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Understanding the factors that attract travellers to use  
airline websites for purchasing air tickets

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## Abstract

In order for e-commerce businesses to attract customers and consequently increase revenue, it is essential to understand the behaviour of online consumers. This involves understanding how consumers react to website elements, and what could influence the adoption of online channels. Given the applied nature of this research area, a number of studies have been carried out by marketers and information systems experts in order to develop a better understanding of consumer behaviour and web elements impact on adoption of online services. However, as web services continue to expand, so does the need for further research concentrating on specific types of products or services. Many academic articles have been published to cater for specific web portals such as retailing, banking, governmental transactions, hotel booking, and many other areas. Whilst this is the case, there remains a lack of research examining customer behaviour when using airline websites. Given the specific nature of online consumers, and the amount of business surrounding e-ticketing, it is imperative that this gap in research is addressed. Multi-faceted limitations surrounding online consumer behaviour within the airlines industry emerge from the literature. For example, the majority of previous research has relied solely upon traditional theories and as such, other important perspectives related to travel warrant investigation. Additionally, apparent links between website qualities and website adoption remain under investigated in the context of the airline industry. Another gap in research relates to the investigation of the moderating role of travellers' characteristics such as their demographics, internet experiences, and travel habits.

Based on these limitations, this research aims to develop a comprehensive, multi-disciplinary (i.e. consumer behaviour, information systems, travel and tourism) theoretical model that is capable of examining the factors that influence travellers' online satisfaction and intention to purchase air tickets from airline websites. In developing this model, this research adopts a positivist, deductive, and quantitative approach. Thus, based on the analysis and synthesis of literature, a conceptual model comprised of nine constructs is proposed. Inspired by the Information Systems Success Model, e-satisfaction is centralised in the model and suggested as the main predictor of intention to purchase airline tickets. Information web qualities and system web qualities are considered as antecedents of e-satisfaction. The two constructs from the Technology Acceptance Model (TAM) (perceived usefulness and perceived ease of use) are also

integrated into the model. Other important factors such as e-trust, airline reputation, and price perception are also embedded. The suggested model has been validated using a measurement scale based on previously validated items. This research adopts an online survey that targets real travellers from Saudi Arabia who have used airline websites. Interviews, focus groups, and a pilot study were conducted to validate the survey items. Data collection procedures utilized the social media channels for the two operating airlines in Saudi Arabia as well as a snowball method. Data analysis techniques including exploratory factor analysis, confirmatory factor analysis, and structural equation modelling were used to validate the relationships and to test overarching research hypotheses. Additionally, group comparison techniques including invariance analysis were used to explore the moderation effect of demographic characteristics (i.e. gender, age, education level, monthly income, occupation, and location), internet experience, and travel habits (i.e. origin of the airline used, actual tickets purchase, travel frequency, motivation for travel, type of travel, and type of funding).

The results from this research suggest that the most influential factors motivating travellers to purchase online are e-satisfaction followed by website trust. Furthermore, travellers' perceptions of website quality also played an important role in influencing e-satisfaction. Price was the next influential factor. Several other factors appeared to have direct and indirect associations with intention to purchase and e-satisfaction. Additionally, findings emanating from group analysis suggest that some demographic factors and travel habits have a moderating influence over the research hypotheses. As such, this research makes several contributions to the consumer behaviour and web quality literature within the travel and tourism context. The findings from this research can assist airlines in shaping their web development priorities and enable them to focus on the most influential factors. This thesis concludes with a discussion of the application of these findings, an evaluation of the studies undertaken, and suggestions for future research.

**Keywords:** online consumer behaviour, e-commerce, web quality, e-satisfaction, airline, e-ticketing, aviation, travel, e-consumer behaviour.

## **Dedication**

This doctoral research has been accomplished only with the Grace of Al-Mighty Allah, is dedicated to my great mother Dr. Bothaina Jamjoom, my precious father Fadel Bukhari, my wonderful wife Noha Yaseen, my three lovely children Mohammad, Yusuf, and Ibrahim, my two loving sisters Jehan and Jumana, and my elder brother Jihad. Without their encouragement, support, prayers and blessings, I would not have been able to achieve what I have achieved.

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## **Declarations**

I, Saleh Bukhari, declare that the ideas, research work, analyses and conclusions reported in this PhD thesis: “*Understanding the factors that attract travellers to use airlines websites for purchasing air tickets*” are products of entirely my own efforts. Also, I certify that this thesis contains no material that has been previously submitted, in whole or in part, for the award of any other academic degree or diploma. Except where indicated, this thesis is the work of Saleh Bukhari only.

## **Publications associated with this thesis**

1. Bukhari, Saleh M. F. (2014), “The factors that attract travellers to buy air tickets online in Saudi Arabia”, *Proceedings of the 7th Saudi International Conference*, Edinburgh, 1-2 February 2014. **(It won the best paper distinction prize on the business and management track)**
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## **Chapter 1 – Introduction**

### **1.1 Introduction**

This chapter provides an overview of the topic of interest in this research and a rationale for the studies that make-up this PhD project. In order to gain a better understanding of the current situation surrounding the industry of focus, a holistic overview of the airlines industry in general is offered. The context used in this research (Saudi Arabia) is then discussed and justified, with reference to relevant literature. The research aim and objectives of this research will also be outlined. The methodological approach is also summarised, along with the proposed contribution and novelty of this research.

### **1.2 Research background and rationale**

While e-commerce channels and online services are becoming essential for any business, the demand for more studies that come across the online customers' behaviour and websites service qualities arises. This is because it is vital for marketers to understand how a user reacts to their online websites. Thus, they can adjust the channel to generate more revenue. Online behaviour such as customers browsing attitudes, continuance intention to use a website, willingness to purchase, or their shopping interests has become an emerging research area with an increasing number of publications per year (Cheung et al., 2005). The way the online channel looks and functions gained extensive attention from researchers too. Many web quality variables from an information system (IS) perspective are investigated to evaluate the web performance. Additionally, research has focused on different products, industries, or sectors such as retailing, learning, banking, governmental transactions, hotel booking, and many other areas. However, there remains a vast need to understand users' behaviour for product or industry-specific web channels.

This study intends to focus on a particular industry: Airlines. Online services such as flight booking, seat selection, online check-in, and ticketing are essential for airlines to continue expanding. However, attracting more customers to depend on airlines online portals rather than other channels to purchase their tickets is even more significant. Elkhani et al. (2014) assert that it is crucial to attract new customers to e-ticketing

services, whilst also maintaining the existing ones. Consequently, the use of the airline's own website is generally regarded as the most cost effective for airlines (Lubbe, 2007).

From an academic point of view, online consumer behaviour studies have adopted well established theories, such as the Expectation Confirmation Theory (ECT), which suggests that satisfaction depends commonly on consumers' initial expectations of a service and whether or not it is going to be confirmed during actual use (Oliver, 1980). In addition, the Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975) and its family of theories, including the Theory of Planned Behaviour (TPB) and the Technology Acceptance Model (TAM) have also been tested extensively. TAM theory has built a positive reputation within Information Systems (IS) and online acceptance. TAM states that actual system use is determined by behavioural intention and attitudes towards usage, which can be explained subsequently by the perceived usefulness and perceived ease of use (Davis, 1989). However, these two factors have not been found to be sufficient alone in terms of explaining web users' motives (Ahn et al., 2007). El-Gohary (2010) asserts that there is a need to conduct more research in order to investigate the TAM model from an e-marketing prospective.

Meanwhile, since this study is about online consumer behaviour, it should utilize what has been gained from the information systems discipline in term of web elements. Accordingly, much research has focused on website quality when browsing a website. Researchers have developed several scales to measure the web quality of a website, and accordingly defined many dimensions for this purpose. Site content, security, design, accessibility, navigation, responsiveness, personalisation and enjoyment are some examples of such dimensions. Most of the web quality scales were developed based on the traditional service quality scale SERVQUAL (Parasuraman et al., 1985). Examples of these scales include SITEQUAL (Yoo and Donthu, 2001), e-SERVQUAL (Zeithaml, et al., 2000) and E-S-QUAL (Parasuraman, et al., 2005). Several studies suggest that the dimensions of website quality may differ in terms of products or retailers and that there is a need to explore each type independently (Peterson et al., 1997). Within the travel and tourism industry, Kaynama and Black (2000), for example, developed an instrument called E-QUAL with the objective of measuring travel web service quality with seven dimensions. Law and Wong (2003) proposed three dimensions that encourage customers to purchase travel products online in Hong Kong. According to Nusair and Kandampully (2008), all previous studies do not perfectly

match each other in terms of reporting similar web quality dimensions. This reveals the need for more studies to develop web quality scales with dimensions that fit the purpose of the industry or product type for the online storefront. As such, the principal aim of this investigation is to address aforementioned research gaps and in-turn contributes to enhancing online services for airlines.

### **1.3 Study context - Airline Industry Overview**

Since the study is focusing on the travel and tourism business; particularly the airline industry, it is essential to provide an overview of the current situation and the market.

Airline companies are facing big challenges to cover running costs and, at the same time, gain profits. Additionally, with huge competition between travel agencies, traditional airlines and low cost carriers, it has become essential to utilise smart solutions to reduce expenses. Electronic solutions, however, are effective both in directly reducing operating costs and in making enterprises more efficient, productive, and customer-centric. Amaro and Duarte (2014) confirmed that one of the most significant transformations of the airline industry was by utilizing the Internet to represent a new and potentially powerful communication and distribution channel. Thus, the internet has become one of the most important platforms for travel-related service entrepreneurs to provide services and communicate information with their target customers (Ho and Lee, 2007). However, providing this service alone is not usually enough; companies must take steps to encourage more customers to use these services rather than traditional ones.

Airline companies usually sell their seat tickets via five main channels, i.e. (1) travel agent offices, (2) travel agent websites (e.g. Expedia.com, Travelocity.com, etc.), (3) airline sales offices, (4) airline call centres, and (5) airline websites. However, currently airline companies are tending to invest in enhance and promote their direct sales strategies. They are aiming to encourage more travellers to depend on their own distribution channels, as this will eliminate the travel agents commission fee that airlines should pay. According to an unpublished report in 2013, by one of the biggest airlines in the Middle East, the commission fee that they pay to travel agents may range between 5%-10% of the original ticket price. This commission is applicable for both online and offline travel agents. Furthermore, airlines are also trying to minimise the use

of their own traditional way of selling tickets such as their sales offices or call centres. This is because these distribution channels still have large overhead running costs (e.g. rentals, salaries, etc.).

Due to the reasons specified above, airlines have made several attempts to bypass intermediaries and to sell tickets using their own websites. As an example of such adoption, in 2005 US airline websites captured 58% of their airline ticket sales (Ruiz-Mafé et al., 2009). While in Spain, airline tickets were considered as the most sold product on the internet amounting to 36.5% of all e-commerce in Spain (ibid). In fact, nowadays, most of the low cost carriers (LCC) are selling tickets solely via the internet. This success might be justified by the observation of (Klein et al., 2005), they stated that *“Scheduled airline tickets seem especially appropriate for online distribution because they can be easily represented and distributed by electronic means”*. Moreover, while (Alba et al., 1997) state that the internet is highly relevant for purchases of comparable goods than differentiated or unique goods, Athiyaman (2002) acknowledges that airline tickets are actually the best example of comparable goods.

Additionally, tourism has been perceived both as a leading field of application and as a driver of Business-to-Consumer (B2C) e-Commerce (Klein et al., 2005). This view is supported by Eid et al. (2010) for airlines. They acknowledge that airlines are considered as a high-tech industry to lead other business sectors as a technological role model having advanced services. This would confirm how this industry is an important focus of research.

#### **1.4 Study context - Saudi Arabia Overview**

Saudi Arabia officially known as the Kingdom of Saudi Arabia (KSA) can be described as one of the developing countries with a high-income economy. As it has the world's second largest oil reserves and the world's sixth largest natural gas reserves, it is positioned as one of the twenty most powerful countries according to the National Power Index. Saudi Arabia is selected as the targeted context for this research in order to fill a gap in the literature. As discussed earlier while identifying the gaps in the literature in section 2.7, developing countries have not received sufficient attention by researchers while studying online consumer behaviour in general as well as when

investigating travel and tourism websites. Saudi Arabia as a Middle Eastern developing country found to be suitable for conducting this research for many reasons. The following sections will elaborate on the justifications while providing an overview about the country profile, the internet and e-commerce status, and the Saudi transport network.

#### **1.4.1 Profile**

The Kingdom of Saudi Arabia has relatively large population that is estimated to be more than 29 million (Central Department Of Statistics & Information, 2010). It is considered as the 14th largest country in the world covering more than 2 million square kilometres (Nations Online, 2014). It is also the largest Arab state in western Asia by land area and the second largest in the Arab world. This makes local air travel between distant cities very common. Also 31% of the population is made up of foreign nationals living in Saudi Arabia whom they usually fly internationally back to their home countries. Moreover, the kingdom is often called "The land of the two holy mosques" in reference to Mecca and Medina, the two holiest places in religion of Islam. These two destinations attract around 2 million Muslims pilgrims to visit Saudi Arabia during the Hajj season and 3 Million for Ummrah around the year with an estimated increasing percentage of around %2.27 each year ("Ministry of Hajj", 2011). According to the Saudi Ministry of Hajj, during the recent years, around 90% of pilgrims are using Airlines as a method of travel to and from Saudi Arabia. All these facts express the high demand on this part of the world for purchasing tickets for air journeys.

#### **1.4.2 Internet and e-commerce**

According to the most recent report published by the Saudi Communication and Information Technology Commission (2010), nearly one third of the Saudi population are using the internet regularly (11.4 Million Users). Additionally, it has been found that 47% of the registered companies in Saudi Arabia possess a website. Only 8% of these companies sell products or services over the web (ibid). On the other hand, a national survey that was conducted by the Arab Advisors Group in 2013/2014 revealed that around 32% of adult internet users in Saudi Arabia buy products and pay for services online (12% of total population) (Arab Advisors Group, 2014). These e-commerce users have spent an estimated US\$ 4.3 billion on buying products and paying for services

through e-commerce transactions in 2013 (ibid). These contradictory figures, demonstrates that even though there is potential and opportunities available for online services to be adopted by population, “Saudi e-commerce is still in its early stages” (Communication and Information Technology Commission, 2010).

### 1.4.3 Transportation

In Saudi Arabia, there are currently no other advanced methods of public transportation apart from air travel or cars /buses. For example, there are no proper passenger railway networks between cities. Only four cities in the east of The Kingdom (i.e. Dammam, Abqiq, Hufuf, and Riyadh) are linked (Saudi Railways Organization, 2014). According to the most recent report published by the Tourism Information and Research Centre in Saudi Arabia, domestically, Air travel between cities in Saudi Arabia are used 40 times more than railway. Also internationally, in 2011, the percentage of inbound journeys to Saudi Arabia was 63.6% by Air, 36.4% by cars and only 0.03% by sea. For the outbound journeys, it was 65.4 % by Air, 34.4% by cars, 0.2% by sea. However, there is no any rail network as well for international travels (Tourism Information and Research Centre, 2011). Hence, air travel is the most common method of transportation.

In Saudi Arabia there are four International and twenty-three domestic airport (General Authority Of Civil Aviation In Saudi Arabia, 2013). Nevertheless, for about 60 years, there has been only one Airline company in Saudi Arabia. Three other airlines were introduced in 2003, 2007 (low cost carriers (LCCs)) and 2005 (full service carriers (FSC)). Two of the newly launched companies where closed due to operational and financial problems. The table 1.2 below show all airlines operations in Saudi Arabia.

**Table 1.1: Saudi Arabia Airline companies information**

Airline Name	Type	Destination		Aircrafts	Launch Date	Note	Source
		D	I				
Saudi Arabian Airline	Classic Airline	26	54	114	1945		(Saudia Airlines, 2014)
Nas Air	Low Cost Airline	8	33	19	2007		(Nas Air, 2014)
Al Khayala	Premium Airline	<b>CLOSED</b>			2005	On 1 <sup>st</sup> of April 2009 bankruptcy was declared and all operations were ceased	(Alhamdan, 2009)
Sama Airline	Low Cost Airline	<b>CLOSED</b>			2003	From 23 <sup>rd</sup> of August 2010 there flights temporary discontinue operation until further notice.	(Aleqtesadiah 2010)

\* Figures are taken from Airlines official websites and not necessary represent the actual up to date numbers of aircrafts and destinations. D: Domestic, I: International

Saudi Arabian General Authority of Civil Aviation have recently issued two new licences for new Airlines to be launched in Saudi Arabia to operate domestic and international services from and to Saudi Arabia (“Qatar Airways and Gulf Air win domestic air licenses”, 2013).

Again, from all the above facts about the situation in Saudi Arabia it can be realized how important the air travel sector in Saudi Arabia and the increasing demand on using more efficient ways to book and buy airlines tickets.

### **1.5 Research Aim and Objectives**

This research aims to utilize existing consumer behaviour theories and web quality scales to develop and validate a model for measuring travellers’ web satisfaction and willingness to purchase tickets from airline websites.

To this end, the following objectives are set to lead the researcher:

- Explore and critically review the online consumer behaviour literature and web quality research within travel and tourism.
- Identify the factors most likely to have a significant influence on web e-satisfaction and intention to purchase airline e-tickets.
- Develop a conceptual model concerning the relationships between e-satisfaction its antecedents and consequence (intention to purchase).
- Empirically assess and validate the proposed conceptual model.

A secondary goal for this research is to explore and identify for future research any differences between segments of consumers including the role of Demographics, Internet Experience, and travel habits towards the factors and the model.

## **1.6 Methodology**

The selection of an appropriate methodology for an academic research is based on the nature of current study objectives and the literature acceptance to solve similar research questions. Thus, this research follows an objectivist philosophy, positivism strategy, deductive approach, and mainly quantitative methods. The adopted research design includes several stages.

Initially, after reviewing previous studies and identifying few gaps in the literature, a new conceptual model is suggested. The suggested model mainly corresponds with the Expectation Confirmation Theory (ECT) and Information Systems Success Model (IS Success) by centralising satisfaction in the model. It employs satisfaction as the main precursor for the intention to purchase tickets online. Likewise, it integrates the two famous construct (PPEOU and PU) from Technology Acceptance Model (TAM). Moreover, a suitable web quality scale is utilized as well as other important constructs such as the trust, airline reputation, and tickets price. In order to validate the relationships in the model, a survey method is used. This involves identifying population and sampling, pilot study, and data collection procedure. Later, ethical considerations for the research are highlighted. Then data analysis steps and statistical packages used are identified with an explanation of the rationale to use them. A survey developed to measure each construct in the scale based on appropriate previously validated scales in the literature. Each construct had between 5 to 7 items to measure it and the full model consist of 54 Items (questions). The items were face validated by academics, airlines practitioners and normal online users from similar culture. The survey developed to be available online as it best suited the context of this study. After a pilot survey, data collections initiated utilizing social media channels of airline companies. The 494 valid responses were then subject to Data Analysis. The analysis used factor analysis as well as structural equation modelling (SEM) to validate the model and test the hypothesis. In addition, group analysis used mean differences and invariance analysis techniques. For the purpose, statistical package for social sciences (SPSS) and analysis of moment structure (AMOS) software were used.



## **1.7 Research contribution and novelty**

The current research make use of two widely accepted theories and other important constructs such as web quality, e-trust, price perception, and airline reputation to form a new model that is capable of measuring the factors that satisfy travellers using airline websites. Additionally, it examines the factors that affect their intention to purchase airline tickets from the airlines won website. This model contributes to both academia and industry.

In terms of academic contributions, this research fills a gap in research by developing new model to measure airline traveller's satisfaction and intention to purchase tickets that can be confidently used for future studies within similar contexts. It also provides a validated measurement scale to test the airlines customers' perceptions. Furthermore, this research offers findings gathered from actual users of airline services that give insight information about their behaviour and what factors could affect it. Additionally, the comparative analysis between thirteen different groups of users adds comprehensively to the body of knowledge. It reveal an initial look at the significant differences of perception of each group and their moderation effect towered the behaviour.

In terms of practical contributions, airline companies need to understand their customers' attitudes when they process their travel arrangements. This study provides insight into the attitudes of this spectrum of users. The resulting model is capable of revealing what attracts customers to using Airlines websites to buy their tickets. As such, this research essentially offers a powerful marketing tool for airline companies; one that could significantly increase customers and website use. The measurement scale also introduces a new tool for airlines to measure their customer satisfaction for their web services provided. To the best of the researcher's knowledge, this is the first study to combine web quality and customer behaviour research to develop and validate a model and a scale for airlines website evaluation.

## 1.8 Thesis outline

This PhD project is presented in eight chapters, and references and appendices sections.

**Chapter 1 – Introduction** – This introductory chapter illuminates the research topic, rationale, academic background, airline industry, and the research context (Saudi Arabia) overview. This chapter also highlights the aims and objectives of the research, and the relative philosophical and methodological approaches. A justification of this research, and why it may be considered novel, is also argued in this section.

**Chapter 2 – Literature Review** – This chapter introduces a critical review of the extant literature on online consumer behaviour, web quality dimensions, and studies that examined online consumers' behaviour and web quality with focus on travel and airlines websites. Consequently, it draws clear and context-specific conclusions, and highlights several research gaps.

**Chapter 3 – Model and Hypotheses Development** – This chapter sets out the research model by developing a model that can predict the level of travellers' satisfaction and their intention to purchase tickets from airline websites. The model consists of nine constructs and fourteen hypotheses that are explained and discussed.

**Chapter 4 – Research Methodology** – This chapter initially provides a review of the philosophical stance and an overview of the different methodological approaches. A justification of the methods adopted for this research is offered. A detailed research design is then laid out, along with a systematic explanation of each step. This includes the development of the measurement scale, scale validation, survey development, sample size, and data collection procedure. The chapter also covers the ethical considerations of the study and finally identifies the data analysis processes and statistical packages selected.

**Chapter 5 – Data Analysis and Results** – In this chapter, several data analysis techniques are applied and described. These steps are taken to validate the measurement items, the structure of the proposed model, and to test the set hypothesis. This includes presenting the pilot study results to verify the reliability and validity of the survey instrument. Following this, the main survey data will be analysed in detail involving

data screening, assessing characteristics of the data sample, Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), and hypothesis testing using Structure Equation Modelling (SEM). Additionally, extra analysis examining the direct, indirect, and new suggested relationships and mediation effect in the model are carried out.

**Chapter 6 – Discussion of the Research** – This chapter is devoted to the discussion of the findings from both the main model (Chapter 5) and the group analysis (Appendix 9). The discussion entails a description of all findings followed by an analytical commentary that embeds previous literature. Firstly, the result of scale purification and model validation is discussed. Secondly, evaluation of the determinants of Intention to Purchase and e-Satisfaction by means of the research hypotheses is performed. Lastly, the impact of the thirteen categories in relation to the conceptual model is demonstrated.

**Chapter 7 – Conclusions** – The purpose of this chapter is to outline the novelty of the research. In doing this, this chapter draws on the unique contributions of the research, implications and limitations, and suggestions for future research. The chapter begins by summarising what has been achieved in this thesis. It then elaborates on how the work fulfils the research aims and objectives. The chapter concludes by highlighting the novelty of this research in terms of its theoretical and applied contributions, and evaluating the entire project by discussing its limitations and potential future research influences.

## **Chapter 2 – Literature Review**

### **2.1 Introduction**

Literature reviews always take a critical standpoint within business and management research. Such reviews demonstrate the current state of the research topic, and ensure it is aligned with any attempt to propose new conceptual framework (Maylor and Blackmon, 2005, p117).

While the previous chapter provided a brief description of the study, this chapter introduces a critical review of the extant literature on online consumer behaviour and the most important elements that affect it. These elements include consumer behaviour theories, web quality dimensions, and related studies within travel and tourism.

Accordingly, the purpose of this chapter is to provide a clear understanding of the research topic, reveal and criticise some of the key studies in this area, identify the various perspectives that surround this research topic, highlight the current research context, draw clear and appropriate conclusions, and demonstrate key research gaps.

More specifically, the coming sections begin by introducing the most prominent theories relating to consumer behaviour, and some of the web quality models that have been used in previous research. Following this, a critical review of studies that have examined travel and airline websites will be provided. By the end of this chapter, gaps in research relating to the link between website qualities and website adoption will be highlighted. Furthermore, factors that might satisfy travellers and attract them to purchase their tickets from airlines website will also be postulated.

### **2.2 Background**

Historically, the study of consumer behaviour has received great research attention (see for example (Ajzen and Fishbein, 1980; Berry, 1969; Bettman, 1979; Lindquist, 1974)). This has been, and remains crucial in terms of gaining a better understanding of the attitudes, preferences, concerns, and motivations behind shopping. It is believed that many findings from such research have been relied upon in applied contexts, for

example, to attract customers, enhance retention, and increase profits (e.g. Bai et al., 2008; Lau et al., 2011; Lee and Kozar, 2012; Wirtz and Lihotzky, 2003).

After the introduction of the internet and the establishment of the e-commerce concept, other strands of consumer behaviour studies began to emerge. Research generally refers to this area either as e-consumer behaviour (Bourlakis et al., 2008; Dennis et al., 2009; Harris and Dennis, 2008) or online consumer behaviour (Cheung et al., 2005; Vrechopoulos et al., 2004). This branch of research is well represented in journals and conference proceedings in the fields of Information Systems, Marketing, Management, Psychology, and Travel and Tourism (e.g. MIS Quarterly, European Journal of Marketing, The International Journal of Management Science, Tourism Management, AMCIS Conference, HICSS Conference, and ICIS Conference). The proliferation of online shopping has therefore led to increased importance around e-consumer behaviour in recent years (Dennis et al., 2009).

Moreover, the nature of the online shopping medium highlights the need to incorporate technical aspects to the studies of behaviour. Models from Information systems such as Technology Acceptance Model (TAM) (Davis, 1989) and Model of Information Systems Success (DeLone and McLean, 1992) were adopted, and new frameworks were developed. Similarly, the need to study the effect of online website elements (such as design, layout, response, colours, and structure) on adoption has since been deemed essential. As Ahn et al. (2007) point out, the quality of the website affects the user's view of the site, as it is the portal through which transactions are conducted.

In addition, the need to explore different industries or product types is encouraged by many studies. For example, a study by Kim et al. (2009) that looked into online consumer satisfaction concluded that studying certain product categories or comparing different categories is crucial because customers are likely to have different needs and motivations, both of which may vary depending on the product. Other research has also suggested that dimensions of website quality may differ depending on the type of product or the retailer (Kim and Stoel, 2004). This explains why many industry/product-specific studies are conducted. Products (such as books, groceries, electronics, music, DVDs) and industries (like banking, tourism, governmental services (e-Governments), education (e-learning)) represent a big portion of the literature exploring consumer behaviour. Some of these studies will be reviewed in the following sections. However,

in order to establish a solid ground of the research, and before analysing specific directly related studies, this literature review will begin by introducing the most important traditional consumer behaviour theories and web quality models that have been used in previous studies. Thus, sections 2.3 and 2.4 should help the reader to be familiarized with the theories used in the later discussed travel and tourism related models in section 2.6.

### **2.3 Consumer Behaviour Theories**

A study by Cheung et al. (2005) reviewed and analysed 355 articles between 1994 and 2002 exploring online consumer behaviour. The findings show that theories such as the Expectation Confirmation Theory (ECT) have been repeatedly tested. The findings also confirm that most authors depend heavily on theories such as the Theory of Reasoned Action (TRA) and its family theories (i.e. the Technology Acceptance Model (TAM) and the Theory of Planned Behaviour (TPB)). A more recent meta-analysis study by (Toufaily et al., 2013) revealed that these theories are still important when it comes to studying consumer behaviour for electronic commerce. The following sections will review the most prominent theories that were adopted by online consumer behaviour researchers in order to offer a general insight of the dimensions and constructs used. The strengths and weakness of these models will also be analysed.

#### **2.3.1 Expectation Confirmation Theory (ECT)**

ECT was originally adopted from the cognitive dissonance theory (CDT) (Festinger, 1957) in the social psychology literature (Bhattacharjee & Premkumar 2004). It is also called the disconfirmation of expectation theory (Swan and Trawick, 1981) or Expectancy Disconfirmation Theory (EDT) (Yen and Lu, 2008). This theory, originated by Oliver (1980), became widely used in the consumer behaviour literature. It suggests that a customer will pass through a five steps process when deciding to purchase a product. First, he/she will develop an initial expectation of the product or the service prior to purchase. Then the customer will use the product or service and form perception about its performance. Thereafter, he/she will assess the actual performance against their original expectation and determine the extent to which his expectation is

confirmed. As a result the customer will form a satisfaction, or affect, based on his/her confirmation level and expectation on which that confirmation was based. Finally, satisfaction level influences customer intention to repurchase or continue using the product (Oliver, 1980). Figure 2.1 below demonstrates the ECT five step processes.

**Figure 2.1: Expectation Confirmation Theory (ECT)**



Source: Oliver (1980)

Accordingly, it can be recognized from the ECT description that it is originally designed to explain post adoptive behaviour following one’s first-hand experience with the product. It is also clear that it emphasises satisfaction as being central in the model (Premkumar and Bhattacharjee 2008).

The ECT model became widely used in online consumer behaviour studies, particularly in explaining consumer satisfaction and repeat purchase (Cheung et al. 2005). For instance, Bhattacharjee has adopted ECT in several studies that he conducted to explain the continued intention of banking users (Bhattacharjee 2001a) and continued purchasing of online brokerage (Bhattacharjee, 2001b). Also, Bhattacharjee and Premkumar (2004) investigated how users’ beliefs and attitudes change during the course of their IT usage. Afterward, more recently, another study by Premkumar and Bhattacharjee (2008) utilized TAM and ECT to explain long term IT usage intention. In this study they surveyed students using a Computer-Based Tutorial (CBT) program to compare the two models separately and also compare them with a new combined model. Likewise, surveys such as the one conducted by Koppius et al. (2005) focused on the continuance intention of purchasing airline tickets online. The study took place in Netherlands and ECT with TAM were combined with some other factors like price, loyalty, risk, and website quality. Later in this chapter we will further look into both studies in more details (Koppius et al., 2005; Premkumar and Bhattacharjee, 2008).

The fact that the ECT is originally built to measure the continuance intention or repeat purchase, influenced most of the later studies to use it for this purpose (e.g. Anderson

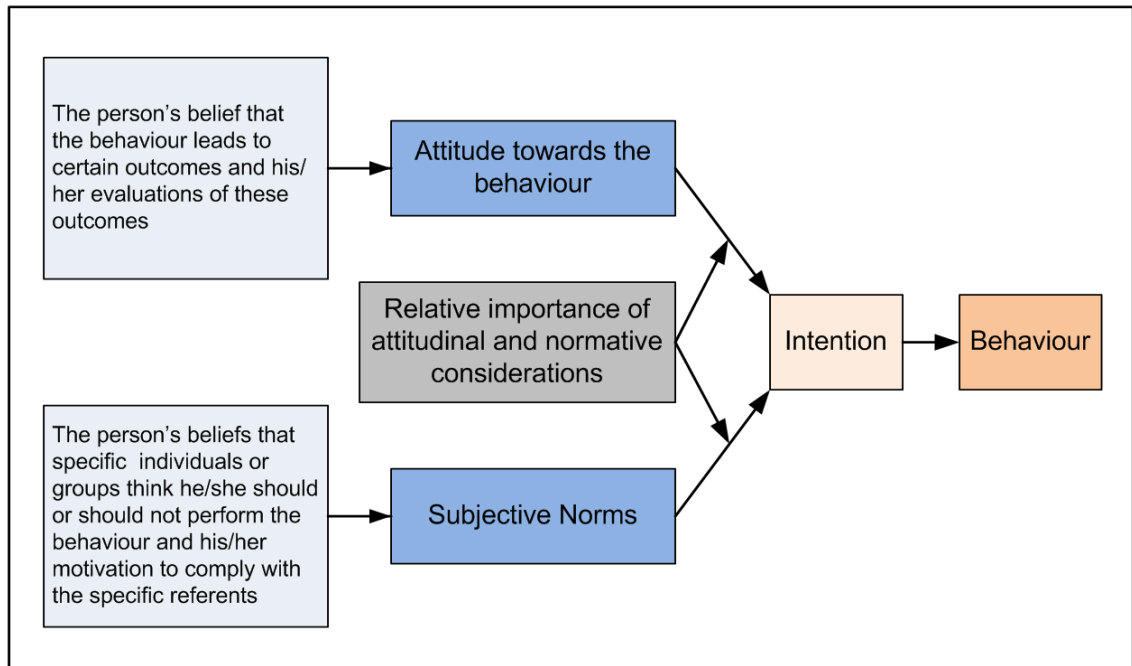
and Mittal, 2000; Koppius et al., 2005; Toufaily et al., 2013). However, According to Premkumar and Bhattacharjee (2008), “*Disconfirmation is a function of product or service performance, as perceived by users following their actual usage experience, as well as their initial expectation of the product or service*“. Thus, the five steps model can also be utilized to predict the satisfaction and the initial intention to purchase online products online. Similar application of ECT and the e-satisfaction to the web store context was used by many (e.g. Bai et al., 2008; Mills and Morrison, 2003; Premkumar and Bhattacharjee, 2008). They interpreted it as follows: a user will form an expectation of the performance of a website then when he/she uses it and during the information stage will form perception about its performance. After that, he/she will assess the actual performance against his/her original expectation and determine the extent to which his/her expectation is confirmed. As a result, he/she will form a satisfaction, or affect, based on his/her confirmation level and expectation confirmation. Finally, satisfaction level influences consumer intention to reach the last step and became ready to purchase products online. In this case, the type of satisfaction would be called e-satisfaction and several studies that investigated it will be discussed later in this chapter as well as the next chapter.

### **2.3.2 Theory of Reasoned Action (TRA)**

TRA was derived from previous research that started out as the theory of attitude, which led to the study of attitude and behaviour (Fishbein and Ajzen, 1975). The theory has since been developed and advanced by the same authors (Ajzen and Fishbein, 1980). According to TRA, the most important determinant of an individual’s behaviour is behavioural intentions. An individual’s intention to perform behaviour is a combination of: attitude towards performance of the behaviour, and subjective norms (Ajzen and Fishbein, 1980). A meta-analysis conducted approximately a decade after the initial introduction of the TRA by Sheppard et al. (1988), revealed that The Theory of Reasoned Action has received considerable and valid attention within the field of consumer behaviour. They argue that it also provides a relatively simple basis for identifying where and how to target consumers' attempts to change their behaviour. A graphical representation of the factors determining a person’s behaviour by Ajzen and Fishbein (1980) is depicted in figure 2.2 below.



**Figure 2.2: Theory of Reasoned Action (TRA)**



Source: Ajzen and Fishbein (1980)

According to TRA, **Behavioural intention** measures a person's readiness to perform any behaviour. While intention in this case works as a mediator to measure behaviour, a person's **attitude** consists of his beliefs about the consequences of carrying out the behaviour and his or her evaluation of these consequences. **Subjective norm** deals with the influence of the social environment on behaviour. This can be defined as the person's perception that most people who are important to him, think that he should or should not perform the behaviour (Ajzen and Fishbein, 1980).

The TRA has been adopted in various studies and for diverse topics such as dieting (Sejwacz et al., 1980), consuming genetically engineered foods (Sparks et al., 1995), limiting sun exposure (Hoffman et al., 1999), and reporting alien abduction (Patry and Pelletier, 2001) cited in (Hale et al., 2002). There are also many studies that did not only adopt the theory as it is, but they integrated it with other models promising to generate a more robust measurement (e.g. (Dzewaltowski et al., 1990; Wixom and Todd, 2005)).

Again, researchers applying TRA to the online purchase context (Athiyaman, 2002; Dennis et al., 2009), describe it in its simplest way as follows: The online user intention to purchase online (behaviour) will be presented by his/her attitude, combined with

subjective norms. For instance, concerning attitude, a user might think that paying for products online is risky and that the consequences might not be good. So that will affect his/her decision to buy. At the same time, the way he/she thinks other people would view him/her if he/she used the online store to purchase a ticket (subjective norms) will also contribute to his intention.

A limitation of the theory is that it assumes that the behaviour is under volitional control. Irrational decisions, routine action or any unintentional behaviour cannot be explained by this theory (Hale et al., 2002). Also Sheppard et al. (1988) argue that the TRA will not be able to predict a voluntary act if the intention measure does not correspond to the behavioural criterion in terms of action, target, context, time-frame and/or specificity. So by returning back to the online user example, if prior to the user's decision to provide the credit card information to pay, he/she found that there is no option to view the ticket return or refund policy on the website for example; this might affect his/her behavioural intention.

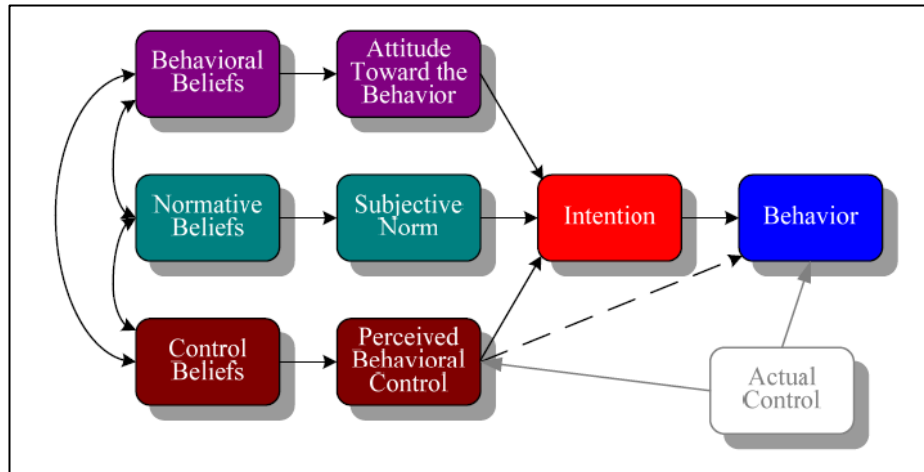
### **2.3.3 Theory of Planned Behaviour (TPB)**

Acknowledging the limitation of the TRA that were mentioned earlier, the co-author of TRA, "Ajzen" introduced the theory of planned behaviour (TPB) in a book (Ajzen, 1985) and then published it with further explanation in his article (Ajzen, 1991). He also dedicated a web page to explain and demonstrate the theory (Ajzen, 2006). According to Ajzen (2006) it is stated that TRA is a special case of the TPB and that the difference between the two is that the TPB includes perceived behavioural control as an additional determinant of intention and behaviour. TRA assumed that people have volitional control over the behaviour of interest (and that they realise that they are capable of performing the behaviour if they so desire). Perceived behavioural control becomes irrelevant and the theory of planned behaviour reduces to the theory of reasoned action under these assumptions.

According to the theory, three kinds of considerations guide human behaviour. The first two are part of the TRA and they are: beliefs about the likely consequences of the behaviour (behavioural beliefs), and the beliefs about the normative expectations of others (normative beliefs). The last one is newly introduced in TBP which is: beliefs

about the presence of factors that may facilitate or impede performance of the behaviour (control beliefs). In combination, the three factors lead to the formation of a behavioural intention. Figure 2.3 is a schematic representation of the theory presented in Ajzen (2006).

**Figure 2.3: Theory of Planned Behaviour (TPB)**



Source: (Ajzen, 2006)

Perceived Behavioural Control (PBC) defined by Ajzen as “people’s perceptions of their ability to perform a given behaviour” (Ajzen, 2006). Another interpretation of the definition is that PBC is “the ease or difficulty that the person perceives of performing the behaviour” (Dennis et al., 2009). To make it simpler to understand, Ajzen provided a questionnaire example on his TBP webpage to measure this construct. It can be interpreted to the e-commerce context as follows: Q1: I am confident that I am able to purchase my product online. Q2: Purchasing my product online is entirely up to me.

