descriptive analyses and the logistic model of adopter travel agents.

### 6.7.1 Descriptive statistics

Among the 202 adopter travel agents who responded, it was found that all agents use computers in their daily activities. Out of the 202 agents, 67.8% of the managers said that computers had been used in their company for 6-10 years, 16.3% that they had used computers more than 10 years, 13.4% that they had been used for 3-5 years, 2% said they had been used for less than a year, and 0.5% for 1-2 years.

Of all agents, 39.6%indicated that they have an IT department, against 60.4% who said that they did not. Ranking the computer skills of employees in travel agents, 50.5% of the agents said that their employees have an average level of skills, 46% said that their employees have a high level of skills, 2% ranked their employees as having a low level of skills, 1% indicated that their employees have no such skills, and 0.5% stated that their employees have an expert level of computer skills.

All the 202 adopter surveyed agents have internet access in their companies. Among them, 97.5% use the internet to search for customers and/or suppliers, 93.6% use it to collect information about competitors, 93.6% of them use it to promote their agencies, 91.1% to collect information about customers, 90.6% use it to communicate and respond to customers, 90.1% use it to receive customer bookings, 70.8% use it to bid for contracts, 61.9% to monitor hits on websites, and 15.8% use the internet to provide formal staff training.

The 202 adopters were then asked how they define e-commerce as it is adopted in their companies; all of them said that they use the internet to promote their agency and its services (level 1); to communicate with customers and reply to their enquiries (level 2); 57 agents said that they use the internet to provide online booking with payment services (level 3); and 53 agents indicated that they use the internet for online booking services plus after sales services, and also provide an intranet for their employees (level 4). In total, 145 agents were classified as low-level practitioners of e-commerce, mainly using the internet for promotion and communicating with customers (levels 1 and 2). The remaining 57 agents were classified as advanced-level practitioners of e-commerce, using the internet for online bookings with payment. Although some of those 57 agents do not provide after sales services and an intranet for their employees, they still provide online booking and payment which is the central pillar of e-commerce and hence they are included in the category of advanced level practitioners of e-commerce.

A majority of 71.3% of the 202 managers said that the first factor they consider when making the decision of e-commerce adoption is to look at the benefits they will perceive from adopting e-commerce. Ranked second by 50% of managers was the

environmental pressures to adopt e-commerce. Considering what level of e-commerce to adopt was ranked third by 53% of managers, while 65.8% of adopter agents ranked barriers to adoption as the fourth factor considered in making the decision to adopt.

Generally, the low-level adopters' responses average on the perceived benefits of e-commerce adoption ranged from 'Neutral' from (2.66) on 'improve customer satisfaction' to (3.41) on 'sales, revenue and profits growth', while the advanced-level adopters' responses average ranged from 'Strongly Agree' (4.51) on 'support effective re-intermediation' to 'Agree' (3.81) on 'improve accountability'. These responses justify the adoption of advanced level of e-commerce enabling online booking with online payment, versus the uncertainty of these benefits for low-level adopters. Table 6-26 shows the descriptive statistics of perceived benefits of e-commerce by low-level versus advanced-level adopter travel agents.

| Perceived benefits | Category | SA | | A | | N | | D | | SD | | Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | F | % | F | % | F | % | F | % | F | % | |
| Sales, revenue and profits growth. | Low-level | 30 | 20.7 | 58 | 40 | - | - | 56 | 38.6 | 1 | .7 | 3.41 |
| | Advanced | 25 | 43.9 | 29 | 50.9 | - | - | 3 | 5.3 | - | - | 4.33 |
| Support effective re-intermediation. | Low-level | 40 | 27.6 | 39 | 26.9 | - | - | 66 | 45.5 | - | - | 3.37 |
| | Advanced | 33 | 57.9 | 22 | 38.6 | - | - | 2 | 3.5 | - | - | 4.51 |
| Attracting new services and investment. | Low-level | 39 | 26.9 | 39 | 26.9 | - | - | 66 | 45.5 | 1 | .7 | 3.34 |
| | Advanced | 27 | 47.4 | 27 | 47.4 | - | - | 3 | 5.3 | - | - | 4.37 |
| Enable and facilitate collaboration. | Low-level | 26 | 17.9 | 52 | 35.9 | - | - | 67 | 46.2 | - | - | 3.26 |
| | Advanced | 26 | 45.6 | 27 | 47.4 | - | - | 4 | 7 | - | - | 4.32 |
| Customizing services to customer needs. | Low-level | 23 | 15.9 | 21 | 14.5 | - | - | 99 | 68.3 | 2 | 1.4 | 2.75 |
| | Advanced | 31 | 54.4 | 20 | 35.1 | - | - | 6 | 10.5 | - | - | 4.33 |
| Improve customer satisfaction. | Low-level | 17 | 11.7 | 23 | 15.9 | - | - | 104 | 71.7 | 1 | .7 | 2.66 |
| | Advanced | 26 | 45.6 | 28 | 49.1 | - | - | 3 | 5.3 | - | - | 4.35 |
| Increase competitive advantages. | Low-level | 25 | 17.2 | 33 | 22.8 | - | - | 86 | 59.3 | 1 | .7 | 2.97 |
| | Advanced | 30 | 52.6 | 25 | 43.9 | - | - | 2 | 3.5 | - | - | 4.46 |
| Establish reputation in the global markets. | Low-level | 28 | 19.3 | 25 | 17.2 | - | - | 91 | 62.8 | 1 | .7 | 2.92 |
| | Advanced | 28 | 49.1 | 26 | 45.6 | - | - | 3 | 5.3 | - | - | 4.39 |
| Improve distribution channels. | Low-level | 23 | 15.9 | 39 | 26.9 | - | - | 82 | 56.6 | 1 | .7 | 3.01 |
| | Advanced | 29 | 50.9 | 25 | 43.9 | - | - | 3 | 5.3 | - | - | 4.40 |
| Effective partnerships | Low-level | 21 | 14.5 | 42 | 29 | - | - | 82 | 56.6 | - | - | 3.01 |
| | Advanced | 28 | 49.1 | 20 | 35.1 | - | - | 9 | 15.8 | - | - | 4.18 |
| Improve accountability | Low-level | 30 | 20.7 | 28 | 19.3 | - | - | 87 | 60 | - | - | 3.01 |
| | Advanced | 19 | 33.3 | 23 | 40.4 | - | - | 15 | 26.3 | - | - | 3.81 |
| Enhance staff satisfaction | Low-level | 32 | 22.1 | 27 | 18.6 | - | - | 86 | 59.3 | - | - | 3.03 |
| | Advanced | 18 | 31.6 | 27 | 47.4 | - | - | 12 | 21.1 | - | - | 3.89 |
| Ease of carrying out transactions. | Low-level | 24 | 16.6 | 60 | 41.4 | - | - | 61 | 42.1 | - | - | 3.32 |
| | Advanced | 27 | 47.4 | 21 | 36.8 | - | - | 9 | 15.8 | - | - | 4.16 |
| Improve internal knowledge flow & sharing | Low-level | 23 | 15.9 | 38 | 26.2 | - | - | 84 | 57.9 | - | - | 3.00 |
| | Advanced | 30 | 52.6 | 16 | 28.1 | - | - | 11 | 19.3 | - | - | 4.14 |
| Provide support for strategic decisions. | Low-level | 23 | 15.9 | 34 | 23.4 | - | - | 88 | 60.7 | - | - | 2.94 |
| | Advanced | 23 | 40.4 | 22 | 38.6 | - | - | 12 | 21.1 | - | - | 3.98 |

Table 6 - 26. Perceived benefits of e-commerce by adopter travel agents

In terms of the perceived environmental pressures, the low-level adopter travel agents have ‘Neutral’ opinions (3.26) on ‘adapting to technology changes’ to ’Agree’ (3.54) on ‘Supplier’s development programmes’, while the advanced-level adopters responses ranged from ‘Agree’ (3.91) on ‘adapting to technology changes’ to ‘Strongly Agree’ (4.53) on ‘business partner influence’. Table 6-27 shows the

descriptive statistics of perceived environmental pressures of e-commerce adoption in low-level versus advanced-level adopter travel agents.

| Perceived environmental pressures | Category | SA | | A | | N | | D | | SD | | Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | F | % | F | % | F | % | F | % | F | % | |
| Responding to competitor pressures. | Low-level | 39 | 26.9 | 49 | 33.8 | - | - | 57 | 39.3 | - | - | 3.48 |
| | Advanced | 21 | 36.8 | 33 | 57.9 | - | - | 3 | 5.5 | - | - | 4.26 |
| Supplier's development programmes. | Low-level | 37 | 25.5 | 56 | 38.6 | - | - | 52 | 35.9 | - | - | 3.54 |
| | Advanced | 31 | 54.4 | 23 | 40.4 | - | - | 3 | 5.3 | - | - | 4.44 |
| Business partner influence. | Low-level | 27 | 18.6 | 58 | 40 | - | - | 60 | 41.4 | - | - | 3.36 |
| | Advanced | 32 | 56.1 | 24 | 42.1 | - | - | 1 | 1.8 | - | - | 4.53 |
| Adapting to technology changes. | Low-level | 26 | 17.9 | 52 | 35.9 | - | - | 67 | 46.2 | - | - | 3.26 |
| | Advanced | 21 | 36.8 | 23 | 40.4 | - | - | 13 | 22.8 | - | - | 3.91 |
| Globalization consequences. | Low-level | 46 | 31.7 | 47 | 32.4 | - | - | 52 | 35.9 | - | - | 3.60 |
| | Advanced | 30 | 52.6 | 26 | 45.6 | - | - | 1 | 1.8 | - | - | 4.49 |
| Future survival of travel agency. | Low-level | 30 | 20.7 | 49 | 33.8 | - | - | 66 | 45.5 | - | - | 3.30 |
| | Advanced | 31 | 54.4 | 22 | 38.6 | - | - | 4 | 7 | - | - | 4.40 |

Table 6 - 27. Perceived environmental pressures of e-commerce in adopter agents

Supporting re-intermediation of travel agents in the global market and the future survival of agents are crucial benefit and pressure of travel agents to adopt e-commerce. Running crosstabulation between these benefit and pressure and the adoption level of e-commerce, Table 6-28 depicts that 55 out of 57 advanced-level adopters 'Agree' that adopting e-commerce is supporting the re-intermediation of travel agents in the global travel market, while 53 of them believe that the future survival of travel agency is an environmental pressure push agents to adopt e-commerce.

| | | Level of e-commerce | | Total |
|---|---|---|---|---|
| | | Low-level | Advanced-level | |
| Future survival of travel agency | Disagree | 66 | 4 | 70 |
| | Agree | 97 | 53 | 132 |
| Total | | 145 | 57 | 202 |
| Support effective re-intermediation | Disagree | 66 | 2 | 68 |
| | Agree | 79 | 55 | 134 |
| Total | | 145 | 57 | 202 |

Table 6 - 28. Crosstabulation of level of adoption and future survival of agents

For perceived barriers to adoption, Table 6-29 shows that advanced-level adopters have average opinions of ‘Disagree’ (2.25) on ‘e-commerce is not suitable to the nature of services’ to ‘Neutral’ (3.35) on ‘business environment’, low-level adopters have opinions range from ‘Neutral’ (2.72) on ‘lack of IT/travel skilled labour’ to ‘Agree’ (3.56) on ‘customer issues (culture, trust & satisfaction)‘, which, for them, justify the low-level adoption of e-commerce.

Running t-test for the equality of means shows significant differences between the responses of low-level and advanced-level adopters on the perceived benefits, perceived environmental pressures and perceived barriers to adoption, with all p-values less than 0.05 except for some perceived barriers including: limited available resources, legal concerns, lack of public infrastructure readiness, inability of e-commerce trialability, lack of successful and proven business models, lack of external support, business environment, lack of IT/travel skilled labour, time required to changing from traditional methods, employee resistance to changing from traditional ways, lack of technological readiness, and business characteristics, which means both low-level and advanced-level adopters have similar opinions on these barriers to e-commerce adoption, and agree that most of these barriers are common features of SMEs making them reluctant to adopt technology (Table 6-30).

| Perceived barriers to e-commerce adoption | Category | SA | | A | | N | | D | | SD | | Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | F | % | F | % | F | % | F | % | F | % | |
| Limited available resources | Low-level | 14 | 9.7 | 52 | 35.9 | - | - | 79 | 54.5 | - | - | 3.01 |
| | Advanced | 6 | 10.5 | 12 | 21.1 | - | - | 37 | 64.9 | 2 | 3.5 | 2.70 |
| Lack of IT/travel skilled | Low-level | 14 | 9.7 | 31 | 21.4 | - | - | 100 | 69 | - | - | 2.72 |
| labour. | Advanced | 8 | 14 | 8 | 14 | - | - | 39 | 68.4 | 2 | 3.5 | 2.67 |
| Time required to changing | Low-level | 20 | 13.8 | 39 | 26.9 | - | - | 86 | 59.3 | - | - | 2.95 |
| | Advanced | 2 | 3.5 | 16 | 28.1 | - | - | 37 | 64.9 | 2 | 3.5 | 2.63 |
| Employee resistance to | Low-level | 15 | 10.3 | 35 | 24.1 | - | - | 95 | 65.5 | - | - | 2.79 |
| change . | Advanced | 8 | 14 | 10 | 17.5 | - | - | 37 | 64.9 | 2 | 3.5 | 2.74 |
| Lack of technological | Low-level | 18 | 12.4 | 37 | 25.5 | - | - | 88 | 60.7 | 2 | 1.4 | 2.87 |
| readiness | Advanced | 4 | 7 | 20 | 35.1 | 2 | 3.5 | 28 | 49.1 | 3 | 3.5 | 2.89 |
| Business characteristics | Low-level | 14 | 9.7 | 43 | 29.7 | 1 | .7 | 85 | 58.6 | 2 | 1.4 | 2.88 |
| (small size, remote location) | Advanced | 3 | 5.3 | 19 | 33.3 | 2 | 3.5 | 30 | 52.6 | 3 | 5.3 | 2.81 |
| Business planning and | Low-level | 24 | 16.6 | 62 | 42.8 | 1 | .7 | 56 | 38.6 | 2 | 1.4 | 3.34 |
| strategy. | Advanced | 5 | 8.8 | 19 | 33.3 | 2 | 3.5 | 28 | 49.1 | 3 | 5.3 | 2.91 |
| Lack of awareness of E- | Low-level | 24 | 16.6 | 62 | 42.8 | - | - | 57 | 39.3 | 2 | 1.4 | 3.34 |
| commerce benefits. | Advanced | 5 | 8.8 | 19 | 33.3 | 2 | 3.5 | 28 | 49.1 | 3 | 5.3 | 2.91 |
| Reluctance to risk taking | Low-level | 34 | 23.4 | 78 | 53.8 | - | - | 32 | 22.1 | 1 | .7 | 3.77 |
| | Advanced | 11 | 19.3 | 15 | 26.3 | - | - | 27 | 47.4 | 4 | 7 | 3.04 |
| Lack of successful and proven | Low-level | 22 | 15.2 | 75 | 51.7 | - | - | 47 | 32.4 | 1 | .7 | 3.48 |
| business models. | Advanced | 8 | 14 | 20 | 35.1 | 3 | 5.3 | 25 | 43.9 | 1 | 1.8 | 3.16 |
| Lack of external support | Low-level | 16 | 11 | 82 | 56.6 | - | - | 45 | 31 | 2 | 1.4 | 3.45 |
| | Advanced | 10 | 17.5 | 19 | 33.3 | - | - | 27 | 47.4 | 1 | 1.8 | 3.18 |
| Business environment | Low-level | 25 | 17.2 | 75 | 51.7 | 2 | 1.4 | 41 | 28.3 | 2 | 1.4 | 3.55 |
| (regulatory systems…). | Advanced | 10 | 17.5 | 24 | 42.1 | - | - | 22 | 38.6 | 1 | 1.8 | 3.35 |
| Customer issues (culture, | Low-level | 29 | 20 | 70 | 48.3 | - | - | 45 | 31 | 1 | .7 | 3.56 |
| trust & satisfaction). | Advanced | 7 | 12.3 | 18 | 31.6 | - | - | 29 | 50.9 | 3 | 5.3 | 2.95 |
| Legal concerns (taxation, | Low-level | 16 | 11 | 62 | 42.8 | - | - | 63 | 43.4 | 4 | 2.8 | 3.16 |
| liability issues…). | Advanced | 10 | 17.5 | 15 | 26.3 | - | - | 30 | 52.6 | 2 | 3.5 | 3.02 |
| Lack of public infrastructure | Low-level | 15 | 10.3 | 53 | 36.6 | - | - | 72 | 49.7 | 5 | 3.4 | 3.01 |
| readiness. | Advanced | 7 | 12.3 | 15 | 26.3 | - | - | 33 | 57.9 | 2 | 3.5 | 2.86 |
| Inability of E-commerce | Low-level | 12 | 8.3 | 47 | 32.4 | - | - | 86 | 59.3 | - | - | 2.90 |
| trialability. | Advanced | 6 | 10.5 | 15 | 26.3 | 1 | 1.8 | 30 | 52.6 | 5 | 8.8 | 2.77 |
| Ecommerce complexity | Low-level | 10 | 6.9 | 42 | 29 | - | - | 88 | 60.7 | 5 | 3.4 | 2.75 |
| | Advanced | 2 | 3.5 | 13 | 22.8 | - | - | 32 | 56.1 | 10 | 17.5 | 2.39 |
| E-commerce is not suitable to | Low-level | 6 | 4.1 | 56 | 38.6 | - | - | 76 | 52.4 | 7 | 4.8 | 2.85 |
| the nature of services | Advanced | 4 | 7 | 6 | 10.5 | - | - | 37 | 64.9 | 10 | 17.5 | 2.25 |

Table 6 - 29. Descriptive statistics of perceived barriers to adoption in adopter agents

| | Advanced-level | | Low-level | | T-Test for Equality | |
|---|---|---|---|---|---|---|
| | Mean | Std. Dev. | Mean | Std. Dev. | T value | Sig |
| Sales, revenue and profits growth | 4.33 | 0.740 | 3.41 | 1.217 | 6.532 | .000 |
| Support effective re-intermediation | 4.51 | 0.685 | 3.37 | 1.306 | 8.087 | .000 |
| Attracting new services and investment | 4.37 | 0.747 | 3.34 | 1.314 | 6.997 | .000 |
| Enable and facilitate collaboration | 4.32 | 0.805 | 3.26 | 1.218 | 7.216 | .000 |
| Customizing services to customer needs | 4.33 | 0.932 | 2.75 | 1.211 | 9.993 | .000 |
| Improve customer satisfaction | 4.35 | 0.744 | 2.66 | 1.126 | 12.435 | .000 |
| Increase competitive advantages | 4.46 | 0.683 | 2.97 | 1.267 | 10.854 | .000 |
| Establish reputation in the global markets | 4.39 | 0.750 | 2.92 | 1.267 | 10.151 | .000 |
| Improve distribution channels | 4.40 | 0.753 | 3.01 | 1.228 | 9.795 | .000 |
| Effective partnerships (supplier/partners relationships) | 4.18 | 1.054 | 3.01 | 1.202 | 6.768 | .000 |
| Improve accountability | 3.81 | 1.172 | 3.01 | 1.277 | 4.256 | .000 |
| Enhance staff satisfaction | 3.89 | 1.080 | 3.03 | 1.293 | 4.808 | .000 |
| Ease of carrying out transactions | 4.16 | 1.049 | 3.32 | 1.184 | 4.900 | .000 |
| Improve internal knowledge flow and sharing | 4.14 | 1.141 | 3.00 | 1.219 | 6.270 | .000 |
| Provide support for strategic decisions | 3.98 | 1.126 | 2.94 | 1.218 | 5.759 | .000 |
| Responding to competitor pressures | 4.26 | 0.720 | 3.48 | 1.259 | 5.514 | .000 |
| Supplier's development programmes | 4.44 | 0.756 | 3.54 | 1.219 | 6.323 | .000 |
| Business partner influence | 4.53 | 0.601 | 3.36 | 1.200 | 9.157 | .000 |
| Adapting to technology changes | 3.91 | 1.138 | 3.26 | 1.218 | 3.619 | .001 |
| Globalization consequences | 4.49 | 0.601 | 3.60 | 1.266 | 6.757 | .000 |
| Future survival of travel agency | 4.40 | 0.812 | 3.30 | 1.242 | 7.386 | .000 |
| Limited available resources | 2.70 | 1.164 | 3.01 | 1.140 | -1.702 | .090 |
| Lack of IT/travel skilled labour | 2.67 | 1.200 | 2.72 | 1.104 | -0.286 | .775 |
| Time required to changing | 2.63 | 1.046 | 2.95 | 1.192 | -1.880 | .077 |
| Employee resistance to changing from traditional ways | 2.74 | 1.218 | 2.79 | 1.130 | -0.312 | .756 |
| Lack of technological readiness | 2.89 | 1.160 | 2.87 | 1.186 | 0.140 | .889 |
| Business characteristics (small size, remote location) | 2.81 | 1.125 | 2.88 | 1.148 | -0.386 | .700 |
| Business planning and strategy | 2.91 | 1.184 | 3.34 | 1.192 | -2.325 | .021 |
| Lack of awareness of E-commerce benefits | 2.91 | 1.184 | 3.34 | 1.197 | -2.281 | .024 |
| Reluctance to risk taking | 3.04 | 1.349 | 3.77 | 1.066 | -3.698 | .000 |
| Lack of successful and proven business models | 3.16 | 1.192 | 3.48 | 1.119 | -1.823 | .070 |
| Lack of external support | 3.18 | 1.255 | 3.45 | 1.086 | -1.442 | .126 |
| Business environment (regulatory systems…) | 3.35 | 1.217 | 3.55 | 1.118 | -1.121 | .264 |
| Customer issues (culture, trust and satisfaction) | 2.95 | 1.245 | 3.56 | 1.148 | -3.209 | .001 |
| Legal concerns (taxation, liability issues…) | 3.02 | 1.289 | 3.16 | 1.182 | -0.744 | .458 |
| Lack of public infrastructure readiness | 2.86 | 1.217 | 3.01 | 1.193 | -0.785 | .433 |
| Inability of E-commerce trialability | 2.77 | 1.239 | 2.90 | 1.116 | -0.692 | .490 |
| Ecommerce complexity | 2.39 | 1.130 | 2.75 | 1.121 | -2.082 | .039 |
| E-commerce is not suitable to the nature of services | 2.25 | 1.090 | 2.85 | 1.120 | -3.509 | .001 |

Table 6 - 30. T-test statistics for low-level and advanced-level adopters of e-commerce

#### 6.7.2 Logistic regression model for e-commerce adoption level in adopter agents

The adopter travel agents are divided into two main categories, low-level adopters and advanced-level adopters of e-commerce. The descriptive statistics show that 145 out of the 202 adopters are classified as low-level practitioners and 57 are classified as advanced practitioners. Table 6-31 depicts the overall goodness of fit, based on the logistic regression model, using a -2 log likelihood value and a Chi-squared test. It can be seen that including predictors in the model reduces the -2 log likelihood by 97.906. The Nagelkerke R-squared value is 72.7% while Cox and Snell's is 50.6%, suggesting that the model offers a good explanation of variance.

| Step | -2 Log likelihood | Cox & Snell R Square | Nagelkerke R Square |
|---|---|---|---|
| 1 | 97.906 | .506 | .727 |

Table 6 - 31. Model summary

Furthermore, as shown in Table 6-32, the Chi-squared value for the Hosmer and Lemeshow test is 6.724 (df=8, $p>0.05$). Therefore, the null hypothesis that there is no difference between the observed and predicted values of the dependent variable is accepted, and the model appears to be a good fit of the data.

| Step | Chi-square | df | Sig. |
|---|---|---|---|
| 1 | 6.724 | 8 | .567 |

Table 6 - 32. Hosmer and Lemeshow test

Testing the null hypothesis that all coefficients are equal to zero (Table 6-33), the Chi-squared value is 178.538 (df=8, $p<0.01$). Therefore, the null hypothesis is rejected and the independent variables as a whole significantly affect the dependent variable.

| | | Chi-square | df | Sig. |
|---|---|---|---|---|
| Step 1 | Step | 142.474 | 8 | .000 |
| | Block | 142.474 | 8 | .000 |
| | Model | 142.474 | 8 | .000 |

Table 6 - 33. Omnibus tests of model coefficients

Additionally, to assess how much of an effect the explanatory variables (the independent variables) have in the model over the constant only, it is useful to compare the classification table in step 1 (including independent variables) in Table 6-34 to the classification table in step 0 (no independent variables included). In step 0, the percentage value is 71.8% while in step 1 it is 91.6%, which shows that the inclusion of the independent variables does improve the explanatory value of the model regarding the factors that affect the level of e-commerce practice among travel agents.

| Observed | | Predicted | | |
|---|---|---|---|---|
| | | level of e-commerce practice | | Percentage Correct |
| | | Low practice level | Advanced practice level | |
| level of e-commerce practice | Low practice level | 136 | 9 | 3.8 |
| | Advanced practice level | 8 | 49 | 86.0 |
| Overall Percentage | | | | 91.6 |
| The cut value is .500 | | | | |

Table 6 - 34. Classification table

Finally, Table 6-35 indicates the significance of the coefficients. Using the values of the Wald statistics for perceived benefits of adoption (essential benefits, business internal efficiency, and competition, and marketing benefits), perceived environmental pressures, and perceived barriers to adoption (resource limitations, internal business environment, external business environment, and technology attributes) with p-values less than 0.05, the null hypothesis that $\beta=0$ can be rejected,

and the eight factors appear to have a significant effect on the adoption of an advanced e-commerce level by the travel agents.

| Factors | B | S.E. | Wald | df | Sig. | Exp(B) |
|---|---|---|---|---|---|---|
| Business internal efficiency | 1.237 | .295 | 17.625 | 1 | .000 | 3.446 |
| Business external environment | -.919 | .322 | 8.120 | 1 | .004 | .399 |
| Perceived environmental pressures | 1.630 | .379 | 18.522 | 1 | .000 | 5.102 |
| Business internal environment | -.626 | .275 | 5.162 | 1 | .023 | .535 |
| Competition, and marketing benefits | 2.035 | .377 | 29.090 | 1 | .000 | 7.656 |
| Resource limitations | -.634 | .298 | 4.522 | 1 | .033 | .530 |
| Essential benefits | 1.426 | .353 | 16.323 | 1 | .000 | 4.162 |
| Technology attributes | -1.074 | .369 | 7.360 | 1 | .007 | .342 |
| Constant | -4.767 | .748 | 40585 | 1 | .000 | .009 |

Table 6 - 35. Logistic regression model (variables in the equation)

The description of the variables in the model using logit values is as follows:

$Logit_{ecom\_advanced\_level}$= -4.767 + 1.237* business internal efficiency

- 0.919 * business external environment

+ 1.630 * perceived environmental pressures

- 0.626 * business internal environment

+ 2.035 * competition, and marketing benefits

- 0.634 * resource limitations

+ 1.426 * essential benefits

- 1.074 * technology attributes

Expressing the same model in terms of odds ratios (exp (B) instead of B values):

$Odds_{ecom\_advanced\_level}$= 0.009 x 3.446 * business internal efficiency

x 0.399 * business external environment

x 5.102 * perceived environmental pressures

x 0.535 * business internal environment

x 7.656 * competition, and marketing benefits

x 0.530 * resource limitations

x 4.162 * essential benefits

x 0.342 * technology attributes

The odds ratios indicate that a one unit increase in business internal efficiency benefits, the perceived environmental pressures, competition and marketing benefits, and essential benefits would increase the odds of adoption by factors of 3.446, 5.102, 7.656, and 4.162, respectively. On the other hand, a one unit increase in business external environment barriers, business internal environment, resource limitations, and adopted-technology attributes would decrease the odds of adoption by factors of 0.399, 0.535, 0.530, and 0.342, respectively. To sum up, competition and marketing benefits are the most important benefits leading agents to adopt advanced level of e-commerce. This is followed by the perceived environmental pressures, then essential benefits, and finally business internal efficiency. Meanwhile, business internal environment barriers, resource limitations, the business external environment, and technology attributes have negative effects on the adoption of advanced level of e-commerce by travel agents.

## 6.8 Summary

This chapter described the responses of the study's sample on the computer use, internet use, the perceived benefits of e-commerce adoption, the perceived environmental pressures, and the perceived barriers to adoption. Respondents are classified as adopters and non-adopters of e-commerce. Adopter travel agents are grouped into low-level and advanced-level adopters. The statistical analysis has validated the research conceptual model and perceived benefits and barriers to adoption are mediating the causal relationship between perceived environmental

pressures and e-commerce adoption. The comparison of the research model and two competing models revealed that the research model is the best to fit the data better. The research model has been tested on low-level and advanced level adopters using logistic regression model and is valid to explain the adoption of advanced level supporting online booking and payment by adopter travel agents. T-test for equality of means showed that there is a significant difference in the way adopter and non-adopter travel agents perceive the benefits of e-commerce, the environmental pressures, and the perceived barriers to adoption.

# CHAPTER 7. QUALITATIVE FINDINGS

## 7.1 Introduction

The research design used in this study is the mixed method, comprising both quantitative and qualitative research, and a sequential explanatory design strategy is employed, starting with the quantitative stage and then moving to the qualitative. The purpose of such a strategy is to obtain quantitative results and then conduct a qualitative study to help explain and interpret the findings that arise from the quantitative stage (Creswell, 2009). The strength of this strategy is its straightforward design with clear and separate stages.

The interviews were conducted with 22 general managers of travel agents and lasted for 15 to 20 minutes due to the limited time of managers. The interviews were conducted in Arabic language, the mother tongue of managers. All managers hold higher education qualification but mostly not tourism-related, however they have a number of experience years working in tourism sector (Appendix 5). Managers were asked about their agents' websites, its contents, factors affecting their decision to adopt e-commerce, and their suggestions for successful e-commerce implementation. Mangers were given a copy of the interview's schedule includes the aim of the interview and the questions. The answers of mangers were recorded then later transcribed. Arabic transcripts were then translated into English to be entered into NVivo software.

This chapter divides qualitative findings into several sections. The first section describes the information offered on the travel agents' websites. Factors considered in e-commerce decision-making are given in the second section. The third depicts the perceived benefits of e-commerce adoption. The fourth indicates the perceived external pressures of adoption. The fifth part handles the perceived barriers to e-

commerce adoption. Finally, the last section provides generic suggestions for successful e-commerce adoption and successful website.

All of the 22 travel agents interviewed have websites. Half of them have adopted e-commerce while the other half was found to have partially adopted it, in that their websites provide information, market their packages, and respond to customers, but there is no option to pay online. Features of websites are discussed as follows.

## 7.2 Website features

Managers were asked about the information offered on their websites. The majority of managers mentioned packages as the core product of travel agents. The interviewees mentioned that their websites have information about their packages using words such as *'packages', 'tours'* and *'trips'*. These vary according to the focus of the agent: set *'leisure*' packages, '*health tourism'* packages, '*religious'* packages, '*camping'* trips, '*eco-tours'*, and '*safari'* packages were most frequently mentioned by the interviewees. The packages can also be '*local'* or *'international'*, and '*incoming*' or '*outgoing'*. Company profiles are also often featured on the agents' websites. These provide a general view about the '*company'* and its '*history'*, and sometimes its '*departments'* and '*services'*.

Some of the agents said that they have the '*prices*/ *rates'* of their packages and services on their websites. Some of the agents however are not convinced that publishing the prices of their services is a good idea, as will be detailed in the section on perceived barriers to adoption. Providing the prices of packages is an indicator of the availability of online booking. Managers said that they have '*online booking*' systems with '*online payment'*. Some of the interviewees said that their customers could pay through the '*PayPal'* service, a '*money transfer'*, or by sending an email to

the agency after which the agent would send them a '*link for paying'* into the agency's bank account. This shows that some of the agents are confident in answering the question about whether or not they adopt e-commerce. However, what they describe is not the typical definition of e-commerce, in which online booking and payment are coincident activities.

Providing information about destinations is commonly cited feature of websites. This encompasses '*historical'* information, information about '*sightseeing*' and '*local destinations'* and, in some cases, about '*Egypt'*. This is useful for inspiring customers to include some of these sights in their holidays. It also allows the agents to provide tailor-made trips, by offering customers a variety of options.

A further category of information included on websites is '*contact details'*, which are referred to by a number of agents. Contact details provide the address of the agency and its phone, fax and email contacts as well as information on the company's local and foreign branches and, in some cases, individual departments and employees.

Some interviewees revealed that their websites offer information about '*transportation'* services, mostly '*airlines'*. Also, they cited that their websites provide tools for receiving '*feedback'* from customers, as well as '*comments'* and '*enquiries'* and, in some cases, customers' '*memories* and *experiences'* of their holidays. '*Maps*, *photos* and *video'* galleries were another commonly cited feature of the travel agents' websites. Additionally, some of them include separate information about '*accommodation'* and direct links to hotels' websites. Some have '*real time online booking'* systems for hotels. Some provide a '*booking request form'* that can be filled in and submitted online to request a certain package or excursion. Other features cited during the interviews include '*offers'* and '*promotions'* from the agency, '*cards*

*being accepted'* for online payment, '*multi-language'* options, facilities for checking the '*weather'* at holiday destinations, '*currency converters'*, and logos of '*trusted'* websites. Using NVivo software to code, classify and retrieve data, Figure (7-1) summarizes the information offered on the websites of the 22 agents interviewed.