A controversial issue with TPB is that it assumes that PBC is most compatible with Bandura's (1982, 1977) concept of “self-efficacy”, defined as the belief that one has the capability to perform a particular behaviour (Compeau and Higgins, 1995). Ajzen (1991) himself confirms that PBC and self-efficacy can be treated as synonymous. This interpretation contrasts with Armitage and Conner's (2001) vision, who believe that control and self-efficacy are separate concepts. They argue that self-efficacy is more concerned with cognitive perception of control (based on internal control factors) whereas PBC reflects more general external factors. Later, a study by the founder Ajzen (2002) addresses some problems associated with measurement of PBC where he acknowledged the difference between self-efficacy and PBC at the general level and

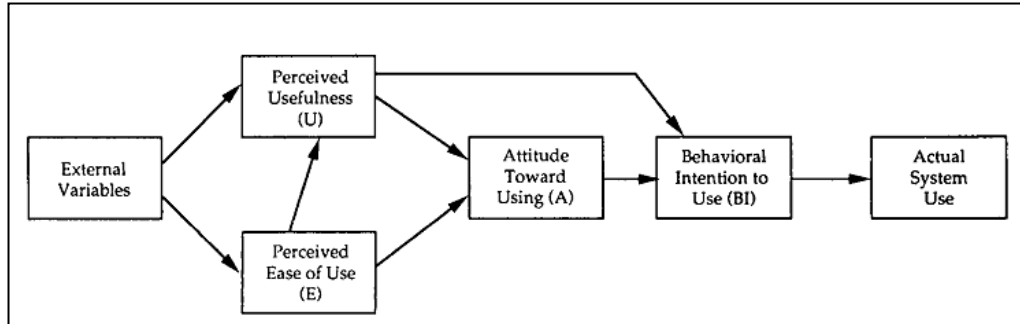
recognized the misleading effect in previous use of PBC interchangeably with self-efficacy. He concluded his research by suggesting that to avoid misunderstandings of this kind, the term “perceived behavioural control” should be read as “perceived control over performance of behaviour”. More information and explanation of this controversy has been detailed by Ajzen (2002). Further, Dzewaltowski et al. (1990), compared the theories of reasoned action, planned behaviour and social cognitive theory (the later suggests that behaviour is influenced by three self-regulatory mechanisms operating in concert: perceived self-efficacy for outcome attainment, outcome expectations, and personal goal setting (Bandura, 1986)). They found that self-efficacy, rather than PBC, had a direct impact on behaviour. According to Dishaw and Strong (1999), for IT usage behaviour, behavioural control has had limited importance. For both TRA and TPB the construct called Subjective Norms (SN) received a decent amount of dispute. Taylor and Todd (1995) noticed that SN is an important predictor of intention and behaviour. However, their study found that SN is more important for inexperienced users, and that the relationship between SN and intentions was stronger only when users have low levels of experience. Also, Davis (1989) and Mathieson (1991) in their studies did not find a significant relationship between SN and intentions. According to Eagly and Chaiken (1993), another limitation of TBP is that it did not acknowledge other variables such as habit, perceived moral obligation and self-identity that may predict intentions and behaviour. Therefore, there study suggests that more effort is still needed to explore other dimensions.

#### **2.3.4 Technology Acceptance Model (TAM)**

As an important extension to the TRA, Davis (1989) developed a model that focuses on the context of computer usage by explaining individuals’ acceptance of technology. According to Irani et al. (2008), “*The TAM is one of the most studied and influential extensions of Ajzen and Fishbein’s (1980) Theory of Reasoned Action (TRA)*”. Davis (1989) added two new constructs to explain attitude and intention toward using a computer application. These constructs are “perceived usefulness” (PU) and “perceived ease of use” (PEOU). He defined perceived usefulness as “*the degree of which a person believes that using a particular system would enhance his or her job performance*” and perceived ease of use as “*the degree of which a person believes that using a particular system would be free of effort*” (Davis, 1989). The criticism in regards to the

importance of SN and PBC constructs in the TRA and TPB (presented in section 2.3.3) might be the reason that Davis chose not to consider them in his model. A demonstration of the original model and the relations between constructs can be shown in figure 2.4 below.

**Figure 2.4: Technology Acceptance Model**



Source: Davis et al. (1989)

Davis et al. (1989)'s model did also confirm a positive association between perceived usefulness and ease of use and a direct relation between perceived usefulness and behavioural intention as well as the indirect relation mediated by the attitude toward use.

The TAM model gained widespread acknowledgement as a valid and robust instrument able to measure the acceptance of using different kinds of technologies. Moon and Kim (2001) confirm that many IS researchers have investigated and replicated the two TAM constructs and agreed that they are valid in predicting the individual's acceptance of various corporate information technologies. Also, according to El-Gohary (2010), The TAM model has been tested for more than two decades in many different technologies and has been accepted as a successful model in predicting and explaining behaviour across a wide variety of domains. Some of the exemplary studies are (Bagozzi, 1992; Brown, 2002; Dembla et al., 2007; Hendrickson and Collins, 1996; Irani et al., 2009; Lederer et al., 2000; Looi, 2004; Lu et al., 2009; Morris and Dillon, 1997; Pavlou and Fygenon, 2006; Straub et al., 1995; Taylor and Todd, 1995).

Furthermore, a meta-analysis of the technology acceptance model by King and He (2006) that was conducted using 88 published studies revealed that TAM is a valid and robust model that has been widely used. Nevertheless, the model has wider applicability potential. Another noteworthy result from this analysis confirmed that many TAM

studies have used students as surrogates for professionals (King and He 2006). This point was a specific topic for debate and will be addressed later in this thesis.

Another important point about TAM that contrary to TRA, Davis et al. (1989) suggested that, in the specific case of IT usage, attitude may only partially mediate the associations between beliefs and intention and that IT usage decisions tend to be more dominated by beliefs such as perceived usefulness than affect such as attitude. This has led many recent TAM studies to drop attitude entirely from their models (Cao and Mokhtarian, 2005; Venkatesh et al., 2003).

### **TAM Limitations:**

The TAM model postulated that perceived ease of use and usefulness results in increased system use; but although it has been successfully used in studying internet related technologies, these two factors have not been found to be enough to explain Web users' motives. It has been criticized for ignoring social influence and individual characteristics (Ahn et al., 2007). Davis (1989) himself suggests that future technology acceptance research needs to address how other variables affect usefulness, ease of use, and user acceptance. This view is supported by the declaration that factors contributing to the acceptance of a new IT are likely to vary with the technology, target users, and context (Moon and Kim, 2001). Also Dishaw and Strong (1999) have pointed out that a weakness of TAM is its lack of task-focus. Additionally, El-Gohary (2010) reveal that there is a need to conduct more research to investigate the TAM model from an E-marketing prospective. This might be actually applicable because according to (Davis, 1989), TAM is considerably less general than the Theory of Reasoned Action (TRA), but it is designed to apply to computer usage behaviour. Also, El-Gohary (2010) expresses that when implementing the model to study the adoption of e-marketing, the model needs to be expanded to include various other factors. He concludes that these factors might encompass economic factors (cost, pressure from suppliers or customers or competitors), and characteristics of the firm (size, sector and status).

Furthermore, the meta-analysis study by King and He (2006) suggest that in terms of the moderating effects of different varieties of usage, only internet use was shown to be different from job task applications, general use, and office application. Accordingly, they suggest that internet study results should not be generalized to other contexts and vice versa.

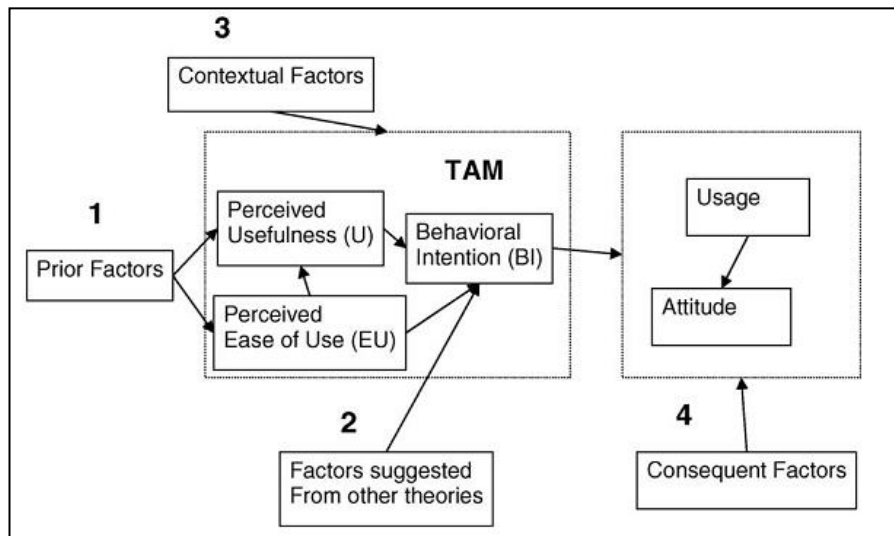
### Extensions of TAM:

As mentioned earlier and as suggested by researchers, TAM has been adopted in many research studies. Extensions and modifications were carried above the TAM model. According to King and He (2006) , there were four major categories of elaboration:

- 1- The addition of external prior factors.
- 2- The incorporation of factors suggested by other theories.
- 3- The insertion of contextual factors such as gender, culture, and technology characteristics.
- 4- The enclosure of consequence measures such as attitude, perceptual usage, and actual usage.

A review of more recent extensions reveals that these types of elaboration are, to a certain extent, still the same. Figure 2.5 demonstrate the TAM original structure and the four major categories of modifications added to it later.

**Figure 2.5: TAM and four categories of modification.**



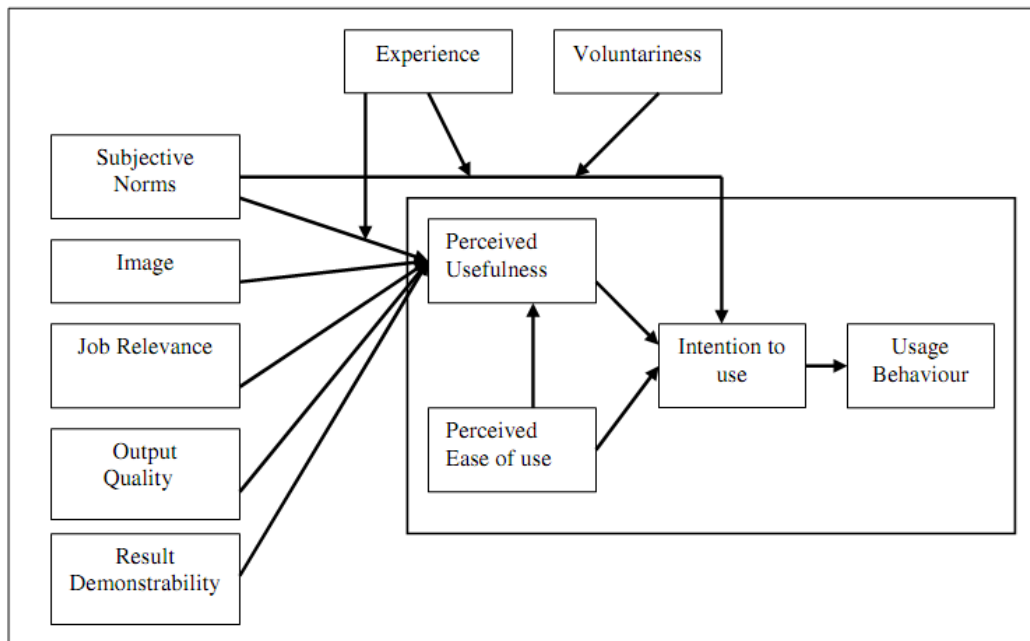
Source: King and He (2006)

### TAM2

Venkatesh and Davis (2000) have investigated the determinants of TAM’s constructs PU and PEOU. They introduced a second version of TAM and called it TAM2. The new model incorporates five constructs explaining perceived usefulness (PU). Also, the creators theorise that experience mediates the relationship between subjective norms (SN) and intentions and SN and PU. Also, the model posits voluntariness as a

moderating variable to distinguish between mandatory versus voluntary compliance with organizational settings. Figure 2.6 illustrates the new model. Venkatesh and Davis (2000) tested TAM2 model by conducting four longitudinal studies carried out on four different systems at four organizations during three periods. The results showed that the new model explained 34%-52% of the variance in usage intention and up to 60% of the variance in perceived usefulness. TAM2 did not receive much intention as the original TAM. However, some researchers adopted this extension in their work. Al-Qeisi, (2009) listed few examples such as, Ozag and Duguma (2004) investigating organizational commitment processes, Chismar and Wiley-Patton (2003) testing the acceptance of internet and internet-based health applications, and Hart and Porter (2004) applying TAM2 to identify how user’s cognitive processes influence the perceived usefulness of on-line analytical processing technology.

**Figure 2.6: TAM2**



Source: (Venkatesh and Davis, 2000)

Other extensions and integration of TAM where carried out by researchers. The two TAM constructs (PU) (PEOU) can be seen in many studies that analyse the acceptance of using the internet e.g. (Al-ajam and Nor, 2013; Brown, 2002; Cheung and Vogel, 2013; Faqih, 2013; Fenech, 1998; Lederer et al., 2000; Moon and Kim, 2001). Thus, it was important to understand the role of each construct and see examples of adoption.



### **TAM3**

Another extension of TAM was initiated this time by Venkatesh and Bala (2008). They utilized the work that was done previously by Venkatesh (2000) to investigate the determinants of perceived ease of use. In Venkatesh (2000), he builds on the anchoring and adjustment framing of human decision making to develop the determinants of perceived ease of use. These same determinants were integrated into TAM2 model and the combined model was called TAM3. The framework representation can be seen in figure 2.7 below. The study focus was on the employees' adoption and use of IT systems in organizations. They looked at the types of interventions that could influence adoption and use of new IT systems. For this purpose, they conducted longitudinal field studies with data collected from four different organizations. One important result from this research is that they found that perceived **usefulness** was the strongest predictor of behavioural intention at all times periods while perceived **ease of use** was significant at the first 2 month of implementation but not after 3 month.

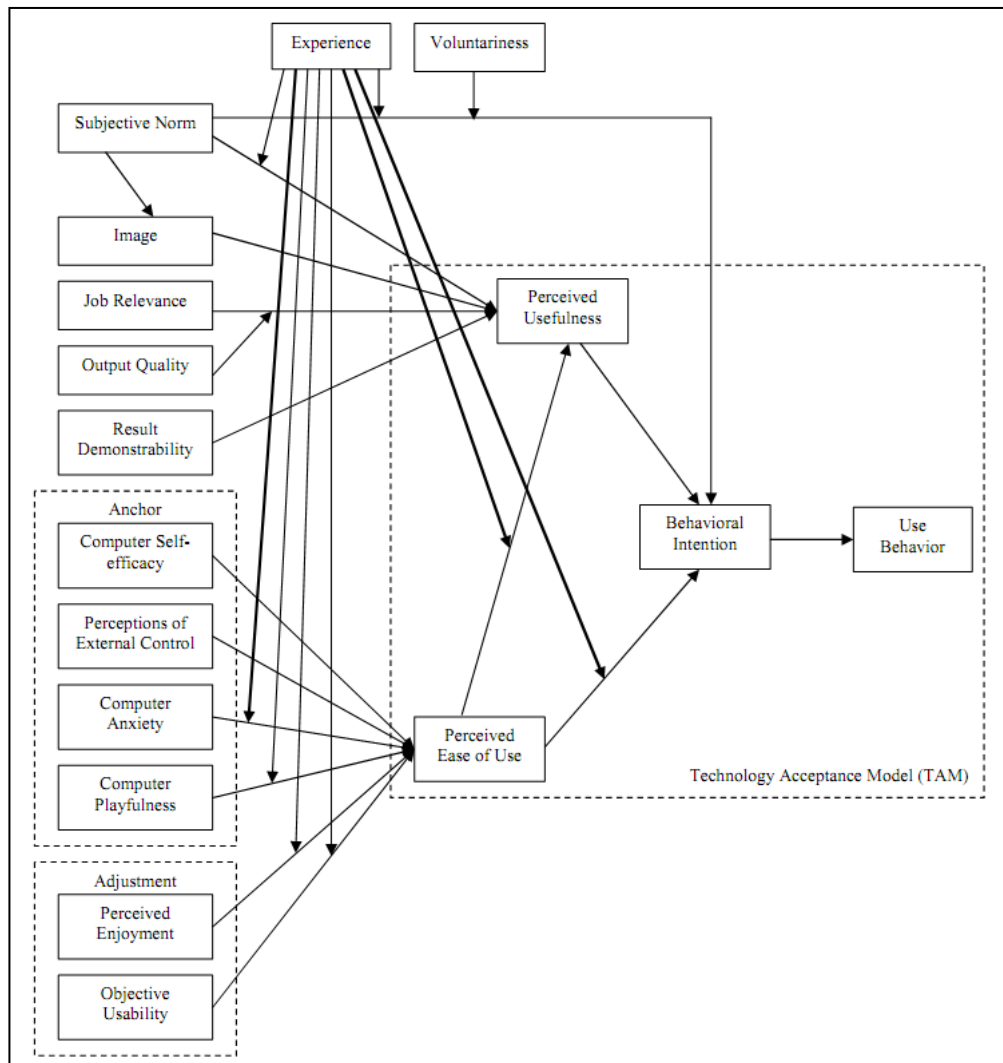
In addition, the study suggests few types of interventions that can be implemented in organization to enhance the adoption of IT systems.

**Pre-implementation Interventions:** Design characteristics, User participation, Management support, and Incentive alignment.

**Post-implementation Interventions:** Training, Organizational support, and Peer support

The suggested interventions are limited to organization and IT adoption; however, similar or other interventions might be needed to enhance the adoption of e-commerce usage.

**Figure 2.7: TAM3**



Source: (Venkatesh and Bala, 2008)

### 2.3.5 The Unified Theory of Acceptance and Use of Technology (UTAUT)

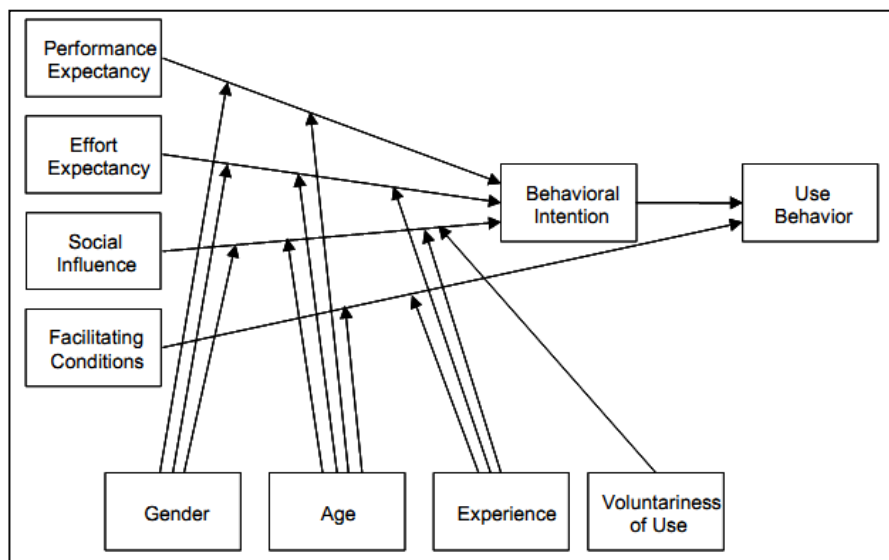
Three years after introducing TAM2, Venkatesh, Davis and others (Venkatesh et al., 2003) developed an aggregated model of eight models that were used to explain the technology acceptance behaviour. The new model called the unified theory of acceptance and use of technology (UTAUT). The models that were adopted to formulate the UTAUT are as follows:

1. Technology Acceptance Model (TAM) Davis (1989)
2. Theory of Reasoned Action (TRA) (Ajzen and Fishbein, 1980)
3. Theory of Planned Behaviour (TPB) (Ajzen, 1985)
4. Motivational Model (MM) adopted from (Davis et al., 1992; Vallerand, 1997)

5. Combined TAM and TPB (C-TAM-TPB) (Taylor and Todd, 1995)
6. Model of PC Utilization (MPCU) (Thompson et al., 1991)
7. Innovation Diffusion Theory (IDT) (Rogers, 1995)
8. Social Cognitive Theory (SCT) (Bandura, 1986)

Venkatesh et al. (2003), reviewed and discussed all above eight models. Then they empirically compared those using within-subjects, longitudinal data from four organizations. Consequently, they formulate the UTAUT utilizing conceptual and empirical similarities across the adopted models. Lastly, they tested the new model using the original data from the four organizations and then cross-validated it using new data from an additional two organizations. Figure 2.8 below demonstrate the UTAUT model with its constructs and relations.

**Figure 2.8: UTAUT**



Source: (Venkatesh et al., 2003)

The constructs in the model were defined and related to similar variables in the eight adopted model, principally they looked at the similar items in each model and group it in a companion unified construct. For example the **Effort Expectancy** idea in the UTAUT is a combination of the constructs **Perceived Ease of Use** from TAM (Davis, 1989; Davis et al., 1989), **Complexity** from MPCU (Thompson et al., 1991), and **Ease of Use** by Moore and Benbasat (1991) from IDT (Rogers, 1995). In addition, the model integrated some moderators to mediate the relationships constructs and behavioural

intention and use behaviour. These moderators are experience, voluntariness, gender, and age.

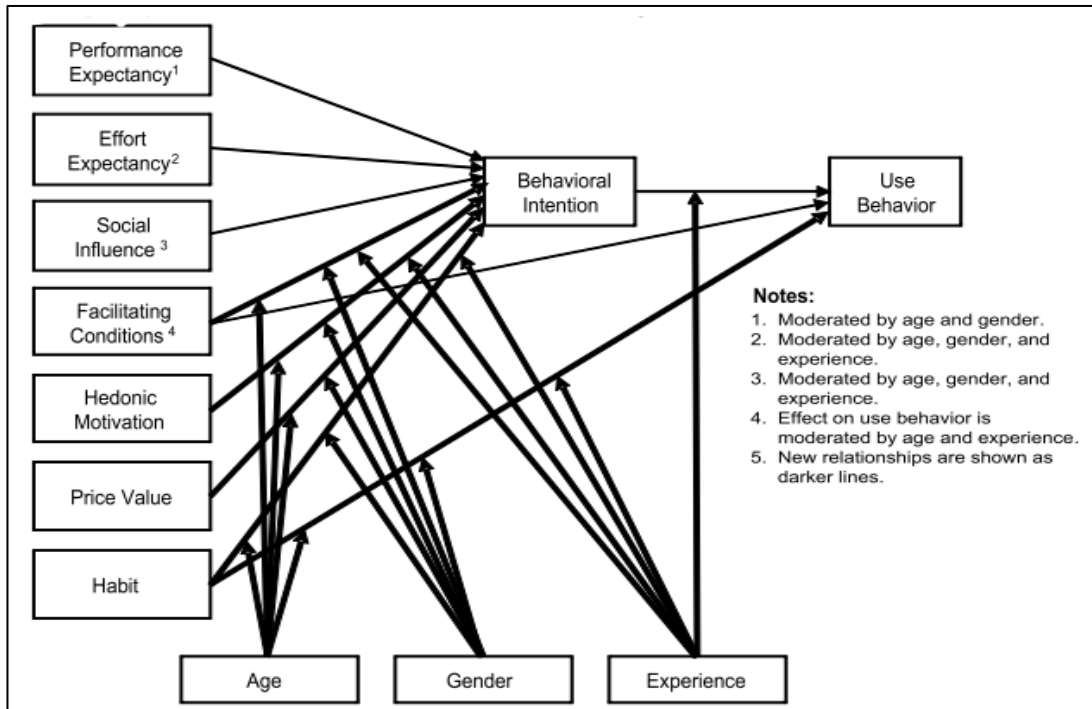
The results of the empirical test of the model provided strong support for UTAUT and confirmed the significant moderating influences of experience; voluntariness, gender, and age as integral features of UTAUT. Thus, the model was able to account for 70% of the variance (Venkatesh et al., 2003). As a result, it can be acknowledged that this model verified the important of using **moderators or filters** in developing or testing new models.

Recent researchers have adopted the UTAUT to measure acceptance in different environments. As an example, verifications and extensions carried out by (Wang and Yang, 2005) with online stocking in the financial market, (Li and Kishore, 2006) with Web log system, and (Carlsson et al., 2006) with the use of mobile devices/services. A meta-analysis of more articles that have used UTAUT for undertaking empirical research on adoption and diffusion of IT/IS can be reviewed in the work of Dwivedi et al. (2011).

Raaij and Schepers (2008) criticized the UTAUT, claiming that the grouping and labelling of items and constructs were problematic. They declare that in UTAUT, many disparate items were combined to reflect a single psychometric construct. They argue that UTAUT's high R<sup>2</sup> is only achieved by moderating the key relationships with up to four variables (gender, age, experience, and voluntariness) in order to yield coefficients that are more significant. Consequently, they assert that the UTAUT model is less parsimonious than TAM and TAM2. However, the use of filters are considered to be significantly important in the case of measuring behaviour intention.

Recently, Venkatesh et al. (2012) introduced a new enhanced extension to the UTAUT model, and thus renamed it UTAUT2. The development in this new extension is justified as it redefines UTAUT constructs from the consumer's, rather than the organization's, point of view. As can be seen in Figure 2.9, Venkatesh et al. (2012) added three new constructs to the model: hedonic motivation, price value, and habit. The UTAUT2 model is utilized in the work of Escobar-Rodríguez and Carvajal-Trujillo (2013, 2014), who aim to discover the online drivers of consumer purchases of online airline tickets. Their work will be discussed later in this chapter.

**Figure 2.9: UTAUT2**

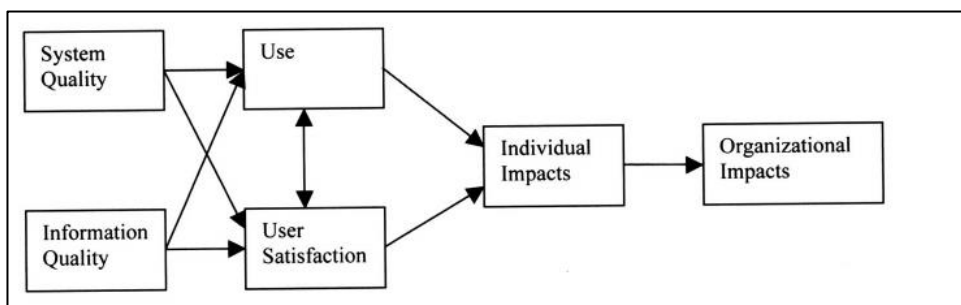


Source: (Venkatesh et al., 2012)

### 2.3.6 Information Systems Success Model (IS Success)

A long lasting famous model that attempt to identify factors that lead to successful use of Information Systems (IS) is the DeLone and McLean IS Success Model (Schaupp et al., 2009). In 1992, both researchers examined a wide range of literature investigating antecedent of IS Success and concluded that they may fall into six major categories (DeLone and McLean, 1992). They are System Quality, Information Quality, Use, User Satisfaction, Individual Impact, and Organizational Impact. The six categories are interrelated and interdependent as illustrated in Figure 2.9 below.

**Figure 2.10: IS Success Model**

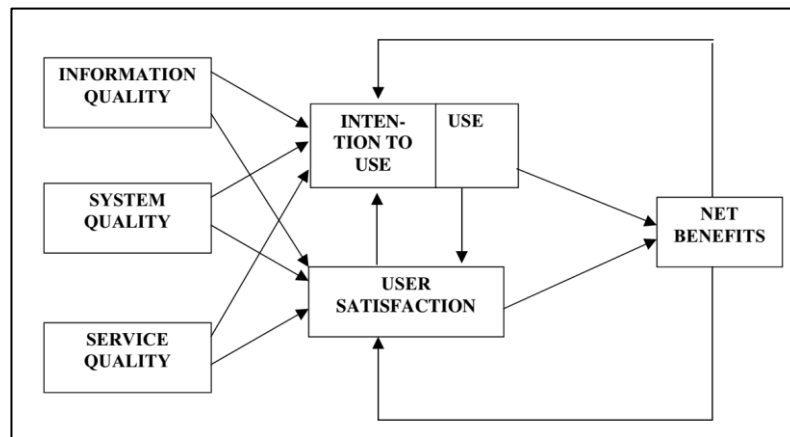


Source: (DeLone and McLean, 1992)

In the years that followed, the model has been adopted, altered or extended by many researchers to study different applications. Thus, ten years later, the IS success model has been revised and updated by the original authors considering the dramatic changes in IS practice, especially the growth of e-commerce (Delone and McLean, 2003). A year later, they published another article for measuring e-commerce success (Delone and Mclean, 2004). The revised model illustrated in Figure 2.10 is much related to the purpose of the current study. According to the Authors: “*The primary improvements to the original model include:*

(a) *The addition of service quality to reflect the importance of service and support in successful IS systems.* (b) *The collapsing of individual impacts and organizational impacts into a more parsimonious net benefits construct.*” (ibid).

**Figure 2.11: Updated DeLone & McLean IS Success Model**



Source: (Delone and Mclean, 2004)

Later, two studies were conducted based on the updated IS Success model examining e-commerce sites in Taiwan. First, Chen and Cheng (2009) used it to understand consumer intention in online shopping in general. They confirmed a high validity for the model while measuring online consumer behaviour using any sort of online shopping portal. Then, Hsu et al. (2014) looked at the online customers repurchase intention from online group-buying sites ( like: <http://www.groupon.com/>) in Taiwan. They used IS success model and found that it is successful in explaining repurchase intention. The transformation of the three qualities (Information, System, and Service) to the context of the web environment was accomplished by the updated IS Success

model. However, the following sections will elaborate more on the different web quality scales that were developed in the earlier literature.

## **2.4 Web Qualities**

Using the internet as a platform to sell or promote products and services forces marketing researchers to study the presentation and functionality of websites. In addition, it became necessary to explore the relation between the website design and the behaviour of the users when they interact with it. This necessitate promoted the wide research on qualities of websites. According to (Ahn et al., 2007), the user view will be affected by the quality of the website because it is the portal through which the transactions are conducted. Web quality has been discussed by experts from Information systems, computer programming, marketing, and consumer behaviour. It is suggested that perceived website quality is a multi-dimensional latent construct that includes dimensions of playfulness, usefulness, user friendliness, informativeness, technology, organization, and navigability (Chakraborty et al., 2002; Chung and Tan, 2004). It is also agreed that website quality may be different according to the type of website (Kuo et al., 2004; Liang et al., 2004). As will be discussed later in this section, many researchers have tried to develop scales to measure web qualities and it was implemented in different contexts.

(Ethier et al., 2006) categorized the previous studies within the web quality into four categories and they gave examples for each of them. The first category of studies focused on website functionalities (e.g., design, hypertext links, response time, and search engines) and/or content. The second category was influenced by TAM and included authors who considered that information quality, systems quality, service quality, and attractiveness were the essential components of website quality. The third category included studies that highlight service quality as a fundamental aspect of the overall quality of a website. Where the fourth category was composed of authors who believed that the principal criterion for website quality was defined by customers' perceptions of quality and they had different view of it (Ethier et al., 2006). The following sections will demonstrate some of the highly accepted and used web quality scales and models. The purpose of the following highlight is to help the researcher in capturing the most important and appropriate dimensions for the proposed model for this study.

### 2.4.1 Service Quality Scale (SERVQUAL)

One of the first and classical models that focused into traditional service quality is the one that was constructed by a team consisting of Parasuraman, Zeithaml, and Berry. In 1985, they conducted an extensive exploratory investigation of quality in services using four different service businesses and developed a service quality model with ten dimensions (Parasuraman et al., 1985). Three years later, the same team of researchers subsequently consolidated these dimensions into five (i.e. reliability, responsiveness, assurance, empathy and tangibles), which then called it the SERVQUAL instrument (Parasuraman et al., 1988). It was influenced by the expectation confirmation theory (ECT) in the way it assesses the gap between what is expected and what is delivered from a service provider. It is originally designed to measure the quality in traditional service and retailing organizations but received a lot of attention by researchers in many other environments. For example, it has been used several times in IS contexts e.g. (Kettinger and Lee, 1994; Pitt et al., 1995). Moreover, other researchers extend it to the electronic setting such as Iwaarden et al. (2003) who translate the five dimensions to the web context as follows:

- **Tangibles:** The appearance of the website, navigation, search options, and structure
- **Reliability:** Trustworthiness of the offered service and the organization performing the service
- **Responsiveness:** The willingness to help customers and to provide prompt service
- **Assurance:** Trust and confidence with respect to security and privacy
- **Empathy:** Caring and individualized attention to customers

As already mentioned, the SERVQUAL instrument not meant to be used for the web context but many of the following scales and studies did depend on it to build their own models.

### 2.4.2 Site Quality (SITEQUAL)

Yoo and Donthu (2001) developed a scale to evaluate the quality of an online retailer's website, they built the instrument based on consumers' own perceptions of online quality and from this they generated a nine scale items which consist of four dimensions



(i.e. ease of use, aesthetic design, processing speed and security). They then used the new scale to survey students in the United States enrolled in marketing classes after they were asked to visit and interact with three internet-shopping sites of their own choice and then evaluate each site. The scale was retested and proven that it has appropriate reliability and validity in every aspect. What is good about this scale is that it looked at the definition of website quality from a consumer point of view and not tried to influence any definition from academic or technical references. At the conclusion of the research, it was suggested by the authors that the SITEQUAL should not be regarded as a final measure but as a starting point toward a better measure. One of the directions of recommended further research is to concentrate on different types of online transactions, as this research concentrates on evaluating consumer goods sites only (Yoo and Donthu, 2001).

### **2.4.3 Electronic Service Quality (e-SERVQUAL)**

Zeithaml and Parasuraman (whom they were part of the team that introduced the popular SERVQUAL instrument), started another research attempting to look specifically at the electronic service quality utilizing their previous work on service quality. In their research Zeithaml et al. (2000), they defined Electronic Service Quality (e-SERVQUAL) as the extent to which a website facilitates efficient and effective shopping, purchasing, and delivery of products and services. In order to explain the definition they identified nine items (**access, ease of navigation, efficiency, flexibility, reliability, personalization, security/privacy, responsiveness, assurance/trust, site aesthetics, and price knowledge**).

In this study the meaning of service is comprehensive and includes both pre- and post-website service aspects (Zeithaml et al., 2002).

### **2.4.4 Web Quality (WebQual) by Barnes and Vidgen (2000)**

The term WebQual was used in research conducted by Barnes and Vidgen (2000). Their study was carried out to develop a model capable of measuring the quality of a website. Their approach adopted the Quality Function Deployment (QFD) framework (Bossert, 1991) and involved conducting a workshop to identify web-site qualities demanded by users (Barnes and Vidgen, 2000). The researchers then used this model to evaluate the quality of four UK business school web-sites. Enhancements were subsequently made by

the researchers and a new version of WebQual was introduced. WebQual 2.0 was used to test internet bookshops (Barnes and Vidgen, 2001a), and small companies (Barnes and Vidgen, 2001b). WebQual 3.0 was used to test online housing auctions (Barnes and Vidgen, 2001c). WebQual 4.0 (Barnes and Vidgen, 2002) was used to evaluate three internet bookstores: Amazon, Bertelsmann Online (BOL), and the Internet Bookstore (IBS). The instrument has three dimensions (usability, information quality, and service interaction quality) for measuring web quality. However, the survey used for the instrument does not cover the complete purchasing process of users; it only evaluates the website. In the author's own opinion, WebQual 4.0 is particularly powerful when used to provide a benchmark against competitor organizations. It can also be applied longitudinally to evaluate the impact of e-commerce development activities (Barnes and Vidgen, 2002).

#### **2.4.5 Web Quality (WebQual) by Loiacono et al. (2002)**

Similar instrument name (WebQual) was used by Loiacono et al. (2002). They initially introduced WebQual publicly in several conference papers such as (Loiacono et al., 2002). Five years later they published a comprehensive explanation and empirical testing for the instrument in a journal paper (Loiacono et al., 2007). The instrument adopted the general theoretical frames of the Theory of Reasoned Action (TRA) and the Technology Acceptance Model (TAM) as starting points. In addition, interviews with web designers and visitors were conducted to develop the scale. Then, two successive samples were used to refine the constructs. Lastly, the measurement validity of the final instrument was tested with a third confirmatory sample of web users. The model consist of 12 items: informational fit-to-disk, interactivity, trust, response time, ease of understanding, intuitive operations, visual appeal, innovativeness, flow/emotional appeal, integrated communication, business processes, and substitutability. The scale was criticized that its primary purpose is to generate information for website designers rather than to measure service quality as experienced by customers and that it only involved students visiting websites to evaluate them rather than actual purchasers evaluating their experiences (Parasuraman et al., 2005).

#### **2.4.6 Electronic Retail Quality (eTailQ)**

In order to develop a reliable and valid scale for the measurement of electronic retailer's quality, Wolfinbarger and Gilly (2003) conducted online and offline focus groups, a sorting task, and an online survey of a customer panel. Their research suggested that four factors affect customer judgments of quality and satisfaction: Website design, fulfilment/reliability, privacy/security, and customer service. The study main focus was on websites that sell products and deliver them to their customers. Two of their dimensions (security/privacy) and (reliability/fulfilment) show strong face validity and are highly descriptive of the items they represent while the other two dimensions appear less internally consistent and distinct (Parasuraman et al., 2005).

#### **2.4.7 Electronic Service Quality (E-S-QUAL)**

Again, the same authors of SERVQUAL and e-SERVQUAL namely Parasuraman and Zeithaml carried out a critical review of service quality delivery through websites (Zeithaml et al., 2002) and later developed a new instrument to measure e-service quality explicitly within e-shopping sites (Parasuraman et al., 2005). In their study, they conceptualized, constructed, refined, and tested a multiple-item scale and called it (E-S-QUAL). Two stages of empirical data collection revealed that two different scales were necessary for capturing electronic service quality. The basic E-S-QUAL scale developed in the research is a 22-item scale of four dimensions: efficiency, fulfilment, system availability, and privacy. The second scale, developed to measure the quality of recovery service provided by websites (E-RecS-QUAL). This is only relevant to customers who had non-routine encounters with the sites and contains 11 items in three dimensions: responsiveness, compensation, and contact (Parasuraman et al., 2005). The comprehensive research received good reputation and considered by some researchers (e.g. (Bauer et al., 2006; Nusair and Kandampully, 2008)) as it provided the most comprehensive scale on online service quality. However, all phases of this research focused on websites that sold physical products. As such, the authors themselves suggest that an important research priority is to make any necessary modifications and examine the scales in the context of pure-service sites (Parasuraman et al., 2005).

#### **2.4.8 Transaction process-based scale for measuring e-Service Quality (eTransQual)**

Claiming that existing e-service quality scales failed to take into account hedonic quality aspects, Bauer et al. (2006) adopted a transaction process-based approach to define the elements of online shopping service quality. Using this approach, they identify four phases of traditional offline transactions (i.e. information, agreement, fulfilment, and after-sales). Then they translate it into the online environment using a focus group. They considered both utilitarian and hedonic e-service quality elements as well as after sales support. A survey was distributed by a German market research institute to randomly selected members of its online panel. In order to judge all online service phases, this study utilized only participant whom they completed a purchase transaction. Then, they conduct exploratory and confirmatory factor analysis and identify five discriminate quality dimensions: functionality/design, enjoyment, process, reliability and responsiveness. In addition, they test the relationship between the eTransQual quality dimensions and the dependent variable: overall service quality of the website, perceived value, and customer satisfaction. Finally, they also compared the eTransQual, with earlier scales eTailQ (Wolfenbarger and Gilly, 2003) and E-S-Qual (Parasuraman et al., 2005). The findings from this study provide strong evidence for the importance of hedonic aspects for evaluating online shopping experiences. However, there was a weak relationship to satisfaction. According to the authors, *“this provides some evidence that experiencing fun and excitement during website usage is expected from consumers without explicit articulation as this lies in the nature of multimedia technologies. Thus, assuring hedonic quality can be interpreted more as a (dissatisfaction inhibitor) than a (satisfier)”* (Bauer et al., 2006).