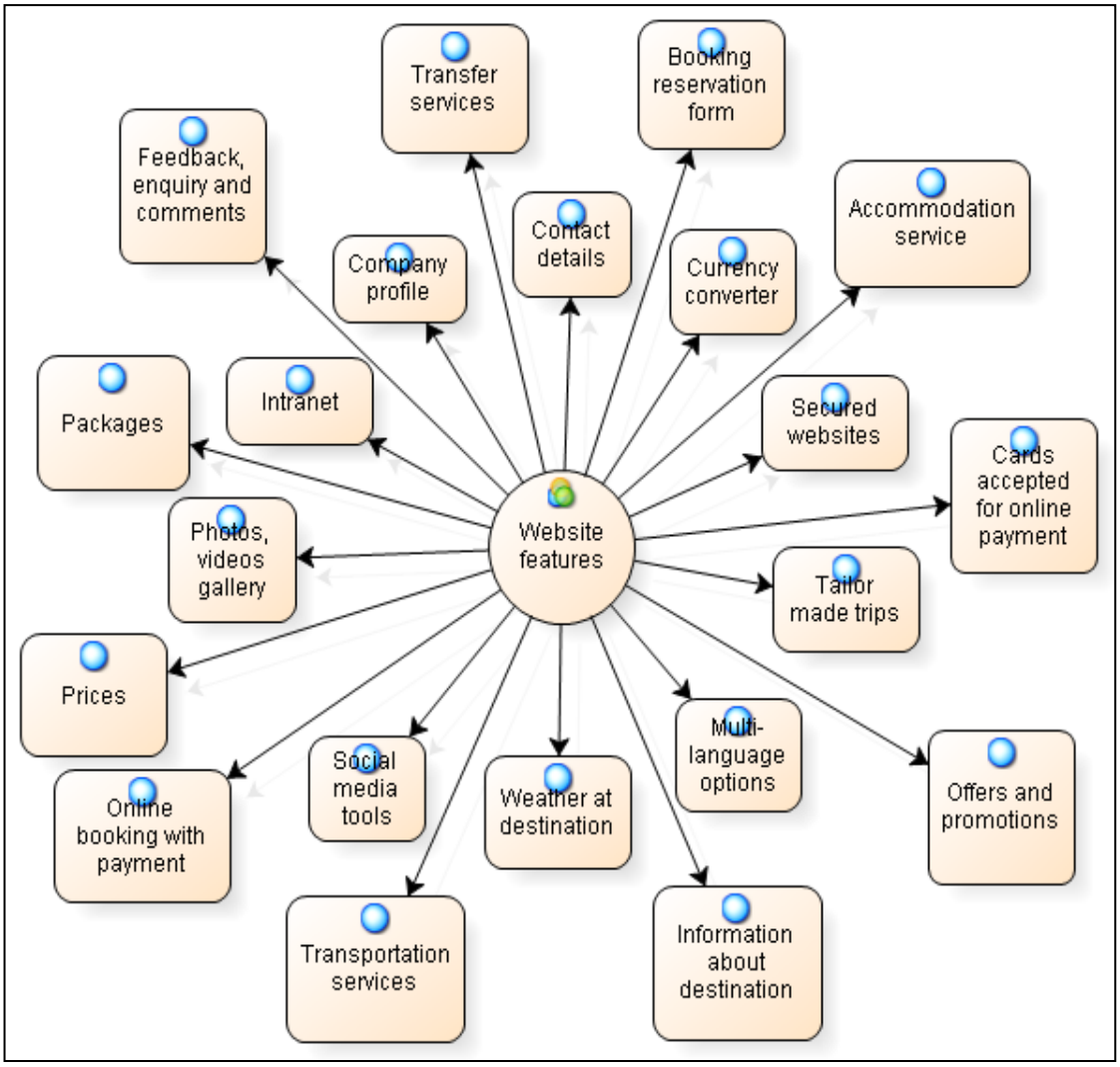



Figure 7 - 1. NVivo output of information offered on agents' websites

The figure shows the nodes classified in the NVivo Software based on the text transcribed from the interviews with managers of travel agents.

## 7.3 Factors considered in making the e-commerce adoption decisions

When the travel managers were asked about the factors they consider when making e-commerce adoption decisions, most of the 22 managers mentioned the perceived '*benefits'* of adoption, the perceived '*environmental pressures'* of e-commerce adoption, perceived '*barriers'* to e-commerce adoption, while some managers cited the '*implementation'* process of e-commerce. The perceived benefits of adoption include the ability to make '*reservations online*', sales and profits, '*marketing'* the company and its services, '*contacting'* customers, and the effect of e-commerce on the quality of '*performance'*. Perceived environmental pressures could include pressure from '*competitors, suppliers, customers* and *partners*', and adaptation to technology changes or governmental regulations. Perceived barriers to adoption encompass the '*resources'* of the company and implementation *'challenges/ inhibitors'*. Finally, the implementation process involves '***strategies'*** of building and adopting e-commerce systems. Figure 7-2 shows the factors considered in making the decision to adopt e-commerce.

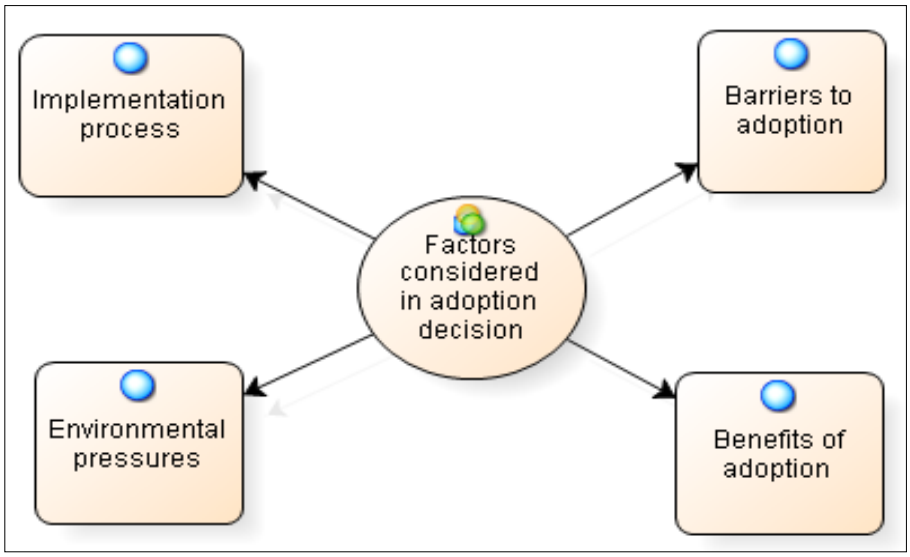



Figure 7 - 2. NVivo output of factors considered in making the adoption decision

### 7.3.1 Perceived benefits of e-commerce adoption

Asking the managers about the benefits of adoption, they believe that the perceived benefits of adoption are the main factor considered in travel managers' decisions-making process to adopt e-commerce. '*Marketing the company'* and its '*services'* was referred to as a perceived benefit of e-commerce in most of the interviews; making it the most commonly cited perceived benefit. Managers perceive e-commerce as a marketing channel in the first place; it is referred to by one of the managers as an '*online presence in the market space*'. An agency with a website has a good image and is credible: '*it creates the credibility and image of the company*', '*giving a credible impression about the company*', according to two of the managers. Company websites are used to provide information about the company, and its packages and services. Providing enough information about the company enhances its '*image'* and promotes its services in the global market. A website can also support interaction with customers through the social media tools that have become fashionable on websites.

The next most commonly cited perceived benefit of adoption is increasing the customer base and penetrating global markets. The terms '*penetration*' and '*spread*' in the '*global markets'* were repeated frequently by the managers. '*It is compulsory for our company, for international market penetration purposes*', said one of the managers, speaking about e-commerce's perceived benefits for his agency. The words '*reach*', '*get*', '*attract*', '*encourage*' and '*increase*' were used by managers to numerate the perceived benefits of e-commerce for enlarging their customer base. One manager asserted that the only perceived benefit of e-commerce was attracting customers, saying '*travel agents are still not fully benefitting from e-commerce in*

*Egypt, where the whole benefits go to the online wholesaler, i.e. hotel beds, my only benefit is when the customer comes to my destination'.*

The next most popular perceived benefit is gaining and increasing competitive advantage. The managers talked of '*gaining*', '*increasing*', or '*distinguishing*' their competitive advantages/positions over or '*staying ahead*' of '*offline agents'*, '*competitors*', and '*counterparts*'. Marketing the company and its services, increasing its customer base, penetrating global markets and increasing competitive position in the market all lead to the fourth perceived benefit of e-commerce adoption: increasing sales and profits. Managers linked sales and profits to customers, saying that e-commerce '*increases customers, sales, and profits',* and *'increasing customer numbers means increasing profits'.* They also thought that e-commerce was a good source of business and profits, commenting that it integrates with the traditional sales of the company and encourages customers to book online and buy supplementary travel services.

Additionally, according to the interviewees, e-commerce supports relationships with partners and suppliers. They used words such as '*supporting*', '*encouraging'*, '*facilitating*', '*approving*', and '*successful'* to describe their relationships/partnerships with travel suppliers and other partner companies. In some cases, in order to obtain a '*contract'* with a tour wholesaler, an agent needs to have an e-commerce empowered website. This is necessary so they can execute packages for the wholesaler, and represent it well.

Support for the existence of travel agents in the global market is also perceived as a benefit of e-commerce adoption. The travel managers were clearly convinced that e-commerce supports their survival: '*online business is a guarantee of future*

*existence', 'e-commerce is the future of the company', 'simply e-commerce is the future of any agent in the world', 'supporting strongly the agent's survival in the future', 'it is the only solution to continue in the market', and 'without e-commerce, there is no chance to survive in the future especially with the huge change in the tourism distribution structure and customers' buying habits in the last five years'.* The managers claimed that e-commerce adoption helps travel agents to remain independent, rather than depending on commissions from travel suppliers, such as tour operators, airlines, and hotels.

Managers perceive e-commerce as a tool to decrease costs compared to traditional methods. It especially helps to '*reduce marketing costs'* compared to the traditional tools of promotion, and also reduces paperwork. Furthermore, e-commerce websites facilitate directly '*contacting and responding to customers'*. They provide '*ease'* of carrying out transactions, and '*fast'* and '*high-quality'* booking services. Websites can also enhance '*staff satisfaction'*, help to identify roles and improve '*accountability'*. Furthermore, the travel managers took the view that e-commerce is a way of '*collaborating'* and supporting each other. Interactive websites can assist companies in finding out about customers, collecting information about them, and receiving their '*comments'* and '*feedback'*. Figure 7-3 depicts the NVivo output of the perceived benefits of adoption in managers' view point.

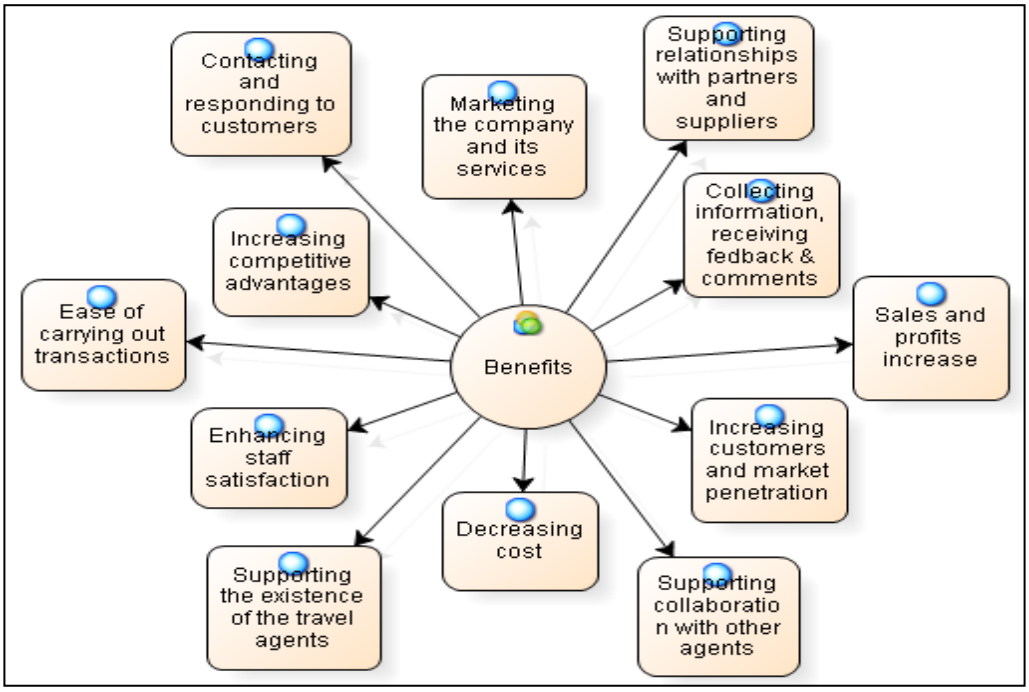



Figure 7 - 3. NVivo output of the perceived benefits of e-commerce adoption

### 7.3.2 Perceived environmental pressures of e-commerce adoption

The perceived environmental pressures of adoption are one of the main factors considered by the agents in their decisions-making process to adopt e-commerce. In this study, perceived environmental pressures of adoption refer to the forces which push travel agents to adopt e-commerce technology. Such perceived environmental pressures include pressure from the business environment, whether internal or external.

Asking managers about environmental pressures, responding to competitors was the most commonly referred to as pressure of technology adoption by the travel managers. '*Competition*', '*continue competing*', '*competitors' pressure*', and '*international competition*' were all used by the managers to define the strongest perceived environmental pressure behind adopting e-commerce. Comparison with

competitors, competitive position, and '*not wishing to be left behind'* one's competitors are some of the justifications they used for adopting e-commerce technologies. Future survival was also identified by the managers. They perceive the future survival of their agencies as being empowered by e-commerce and internet technology adoption. Again, '*continue*', '*staying*', '*survive*', and '*exist*' in the global travel market are some of the phrases used in defining the perceived environmental pressures that push these agents to adopt e-commerce.

The interviewed managers used words like '*revolution*', '*trend*', and '*fashion*' to describe the age of internet technologies and adapting to technology changes. '*There is an emergent need to adopt internet technologies*' said one manager, describing their need to adopt e-commerce. Some of the managers perceived e-commerce as a fashion, referring to '*adapting to technology changes and new fashions'*, and saying '*this is the trend in the world now'*. Other managers expressed the view that the '*new generation'* as well as some current customers are more interested in technology and the internet. Customer pressure is thus seen by the managers as one of the perceived environmental pressures of e-commerce adoption. '*Potential*' and '*online*' customer '*requirements'* are behind the emergent need to adopt e-commerce in their activities.

The '*benefits to be gained'* from adoption are another perceived environmental pressure behind adopting e-commerce in the opinion of some of the managers. They claim that an awareness of the benefits to their business pushes agents to adopt such technologies. Some managers are even requesting the support of government bodies and organizations to raise the awareness of e-commerce and their benefits for SMEs. Further perceived environmental pressures include the '*governmental regulations'* imputed by the ministry of tourism and other related bodies, which force

companies to use internet technologies to register and collect information. Another key factor is '*business strategy'*, which includes adopting technology, expanding into global markets, and developing and increasing their business size.

*'Supplier development programmes'* and upgrades to new technologies are another perceived environmental pressure of adoption. This form of pressure from '*suppliers and partners*' stems from the need to manage problems of compatibility, and enhance business performance. For example, the travel supplier may choose a technology such as Sabre or Amadeus and then require the travel agent to adopt it as well. Some managers view the '*manager/owner's commitment'* to adopt technology as another perceived environmental pressure of adoption. The consequences of '*globalization'*, such as whether international travel agents are allowed to open branches in various destinations, create another form of competition for travel agents, and are another perceived environmental pressure of technology adoption. Finally the '*changes'* in the travel market '*distribution structure'* and the appearance of virtual intermediaries to replace or integrate with the traditional channels place further pressure on travel agents to adopt such technologies. Figure 7-4 summarizes the environmental pressures considered by managers.

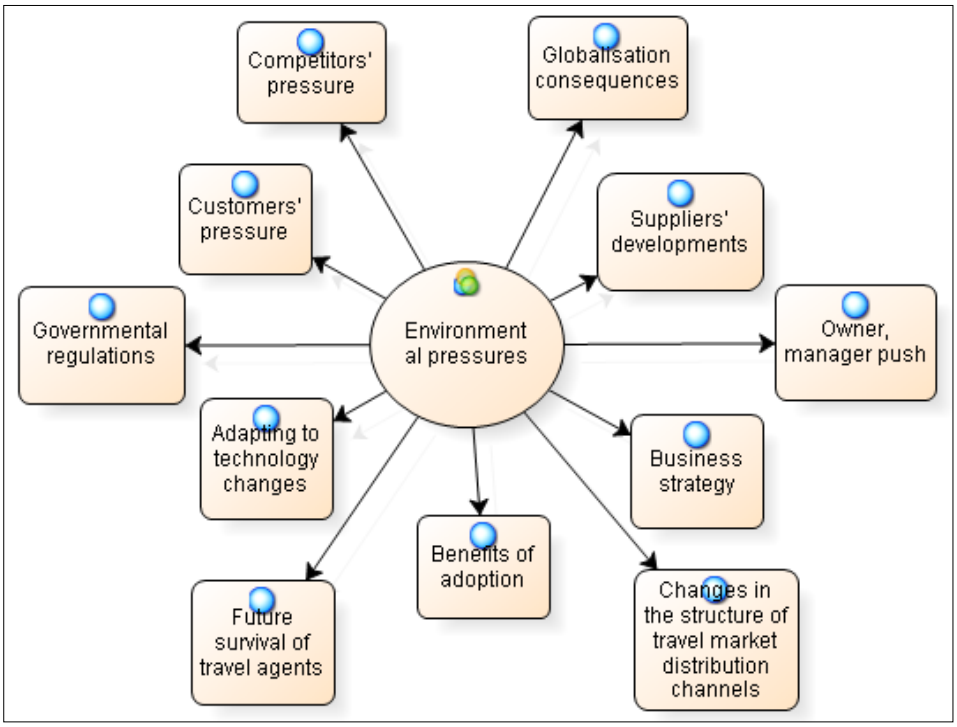



Figure 7 - 4. NVivo output of the perceived environmental pressures of adoption

### 7.3.3 Perceived barriers to e-commerce adoption

Another factor that managers consider when deciding whether to adopt e-commerce is perceived barriers to adoption. Asking managers about barriers to adoption, a lack of public infrastructure readiness was referred to many times. The interviewees described this lack of readiness in terms of the '*lack of availability of internet facilities'*, their quality and stability, the problem of governmental brokers providing internet services, and their '*off days'*. Lack of '*electricity stability'* is another problem for online businesses since they depend on it to run their computers, servers and internet services.

The interviewees also highlighted the lack of availability of banks providing facilities for online payments and payment gateways. They expressed the view that most '*banks'* in Egypt are '*not qualified'* to support online payment systems. Additionally,

those banks that do offer online payment services charge high '*fees'* for online transactions. They also have tough procedures in place against agents whose customers cancel their reservations and therefore require a refund. Furthermore, there have been a lot of '*fraud'* cases among tourists, in terms of '*stolen credit cards'* and other fraud.

A '*lack of trust'* from customers over internet transactions, and customers' preference for traditional buying habits, were referred to in some of the interviews. The interviewees stated that many customers, especially '*local ones'*, do not trust internet transactions. Some other customers do not consider the agencies themselves to be trustworthy or reliable. Customers perceive online booking and payment as an '*insecure'* procedure and some have had '*bad experiences'*, with accounts being '*hacked'* into, for example. Added to this, many of the customers, especially locals, still prefer to go to an agent, seek their advice and negotiate over prices, preferring personal contact to dealing with a computer screen. One interviewee claimed that the internet will not replace traditional agents: '*It will not replace a human being*', he said. This especially applies to religious tourism activities and to customers who travel for pilgrimage purposes.

The interviewees also perceived the '*cost of e-commerce'* as an important negative factor affecting e-commerce adoption by travel agents. The word '*costs*' came up in ten of the interviews. According to the respondents, the costs of e-commerce take various forms, including '*website design*, *updating or upgrading technologies*, *maintaining the website, and bank transaction fees'*, which can be 4.5% of the total transactions with some banks. Additionally, there is the cost of '*marketing the website to customers, and search engine optimizations'* to market the agency. It is

worth mentioning that the agents perceive these costs to be high, given their limited available resources, as SMEs.

Although most of the agents indicated that they could manage to build an e-commerce website, many agents saw marketing the website to their customers as the '*biggest challenge'*. Comments such as '*marketing the company and the websites is one critical factor*' and '*how customers know that I exist*' reflect that the online marketing of their companies and their websites is a crucial perceived barrier to adopting e-commerce. A lack of e-marketing support is also reflected in the interviewees' opinions: '*Lack of e-marketing support and consultancy, especially in tourism is a challenge'.* Added to these difficulties is the high cost of online marketing and the potential return on the investment. This is clearly expressed by one interviewee, the manager of one of the leading e-commerce agents in Egypt, who says '*on e-marketing the company and search engine optimization, I have spent $11,000 in the last month and I have got only $1,000 back'.*

A lack of qualified labour comes next, mentioned in some interviews. The interviewees used words like '*unqualified and experienced staff shortage', 'unskilled labour', 'untrained labour'* and *'it is a serious problem'* to express their perceptions about this barrier. They talked about qualified labour, in terms of '*technical knowledge'* of the internet and online payments. It must also combine '*IT with a travel background*'. '*Language fluency'* is another skill highlighted by the interviewees; personnel need to be fluent in several languages, especially English, in which the vast majority of websites are built. Smart employees, have an IT background, good '*geography'* and travel knowledge are the main targets for travel agencies. A '*lack of training'* to update and enhance employees' knowledge and skills is another issue pinpointed by the travel managers.

In some interviews, the opinion was expressed that e-commerce is not suitable for the nature of services provided by these travel agents. Most of these interviewees used words such as '*activity of the company', 'local market', 'nature of service'* and '*religious tourism'.* For most of the travel agents in Egypt, part of their business comes from religious tourism (pilgrimages), and they receive a quota from the Egyptian government every year granting them a certain number of visas for pilgrimage purposes. These agents do not think that there is any need for the internet: *'Religious tours do not need such big internet capabilities'; 'the internet is not suitable for such services'*. Added to this, customers who travel for religious purposes are generally '*older'* and do not necessarily have the technical knowledge to deal with the internet. Also, their '*culture and habits'* mean they tend to prefer personal contact and advice.

Some of the managers commented that marketing their packages online and providing prices would result in competitors '*copying'* these prices, '*undercutting'* them and '*stealing their customers'.* '*Putting prices on the websites means that competitors will know these prices and make discounts which means they take your business and your customers',* said one of the managers.

A '*lack of awareness'* amongst a lot of travel agents about the potential benefits of e-commerce for their business, and what and how to adopt it, is the next most commonly cited perceived barrier to adoption. Such awareness could include knowing what changes are happening in the travel market as a result of e-commerce, and its consequences for businesses. There appears, however, to be a '*lack of research and development'* departments in these companies. One manager stated that the *'lack of awareness amongst a lot of travel agents about e-commerce leads them to ignore these technologies'*.

A further perceived barrier is the employees' resistance to changing from traditional ways of doing business to automated ones. In reference to this issue, words like '*change*', '*traditional*' and '*resistance*' or '*tough resistance'* are interrelated in the interviewees' comments. They also mention that many employees feel too afraid of making mistakes when using the new technologies and this prevents them from achieving as much as they did using traditional paperwork when arranging or executing packages. '*They are afraid of making mistakes, not confident in adapting to new software, and modern technologies. They feel that one mistake could lead them to lose their job',* said one of the agents.

The availability of '*solution providers'* was referred to in four of the interviews. From the managers' point of view, this concept includes e-commerce '*website designers*, *internet providers and host companies*' for their websites. The lack of '*e-marketing consultants'*, especially in the tourism sector, was also mentioned. One of the managers described '*hosting companies' problems which are not effectively available in Egypt*' as a major perceived barrier to adoption.

The time required to changing from traditional to automated methods comes next in the list of perceived barriers. The agents perceive that changing or upgrading from one method to another can take a long time. One manager referred to the '*time required to changing from server to server, from provider to provider, or even to change from traditional to electronic methods'*. Equally cited in the interviews was the lack of customer readiness. This encompasses customer knowledge of how to deal with the internet, especially among local customers. One manager expressed this as follows: '*customers are not ready for online business*'.

A lack of technological readiness among the agents was also referred to. The most cited features of technological readiness were '*compatibility issues'* in software and hardware. Referred to equally often in the interviews was the lack of '*governmental support'* for SMEs for adopting such technologies. The interviewees mentioned support such as increasing the awareness of businesses as to e-commerce's perceived benefits, and helping them to overcome problems with public infrastructure. Other support mentioned included training workshops and a dissemination of knowledge about e-commerce, with government backing. Another feature of the lack of technological readiness and governmental support mentioned in the interviews was the lack of legal provisions to protect internet transactions. The managers claimed that there is a '*shortage of legislation'* protecting internet transactions and controlling related crime in developing countries such as Egypt.

Further perceived barrier is the '*lack of commitment'* from owners and management towards technology adoption. The interviewees claimed that '*older'* managers, lacking technical knowledge and the attitude required of business owners today, are behind the lack of technology adoption. Another barrier is the reluctance to take risks. One manager refers to this '*being a risk in using money with no guaranteed quick return on investment*'. Additionally, some interviewees mention government regulations which do not approve of electronic contacts or consider them official documents. For example, as one manager states, '*governmental places will not proceed with your requests unless you have live blueprint stamps*'. Additional barrier mentioned was having a '*business strategy'* with no plans to expand but simply maintain the current share of the local market, or focus on a single activity, such as religious tourism. A further barrier is some tour operators' (wholesalers') regulations. Some wholesalers select their agents on the basis that they do not work with any

other wholesalers. The agents in this case are simply using the wholesalers' packages. One manager said that '*then we do not need to have websites*'. Figure 7-5 shows the NVivo output of perceived barriers to adoption.

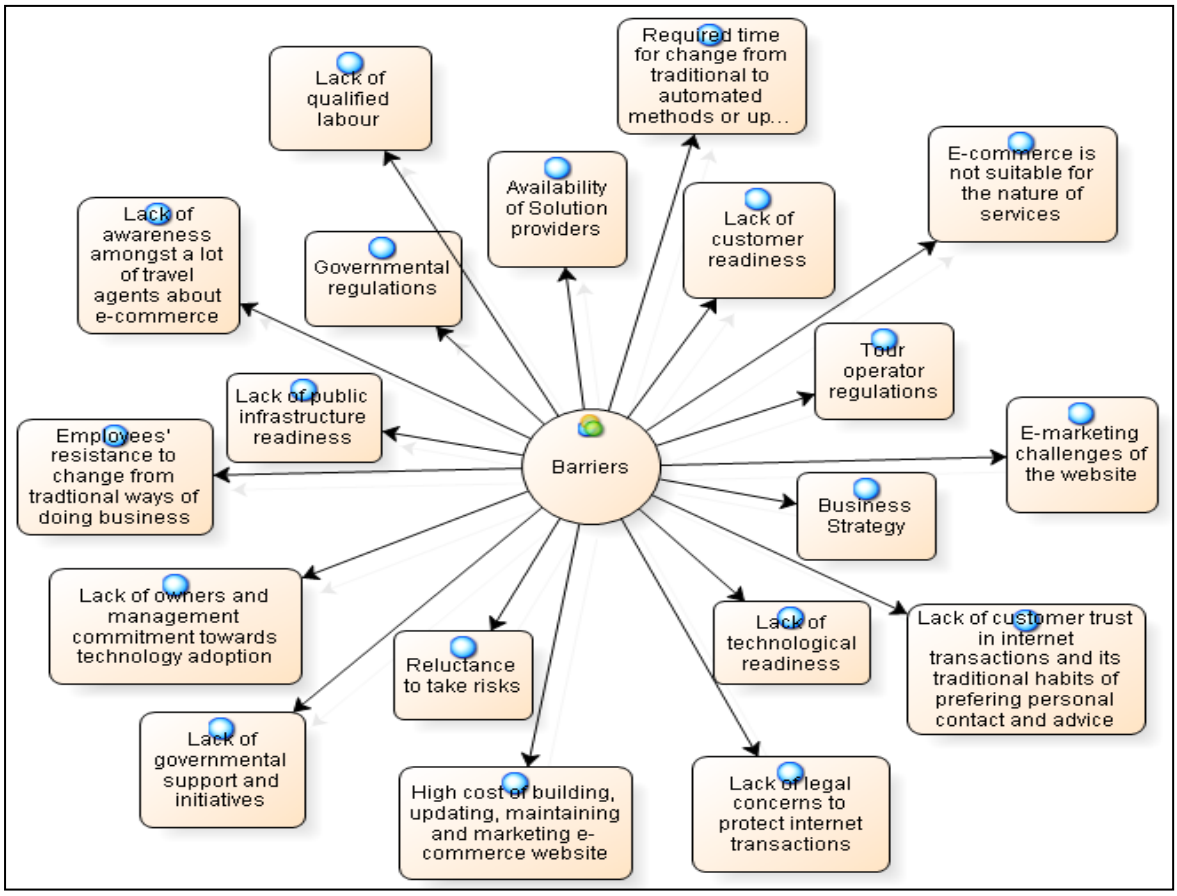



Figure 7 - 5. NVivo output of perceived barriers to e-commerce adoption

## 7.4 E-commerce implementation: suggestions for successful websites

Asking managers for suggestions for successful e-commerce websites implementation resulted in two broad areas of advice: '*implementing the website and managing it'* (Figure 7-6). Managing the website was recommended by all interviewees. However, first of all, a clear '*implementation strategy'* for the website and its design is needed, according to some of the managers. They suggested starting with a '*step-by-step'* implementation strategy. This should start with a '*static'* website providing information about the company and its services and packages.

The next step should move to an '*interactive'* website. The third step includes '*online'* booking and payment. The managers also emphasized the necessity of designing a '*friendly'* website that is easy-to-use, colourful and includes navigation links. In the opinion of some of the managers, a website should also be '*fashionable'*. Others emphasized the importance of selecting the right website designers and ensuring they had relevant experience. Customer opinion was also mentioned as a very useful input in the design stage.

After designing the website, the managers perceive '*managing the website'* effectively as a key to success. Most of the managers viewed '*updating'* the content and keeping the website '*live'* to be the most important ways of ensuring success. The importance of selecting and '*training'* certain staff members to be responsible for managing the website was also highlighted, for example, one manager referred to '*training employees to cope with technology challenges, and monitoring the traffic of the website effectively and quickly'*. The interviewees regarded considering customer feedback and comments as important. *'Management commitment to develop the website'* was described as necessary for success by one interviewee. Furthermore, the travel agents talked about how a clear e-marketing strategy for a website was essential to its success. Adding news to a website, and search engine optimization were mentioned as important means of marketing a website. Maintaining the website and '*upgrading'* it to adapt to new changes in technology was another suggestion made.


Figure 7 - 6. NVivo output of e-commerce website implementation

## 7.5 Conclusion

This chapter describes the qualitative results from 22 interviews with travel agent managers. It highlights the information offered on agents' websites. This information includes packages, company, prices, online booking, sightseeing and destinations, and contact details. Additionally, this chapter looks at the factors considered by the managers when deciding whether to adopt e-commerce. These factors include the perceived benefits and perceived environmental pressures of, and perceived barriers to, e-commerce adoption. In addition, recommended implementation strategies have been discussed.

The perceived benefits of adoption encompass marketing the company and its services, increasing the customer base and penetrating global markets, as well as gaining a competitive advantage, supporting relationships with business partners and suppliers, supporting the future existence of travel agents, decreasing costs and facilitating collaboration and support. Perceived environmental pressures of adoption include competitor pressure, the future survival of travel agents, adapting to technology changes, customer pressure, supplier development, consequences of globalisation, and changes in the distribution structure of the global travel market.

On the other hand, perceived barriers to adoption comprise a lack of public infrastructure readiness, a lack of customer trust in internet transactions, the cost of adoption, marketing the website, a lack of qualified labour, the opinion that e-commerce is not suited to the nature of services provided by these travel agents, a lack of awareness among SMEs of e-commerce's perceived benefits for their business, time required to adopt, change or replace technology, a lack of technological readiness, and a lack of owner/manager commitment to adopting

technology. The chapter ends with two main suggestions for ensuring successful e-commerce websites: an implementation strategy and managing the website.