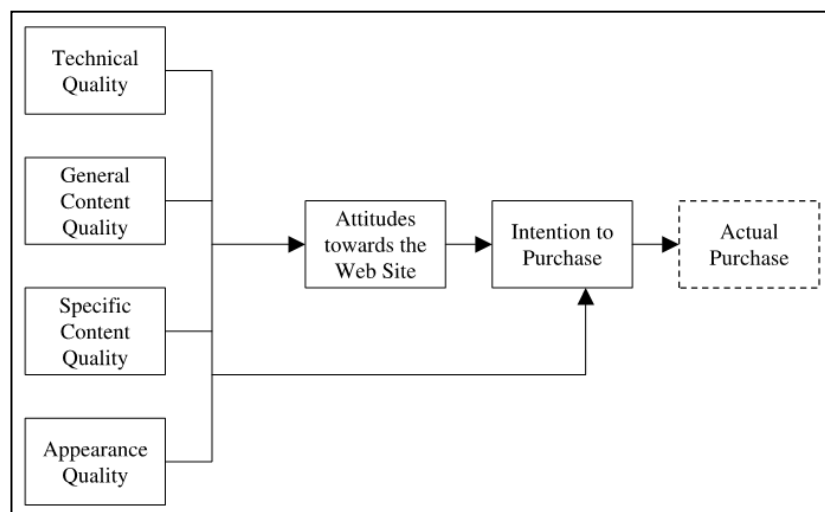
#### **2.4.9 More Web Quality Studies**

Aladwani and Palvia (2002) developed an instrument that captures key characteristics of website quality from the user’s perspective. In the beginning, the study acknowledged that previous research on web quality lacks rigor, focuses only on subsets of web quality, and is relevant to web designers rather than to web users. The researchers then carried out a two-phased investigation that uncovered a 25-item instrument within four dimensions of perceived web quality: technical adequacy, specific content, content

quality, and appearance. The specific content and content quality dimensions was one dimension in the first phase of the study (web content) but then it was found that this construct cannot be one-dimensional, but comprises the two dimensions: 1- Specific content (five items) reflected concerns related to finding specific details about products/services, customer support, privacy policies, and other important information. 2- Content quality consisted of five items and dealt with such attributes as information usefulness, completeness, accuracy. The model explained 67% of the variance in perceived web quality and was considered to be precise, easy, and can be utilised to evaluate web quality at an aggregate level.

Four years later, Aladwani (2006), identified a gap in the past studies where he acknowledged that there is a lack of research that analyses the link between website **quality** and **website adoption**. According to the author, website **quality** studies are usually interested in issues relevant to the salient design or usability attributes of websites. While **website adoption** studies are interested in issues related to how customers accept, adopt, and transact with online business (or what can be called the online consumer behaviour). He constructed a model where he extended the earlier work carried out by Aladwani and Palvia (2002) by examining the influence of the four dimensions of website quality on attitudes and purchasing intentions of web consumers. The proposed model has its roots in Davis’s Technology Acceptance Model (Davis et al., 1989). The new model is shown in figure 2.10 below.

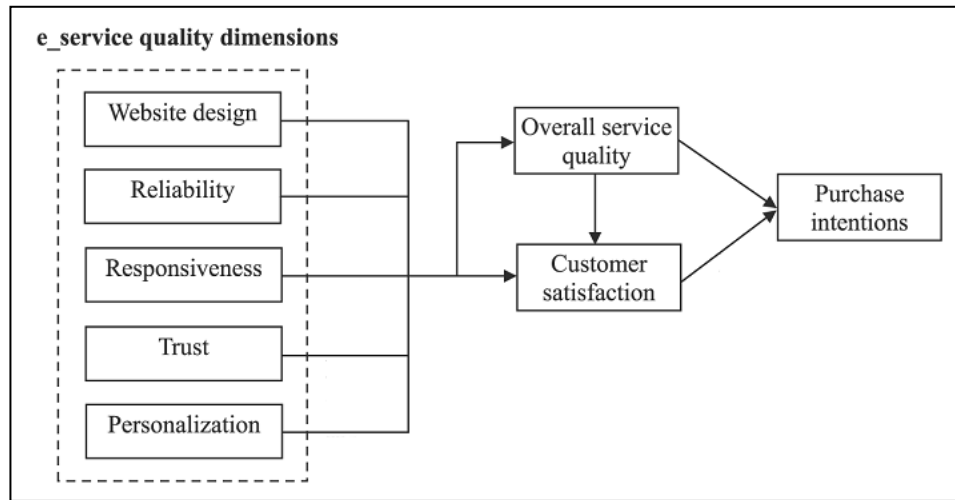
**Figure 2.12: Aladwani (2006) research model**



Source: Aladwani (2006)

The model hypothesized that the four web quality dimensions (technical, general content, specific content, and appearance) have a direct effect on attitudes towards the website and intention to purchase. The research model also acknowledges the direct relationship between purchase intentions and the actual purchase from the website but the investigation does not test this relationship. That is because the study used students to search for a book in a well-known online bookstore and asked them to stop when the purchasing should have taken place. Two major interesting findings were observed from the study. First, technical quality is found to be the only dimension of website quality influencing consumers purchasing behaviour both directly and indirectly through their attitudes towards the website. Second, specific content quality and appearance quality characteristics are found to have a relatively higher effect on website attitudes than technical quality and general content quality. According to Aladwani (2006) **Technical Quality** is described as the technical characteristics of the website such as security, ease of navigation, search facilities, site availability, valid links, personalisation or customisation, speed of page loading, interactivity, and ease of access. He also defined **appearance quality** as the characteristics of the website such as attractiveness, organisation, proper use of fonts, colours and proper use of multimedia. **Specific content** and **general content** was described earlier in this section from Aladwani and Palvia (2002).

A similar study was done by Lee and Lin (2005), who tried to analyse the relationship between e-service quality and overall service quality, customer satisfaction and purchase intentions. They utilised the SERVQUAL instrument and the previous studies that modified it to the web context to explain the e-service quality. They included **website design, reliability, responsiveness, trust, and personalisation** as dimensions of e-service quality. Figure 2.11 below demonstrates the constructs and the relationships between them.

**Figure 2.13: Lee and Lin (2005) Research model**

Source: (Lee and Lin, 2005)

They also used students to browse an online bookstore, choose a book, and add it to the shopping cart. They were asked to fill certain payment and delivery data in an effort to simulate the purchasing process. Later they asked the students to complete a questionnaire. The results show that the first four dimensions (website design, reliability, responsiveness, and trust) affect overall service quality and customer satisfaction. Additionally, the study found a significant relationship between satisfaction and customer purchase intentions. However, the personalisation dimension is not considerably related to overall service quality and customer satisfaction (Lee and Lin, 2005). Table 2.1 below demonstrates a summary of the dimensions or constructs linked to some of the most cited and robust web quality scales. These are from previously discussed studies as well as other articles. It is shown as a taxonomy table highlighting the dimensions and the quantity of occurrence for each one in the literature. The table shows that dimensions such as reliability, design, trust, and responsiveness have been considered important when studying web qualities. More recent studies conducted within the travel and tourism industry will be discussed later.

**Table 2.1: Important studies that looked at the web quality dimensions**

	(Zeithaml et al., 2000) e-SERVQUAL	(Yoo and Donthu, 2001) SITEQUAL	(Palmer, 2002)	(Barnes and Vidgen, 2002) WebQual	(Lloacono et al., 2002) WebQual	(Aladwani and Palvia (2002)	(Wolfinbarger and Gilly, 2003) eTailQ	(Webb and Webb, 2004)	(Lee and Lin, 2005)	(Hassan and Li, 2005)	(Parasuraman et al., 2005) E-S-QUAL E-Res-QUAL	(Bauer et al., 2006)	Total Count	Total Count for similar dimension
Ease of Use		X											1	3
Ease of navigation	X												1	
Ease of understanding					X								1	
Usability				X									1	13
Efficiency	X					X				X			3	
Reliability/Fulfilment	X					X	X	X	X	X	X		7	
Substitutability			X		X								2	
Privacy	X					X	X				X		4	11
Security	X	X					X						3	
Trust	X				X			X	X				4	
Responsiveness	X		X					X	X		X	X	6	10
Response time		X	X		X					X			4	
Information quality			X	X				X		X			4	8
Informational fit-to-disk					X								1	
Price knowledge	X							X		X			3	
Website design					X		X		X			X	4	12
Aesthetic design	X	X											2	
Process/Navigation										X	X		2	
Visual appeal/Format			X		X			X		X			4	
Access	X							X		X			3	5
Availability						X					X		2	
Flexibility	X									X			2	
Interactivity				X	X								2	
Enjoyment/Playfulness											X		1	
Personalisation	X								X				2	
Customer service					X		X				X		3	
Compensation/Incentives											X		1	

**Notes:** Items that are similar or related according to the definition of each item in the study are grouped and counted together. X represents the existence of the dimension in the study.

## 2.5 Consumer Behaviour and Web Quality Models Summary

In the previous sections, some widely accepted consumer behaviour theories and web quality models were reviewed. Examples of adoptions and implementations of such models were also discussed. Three important observations from the above illustration can be extracted. First, we can see that researchers looked at the way online users behave or use the internet from many different angles in diverse fields. Consumer



behaviour studies with a marketing influence, IS researchers with functionality and process focus, and practitioners concerned about design and layouts.

Second, it can be seen in the earlier research that many dimensions or constructs are overlapping between models from various fields. For example, TAM theory uses the term “ease of use” as well as in the web quality model SITEQUAL (Yoo and Donthu, 2001), but in e-SERVQUAL (Zeithaml et al., 2000) they refer to it as “ease of navigation” and WebQual (Loiacono et al., 2002) refer to it as “ease of understanding”. Also the terms usability, reliability, and efficiency are frequently used by researchers, but most of the time describe the same phenomena. Another example is the use of the terms privacy, security, and trust as they might not always have the same definition, but in many cases present similar ideas in different fields or contexts. Table 2.1 grouped similar dimensions together and provides a count for the number of occurrences. The taxonomy table concludes what researchers consider as the most important online website dimensions. Usability, website qualities, trust/ security, responsiveness, and information qualities are respectively the most utilised dimensions in previous research. Third, most of the online consumer behaviour and web quality studies adopted traditional e-shopping sites (e.g. products, books, DVDs, etc.). Particular industry or product specific studies are listed by many researchers as a suggestion for future studies (e.g. (Aladwani and Palvia, 2002; Kim, Jin, et al., 2009; Kim and Stoel, 2004; Nusair and Kandampully, 2008; Qureshi et al., 2009). This approach is beginning to gain a lot of importance and published research is growing including the travel and tourism industry.

The following section will discuss studies that focused on the online experience in the travel and tourism industry with some that concentrated on the airlines. However, many other studies related to other products or industries will be used throughout the thesis.

## **2.6 Studies within the travel and tourism industry**

A study that was published by Law et al. (2010) reviewed tourism studies published from 1996 to July 2009 that relate to tourism website evaluation. They gathered articles from three of the largest and most popular online databases and search engines (Science Direct, EBSCOHost, and Google Scholar). Their findings revealed that 75 published

articles were determined to be relevant to the study in which it covered 23 industrial sectors such as hotel websites, destination websites, travel agency websites, and airline websites. On the basis of the prior studies' evaluation methods, five evaluation approaches were determined, including: **counting**, **automated**, **numerical computation**, **user judgment**, and **combined methods**. Additionally, according to the study results, from 1996 to 2009 there were only four studies that looked specifically into airline e-services and nine studies in regard to travel agencies' websites. For more information and links to references see (ibid).

### 2.6.1 Study 1 Airline websites assessment

One of the rare studies that focused on airline websites and has a Middle Eastern airline as one of its targeted participants, was carried out by (Law and Leung, 2000). In this study, the authors did a content analysis for airlines website. Thirty airlines from three regions ("North America", "Europe and Middle East", and "Asia and Australia") were assessed to determine whether there were any significant differences between the three regions, in terms of the website attributes and services provided to travellers. Ten airlines from each region, including Saudi Arabian Airlines from the Middle East, were samples of the study. They adopted six components of the online reservation service described by Stout (1996). The components assessed were:

1. **Product information:** such as flight schedule and availability of the airlines' online reservation services.
2. **Product pricing:** included airfares and the related fare conditions.
3. **Online ordering information:** contained information such as the telephone numbers of airline reservation offices, online reservation systems provided on the internet for direct purchase of air tickets, forms of payment, limitations on using the online reservation systems, and charges when using the online reservation systems.
4. **Extra benefits:** provided to customers were as follows: price discount, free upgrade, and extra bonus for frequent-flyer accounts.
5. **Responsiveness:** the time length for using the online reservation services were
  - Number of pictures on the home page,
  - Number of screens on the home page,

- Number of pages required to complete a reservation, and
- Number of language choices.

**6. Additional services:**

- Meal request,
- Seat request,
- Check-in services,
- Links to hints on obtaining the lowest fare,
- Delivery service of air tickets, and
- Car and hotel reservations.

The results of the comparison between each region revealed that the most comprehensive airline websites were found in North America, the next most comprehensive ones were those in Europe and Middle East, and Asian and Australian airlines came last. Also, according to the author's opinion, *“since the internet originated in the United States and has become an entrenched business tool there, it is not surprising that the North American airlines tended to offer the most comprehensive Websites. ... In reality, different airlines in different regions would have their unique targeting markets and marketing strategies. As Americans and Canadians seemed to accept online shopping, North American airlines therefore provided more comprehensive Websites to retain existing customers and attract new customers.”* (Law and Leung, 2000).

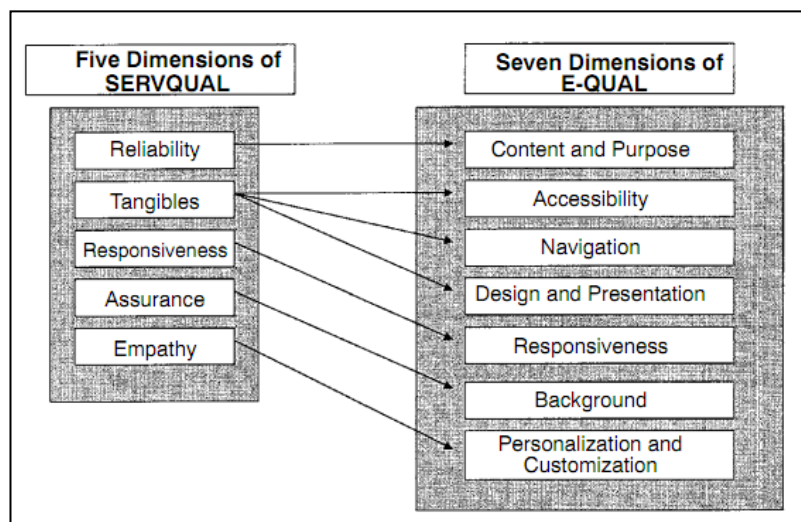
While this study compares airline websites and has nothing to do with customer experience, it provided in-depth information about the characteristics of a good airline website. In addition, it can help the researchers in this specific industry while building their framework to measure factors influencing customers to use an airline's website. It also confirms that online services provided by Middle Eastern Airlines lagged behind North American airlines.

### **2.6.2 Study 2 Web service quality for travel agencies**

Kaynama and Black (2000) developed an instrument called “E-QUAL” to measure web service quality dimensions of online travel agencies. They used the traditional SERVQUAL instrument (Parasuraman et al., 1988) as a base instrument. At the same

time, to convert it to the online context, they looked at some site evaluation sources/companies such as (Argus Clearinghouse, Scout Report, PC World, Gomez Advisors) and developed a preliminary E-QUAL scale of specific criteria grouped under seven main headings. These main categories include **content, accessibility, navigation, design and presentation, responsiveness and feedback, background information and personalisation**. The relation between constructs from SERVQUAL and E-QUAL is illustrated in figure 2.12.

**Figure 2.14: Parallelism of SERVQUAL and E-QUAL Dimensions**



Source: (Kaynama and Black, 2000)

A scale of items was developed (questionnaire), but according to (Ho and Lee, 2007), it was unclear which items belonged to which specific dimension. They used the developed scale to compare between services provided by online and offline travel agencies (like Travelocity, Expedia, Biztravel, etc.). The research findings provide assessment and ranking for each travel agency site in term of services provided which is not related to our focus of study. However, the instrument dimensions were built with the assistance of attributes from more of a business practical website evaluation rather than only academic references.

### 2.6.3 Study 3 e-travel service quality scale:

The Kaynama and Black (2000) measurement tool was criticised among other similar studies by (Ho and Lee, 2007) that they were using modified versions of a readymade

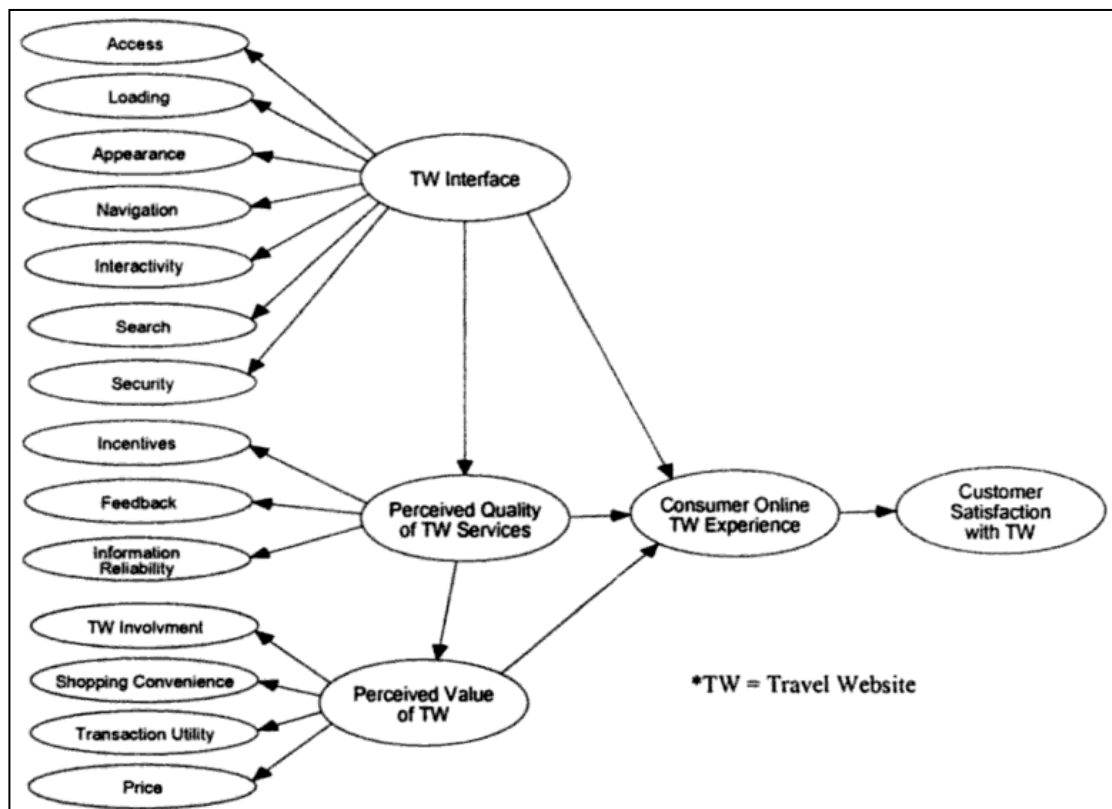
scale, and they argued that there is a need to explore service sector-specific attributes and develop a suitable quality measurement for travel websites. For that purpose, they identified eight dimensions related to the evaluation of web based travel service quality with a scale of 44 items representing them. They then conducted in-depth interviews with eight online purchasers. Fifty users were asked to rate the importance of each item. Based on this, modifications to the scale reduced it to 30 items. Next, to validate the scale they did two rounds of online surveys with Taiwanese online users whom they used some type of online service. The first round resulted in reducing the scale to 27 items representing five dimensions: **information quality, security, website functionality, customer relationships, and responsiveness**. Thus, the second round purpose is to validate the developed instrument. Consequently, the statistical tests found that the instrument exhibits high degree of validity and reliability. In the final stage of the scale development, the author sought to examine how the e-travel service quality scale predicted customer behaviour (satisfaction and loyalty). The findings expose that e-service quality served as an important indicator for predicting satisfaction as well as behavioural intention (ibid). Perhaps a drawback in this study is that while the study attempts to build e-travel quality dimensions it did conduct validation surveys with general users who may not have used an online travel website before. Nevertheless, the questionnaire developed in this study can be utilised in other measurement development attempts.

#### **2.6.4 Study 4 Customer satisfaction with travel websites:**

A conference paper published by Mills and Morrison (2003) aimed to identify the potential attributes of customer satisfaction with travel websites. Based on their literature review, they built a conceptual model that has first and second order constructs listed as:

- 1- Interface:** Access, Loading, Appearance, Navigation, Interactivity, Search, and Security.
- 2- Perceived Quality:** Incentives, Feedback, Information, and Reliability.
- 3- Perceived Value:** Involvement, Shopping convenience, Transaction utility, and Price.

Figure 2.15: Mills and Morrison Model



Source: (Mills and Morrison, 2003)

Their model tested the three main constructs above and the effect on consumer online experience and satisfaction as shown in Figure 2.13. Initially they used 68 questionnaire items (adopted from literature and self-developed) in a first survey round. They then conducted an exploratory data analyses and reduced the questionnaire items to 46 to complete another survey round. Results revealed that the three most important determinants of a good customer experience and satisfaction with travel websites are **incentives, appearance, and security**. The overall reliability for the entire instrument was (.93). The study targeted travel websites in the USA and utilised a sample of students. The questionnaire items were modified for the travel website context, thus it can have value for travel website studies.

### 2.6.5 Study 5 Airlines websites evaluation:

Another attempt to build an instrument to evaluate airline websites was carried out by (Shchiglik and Barnes, 2004). They claimed that the current website quality instruments intended to be generic and that unique business models and functionality will require

such instruments to have a number of domain-specific questions. Using existing website evaluation instruments such as WebQual and workshops with customers they developed a Perceived Airline Website Quality Instrument and call it (PAWQI). They then tested it via a survey approach. The survey was used to assess three airlines in New Zealand (Air New Zealand, Qantas, and Freedom Air). The assessment dimensions included four areas: site quality, information quality, interaction quality, airline-specific quality. The study findings reveal that with respect to airline websites, customers are concerned most about accuracy, relevancy, believability, ease of understanding and timeliness of information as well as the convenience provided for ticket purchasing. It is also revealed from the results that one of the superior elements of (Air New Zealand) over others is that it provides customers with immediate details on the cheapest airfares available. This shows the importance of the role for pricing knowledge as an element within an online airline store.

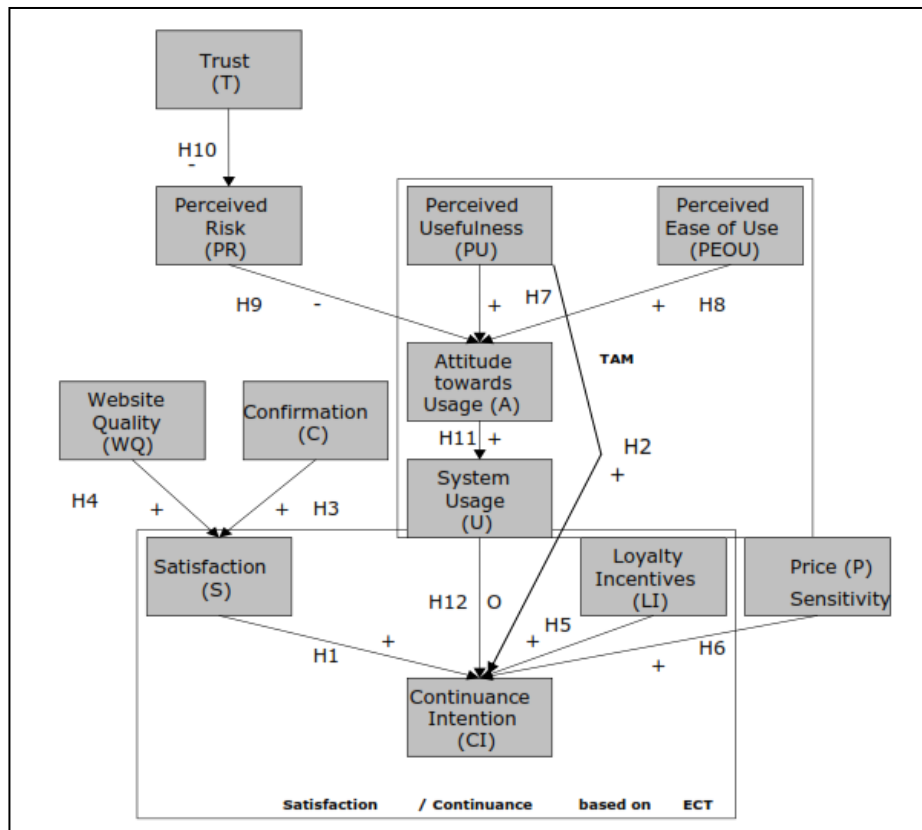
#### **2.6.6 Study 6 Internet users purchase intension of airline tickets:**

A small study that was conducted in Australia (Athiyaman, 2002), tried to answer the question: What are the factors that influence internet users' intention to purchase air travel tickets? They asked 40 students to list the factors that they considered important in purchasing airline tickets. Based on the responses they built a questionnaire and sent it again to 150 students to report their attitude towards buying airline tickets. The end result of the study suggest that **security** concerns about the internet make consumers avoid the online purchase of air tickets and that the best way to attract customers to buy online is to motivate consumers to focus on the amount of money that could be saved by purchasing air tickets online (ibid).

#### **2.6.7 Study 7 Airlines tickets repurchase intention:**

Koppius et al. (2005) did further research to answer another question related to airline tickets. This time it was about the tickets re-purchase intention from travel agencies. In their conference paper, they construct a model that consists of factors adopted from TAM and ECT as well as trust, loyalty, web quality, and price sensitivity of the consumer. The constructs and the relationships are demonstrated in Figure 2.14 below.

**Figure 2.16: Koppius et al. (2005) Model**



Source: (Koppius et al., 2005)

They performed an online survey to target customers of a well-known online travel agent in the Netherlands that sells airline tickets (i.e. Vliegtarieven.nl). The online travel agent granted the researcher’s permission to approach their customers and offered to distribute the survey. When an air ticket is purchased online, the customer receives a confirmation email including a link to the online survey. In order to encourage a customer to complete the survey, a prize of a travel cheque worth €200 is offered for one of the respondents. As a result, the response rate reached almost 41%, as 715 respondents of the 1,770 targeted completed the survey (Koppius et al., 2005).

Regression analysis was used to test the model and hypothesis. The results report that the model showed strong support for the ECT model. Similarly, website quality and confirmation were strongly significant predictors of satisfaction. Additionally, satisfaction was found to be a significant predictor of continuance intention. Moreover, the insertion of price sensitivity to the original ECT model proved also to be significant. The TAM constructs (perceived usefulness and perceived ease of use) were found to be

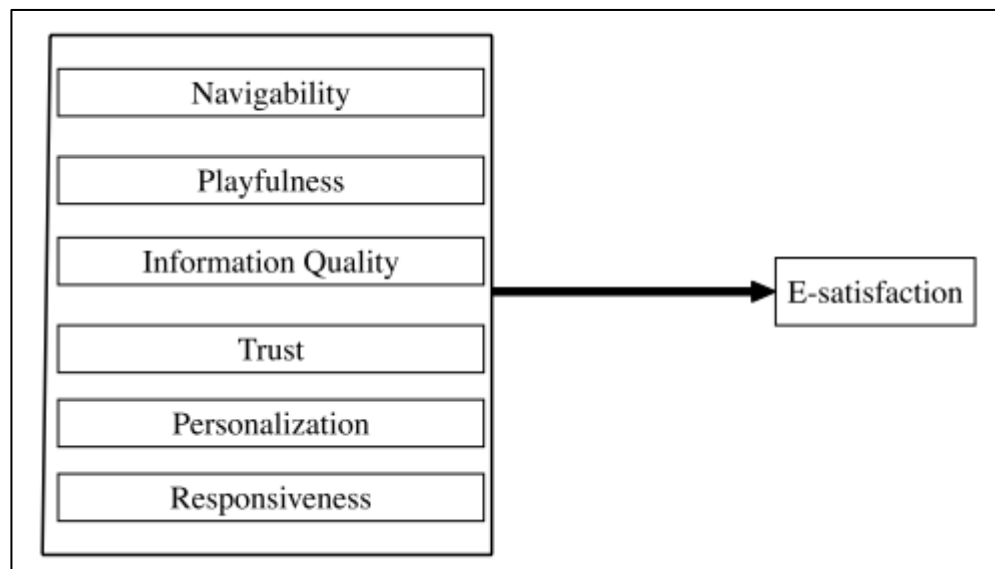


strongly predictive of attitude towards usage. However, loyalty incentives and price were found to be less important predictors for continuance intention (ibid).

In the study, a final suggestion for future research proposes that researchers should look into new users' attitudes and it recommends the use of TAM as they claim that it would be useful in this case (ibid). Therefore, despite the fact that this research is not current, its offerings can still greatly assist the building of the underlying model in this thesis, especially given its reliance on industry-specific customer behaviour and IS models. Also, it uses actual customers who purchased tickets online. On the other hand, the focus of the study was on continuance intention and not the initial motivation to buy tickets. Additionally, the targeted travel websites were only those travel agents selling tickets and not airline companies' web portals.

#### **2.6.8 Study 8 Travel websites' quality dimensions influencing satisfaction:**

Nusair and Kandampully, (2008) conducted content analyses on the five prominent travel websites (Orbitz.com, Travelocity.com, Hotwire.com, Hotels.com, and Priceline.com) to examine the travel websites' quality dimensions that ultimately influence customers' satisfaction. A list of 53 attributes were selected, named, and categorised around six web quality dimensions. The dimensions, as seen in figure 2.15, were **1-navigability, 2-playfulness, 3-information quality, 4-trust, 5-personalisation, and 6-responsiveness**. One finding from this study suggests that online travel companies are underperforming in terms of providing web service attributes that enhance customer satisfaction. While this study utilised a review of literature to extract the six dimensions, the model was not empirically tested.

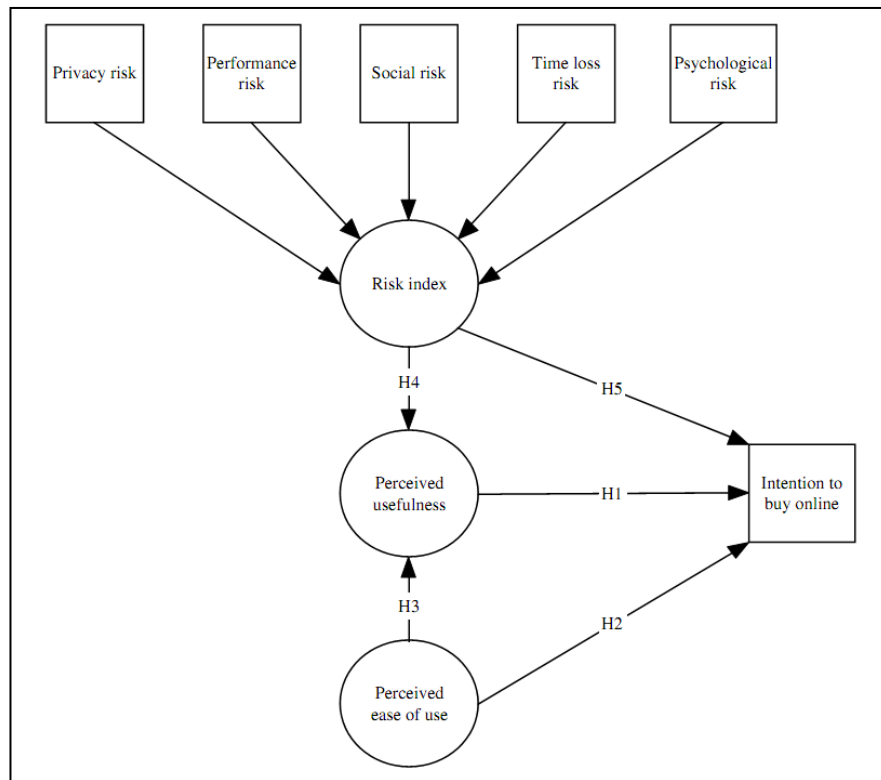
**Figure 2.17: Nusair and Kandampully Model**

Source: (Nusair and Kandampully, 2008)

### 2.6.9 Study 9 Airline ticket online purchase intention:

A small study that was carried out by (Ruiz-Mafé et al., 2009) investigates the influence of perceived **risk**, **usefulness** and **ease of use** on the airline ticket online purchase intention. The graphical representation of the suggested model is shown in figure 2.16. In order to validate the model, they surveyed around 300 users in Spain who never purchased tickets online. The results revealed that perceived purchase risk and perceived usefulness exercise a direct influence on airline ticket purchasing intentions, while perceived ease of use has an indirect influence through perceived usefulness. Also, as they described the risk construct as a multidimensional construct (privacy risk, performance risk, psychological risk, time loss risk, and social risk) only the first three were found to be predominant risk dimensions in airline tickets purchased. This finding might shape the understanding of the perceived risk or online trust in the airline websites context.

**Figure 2.18: Ruiz-Mafe conceptual framework**



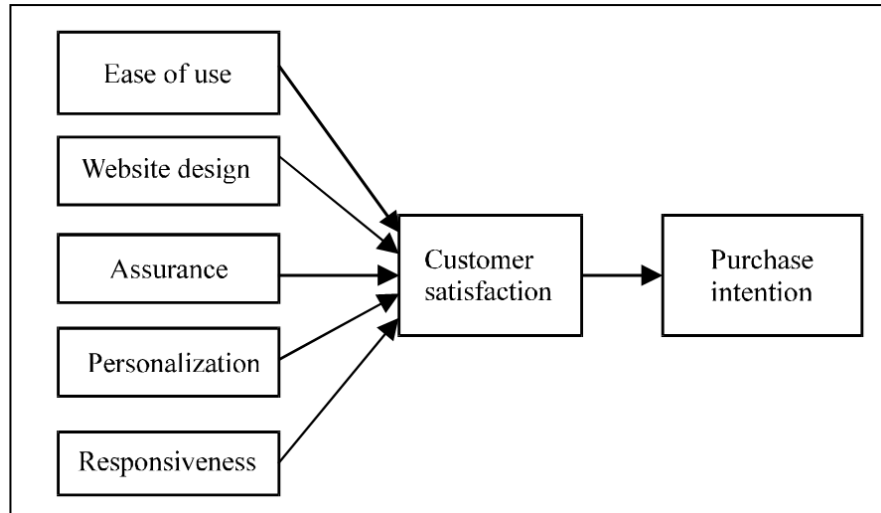
Source: (Ruiz-Mafé et al., 2009)

**2.6.10 Study 10 e-ticketing function:**

Another study that looked specifically on the e-ticketing function is the one conducted in 2011 focusing on the airline market in Malaysia by Lau et al. (2011). The researchers tried to determine the relationship of e-service quality and customer satisfaction and to explore the relationship between customer satisfaction and purchase intention of the airline industry’s e-ticketing service. They represent the e-service quality by five dimensions: **ease of use**, **website design**, **assurance**, **responsiveness**, and **personalisation**. They used a survey method to test the relationships with a sample of Malaysian university students. The results confirm that all five e-service quality dimensions used contributed significantly to customer satisfaction and that **ease of use** was identified as the most important contributor to customer satisfaction. The least important contributor was **personalisation**. Also, the outcome supports the proposition that customer satisfaction influenced consumers purchase intention of airline e-tickets. The R2 in this model = 0.583, implied that this model explained about 58% of the total

variance in customer satisfaction (ibid). Figure 2.17 illustrates the conceptual model of the study.

**Figure 2.19: Lau et al. (2011) Conceptuel Framework**



Source: Lau et al. (2011)

**2.6.11 Study 11 online airline ticket purchasing behaviour:**

Using the elements of the theory of planned behaviour (TPB), a recent study by (Ruiz-Mafe et al., 2013) was conducted. They analysed the influence of attitude, subjective norm and perceived behavioural control on online airline ticket purchasing behaviour in two cultures (i.e. Spain and The Netherlands). Consequently, it was found that the three factors positively influence airline tickets online purchase intention in Spain, but in the Netherlands attitude is the key driver. However, the study questioned respondents based on their use of a web page designed specifically for the research project and not a real airline website. Nevertheless, the dissimilar findings in both Spain and The Netherlands show that studies of online behaviour might provide different results for different countries and the need to examine other cultures arises.

**2.6.12 Study 12 UATUT2 for the airline context:**

Escobar-Rodríguez and Carvajal-Trujillo (2013, 2014) conducted two studies that used the seven explanatory variables from UTAUT2 (Venkatesh et al., 2012) for the airline context. The UTAUT2 was discussed earlier in section 2.3.5 and the seven explanatory variables towards behaviour intention and use behaviour are: performance expectancy,

effort expectancy, social influence, facilitating conditions, hedonic motivation, price saving, and habit. Both studies conducted in Spain used survey methods to test the model hypotheses.

The first study (Escobar-Rodríguez and Carvajal-Trujillo, 2013), indicates that the main predictors of an airline's online purchase intention are, in order of relevance: habit; price saving; performance expectancy; and facilitating conditions.

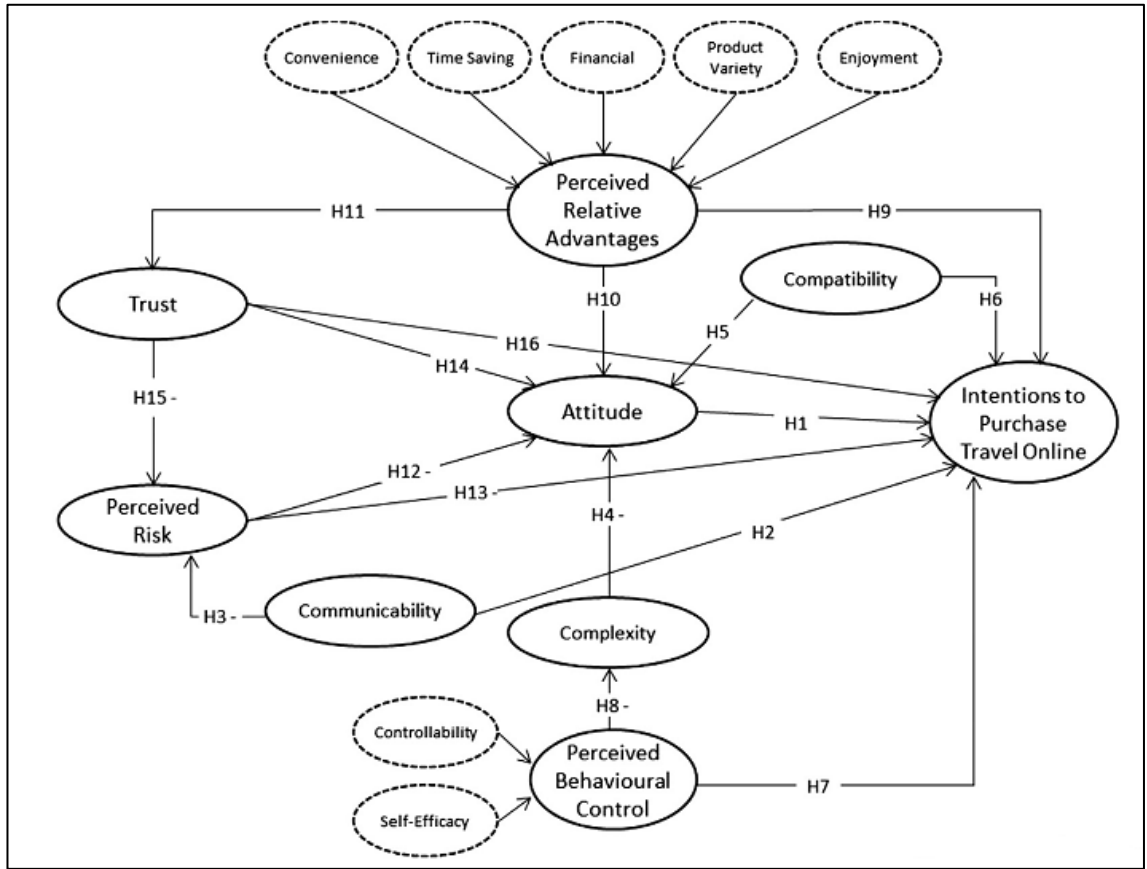
In the second new study (Escobar-Rodríguez and Carvajal-Trujillo, 2014), the authors focused on low cost carriers (LCC) only and extend the UTAUT2 by incorporating two factors “perceived trust” and “consumers’ innovativeness”. This time, the empirical evidence indicates that key determinants of purchasing are trust, habit, cost-saving, ease of use, performance and expended effort, hedonic motivation and social factors.

Their work shows that the addition of the trust factor is important in the case of air tickets. However, since they targeted LCC traveller only, it is still worth testing it in the case of Full Service Airlines (FCA) and check if it will provide similar results. Also, the effect of habits and price are also essential.