# PART IV: DISCUSSION, CONCLUSION AND IMPLICATIONS

## Chapter 8. Discussion of Findings

## Chapter 9. Conclusion and Implications

# CHAPTER 8. DISCUSSION OF FINDINGS

## 8.1 Introduction

In the literature review of this study, a conceptual model was derived to explain the factors affecting e-commerce adoption by travel agents to support their future survival in the global travel market. Then, the model was tested quantitatively and supported using qualitative data. The quantitative procedures included factor analysis, exploratory and confirmatory factor analyses, and structural equation modelling. The new model extends the original technology acceptance model and improves its explanatory power. It reveals that the desire to survive acts as an environmental pressure on travel agent to adopt e-commerce so as to improve their competitive position in the global travel market. The model also helps to generalize the factors that affect e-commerce adoption in both developed and developing nations, and the empirical investigation makes this generalization rigorous (Andreu et al., 2010). The study contributes to filling the gap identified in the literature review: that there are few existing studies exploring the factors affecting technology adoption in developing countries (Thulani et al., 2010), and particularly in the travel agents sector (Thomas et al., 2011).

This chapter integrates the quantitative with the qualitative findings, using the qualitative findings to assist in explaining the quantitative. In so doing, and based on the objectives of the study, it discusses the factors affecting e-commerce adoption included the conceptual framework: the perceived benefits of adoption, perceived barriers, and perceived environmental pressures, and the level of e-commerce adoption.

## 8.2 Factors affecting the e-commerce adoption decision

This section covers the first objective of the study identifying the factors affecting e-commerce adoption. Both the quantitative and qualitative findings show that the perceived benefits, environmental pressures, and perceived barriers are all considered by managers before making the decision over whether to adopt e-commerce. The managers surveyed and interviewed confirmed that they would consider sales and profits, company marketing, responding to customers, and better performance as perceived benefits of adoption saying e-commerce '*increases customers, sales, and profits,* '*Marketing the company'* and its '*services, and* '*contacting and responding to customers'*. Perceived environmental pressures include those from '*competitors, suppliers, customers and partners'*. Perceived barriers consist of a lack of '*resources and implementation challenges'*. Most of these factors are considered in the steps of adoption included in the e-commerce adoption model designed by APEC (1999). Many of the other adoption models in the prior literature also include most of these factors (i.e., Davis et al., 1989, Premkumar and Roberts, 1999, Lacovou et al., 1995, Chwelos et al., 2001, Mehrtens et al., 2001, Wiertz, 2001, Ifinedo, 2011, Grandon and Pearson, 2004, Nikolaeva, 2006). However including the causal relationships amongst these factors in a single model improves its explanatory power of e-commerce adoption behaviour by travel agents in the context of developing countries.

### 8.2.1 Perceived benefits of e-commerce

This section covers the second objective of the study looking at the perceived benefits of e-commerce adoption. The plethora of benefits of e-commerce adoption identified in the literature suggests that they will be influential in the decision to adopt. This is in line with previous study by Acilar and Karamaşa (2010) who found that the

perceived benefits are the main reason of e-commerce adoption in SME hotel in Turkey. Although some previous studies have presented the benefits as consequences of e-commerce adoption (e.g., Bigne-Alcaniz et al., 2009), this study investigates how the benefits of adoption that are perceived by the owner-managers of travel agents affect their actual adoption of e-commerce.

The quantitative results revealed three categories of perceived benefits: essential, marketing and competition, and internal business efficiency. Each of these is found to influence the travel agency managers' decision to adopt. (i) The essential benefits mostly relate to the strategic, future-oriented perspective, and are important to travel agents threatened by disintermediation. This category is concerned with opportunities for growth, investment, collaboration and re-intermediation from using e-commerce advantageously. This finding is consistent with previous studies specify the strategic value of e-commerce adoption (i.e., Grandon and Pearson, 2004, Saffu and Walker, 2008).

The benefit in this category is sales and revenue growth, which is a key target for all SMEs hoping to survive in the market (Karagozoglu and Lindell, 2004). Next, the travel agents hope that e-commerce will support effective re-intermediation, by helping them to be technology-oriented, penetrate global markets and increase their customer base (Álvarez et al., 2007, Dyerson and Harindranath, 2007, Jin, 2007). Managers used phrases of '*online business is a guarantee of future existence', 'e-commerce is the future of the company', 'simply e-commerce is the future of any agent in the world', 'supporting strongly the agent's survival in the future', 'it is the only solution to continue in the market', and 'without e-commerce, there is no chance to survive in the future especially with the huge change in the tourism distribution structure and customers' buying habits in the last five years'* to describe how e-

commerce strategically supports future survival of travel agents. Third, they hope to attract new investments or services so as to achieve an independent revenue instead of relying on commissions from travel suppliers (Bennett and Lai, 2005). Fourth, they expect e-commerce to enable and facilitate collaboration. The qualitative findings confirmed the quantitative ones. The managers claimed that e-commerce *'increases customers, sales, and revenues', 'e-commerce is the only solution to continue in the market', 'without e-commerce there is no chance to survive in the future', and 'e-commerce helps travel agents to be independent from wholesalers'.* This category of benefits is in line with extant studies claiming that e-commerce may be able to deliver such benefits to SMEs, leading to business success (i.e., Grandon and Pearson, 2004, Saffu and Walker, 2008).

(ii) The category of marketing and competition encompass three benefits. The first relates to improving the travel agents' distribution channels and establishing a reputation in global markets. In this respect, e-commerce is considered to be an electronic interface between the travel agents and the world (Heung, 2003, Wesrthner and Klein, 1999). In other words, e-commerce is considered equivalent to opening a new sales channel, generating sales and establishing an international market presence. The qualitative findings, meanwhile, show that the managers believe e-commerce to be a tool for decreasing costs compared to traditional marketing methods, saying it '*reduces marketing costs'*. Secondly, the travel agents feel that e-commerce can help them customize their services to meet their customer needs and improve customer satisfaction. Customers' buying behaviours have changed as a result of e-commerce, which offers a lot more choices from which customers can choose and build their packages. The travel agency managers expect that this in turn will increase customer satisfaction and encourage customer

loyalty. Managers mentioned that e-commerce '*creates the credibility and improves the image of the company*', and '*gives a credible impression about the company*' which helps to build satisfied and loyal customer base.

The third perceived benefit in this category is an increase in the competitive advantage of the travel agent through a reduction in the cost of marketing and the ability to reach customers globally, enabling the travel agents to compete with larger counterparts, and to join forces with suppliers and partners. '*Gaining*', '*increasing*', or '*distinguishing*' their competitive position and '*staying ahead*' of '*offline agents'*, '*competitors*', and '*counterparts*'; managers say about e-commerce benefits. The benefits of e-commerce in terms of marketing and competitiveness have also been established in prior empirical investigations (Álvarez et al., 2007), specifically in the context of service-based SMEs (McCole and Ramsay, 2005). The significance of the present results suggests that there is a definite focus by the managers on the perceived marketing and competitive benefits of e-commerce when deciding whether to adopt.

(iii) The final category identified in this research is business internal efficiency benefits, which encompasses a set of benefits. Internal efficiency relates to the infrastructure that supports transactions management, the building of effective partnerships with suppliers and others, better accountability, and increased staff satisfaction. Operational efficiency enhances the ability of the SME travel agents to achieve future strategic success. The recognition of these different types of advantages by the managers in this study concurs with previous research that has indicated that e-commerce helps to achieve internal operational efficiency (Harindranath et al., 2008, Teo et al., 2009), building effective partnerships through enhanced relationships, cheaper and easier communication with trading partners

(Humphrey et al., 2003), improving staff satisfaction, and internal knowledge flow and sharing (Harindranath et al., 2008, Daniel and Wilson, 2002). The qualitative findings are in line with the quantitative ones; the managers perceive e-commerce to be a means to provide a high-quality booking service that is easy to use, a tool for identifying roles and improving accountability, and a better way of carrying out transactions. Managers used words such as '*supporting*', '*encouraging'*, '*facilitating*', '*approving*', and '*successful'* to describe their partnerships with travel suppliers and partners through adopting e-commerce. *'Ease*' of carrying out transactions, and '*fast*' and '*high-quality*' booking services, improving '*staff satisfaction*', and identifying roles to improve 'accountability' are other benefits of e-commerce say managers.

In terms of the relative importance of these three categories, the findings show that the travel agents in this study perceive essential benefits to be the primary driver behind the adoption of e-commerce, followed by marketing and competition benefits and then business internal efficiency benefits. Within the context of SMEs in developing countries, it is clear that the perceived benefits are influential in the decision to adopt e-commerce and, in the event of adoption, the level of e-commerce that is adopted. This is in line with previous research (Kaynak et al., 2005) showing that perceived benefits were significantly associated with the extent of e-commerce adoption in Turkish SMEs. Similarly, Nasco et al (2008) and Grandón et al (2011), in their work on SMEs' e-commerce adoption in Chile, identify that owner-managers' attitudes affect e-commerce adoption decisions. The perceived benefits have been found to be a significant factor in e-commerce adoption in various extant studies (e.g., Lacovou et al., 1995, Beatty et al., 2001, Nikolaeva, 2006, Wang and Ahmed, 2009, Mehrtens et al., 2001), and the present study empirically confirms that this

factor strongly and positively affects the decision to adopt e-commerce by SMEs in developing countries.

### 8.2.2 Perceived barriers to e-commerce adoption

This section reflects the third objective of the study identifying the perceived barriers to e-commerce adoption. The quantitative results obtained from the structural equation modelling revealed four categories of barriers to adoption. (i) The first is the attributes of the adopted technology; it is not relevant to the nature of the tourism services provided in Egypt. This assumes that most travel agents in Egypt have to fulfil a certain quota for religious tourism and that e-commerce is not suitable for this type of customer, who will typically seek personal contact and advice. This viewpoint also appears in previous research by Kartiwi and MacGregor (2007) in their study of barriers to e-commerce adoption by SMEs, comparing Indonesia as a developing country to Sweden as a developed country. They claim that e-commerce may be unsuitable for the type of business, services or products of the SME. The managers in the present study used words such as *'activity of the company'*, '*local market', 'nature of service', and 'religious tourism'* to express the idea that e-commerce is not suited to their local market customers, particularly those travelling for religious purposes. One manager claimed that *'religious tours do not require such big capabilities of the internet'*.

The complexity of e-commerce is the second perceived barrier to adoption. The managers expressed the view that e-commerce is not easy for their staff to use. This is in line with existing research claiming that employees find e-commerce difficult to use and require specific training, based on the case of Bangladesh, as a developing country (Azam, 2007). The inability to trial e-commerce was the third barrier to adoption highlighted in this research. This means there is no opportunity for

employees to test out or play around with e-commerce systems before the decision to adopt is made. Kendall et al. (2001), studying e-commerce adoption in Singaporean SMEs, agree, revealing that a lack of trialability is a significant barrier to adoption among SMEs. All of the above technology attributes, trialability, complexity and suitability, have been investigated in many previous studies within the context of developing countries (Azad and Hasan, 2011, Alam et al., 2011) confirming the consistency of findings with previous research conducted in developing economies.

(ii) The second category of barriers relates to the external business environment. This encompasses the fact that the required infrastructure is often not available in developing countries. Previous research has shown that a lack of 'infrastructure readiness' is an attribute of developing nations. In a recent study by Zaied (2012) inadequate infrastructure is reported as a barrier to e-commerce adoption in Egyptian SMEs. Apulu and Ige (2011) found that a lack of stable electricity supply in Nigeria is one of the problems hindering the adoption of technologies based on computers. Azam (2007) shows that inadequate infrastructure, outdated telephone systems, and limited access to computers and internet services are behind the non-adoption of technology in Bangladesh. Additionally, among the factors influencing the adoption of e-commerce in Saudi Arabia is poor infrastructure (AlGhamdi et al., 2011). Another barrier is the poor interconnectivity of internet systems among countries in the same region, such as Arab countries (Dutta and Coury, 2003). The managers of the travel agents in Egypt surveyed in this research expressed similar views to the extant literature, confirming that poor-quality, unstable or even a complete lack of internet facilities, and an unstable electricity supply are common obstacles to the adoption of e-commerce. '*Lack of availability of internet facilities'*, '*electricity stability'* are two main barriers to e-commerce adoption, managers say. A further barrier is that only

two banks in Egypt support online payment systems and they impose high fees on transactions.

A further barrier in this category is the lack of legislations protecting e-commerce activities. The managers commented that the lack of protection for internet transactions and inability to control related crime in developing countries such as Egypt deterred them from adopting e-commerce. There is a '*shortage of legislation'* protecting internet transactions; managers claim. This is in line with previous studies by Zaied (2012) who cited among the barriers to e-commerce adoption in Egyptian SMEs, Hung et al. (2011), who found that a lack of legal regulations was a barrier to e-commerce adoption among travel agents in Taiwan, and by Azad and Hasan (2011), who showed that there are inadequate legal regulatory systems in developing countries, which reduce the adoption of ICT.

Another barrier is that customers do not trust e-commerce transactions, considering them insecure. The managers of the travel agents mentioned customers' (especially '*local ones'*) preference to stick with '*traditional buying habits'*. This matches previous studies by Chen and Mcqueen (2008), who claimed that the lack of trust in internet transactions by Chinese SMEs in New Zealand affected the stages of e-commerce growth, and Halaweh (2011) who argued that customers and organizations in Jordan lack confidence in e-commerce transactions and this affects e-commerce adoption by enterprises there.

A lack of external support from public bodies to encourage SMEs to be technology oriented is another barrier in this category. In developing countries with inadequate infrastructure, it is very difficult for SMEs to adopt technology given their limited resources. Initiatives from governments would help SMEs to adopt technology. The

managers of the travel agents described a lack of governmental support, especially relating to infrastructure and e-commerce legislation. This is consistent with a previous study by Lawrence and Tar (2010), who highlighted the lack of governmental policy and support as a negative factor affecting e-commerce adoption in developing countries. Al-Hudhaif and Alkubeyyer (2011) also showed that the lack of governmental support significantly reduced the adoption of e-commerce in Saudi organizations.

Another barrier is the lack of successful role models adopting e-commerce, which would encourage SMEs to adopt so as to achieve the same benefits. This is consistent with a previous study by Zheng et al. (2004), claiming that the lack of role models discourages e-commerce among small businesses. The last barrier in the external business environment category is the business environment itself. This could include market regulations, government policies, or customers' refusal to adopt e-commerce. The managers of the travel agents highlighted that customers, particularly local ones, are not ready to engage with online businesses. Additionally, they mentioned the fact that many tour operators select their agents on the condition that they will not work with any other wholesalers and will only use their packages saying '*then we do not need to have websites*'. If this is the case, the managers believe they cannot work independently and do not need websites. This is consistent with Dutta and Coury (2003), who claimed that the political systems and regulatory environments in Arab countries are dependent on foreign technologies.

(iii) The third category of barriers revealed by the research is resource limitations. This encompasses employees' resistance to moving away from traditional ways of working. The managers explained that their employees were often afraid of making mistakes when using new technologies rather than traditional paperwork, feeling that

one mistake could mean they lose their job, leading to strong resistance to using new technologies. '*Tough resistance'* and *'they are afraid of making mistakes, not confident in adapting to new software'* are used interchangeably by managers to describe employees' resistance. This supports previous studies that found employees' attitudes towards e-commerce constrain adoption (Scupola, 2009, Thong, 1999). Linked to this is the lack of IT/travel-related skilled labour. Travel agent employees have been found to lack both IT and travel knowledge (Heung, 2003, Warden and Tunzelana, 2004). Managers expressed their perception about this barrier saying '*unqualified and experienced staff shortage', 'unskilled labour', 'untrained labour'* and *'it is a serious problem'.* This could be due to the lack of an e-commerce culture, inadequate education, or poor staff training. The managers of the travel agents felt that the lack of skilled labour presented a serious challenge to the adoption of e-commerce. They claimed that their employees lacked knowledge of internet technologies, were not sufficiently fluent in other languages, had no IT background, and also lacked good geography and travel knowledge. These results are consistent with previous studies citing that the lack of skilled labour is a major challenge to e-commerce adoption in SMEs in Egypt (Zaied, 2012) and some other developing countries (i.e., Dutta and Coury, 2003, Azam, 2007, Wahid, 2007).

A further barrier in this category is the time required to change from traditional to automated methods of doing work. Managers perceive that the process will take a long time and may include changing the whole system from paper-based to electronic, and training employees to use the new system. Managers describe this barrier saying '*time required to changing from server to server, from provider to provider, or even to change from traditional to electronic methods'.* This is critical for travel agents, who need to keep in touch with their customers and suppliers. They

would need to ensure that their booking systems worked properly throughout the process. MacGreogor and Vrazalic (2005) found a similar perception in their comparative study of e-commerce adoption barriers for small businesses in Sweden and Australia, while Thulani et al (2010) revealed that SMEs in Zimbabwe lack the time to implement e-commerce.

The final barrier in this category is the limited resources of the SMEs. One common feature of SMEs is their limited access to capital resources and difficulties in obtaining finance (Jutla et al., 2002, Oyelaran-Oyeyinka and Lal, 2006, Hausman, 2005). Additionally, SMEs are cost conscious (Zhang and Morrison, 2007). The managers of the travel agents listed various costs of implementing e-commerce, including website design, updating or upgrading technologies, maintaining the website, bank transaction fees, and the cost of marketing the website and performing search engine optimization. Given the aforementioned features of SMEs, and the various costs of implementing e-commerce (Ghamatrasa, 2006, MacGreogor and Vrazalic, 2005), it is not surprising that the agents surveyed perceive the costs to be too high for their limited available resources. This finding is in line with Heung (2003), who stated that the cost of e-commerce implementation is a significant barrier to its adoption by travel agents, and Al-Qirim (2007), who found similar evidence among SMEs in New Zealand.

(iv) The last category of barriers is internal business environment barriers. This includes a lack of awareness of the benefits of e-commerce adoption for SMEs. The managers felt that that this was a significant reason why many agents ignore such technologies. This lack of awareness could be related to the managers'/owners' level of education and knowledge of computers or a lack of more specific technical knowledge. This finding is in line with previous research by Heung (2003), who

investigated travel agents in Hong Kong, and by Chen and McQueen (2008), who studied e-commerce adoption by Chinese SMEs in New Zealand.

A lack of technological readiness among SMEs was also frequently cited by the managers as a barrier to e-commerce adoption, mostly in relation to compatibility issues with software and hardware but also including a lack of internet access or a dedicated IT department. This finding is supported by Azad and Hasan (2011), who investigated SMEs in Bangladesh, and Hung et al (2011) who found that compatibility concerns affect the adoption of e-commerce by travel agents in Taiwan.

Business planning and strategy is another barrier in this category. Mangers of travel agents quoted that some businesses adopt the strategy of maintaining the current share of the local market with no plans to expand their activities in global markets. Some others simply focus on a single activity such as religious tourism. Most of travel agents have no IT strategy or weak one if found. This is consistent with Stansfield and Grant (2003b) who found that some SMEs with no connection to the internet in the UK have no wish to expand, Zheng et al (2004) who cited that no cases have a clear IT strategy in his study of SMEs in the UK, and Kamel and Hussein (2002) who found that the Egyptian companies lack strategic IT planning.

A further barrier in this category is business characteristics, such as the small size of the travel agents surveyed and their remote geographical locations. This is consistent with Heung (2003), who found that the small size of travel agents is a determinant of e-commerce adoption, and with Premkumar and Roberts (1999), who found that for small businesses located in rural communities in the United States, size was a significant barrier to ICT adoption.

The final barrier in this category is the reluctance of the SMEs to take risks. SMEs are characterised by their reluctance to take risks (Jehangir et al., 2010, Pilat, 2003). The managers of the travel agents expressed the view that '*there is no guarantee they will receive a return on any investment spent on technology'*. This uncertainty regarding the benefits they may receive from e-commerce adoption (Kim, 2006) makes the SMEs reluctant to take risks. This finding is in line with previous studies by Olatokun and Kebonye (2010), who found that SMEs in Bostwana perceive e-commerce implementation to involve high risks, and Quaddus and Avhjari (2005), who claim that e-commerce adoption increases risks related to privacy and security.

As well as the aforementioned barriers to adoption, the qualitative findings revealed that '*marketing the website'* presented a significant barrier to e-commerce adoption. The managers felt that having a clear e-marketing strategy for a website is essential to its success. They referred to the cost of marketing the website, especially search engine optimisation. Most of the interviewed managers perceived marketing the e-commerce website to be the biggest challenge in the implementation process. They also felt that a lack of e-marketing support and consultancy, especially in tourism industry is a critical challenge.

### 8.2.3 Perceived environmental pressures

Environmental pressures are factors that push SMEs to automate their systems and become more technology-oriented. Pressures such as competitor, customer, supplier and technology changes are frequently mentioned as influential factors in studies related to technology adoption (i.e., Premkumar and Roberts, 1999, Kuan and Chau, 2001, Ifinedo, 2011, Ghobakhloo et al., 2011, Lacovou et al., 1995, Mehrtens et al., 2001). This section covers the fourth objective of the study; perceived environmental pressures of e-commerce adoption.

This study revealed six environmental pressures affecting e-commerce adoption and the adoption level indirectly via the mediating variables (the perceived benefits and barriers). First of all, the managers perceive globalization concerns as putting the highest pressure on travel agents to adopt e-commerce. The movement towards globalization has encouraged SMEs to adopt technology so as to penetrate new markets, and provide faster and better customer service. As a consequence of globalization, international wholesalers can open branches in developing countries and the local travel agents have to compete with these international agents. Similarly, Kraemer et al.'s (2002) cross-country survey revealed that globalization creates challenges and opportunities for enterprises, and is a driver for firms to adopt e-commerce. They found that firms began to work globally so as to expand their market and increase their customer base, and were then forced to adopt e-commerce as a result of this globalization. The travel agents in this study also work globally and need to keep their competitive advantages so as to sustain their future survival in the global travel market.

The second pressure identified in this study was the future survival of the travel agents. The managers used a range of words to describe why they would or had adopted e-commerce, such as *'continue', 'staying', 'survive'* and *'exist'*. Adopting e-commerce can help travel agents to achieve potential benefits related to increased sales, improved distribution channels, and increasing competitive advantages, which in turn can help them to survive the threat of disintermediation. Again, this is in line with previous research; Stansfield and Grant (2003b) state that one of the main aims of e-commerce is to ensure stability and future survival, based on their research into SMEs in Scotland. Meanwhile, Law et al (2004), based on their study of travel agents

in Taiwan, recommend that travel agents should be technology oriented and pay attention to the internet in order to face the threat of disintermediation.

Adapting to technology changes was the third environmental pressure revealed by this study. Travel agents have to upgrade their technologies in order to achieve improved operations. The managers in this study described the adoption of e-commerce as a '*fashion', 'revolution',* or *'trend'* that had to be kept up with. This is linked to the fourth and fifth environmental pressures, influence from business partners and developments by suppliers. Business partners push travel agents to improve the quality of their services and keep to a certain standard of service delivery. This concurs with Scupola's (2003) study of SMEs in the south of Italy and with Raymond's (2001) study of travel agents in Canada. Additionally, when their suppliers upgrade their technologies, the travel agents claim, they are forced to upgrade theirs as well to maintain good communication links. Vrana and Zafiropoulos (2006) agree, based on their study of Greek travel agents.

The last environmental pressure identified in this research is responding to competitors. The travel agents referred to the threat of being left behind by their peers. This is exacerbated by the emergence of new virtual intermediaries that put further pressure on travel agents to adopt technology. The managers of the travel agents talked of '*international competition'* and comparisons with their competitors as being some of the justifications for adopting e-commerce. Competitor pressure has frequently appeared in previous studies on the adoption of e-commerce, such as Chwelos et al.'s (2001) study of EDI which found that responding to competitors is a more important driver of adopting EDI than its perceived benefits, and Wang and Ahmed's (2009) investigation of SMEs' strategic orientation as a mediator of e-commerce adoption in the UK.

## 8.3 The study's conceptual model versus competing models

The conceptual model of the study is an extension of TAM. It conceptualizes the causal relationships between the constructs of the study. It measures the effect of environmental pressures on the mediating variables: perceived benefits and perceived barriers to e-commerce adoption. In turn, the mediating variables affect the outcome variable: e-commerce adoption. TAM establishes a causal relationship between perceived barriers to adoption and perceived benefits of adoption. Extending TAM enhances its prediction power which is claimed to be limited in the original model according to Chuttur (2009).

TAM in its extended form examines 5 hypotheses to conceptualize the causal relationships among constructs: environmental pressures, benefits of adoption, barriers to adoption, and actual adoption of e-commerce. Comparing the extended model to other competing models (see Figures 6-5 and 6-6), the quantitative findings revealed that the study's model is best fit the data and highly predict the adoption behaviour of travel agents (adoption versus non-adoption or adoption of low versus advanced-level of e-commerce). Using competing modelling strategy supports the study's model and its validity. Using this strategy is appreciated by literature studies (i.e., MacCallum and Austin, 2000) which cite that this strategy provides comparative information about competing explanations of the data and distinguishes the best model fits data. The aforementioned argument covers the fifth objective of the study that conceptualizes the relationships among the constructs of the study and compares the conceptual model with other competing models.

## 8.4 Internet usage and level of e-commerce adoption in travel agents

This section covers the sixth objective of the study establishing the adoption level of e-commerce adoption in travel agents. The quantitative results revealed that travel agents use the internet to collect information about their competitors and customers, to communicate with and respond to customers, to promote their agencies, to search for customers and/or suppliers, to bid for contracts, to receive customer bookings, to monitor hits on websites, and to provide formal staff training. These usage patterns reflect the importance of the internet for travel agents in supporting their stability and future survival and are in line with previous research by Stansfield and Grant (2003a, 2003b) who studied SMEs in Scotland. The results show that travel agents care primarily about their competitors and what they offer on their websites in terms of packages and prices. Customers are the second priority, including their preferences, enquiries and feedback. Agents also use the internet to promote themselves in bidding for contracts with suppliers and to increase their competitive advantage by collaborating with travel suppliers and working as retailers for foreign travel wholesalers. The next most important use of the internet is to receive bookings and monitor traffic on websites. Finally, travel agents that use booking software (such as Amadeus) often obtain formal training for their employees via internet demos to keep them up to date with technology changes.

The quantitative and qualitative results both show that the information offered on the agents' websites is mostly related to the agencies themselves and the services provided (contact details, packages, and prices) and this is also in line with previous research conducted by Lin et al (2009), who stated that the main aim of travel agents' websites is to provide information. Both the quantitative and qualitative results show that the websites provide a variety of other information as well: offers and

promotions, accommodation, social media tools, trip planner services, booking reservation forms, destinations, and transfer services. However, both agree that only a minority of travel agents provide an online booking with payment facility. Most have static websites, providing information, and are thus classified as brochureware.

The results of the second pilot study revealed that 104 out of 317 websites of travel agents are classified a low-level adopter of e-commerce, while 9 travel agents offered the option of online bookings and 11 agents online payments on their websites indicating that the companies were advanced-level adopters of e-commerce. This classification of low-level and advanced level of e-commerce is in line with previous studies (i.e., Al-Qirim, 2007, Daniel et al., 2002). These findings reflect the fact that the travel agents are still in the early stages of exploiting the internet's potential through e-commerce (Alexander, 2000, Karanasios and Burgess, 2008), which is in line with previous studies by Standing et al (1999), who evaluated travel agency websites in Australia, Wan (2002) who investigated the websites of hotels and tour wholesalers in Taiwan, Maswera et al (2009) who evaluated tourism websites in Africa, the USA and Europe and Lin et al (2009) who evaluated the websites of Chinese travel agents.

### 8.5 Summary

The chapter discusses the findings of the study according to the objectives of the study. It integrates the quantitative and the qualitative findings and links it to previous studies. It covers the factors affecting the adoption of e-commerce; environmental pressures, benefits of adoption, barriers to adoption and the level of e-commerce adoption in travel agents. The vast majority of the findings are in line with previous studies of technology adoption in SMEs in different environment/ contexts which

confirms the reliability of the findings and confirms the effect of these factors on e-commerce adoption in the context of developing economies context.

# CHAPTER 9. CONCLUSION AND IMPLICATIONS

## 9.1 Introduction

This Chapter provides an overview of the study. It summarizes the findings revealed of the study; quantitative and qualitative. Furthermore, it depicts to the implications of the study in terms of theory and practice. Additionally it provides generic recommendations for travel agents, and governmental bodies for successful adoption and promotion of e-commerce in SMEs. Finally it depicts to the research limitations and future research areas.

## 9.2 Conclusion

Travel agents as SMEs have critical threat of disintermediation of global travel market as a result of distribution structure changes caused by E-commerce. To survive in travel market and improve their competitive positions, travel agents need to adopt internet technologies that improve their sales and revenues, penetrate global markets, enhance their distribution channels, and improve their internal operations efficiency. Although SMEs need to face their survival challenges and adopt technologies, they are described as laggards in technology adoption and reluctant to take the risks of adoption. This is the case of Egyptian travel agents of which 59.2% do not have websites so far.

This study has investigated the adoption (and adoption level) of e-commerce among category A travel agents in Egypt. Using mixed methods and employing structural equation modelling, the study has revealed that three main variables affect e-commerce adoption by travel agents: the perceived benefits of adoption, the perceived barriers to adoption, and perceived environmental pressures. The study used the sequential explanatory research design starting with quantitative stage and followed by qualitative stage to help interpret the findings revealed from the study. A questionnaire form, includes 15 benefits, 6 environmental pressures, and 18 barriers to adoption, was used

to collect data from 411 travel agents. 22 personal interviews were conducted with managers of travel agents to help explain the quantitative data.

The structural model, testing five hypotheses, conceptualises the causal relationships among the three constructs, based on modified TAM. It shows that perceived environmental pressures affect e-commerce adoption via the two mediators: perceived benefits and barriers. In other words, the pressures push the travel agents to overcome the barriers so as to maximise the benefits. The perceived benefits positively affect the adoption of e-commerce, while the perceived barriers negatively affect adoption. Although environmental pressures push the agents towards the adoption of e-commerce, the perceived benefits and perceived barriers are the main factors considered when making the adoption decision. Managers carefully evaluate the barriers to adoption and weigh the benefits they think it will bring, and then make their adoption decision.

The managers of travel agents perceive technology attributes, the business environment, and resource limitations as the main barriers to adoption. Meanwhile, they believe that adoption will positively enhance their sales, profits, competitive advantage, intermediation, marketing activities, and internal business operations. Additionally, they perceive globalization concerns, future survival of the travel agents, adapting to technology changes, business partners, developments by suppliers, and responding to competitors are pressures on travel agents to adopt e-commerce.

The qualitative phase adds value to the quantitative findings. It has been used to confirm, explain and expand on the quantitative results. Examples of this confirmatory role include identifying the factors that affect the e-commerce adoption decision, and the benefits, barriers and environmental pressures involved. The qualitative results have

confirmed a lot of the benefits of adoption. Some of these confirmed benefits are helping the agents to market packages and services, improving their competitive advantage, enhancing customer satisfaction, ease of carrying out transactions, increasing sales and revenues, the effective re-intermediation of travel agents, and supporting collaboration among business partners.

In terms of the barriers to e-commerce adoption, the qualitative findings affirmed most of the quantitative results. Examples of these barriers are a lack of qualified labour, a lack of infrastructure readiness, legal concerns, reluctance to take risks, a lack of governmental support, a lack of technological readiness, a lack of awareness among managers of the benefits of e-commerce, employees' resistance to changing the traditional ways of doing business, consumers' concerns (trust and readiness), and technology attributes (suitability, trialability, and compatibility).

In terms of environmental pressures too, the qualitative findings supported the quantitative results. These pressures include competitors' pressure, suppliers' development programmes, globalization consequences, adapting to technology changes, and the survival of the travel agents.

In terms of explaining the quantitative results, the qualitative findings provide a detailed description of the marketing benefits of e-commerce, in terms of enhancing the travel agents' image in the market, showing the credibility of the company in the market, enabling penetration and spread in global markets, and staying ahead of competitors. Further explanation was given regarding the pressure imposed by suppliers' development programmes, where the travel supplier may choose a technology such as Sabre or Amadeus and then require the travel agent to adopt it in order to maintain the partnership. Regarding barriers, the qualitative findings explained the lack of

infrastructure readiness in terms of stability of the electricity supply, speed of internet connections, off days of internet providers, and banks that are unqualified to support online payment services. The high cost of e-commerce implementation was also elucidated. The managers described costs such as e-marketing and search engine optimization, website design, updating, upgrading, and maintenance. Clarification was also obtained from the qualitative findings regarding managers who claimed that their agencies had adopted e-commerce although their websites did not support online payment. They explained that customers could use email and reservation forms to request a package, and when the agent had approved the requested package, they would then email the customer a link, which they called a ‘gateway’, through which the customer could pay directly into the agent’s bank account.

The final way in which the qualitative results add value is by expanding on the existing factors and providing new factors that affect e-commerce adoption. New factors categorized as environmental pressures include the tour operator’s regulations, such as expecting partnered travel agents to have a website. Others include the change in the distribution structure of the travel market, owner-manager push to adopt technology, and the benefits to be gained from e-commerce adoption. A barrier to e-commerce adoption revealed by the qualitative study is the e-marketing of e-commerce websites; travel agents build their own websites but then often have problems marketing them globally. The high cost of e-marketing activities was also mentioned.