### **2.6.13 Study 13: Integrative model of intentions to purchase travel online**

Another recent article by Amaro and Duarte (2014), proposes an integrative model to examine determinants of intention to purchase any general travel products online (see Figure 2.18 below). The model again integrates constructs of well-established theories of consumer behaviour (TPB, TAM and IDT) but without considering the targeted industry. The results show that attitude is the most relevant determinant of intention to purchase. However, as discussed at the end of section 2.3.4 earlier, using attitude as a predictor of intention to purchase has received criticism by others (Cao and Mokhtarian, 2005; Venkatesh et al., 2003). In addition, the authors themselves have agreed that their research falls short in terms of defining “online travel purchases” (Amaro and Duarte, 2014). They state in their closing remarks that: *“the definition considered is broad, since it includes the purchase of airline tickets, cruises, holiday packages and hotel reservations. Thus, further studies should study online purchasing motivations considering distinct travel product categories, rather than considering travel as one category”* (ibid).

**Figure 2.20: Integrative model of intentions to purchase travel online**



Source: (Amaro and Duarte, 2014)

Table 2.2 below demonstrates the dimensions studied from the web quality literature as well as the research from the travel and tourism stream. This is an addition to the previous web quality Table 2.1 and provides an integrated overview of the dimensions from all the investigated literature and the occurrence count for each. The table shows that the most referenced dimensions are listed in the following order: trust, usability, responsiveness, website design, information quality, and ease of use.

This, along with other observations emerging from the literature review, can help current research at the design stage.



## 2.7 Research Gaps

Regarding online consumer behaviour, a large amount of research was done to examine the attitude, intention, motivation, and other behavioural aspects of an online consumer. Many dimensions were introduced based on traditional consumer behaviour and IS models such as ECT, TRA, TBP, and TAM. However, most of this research was limited to dimensions established and widely confirmed from particular traditional theories. Therefore, there is still a need to explore new theories and frameworks and investigate online consumer behaviour from different perspectives and angles. For example, Cheung et al. (2005) argue that classic consumer behavioural theories provide researchers only with the starting point in understanding online consumer behaviour. They claim for instance that factors like **trust** and **satisfaction** are yet to be further investigated. The study by Law et al. (2010), confirms the same fact. It supports any future research direction should be made by developing integrated models that incorporate different algorithms and theories from other disciplines, such as psychology and computer science, as well as seeking the views of industrial practitioners and consumers. Luo et al. (2012) also indicate that surveys exploring the experiences of online customers indicate that many remain unsatisfied. The researchers concluded that: “Clearly, *more research is needed to better understand what affects customers’ evaluations of their online experiences*” (ibid).

On the other hand, web quality measurement is considered by researchers as the most determinant factor that might influence the behaviour of the online user. Even though, only a few attempts were there to integrate web quality scales with behaviour studies (e.g. (Aladwani, 2006; Anderson and Mittal, 2000; Elkhani et al., 2014; Lee and Lin, 2005; Renny et al., 2013; Wu, 2013)). The gap between the website qualities and the website adoption, still need further investigation by academia. In their study, Fassnacht and Koese (2006) point out that substantial empirical research endeavours are needed for electronic services in terms of the positive impact of online service quality on other constructs including customer **satisfaction** and loyalty. Also, (Xu et al., 2013) suggest that models such as the IS success model and many similar other models “*may not be comprehensive enough to capture the interactive and hedonic capabilities of new technologies, such as e-commerce websites and other related online media*”. Thus, the need to extend the web quality dimensions to the e-service context is important.



Furthermore, referring back to the summary of the previous research in section 2.5, particular industry or product specific studies are listed upon many researchers' suggestion for future investigation direction (e.g. (Aladwani and Palvia, 2002; Kim, Jin, et al., 2009; Kim and Stoel, 2004; Nusair and Kandampully, 2008; Qureshi et al., 2009)). Many attempts were made in different areas such as banking, consumables, learning, government services, and even the tourism industry in general. However, the airline sector in particular did not receive as much attention as others. Despite the importance of such a sector, only few attempts to approach the airlines' website services were published. Some of this research was only focused on assisting or comparing airlines' online services (e.g. (Law and Leung, 2000; Shchiglik and Barnes, 2004)). The others looked at the purchasing experience but have its weaknesses that were discussed earlier in section 2.6.

In the review that was made by Law et al. (2010), they count the number of studies that looked at website evaluation in the sectors within the tourism industry in the last 10 years. They found that the most popular one is for hospitality websites that were covered by 37 prior studies. While according to the study, the airlines sector was only covered by four articles (some of these were covered in section 2.6 and the others are not important).

The need to investigate the characteristic of such an industry to develop a customised model that fits organisational business models is essential. For example, an important variable to the airlines' website implementation is the customers "purchase intention". The ultimate goal for any airlines' web portal implementation is to attract customers to purchase tickets. According to (Nusair and Kandampully, 2008), they revealed that 67% of internet users who travelled in the USA in 2003 used the internet to obtain information on destinations or to check prices or schedules. On the other hand, the percentage of customers who actually bought online per website visit is still low, at less than 5%. The figures nowadays might be much higher in the USA, but it reflects similar numbers if we compare it with a developing country like Saudi Arabia. An unpublished report in 2009 by one of the biggest airlines in Saudi Arabia reveals that within every 100 visits to their site only three users actually complete a payment transaction. Aladwani (2006) also confirms this gap in his research, he said, "*Most organizations*

*still would like to understand more closely the nature of the influence of quality aspects of their websites on purchasing decisions of web consumers”.*

Additionally, in the literature, it can be observed that there is little research on differences between groups within the airlines’ e-ticketing context (e.g. (Aksoy et al., 2003)). The role of demographic information (e.g. age, income, occupation), internet experience (Dennis et al., 2009), and travel characteristic and habits (Limayem et al., 2007) (e.g. travel frequency, motivation for travel) are important to understand the differences and build better airline websites to accommodate the needs for every group. For example, in view of all studies that have been mentioned so far within the airline context, almost none have explored the differences in online behaviour between frequent travellers and non-frequent travellers.

Finally, from the literature review, it is clear that most studies have been carried out in developed or western environments. However, the meaning of website quality may differ across cultures (Gefen and Straub, 2000). In addition, cultural differences are found to affect consumer behaviour (Ruiz-Mafe et al., 2013). Despite this, there is a scarcity of airline website research in developing countries and in the Middle East. Almaghrabi et al. (2011) explored e-commerce in Saudi Arabia in general, and Alsajjan and Dennis (2010) conducted another holistic study on internet banking. However, such research has not amply explored the online behaviours of airline customers, especially in the context of the Middle East. In fact, to the best of the author’s knowledge, there has been no research in the area of online airline services in the Middle East. Chapter 4 (section 4.5) will offer a new research area for this thesis and this will be discussed and justified in more details.

## **2.8 Summary**

This chapter gave a detailed description and critical overview of the theoretical background of this thesis. Models related to consumer behaviour, Information systems, and web quality studies were highlighted and discussed. Then, studies that looked at website qualities and adoption within the travel and tourism industry were demonstrated. To conclude, Technology Acceptance Model (TAM), Expectation Confirmation Theory (ECT), and IS Success Model for example found to be relevant to

this study context and confirmed to be provide robust and valid results within the travel context. However, it still misses some attributes that were highlighted earlier.

Based on the above, this chapter identified a number of gaps in the academic research, particularly within the web quality explanation for airline websites, how can it satisfy users and attract them to complete a ticket purchasing transaction. The next chapter will attempt to fill these gaps by proposing a new model to link web quality with the adoption of an airlines' website. The model should fit the study context and develop a hypothesis that will allow a better understanding of the behaviour of travellers using an airline's online services.

## **Chapter 3 – Research Model and Hypotheses**

### **3.1 Introduction**

The previous chapter provided an extensive review of the literature surrounding online consumer behaviour and the different web quality scales in the context of travel and tourism. Crucial gaps in research were identified as a result of this review. For example, there is a paucity of research exploring the link between website quality and website adoption within airline services. Additionally, it is evident that each product or industry should have its own website qualities and behavioural influences that depend on the characteristics of its business process. Although the airline industry is a context of glaring significance in the business sector, it still remains under-researched. It is crucial that airlines understand how their websites can satisfy traveller's requirements and attract them to such websites when making purchases.

The purpose of this chapter is to develop a model capable of predicting the level of travellers' satisfaction with airlines websites and how this may affect their willingness to adopt it for airline ticket purchases. To this end, this chapter will provide an in-depth discussion relating to the essential factors and constructs associated with user satisfaction and intention to purchase within the airline context. Following this, a suitable conceptual model and associated research hypotheses will be proposed.

### **3.2 Proposed model and research constructs**

With the aim and objectives of the study in mind, after a discussion of previous research, a model that can be utilized for this study will be proposed. Subsequently, an explanation of each proposed construct will be provided; with particular focus on its significance and how it integrates in the overall model. The relations between constructs are also explored and formulated into research hypothesis. However, before discussing each construct in the model separately, it worth declaring that this research intent to adopt both TAM and IS success models as bases for the proposed new model. This is due to the robustness and solid historical confirmation of both models while using it for

e-commerce and online applications. Integrating both models as well as other context related factors expected to provide better explanation for the current study case.

### **3.2.1 Intention to Purchase (IP)**

The ultimate goal for any e-shopping portal is to encourage customers to complete transactions through the website of the company in question. Many e-commerce studies have incorporated purchase behaviour or behavioural intention of online customers as the final consequence when constructing their frameworks (see for example: (Fazli and Sam, 2008; Jarvenpaa et al., 2000; Martín and Herrero, 2012; Munnukka, 2008; Pavlou and Fygenson, 2006; Suh and Han, 2003; Wen, 2012; White and Yuan, 2012; Wu et al., 2014). Although studies vary in terms of terminology, “willingness to buy”, “intended inquiry”, “purchase intention”, and “willingness to transact/transaction” are commonly cited (Qureshi et al., 2009). The importance of measuring this willingness is clear, as the Return on Investment (ROI) for any e-commerce practice depends on the amount of users actually making purchases. The case for airline companies is even more apparent, as discussed earlier in Chapter 1, section 1.3. It was shown that the best and most effective way to increase revenue it to sell tickets via airline websites. Thus, intention to purchase is considered as the primary interest of this research and the final dependant variable in the suggested model. This proposal is well-aligned with the previously discussed study by Lau et al. (2011). Additionally, it is worth noting that this study aims to measure *intention* to purchase, not actual purchase. This is an adequate measure, which aligns with widespread research that highlights a strong correlation between behavioural intentions and actual behaviour (see for e.g. (Ajzen and Fisbbein, 1974; Cheung et al., 2005; Crespo and Bosque, 2008; Irani et al., 2008; Kim and Hunter, 1993)). As it is methodologically easier to measure, they support the use of behavioural intention as an alternative for actual behaviour. Agarwal and Prasad (1998) also agree that this proxy is common in information systems research. Also, for the purpose of comparing various internet shopping sites, Jarvenpaa et al. (2000) asserts that the degree to which people express their intentions to buy from a certain site relative to other sites is a reasonable predictor of actual purchase behaviour.

### 3.2.2 E-Satisfaction with Website (ES)

Satisfaction, as a psychological construct, has been studied in various contexts, including job satisfaction, satisfaction with products or services, and end-user satisfaction with various information technology products (Premkumar and Bhattacharjee, 2008). Referring back to Expectation Confirmation Theory (ECT), Oliver (1980) discussed in section 2.3.1, satisfaction is central in Oliver's five steps model and is defined as "*customers' evaluations of a product or service with regard to their needs and expectations*". Later in his book, Oliver (1997) provided a more comprehensive definition and updated it again in his latest edition (Oliver, 2010). In this latest edition, Oliver states that other researchers have adopted it with no claims of exclusivity. The definition states that: "*satisfaction is the consumer's fulfilment response. It is a judgment that product/service feature, or the product or service itself, provided (or is providing) a pleasurable level of consumption-related fulfilment, including levels of under or over-fulfilment*" (ibid). His theory also suggests that customer satisfaction will influence attitude and intention to use. This allows ECT to become widely used in the consumer behaviour literature to study consumer satisfaction, post-purchase behaviour, and service marketing in general (Koppius et al., 2005).

Also, Ives et al. (1983) investigated User Information Satisfaction (UIS) and defined it as "*the extent to which users believe the information system that is available to them can meet their requirements*". In addition, Kotler (1997) has described satisfaction as the consequence of the customer's experiences during various purchasing stages. He proposed five stages of which customers can be satisfied or dissatisfied with; 1-need arousal, 2- information search, 3- alternatives evaluation, 4- purchase decision, and 5- post-purchase behaviour.

In addition, an important IS studies that integrated the user satisfaction in their models, are the work of (DeLone and McLean, 1992; Delone and McLean, 2003; Delone and Mclean, 2004).

As far as the current thesis objectives, the main purpose is to measure the satisfaction of the users with their web browsing experience and before the post-purchase behaviour.

Ha and Im (2012) have argued that further research needs to be conducted to examine how different types of web design cues affect consumer satisfaction. McKinney et al. (2002) describe an increase in demand for the long-term profitability of web-based companies and traditional companies that are “net-enhanced” and that there is a specific demand for further research in the area of web-customer satisfaction. Then they go on to offer a definition for e-satisfaction, based on previous studies (Cadotte et al., 1987; Oliver, 1980). The definition describes e-satisfaction as: “*an affective state representing an emotional reaction to the entire web site search experience*” (McKinney et al., 2002). The study also confirms that e-satisfaction may depend on the distinctive nature of products or services offered online. This again justifies the need to investigate e-satisfaction for airline web portals.

Customer satisfaction has been considered by marketers and researchers as one of the main goals in marketing (Erevelles and Leavitt, 1992), and one of the most important constructs (McQuitty et al., 2000). In the same way, Winer (2001) has asserted that customer satisfaction is at the centre of the firm’s relationship programmes in the online retailing context. Delone and Mclean (2004) have updated their success model for the e-commerce environment with the use of user satisfaction as a predictor of the Net benefits. Mills and Morrison (2003) carried out a study that looked at online user satisfaction with travel websites. The researchers found that “*as the online travel industry moves towards a more customer-centric focus of operation, understanding what makes a customer “satisfied” with a travel website will be critical*” (ibid). More recently, Elkhani et al. (2014) has argued that airline companies have long viewed striving for customer satisfaction as an important goal and a major determinant of subsequent loyalty.

The relationship between satisfaction and adoption of online services was also found to be significant. For example, Bai et al. (2008) found that consumer satisfaction had a positive effect on intention to purchase airline tickets. Furthermore, according to Lee (2002), “*whether a customer finally makes a purchase on the website largely depends on the satisfaction that the customer feels towards the website*”. Bai et al. (2008) cite many studies (i.e. Anderson and Fornell, 1994; Oliver, 1999; Pont and McQuilken, 2005) that confirm that satisfaction leads to intention to purchase in the offline environment. Bai et al. (2008) go on to suggest that this relationship should also be applicable to the online and subsequently test it in their models for hotel websites in

China. The results of the study confirm that online satisfaction has a positive impact on intention to purchase, both short-term and long-term.

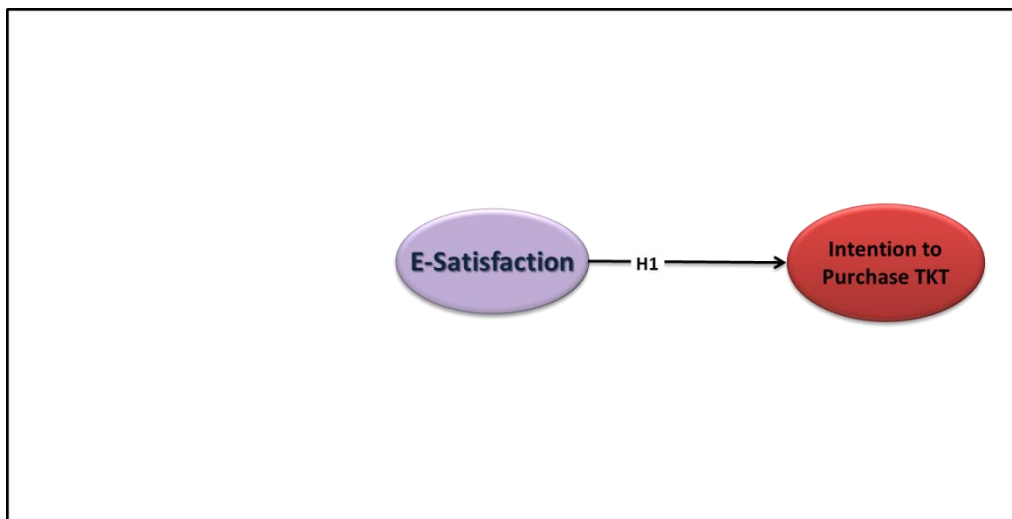
In another study within the airline industry, Lau et al. (2011) also argue that many researchers have explicitly recognized the experiences of satisfaction to positively impact future purchase intention and they mentioned few studies: (Cronin and Taylor, 1992; LaBarbera and Mazursky, 1983; Oliver, 1993; Zeithaml et al., 1993). They utilize this relation in their model and confirm it. Kim et al. (2009) as well argued for the positive behaviour of satisfied customers, they think that they tend to have higher usage of service, possess repurchase intention, and recommend the service to their acquaintances.

Satisfaction will lie at the centre of the suggested model in this study, and will thus be considered the primary influence of intention to purchase. As such, initial hypotheses are as follows:

**H1: Customer's e-satisfaction with the airline website will positively influence the intention to purchase airline tickets from the airline website.**

Figure 3.1 represent the relation between e-Satisfaction and Intention to purchase.

**Figure 3.1: The relation between ES and IP**



Oliver (1993) claimed that customer satisfaction is closely related to the perceived service quality, in which service quality is the antecedent of customer satisfaction. In



the e-commerce context, (Wolfinger and Gilly, 2003) identify a positive link between electronic service quality dimensions (design, reliability, security/privacy, customer service) and customer satisfaction. It would therefore appear that service quality dimensions contribute to satisfying the internet user when visiting a site.

Bai et al. (2008) confirm that substantial empirical research is needed toward a full understanding of how website quality, customer satisfaction, and purchase intentions interact with each other in the hospitality and tourism.

Nusair and Kandampully (2008) p13 state that *“Significant number of studies has revealed that e-service quality plays a vital role in determining customer satisfaction. However, previous studies have not been able to identify common quality dimensions that lead to online customer satisfaction”*. In their study, they conducted a content analysis for travel websites and measured the customer’s satisfaction with these sites. They indicated that the antecedents of e-satisfaction include: Navigability, Playfulness, Information Quality, Trust, Personalization and Responsiveness.

Additionally, as discussed in Chapter 2, Premkumar and Bhattacharjee (2008) developed a model that integrates TAM and ECT. They then tested the model by conducting a survey in the IT usage context and compared the integrated model with the original models. The results from this study showed that both original models have good explanatory power with the TAM providing a better prediction of intention. The integrated model, combining TAM and ECT, provided a marginally better explanatory power. They also found that while satisfaction had a very significant impact on intention in the ECT model, its effect on intention was weaker in the integrated model compared to that of perceived usefulness. These results were explained with the assertion that satisfaction is typically defined as a transaction-oriented affect based on first-hand experience with the product/service, and therefore may be more appropriate for short-term usage decisions. It was also argued that *“satisfaction may be more important for impulsive purchases where there are competing products and user’s first experience has to be satisfying in order to continue buying/using the service”* (Premkumar and Bhattacharjee, 2008 p 73). This study and its findings could be useful for shaping the model for this thesis. The addition of TAM provided better prediction of intention, however, there developed model did not consider the two TAM constructs as antecedents of satisfaction. In the suggested model for this thesis, the relationship

between both ease of use and usefulness toward satisfaction can be tested as well as other important and academically supported antecedents. This will be discussed in the following sections.

### **3.2.3 Perceived Usefulness (PU)**

The Technology Acceptance Model (TAM) and its two main constructs were discussed earlier in section 2.3.4. Its significance in predicting and explaining behaviour was also demonstrated. Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) have gained huge reputations and widespread acknowledgment as two valid and robust constructs that are capable of predicting intention to use. This has been the case for over two decades in many contexts including the online environment (El-Gohary, 2010).

Lederer et al. (2000) and Moon and Kim (2001) are two examples of studies that adopt the TAM constructs and extended to the world wide web context. Both research confirmed the validity of PU and PEOU for the online use. Also, (Gefen et al., 2003) recognized the importance of TAM and added the Trust construct in order to measure the intention to use online stores for purchasing items.

While original TAM model includes attitude as a mediator construct between (PU,PEOU) and intention, the drop of the attitude construct from TAM brought up by the TAM author himself F. Davis (1993) as he state that “*attitude may only partially mediate the associations between beliefs and intention*” this elimination was then supported by many researchers afterword e.g. (Cao and Mokhtarian, 2005; Venkatesh et al., 2003). All the above reasons could provide a valid explanation to integrate them to the current study model to predict intention to use “in this case it will be intention to purchase tickets online”.

Davis (1989) p320 has defined perceived usefulness (PU) as “*the degree to which a person believes that using a particular system would enhance his or her job performance*”. In the airlines websites context, it could be described as the degree of a user believes that using the website would enhance his booking and ticket purchasing experience. In addition, it was identified that similar dimensions was also used in the web quality literature such as “Usability” (Barnes and Vidgen, 2002) , “Efficiency” (Aladwani and Palvia, 2002; Parasuraman et al., 2005; Zeithaml et al., 2000) or

“Reliability/Fulfilment” (Aladwani and Palvia, 2002; Bauer et al., 2006; Lee and Lin, 2005; Parasuraman et al., 2005; Wolfinbarger and Gilly, 2003; Zeithaml et al., 2000). They were discussed earlier in chapter 2 and recognized that they have related characteristic of Usefulness and that it affect the behaviour of an online user.

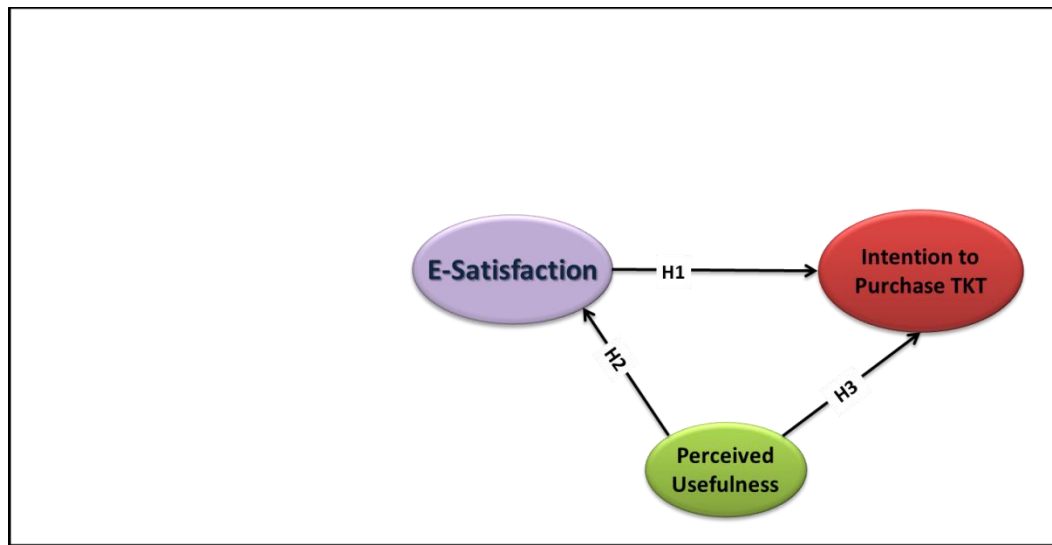
The relationship between (PU) and intention could be mediated by e-satisfaction. The link between perceived usefulness and e-satisfaction has not received much of imperial evidence especially in the online context. However, other researchers have tested this link in different fields. For example, a study by Zviran et al. (2005) shows evidence of a strong correlation between perceived usefulness and end user satisfaction, suggesting that perceived usefulness is one of the factors affecting user satisfaction with Enterprise Resource Planning (ERP) systems. Furthermore, a recent study by Wu (2013) revealed a relationship between usefulness and customer satisfaction when the antecedents of customer satisfaction and its link to complaint intentions in online shopping were tested. Therefore, the current research will examine and hypothesise that:

**H2: The perceived usefulness of the site will positively influence e-satisfaction with the airline storefront.**

Another relationship with Intention could be a direct relation as of the original TAM and similar to other researchers used it later. For example: (Bagozzi, 1992; Dembla et al., 2007; Hendrickson and Collins, 1996; Lederer et al., 2000; Looi, 2004; Morris and Dillon, 1997; Straub et al., 1995; Taylor and Todd, 1995). Therefore it could be hypothesised that:

**H3: The perceived usefulness of the airline website will positively influence the intention to purchase airline tickets.**

Figure 3.2 presents the relationship between Perceived Usefulness, e-Satisfaction and Intention to Purchase.

**Figure 3.2: The PU relations with other constructs**

### 3.2.4 Perceived Ease of Use (PEOU)

Corresponding to the first TAM construct, Perceived Ease of Use was defined by (Davis, 1989) as “*the degree of which a person believes that using a particular system would be free of effort*”. Again, in simpler words, for the airline website context the construct describe how easy a person can use the airline website to make his booking and purchase his ticket. According to Zeithaml et al. (2002), the construct has been studied extensively in the context of technology adoption in workplace environments, but formal research on Ease of Use of web sites is also sparse.

Ho and Lee (2007) have posited that online customers can be easily deterred by sites that are difficult to access or navigate through. This is a possible explanation for why many web quality studies have tested EOU and consider it as part of their models. For example, in SITEQUAL instrument by Yoo and Donthu (2001), it was deployed as an antecedent of website quality. Also, it was named “ease of navigation” by Zeithaml et al. (2000) in their e-SERVQUAL tool, and “ease of understanding” in WebQual by Loiacono et al. (2002) and PAWQI (Shchiglik and Barnes, 2004). In the case of an airlines website, the importance of keeping the site easy is even more crucial as the booking and ticketing process involves many steps including the search for flights, the selection of seats, searching for the best price, inputting passenger information, and finally completing the payment to get tickets. Klein et al. (2005) support this by arguing that airline flight tickets in general are actually more complex services with items like flight duration, number of stops, distance between airports and other locations to

consider as well as frequent flyer programs and special offers combined with rental cars and hotel rooms.

Hence, the study will test the relationship between PEOU and e-satisfaction as it may be the case that e-satisfaction is mediating the relationship between PEOU and IP. This has received some support, for example, by Xue and Harker (2002) who claimed that ease of use is a decisive element for customer satisfaction. In addition, the work from Lau et al. (2011) is again a good example of confirming this relationship for airline websites. They argue that ease of navigation is a key factor affecting satisfaction and add it as an antecedent of e-satisfaction in their study concerning airline e-ticketing adoption in Malaysia. The results boldly show a relationship. Thus, it can be hypothesised that:

**H4: The perceived ease of use of the site will positively influence e-satisfaction with the airline storefront.**

In Addition, a hypothesis can be constructed with regard to this construct, as a direct relation with intention as the advanced Technology Acceptance Models did:

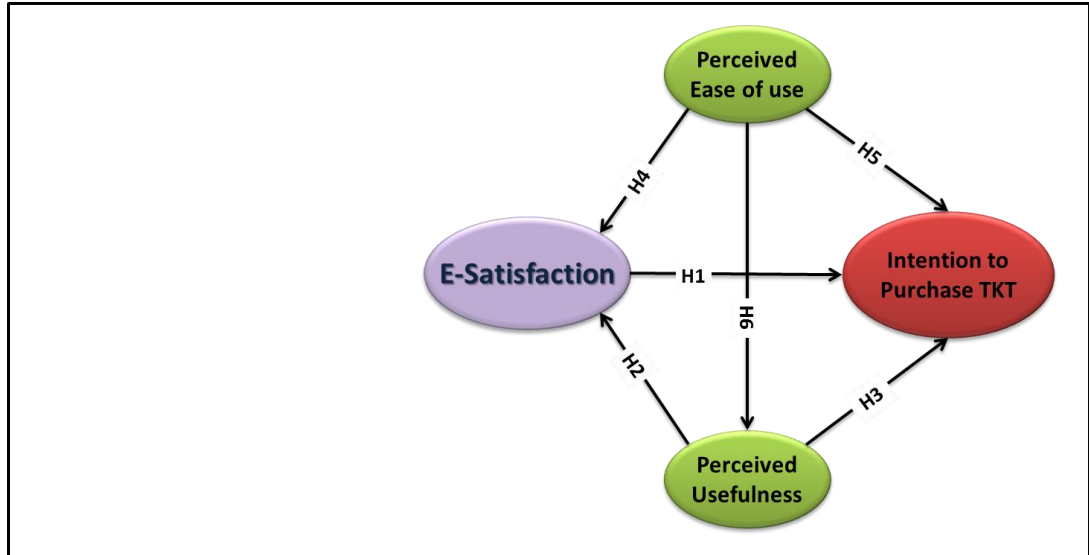
**H5: The perceived ease of use of the site will positively influence intention to purchase airline tickets.**

Nevertheless, a positive relationship between PEOU toward PU was also established originally by Davis et al. (1989) and supported empirically by other researchers (e.g. (Dishaw and Strong, 1999) (Igarria et al., 1997)). Venkatesh and F. Davis (2000) declare that “*the less effort a system is to use, the more using it can increase job performance*”, that is, an online storefront will be perceived as more useful if it is easier to use. In addition, a study by Ruiz-Mafé et al. (2009), concerning drivers and barriers to online airline ticket purchasing in Spain, found that perceived ease of use does not have a direct effect on online purchases but does strongly influence the perception of usefulness of online channels, with a net mediated effect of ease of use on purchase intention of 0.280. They agreed that usability studies of websites become important to determine if their architecture, navigation, designs and layout allow consumers to easily navigate and complete what they need. Thus, this thesis will examine this relationship and it is therefore hypothesised that:

**H6: The perceived ease of use of the airline site will positively influence the perceived usefulness.**

Figure 3.3 demonstrate the PEOU relations with other previously discussed constructs.

**Figure 3.3: The PEOU relations with other constructs**



### 3.2.5 Web Quality (WQ)

One of the pieces of research focusing on the key characteristics of website quality from the user’s perspective was undertaken by Aladwani and Palvia (2002). They explored previous web quality scales and defined perceived web quality as “users’ evaluation of a web site’s features meeting users’ needs and reflecting overall excellence of the website”(Aladwani and Palvia, 2002 p 469). This definition could be adopted to clarify the understanding of web quality for the current study. It has been agreed by many researchers that website quality is unique to the online context, and it is generally seen as important during the online initial purchase stage (Koufaris and Hampton-Sosa, 2004; Yoon, 2002).

The term “web quality” was extensively discussed in the literature chapter. Different web scales developed by researchers with their dimensions were also illustrated. It was found that researchers did not agree on a web quality measurement tool and that dimensions are inconsistent between scales. Table 2.1 indicated that the most common dimensions referred to were usability, trust, web design/navigation, responsiveness, and information quality. It was argued that web quality depends on the type of website or

kind of product that is being sold e.g. books, music, travel, clothes (Kuo et al., 2004; Liang et al., 2004).

Ethier et al. (2006) did a study investigating the impact of website quality on customer emotions. After their theoretical review of website qualities, they concluded that ‘website quality’ is an unclear and complex concept with multiple dimensions. There is no consensus regarding how it is defined. They also argued that while most of the studies postulated that website quality was a determinant of website success, effectiveness, preference, and customer satisfaction, the assumptions were not always supported with empirical evidence.

Actually, airlines websites with all the online services they provide are relatively more complex than other online stores (Klein et al., 2005). It is hard task to maintain a simple web site that varies so much in terms of the necessary information and functions. An expert web developer in the field of airlines said: *“Maintaining a high quality airlines online reservation and ticketing solution is a challenging task to achieve”*.

In order to deal with the wide description of web quality many researchers divide it into more than one construct (Ahn et al., 2007; Cao et al., 2005; McKinney et al., 2002).

For example, McKinney, Yoon and Zahedi, (2002) aimed to develop theoretically justifiable constructs for measuring web-customer satisfaction for e-shoppers during the information phase. They implemented the expectation-disconfirmation paradigm that was also used by Oliver (1980) in his TRA. They suggest that website quality is an antecedent of web satisfaction, separating it into **information quality (IQ)** and **system quality (SQ)**. They did two level factor analyses for two phase of survey testing. The surveys were conducted in the USA, and recruited customers purchasing products from travel agency websites. Results showed that the three most salient dimensions of Web IQ were reliability, understandability, and usefulness whereas for Web SQ they were access, usability, and navigation.

Another piece of research was undertaken to identify what constitutes e-commerce website quality by Cao et al. (2005), using TAM and SERVQUAL to develop a model. The authors argue that from a customer’s perspective, website quality can be addressed via four components: **System Quality** (functionality), **Information Quality** (content), **Service** (Trust & Empathy) and **Attractiveness** (playfulness). The **system quality** in

their model can be assessed by search facility, responsiveness and multi-media capability, while the **Information Quality** is measured by information accuracy and information relevance.

In order to empirically test the model, Cao et al. (2005) surveyed university students who used three online bookstores. Their results show that, according to customers, information accuracy and information relevance are closely related. Therefore, these two constructs load as one construct: information quality. Also it reveals that the highest three constructs are information accuracy, responsiveness and search facility.

More recently, in a study that was done by Ahn et al. (2007), the relationship between web quality and behavioural acceptance was tested. In their framework, web quality was divided into three constructs: **System quality, Information quality, and Service quality**. They defined **System quality** as engineering- oriented performance characteristics (rating interface design, navigation, functionality, response time, etc.) while **Information quality** has characteristics such as contents, completeness, detail, accuracy, timeliness, information reliability, format. In the study **Service quality** refers to the availability of communication mechanisms for accepting consumer complaints and the timely resolution of these complaints through responsiveness, assurance, and follow up services. This last construct might be important in terms of measuring the overall service provided, including post purchase customer support. In the case of the current thesis, it might not be needed since it intends to measure customer satisfaction during the information phase and the initial purchase intention. Nevertheless, Ahn et al. (2007) did an online survey using a Korean sample, with an online retail store as a their case study. They offer a prize to one of the respondents, which raise the response rate receiving 942 correct forms. The results confirm that web quality encouraged website use in the context of online retail. In addition, while the original IS success model (DeLone and McLean, 1992) adopted only two constructs for IS quality (System & Information), the updated versions of the model did include (Service quality) as well.

Following McKinney et al. (2002), the current research will divide web quality into two constructs: **Information Quality** and **System Quality**. This will allow the researcher to measure the effect of each of these qualities individually.



### **Information Quality:**

Nusair and Kandampully (2008) have argued that information quality refers to the amount, accuracy, and the form of information about the products and services offered on a web site. They cite studies by Perdu (2001), Ranganathan and Grandon (2002) that found that the quality of information is one of the most important factors affecting why travellers make bookings on specific travel websites. Moreover, Bai et al. (2008) have researched User Information Satisfaction (UIS) and the link between web information quality and satisfaction. They referred to an idea by Cyert and March (1963), who proposed the concept of UIS and suggested that an information system, which meets the needs of its users, will reinforce satisfaction with that system. In contrast, if the system does not provide the necessary information, its users will be dissatisfied and consequently look elsewhere for information needed. Additionally, McKinney et al. (2002) concluded that better information quality increases satisfaction with the online experience. This is supported by findings from Delone and McLean (2003), who found that high-information quality was positively associated with customer satisfaction. Furthermore, Zeithaml et al. (2002) said, *“In terms of information content, the ability to search price and quality information increases satisfaction with both the experience and product purchased”*.

Due to all the above evidence regarding the positive relation between Information Quality and e-Satisfaction, the following hypothesis is constructed:

**H7a: Information quality will positively influence the e-satisfaction of an airline website.**

### **System Quality:**

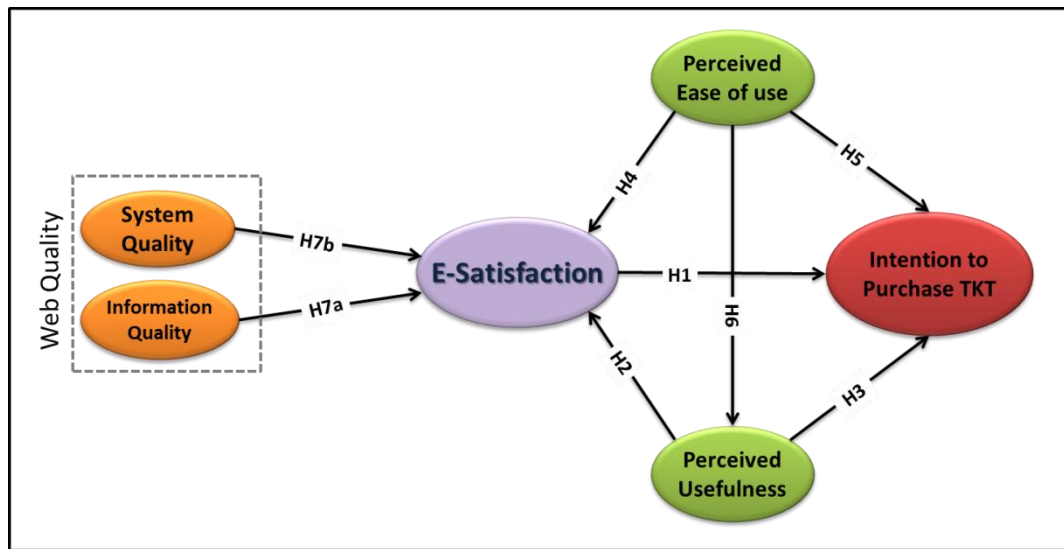
The quality of a system is often reflected in how the website is performing. Measures of performance may include page response (load) time, navigation structure, visual appeal, functionality, and/or availability (Ahn et al., 2007; Cao et al., 2005; McKinney et al., 2002) . These kinds of characteristics have been tested many times in terms of their influence on e-satisfaction (see for e.g. (Kim and Stoel, 2004; Mills and Morrison, 2003; Nusair and Kandampully, 2008; Szymanski and Hise, 2000). It has been proven that such characteristics have a positive influence on customers’ satisfaction with the web site. On the other hand, only few studies in the consumer behaviour stream have tested these characteristic as a single construct (system quality) and its influence toward

e-satisfaction (e.g. (Bai et al., 2008; McKinney et al., 2002). Therefore, it is believed that System Quality could have a positive influence on e-satisfaction. As such, the following hypothesis is formed:

**H7b: System quality will positively influence the e-satisfaction of an airline website.**

Figure 3.4 represent the links between IQ and SQ with e-Satisfaction.

**Figure 3.4: The relation between IQ, SQ, and ES**



### 3.2.6 E-Trust (Trust in the website) (ET)

To begin with, it is necessary to first clarify exactly what is meant by trust. This term could be vague and might embody a multitude of concepts. Gundlach and Murphy (1993) p41 provided a statement that describes trust in general as: “*The variable most universally accepted as a basis for any human interaction or exchange*” they define it as “*A faith or confidence that the other party will fulfil obligations set forth in an exchange*”. Similarly, Garbarino and Johnson (1999) conceptualized trust as ‘customers’ confidence in the quality and reliability of the service offered by the seller’.

In an e-commerce context Kimery and McCord (2002) defined trust as “*customers’ willingness to accept vulnerability an online transaction based on their positive expectations regarding future online store behaviours*”. In the same manner, Koppius et al. (2005) have talked about online transactions and argued that they often require the sharing of sensitive personal information such as: mailing address, telephone number and financial information like credit card numbers. They then stated that “*trust helps*

*assure that one party will not take advantage of the vulnerability of the other during or after the transaction”*(Koppius et al., 2005 p 321).

Some examples of trust-building assurances that could be provided by the e-vendors were explored in a study by Cao et al. (2005). The researchers refer to applying online security certifications, providing encrypted connections using Secure Hypertext Transfer Protocol (HTTPS), offering guarantees to users, and clearly displaying agreements and policies. Such assurances or certifications can be provided by any of the famous web-assurance partners like Verisign or TRUSTe. It can be integrated during the web development phase and displayed to customers. According to Odom et al. (2002), this is a very important requirement for credible financial transactions.

Gefen et al. (2003) have provided an extensive literature review of the different aspects of trust. They provide a table of all studies on previous conceptualizations of trust. In their research, the authors considered trust as a social antecedent while perceived ease of use and perceived usefulness are technological antecedents, thus, they add it to TAM and develop a new model. For more information about trust in the online environment and its different relationships with other consumer behaviour constructs, it is suggested to follow the work of David Gefen (Gefen, 2000; Gefen et al., 2000, 2003).