## 9.3 Study implications

### 9.3.1 Theoretical implications

The contribution to theory is twofold, offering an overall understanding of the factors affecting e-commerce adoption in SMEs as well as a methodological contribution. Looking back at the literature review in Chapter 3, it is clear that travel agents face the threat of disintermediation of the global travel market as a result of changes in the distribution structure caused by e-commerce. Instead of adopting e-commerce and gaining from its potential, SME travel agents are characterized by their slow adoption of technology in general and e-commerce in particular (Alam et al., 2011, Beekhuyzen et al., 2005). More research is needed to identify the factors that affect the adoption of e-commerce, as these factors have not been well documented in the context of the travel sector so far (Hung et al., 2011, Thomas et al., 2011), especially in developing countries (Thomas et al., 2011, Thulani et al., 2010). The generalization to developing countries of the factors that apply to developed countries lacks rigour (Lawrence and Tar, 2010, MacGregor and Kartiwi, 2010).

This study aimed to identify the factors that affect e-commerce adoption in the travel agency sector. The findings help to provide a better understanding of e-commerce adoption behaviour in tourism enterprises, especially in developing countries, where few studies have been conducted on technology adoption to date. Although recent studies have looked at e-commerce adoption in developing countries (i.e., Ayo et al., 2011, Azad and Hasan, 2011, Gilaninia et al., 2011, Halaweh, 2011, Hung et al., 2011, Lawrence and Tar, 2010, MacGregor and Kartiwi, 2010, Mohanna et al., 2011), they have been limited to a study of the barriers. This study therefore provides further understanding of the inter-relationships among all the factors that affect the adoption of e-commerce.

The findings help to answer the question of why SMEs are reluctant to adopt technology even though it could improve their competitive position and improve their survival chances. Although environmental pressures push travel agents to adopt e-commerce, some agents do not believe that benefits can be gained from adoption, while others believe there are benefits and have taken some steps towards adoption but face barriers that prevent them from moving to a higher level of e-commerce. Additionally, this study reflects the perceptions of e-commerce in Egypt in particular, thus offering the perspective of a developing country, and could be used in the future to make comparisons so as to analyse the progress of e-commerce adoption by SME travel agents.

Furthermore, the measurement model developed in this study and the procedures used to ensure validity and reliability both quantitatively and qualitatively could be useful for academics and researchers conducting further research into SMEs' technology adoption. For travel agents in Egypt, the decision to adopt plain (or an advanced level of) e-commerce appears to depend on their having a comprehensive understanding of the benefits, barriers, and environmental pressures, from a future-oriented business development perspective.

The study has provided a way of identifying the level of e-commerce adoption in travel agents. This will be useful for other academics, who should be encouraged to investigate the factors affecting each single level of adoption, namely, static web presence, interactive online presence, electronic transactions, and electronic integration, to determine the pressures, benefits and barriers relevant to each level.

This study also contributes to the theory by modifying the TAM model. Extending the 'usefulness' construct in TAM to include the benefits of adoption, replacing 'ease-of-

use' with barriers to adoption and 'external variables' with environmental pressures, supports TAM's ability to explain the factors affecting the adoption of complex innovations. The modified TAM highlights the importance of benefits, barriers and environmental pressures as key determinants of e-commerce adoption. It explores the mediating effects of benefits and barriers. The study's findings reveal that the modified TAM has good explanatory power in interpreting e-commerce adoption.

Contributing to methodology, the study has brought together constructs that were previously examined independently in various contexts. The constructs of 'benefits', 'barriers' and 'environmental pressures' in relation to technology adoption have all previously been studied independently, as demonstrated in the literature review. The interrelationships of the three constructs reveal a measurement model which can be used to predict technology adoption by SMEs in a developing country with high explanatory power.

The measurement model revealed in this study could be used further to investigate other disciplines of technology adoption, such as internet diffusion or specific information systems adoption (e.g. electronic data interchange) and also different categories of small tourism enterprises, such as small hotels, rural tourism enterprises and other hospitality enterprises. By using this measurement model to measure technology adoption in different small tourism enterprises and in the context of developing economies, researchers may enrich and add to the extant literature.

Another methodological contribution is the use of competing models strategy to compare the research model with two other models and approves its applicability to fit the data. Using this strategy helps also to provide different interpretations of data and test which model is best fitting the data. The study also highlights a statistical strategy

to compare competing models based on the concept of nested and non-nested models. The competing model strategy gives different perspectives of which theory interprets the data better and provides acceptable statistical criteria to select the winning theory.

### 9.3.2 Implications for practice

Turning to the implications for practice, these include implications for both the managers of travel agencies and policy makers. Recognising the factors affecting e-commerce adoption could enable managers to devise strategies to expand their business and gain the perceived benefits of adoption, while identifying any defects and training needs that present barriers. Managers will be able to prepare better agendas for expansion and set priorities regarding the implementation of e-commerce. The findings of this study revealed that marketing benefits are perceived to be the greatest factor affecting adoption. This could form the initial aim in the basic adoption of e-commerce. Later development strategies could include a route map for upgrading the adoption level and achieving more strategic benefits of adoption.

The findings reveal that future survival is supported by the adoption of e-commerce and this should provide an incentive to travel managers to become more technology-oriented so as to improve their competitive position. Attracting new services and investment could help travel agents to work independently from tour wholesalers, airlines and hotels; this can be achieved by adopting e-commerce. Collaboration with other travel partners could strengthen their competitive advantages, support their sales and revenues, and increase the opportunities to expand, penetrate other international markets and increase the customer base.

It has been revealed in this study that the adoption of e-commerce can help to establish a reputation for travel agents in global markets. The qualitative findings show that

adoption can improve the image of an e-travel agency and give a credible impression about its services, which in turn increases customer satisfaction and loyalty. Hence managers, as the decision makers regarding adoption by SME travel agents, should be encouraged to invest in technology.

Additionally, the adoption of e-commerce improves staff satisfaction, encouraging them to do a better job in serving customers and enhancing their commitment to the company. Managers might also note that adopting e-commerce can improve internal business efficiency by increasing internal knowledge sharing and accountability among employees, and enhancing the process of strategic managerial decision making. Improving internal operational efficiency can positively affect the image of a travel agent, enhance customer satisfaction and loyalty, and increase survival prospects.

On the other hand, the lack of resources is not perceived to be the major barrier to adoption; technology attributes (complexity, lack of trialability and lack of suitability of e-commerce) are thought to have the greatest effect on the travel agents' decision. Therefore, e-commerce solution providers are also partly responsible for the delayed adoption of technology by SMEs. They need to facilitate the process by customizing their solutions to meet the needs of SMEs wanting to adopt e-commerce. Furthermore, recognising the factors that affect e-commerce adoption could encourage government bodies and policy makers to take action, such as introducing protective and financial legislation to encourage SMEs to adopt, or formulating national policies aimed specifically at supporting the adoption of e-commerce by SMEs.

Governments could also introduce national initiatives to encourage the adoption of technology by SMEs, from two aspects. Firstly, they should promote an awareness of e-commerce and its benefits for SMEs. Secondly, they should decrease the barriers to

adoption, by improving public infrastructure services and the technical support that is available for SMEs.

It was shown in Chapter 2 that the strategic initiatives adopted by the Egyptian government could help to remove the barriers to e-commerce adoption by SMEs. This indicates that the government already recognizes most of these barriers and is attempting to enhance the performance of this sector and make it competitive. It also shows that the barriers revealed by this study do exist and need to be overcome.

ICT-based innovation and entrepreneurship initiatives could be used to help SMEs to discover best practices and role models, which in turn will encourage them to adopt technology and become more competitive. The government initiative to build capacity through the education and training of academics and researchers will enable university students to found innovative businesses and provide skilled labour. The policy of acceleration and advocacy will bring about significant policy changes to support technological developments, including legal reform, incentives for innovation, tax changes, and changes to the financial regulations.

The 'start-up support' initiative provides support in terms of business plans, training concerns, equipment, and internet services. The hope in encouraging local firms to collaborate with multinational companies is that the latter will transfer high-level technologies to their Egyptian partners and subsidiaries. Promoting Egypt as an innovation destination on the global map should improve Egypt’s relationship with global organizations, creating a brand strategy for innovation, and promoting success stories and role models. The ‘innovative ICT’ campaign aims to raise awareness of innovation in universities and the ICT sector in Egypt, by educating the public and encouraging them to contribute innovative ideas.

## 9.4 Recommendations for travel agents and governmental bodies

An understanding of the perceived benefits of e-commerce adoption by managers, on the one hand, and the initiatives taken by the government, on the other, will help SMEs to adopt e-commerce and enhance their competitive position in the global market. This study recommends that travel agents adopt e-commerce step by step, starting simply with a static website before gradually moving through the stages of adoption until they achieve an advanced level of e-commerce. Building, managing, and maintaining a website are crucial factors in successful e-commerce adoption; of particular importance are regular content updates and keeping the website live at all times.

The implementation of e-commerce implies putting the idea of adoption in to practice. The implementation stage is the next step after the decision to adopt an innovation has been made by the manager. For SME travel agents, implementing e-commerce means building websites that support online bookings and payments. For those managers of travel agencies who are willing to adopt e-commerce, a clear strategy of implementation is crucial. Adopting the step-by-step strategy is particularly appropriate for SMEs with limited resources and those that are uncertain of the potential the internet can offer their business.

The first step in the implementation strategy is thus simply building a static website that can be considered an information channel through which the agency can promote its services. At this stage, the website will contain some general information about the agency, its tour packages, hotels, transfer services, destinations and contact details. An email address for general enquiries could be included to allow customers to communicate with the agency. A static website would not cost much, and could be updated just once every season (i.e., for summer packages, the pilgrimage season, etc.). The cost of building a website includes designing the website and hosting it. A

website designer could easily teach the owner/manager of the travel agency how to update the website using a traditional template. It will still be important at this stage, that the travel agency markets its website in a traditional manner so as to make it familiar to customers.

The second step is upgrading the website to an interactive format. This implies creating two-way communication between the travel agent and its customers. This type of website will enable customers to place their orders via email. It will include virtual brochures of the packages on offer, an interactive trip planner, and the ability to search the company database, select the desired package and complete an email form to place the order then the rest of the process has to be completed by the actual travel agent. Other services can be added to help promote the agency; these could include sending e-cards, an online forum, and an online finder to help customers find hotels, restaurants and flights. An online feedback/comment form will improve the interaction between the company and its customers. The increased costs at this stage include the employment of professional personnel to manage and update the website. In summary, at this stage the website will allow the travel agent to promote its services, monitor hits on its website, and collect the feedback and comments of customers.

The third step is to upgrade the website so that it supports online booking and payment. In this stage, traditional paperwork is replaced or supplemented with an electronic system. The employees will require some training to familiarise them with the online system. Using demos is a useful way of achieving this. The cost increases further at this stage, since the website will also require online marketing and search engine customisation. More specialised staff will be needed to manage, update and maintain the website. A link will have to be created to a bank enabling online transactions. Security concerns will need to be addressed. Customers will be able to search for,

select and customize their travel packages and then make the booking and payment online. Buyers will have online accounts in which they can record their preferences. This stage represents the construction of a complete distribution channel equivalent to the traditional one. The traditional distribution channel will not necessarily cease to function but will be integrated with the online one. In addition, the travel agent will be able to create a customer database which it can be used to customize its offers and packages for marketing purposes.

The fourth step of implementation is to electronically integrate the company's processes so that all of the business activities between it and its customers, suppliers and partners are carried out online. Data exchange is done electronically. Each employee has their own online account with an email address, increasing accountability. This stage is the top level of electronic collaboration between the agent and its partners and suppliers. The travel agents should already have active B2B processes in place with their suppliers and these will be partially integrated with their partners as well, so this stage should not cost a lot but it should enhance the accountability, reliability and trust among the firm and its business partners.

It will also be important to market the website, to update it and ensure that it is always live, and to add customer testimonials and memories to make it attractive. A multi-language interface will help to disseminate the website and encourage customers with different backgrounds to use it. Training employees and improving their e-marketing skills can also help to contribute to the success of a website. Meanwhile, customer feedback and comments can provide ideas on how to improve websites.

These steps offer a simple and straightforward strategy for implementation and can enable managers to evaluate each step in turn and assess how it will contribute to their

business in terms of sales and profits, improving internal operations, knowledge sharing and flow, and enabling collaboration and integration among business partners. Customer preferences, comments and feedback can also be observed and evaluated at each implementation stage.

The importance of governmental bodies' initiatives to increase the awareness of e-commerce benefits to SMEs, support their start-up costs, and alleviate their training concerns has already been established. Highlighting SMEs that have already adopted e-commerce as role models and publicising their success stories should stimulate non-adopters to adopt e-commerce and thus enhance their competitive advantage. SMEs need tailored advice on e-commerce implementation. It may be necessary for the authorities to provide a consultancy and advice service for SMEs wanting to adopt e-commerce. E-commerce should be a key component in courses and programmes directed at new entrepreneurs across all sectors of business. Universities should participate in this, by preparing and presenting these courses. Changing governmental policies to support e-commerce adoption in SMEs could maximise the impact public bodies have in the future.

## 9.5 Study limitations

Like all studies, this study has some limitations. First, the study investigates the perceptions of travel agents regarding e-commerce adoption and not the actual realized benefits or the actual barriers hindering adoption. Thus, benefits and barriers are used in this study as antecedents and not consequences of adoption. The study is restricted to Category A travel agents, excluding Categories B and C. Category A travel agents were selected because they are licensed to work locally and globally, and their capital and activities could allow them to adopt e-commerce and enhance their competitive

position and operational efficiency. The insights revealed by this study should help these agents to survive in the global travel market.

This study has included the most significant variables that affect adoption and excluded some others based on the results of the questionnaire piloting. The omitted variables could be considered in future studies and could be measured in different contexts, such as that of small tourism enterprises. Marketing challenges were not included in the quantitative investigation but were revealed as important in the qualitative analysis, so future research could address this concern, particularly in travel agents who have already adopted a level of e-commerce.

Regarding sampling limitations, selecting Greater Cairo as the geographical sampling frame restricted the data collected to a large part of Egypt but not all of it. Using the last available edition of the travel agents directory, issued in 2008, may have led to some out-of-date statistics regarding travel agents in Egypt. Using snowball sampling in the qualitative research and interviewing only managers of those travel agents who already had websites, due to the inability to reach managers from non-adopters may be another limitation of this study. It could be argued that this approach has given biased results. However, the qualitative findings were only used to assist in explaining the quantitative findings and not to provide the core findings of the study.

For the quantitative data collection, there was a general desire among the respondents not to provide any personal information about themselves or their agency, despite the assurances of the researcher that the data would remain confidential. The researcher had to agree to this request and it resulted in a lack of descriptive statistics on the managers and the agencies. The researcher also attempted to obtain quantitative data from travel agents in the UK or Singapore for comparative purposes but time and cost

constraints prevented this. In the data analysis, the sample used to investigate the adoption levels among e-commerce adopter agents was insufficient for the structural model, so logistic regression had to be used instead. Building upon the discussed limitations, the following section provides several directions for further research.

## 9.6 Directions for future research

Future research should address the identified benefits of and barriers to adoption, with a stronger focus on the adoption level so as to distinguish how the benefits and barriers relate to each level. This will help managers to understand the benefits and barriers related to their particular level of adoption. Policy makers could also benefit as they could take initiatives and actions towards addressing these barriers to e-commerce adoption in developing countries. Comparing the perceived against the actual benefits and barriers could be another interesting area for future research. This could support the validity of the model developed in this study and confirm the real benefits to be gained from e-commerce adoption in comparison to the perceived ones.

Furthermore, future research could investigate how e-commerce solution providers support e-commerce adoption, as a new explanatory variable. It has been suggested by managers that solution providers could design specific software and demos to help small business enterprises to adopt e-commerce with the resources they have available. The e-marketing challenges involved with e-commerce websites is another explanatory variable that should be included in future studies so as to measure its effect on the adoption of e-commerce. The qualitative interviews in this study highlighted that e-marketing challenges, in terms of high costs and lack of technical support, are critical barriers to e-commerce adoption.

Comparing the perceived against the actual benefits and barriers could be another interesting area for future research. This could support the validity of the developed model in this study and confirm the realistic gained benefits from e-commerce adoption against the perceived ones.

Next, a comparative study of two developing countries could contribute to the knowledge and provide new insights into the factors that affect e-commerce adoption in developing countries. It could also affirm the use of the developed TAM in predicting e-commerce adoption. Future studies could also test the developed TAM model on other SMEs in the tourism and hospitality sectors of a developing country, so as to ascertain its applicability and generalizbility.