Also it is important to distinguish between the trust of the online environment provided by the retailer and the trust of the retailer itself. Some researchers did differentiate between both sympathetic in the previous research. (e.g. (Carter and Bélanger, 2005; Gefen et al., 2003; Kim and Jones, 2009; Lee et al., 2007; Qureshi et al., 2009; Yoon, 2002)). For instance, Carter and Bélanger, (2005) had two construct in there framework during their attempt to measure the acceptance of e-government. They call it “Trust on the internet” and “Trust on Government”. While Qureshi et al. (2009) had “Security/Privacy” and “Reputation” as antecedence of Trust. Ho and Y. Lee, (2007) found that such a trust may result not only from the related services provided (e.g., confirmation of an online payment and the security feature to protect the customer’s information), but also from the company’s long-term establishment (the reputation of the company). This other meaning of trust which is not related to the web system was also called “Offline brand Trust” (Kim and Jones, 2009) or just “offline trust” (Lee et al., 2007; Yoon, 2002).

The current research will adopt the trust definition that is related to the website and will name it “e-trust”. While the trust in the airline itself, as a company, will be covered in another construct called “Airline Reputation” and will be discussed in the next section of this chapter.

Trust has been found to be directly related to security and privacy (Nusair and Kandampully, 2008). While, Wolfinbarger and Gilly (2003) p193 have stated that “*security/privacy includes security of credit card payments and privacy of shared information*”, Eastlick et al. (2006) declare that the misuse of this information might solely be the base to generate a concern for consumers not to trust the online retailer. Similarly, Kim et al. (2009) have argued that assurance of security plays an important role in building consumer trust towards the online retailer by reducing the consumers’ concerns about personal data abuse and vulnerability of transaction data. Likewise, in the attempt to develop an instrument to measure the e-travel service quality, security was one of five core dimensions that Ho and Lee (2007) identified to shape e-travel service quality. They regarded security as the degree to which customers trust and have confidence in the website.

Dennis et al. (2009) have acknowledged that security and privacy are closely related to trust. They reveal that security reflects the safety of the computer and financial information while privacy concerned about the individually identifiable information on the internet. Notwithstanding that these constructs might differ, in the interests of simplicity in their research they considered them to be related aspects of the same concept, which they named it in their research “trust”. This research will adopt the same understanding of trust, security, and privacy then related to other constructs in the model.

Since the early implementation of e-commerce, trust has been considered a critical factor in adopting online usage. Quelch and Klein (1996) note that “*trust is a critical factor in stimulating purchases over the internet*”. Furthermore, Hoffman et al. (1999) have asserted that initiating, building, and maintaining trust between buyers, sellers, and partners are the key drivers of success for most online firms. Afterword, a large volume of published studies concerning the role of trust confirmed that Trust is an important dimension for the success of the online business e.g. (Aladwani, 2001; Grabner-Krauter and Kaluscha, 2003; Lee and Turban, 2001; Luo, 2002; McKnight et al., 2002; Suh and

Han, 2003; Szymanski and Hise, 2000; Zeithaml et al., 2002). For example, Szymanski and Hise, (2000) demonstrated in their research a report that reveal that 75% of internet shoppers emphasize credit-card security as a major consideration when deciding whether or not to buy items online. On another study by (Aladwani, 2001), he did a field study on online banking and found that security remains the major barrier to electronic commerce applications. This view seems to be still the same throughout the years. Kim, et al., (2009) argued that customers perceive a higher level of risk with online retailers than traditional retailers in terms of delivery, payment, information disclosure, etc. Thus, online customers may prefer to transact with online retailers they can trust.

Gefen et al. (2003) hold that trust is crucial in many of the economic activities that might involve undesirable opportunistic behaviour. They acknowledge that with e-commerce, the case is even more critical. This is due to the limitation that web interfaces offer in terms of judging whether a vendor is trustworthy. The absence of face-to-face information and direct interaction reduces any guarantees that the e-vendor will not engage in opportunistic behaviours such as unfair pricing, conveying inaccurate information, violations of privacy and unauthorized use of credit card information. This view is also supported by (Wirtz and Lihotzky, 2003) whom they argue that in an online environment, achieving initial trust is more complicated than it is in a traditional business environment. They listed some difficulties attributed to that complexity such as: the lack of information available to the online buyer to assess the trustworthiness of the seller, the lack of guidance on how to assess the economic viability or credentials of the online seller, and the fact that usually the online customer has to pay upfront before exchange takes place.

Likewise, trust is regarded as a critical antecedent of building relationships between buyer and seller by (Sirdeshmukh et al., 2002; Verhoef et al., 2002). Thus, considerable body of extant research suggests that ‘trust’ is likely to be a key differentiator of future (winners) and (losers) in e-commerce (Barnes and Vidgen, 2002). Kim et al. (2009) declare that the only way for online business to succeed is to endorse the consumers confident in the seller’s ability and willingness to safeguard their monetary information during transmission and storage.

Within the airline industry in particulate, a study that looked at airline ticketing by Athiyaman (2002) , revealed that online purchases pose security concerns to customers. He said, *“Respondents’ less than ideal attitude toward internet purchase of air ticket is due to the belief that internet offers little or no security with personal details given over the internet”*.

All the above reasons provide a justification to study the trust factor; and how it could be related to the customer satisfaction and intention to purchase tickets when using Airlines website.

According to Semeijn et al. (2005), website assurance is expected to enhance customer satisfaction. Kim et al. (2009) have also acknowledged that in previous studies, trust is empirically found to be a strong predictor of satisfaction in online settings he provide few examples such as Gummerus et al., 2004; Harris and Goode, 2004; and Jin and Park, 2006. In addition, Ahn et al. (2007) have proposed that security has been perceived as a critical dimension in terms of service quality or satisfaction. Similarity, the study by Lau et al. (2011) looked at airline websites and argued that security is one of the primary barriers to online shopping and confirm that it is an important factor that affects e-satisfaction of online shoppers. Therefore, the following hypothesis is set:

**H8: Perceived site e-trust will positively influence the e-satisfaction of the airline website.**

Another relationship that was supported in the previous literature concerns the link between trust in the airline website and intention to purchase. As mentioned earlier, since the early implementation of e-commerce, trust is considered as a critical factor in stimulating purchases over the internet (Quelch and Klein, 1996). Afterward, research on e-commerce indicates that risk related to loss of consumers’ privacy and security of personal information is specifically an important barrier to consumers’ internet adoption and use (Hui et al., 2007). Ranganathan and Ganapathy (2002) also found that security and information privacy had greater impact on customers’ purchase intensions while Qureshi et al. (2009) again declare that trust is found to lead to initial purchase intention and actual purchase, both in the online and offline world. The following hypothesis will validate this relation:

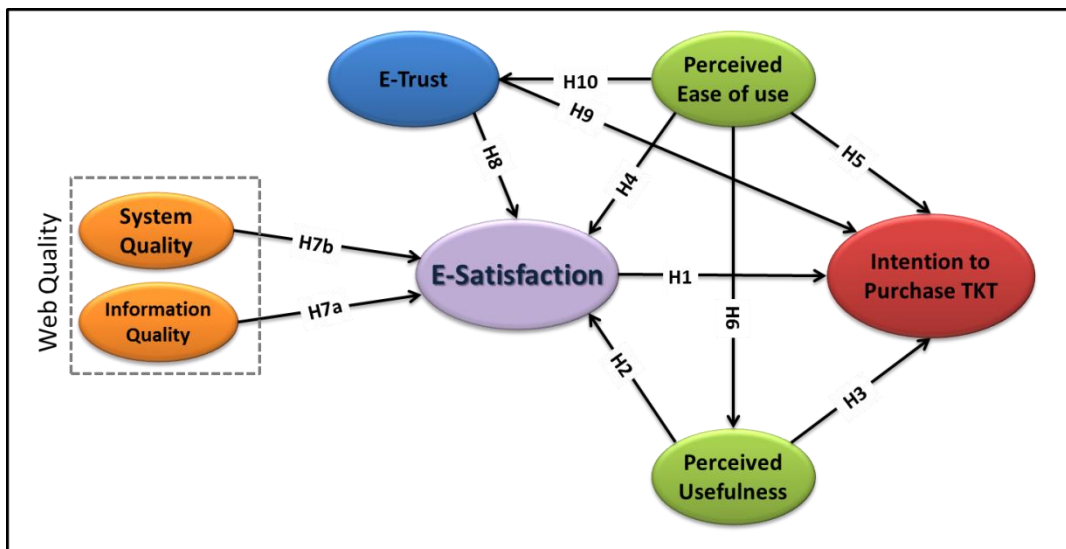
**H9: Perceived site e-trust will positively influence the intention to purchase from the airline website.**

While talking about e-Trust, it should be mentioned that widely accepted research by Gefen et al, (2003) has confirmed that there is a significant positive relation between PEOU and trust. This relation is also supported by Qureshi et al. (2009). They acknowledged that User-friendly search and navigation functions provide users with a better sense of control over their online shopping experience and this will enhance initial trust in the online vendor. Therefore, the following hypothesis is developed.

**H10: Perceived ease of use of the website positively influences the e-trust with the airline website.**

Figure 3.5 demonstrate the relation between e-Trust, e-Satisfaction, and Intention to purchase.

**Figure 3.5: The relation between ET, ES, and IP**



### 3.2.7 Airline Reputation (AR)

The reputation of a vendor is the perception a customer has about an organization (Doney et al., 1998). According to Qureshi et al. (2009), it includes the vendor’s public image regarding its commitment to customer satisfaction; innovativeness in customer service; the quality of market offerings; and issues relating to corporate social responsibility. Moreover, marketing literature argues that reputation is a valuable asset

that requires a long-term investment of resources, effort, and attention to customer relationships.

Jarvenpaa et al. (2000) carried out a study investigating trust in the online environment. In their framework, the researchers expected trust to be affected by consumers' perceptions of the size and reputation of the store (size refers to how big is the firm (e.g., its sales volume or the number of products for sale)). At the end of their quantitative research they found that the perceived size and reputation were strongly related. However, they found that the effect of reputation on trust was considerably stronger than the effect of perceived size on trust. That could justify way researchers focused on the reputation and considered that the larger the store's size, the more likely the consumer might associate a favourable reputation with the store.

According to Jin et al. (2008), in an online retailing setting where some intrinsic cues are unavailable, consumers may be more likely to rely on extrinsic cues (e.g. brand, country of origin, and firm reputation) to evaluate product/service providers. They argued that previous studies, focused mainly on examining the impact of internal evaluative criteria, such as e-tail quality, web site design, and online store attributes, on market response outcomes (i.e. customer satisfaction, trust, and loyalty). They claim that investigation focused on the impact of extrinsic cues is extremely limited. Wirtz and Lihotzky (2003) confirmed that in e-commerce, a company's reputation is perhaps even more critical to the customer's evaluation of the company's credibility. This is the case because there are fewer visible signals of credibility, and because there are greater risks in a virtual environment. Similarly, Bensebaa (2004) considered the firm's reputation as a critical asset in online retailing due to the inherent uncertainty associated with internet trading.

Another reason for the importance of reputation in the e-retailing environment was suggested by Zeithaml et al. (2002). They referred to the findings of two studies (Wolfenbarger and Gilly 2002; Zeithaml et al. 2000), where it was found that consumers did not know how to judge privacy with confidence and felt unsure of the privacy/security of a site. They suggest that other factors, such as company reputation, could be more meaningful and that more research should be conducted in this regard.

Air travellers particularly might be considered as more critical in terms of corporate reputation. Rationally, if a traveller wants to choose an airline for his next flight, , if that



airline got a bad reputation regarding its safety history for example, this could affect his decision to proceed with a booking, even if he had had the best web experience with an airline. According to Graham and Moore (2007), the airline industry is sensitive to specific elements of corporate reputation, such as organizational crises and endorsements of safety. In their study, investigating the influence of airline reputation towards the willingness to pay for airline tickets, they manipulated five organizational predictors of airlines' reputations: financial performance, endorsements by legitimate outsiders, organizational age and size, and recent airline crashes. (The legitimate outsiders used for the study were the US Federal Aviation Administration (FAA)). The study did not look at airline online ticketing specifically but rather airline sales in general. However, their findings provided useful information about how travellers perceive airlines' reputation. From the results, the five reputation elements significantly predicted consumer reputation perceptions. Nevertheless, the endorsement of the FAA and airline size all had the largest impact on reputation. Airline age and crash status affected reputation to a lesser degree.

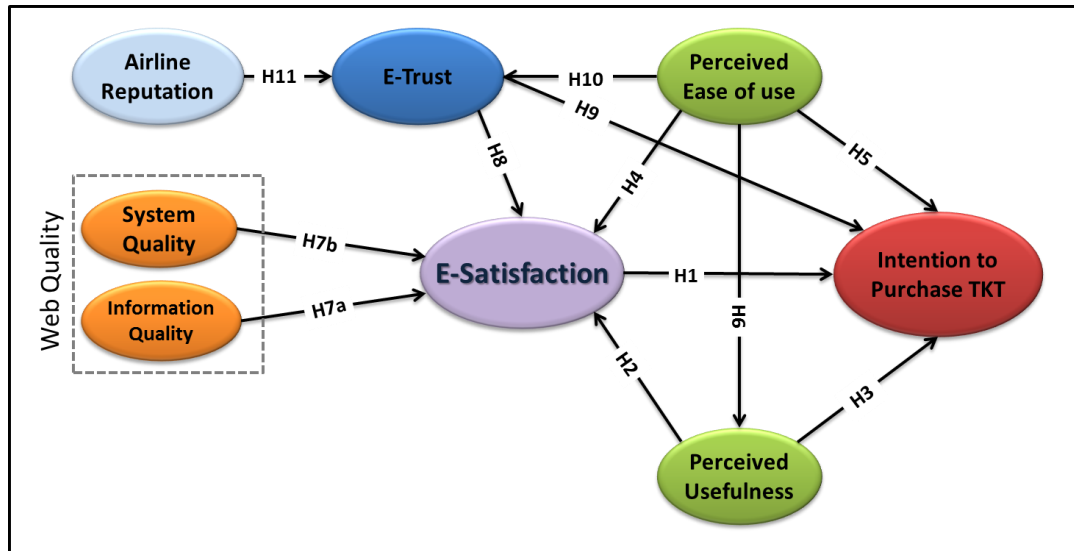
In regard to the role that reputation plays in trust, it has been known since the early days of marketing research, that reputation is a critical factor evoking a prospective customer's initial trust in an offline vendor (Doney and Cannon, 1997). This idea applies to the online context as well. Reputation is considered by many as an important factor leading to trust (Ho and Lee, 2007; Qureshi et al., 2009). Likewise, Jin et al. (2008) argued that a firm's reputation has been frequently suggested to be a factor contributing to consumer trust. According to them, retailers that have a good reputation usually consider the cost of untrustworthy behaviour to be high. Thus, customers are more likely to trust a retailer with a good reputation rather than a retailer with a poor or non-existent reputation. Some examples of empirical studies confirming the positive influence of reputation on trust include financial advisers (Johnson and Grayson, 2005), legal service web sites (McKnight et al., 2002), online settings (Jarvenpaa et al., 1999; Koufaris and Hampton-Sosa, 2004; Yoon, 2002) and electronic travel services (Ruyter et al., 2001). However, as far as the researcher knowledge, this the first study that integrated airline reputation in a model to test airline online services.

The current study will examine the relation between perceived airline reputation and trust. Hence, the following hypotheses are proposed:

**H11: Perceived airline reputation will positively influence perceived e-Trust.**

Figure 3.6 demonstrates the new constructs in the proposed model.

**Figure 3.6: The relation between AR and ET**



**3.2.8 Price Perception (PP)**

Consumer behaviour studies have looked at perceived price or incentives and how it affects the adoption of the e-shopping experience (e.g. (Bhattacharjee, 2001b; Jiang and Rosenbloom, 2005). However, a large volume of literature from travel and tourism identify price as a major predictor of online user behaviour (Athiyaman, 2002; Cheung et al., 2005; Chu, 2001; Koppius et al., 2005; Ruiz-Mafé et al., 2009).

In a study of airline ticket purchase attitude comparing online and traditional purchases, Athiyaman (2002) suggests that the most important way of attracting customers to buy online tickets is to motivate consumers to focus on the amount of money they could save by purchasing air tickets online. Moreover, Ruiz-Mafé, Sanz-Blas and Aldás-Manzano, (2009) tried to investigate barriers to online airline ticket purchasing. Their study concluded, *“Price is one of the attributes that makes a channel useful. If the marketing policies of the airlines do not drive them to fix lower prices for the tickets they sell on their own websites or through other online suppliers, as they are currently doing, the attractiveness of this channel falls dramatically”*.

Earlier, Chu (2001) did several interviews with potential travellers in Hong Kung and revealed that online users does expect any kind of promotion or rewards if they use the internet to purchase tickets.

Moreover, it is important to note that the airline reservation system has one of the most complicated fare systems. Airlines usually offer different ticket types (e.g. standard, fixable), multiple classes (e.g. first, business, or economy), and different prices for different dates. Each of the published fares might have its own ticket return policy, endorsement, and restrictions. It is tricky to present all this information regarding the prices offered for a single flight. Figure 3.7 shows an example of an airline website during the price selection step for one class.

**Figure 3.7: Airlines price display screen**

The screenshot shows a 'Selection summary' section at the top with flight details: From London, United Kingdom to Jeddah, Saudi Arabia. Departing Sunday 25 March 2012 and returning Wednesday 25 April 2012. Passengers: 1 Adult, Cabin: Guest. Below this is a 'From London, United Kingdom to Jeddah, Saudi Arabia' section with a 'Return' arrow pointing to a grid. The grid shows departure dates on the y-axis (Thursday 22 March to Wednesday 28 March) and return dates on the x-axis (Sunday 22 April to Saturday 28 April). Prices are listed in GBP per adult including taxes. A 'Departure' arrow points to the Sunday 25 March row, and a 'Return' arrow points to the Wednesday 25 April column. A 'MODIFY SEARCH' button is visible in the top right.

		Sunday 22 April	Monday 23 April	Tuesday 24 April	Wednesday 25 April	Thursday 26 April	Friday 27 April	Saturday 28 April
Thursday 22 March	528	528	528	422	433	415	415	
Friday 23 March	528	528	528	422	433	415	415	
Saturday 24 March	528	528	528	422	433	415	415	
Sunday 25 March	633	633	633	528	538	520	520	
Monday 26 March	633	633	633	528	538	520	520	
Tuesday 27 March	664	664	664	559	569	551	551	
Wednesday 28 March	664	664	664	559	569	551	551	

Note : Fare quoted is in GBP per adult including taxes.  
Important keys: lowest price

Source: Saudi Arabian Airlines website ([www.saudiairlines.com](http://www.saudiairlines.com))

Accordingly, it is not only about price. The way that fare information is presented could play an important role in the traveller’s decision to complete a purchase from the site.

Koppius et al. (2005) mentioned, “Price will certainly influence the behaviour of customers in an opportunistic way”. They argued that discount is an important tool for a company to increase sales. Also, Cheung et al. (2005) postulated that price has a significant impact on online purchasing intention.

The study will examine the effect of price on the intention to purchase a ticket with the following hypothesis:

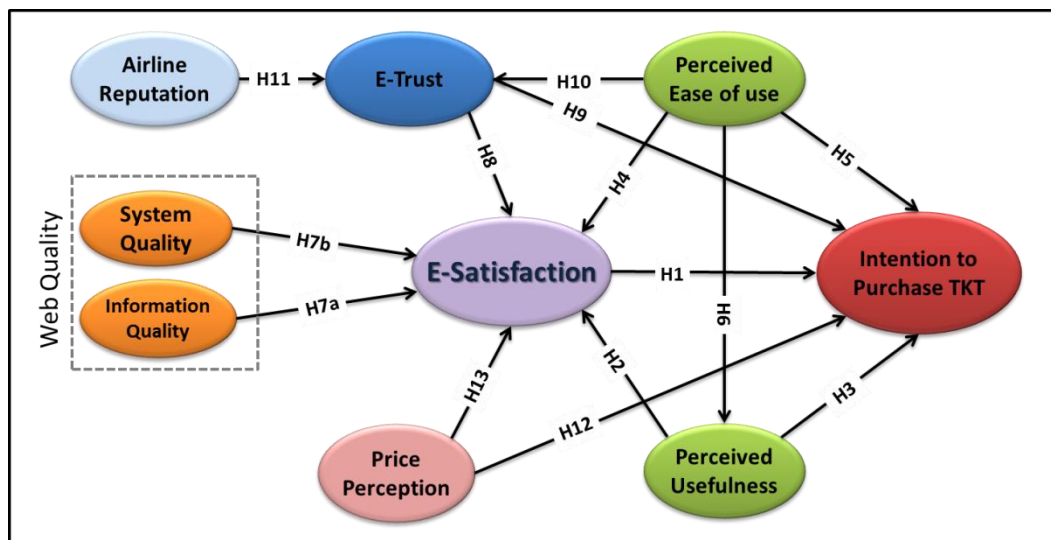
**H12: Favourable air ticket price perceptions have a positive effect on the intention to purchase airline tickets.**

In the same way, Fornell et al. (1996) found that price perceptions affect customer satisfaction in a macroeconomic study involving seven industry sectors including airlines. Similar results were confirmed involving a hotel check-in scenario. Voss et al. (1998) found that in a service exchange scenario, price perceptions do have an effect on satisfaction. Thus in the current research, it is expected that if the customer perceives the ticket price offered online as favourable/reasonable, this will increase his satisfaction with the website. This can be presented by the following hypothesis:

**H13: Favourable air ticket price perceptions have a positive effect on e-satisfaction.**

Figure 3.8 below represents the research model for this study with nine constructs and fourteen relations (hypotheses).

**Figure 3.8: Study proposed conceptual model**



In the next pages, Table 3.1 gives a list of all the proposed hypotheses in this thesis, while Table 3.2 provides a description of all constructs in the suggested model researched in this thesis.

**Table 3.1: Proposed hypotheses**

Factor	Hypotheses
<b>e-Satisfaction (ES)</b>	<b>H1:</b> Customer’s e-satisfaction with the airline website will positively influence the intention to purchase airline tickets from the airline website.
<b>Perceived usefulness (PU)</b>	<b>H2:</b> The perceived usefulness of the site will positively influence e-satisfaction with the airline storefront. <b>H3:</b> The perceived usefulness of the airline website will positively influence the intention to purchase airline tickets.
<b>Perceived ease of use (PEOU)</b>	<b>H4:</b> The perceived ease of use of the site will positively influence e-satisfaction with the airline storefront. <b>H5:</b> The perceived ease of use of the site will positively influence intention to purchase airline tickets. <b>H6:</b> The perceived ease of use of the airline site will positively influence the perceived usefulness.
<b>Information Quality (IQ)</b>	<b>H7a:</b> Information quality will positively influence the e-satisfaction of an airline website.
<b>System Quality (SQ)</b>	<b>H7b:</b> System quality will positively influence the e-satisfaction of an airline website.
<b>e-Trust (ET)</b>	<b>H8:</b> Perceived site e-trust will positively influence the e-satisfaction of the airline website. <b>H9:</b> Perceived site e-trust will positively influence the intention to purchase from the airline website. <b>H10:</b> Perceived ease of use of the website positively influences the e-trust with the airline website.
<b>Airline reputation (AR)</b>	<b>H11:</b> Perceived airline reputation will positively influence perceived e-Trust.
<b>Price Perception (PP)</b>	<b>H12:</b> Favourable air ticket price perceptions have a positive effect on the intention to purchase airline tickets. <b>H13:</b> Favourable air tickets price perceptions have a positive effect on e-satisfaction.

**Table 3.2: Constructs description**

<b>Construct</b>	<b>Description</b>	<b>Adopted from</b>
<b>Intention to Purchase</b>	The degree to which people express their intentions to buy from the Airline website	(Jarvenpaa, Tractinsky and Vitale, 2000)
<b>e-Satisfaction</b>	The extent to which users believe that the entire Airline web site user experience that is available to them can meet their requirements and expectation	(Ives et al., 1983) (McKinney et al., 2002)
<b>Perceived Usefulness</b>	The degree of a user believes that using the website would enhance his booking and ticket purchasing experience	Davis (1989)
<b>Perceived Ease of Use</b>	The degree of a user believes that using the airline website is easy and free of effort	Davis (1989)
<b>Information Quality</b>	The quality of the information provided by the airline website including the amount of content, accuracy, timeliness, reliability, and the way it is presented.	(Ahn et al., 2007)  Nusair and Kandampully, (2008)
<b>System Quality</b>	The quality that reflect how technically the website is performing including the pages response (load) time, navigation structure, visual appeal, functionality, and availability.	(Ahn et al., 2007; Cao et al., 2005; McKinney et al., 2002)
<b>e-Trust</b>	The degree of the customer's confidence in the airlines website that it will fulfil obligations set forth in an exchange and will not take advantage of the shared information.	(Gundlach and Murphy, 1993) (Koppius et al., 2005)
<b>Airline Reputation</b>	The perception a customer has about the Airline including its public image, commitment to customer satisfaction, and size.	(Doney et al., 1998)  (Graham and Moore, 2007)
<b>Price Perception</b>	The perception a customer has about the offered prices in the online airline store.	(Voss et al., 1998)

### 3.3 Control Variables

It is usually useful to look at other variables that may play a role in online consumer behaviour. Therefore, the study will identify some of the demography and travel-related characteristics of travellers and explore how it could affect their behaviour. This type of investigation had not received enough empirical results in previous research. For example, there is no any other research distinguished between frequent travellers and non-frequent travellers when it comes to their airline website experience.

#### 3.3.1 Demography

Marketers are normally interested in studying demographic information such as **Gender, Age, Education, Income, Occupation, and Location of residence** as indicated in the various studies for example (Dennis et al., 2009; Hansen and Jensen, 2009; Hsieh and Yang, 2012; See-To et al., 2014; Yang and Lester, 2005; Yaya et al., 2014). Demographic information can contribute to research by showing the sample characteristics, as well as indicating how variation in a demographic variable could affect a given user's behaviour.

For instance, according to Yang and Lester (2005), **Gender** moderates the relationship between various aspects of behavioural outcomes. Studies have shown that men are more ready to take risks than women, and tend to be more task and system orientated (Dennis et al., 2009; Powell and Ansic, 1997).

Dennis et al. (2009) discussed the role of demographics. Concerning **education**, they claimed that people with higher levels of education feel more comfortable when dealing or relying on the internet. Nevertheless, they engage more in information gathering than less-educated people do. They also suggest that a users' **Income** might affect his level of satisfaction. In addition, they looked at **Age**, arguing that older consumers rely on fewer decision criteria, whereas younger consumers seek alternative information.

The first five are most common in similar research, while the location of residence was found to be useful information when targeted audience are available in a wide area.

### **3.3.2 Internet Experience**

The experience of using or purchasing online has been found to affect behaviour as well. For example, Jin et al. (2008) found that people with less experience rely more on a firm's reputation. In addition, Chang and Chen (2008) explicitly studied the moderating role of internet experience on interface quality, satisfaction, and e-loyalty. They listed scholars (Blake and Neuendorf, 2003; Bruner and Kumar, 2000; Chang, 2006; Citrin, et al., 2000) who argued that "*Internet experience is important in understanding customers' perceptions, attitudes, and behaviour in online environments*". Fazli and Sam (2008) studied the Website Quality and Consumer Online Purchase Intention of Air Tickets. In the final part of their article, they claim that internet experience might be an important factor in influencing customer perceptions of website quality and that it needs to be investigated in future studies.

### **3.3.3 Travel habits**

As this study focuses especially on the airline sector, travel related control variables might also provide useful information in the quest to better understand the airline website travellers' behaviour. According to Escobar-Rodríguez and Carvajal-Trujillo (2013), "*the habit has been introduced as predictor of technology actual use in the literature*". The authors cited the following examples; Davis and Venkatesh, 2004; Kim and Malhotra, 2005; Kim et al., 2005; Limayem et al., 2007; Venkatesh et al., 2012; Wang et al., 2013. Limayem et al. (2007) suggest that future research should analyse the influence of habit in actual usage. In line with this recommendation, this research will investigate six travel industry specific variables. They are: frequently used airline company, actual ticket purchase, travel frequency, motivation for travel (e.g. leisure, business, study etc.), type of travel (domestic or international), frequently used class, and type of fund (self-funded or funded by someone else). It is expected that this type of information will provide theoretical as well as empirical information that could help in understanding the behaviour of travellers.

## **3.4 Conclusion**

The review of the literature undertaken by the researcher in Chapter 2 covered consumer behaviour models pertained from marketing and IS perspectives, as well as



web quality scales. The literature revealed that most of this research was limited only to dimensions explored with particular traditional theories, and that other industry or product specific attributes warrant exploration (Cheung et al., 2005). In addition, it showed that there is still a gap in research in terms of the link between website qualities and website adoption. These gaps are even greater within the context of the airline industry. Other gaps identified are related to the lack of research that has taken place in developing countries and studies that test the moderating role of different type of travellers.

As a result, it is important to identify and assess the factors that might affect the behaviour of air travellers who use the internet to purchase tickets. To this end, this chapter developed a model based on different theories such as Expectation Confirmation Theory (ECT) and Technology Acceptance Model (TAM) as well as Web Quality dimensions. This chapter also recognizes constructs pertained from other research in the travel and tourism research. The model consists of 9 constructs and they are 1- Intention to Purchase, 2- e-Satisfaction, 3- Ease of use, 4- Usefulness, 5- e-Trust, 6- Information Quality, 7- System Quality, 8- Airline Reputation, and 9- Price perspective.

The researcher also developed fourteen hypotheses on the basis of the conceptual approach to examining the factors that influence satisfaction with and intention to purchase from airline websites. Control variables such as demographics, internet experience, and travel habits were also identified as characteristics that might moderate the relationships between constructs. The next chapter will discuss the appropriate methodology that can be used to achieve the research objectives and demonstrate the steps taken to carry out the research.

## Chapter 4 – Research Methodology

### 4.1 Introduction

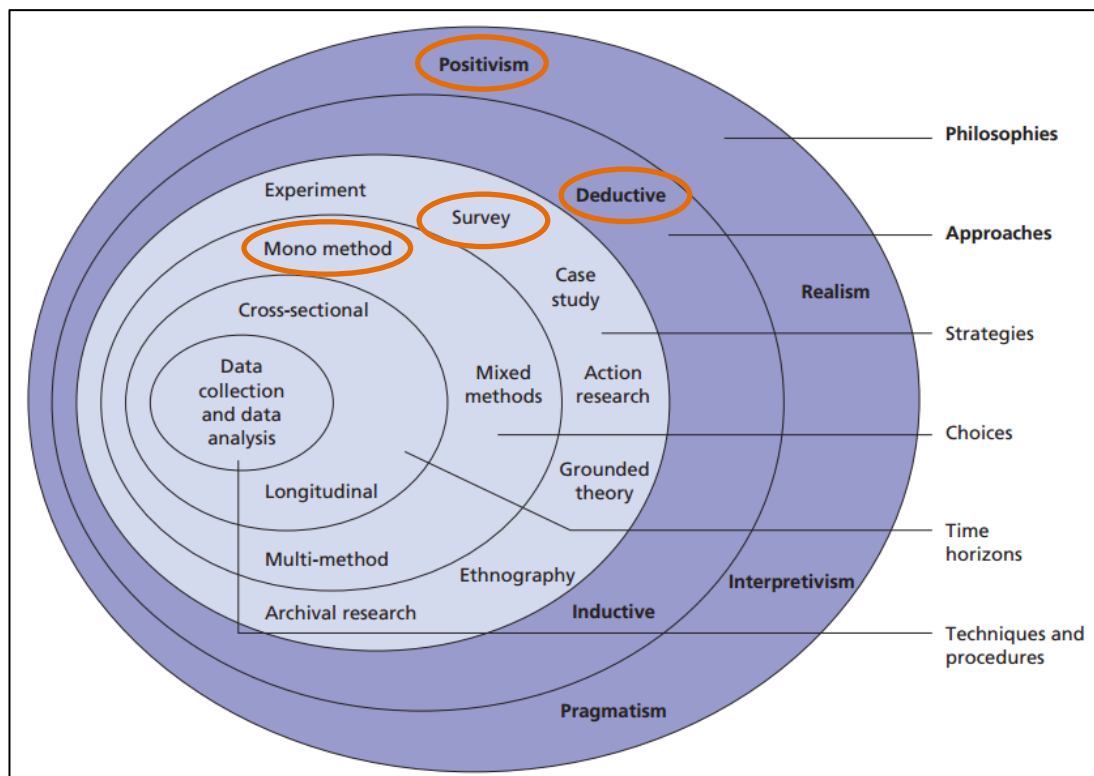
The previous chapter discussed the essential factors and constructs that may affect a user's satisfaction and intention to purchase within the airline context. Accordingly, it suggested a conceptual model and listed research hypotheses in relation to independent and dependent variables. In order to validate the proposed model and test the proposed hypotheses, an appropriate methodological approach must be set. Therefore, this chapter initially provides the reader with a review of the philosophical stance adopted in this research. An overview of the different methodological approaches with a justification of the methods adopted for this research is then offered. Drawing on the research approach, a research design has been established to follow the study steps systematically. The researcher discusses in detail the development of the measurement scale including the origin of the items, scale type, validation process, translation, and the online questionnaire development. Next, the data collection procedure and the sample size are discussed. The chapter also covers the ethical considerations of the study and finally identifies the data analysis processes and statistical techniques selected.

### 4.2 Research Philosophy

Research philosophy is an over-arching term relating to the development of knowledge and the nature of that knowledge which contains important assumptions about the way everyone views the world (Saunders et al., 2011). Guba and Lincoln (1994) categorised the complexities of the various research philosophies into three basic groups: **ontology**, **epistemology** and **methodology**. **Ontology** is concerned with nature of reality and raises questions of the assumptions researchers have about the way the world operates and the commitment held to particular views (Saunders et al., 2011). Objectivism and subjectivism are two aspects of Ontology. The first is concerned on how social entities exist independent of social actors while the second view is that social phenomena are created from the perceptions and consequent actions of social actors. On the other hand, **Epistemology** has to do with what constitutes acceptable knowledge in a field of study. The way a researcher thinks on the epistemology of the way his research is conducted, leads to two important approaches of research: **Positivism** and **Interpretivism**. Figure

4.1 below, adopted from (Saunders et al., 2011), demonstrates what they called the ‘research onion’ showing the different philosophy, approaches, strategies, and choices. The research philosophies and approaches selected for this research are highlighted in circles within the graph but a justification of this selection will follow. Thus, the following sections will first discuss the different paradigms and approaches for conducting research. This general overview will then introduce the rationale behind using this selection as the most suitable for this research.

**Figure 4.1: The Research Onion**



Source: (Saunders et al., 2011)

### 4.3 Research Paradigms, Strategies, and Approaches

In order to decide which is the most appropriate paradigm or approach to use for this study, it is essential to understand the differences between each and justify the selected one for this research.

#### 4.3.1 Positivism versus Interpretivism

The philosophy of **positivism** adopts the stance of the natural scientists’; based on this, the researchers will work with an observable social reality and the end findings of the

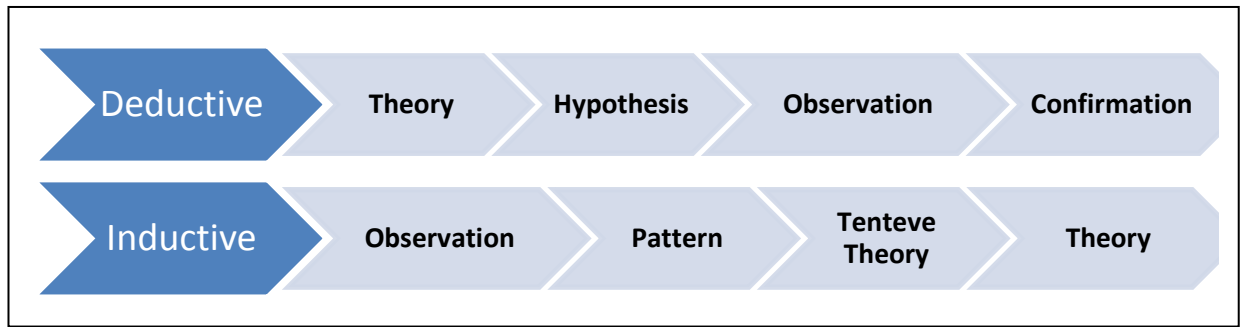
research can be generalised. It is likely to use existing theory to develop hypotheses that can be then tested and confirmed, in whole or part, or refused, leading to the further development of theory which then may be tested by further research (Saunders et al., 2011). According to Collis and Hussey, (2010), they declare applying particular theories, factors and developing hypotheses were the main concerns and objectives of the positivism research.

**Interpretivism** strategies on the other hand, state that the social world of business and management is too complex to be defined by theory or set of laws in the same way as the physical sciences. Those researchers argue that generalisation of the findings is important and that it is necessary for the researcher to understand differences between humans in our role as social actors. Thus, exploring the subjective meanings that encourage individuals' actions can be understood because individuals act in different ways according to how they interpret situations (Saunders et al., 2011). According to (Gilbert, 2008), a positivism paradigm normally uses a deductive approach, while the phenomenological or interpretivism usually follows an inductive approach. Both will be explained next.

### **4.3.2 Inductive versus Deductive**

The research should be controlled by one of two approaches, either a deductive or inductive. A deductive strategy involves the development of a theory. Based on what is known about a particular domain, the researcher deduces hypotheses that explain causal relationships between variables. It must then be empirically validated and tested which involves collecting data. According to (Bryman and Bell, 2011), the last step should involve a movement in the opposite direction from deduction; it involves induction, as the researcher infers the implications of his or her findings for the theory that prompted the whole exercise. In an inductive approach, on the other hand, theory is the outcome of research (ibid). Researchers should investigate the phenomena under study by going to the field to get a feel of what was going on so that the nature of the problem can be understood. To make it easier to understand, Figure 4.2 adopted from (Trochim and Donnelly, 2006) demonstrates their idea on the steps each strategy should follow in a research project.

**Figure 4.2: Deductive and Inductive research steps**



Source: (Trochim and Donnelly, 2006)

According to Creswell (2009), when a research topic has a wealth of literature and information that can enable researchers to define a theoretical model and hypothesis, the deductive approach is normally a better choice and application. On the other hand, when a topic is new and little existing literature is available with much debate stated, then the inductive approach may be more appropriate.

Finally, an important factor of both strategies is that usually deductive strategy is associated with a quantitative research approach, while an inductive strategy of linking data and theory is typically associated with a qualitative research approach (Bryman and Bell, 2011). The following section demonstrates both qualitative and quantitative approaches.

### 4.3.3 Qualitative versus Quantitative

Qualitative research is often used in exploratory research designs to discover ideas and to gain a deeper understanding of human behaviour. This approach involves observation and interpretation (Zikmund et al., 2012). The data used in this method is typically unstructured and depends on free form where samples are often small (e.g. case studies, focus groups and interviews). On the other hand, quantitative research is often used with descriptive and causal research designs to test hypotheses and relationships. This approach involves measuring empirical data and testing it (ibid). The data used is relatively from large samples to produce generalised results (e.g. experiments, questionnaires and psychometric tests). Adopted from Bryman and Bell (2011), Table 4.1 outlines the main differences between quantitative and qualitative research in terms of the connection between theory and research, epistemological considerations, and

ontological considerations. These differences do not necessary mean that some characteristics of both cannot overlap in some cases. In Saunders et al. (2011), they clearly state that both qualitative and quantitative methods may be used appropriately with any research paradigm.

**Table 4.1: Differences between quantitative and qualitative research strategies**

	Quantitative	Qualitative
<b>Principal orientation to the role of theory in relation to research</b>	Deductive; testing of theory	Inductive; generation of theory
<b>Epistemological orientation</b>	Natural science model, in particular positivism	Interpretivism
<b>Ontological orientation</b>	Objectivism	Constructionism

Source: (Bryman and Bell, 2011)

Additionally, philosophically, research can be considered as either exploratory or confirmatory. Most exploratory research designs produce qualitative data and lead to developing hypothesis while confirmatory research will usually test hypothesis with quantitative data (Zikmund et al., 2012).

#### **4.4 Research approaches adopted for this study and the selection rationale**

This study is based on objectivist philosophy; a positivism strategy is chosen through a deductive approach with mainly quantitative data collection and analysis methods. The rationale behind the selection of the study approach is based on the nature of the problem addressed and previous literature in a similar domain. The main objective of this research is to investigate the predictors of consumers' satisfaction with an airline website and their intention to adopt it for their ticket purchasing needs. Exploring the moderating impact of variables such as demographics, internet experience, and travel habits was also of interest to the investigation. From the literature review in sections (2.3 and 2.4), it was revealed that a considerable number of theories and models are present within the domain of consumer behaviour for examining various objectives of website adoption. Thus, there is broad and up-to-date literature present within the domain of e- consumer behaviour and web qualities to explore the constructs and their relationship(s). There was no need to develop new variables or to explore the cause and effect of relationships. As a result, developing a justifiable

conceptual model to reach the objective of this study is achievable. Therefore, from an ontological perspective, the positivist approach suits the present study. A positivist research role, as explained earlier, is to detect a set phenomenon or reality. This involves testing a set of relationships or hypothesis to confirm if it is right or wrong in order to be able to generalise the developed theory. The suggested model with the relationships between independent and dependent variables is demonstrated in Chapter 3. This was based on reviewing a large amount of current studies that address the same topic.

Consequently, with positivism adopted and theoretical research model developed, this led to the use of a deduction approach which, according to (Collis and Hussey, 2010), typically begins with studying the literature to establish an appropriate theory and construct hypotheses. Followed by validation and testing the hypothesis empirically to confirm results. Thus, the validation process should involve the collection of data. In the case of this study, a large number of respondents should be collected to confirm and generalise the causal relationships between the variables in the conceptual model. Thus, the quantitative method seems appropriate for this purpose over qualitative method. Creswell (2009) declared that the quantitative methodology is based on objectivism ontology, positivism epistemology, and deductive methodology. Thus, this is going to be the main approach that this study will follow to achieve the research objectives.

Additionally, in terms of the quantitative data resource, Saunders et al. (2011) listed some of the qualitative data resources such as: structured observation, secondary data (e.g. raw data and published summaries), laboratory experiments, and survey questionnaires. Nevertheless, it is found that a survey method is consistent with the positivism deductive approach and seems appropriate for this study. This is due to the fact that a survey is useful when the findings need to be generalised amongst the whole population and distributed geographically in regards to their attitude, behaviour or characteristic (Pinsonneault and Kraemer, 1993). Additionally, it provides a quick, inexpensive, efficient and accurate means of assessing information about a target population (Zikmund et al., 2012). According to (Koppius et al., 2005), “*Survey research is probably the best method available to the researcher who is interested in collecting original data for describing a population too large to observe directly*”.

However, while the quantitative (hypothetico-deductive) methodology was considerably adapted to carry out this research, the consideration of the qualitative investigation can also be used in a small part of this research. This has to do with the validation of the items used to measure each constructs in the model. This will be demonstrated later in the chapter but the reasons behind its use are: Firstly, as demonstrated in the development process of the research model in chapter 3, it is clearly seen that all the variables chosen for this study were tested in an environment that is not necessarily related to the industry of focus (i.e. airline industry). Secondly, this study will be conducted in an under- investigated developing country (i.e. Saudi Arabia) which might have a cultural difference and many variable items may not have been tested. Therefore, a small qualitative work will be useful to validate if the measurement scale (items) is still appropriate for the context of this study. This can be achieved by using small focus groups or interviews to review the items.

Another factor that should be considered when adopting certain research methods is the approaches used by previous researches in the literature in the same topic area. From Chapter 2 (Sections 2.5 and 2.6), it is found that most of the scholars within both the consumer behaviour and information systems have the intent to use positivism, deductive approaches when they examine the attitude or behaviour of consumers. Following are examples of studies that used a positivism, deductive approach, with a survey method: (Ahn et al., 2007; Aladwani and Palvia, 2002; Bai et al., 2008; Cao et al., 2005; Ethier et al., 2006; Evanschitzky et al., 2004; Kim, Jin, et al., 2009; Koppius et al., 2005; Lau et al., 2011; Lubbe, 2007; McKinney et al., 2002; Mills and Morrison, 2003; Moon and Kim, 2001; Premkumar and Bhattacharjee, 2008; Qureshi et al., 2009; Ruiz-Mafé et al., 2009).

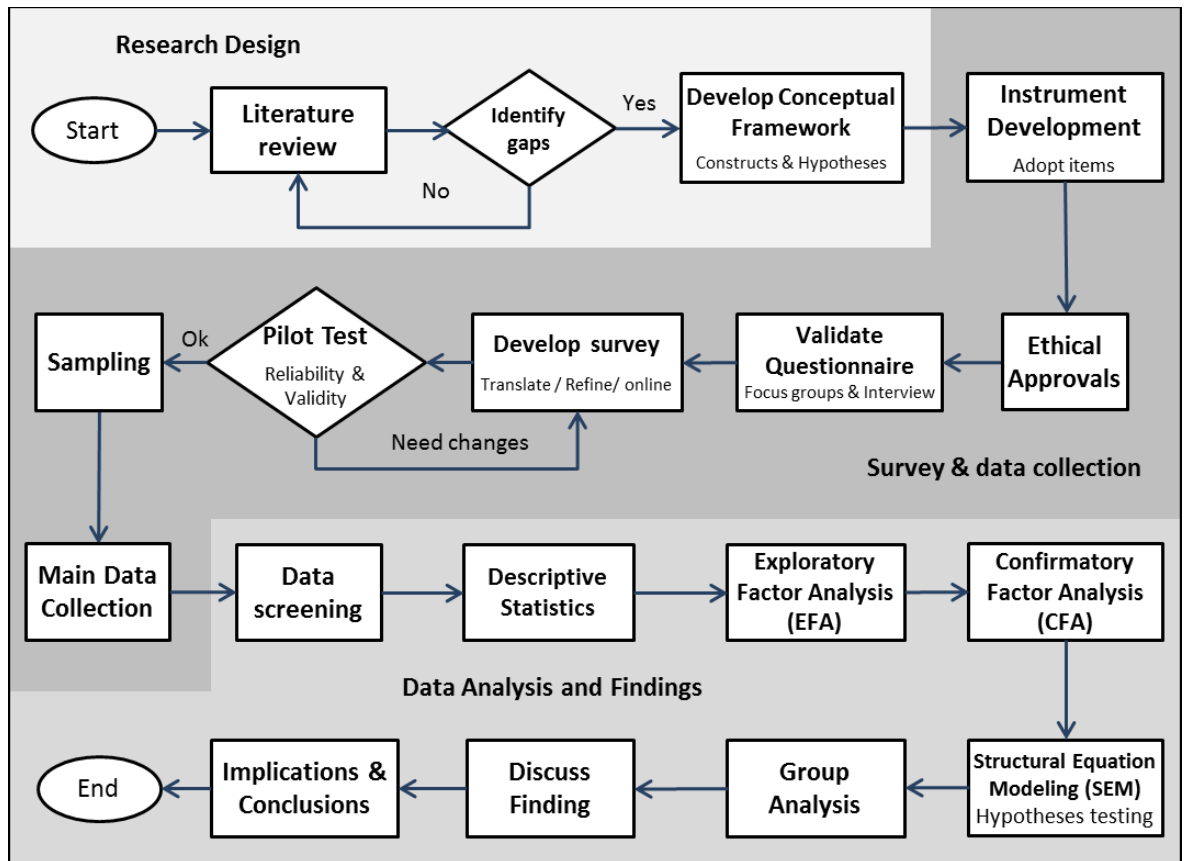
Consistent of what is found in the literature available for this thesis, other researchers agree with this view. For example, (Verschuren and Doorewaard, 2010) declare that finding out what a selected group of individuals' think and feel are examples of a survey's aim and is common in business and management studies to use surveys. Additionally, (Chen and Hirschheim, 2004) state that most studies within information systems are dependent on the methods and strategies that empirically answer their research questions with hypotheses testing. Thus, using positivism, deductive, quantitative, survey strategy is most similar to that used in past research in order to achieve similar objectives in the present study.



## **4.5 Research Design**

It is important in any research to develop the overall design of how the research is going to be conducted by addressing each step that is going to be carried on during the study. As mentioned in Creswell (2009), research design is an overall procedure for formulating research problems, explaining the domain chosen for data collection, addressing ethical requirements when entering into the field, procedures for collection and analysis of the data, and the researcher findings and discussion. Figure 4.3 below has been developed by the author to demonstrate the overall design used for this research. In the previous chapters, the study of the literature reveals that there are gaps in identifying the determinants of travellers' satisfaction of an airline website and the willingness to adopt. Thus, a conceptual model has been developed to describe the relationships between e-satisfaction and intention to purchase and their antecedents. Since positivism/deductive approach is adopted; and to empirically validate the hypothesis, the need for a data-gathering instrument arises.

The use of a survey method involves developing an appropriate instrument or scale to measure each construct, granting ethical approvals, validating the questionnaire, building the complete survey, piloting the survey, defining the sample population, and finally conducting the main data collection. The collected empirical data then needs to follow several statistical analyses in order to gain empirical evidence for the model relationships and groups' differences. At that point, the researcher will discuss the findings relating it to literature and then draw implications and conclusions. The following sections will demonstrate each step in this research design and explain how the researcher achieves each of them.

**Figure 4.3: Research design**

#### 4.6 Instrument development

The proposed model in Chapter 3 examines the relationships between nine constructs (Information Quality, System Quality, Perceived Usefulness, Perceived Ease of Use, e-Trust, Airline Reputation, Price Perception, e-Satisfaction and Intention to Purchase). These constructs should be translated into operational items in order to be measured empirically. The better measures, tapping each construct are developed by revising the literature thoroughly to adopt appropriate previously examined items. Later the items will be verified if it is suitable for the context using focus groups and interviews. The following sections will identify the items adopted for this study to measure the constructs of the proposed model. A rule of thumb suggested by (Hair et al., 2009) is to have at least three items for each construct during the Structure Equation Modelling (SEM) analysis. Therefore, the researcher decides to start with not less than four items for each construct in the model. The adopted questions, wording, codes, and scale used are listed in the tables below after only modifying parts of the original text to comply the research context (airline website).

**Intention to Purchase Tickets** – items are adopted from (Ahn et al., 2007); their scale focuses on online stores and combined different measures to cover all aspects of intention to purchase including: continuance, frequency, prefer to use, and recommendation. Table: 4.3 reveals each item wording with the coding used.

**Table 4.2: Items for Intention to Purchase Tickets (IP)**

Code	Questions	Source
IP1	I will use this airline website to purchase airline tickets.	(Ahn et al., 2007) 7-point Likert
IP2	I prefer using the airline website to purchase airline tickets rather than any other channel.	
IP3	I will frequently use the airline website in the future to purchase tickets.	
IP4	I will recommend others to use this website for ticket purchasing.	

**E-Satisfaction** – items in table 4.4 are based on the work of two research projects. First, McKinney et al. (2002) who looked at web customer satisfaction during the entire website search experience and used 10-point Likert scale. Second, Qureshi et al. (2009) who also studied e-satisfaction for the web context in two developed countries.

**Table 4.3: Items for e-Satisfaction (ES)**

Code	Questions	Source
ES1	Overall, I am satisfied with the airline website.	(McKinney et al., 2002) AND (Qureshi et al., 2009) 7-point Likert
ES2	Overall, I am pleased with the airline website.	
ES3	I would recommend this airline website to a friend.	
ES4	I would use the airline website again.	
ES5	Overall, my expectations of the airline website were exceeded.	(Qureshi et al., 2009) 7-point Likert

**Information web quality and System web quality** – items are adopted again from (Ahn et al., 2007); this study is one of the studies that separates the web quality variable into three constructs (Information, System, Service). As service quality is not relevant to our context as described in section 3.2.5, it is not used in this study. However, Ahn et al. (2007) items were similar to the items used in (McKinney et al., 2002) and (Cao et al., 2005) but it is found to be more focused. The items are listed in tables 4.5 and 4.6.

**Table 4.4: Items for Information web quality (IQ)**

Code	Questions	Source
<b>IQ 1</b>	Has sufficient contents where I expect to find information.	(Ahn et al., 2007) 7-points Likert
<b>IQ 2</b>	Provides complete information.	
<b>IQ 3</b>	Provides site-specific information (flight details, price, policy, est.).	
<b>IQ 4</b>	Provides accurate information.	
<b>IQ 5</b>	Provides timely information.	
<b>IQ6</b>	Provides reliable information.	
<b>IQ7</b>	Communicates information in an appropriate format.	

**Table 4.5: Items for System web quality (IQ)**

Code	Questions	Source
<b>SQ1</b>	Has an appropriate style of design for an airline website.	(Ahn et al., 2007) 7-points Likert
<b>SQ2</b>	Has easy navigation to complete tasks required.	
<b>SQ3</b>	Has proper response time and transaction processing.	
<b>SQ4</b>	Can use when I want to use. (Accessible)	
<b>SQ5</b>	Has good functionality relevant to travel needs.	
<b>SQ6</b>	Keeps error-free transactions.	
<b>SQ7</b>	Creates an appealing visual experience.	

**e-Trust** – four items were adopted from Cao et al. (2005) who looked at trust from a customer point of view and was concerned about the perceived trust that a customer has when using the website. While two extra questions that focus on security/privacy measures were adopted from Kim et al. (2009). Table 4.7 has the list of the items and the source.

**Table 4.6: Items for e-trust (ET)**

Code	Questions	Source
<b>ET 1</b>	I feel protected/safe when I use the site.	(Cao et al., 2005) 5-points Likert
<b>ET2</b>	The website is secure.	
<b>ET3</b>	I trust the airline website will not misuse my personal information.	
<b>ET4</b>	The website satisfies ethics standards.	
<b>ET5</b>	I feel very confident about the site.	
<b>ET6</b>	I feel safe in my transactions with this website.	(Kim et al., 2009) 5-points Likert
<b>ET7</b>	I feel my privacy is protected on this website.	

**Perceived Ease of Use and Perceived Usefulness** - items in Tables 4.8 and 4.9 were adopted from Gefen et al. (2003) which is one of the highly cited articles that extend

TAM constructs to the online context; the study results show a high validity for both constructs.

**Table 4.7: Items for Perceived Ease of Use (PEOU)**

Code	Questions	Source
PEOU1	The airline website is easy to use.	(Gefen et al., 2003) 7-point Likert
PEOU2	It is easy to become skilful at using the airline website.	
PEOU3	Learning to operate the airline website is easy.	
PEOU4	The airline website is flexible to interact with.	
PEOU5	My interaction with the airline website is clear and understandable.	
PEOU6	It is easy to interact with the airline website.	

**Table 4.8: Items for Perceived Usefulness (PU)**

Code	Questions	Source
PU1	The airline website is useful for searching and buying tickets.	(Gefen et al., 2003) 7-point Likert
PU2	The airline website improves my performance in searching for flights and buying tickets.	
PU3	The website enables me to search and buy tickets faster.	
PU4	The airline website enhances my effectiveness in flight searching and buying.	
PU5	The airline website makes it easier to search for flights and purchase tickets.	
PU6	The airline website increases my productivity in searching and purchasing airline tickets.	

**Airline reputation** – items (Table 4.10) are adopted from Qureshi et al. (2009) and Jarvenpaa et al. (2000). While the first study looked at reputation from the online perspective, the second one utilised the studies on the buyers-seller relationship to examine the role of reputation in the online context as well.

**Table 4.9: Items for Airline reputation (AR)**

Code	Questions	Source
AR 1	This airline has a good reputation.	(Qureshi et al., 2009) 7-point Likert
AR 2	This airline has an excellent public image.	
AR 3	This airline provides excellent service.	
AR 4	This airline is extremely reliable.	From: (Jarvenpaa et al., 2000) 7-point Likert
AR 5	This airline is well known.	
AR 6	This airline is a big player in the market.	

**Perceived Price** – items (table 4.11) were adopted from different resources. Two items from Voss et al. (1998) whom they studied the roles of price in determining satisfaction in service exchanges which is similar to the context of our study. One item is adopted from Varki and Colgate (2001) who looked at the influence of price perception on the behavioural intentions and satisfaction as well. Another item from Ismail (2011) who studies experience of hotels and the last item is based on the work of Herrmann et al. (2007).

**Table 4.10: Items for Perceived Price (PP)**

Code	Questions	Source
PP1	I think that the prices the airline website provides are reasonable.	(Voss et al., 1998)
PP2	I am pleased with the prices in the airline website.	
PP3	The prices in the airline website are competitive.	(Varki and Colgate, 2001)
PP4	The prices offered helped me in making my decision.	(Ismail, 2011)
PP5	The price offered in the airline website meets my expectations.	(Herrmann et al., 2007)

#### 4.7 Survey development

Once measurement items for each construct in the conceptual model are identified, the development of the complete survey questions can be accomplished. This should include the elements concerning respondent characteristics and the layout of the survey.

The first page of the survey should include the welcome page introducing the aim and purpose of the survey, the overall content of the questionnaire, the voluntary nature, and information about the researcher. This landing page will cover any ethical considerations and part of the university ethical forms and approvals that are mentioned later in this chapter (Section 4.12).

After the landing page, the questionnaire will include three different parts following similar other survey studies. The first part will include demographic information about the respondents as well as their internet experience. Also included, will be the questionnaire to ask participants about the airline normally used and a reminder that their answers should be based on his/ her experience with this selected airline. The second part will contain the main measurement items while the third part will ask the respondents about their travel experience and habits. A full survey layout is available in Appendix 1.

**Selection of the measurement scale:** Several types of scales are used in marketing and information systems research e.g. Thurstone scale, Likert scale, Semantic differential scale and Guttman scale (Chisnall, 2004). Each of these has its own use and characteristic. However, Likert-style rating established by Rensis Likert in 1932 (Likert, 1932) gained much reputation and support by academics within marketing and information systems. According to Zikmund et al. (2012), a Likert scale is a method that is simple to administer and therefore extremely popular with business researchers. With the Likert scale, respondents indicate their attitudes by checking how strongly they agree or disagree with carefully constructed statements usually on a four-, five-, six-, seven-, or ten-point rating scale. The decision to choose the Likert scale points is a matter of debate (Cox III, 1980). However, Neumann (1983) posits that using a five or seven- point Likert scale usually gives similar results in regard to means and correlation coefficients.

In order to collect the data from the main measurement items, this study chooses a 7-point Likert scale (1=strongly disagree to 7=strongly agree) with a mid-point of neutral. The main reason behind this selection is that this survey mostly chosen measurement items that are adopted from studies that used 7-points Likert scale. This can be seen in the items tables earlier. Thus to be consistent with the original items, this scale was used.

As mentioned earlier, the first and last parts of the survey include questions about the respondents' demographic information, internet experience, and travel experience/habits. The control variable selection was discussed earlier in 3.3. However, the questions used to measure these variables are as follows:

**Demographics:** The survey question in this part includes six questions which refer to gender, age, level of education, income per month, occupation, and location of residence.

**Internet experience:** The individuals' level of experience using the internet is measured through self-assessment of one's general computer and internet knowledge using four questions.

**Travel experience:** This part involves asking the respondents about information related to their travel experience and habits. It includes questions related to the

respondents airline company frequently used, actual tickets purchased, travel frequency, motivation of travel (e.g. leisure, business, study, or medical treatment), type of travel (domestic or international), seat class frequently used, and type of fund (self-funded or funded by someone else).

The choice and final decision on what questions could be asked for this part was concluded during the focus group that is conducted in the validation process that will be discussed next.

#### **4.7.1 Instrument validation**

When adopting the questionnaire items from previous studies, it was taken into consideration to choose items that are proven valid and that are related to the context of this study. Yet, the industry of focus is not the same for most of the adopted items. Additionally, it can be noted from the constructs and measurement items that they are developed in the context of western culture and few studies have examined these constructs and the measurement items outside the western culture. According to Saunders et al. (2011), “*Construct validity refers to the extent to which your measurement questions actually measure the presence of those constructs you intended them to measure*”. Therefore, validation procedure is required to assure that the instrument is representing the correct constructs for the audience. This is considered as part of what is called face validity procedure.

Thus, it is decided to discuss the instrument using a qualitative technique (i.e. focus groups and interviews) with three types of experts: academics, airline e-commerce professionals and normal Saudi travellers. The validation procedure with academics involved a focus group with the participation of six PhD students, studying at Brunel Business School in London. The items that are used for the questionnaire were handed to them and discussed one by one. In addition, validation with experts from the industry was carried out. For this purpose, the questionnaire was discussed with four different experts in the field of the airlines’ e-commerce departments in the Middle East. The first one is the e-commerce general manager at Saudi Airlines. The second is a senior system analyst at the e-commerce department in Saudi Airlines. The third is an expert who worked for SAMA airline in the e-commerce department and after it was declared



bankrupt, he was appointed as the general manager for the e-commerce department at Nas Airlines. The last expert is a senior project manager at Qatar Airlines in the automaton and e-business department. The discussion about the survey content took place over the phone and also used a web-meeting platform called GO TO Meeting (<http://www.gotomeeting.com>). This made it much easier to go through the questionnaire over a distance and discuss it using an interactive platform. Lastly, the survey was also reviewed and debated with Saudi students and residents in the UK with experience of using airline websites to book travel from and to Saudi Arabia.

The result from the focus group and discussions that were done with the three groups was then evaluated and a few changes made to the proposed questionnaire. Examples of the changes that were implemented following the discussions were:

- In order to clarify the idea behind a group of questions that are belonging to a single construct, it is suggested to add a definition of the constructs before it is listed. This exercise is used in other survey studies.
- Descriptions for some terminologies were added between brackets for further clearance.
- The order of some items was suggested to be changed to make it easier for the readers (e.g. Item 2 and 3 in Usefulness).
- Rather than having general questions about the respondents' travel experience or habits, other questions were added to ask the same question but this time specifically about their experience with the airline that they select at the beginning of the survey.
- Most of the reviewers' comments were about the large number of questions and they suggested that some questions might sound very similar. Subsequently, it was decided that a note could be added about the academic reasoning behind this and that researchers sometimes need to measure items by using several questions. This note makes the participants more reluctant to accept the similar Items. Therefore, it was decided to add an explanatory sentence before they start answering the questions. *“Some phrases may seem similar or duplicate, for statistical purposes, the survey may have to enquire about your opinion using more than one question, kindly provide us with your comments on all questions.”*

### **4.7.2 Survey translation into Arabic language**

Since this study is targeting a Saudi audience, and respondents' first language is Arabic, the survey should include a translated Arabic version. The translation of the items that are originally developed and validated in another language and culture includes some challenges in order to keep it consistent and reliable. The fear of having some questions misunderstood, by the audience, may arise. However, several techniques could be followed to assure that the translated questions are reflecting the same meaning and purpose as expected without any bias. Among these techniques is the most popular and widely used back-translation method developed by (Brislin, 1970).

For this research, the English questionnaire was translated into Arabic by a bilingual researcher at Brunel Business School. Then it was passed to another bilingual worker at a private academic institution that provides translation services in the UK and in Saudi Arabia (Named: the International Training and Development Academy (ITDA)) for terminology checking, proofreading, and confirming that both versions are consistent. A certification letter from ITDA is attached in Appendix 2. Upon satisfactory review, the back-translation step was kindly done by a different person, an accredited bilingual researcher working at the University of Bradford who has an interest in translation. For this step, the Arabic version only was provided to him to translate it back into English. The final copy was compared to the original instrument to check validity of the translation process. Minor variations were detected and slight modifications were done. The translation procedures followed the guidelines of Brislin (1970, 1986) to achieve best results out of both versions. A sheet that contains the survey context with the translation and back translation is available in Appendix 3.

### **4.7.3 Online Survey Development**

Current research is aiming to study the travellers' online user behaviour, thus it adopted an online survey approach for collecting response inputs. By using an electronic survey, online customers of airlines will be able to fill out a survey. In this study, the population is the online airline customer, so by having an online survey only, the researcher can be confident that the results are indeed representative for the population intended to generalise. However, the sampling and population will be further discussed in the next section. Szymanski and Hise (2000) studied online shoppers and used similar

approaches. They declared that, “*An online survey is consistent with the context of our investigation. We are studying online shoppers using an online approach. Hence, consumers are in a relevant setting when completing the survey*”. Additionally, (Ahn et al., 2007) who was in favour of using online surveys, mentioned several advantages over traditional paper-based surveys. They believed that an online survey makes it easier to cover a wider geographical area, lower costs and accrue more data, and is more likely to have faster responses.

The researcher explored the different survey online platforms options available on the market to use for this research. The service provided by Qualtrics.com was selected for the current survey. This paid service has several useful features and gives the researcher full control over the survey development and raw data.

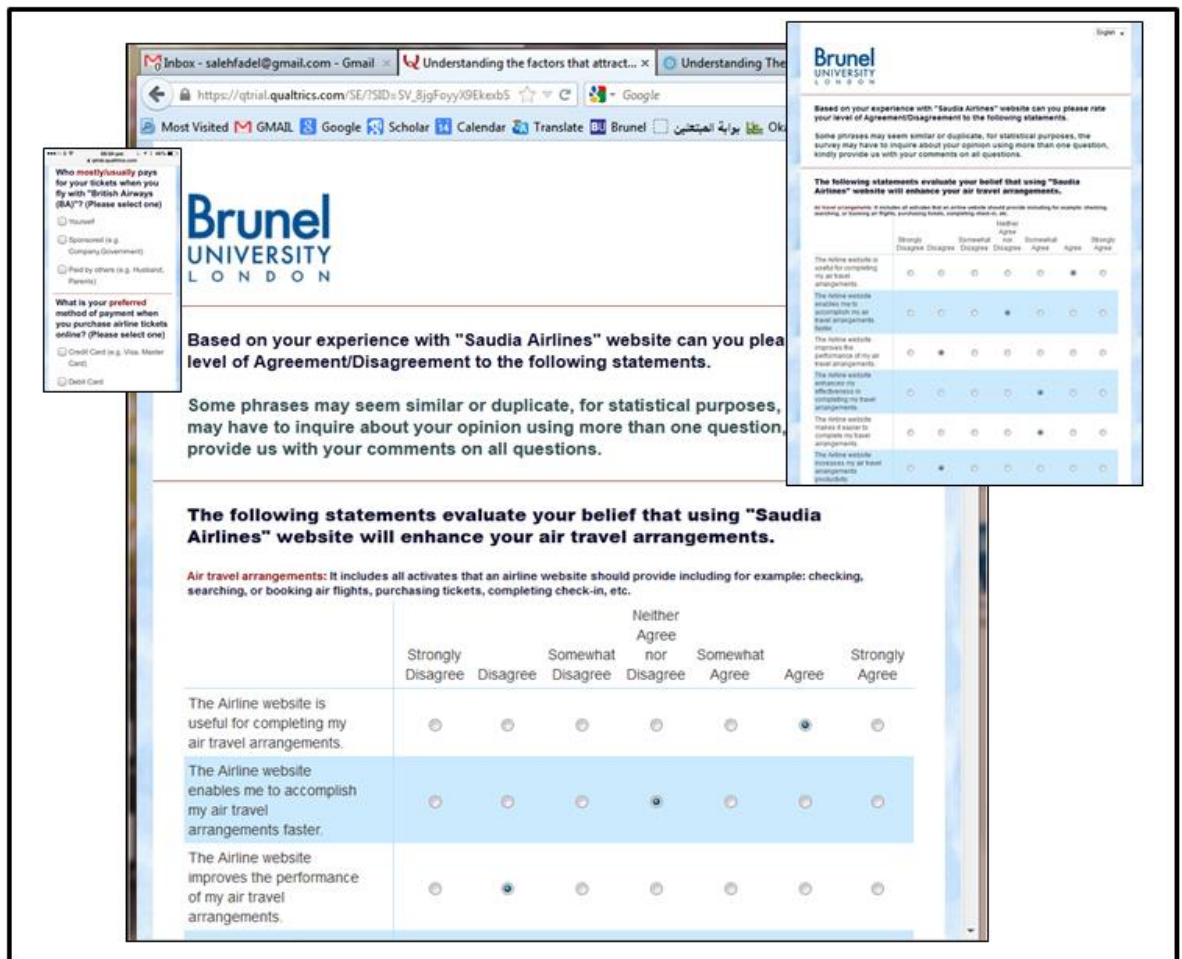
The three different parts of the survey were integrated into the survey platform. At the start of the survey, the user will be asked if he/she is a Saudi national or resident over 18. In addition, he will be asked if he/she used an airline’s website before. If this is not the case, the survey will not allow them to continue and will prompt a thank you page. Additionally, the first page of the survey will ask the participants to select the airline website that they frequently use and intend to rate. The following parts of the survey will remind the participant about this selection each time there is a new set of questions. This assures that the participant is consistent with the feedback given and that it is based on the same airline website experience for every question. It is a feature that is available and can be coded in the online survey platform.

Furthermore, in order to avoid missing data, the survey is programmed to decline any questions that fail to include a response and prompts the participant to complete all questions.

In order to make the online survey easier, engaging, and friendly, a few modifications were programmed into the online platform. This will help to encourage more respondents to complete the full survey. For example, the default error message when someone does not complete the questions seemed annoying. It was reviewed and made much friendlier. It was re-phrased to say: “*Sorry, it seems that you have missed one or more questions; In order to get better results for the study we hope that you could please answer all the questions. Please revisit the following questions.*”

Additionally, this research acknowledged the increase use of mobile and smart phones as platforms for internet browsing. The online survey that is used for this study is designed in a way that can be viewed in any type of mobile or smart phone so it can be easily completed at any time and from anywhere. **Special versions of the survey were designed and tested to be compatible with IOS (iPhone/iPad), Android smart phones and tablets.** To validate the type of platform used by the respondents, the research online survey system was programmed to collect information about the type of device each respondent used during the survey filling process. Figure 4.4 below shows an example of how the survey looks like when is accessed via different platforms (Computers, mobile phone, and tablets).

**Figure 4.4: Survey layout from different platforms**



Just to note, after the data was collected, it was found that that 29.4% completed the survey using their mobile device (iPhone, iPad, Android, Nokia, etc.). Thus, this research reveals that almost one third of the online survey participants are using this new platform for data collection.

The survey is available for demonstration purpose at: <http://survey.salehbukhari.com> while Appendix 1 also illustrates the online survey layout in English languages.

Finally, before the researcher begins any data collection for the pilot or main study, the online survey was tested technically several times in different scenarios by four to five users from different operating systems, internet browsers, PCs, Macs, mobiles, and different smart phones. The raw data collected on file was also verified.

#### **4.8 Population and Sampling**

The term “Population” refers to the universe of units from which the sample is to be selected (Bryman and Bell, 2011). Consequently, sampling involves any procedure that draws conclusions based on measurements of a portion of the population (a sample) (Zikmund et al., 2012). *“If certain statistical procedures are followed, a researcher need not select every item in a population because the results of a good sample should have the same characteristics as the population as a whole”* (ibid). Thus, the sample should be carefully chosen to draw conclusions that can be generalised to the overall targeted population.

After identifying the population, the survey research intent to study, it is important to choose the appropriate sampling technique to use. The sampling techniques available are divided into two types: probability sampling and non-probability sampling. With probability samples, the chance (probability) of each case being selected from the population is known; and usually equal for all cases. In this case, the sample is likely to be called a representative sample. On the other hand, for non-probability samples, the probability of each case being selected from the total population is unknown. In this case, the sample will likely not be a representative sample but rather judgemental. However, with both types of sample the researcher can answer research questions and generalise about the population (Saunders et al., 2011). For the probability sample to be adopted, the researcher should be able to identify the sample frame. This refers to the listing of all people in the population from which the sample will be selected.

Furthermore, the probability sample includes four types of samples: simple random sample, systematic sample, stratified random sampling, and cluster sampling. While the non-probability sampling includes the convenience sample, quota sample and snowball sample.

For the current study, the population is any Saudi national or resident over 18 who have used an airline's website for his travel arrangements. The sample frame is almost impossible to obtain with this wide range of population. Therefore, the non-probability sampling is chosen for this study with the use of convenience and snowball sampling technique. Convenience sampling relies on obtaining those people that are most conveniently available. While snowball sampling involves initial selection of respondents and then obtaining additional respondents through information provided by the initial respondents (Zikmund et al., 2012). In the data collection section next, the procedure to reach the target sample is discussed.

It is also worth noting that the target sample for this study, are real travellers and online airline website users while most previous empirical studies depend on students only (e.g. (Klein et al., 2005; Lau et al., 2011; Mills and Morrison, 2003; Shchiglik and Barnes, 2004). Jarvenpaa et al. (2000) argue that the travel task is not realistic for young students with little or no income. They suggest that consumer's past experience on the internet in general, or shopping on the internet specifically, might have generated knowledge and consequences that reinforce the consumer's behaviour. This could shape and moderate the consumer's beliefs, attitudes, and willingness to shop on internet stores. The opinions of real users are important and give a better understanding of the airlines' customers' online behaviour. Thus, this study did include data from different types of real travellers.

#### **4.9 Sample Size**

Determining the appropriate sample size for the study is essential before starting the data collection. This usually depends on several factors such as: model complexity, analysis methods, and the software used for analysis.

In general, according to Hair et al. (2009) with structural equation modelling (SEM), the sample should range in size from 150 to 400, depending on the number of variables in the model. They recommend that when the model has more than six factors, a larger sample that might have up to 500 participants is required. On the other hand, Tabachnick and Fidell (2007) agree that it is comforting to have at least 300 cases for factor analysis. While Field (2009) suggest to look at the number of items used in the analysis. He suggests 5–10 participants per item.

The conceptual model for this study begins with nine constructs and 54 items, thus following the suggestions above, the study will target a sample size of between 400-500 participants in order to be compatible with most established recommendations.

#### **4.10 Pilot Survey**

A pilot survey is necessary to validate and examine the survey before having it published and distributed on a large scale. The pilot study's main aim is to test the actual web tool layout, response rate, questionnaire completion time and collected data format. Additionally,, it aims to evaluate the level of content validity and reliability to ensure that the instructions, questions, and scale of questions are easy to understand (Sekaran and Bougie, 2013). According to Saunders et al. (2011), they agree that piloting a questionnaire is essential for two reason. Firstly reducing the possibility of complications in answering the questions and secondly, ensuring that no problems in recording the data can occur.

The developed online survey was tested by Saudi university students in the UK. Both undergraduate and postgraduate students were recruited for this purpose. They have used airline websites to organise their travels to and from Saudi Arabia in the last few years. Consequently, they represent an acceptable spectrum of the required sample and they can provide feedback regarding the questionnaire if there are issues that need addressing.

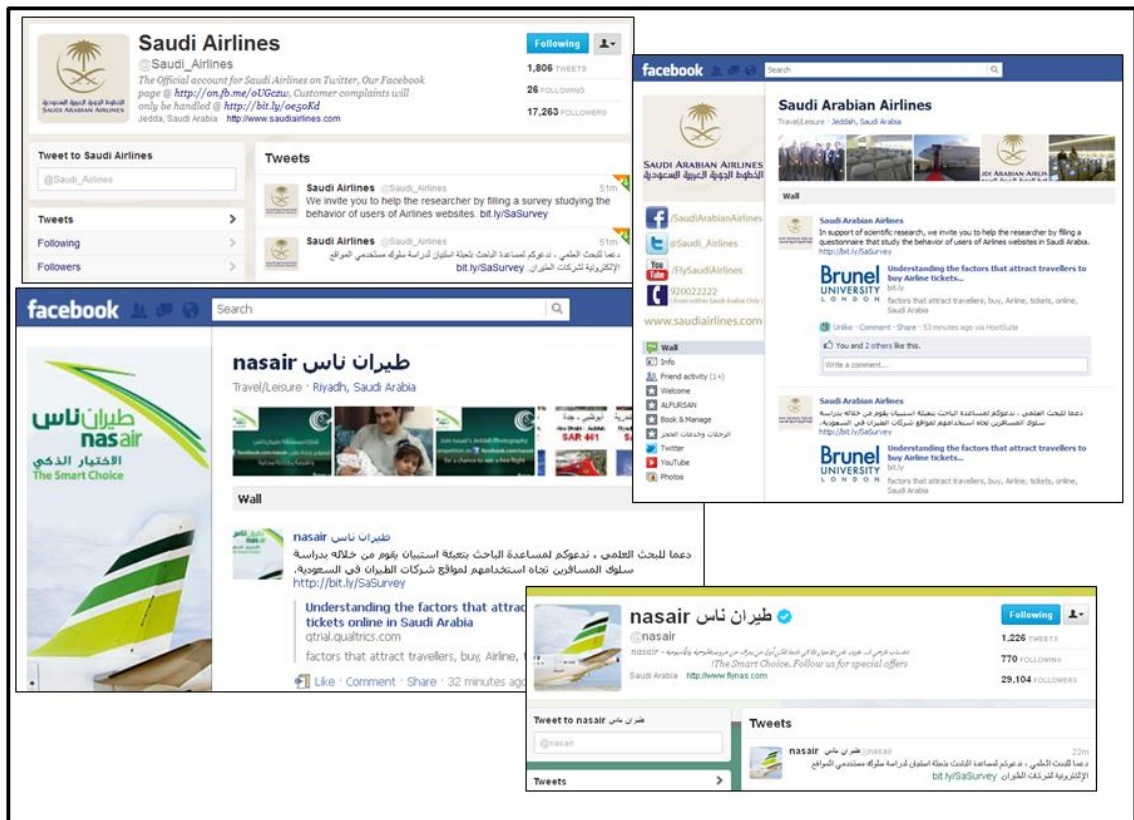
The sample size for piloting, according to the guidelines in literature, generally recommend a small sample i.e. up to a maximum of 100 respondents (Diamantopoulos and Sigauw, 2000) or between 10 to 30 (Luck and Rubin, 1987). Thus, the pilot is accomplished and reliability and correlation analysis showed good results. However, full details about the pilot data collection, data analysis, and results are presented in the following chapter under the pilot study section 5.2.

#### **4.11 Data Collection Procedure**

There are three main ways used for distributing the online survey for the main study. First, the researcher managed to approach the two operating airlines in Saudi Arabia; (named: Saudi Airline and Nas Airline) to help in distributing the survey to their

existing customers. Several discussions with e-commerce and social media executives for both airlines were carried out. This involved reviewing the aim and objectives of this study as well as the content of the survey by higher management for both airlines. Lastly, it was successfully agreed that they would share the link of the online survey to their customer on their own social media channels. This includes Facebook, Twitter and Linked-In. Approaching companies or organisations followers’ through their social media channels is considered as an innovative way of survey distribution. Yet, the method is not widely used in other research projects. By using this method, the researcher does not interrupt the customer’s privacy (such as in sending emails) but at the same time, has been able to show the survey to customers following the company’s updates. Figure 4.5 displays screen shots of the posts of the survey that were posted in the timelines of both airline companies’ social media channels.

**Figure 4.5: Screen shots from airline companies’ social media channels**



The **second** way to reach a larger audience for this study was by sending the survey to a known friend or relative in one of the big companies, organisations, bank, or educational institutions within Saudi Arabia; then asking them to send it on to others (snowball technique). Finally, the third technique was by posting the survey to several online forums that are related to Saudi students and residents around the world.



The data collection lasted for two months where the survey online tool was active and receiving responses every day. However, the amount of people who received or viewed an invitation to fill the survey cannot be determined. Still, the online web tool (Qualtrics.com) does keep a log of each user reached the landing page of the survey that were around 800 users who either viewed or started the survey. A detailed discussion about the data collected and the response rate will be in next chapter section 5.8.1.

#### **4.12 Ethical Considerations**

As with any research conducted with people, ethical issues play an important role. Ethics in business research refers to the set of behavioural principles and norms beginning with the research from the first phase of the study up to the end (Sekaran and Bougie, 2010). Particularly with survey research, many issues have to be addressed before, during, and after data collection. It is important to make sure that the research follows the ethical considerations before the research is conducted. The following list will sum the main important issues that the researcher should follow, based on Saunders et al. (2011).

- Participation in this research should be voluntary.
- Participants have the right to withdraw, and that they may decline to take part in a particular aspect of the research at any time.
- Once access has been granted, the research should keep to the aims of the research project that is shared and agreed with the intended participant(s).
- Maintenance of objectivity during the data collection stage - this means avoiding exercising subjective selectivity in what is recorded.
- Since confidentiality has been promised, it is important to ensure the data collected remains confidential.