As the attempt to collect data from a developed country for this study failed, future research could be conducted in such a context to provide a cross-country comparison and obtain an idea of the different factors that affect e-commerce adoption in developed and developing countries. This could add to the applicability and generalizability of the model developed in this study. Including further mediating variables, such as attitude and intention, in the version of TAM developed here would be another avenue for future research. Academics would also be welcome to test and develop the model in different SME contexts, such as manufacturing and service-based SMEs.

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# APPENDICES

## Appendix 1. Exploratory study questionnaire form

**Exploratory study on**

**E-Commerce in Egyptian Small and Medium sized Tourism Enterprises**

E-commerce concept refers to processes in which the buying and selling of products and services by businesses and consumers are done electronically, typically via the internet. It is subdivided into four categories: business to business (B2B), business to consumer (B2C), consumer to consumer (C2C), and business to government (B2G).

The objective of this exploratory study is to investigate the use of the internet by Egyptian travel agents. It is requested that you please respond to this questionnaire, even if your agency does not buy or sell over the Internet. It is worth to mention that this pilot study is for scientific research purposes only, names of individuals and agencies will be kept confidential. Thank you in advance for your time and help.

Agency: ----------

1. How many employees in the company you work for?
   - Less than 50 ☐ - 50-99 employees ☐ - 100 employees or more ☐

2. Does your agency have a website? Yes ☐ No ☐

   If no, please go to question 4.

Internet Use

3. What does your agency use internet for? (Please tick all that apply)
   - To find out about competitors ☐
   - To find out about customers ☐
   - To find out about suppliers ☐
   - To provide services information ☐
   - To set up web page ☐
   - To purchase services ☐
   - To build customer connections ☐
   - To monitor hits on web site ☐
   - To sell services ☐
   - To give staff formal training on the Internet ☐
   - To bid for contracts ☐
   - Others (please specify)----------

4. What are the perceived benefits of using the internet for your agency: 1=strongly disagree, 5=strongly agree

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| ▪ Sales, revenue and profits growth | | | | | |
| ▪ Easiness of carrying out transactions | | | | | |
| ▪ Increase competitive advantages | | | | | |
| ▪ Improve customer satisfaction | | | | | |
| ▪ Improve distribution channels | | | | | |
| ▪ Effective partnerships with supplier/partners | | | | | |
| ▪ Customizing services to customer needs | | | | | |
| ▪ Establish reputation in the global markets | | | | | |
| ▪ Enhance staff satisfaction | | | | | |

▪ Others (please mention) ----------

5. What are the perceived barriers to use the internet for online booking and payment of agency services? 1=strongly disagree, 5=strongly agree

| Factors | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| ▪ Limited resources versus high cost | | | | | |
| ▪ Lack of customer readiness | | | | | |
| ▪ Unskilled labour | | | | | |
| ▪ No competitors are online | | | | | |
| ▪ Lack of infrastructure readiness | | | | | |
| ▪ Internet is not relevant to business | | | | | |
| ▪ No wish to expand | | | | | |
| ▪ Lack of advice and support | | | | | |
| ▪ Security concerns | | | | | |

▪ Others (please mention)----------

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**Other comments or recommendations**

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Thank you for time and cooperation,,

## Appendix 2. Checklist of e-commerce websites

| Feature | Yes | No |
|---|---|---|
| 1. Company information | | |
| 2. Financial facts | | |
| 3. Photos gallery | | |
| 4. virtual tours | | |
| 5. Packages info. | | |
| 6. Prices | | |
| 7. Promotions | | |
| 8. Future packages | | |
| 9. Sightseeing areas | | |
| 10. Address | | |
| 11. Phone numbers | | |
| 12. Fax numbers | | |
| 13. E-mail address | | |
| 14. Distribution info. | | |
| 15. Transportation | | |
| 16. Links to other sites | | |
| 17. Currency converter | | |
| 18. Weather info. | | |
| 19. Distances | | |
| 20. Database search facility | | |
| 21. Virtual brochures | | |
| 22. Interactive trip planner | | |
| 23. Reservation request form | | |
| 24. FAQs | | |
| 25. Feedback forms | | |
| 26. Chat/forum/e-cards | | |
| 27. Online finder | | |
| 28. Online booking | | |
| 29. Online payment | | |
| 30. Cards accepted | | |
| 31. Online accounts | | |
| 32. Order tracking | | |
| 33. Collaboration/group member | | |
| 34. Intranet | | |

## Appendix 3. Questionnaire form

*''Electronic commerce-able intermediaries can maximize their profits by using both their powers; traditional business power and technology capabilities one'' (Cheung and Lam, 2009)*

***E-commerce and Travel Agents in Egypt: an analytical study of Opportunities and Challenges***

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**Study Focus:**

Travel agents have to reposition their traditional retail role and change their ways of doing business to:

- Avoid the threat of disintermediation in the global travel market.
- Support their re-intermediation and enhance competitive positions.
- Have the independence of tour-operators and airlines who directly sell their products online.
- Avoid the competition from online and/or virtual travel agents (e.g., Expedia) and user-agent websites (e.g., Farechase).
- Support their online adoption, as formally, only 40.8% of the Egyptian travel agents (category A) have websites and use it basically for promotional activities.

**To achieve the above concerns:**

- Adopting E-commerce (travel agents use online booking systems to sell travel and hospitality services directly to customers via the Internet) is one recommended way for travel agents to support their competitive position in the global travel market.
- The study investigates the opportunities and challenges of adopting Internet-commerce by the Egyptian travel agents category (A) to support their future survival in the global travel market.

**Study Objectives:** This questionnaire is to achieve the study objectives, which are:

- Establishing the current status of online adoption activities amongst Egyptian travel agents.
- Identifying the perceived benefits and barriers to adopting E-commerce in travel agents.
- Defining the environmental pressures of e-commerce adoption in travel agents.
- Suggesting a strategy framework for travel agents to launch E-commerce.

**Study Methods and Procedures:** the study is using the mixed methods approach; quantitative and qualitative. There are two stages in the study, the first stage is conducting a questionnaire survey to collect the data from travel agents, and then these data will be analyzed to give quantitative statistics that can be used as a basis for the second stage. The second stage is conducting in-depth interviews with some travel agents' managers to confirm survey results and help explaining and interpreting findings arise from the quantitative stage that may have surprising results. Finally integrating both quantitative and qualitative findings is being achieved.

The researcher would like to confirm that this questionnaire is completely for scientific purposes and all collected data will be kept confidential and only used for statistical purposes. However, Participants have the right to withdraw any time during the research assigned period and data will be destroyed if respondents withdraw. Furthermore, Data will be held securely and the names of individuals will not be included in the reports or publications that may result from this research project. Participants can request for a copy of the research findings if they like emailing the researcher via the above cited email address. With many thanks.

**Part 1: Using Computers:** **This part enquires about how computers are being used in your travel agency.**

1- Does your travel agency use computers in doing all daily business activities?

A- Yes  B- No (If No Skip to question **5**)

2- How long have computers been used in your agency?

A- Less than a year  B- 1-2 years  C- 3-5 years  D- 6-10 years  E-more than 10 years

3- Does your firm have an IT department? A- Yes (If Yes skip to question **5**) B- No

4- Who provides your firm with IT and technical support? ----------

5- How do you rank your employees computer skills in your travel agency in general?

A- No skills  B- Low level  C-Average level  D-High level  E- Expert level

**Part2: Internet Access and Use:** **This part seeks the internet access and usage patterns in your firm.**

1- Does your travel agency have an internet access? A- Yes B- No (If No skip to question **3**)

2- How is the Internet in your travel agency used for? (you can tick more than one box)

A- Searching Customers and/or suppliers--------- ☐
B- Collecting information about Customers------ ☐
C- Collecting information about competitors---- ☐
D- Communicating and responding customers-- ☐
E- Promoting your agency---------- ☐
F- Receiving customer bookings---------- ☐
H- Providing staff formal training---------- ☐
I- Monitor hits on website---------- ☐
J- Biding for contracts---------- ☐
K- Other (please specify)----------

3- Does your travel agency have a website? A- Yes B- No (If No skip to question **5**)

4- What are the information/services provided in your agency webpage? (can tick more than one box)

A- Agency and services information---------- ☐
B- Interactive agency database search facility----- ☐
C- Virtual brochures---------- ☐
D- Interactive trip planner---------- ☐
E- Online finder for other tourist services---------- ☐
F- Receiving enquiries, comments and feedback-- ☐
G- Online reservation request form-------- ☐
H- Online booking (with online payment) ☐
I- After sales services---------- ☐
J- Intranet used by employees---------- ☐
K- Other services (Specify please)----------
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**Part 3: Implementing E-commerce: This part asks about e-commerce activities, benefits and barriers.**

1-Has your company implemented E-commerce? A- yes B- No (If No skip to question 3)

2- How you define E-commerce as adopted in your agency? (Tick all that apply)

A- Using the agency website to promote your agency and/or services---------- ☐
B- Using the agency website for communicating customers and/or suppliers---------- ☐
C- Using the agency website to provide online booking with online payment services---------- ☐
D- Providing online booking with payment, after sales services and Intranet for employees---- ☐
E- Other (specify please)----------

3- What are the main factors affecting your decision to adopt E-commerce in your opinion? (Order as 1, 2, 3 & 4)

A- Gaining E-commerce benefits---------- ☐
B- Environmental Pressures (from competitors, customers, and suppliers or partners)---------- ☐
C- Implementation of E-commerce (how to start, when, Level of E-commerce to adopt)---------- ☐
F- Barriers to E-commerce ---------- ☐
G- Other (Please specify)----------

4- To what extent do you believe that adopting E-commerce achieves the following benefits to your firm?

Strongly Disagree= 1, Disagree=2, Neither agree nor disagree =3, Agree= 4, Strongly Agree=5.

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| A- Sales, revenue and profits growth---------- | | | | | |
| B- Support effective re-intermediation---------- | | | | | |
| C- Attracting new services/ investment---------- | | | | | |
| D- Enable and facilitate collaboration---------- | | | | | |
| E- Improve distribution channels---------- | | | | | |
| F- Establish reputation in the global markets---------- | | | | | |
| G- Customizing services to customer needs---------- | | | | | |
| H- Improve customer satisfaction---------- | | | | | |
| I- Increase competitive advantages---------- | | | | | |
| J- Effective partnerships with partners/ suppliers---------- | | | | | |
| K- Improve accountability---------- | | | | | |
| L- Enhance staff satisfaction---------- | | | | | |
| M- Ease of carrying out transactions---------- | | | | | |
| N- Improve internal knowledge flow and sharing---------- | | | | | |
| O- Provide support for strategic decisions---------- | | | | | |

Other benefits (please specify)----------

5- To what extent do you agree with the following statements:

Strongly Disagree= 1, Disagree=2, Neither agree nor disagree =3, Agree= 4, Strongly Agree=5.

| Environmental pressures pushing E-commerce adoption in travel | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| A- Responding to competitor pressures---------- | | | | | |
| B- Supplier's development programmes---------- | | | | | |
| C- Business partner influence---------- | | | | | |
| D- Adapting to technology changes---------- | | | | | |
| E- Globalization and/or modernisation issues---------- | | | | | |
| F- Future survival of travel agency---------- | | | | | |

Other pressures (Specify please)----------

6- To what extent do you agree with the following factors are barriers to adopting E-commerce?

Strongly Disagree= 1, Disagree=2, Neither agree nor disagree =3, Agree= 4, Strongly Agree=5.

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| A- Lack of Knowledge and/or awareness of E-commerce benefits-------- | | | | | |
| B- Limited available resources for E-commerce adoption---------- | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| C- Employees resistance to change from traditional ways of doing work------- | 1 | **2** | 3 | 4 | **5** |
| D- Risk taking reluctance and uncertainty of E-commerce benefits---------- | | | | | |
| E- Business characteristics (small size, remote location)---------- | | | | | |
| F- Lack of technological readiness---------- | | | | | |
| G- Lack of IT-travel skilful labour---------- | | | | | |
| H- Business planning and strategy (no IT strategy, no wish to expand)---------- | | | | | |
| I- Required time to replace/change from traditional methods to new ones--- | | | | | |
| J- Legal concerns (taxation, liability issues, privacy legislations, financial)----- | | | | | |
| K- Business environment (political, regulatory systems& consumer culture)-- | | | | | |
| L- Lack of external support (Limited governmental initiatives & support)------ | | | | | |
| M- Lack of public infrastructure readiness (available& speed internet access)- | | | | | |
| N- Lack of E-commerce successful and proven business models---------- | | | | | |
| O- Customer issues (culture, trust and satisfaction)---------- | | | | | |
| P- Inability of E-commerce trialability (adopting its software in trial)---------- | | | | | |
| Q- Ecommerce complexity (complicated technology and not easy to be | | | | | |
| R- E-commerce is not suitable to the nature of services ---------- | | | | | |

Other barriers (specify please)----------

7- What are your suggestions as a manager for successful adoption of E-commerce in travel agents?

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**<u>Part 4: General Information:</u>** **This part targets the personal details of managers and travel agents.**

1- Name of Manager: ---------- 2- Gender: A- Male B- Female

3- Age (years): A- Under 21 B- 21-30 C- 31-40 D- 41-50 E- 51-60 F-Over 60

4-Years of Experience in travel Industry:--------- 5- E-mail of manager:----------

6- Highest Academic Qualification: A- Basic Education B- Secondary Education

C- Higher Education D- Master's Degree E- PhD F- Others (please specify)---------

7- Academic Qualification: A-Tourism B- Tourism-related C- Tourism not -relevant

8- Name of agency: ---------- 9- Age of Agency:----------

10- Agency Contact Details:---------- 11- Numbers of Full-Time Employees:----------

12- Served Market: A- National B- International C- Both

13- Main Tourism Activity of the Agency:----------

14- Partnership with other Businesses A- Yes (Name)---------- B- No

15- Firm Sector: A- Public B- Private ***Many Thanks for your Time and Patient Cooperation,,,***

## Appendix 4. Interview schedule

### *E-commerce and Egyptian Travel Agents: Interview Schedule*

By: Mohamed Abou-Shouk
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This interview with managers of travel agencies in Egypt aims to collect primary data to identify the factors affecting the managers' decision to adopt E-commerce in their agencies. Exploratory study by the researcher on the Egyptian websites evaluation resulted that about 40.8% of travel agencies in Egypt have websites and only 3 out of 317 travel agencies can be considered adopting E-commerce.

This interview highlights the issues of e-commerce benefits for travel agencies, obstacles of adoption and setting up websites and the suggestions of managers on how to successfully adopt e-commerce in travel agencies. The researcher would like to confirm that the collected data will be used for scientific research only and no involvement of names of individuals or agencies in any reports or publications result from this study. Furthermore, participants can request a copy of the study's results if they like emailing the above cited researcher.

| **Does your agency have a website?** | |
|---|---|
| Yes----------No | |
| What are the information/services offered on your agency website? | Why your agency does not have an internet website? |
| Has your agency implemented e-commerce? Yes-- | ----No |
| What are the perceived benefits of e-commerce adoption in your agency? | As a manager, do you think what benefits could be gained from e-commerce adoption in your agency? |
| What did the barriers face E-commerce adoption in your agency? | Do you think what barriers would face e-commerce adoption in your agency? |
| **What are the environmental pressures push travel agents to adopt e-commerce in your opinion?** | |
| **In your opinion, what are the main factors affecting managers to make a decision to adopt new technology (e.g. e-commerce)? (Rank: benefits, barriers, pressures, implementation...)** | |
| **What are your suggestions as a manager to adopt successful e-commerce processes in travel agencies in general?** | |

**With many thanks for your time and patient cooperation**

## Appendix 5. Attributes of mangers involved in interviews

| | Academic Qualification | Years of experience |
|---|---|---|
| 1. | PhD in e-commerce | 30 |
| 2. | BSc. of Specific Education (Education Technology Department) | 11 |
| 3. | BSc. of Commerce | 10 |
| 4. | BSc. of Science | 8 |
| 5. | BSc. of Home Economics | 14 |
| 6. | BSc. of Commerce | 30 |
| 7. | BSc. of Tourism | 26 |
| 8. | BSc. of Commerce | 10 |
| 9. | BSc. of Commerce | 25 |
| 10. | BSc. of Commerce | 15 |
| 11. | BSc. of Tourism | 8 |
| 12. | BSc. of Commerce | 20 |
| 13. | BSc. of Arts (English Language Department) | 10 |
| 14. | BSc. of Commerce | 25 |
| 15. | BSc. of Commerce | 41 |
| 16. | BSc. of Tourism | 6 |
| 17. | BSc. of Tourism | 11 |
| 18. | BSc. of Commerce | 13 |
| 19. | BSc. of Tourism | 27 |
| 20. | BSc. of Commerce | 35 |
| 21. | BSc. of Commerce | 25 |
| 22. | BSc. of Commerce | 20 |