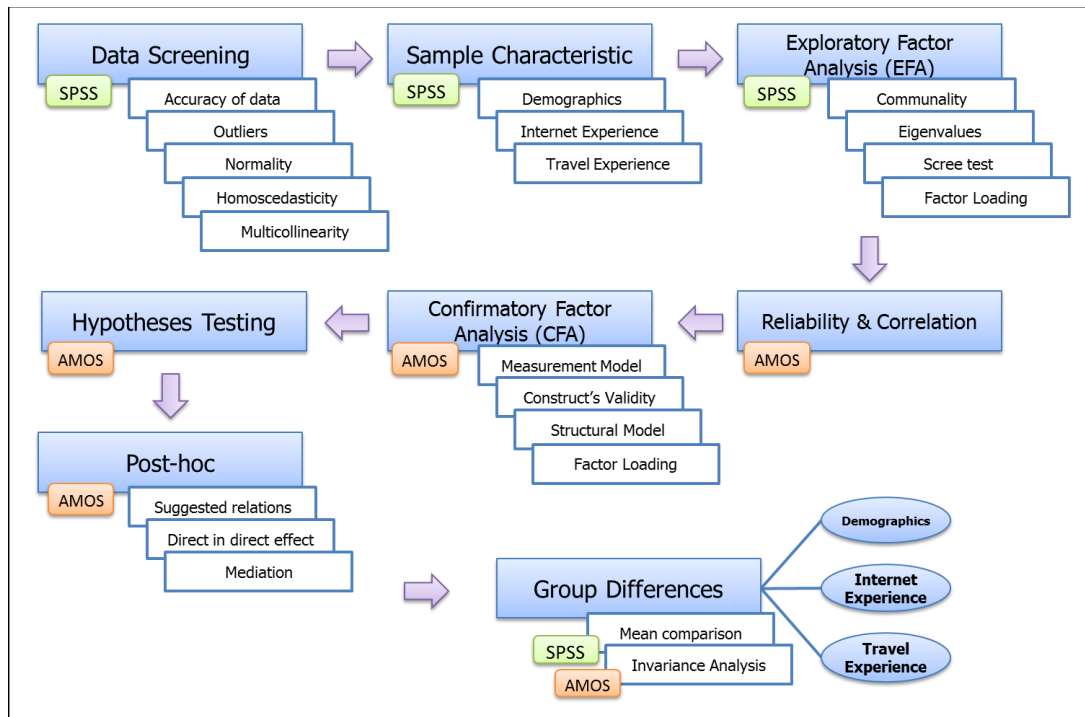
All of the above ethical requirements were followed throughout all phases of the research. The landing page of the survey could be considered as a consent form. It described the title and aim of the research study, what is involved in the questionnaire. The participants were asked to participate voluntarily and given the chance to withdraw from participation if they chose to do so. Participants were assured that anonymity and confidentiality of the responses was guaranteed. The survey does not require that

participants provide their names or any identity. Only upon acceptance to participate and clicking “Continue”, does the survey questionnaire begin.

This study followed Brunel Business School Ethics Committee Policy Guidelines. After all ethical considerations have been taken for the research; required forms have been filled and signed by the researcher and supervisor. The school ethical committee then reviewed and granted approval to conduct this research. The consent form is available in Appendix 4.

### **4.13 Analysis Techniques and Statistical Packages**

Having established the research design and data collection requirements, the next step in the research design is to identify the data analysis procedures that will allow the researcher to gain empirical evidence and conclude findings. Also, the software application that is used is important. This analysis will include several steps that are presented in this section. However, only a brief overview of the analysis tests and steps will be presented while a detailed description and procedure of each analysis will be demonstrated in the following two chapters. Chapter 5 will begin by testing the quality of the collected data and finish with the hypothesis testing; nevertheless, Appendix 9 will be exclusively for groups’ differences analysis. Figure 4.6 below was developed by the author to demonstrate the data analysis step-by-step process including the software package used in each step. Each step is described in the following sections.

**Figure 4.6: Data analysis step-by-step design**

#### 4.13.1 Preliminary Analysis

After the data collection is finalised, all responses should be subject to data screening tests in order to assure the accuracy of the data and missing values. In the case of this study, the use of an online survey does not allow missing answers or data entry mistakes. However, looking at all responses and checking if there are no any errors in the records or odd values (e.g. out-of-range values) is still important (Pallant, 2010). The set of data should then be checked for extreme cases that are called outliers. These are values that are well below or well above the other scores and in many cases it is better to eliminate these as some analyses are very sensitive to outliers (Pallant, 2010). After obtaining a clean data set, pre-requests assumptions should be satisfied in order to achieve effective factor analysis and use of SEM (Hair et al., 2009). These assumptions are normality, homoscedasticity, and multicollinearity. Each of these analyses is described and then performed for this study in the data analysis chapter in section 5.4. Once it is assured there are no errors in the sample and that it is eligible for further analysis, the characteristics of the sample should be identified. For this purpose, descriptive statistics of the response sample will be performed. Three types of sample information will be revealed including demographic information (e.g. gender, age, and education level), internet experience, and travel habits (e.g. travel frequency, motivation for travel, and type of travel). Thus, frequency tables should be generated using SPSS.

#### **4.13.2 Exploratory Factor Analysis (EFA)**

Exploratory Factor Analysis (EFA) is often used first to explore inter-relationships among a set of variables (Pallant, 2010). It is a method of factor loading into groups to extract underlying latent factors. This technique is used to reveal what the raw data statistically produces in terms of grouping variables together on a factor or the precise number of factors. However, several criteria could be used before the factor loading rotated component matrix is generated. Three were selected in this research to assist the measurement items, namely: percentage of variance criterion (**communality**), latent root criterion (**Eigenvalues**), and the scree test criterion. These tests and the results for the current study are discussed in section 5.6.

#### **4.13.3 Reliability and Correlation**

The reliability (Cronbach's coefficient alpha ( $\alpha$ )) test ensures that 'measures are free from error and therefore yields consistent results' (Peter, 1979). Straub (1989) confirms that it tests the stability of individual measurement items across replications from the same source of information. On the other hand, correlation analysis is used to describe the strength and direction of the linear relationship between two variables in the model (Pallant, 2010). Multiple correlation assesses the degree to which a dependent variable is related to a set of other independent variables (Hair et al., 2009).

Thus, after deciding which items should remain, and which should be deleted from the EFA, a reliability and correlation examination should be conducted (section 5.7). These tests are also repeated throughout the analysis steps. During the pilot test (section 5.2), it is used for the initial assessment of the adopted measurement items. Then, during Confirmatory Factor Analysis (CFA) (Section 5.8.2), in order to report the construct validity and final Cronbach's  $\alpha$  results for each construct.

#### **4.13.4 Rationale for Structural Equation Modelling (SEM)**

Structural equation modelling (SEM) is a collection of statistical techniques that allow a set of relationships between one or more factors either continuous or discrete to be examined (Tabachnick and Fidell, 2007). According to Hair et al. (2009), SEM is a multivariate technique that combines factor analysis and multiple regression techniques

to examine the interrelationships among constructs. SEM is preferable in social science research for many reasons. First, it provides the appropriate and most efficient estimation analysis for a series of relationships estimated simultaneously. Unlike the use of separate multiple regressions, it considers the effect of the overall model. Second, the independent and dependent variables can be examined, even where a dependent variable becomes an independent variable in other relationships. Third, using SEM enables the researcher to estimate direct, indirect, and mediation effects. Finally, conducting invariance analysis can be easily performed using SEM.

As mentioned earlier, SEM involves several statistical techniques including factor analysis; Hair et al. (2009), considered EFA as an initial step toward SEM while Confirmatory Factor Analysis (CFA) that is described next is used as part of SEM to test the structural model and to test the hypothesis.

#### **4.13.5 Confirmatory factor analysis (CFA) and Hypotheses testing**

Confirmatory Factor Analysis (CFA) is used in the next stage of the research process to test (confirm) specific hypotheses or theories concerning the structure underlying a set of variables (Pallant, 2010). This will include assessing both the measurement and structural model fits, conducting construct validity and then testing the hypotheses. While EFA can be conducted without prior knowledge of the number of factors or which items belong to which construct, in CFA, both the number of factors within a set of variables should be known to the researcher. Thus, CFA enables the researcher to either confirm or reject the proposed theory. Section 5.8 in the data analysis chapter does include detailed description of the CFA process and results.

#### **4.13.6 Post hoc analysis**

Post hoc analysis can provide extra information about the model. The information can provide better understanding about the nature of the suggested relationships between constructs. The current research will first explore potential un-hypothesised links that are supported empirically (suggested new relationships between variables). Then it will reveal information about direct effect and indirect effect of each construct into the other in the model. In addition, the mediation effect is also tested in order to understand the

role of the central intermediate construct in the model. All these analyses are conducted in sections 5.9 and 5.10.

#### **4.13.7 Group analysis**

As a secondary objective for this research is to explore and identify any differences between segments of consumers including the role of demographic, internet experience, and travel habits. Comparing between different groups advances the research by providing initial information about how each group perceives the measured variable and how it differs in terms of the relationship between each variable. The result of such analysis can be used as an initial step toward future research that focus on different types of users. For this purpose, the research will include in its appendixes two types of analysis. First, a simple mean comparison t-test analysis will be considered to learn how each group perceives each construct in the model (section A.2). Second, invariance analysis uses CFA-SEM techniques to check the differences of the relationships in the model between two or more groups (section A.3). Hair et al. (2009), assembled a few tests to perform the group invariance analysis. The steps include first testing the model fits for each group separately to proceed with confidence. Then, it checks if both respondents' groups have understood the questions similarly. Followed by testing the structural weights across both groups. If it is found to be significantly different, the analysis proceeds by testing each relationship individually to discover hypotheses that are significantly different between both groups. A full description of each of the four-step invariance analysis techniques are described in the group analysis chapter (section A.3).

#### **4.13.8 Statistical Packages used for Data Analysis**

All preliminary analysis, descriptive statistics, exploratory factor analysis, reliability, and correlation tests are carried out by using a statistical package for social sciences (SPSS) 21.0 version for Windows. It is a common and widely used statistical package. According to Zikmund et al. (2012) *"SPSS is commonly used by university business and social science students. Business researchers have traditionally used SPSS more than any other statistical software tool"*.

On the other hand, analysis of moment structure (AMOS) 21.0 versions software was used to perform the confirmatory factor analysis and the structural model testing. It is used also for the post hoc and invariance analysis. Other options to perform SEM are by using PLS or LISREL statistical packages. The selection of AMOS is justified due to its relevance to the current study and popularity in recent research. Additionally, AMOS is considered as user friendly as it allows users to draw the model with the items and make use of graphical interface instead of syntax or computer codes (Hair et al., 2009). Recently, Oke et al. (2012) conducted a revision of research materials within and outside the field of construction management. Based on the findings and recommendations from existing studies on the subject of SEM, they suggest that using AMOS is the most appropriate and recommended method. According to them, *“This is not just because it is the most available of the software programs, but because of the numerous benefits and advantages highlighted from previous studies”* (Oke et al., 2012 p 89) .

#### **4.14 Summary**

To conclude the research follows an objectivist philosophy, positivism strategy, deductive approach, and mainly quantitative methods. The selection is based on the nature of current study objectives and from literature acceptance to solve similar research questions. The chapter then described the adopted research design. This followed by a detailed description of each step of the design including the instrument and online survey development, population and sampling, pilot study, and data collection procedure. Later, ethical considerations for the research are highlighted in the chapter. Finally, data analysis steps and statistical packages used are identified with an explanation on the rational to use them. The next chapter will specifically address the data analysis procedures for this research.

## **Chapter 5 – Data Analysis**

### **5.1 Introduction**

The previous chapter (Chapter 4) reviewed different methodological philosophies and approaches to conduct this study. Then it identified appropriate methods for this research. Next, it explained the development of the measurement scale and the way data was collected. Finally, recommended data analysis processes and appropriate statistical tools were discussed. Consequently, the purpose of this chapter is to present the results of the data and apply analysis techniques to validate the measurement items and structure of the proposed model, and to test the set hypothesis. This chapter will initially present the pilot study results to verify the reliability and validity of the survey instrument. The main survey data will then be analysed in detail. This will involve data screening, assessing characteristics of the data sample, Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA) and hypothesis testing. As a post-hoc analysis, examining the direct, indirect, and new suggested relationships and mediation effect in the model are also carried out.

### **5.2 Pilot Study**

As mentioned earlier in Chapter 4, a pilot study is required before the main data collection. While, face validity was partially conducted during the instrument validation process described in section 4.5.3, the pilot test will facilitate extra improvements to the questions text.

The online survey link was sent to around 85 Saudi students in the UK via email. At the end of a full month of following up with the sample and waiting for the replies, there were 65 respondents (76% response rate). Out of these respondents, two had not used airline websites before, so they were excluded. There were 63 remaining respondents, of which 74% were males and 26% females. A complete descriptive analysis of the pilot sample is available in Appendix 5.

The average time taken to complete the survey was between 10 – 15 minutes. This duration was used as a guide for the actual data collection invitation letter.



As the questions within the instrument were adopted from widely used literature, and the instrument had already been validated by a number of experts, very few corrections were suggested by respondents. This confirmed the instrument’s face validity. The data were then used to conduct a reliability and correlations analysis. Both tests are useful for helping the researchers judge whether the instrument is reliable and valid prior to complete data collection.

The overall reliability of the instrument within piloting was  $\alpha=0.943$ , which is well above than the recommended threshold of 0.7 (Hair et al., 2009; Nunnally and Bernstein, 1994). The individual construct reliability ranged from 0.911 to 0.969 (see table 5.1).

The correlations between constructs were between 0.449 and 0.896. These results are well above the rule of thumb minimum value of 0.3 (Hair et al., 2009) but with some seems highly correlated. The two pairs that were most strongly correlated were System Quality (SQ) with e-Satisfaction (ES) (0.896) and System Quality (SQ) with Information Quality (IQ) (0.873). All the results of the reliability and correlations are shown below in table 5.1 below.

**Table 5.1: Reliability and Correlation for Pilot Study**

	Reliability Cronach'sAlpha	Correlations								
		Perceived Usefulness	Perceived Ease of use	Information Quality	System Quality	eTrust	Airline Reputation	Perceived Price	eSatisfaction	Intention to Purchase
Perceived Usefulness	.962	1	.646**	.778**	.706**	.615**	.588**	.592**	.735**	.557**
Perceived Ease of use	.960	.646**	1	.765**	.759**	.449**	.655**	.459**	.741**	.474**
Information Quality	.915	.778**	.765**	1	.873**	.631**	.768**	.632**	.833**	.633**
System Quality	.935	.706**	.759**	.873**	1	.749**	.782**	.639**	.896**	.748**
eTrust	.969	.615**	.449**	.631**	.749**	1	.668**	.510**	.762**	.777**
Airline Reputation	.911	.588**	.655**	.768**	.782**	.668**	1	.686**	.827**	.654**
Perceived Price	.935	.592**	.459**	.632**	.639**	.510**	.686**	1	.664**	.608**
eSatisfaction	.937	.735**	.741**	.833**	.896**	.762**	.827**	.664**	1	.734**
Intention to Purchase	.964	.557**	.474**	.633**	.748**	.777**	.654**	.608**	.734**	1

\*\* Correlation is significant at the 0.01 level (2-tailed).

To conclude, the reliability and correlation tests show good, and sometimes above the recommended standard, results. This confirms that the scale is valid and reliable, and that can be adopted for larger scale data collection.

### **5.3 Main Survey**

The next step after the successful pilot test was to conduct a complete data collection from the specified sample (Saudi travellers). Full details of data collection procedures are presented in section 4.8 in the previous chapter. The full responses were then downloaded and opened using SPSS version 21.0 for the first phase of data analysis. The following sections will go through all the analyses and statistical tests that were conducted on the main set of data.

### **5.4 Data screening and characteristic of data sample**

Prior to analysis, research instrument items were examined, through SPSS statistical package, for accuracy of data entry, missing values, and outliers. Then pre-requests assumptions were explored. Assumptions such as: Normality, Homogeneity, and Multicollinearity should be satisfied in order to achieve effective factor analysis.

#### **5.4.1 Accuracy of data and missing values**

The data was collected online and the respondents were asked to complete all the questions for each variables item. A friendly error message appeared if they did not answer some, in order to encourage them to complete all answers. Therefore, the final data set had no any missing data. This is one advantage of using an online survey method. As mentioned in the data collection Section 4.11, 800 users viewed the survey while 524 have completed it. Out of the 524 responses, 19 responses answered “No” to the validation question asking them if they have ever used an Airline website before. They did not complete the actual survey, and they were thanked and redirected out of the survey. The remaining valid responses were 505 and since the total count of users opened the survey were 800, this means that (63.13%) of the users whom they opened the survey landing page, have actually completed the survey.

Running a routine descriptive exploratory analysis showed that some responses appeared unreasonable and had to be removed. For example, six responses were excluded from the data set because when asked to select the airline website they most frequently used, they chooses “Other”, and wrote non-airline websites such as online travel agents (e.g. Expedia, Travelocity). This is out of the scope of the present study. In addition, from the data screening it was found that 5 respondents where unreasonable;

they answered all the 54 measurement questions with “strongly agree”. Their responses were excluded from the data set. The remaining are **494** valid responses that will be used for the remaining of the study data analysis. Table 5.2 below summarises the response rate and the valid responses as a percentage.

**Table 5.2: Respondents records rate**

Respondents	No. of records	Percentage out of the people viewed the survey
Viewed or started the survey	800	
Completed the survey	505	63.13%
Valid Responses	494	61.75%

### 5.4.2 Outliers

An outlier is a case with such an extreme value on one variable (a univariate outlier) or such an abnormal combination of scores on two or more variables (multivariate outlier) that it distorts statistics (Tabachnick and Fidell, 2007). Testing the data set for outliers, using the graphical method outlined in Pallant (2010) indicated that there were few outliers in the data set. However, according to Hair et al. (2009), outliers should be retained unless there is a proof that they are truly aberrant and not representative of any observations in the population. This is to ensure generalizability of the entire population. Deleting the outliers might improve the multivariate analysis but limit the generalizability. In addition, the removal of unrepresentative or extreme responses was implemented in the first step of data screening. Therefore, rather than delete responses identified as outliers, these items were retained in the data set.

Moreover, the statistical value called the 5% Trimmed Mean can help in deciding if the extreme scores have a strong influence on the mean or not (Pallant, 2010). To obtain this value, SPSS removes the top and bottom 5 per cent of the cases and calculates a new mean value. If the original mean and the new trimmed mean values are very different, then these data points may need to be investigated further. In the case of this study the two mean values for all variables are very similar, as can be seen in Table 5.3, below. Given this, and the fact that the values are not too different from the remaining distribution, the study will retain these cases in the data file.

**Table 5.3: Mean and 5% Trimmed mean**

<b>Perceived usefulness (PU)</b>	Mean	5.8596
	5% Trimmed Mean	5.9785
<b>Perceived ease of use (PEOU)</b>	Mean	5.6059
	5% Trimmed Mean	5.7094
<b>Information Quality (IQ)</b>	Mean	5.3146
	5% Trimmed Mean	5.3782
<b>System Quality (SQ)</b>	Mean	5.2704
	5% Trimmed Mean	5.3542
<b>e-Trust (ET)</b>	Mean	5.4320
	5% Trimmed Mean	5.5327
<b>Airline reputation (AR)</b>	Mean	4.6599
	5% Trimmed Mean	4.7092
<b>Price Perception (PP)</b>	Mean	4.4745
	5% Trimmed Mean	4.5087
<b>e-Satisfaction (ES)</b>	Mean	5.1709
	5% Trimmed Mean	5.2518
<b>Intention to Purchase (IP)</b>	Mean	5.3336
	5% Trimmed Mean	5.4568

### 5.4.3 Normality

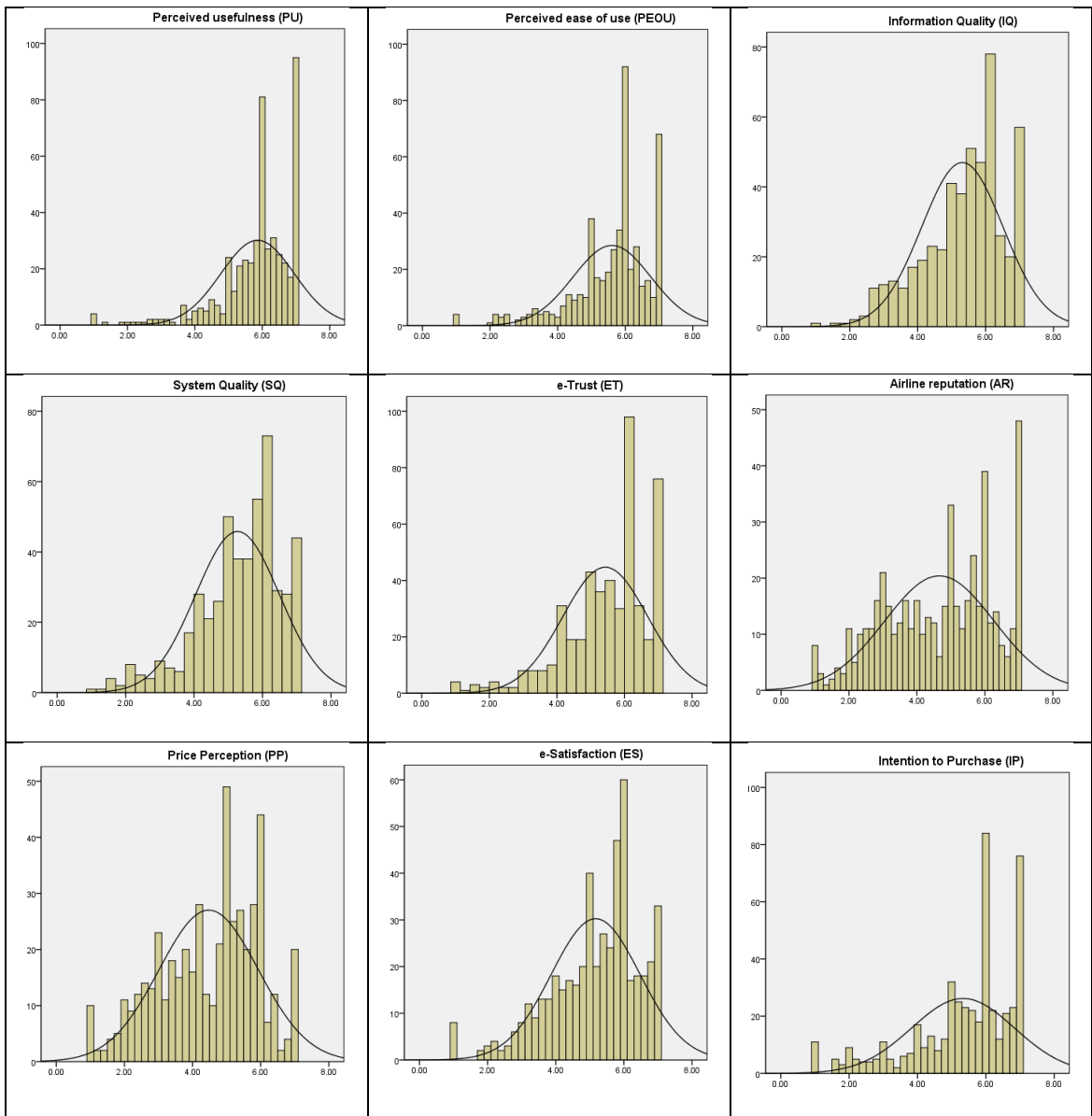
Many statistical techniques, such as multivariate procedures, assume that the distribution of scores on the dependent variable is “normal”. “Normal” refers to a symmetrical, bell-shaped curve, which has the greatest frequency of scores in the middle, and smaller frequencies towards the extremes (Pallant, 2010). Several methods are suggested to measure the normality, such as skewness and kurtosis scores. If the distribution is perfectly normal, skewness and kurtosis value should be 0. However, this is an uncommon occurrence in Social Sciences (Pallant, 2010). In addition, many scholars recommend inspecting the shape of distribution in the case of a large sample (200+) by using a histogram or P-P plot (Field, 2009; Hair et al., 2009; Tabachnick and Fidell, 2007).

Normality was first assessed through descriptive analysis using skewness and kurtosis outputs of all items in the dataset. Skewness and kurtosis results indicate an acceptable level of normality, except for the construct of perceived usefulness, where the values was slightly above suggested level (see Table 5.4). However, according to (Tabachnick and Fidell, 2007) in a reasonably large samples, skewness will not ‘make a substantive difference in the analysis’. Kurtosis can result in an underestimate of the variance,

although this risk is reduced with a large sample. Also the histograms and P-P plots that were generated indicate acceptable, but not perfect, normality for all variables (See Figure 5.1). Hair et al. (2009) confirm that if the sample size is large, the researcher can be less concerned about abnormal variables. In the case of this study the sample size is over 490+ which means that there should be no significant difference in the main analysis. Further assessments of the robustness of the data analysis, with and without the assumption of normality, were carried out through the residual analysis using AMOS for PU. It showed that there are no significant differences in the results. Thus, it is decided that no transformation remedy is required at this stage.

**Table 5.4: Skewness and Kurtosis values for all items**

Items	Mean Statistic	SD	Skewness		Kurtosis	
			Statistic	Std. Error	Statistic	Std. Error
PU1	5.90	1.237	<u>-1.696</u>	.110	<u>3.530</u>	.219
PU2	5.83	1.210	<u>-1.601</u>	.110	<u>3.468</u>	.219
PU3	5.95	1.251	<u>-1.745</u>	.110	<u>3.478</u>	.219
PU4	5.80	1.200	<u>-1.466</u>	.110	<u>2.882</u>	.219
PU5	5.90	1.207	<u>-1.754</u>	.110	<u>3.940</u>	.219
PU6	5.78	1.258	<u>-1.393</u>	.110	<u>2.338</u>	.219
PEOU1	5.66	1.243	<u>-1.357</u>	.110	<u>2.240</u>	.219
PEOU2	5.76	1.189	<u>-1.553</u>	.110	<u>3.084</u>	.219
PEOU3	5.69	1.260	<u>-1.509</u>	.110	<u>2.562</u>	.219
PEOU4	5.41	1.357	<u>-1.117</u>	.110	<u>1.013</u>	.219
PEOU5	5.52	1.360	<u>-1.250</u>	.110	<u>1.487</u>	.219
PEOU6	5.59	1.294	<u>-1.351</u>	.110	<u>1.920</u>	.219
IQ1	5.14	1.470	<u>-.897</u>	.110	<u>.254</u>	.219
IQ2	5.08	1.513	<u>-.794</u>	.110	<u>-.108</u>	.219
IQ3	5.61	1.230	<u>-1.133</u>	.110	<u>1.413</u>	.219
IQ	5.24	1.515	<u>-1.024</u>	.110	<u>.462</u>	.219
IQ5	5.28	1.408	<u>-.903</u>	.110	<u>.345</u>	.219
IQ6	5.40	1.403	<u>-1.157</u>	.110	<u>1.230</u>	.219
IQ7	5.45	1.316	<u>-1.181</u>	.110	<u>1.460</u>	.219
SQ1	5.41	1.376	<u>-1.184</u>	.110	<u>1.299</u>	.219
SQ2	5.39	1.391	<u>-1.243</u>	.110	<u>1.244</u>	.219
SQ3	5.23	1.507	<u>-1.040</u>	.110	<u>.549</u>	.219
SQ4	5.62	1.388	<u>-1.429</u>	.110	<u>2.054</u>	.219
SQ5	5.36	1.379	<u>-1.040</u>	.110	<u>.684</u>	.219
SQ6	4.87	1.687	<u>-.845</u>	.110	<u>-.119</u>	.219
SQ7	5.01	1.551	<u>-.786</u>	.110	<u>.025</u>	.219
ET1	5.48	1.418	<u>-1.189</u>	.110	<u>1.247</u>	.219
ET2	5.58	1.316	<u>-1.331</u>	.110	<u>2.110</u>	.219
ET3	5.47	1.438	<u>-1.189</u>	.110	<u>1.147</u>	.219
ET4	5.32	1.415	<u>-1.024</u>	.110	<u>.897</u>	.219
ET5	5.40	1.399	<u>-1.135</u>	.110	<u>1.252</u>	.219
ET6	5.38	1.420	<u>-1.158</u>	.110	<u>1.218</u>	.219
ET7	5.39	1.438	<u>-1.134</u>	.110	<u>1.054</u>	.219
AR1	4.43	2.028	<u>-.395</u>	.110	<u>-1.179</u>	.219
AR2	4.09	2.099	<u>-.182</u>	.110	<u>-1.351</u>	.219
AR3	4.40	1.906	<u>-.322</u>	.110	<u>-1.061</u>	.219
AR4	4.46	1.925	<u>-.433</u>	.110	<u>-1.007</u>	.219
AR5	5.44	1.506	<u>-1.114</u>	.110	<u>.856</u>	.219
AR6	5.14	1.792	<u>-.916</u>	.110	<u>-.071</u>	.219
PP1	4.38	1.696	<u>-.504</u>	.110	<u>-.719</u>	.219
PP2	4.22	1.750	<u>-.376</u>	.110	<u>-.975</u>	.219
PP3	4.33	1.715	<u>-.401</u>	.110	<u>-.768</u>	.219
PP4	5.13	1.506	<u>-.958</u>	.110	<u>.408</u>	.219
PP5	4.30	1.628	<u>-.379</u>	.110	<u>-.726</u>	.219
ES1	5.15	1.482	<u>-1.051</u>	.110	<u>.586</u>	.219
ES2	5.16	1.484	<u>-.956</u>	.110	<u>.349</u>	.219
ES3	5.30	1.514	<u>-1.045</u>	.110	<u>.659</u>	.219
ES4	5.77	1.223	<u>-1.555</u>	.110	<u>3.149</u>	.219
ES5	4.47	1.689	<u>-.423</u>	.110	<u>-.730</u>	.219
IP1	5.49	1.487	<u>-1.273</u>	.110	<u>1.292</u>	.219
IP2	5.40	1.605	<u>-1.116</u>	.110	<u>.587</u>	.219
IP3	5.22	1.782	<u>-.921</u>	.110	<u>-.218</u>	.219
IP4	5.33	1.623	<u>-1.043</u>	.110	<u>.345</u>	.219
IP5	5.23	1.670	<u>-.997</u>	.110	<u>.210</u>	.219

**Figure 5.1: Variables Histograms for Normality**

#### 5.4.4 Homoscedasticity

Homoscedasticity refers to the assumption that dependent variable(s) exhibit equal levels of variance across the range of predictor variable(s) (Hair et al., 2009). This assumption is considered as a pre-requisite in multiple regressions (Field, 2009). According to Hair et al. (2009), the failure of homoscedasticity, also known as heteroscedasticity, can create serious problems in multivariate analysis. The most common method for assessing homoscedasticity is Levene's test of equal variance (Field, 2009; Hair et al., 2009; Pallant, 2010; Tabachnick and Fidell, 2007). Levene's test checks the null hypothesis that the variances in different groups are equal (i.e. the

difference between the variances is zero). If Levene's test value is non-significant (i.e.  $p > .05$ ), then the variances are roughly equal and the homoscedasticity assumption is tenable (Field, 2009; Pallant, 2010). In this study, Levene's test for the metric variables was computed across the non-metric variable (gender) and all obtained scores higher than the minimum significant value i.e.  $p > 0.05$  (see table 5.5).

This suggests that the variance for all the variables was equal within groups of males and females that the assumption of homogeneity of variance has not been violated.

**Table 5.5: Levene's Test**

		Levene Statistic	df1	df2	Sig.
<b>Perceived usefulness (PU)</b>	Based on Mean	0.339	4	489	<b>0.851</b>
	Based on Median	0.217	4	489	<b>0.929</b>
	Based on Median and with adjusted df	0.217	4	457.605	<b>0.929</b>
	Based on trimmed mean	0.205	4	489	<b>0.936</b>
<b>Perceived ease of use (PEOU)</b>	Based on Mean	0.409	4	489	<b>0.802</b>
	Based on Median	0.271	4	489	<b>0.897</b>
	Based on Median and with adjusted df	0.271	4	470.821	<b>0.897</b>
	Based on trimmed mean	0.386	4	489	<b>0.819</b>
<b>Information Quality (IQ)</b>	Based on Mean	0.809	4	489	<b>0.52</b>
	Based on Median	0.801	4	489	<b>0.525</b>
	Based on Median and with adjusted df	0.801	4	483.183	<b>0.525</b>
	Based on trimmed mean	0.846	4	489	<b>0.496</b>
<b>System Quality (SQ)</b>	Based on Mean	1.207	4	489	<b>0.307</b>
	Based on Median	0.936	4	489	<b>0.443</b>
	Based on Median and with adjusted df	0.936	4	484.976	<b>0.443</b>
	Based on trimmed mean	1.134	4	489	<b>0.34</b>
<b>e-Trust (ET)</b>	Based on Mean	0.09	4	489	<b>0.986</b>
	Based on Median	0.199	4	489	<b>0.939</b>
	Based on Median and with adjusted df	0.199	4	475.504	<b>0.939</b>
	Based on trimmed mean	0.133	4	489	<b>0.97</b>
<b>Airline reputation (AR)</b>	Based on Mean	1.554	4	489	<b>0.185</b>
	Based on Median	1.413	4	489	<b>0.228</b>
	Based on Median and with adjusted df	1.413	4	483.676	<b>0.228</b>
	Based on trimmed mean	1.517	4	489	<b>0.196</b>
<b>Price Perception (PP)</b>	Based on Mean	0.569	4	489	<b>0.685</b>
	Based on Median	0.481	4	489	<b>0.75</b>
	Based on Median and with adjusted df	0.481	4	475.232	<b>0.75</b>
	Based on trimmed mean	0.556	4	489	<b>0.695</b>
<b>e-Satisfaction (ES)</b>	Based on Mean	0.872	4	489	<b>0.48</b>
	Based on Median	0.597	4	489	<b>0.665</b>
	Based on Median and with adjusted df	0.597	4	470.495	<b>0.665</b>
	Based on trimmed mean	0.792	4	489	<b>0.531</b>
<b>Intention to Purchase (IP)</b>	Based on Mean	0.145	4	489	<b>0.965</b>
	Based on Median	0.299	4	489	<b>0.879</b>
	Based on Median and with adjusted df	0.299	4	474.626	<b>0.879</b>
	Based on trimmed mean	0.203	4	489	<b>0.937</b>

### 5.4.5 Multicollinearity

Multicollinearity, measured in terms of tolerance, signifies that two or more independent variables are highly correlated, so that one variable can be highly explained or predicted by the other variable(s) and thus it has a limited contribution to the explanatory power of the entire set (Hair et al., 2009). Therefore, multicollinearity is problematic in multiple regression (Pallant, 2010). According to Field (2009), the presence of multicollinearity limits the size of the regression (R) value and makes it difficult to understand the contribution of each individual independent variable.

Multicollinearity exists when the independent variables are highly correlated  $r \geq 0.9$  (Hair et al., 2009; Pallant, 2010; Tabachnick and Fidell, 2007). One way of identifying multicollinearity is by scanning the correlation matrix of all the predictor variables and seeing if any correlate very highly (Field, 2009). Another test is the variance inflation factor (VIF) that indicates whether a predictor has a strong linear relationship with the other predictor (s). the acceptable value of VIF should be more than 0.1 and less than 10 (Pallant, 2010; Tabachnick and Fidell, 2007).

The results of the correlation matrix presented in Table 5.6 revealed that all of the bivariate correlations were  $\leq 0.8$  for independent variables. In addition, the VIF test (with Intention to Purchase (IP) as dependant variable) also suggests the absence of multicollinearity because all the results were more than 1 and less than 5 (see Table 5.7).

**Table 5.6: Pearson correlation for observing multicollinearity**

	(PU)							
Perceived ease of use (PEOU)	.622**	(PEOU)						
Information Quality (IQ)	.632**	.719**	(IQ)					
System Quality (SQ)	.569**	.772**	.801**	(SQ)				
e-Trust (ET)	.541**	.635**	.661**	.718**	(ET)			
Airline reputation (AR)	.378**	.473**	.625**	.637**	.549**	(AR)		
Price Perception (PP)	.357**	.407**	.443**	.509**	.442**	.514**	(PP)	
e-Satisfaction (ES)	.573**	.659**	.725**	.763**	.664**	.671**	.628**	(ES)
Intention to Purchase (IP)	.475**	.474**	.471**	.523**	.539**	.410**	.442**	.627**

\*\* . Correlation is significant at the 0.01 level (2-tailed).



**Table 5.7: VIF test**

	Collinearity Statistics	
	Tolerance	VIF
Perceived usefulness (PU)	.515	1.940
Perceived ease of use (PEOU)	.336	2.972
Information Quality (IQ)	.275	3.633
System Quality (SQ)	.219	4.564
e-Trust (ET)	.427	2.341
Airline reputation (AR)	.467	2.143
Price Perception (PP)	.584	1.711
e-Satisfaction (ES)	.277	3.606

Dependent Variable: Intention to Purchase (IP)

## 5.5 Sample Characteristics

In the following sections a descriptive analyses of the response sample will be presented. Demographic information, internet usage experience, and travel experience were part of the online questionnaire. Some of these characteristics will be used to conduct invariant group analysis in Appendix 9 .

### 5.5.1 Demographic Information

Based on gender classification, demographic data shows that males comprised 75.3% (n=372) of the sample size, while females comprised 24.7% (n=122). The largest age-groups were 26-35 years (45.1%, n=223) followed by 36-45 years (21.3%, n=105), and 18-25 years (20.9%, n=103). The study population has a relatively high level of education, with 44.7% (n=221) holding a bachelor degree and 29.1% (n=144) holding a Masters. Almost half of the population (45.10%, n=223) are receive more than 12,000 Saudi Riyals (2,000 GBP) as a monthly income per month. The largest groups within the category of occupation were observed in the government sector (36.2% n=179) followed by the private sector (27.3%, n=135), then students (26.9%, n=133). Also, 71.1% (n=351) of those surveyed indicated that they were living inside Saudi Arabia, while the rest (29.9% n=143) were living outside Saudi Arabia at the time of completing the survey. Out of those living inside Saudi Arabia, the largest response rate came from the main Saudi provinces: Makkah Region (38.5% n=190) Riyadh Region (18.4% n=91) and Eastern Region (6.3% n=31). Remaining regions represent only 7.8% (n=39) of the overall responses. Full demographic details of the sample population are presented in Table 5.8.

**Table 5.8: Demographics of the sample**

		Frequency	Percent
<b>Gender</b>	Male	372	75.3%
	Female	122	24.7%
<b>Age</b>	18-25	103	20.9%
	26-35	223	45.1%
	36-45	105	21.3%
	46-55	51	10.3%
	56-65	12	2.4%
<b>Level of Education</b>	Pre High School	3	.6%
	High School	30	6.1%
	Diploma	40	8.1%
	Bachelor	221	44.7%
	Masters	144	29.1%
	Doctoral	56	11.3%
<b>Monthly Income</b>	Less than 3,000 SR	26	5.3%
	3,000 -6,000 SR	58	11.7%
	6,001-9,000 SR	67	13.6%
	9,001-12,000 SR	68	13.8%
	12,001-15,000 SR	57	11.5%
	15,001-20,000 SR	64	13.0%
	More than 20,000 SR	102	20.6%
	Dependent on others (e.g. Husband, Parents)	52	10.5%
<b>Occupation</b>	Student	133	26.9%
	Government Employer	179	36.2%
	Privet Sector Employer	135	27.3%
	Businessman/ Businesswoman	12	2.4%
	Freelancer	5	1.0%
	Retired	5	1.0%
	Unemployed	25	5.1%
<b>Place of residence?</b>	"Outside Saudi Arabia"	143	28.9%
	KSA - Riyadh Region	91	18.4%
	KSA - Makkah Region	190	38.5%
	KSA - Madinah Region	11	2.2%
	KSA - Qasim Region	6	1.2%
	KSA - Eastern Region	31	6.3%
	KSA - Asir Region	4	.8%
	KSA - Tabouk Region	5	1.0%
	KSA - Hail Region	1	.2%
	KSA - Jizan Region	9	1.8%
	KSA - Najran Region	2	.4%
	KSA - Al-Jouf Region	1	.2%
<b>Location Inside or Outside Saudia</b>	Out Saudi	143	28.9%
	In Saudi	351	71.1%

### 5.5.2 Internet usage experience

The surveyed users showed a high level of internet usage experience in general. According to the answers, 88.7% (n=438) have used the internet for more than 6 years and 76.5% (n=378) spend more than 2 hours daily on the internet. In addition, 89.9% (n= 444) indicated that they have purchased a product or service online. Moreover, most of the sample population said that they have very good (51.6%, n= 255) or good (37.4%, n= 185) familiarity with the internet and very good (44.9%, n= 222) or good (38.9%, n=192) computer knowledge. See Table 5.9 for full results on internet usage experience.

**Table 5.9: Internet usage experience**

		Frequency	Percent
How long have you been using the internet?	1-3 years	8	1.6%
	3-6 years	48	9.7%
	More than 6 Years	438	88.7%
How many hours do you spend on average in the internet daily?	Less than 1 hr	18	3.6%
	1-2 hr	98	19.8%
	2-3 hr	141	28.5%
	More than 3 hr	237	48.0%
How do you rate your familiarity with the internet?	Poor	4	.8%
	Moderate	50	10.1%
	Good	185	37.4%
	Very Good	255	51.6%
How do you rate your computer knowledge?	Poor	9	1.8%
	Moderate	71	14.4%
	Good	192	38.9%
	Very Good	222	44.9%
Have you ever purchased any product or service through the internet?	Yes	444	89.9%
	No	50	10.1%

### 5.5.3 Travel experience

As part of the study, questionnaire respondents were asked about their travel preferences, usage and experience. Initially, they were asked to select the airline website that they most frequently used. They were made aware that the rest of the questionnaire would be based on this selection. The answers were predictable. The major airline operator in Saudi Arabia (Saudi Arabian Airlines) had the highest rate of usage (65%, n=323) followed by the other local low cost airline (Nas Airlines) with 7.5% (n=37) and Emirates Airlines (7.5%, n=37). Other international operators had a small representation in the data set as well. The actual purchase experience from the airline website selected show that (77.1%, n=381) of the respondents did complete a purchase transaction. When the frequency of travel of the respondents was examined, the results revealed that (61.7%, n=305) of the population sample had completed more than 6 air travel journeys in the last 3 years, while (39.7%, n=196) had completed more than 6 air travel journeys using the airline they selected to judge in the questionnaire. This indicates that the population sample had good experience with airlines. In regards to the population's travel motivation, "Leisure / Vacation" came first with 33.4% (n=165) "Business" was second with 21.3% (n=105) followed by travelling for "study" (20.3%, n=102). Regarding the type of travel, 60.5% (n=299) indicated that they mostly travel internationally with the airline that they selected. The remaining respondents (39.5%, n=195) used their selected airline for domestic flights. In response to the question of the mostly used seat class, the majority selected "economy" (81.45%, n=402). In addition, the question about who usually pays for the tickets, reveals that 57.7% (n= 285) of the population do pay for themselves, while the rest are either "sponsored" (27.5 %, n= 136) or have their tickets paid for by others (e.g. parents or husband) (14.8%, n=73). Finally, when asked about the preferred method of ticket payment, around half of the population chose credit card (51.8%, n=256). The remaining respondents mostly preferred using their bank account or direct debit (41.7%, n=206). Full details of response frequency are available in Table 5.10 below.

**Table 5.10: Travel experience**

		Frequency	Percent
Airline website that you most frequently use	Saudia Airlines	323	65.4%
	Nas Airlines	37	7.5%
	Emirates Airlines	37	7.5%
	Etiihad Airways	12	2.4%
	Gulf Air	4	.8%
	Egyptair	2	.4%
	Qatar Airways	10	2.0%
	Oman Air	1	.2%
	Royal Jordanian Airlines	2	.4%
	Middle East Airlines	1	.2%
	British Midland (BML)	5	1.0%
	British Airways (BA)	23	4.7%
	Lufthansa	8	1.6%
	Turkish Airlines	4	.8%
	KLM	3	.6%
	Malaysia Airlines	3	.6%
Ryan Air	2	.4%	
Delta Airlines	2	.4%	
Cathay Pacific	2	.4%	
Other	13	2.6%	
Have you ever purchased tickets from the airline website you selected above?	Yes	381	77.1%
	No	113	22.9%
How many air travel journeys in total have you made within the last 3 years?	No any	9	1.8%
	1-2	32	6.5%
	3-4	70	14.2%
	5-6	78	15.8%
	More than 6	305	61.7%
How many air travel journeys with "The selected Airline" have you made within the last 3 years?	No any	10	2.0%
	1-2	94	19.0%
	3-4	132	26.7%
	5-6	62	12.6%
	More than 6	196	39.7%
What is mostly/usually the motivation of your travel with "The selected Airline"?	Leisure / Vacation	165	33.4%
	Business	105	21.3%
	Study	102	20.6%
	Treatment (Medical Reasons)	4	.8%
	Visiting friends or relatives	87	17.6%
	Religious reasons (Hajj, Umrah)	11	2.2%
	Other, Please Specify	20	4.0%
Is your most frequent travels with "The selected Airline" Domestic or International	Domestic	195	39.5%
	International	299	60.5%
What seat class do you mostly/usually use when you travel with "The selected Airline"	Economy (Or Equivalent) Or in the case of a low cost airline with one class offered	402	81.4%
	Business (Or Equivalent)	76	15.4%
	First Class (Or Equivalent)	16	3.2%
Who mostly/usually pays for your tickets when you fly with "The selected Airline"	Yourself	285	57.7%
	Sponsored (e.g. Company, Government)	136	27.5%
	Paid by others (e.g. Husband, Parents)	73	14.8%
What is your preferred method of payment when you purchase airline tickets online?	Credit Card (e.g. Visa, Master Card)	256	51.8
	Debit Card	84	17.0
	Bank Account (e.g. Sadad Service)	122	24.7
	Online Payment (e.g. Paypal, WorldPay)	17	3.4
	Only Cash Offline	12	2.4
Other	3	.6	

Graphical representation of the data is also available in Appendix 6.

## 5.6 Exploratory Factor Analysis (EFA)

As discussed earlier in Chapter 4, EFA technique is used to explore the data and provide information to the researcher about the number of possible factors that best represent the data. CFA techniques are used to validate/confirm the measurement factors that exist within sets of variables involved in a theoretical model in order to test hypotheses (Hair et al., 2009). Thus, this study applied EFA first, then CFA, before examining the hypotheses.

In order to examine the structure of the measurement items corresponding to the variables presented in conceptual model, exploratory factor analysis was applied using SPSS (version 21.0 for Windows). EFA was applied to the 54 items adopted from the literature, contributing to 9 theoretically established constructs.

Numerous procedures are available for factor extraction and rotation, such as principal component analysis (PCA), principle factors, maximum likelihood factoring, image factoring, alpha factoring, as well as un-weighted and generalised weighted least squares factoring. Among these, the principal component extraction method was selected because it is the most common, and is a default setting in SPSS used to extract the maximum variance from the data set with each component (Tabachnick and Fidell, 2007). The PCA extracts the maximum variance from the data set, in a way that first component extract highest variance and last component extract least variance. Also, the orthogonal varimax rotational method for the extraction was selected because it is the most common variance maximising procedure, and has higher generalizability and reliability power compared to other rotational methods (Pallant, 2010; Tabachnick and Fidell, 2007).

To achieve appropriate factor analysis results, two statistical measures are recommended first to assess the factorability of the data. These are Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. Bartlett's test of sphericity should be significant ( $p < .05$ ) to indicate that the correlation among the measurement items is higher than 0.3 and EFA to be considered appropriate. The KMO index should be above 0.6 to indicate that the relationship between items is statistically significant and appropriate good for factor analysis (Hair et al., 2009; Pallant, 2010; Tabachnick and Fidell, 2007).

Table 5.11 represents the result for the current data. The KMO value is .967 and Bartlett's test is significant ( $p = .000$ ), therefore EFA is confirmed to be appropriate in the case of the current study.

**Table 5.11: KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO).		.967
Bartlett's Test of Sphericity	Approx. Chi-Square	29486.554
	df	1431
	Sig.	.000

The next step is to assess the adequacy of extraction and the number of factors. Among the several criteria that could be used, three were selected in this research, namely: percentage of variance criterion (**communality**), latent root criterion (**Eigenvalues**), and the Scree test criterion.

### 5.6.1 Percentage of variance criterion - communality

The total variance of an original variable shared with other variables is also known as communality (Hair et al., 2009). According to Tabachnick and Fidell (2007), if the communality values are equal to or exceed 1, this indicates problems with the solution. For example, it might suggest that there is too little data, that the starting communality values are wrong, or that the number of factors extracted is wrong. On the other hand, very low communality values indicate that the variables with these values are unrelated to others in the set. The items that exhibit communality lower than 0.5 (50%) are considered to be weak items (Hair et al., 2009). With respect to a large sample size, a cut-off value of 0.3 communality is also accepted (Pallant, 2010). For improving or refining a scale, it is recommended to remove items with low communality (Hair et al., 2009).

Table 5.12 below presents the information of communalities explained by each item. All of the items shared above 0.5 communality with their components. Therefore, no items needed to be removed. (N.B: The weakest in the list are: SQ4, SQ6, SQ1, and ES5)

**Table 5.12: Items communalities**

Construct	Initial	Extraction	Construct	Initial	Extraction	Construct	Initial	Extraction	Construct	Initial	Extraction
PU1	1.000	.666	IQ1	1.000	.741	ET1	1.000	.805	PP1	1.000	.842
PU2	1.000	.811	IQ2	1.000	.775	ET2	1.000	.816	PP2	1.000	.892
PU3	1.000	.782	IQ3	1.000	.645	ET3	1.000	.785	PP3	1.000	.801
PU4	1.000	.832	IQ4	1.000	.743	ET4	1.000	.772	PP4	1.000	.610
PU5	1.000	.839	IQ5	1.000	.726	ET5	1.000	.876	PP5	1.000	.810
PU6	1.000	.830	IQ6	1.000	.668	ET6	1.000	.807			
			IQ7	1.000	.672	ET7	1.000	.833	ES1	1.000	.738
PEOU1	1.000	.761							ES2	1.000	.770
PEOU2	1.000	.733	SQ1	1.000	.596	AR1	1.000	.878	ES3	1.000	.774
PEOU3	1.000	.818	SQ2	1.000	.730	AR2	1.000	.898	ES4	1.000	.771
PEOU4	1.000	.799	SQ3	1.000	.667	AR3	1.000	.841	ES5	1.000	.631
PEOU5	1.000	.833	SQ4	1.000	.565	AR4	1.000	.866			
PEOU6	1.000	.844	SQ5	1.000	.694	AR5	1.000	.697	IP1	1.000	.842
			SQ6	1.000	.591	AR6	1.000	.696	IP2	1.000	.808
			SQ7	1.000	.669				IP3	1.000	.849
									IP4	1.000	.905
									IP5	1.000	.874

\* Extraction Method: Principal Component Analysis.

### 5.6.2 Latent root criterion - Eigenvalues

Eigenvalue is a principal component extraction method that indicates the substantive importance of that factor. An estimate of the number of factors can be obtained from the size of the eigenvalues reported as part of a run with principal component extraction (Tabachnick and Fidell, 2007). According to Hair et al. (2009), if an Eigenvalue is more than 1, it satisfies the latent root criterion but if it is less than 1 it is considered not important and can be disregarded. A solution that accounts for 60% or above of the cumulative variance satisfies the criterion of variance percentage (variability in score). Table 5.13 represents an examination of eigenvalues for the current data. Unexpectedly, 8 rather than 9 components were extracted whose eigenvalue was greater than 1. These 8 components explained a total variance of 76.885% (see column ‘Cumulative %’), which is higher than the recommendation. This suggests that the current data represents 8 constructs, not 9 as proposed earlier.

**Table 5.13: Total Variance Explained**

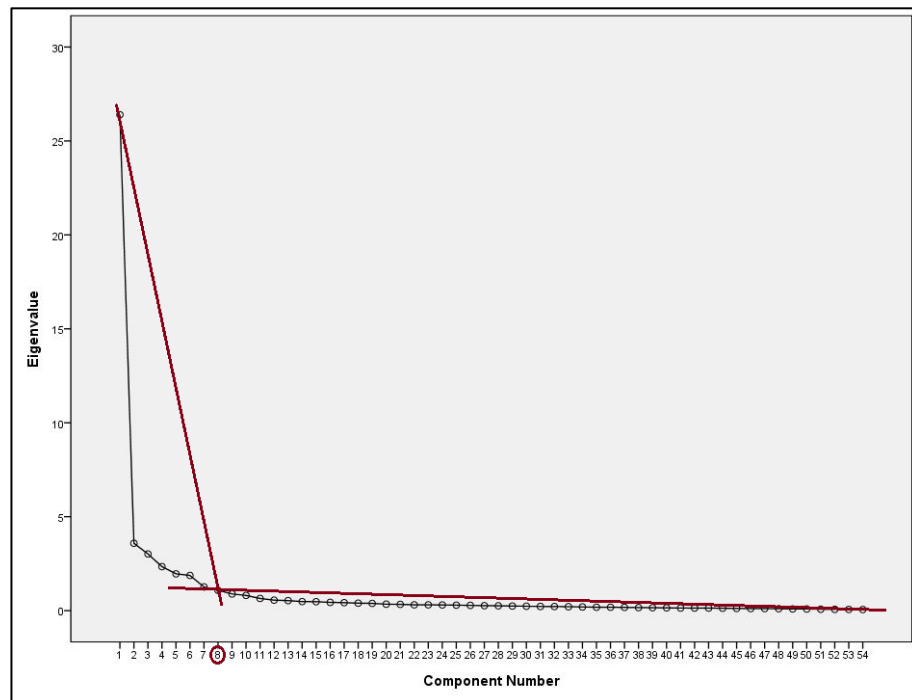
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	26.397	48.883	48.883	26.397	48.883	48.883	7.330	13.573	13.573
2	3.586	6.640	55.523	3.586	6.640	55.523	6.598	12.219	25.793
3	3.017	5.587	61.111	3.017	5.587	61.111	6.011	11.132	36.924
4	2.344	4.341	65.451	2.344	4.341	65.451	5.379	9.962	46.886
5	1.959	3.628	69.080	1.959	3.628	69.080	4.891	9.057	55.943
6	1.873	3.468	72.548	1.873	3.468	72.548	4.766	8.827	64.769
7	1.261	2.336	74.884	1.261	2.336	74.884	4.225	7.823	72.593
8	1.081	2.002	76.885	1.081	2.002	76.885	2.318	4.293	76.885
9	.888	1.645	78.530						
10	.810	1.501	80.031						



### 5.6.3 Scree test criterion

The third criterion applied for determining the number of factors is the Scree test. The Scree test (Cattell, 1966) plots the graph for the latent roots against the number of factors in their extraction order (Tabachnick and Fidell, 2007). The shape of the curve within the plot is used to determine the cut-off point (Hair et al., 2009). The shape decreases from the first factor having highest eigenvalue towards the lowest one until it reaches the last factor with the lowest eigenvalue (Tabachnick and Fidell, 2007). The change in the shape of the plot (usually an elbow shape) indicates clear distinctions between factors of interest having an eigenvalue  $>1$  and disregarded factors disregarded having an eigenvalue  $<1$  (Hair et al., 2009; Pallant, 2007). In this study, inspection of the Scree plot (Figure 5.2) confirms a similar number of factors extracted using latent root criterion. The graph reveals a breakdown between 7 and 9 components. So, components 1 to 8 explained or captured much more of the variance than the remaining components.

**Figure 5.2: Scree plot**



### 5.6.4 Rotated Component Matrix Factor Loading

Finally, the number of factors could be assessed using the rotated component matrix. The items with factor loading of  $< 0.40$  or cross-loading of  $> 0.40$  represent weak consistency within the scale, and it is recommended that these should be removed (Hair

et al., 2009). In the extraction of the factors, the number of factors is selected to be based on Eigenvalue. This is the default setting of SPSS and can help to decide the number of factors that should be considered. It can be clearly seen from the rotated component matrix in Table 5.14 that once again, an eight-factor solution is confirmed, with few items cross-loaded. This is consistent with the earlier findings for the number of factors.

**Table 5.14: Rotated Component Matrix first round**

	Component							
	1	2	3	4	5	6	7	8
IQ2	.722							
IQ4	.701							
IQ1	.680							
IQ3	.672							
IQ6	.660							
IQ5	.660							
SQ5	.592							
<b>IQ7</b>	<b>.588</b>	<b>.428</b>						
SQ7.	.520							
<b>SQ1</b>	<b>.489</b>	<b>.434</b>						
ES1	.472							
ES4	.447							
ES1	.444							
SQ6	.403							
PEOU3		.812						
PEOU5		.769						
PEOU6		.756						
PEOU4		.728						
PEOU1		.726						
PEOU2		.664						
<b>SQ2</b>	<b>.457</b>	<b>.571</b>						
<b>SQ3</b>	<b>.412</b>	<b>.524</b>						
<b>SQ4</b>	<b>.441</b>	<b>.448</b>						
ET7			.774					
ET3			.771					
ET5			.769					
ET2			.766					
ET6			.757					
ET1			.749					
ET4			.676					
PU5				.823				
PU4				.822				
PU6				.817				
PU2				.809				
PU3				.772				
PU1				.658				
IP4					.870			
IP3					.849			
IP2					.845			
IP5					.805			
IP1					.774			
PP2						.875		
PP5						.839		
PP1						.838		
PP3						.837		
PP4						.604		
AR2							.840	
AR1							.823	
AR3							.763	
AR4							.754	
<b>AR5</b>							<b>.436</b>	<b>.646</b>
<b>AR6</b>							<b>.480</b>	<b>.617</b>
ES3								.575
ES2								.460

Extraction Method: Principal Component Analysis.  
 Rotation Method: Varimax with Kaiser Normalization.  
 Rotation converged in 7 iterations.

The matrix also reveals that there are seven cross-loaded items (IQ7, SQ1, SQ2, SQ3, SQ4, AR5, and AR6). Following the suggestion of Hair et al. (2009), these were removed. Based on the earlier findings, it was decided to perform the EFA again but this time without the cross-loaded items, and indicating 8 factors only. The number of factors was forced to be loaded as eight factors, rather than basing it on Eigenvalues in SPSS. This approach, suggested by Blunch (2008) and Pallant (2010) and can help to assess the new 8 factor solution. As a result of the second round, the rotated component matrix loaded in a much better and clearer structure as seen next in Table 5.15. Only one item (SQ6) did not provide loading above 0.4 in this round. This item was deleted from the solution.

The final measurement items were used to repeat the EFA. The results indicate that the eight-component solution explained 80.71% of the total variance. Other tests (e.g. KMO and Bartlett's Test, communality, Eigenvalue) were also repeated. All EFA final round tests are available in Appendix 7.

**Table 5.15: Rotated Component Matrix Second round**

		Component							
		ET	WQ	PU	PEOU	IP	PP	AR	ES
e-Trust	ET7	.788							
	ET5	.784							
	ET2	.783							
	ET3	.782							
	ET6	.770							
	ET1	.765							
	ET4	.691							
Web Quality	IQ2		.727						
	IQ4		.699						
	IQ6		.683						
	IQ1		.680						
	IQ5		.671						
	IQ3		.663						
	SQ5		.552						
SQ7		.483							
Perceived Usefulness	PU4			.830					
	PU5			.824					
	PU2			.820					
	PU6			.819					
	PU3			.785					
	PU1			.666					
Perceived Ease of Use	PEOU3				.816				
	PEOU5				.779				
	PEOU6				.752				
	PEOU4				.733				
	PEOU1				.722				
	PEOU2				.666				
Intention to Purchase	IP4					.876			
	IP3					.855			
	IP2					.847			
	IP5					.805			
	IP1					.769			
Perceived Price	PP2						.881		
	PP3						.848		
	PP1						.848		
	PP5						.838		
	PP4						.594		
Airline Reputation	AR2							.871	
	AR1							.853	
	AR3							.798	
	AR4							.775	
e-Satisfaction	ES4								.639
	ES3								.600
	ES2								.538
	ES1								.529
	ES5								.435

Extraction Method: Principal Component Analysis.  
 Rotation Method: Varimax with Kaiser Normalization.  
 Rotation converged in 7 iterations.

As a result of EFA, 8 items in total were dropped from the original measurement items. It became 46 items instead of 54. In addition, the rotated component matrix shows that System Quality (SQ) items SQ5, SQ7 and Information Quality (IQ) items IQ 1-6 loaded together as a single item. This provides evidence that the respondents perceived SQ and IQ as one construct, and not two as proposed in the initial model. This is not a surprising result as this was discussed in the literature and whilst developing the model in Section 3.3.5. The current research adopted an approach that

split Web Quality into two items, while other researchers consider it as one (e.g. Aladwani and Palvia (2002); Ethier et al. (2006); Koppius et al. (2005); Qureshi et al. (2009)). The present data shows that the single construct approach does fit better in the current research context. Thus, it is decided to have System Quality (SQ) and Information Quality (IQ) items considered as items belonging to a single factor that could be called Web Quality (WQ). Because of this new combination, a change in the hypotheses suggested earlier in Chapter 3 while developing the research model and hypotheses is required. H7a from IQ to ES and H7b from SQ to ES should be only one hypothesis which could be: H7 from WQ to ES.

The following table (Table 5.16) presents all the eight constructs and their items. Highly loaded items are presented first, along with the wording of each item. The items for each construct are still between 4 and 7 items which respect the rule of thumb for using AMOS software for SEM using CFA approach.

**Table 5.16: All items wording**

	Item	Wording	Loading	
e-Trust	7 Items	ET7	I feel my privacy is protected on the Airline website.	.788
		ET5	I feel confident about the Airline website.	.784
		ET2	The Airline website is secure.	.783
		ET3	I trust the Airline website will not misuse my personal information.	.782
		ET6	I feel safe in my transactions with the Airline website.	.770
		ET1	I feel protected/ safe when I use the Airline website.	.765
		ET4	The Airline website satisfies ethics standards.	.691
Web Quality	8 Items	IQ2	The Airline website provides complete information.	.727
		IQ4	The Airline website provides accurate and updated information.	.699
		IQ6	The Airline website provides reliable information.	.683
		IQ1	The Airline website has sufficient contents where I expect to find information.	.680
		IQ5	The Airline website provides timely information.	.671
		IQ3	The Airline website provides site specific information (flight details, prices, policy, etc.).	.663
		SQ5	The Airline website has good functionality relevant to my travel needs.	.552
		SQ7	The Airline website creates an appealing visual experience.	.483
Perceived Usefulness	6 Items	PU4	The Airline website enhances my effectiveness in completing my travel arrangements.	.830
		PU5	The Airline website makes it easier to complete my travel arrangements.	.824
		PU2	The Airline website improves the performance of my air travel arrangements.	.820
		PU6	The Airline website increases my air travel arrangements productivity.	.819
		PU3	The Airline website enables me to accomplish my air travel arrangements faster.	.785
		PU1	The Airline website is useful for completing my air travel arrangements.	.666
Perceived Ease of Use	6 Items	PEOU3	Learning to operate the Airline website is easy.	.816
		PEOU5	The interaction with the Airline website is clear and understandable.	.779
		PEOU6	It is easy to interact with the Airline website.	.752
		PEOU4	The airline website is flexible to interact with.	.733
		PEOU1	The Airline website is easy to use.	.722
		PEOU2	It is easy to become skilful at using the Airline website.	.666

		Item	Wording	Loading
Intention to Purchase	5 Items	IP4	I will frequently use the Airline website in the future to purchase tickets.	.876
		IP3	I consider the Airline website to be my first choice when I need to purchase air tickets	.855
		IP2	I prefer using the Airline website to purchase airline tickets rather than any other methods.	.847
		IP5	I will recommend others to use the Airline website for ticket purchasing.	.805
		IP1	I will use the Airline website when I need to purchase airline tickets in the future.	.769
Perceived Price	5 Items	PP2	I am pleased with the prices in the Airline website.	.881
		PP3	The prices in the Airline website are competitive.	.848
		PP1	I think the prices that the Airline website provides are reasonable.	.848
		PP5	The prices offered in the Airline website meets my expectations.	.838
		PP4	The price information provided in the Airline website helped me make my decision.	.594
Airline Reputation	4 Items	AR2	The Airline has an excellent public image.	.871
		AR1	The Airline has a good reputation.	.853
		AR3	The Airline provides excellent service.	.798
		AR4	The Airline is extremely reliable.	.775
e-Satisfaction	5 Items	ES4	I would use the Airline website again.	.639
		ES3	I would recommend the Airline website to a friend.	.600
		ES2	Overall, I am pleased with the user experience of the Airline website.	.538
		ES1	Overall, I am satisfied with the Airline website.	.529
		ES5	Overall, the experience with the Airline website exceeded my expectation.	.435

### 5.7 Reliability and correlation

After deciding which items should remain, and which should be deleted, a reliability and correlation examination was conducted to check the data. For reliability, each loaded factor was assessed by Cronbach's alpha measure. Table 5.17 below presents the reliability test for each construct, showing that all are above the recommended minimum value of 0.7. This confirms that items in each factor were internally consistent.

**Table 5.17: Reliability for each construct**

			Number of Items	Reliability Cronbach's Alpha
1	Perceived Usefulness	PU	6	.947
2	Perceived Ease of Use	PEOU	6	.951
3	Web Quality	WQ	8	.937
4	e-Trust	ET	7	.959
5	Airline Reputation	AR	4	.956
6	Perceived Price	PP	5	.926
7	e-Satisfaction	ES	5	.925
8	Intention to Purchase	IP	5	.954

The correlation between constructs also provides acceptable figures between 0.359 and 0.757, as shown in Table 5.18 below.

**Table 5.18: Correlation between constructs**

	Perceived usefulness (PU)	Perceived ease of use (PEOU)	Web Quality (WQ)	e-Trust (ET)	Airline Reputation (AR)	Price Perception (PP)	e-Satisfaction (ES)	Intention to Purchase (IP)
Perceived usefulness (PU)	1							
Perceived ease of use (PEOU)	.622**	1						
Web Quality (WQ)	.628**	.727**	1					
e-Trust (ET)	.541**	.635**	.691**	1				
Airline Reputation (AR)	.359**	.465**	.645**	.528**	1			
Price Perception (PP)	.357**	.407**	.470**	.442**	.507**	1		
e-Satisfaction (ES)	.573**	.659**	.757**	.664**	.640**	.628**	1	
Intention to Purchase (IP)	.475**	.474**	.494**	.539**	.388**	.442**	.627**	1

\*\*Correlation is significant at the 0.01 level (2-tailed).

These results indicated that these factors with their items could be considered as the basis for the confirmatory factor analysis (CFA) application. According to Anderson and Gerbing (1988), causal relations between the underlying constructs and their related indicators should be specified properly by confirmatory factor analysis before imposing any causal relations among the constructs. In the next stage, confirmatory factor analysis was performed to assess the convergent and construct validity of scales.

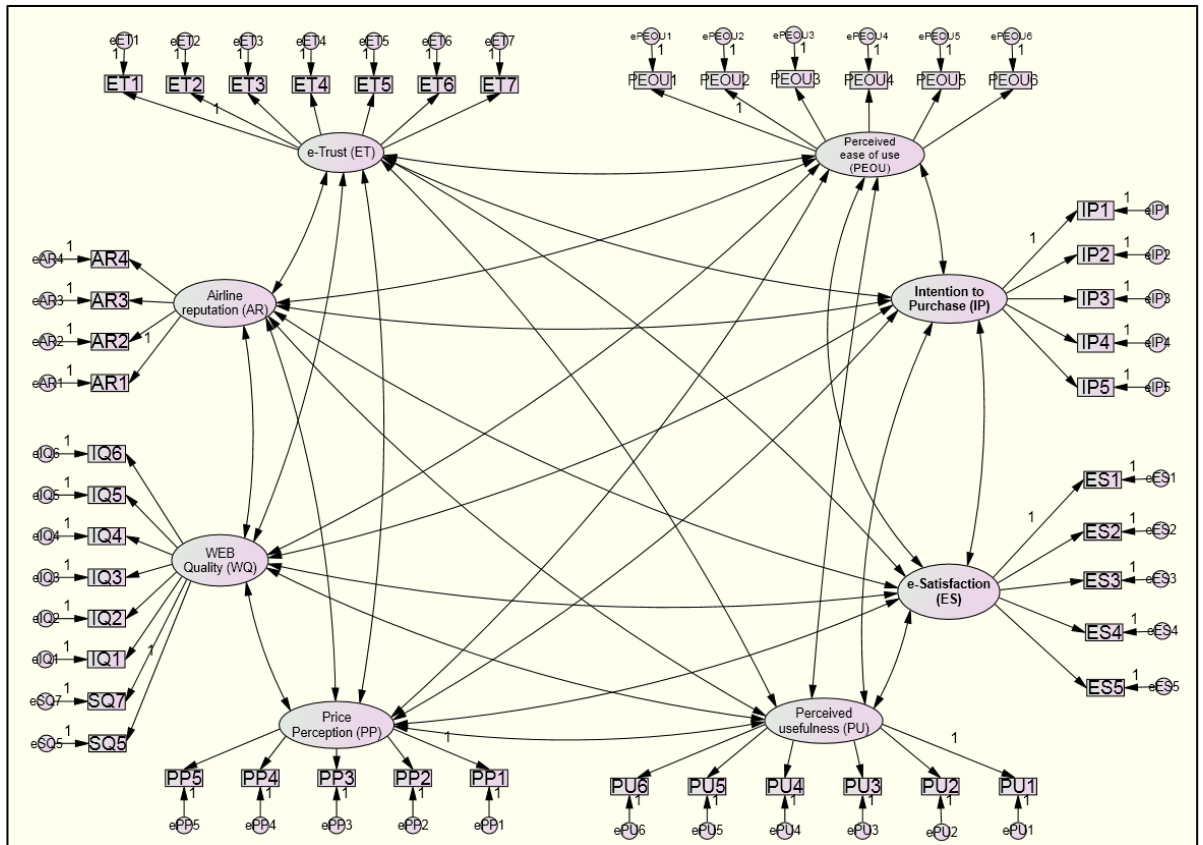
## 5.8 Confirmatory Factor Analysis

As mentioned in Methodology chapter (section 4.13.5), Confirmatory factor analysis will be used to conduct Structural equation modelling (SEM). This will include assisting the measurement and structural model, conducting construct validity and then testing the hypotheses. The following sections will present results, and modifications made to the model.

### 5.8.1 Measurement Model

The items resulting from EFA were used as the input for the model in AMOS (version 21). CFA is run with all variables linked together with two headed arrows as shown in Figure 5.3.

**Figure 5.3: Model after EFA**



Running the measurement model allows the researchers to assist the overall model fit. ‘Model fit’ refers to how well the proposed model accounts for the correlations between variables in the dataset. Any SEM software generates many fit indices. However, it is hard to depend on a single fit index to identify the correct model (Byrne, 2001). It can also be difficult to identify the threshold values of the goodness of fit indices because it is not usually the same for different research models. Generally, when assessing the model, the complexity of the framework, the number of items and the size of the sample should be considered. The researcher will list a description for the highly recommended and cited model fit indices below:

**The chi-square statistics ( $\chi^2$ )** is the most common fit test in structural equation modelling. Having a larger value for chi-square compared to the degrees of freedom suggests that the observed matrices and estimated matrices are significantly different. On the other hand, an insignificant chi-square (CMIN) ( $p > 0.05$ ) indicates a satisfactory fit of the model (Blunch, 2008). However, with large samples, this is not usually expected and the use of raw Chi-square is not applicable (Hair et al., 2009; Tabachnick and Fidell, 2007).



**Normed Chi-Square (CMIN/DF)** is a type of Goodness of Fit measure that presents a simple ratio of  $X^2$  to the degrees of freedom. Generally, values less than 3 are associated with better-fitting models (Iacobucci, 2010).

**Root Mean Square Residual (RMR) and Standardized Root Mean Square Residual (SRMR)** measure the average of the residuals between individual observed and estimated covariance and variance terms. Both are considered as types of badness-of-fit indices in which high values are indicative of poor fit. A general assumption is that an SRMR over 0.1 suggests a problem with the fit.

**Root mean square error of approximation (RMSEA)** is a type of badness-of-fit indices /absolute index that estimates the lack of fit in a model compared to a perfect (saturated) model. Thus, it represents how well a model fits a population, not just a sample used for estimation. Lower RMSEA values indicate a better fit. According to Hair et al (2010), as samples become larger, RAMSEA is one of the best measures to use. A value less than .05 is widely considered to represent a good fit. A value below .08 indicates an adequate fit.

**Goodness-of-fit index (GFI)** is still sensitive to sample size. The possible range of GFI values is 0 to 1, with higher values indicating better fit. Recent developments of other fit indices has led to a decline in usage (Hair et al., 2009).

**Normal fit index (NFI)** is a type of incremental index that represents the ratio of difference in the  $X^2$  value for the fitted model. Hair et al. (2009) guidelines indicate that the NFI should be  $>0.90$ .

**Comparative fit index (CFI)** is an improved version of the NFI. It is among the most widely used indices. CFI values above .90 are usually associated with a good model fit.

Running the maximum likelihood estimate for the current data file revealed significant Chi-square statistics where  $\chi^2 = 3005.319$  with 961 degrees of freedom and a  $p = 0.000$  indicating a significant  $\chi^2$  which is expected for large sampled. Therefore, other fit indices must be evaluated. Hair et al. (2009) developed a summary for their recommendation for the characteristics of different fit indices across different model situations, as can be seen in figure 5.4 (Hair et al., 2009). In addition, they recommend reporting the Chi squared statistics with another absolute index such as RMSEA and an incremental index such as CFI. According to them, using the RMSEA and the CFI

satisfies the rule of thumb that both a badness-of-fit index and a goodness-of-fit index be evaluated. Others also suggest looking at other measures such as Normed Chi-Square, AGFI, and NFI (Tabachnick and Fidell, 2007) .

**Figure 5.4: Characteristics of different fit indices across different model situations**

No. of Stat. vars. ( <i>m</i> )	<i>N</i> < 250			<i>N</i> > 250		
	<i>m</i> ≤ 12	12 < <i>m</i> < 30	<i>m</i> ≥ 30	<i>m</i> < 12	12 < <i>m</i> < 30	<i>m</i> ≥ 30
$\chi^2$	Insignificant <i>p</i> -values expected	Significant <i>p</i> -values even with good fit	Significant <i>p</i> -values expected	Insignificant <i>p</i> -values even with good fit	Significant <i>p</i> -values expected	Significant <i>p</i> -values expected
CFI or TLI	.97 or better	.95 or better	Above .92	.95 or better	Above .92	Above .90
RNI	May not diagnose misspecification well	.95 or better	Above .92	.95 or better, not used with <i>N</i> > 1,000	Above .92, not used with <i>N</i> > 1,000	Above .90, not used with <i>N</i> > 1,000
SRMR	Biased upward, use other indices	.08 or less (with CFI of .95 or higher)	Less than .09 (with CFI above .92)	Biased upward; use other indices	.08 or less (with CFI above .92)	.08 or less (with CFI above .92)
RMSEA	Values < .08 with CFI = .97 or higher	Values < .08 with CFI of .95 or higher	Values < .08 with CFI above .92	Values < .07 with CFI of .97 or higher	Values < .07 with CFI of .92 or higher	Values < .07 with CFI of .90 or higher

*Note:* *m* = number of observed variables; *N* applies to number of observations per group when applying CFA to multiple groups at the same time.

Adopted from (Hair et al., 2009)

The model for this research has 46 observed variables and 494 observations. Therefore, the last column in the table by Hair et al. (2009) provides a guide to the most appropriate levels that could be used when assisting current model. The results for the indices for this model show CFI (0.92) (above (0.9)) and RMSEA (0.066) (below 0.08), but Normed Chi-Square (3.16) (above recommended value < 3) and NFI (0.88) (below recommended > 0.9). Therefore, it can be suggested that the values of RMSEA and CFI are just within acceptable levels, whereas other indices such as Normed Chi-Square, GFI, NFI, and AGFI are slightly below. These results show that there is a room of improvement to the model in terms of increasing the fit. For this purpose, the instructions and guidelines suggested by Byrne (2010) and Hair et al. (2009) are followed. The researcher investigated both **Standardized regression weights (S.R.W)** and **squared multiple correlations (SMCs)** values. Readings are recommended to be above 0.5 or ideally above 0.7 for Standardized regression weights (S.R.W) and above 0.5 for squared multiple correlations (SMCs). The current results show that this is the case, with values well above 0.7 for Standardized regression weights (S.R.W) (see Table 5.20) and values above 0.6 for squared multiple correlations (SMCs). The next step is to look at both Modification indices and Standardized residuals. **Modification indices** are the amount that the overall Chi-square values would be reduced, by freeing

(estimating) any single particular path that is not currently estimated. This involves deleting any path that has impacts the Chi-square values. This can be observed by observing high covariance between measurement errors accompanied by high regression weights between these errors' construct (Byrne, 2010). **Standardized residuals** refer to the individual differences between observed covariance terms and the estimated covariance term divided by the standard error of the residual. Smaller residuals indicate a better fit (Hair et al., 2009). While according to Byrne, (2010) residuals should not exceed  $|2.58|$ ; Hair et al. (2009) suggest that residuals with values above  $|4|$  should cause concern . In regard of the current research, investigation and exploring the above values for the current data set, it can be suggested that there are five items that might participate in reducing the fit and they were removed in order to enhance the overall fit. They are ET1, PEOU2, ES4, PU1 and PP4. Removed items are underlined in Table 5.16 that were demonstrated earlier in section 5.6.4. Consequently, the model fit improved with CFI (0.94), RMSEA (0.061 with a 90 per cent confidence interval (.057 and .064).), Normed Chi-Square (2.83) and NFI (0.91). Therefore, the measurement model can be regarded a good fit model. Table 5.19 summarises the index values before and after the model modifications and shows the recommended levels that were adopted form (Byrne, 2010; Hair et al., 2009; Hooper et al., 2008; Iacobucci, 2010).

**Table 5.19: Model fit indicators for the measurement model**

Model fit indexes	Shortcut	Recommended levels	Measurement Model after EFA	Measurement Model after modification
Chi-Square (X2) or Minimum Discrepancy	CMIN	P < 0.05 but this is expected with a large sample	<b>3005.319</b>	<b>2125.551</b>
Degree of freedom	df		<b>961</b>	<b>751</b>
Probability value	p		<b>0.000</b>	<b>0</b>
<b>Normed Chi-Square</b>	X2/df or CMIN/DF	<b>&lt; 2 or 3</b>	<u>3.127</u>	<u>2.83</u>
<b>Root Mean Square Error for Approximation</b>	<b>RMSEA</b>	<b>&lt; 0.07 or 0.08</b> The lower the better	<b>0.066</b>	<b>0.061</b>
<b>Goodness-of-Fit Index</b>	<b>GFI</b>	<b>&gt; 0.9</b>	<u>0.788</u>	<b>0.83</b>
<b>Adjusted Goodness-of-Fit Index</b>	<b>AGFI</b>	<b>&gt; 0.8</b>	<u>0.762</u>	<b>0.805</b>
Normed Fit Index	NFI	>0.9	<b>0.886</b>	<b>0.911</b>
Relative Fit Index	RFI	>0.9	<b>0.878</b>	<b>0.903</b>
<b>Comparative Fit Index</b>	<b>CFI</b>	<b>&gt; 0.9</b>	<b>0.919</b>	<b>0.94</b>
*Recommended levels based on (Byrne, 2010; Hair et al., 2009; Hooper et al., 2008; Iacobucci, 2010)			<b>Poor Fit</b>	<b>Good Fit</b>

### 5.8.2 Construct Validity

In order to obtain a better understanding of the quality of the measures, it is recommended that construct validity tests be combined with the CFA. According to Hair et al. (2009), “*Construct validity is the extent to which a set of measured items actually reflects the theoretical latent construct those items are designed to measure*”. It can be assessed through convergent validity, discriminant validity, nomological and face validity.

- **Convergent validity** is the extent to which indicators of a specific construct converge or share a high proportion of variance. Convergent validity can be estimated by **factor loadings**, **average variance extracted (AVE)** and **reliability**. Hair et al. (2009) suggest that Standardized loading estimates should ideally be 0.7 or above. AVE should be 0.5 or greater and reliability should be 0.7 or higher.
- **Discriminant validity** is the extent to which a construct is truly distinct from other constructs. This validity can be tested by comparing the average variance extracted (AVE) for a construct’s scale items with the squared inter-scale correlation for that construct. If the AVE is higher than the squared inter-scale correlations of the construct, discriminant validity is supported (Hair et al., 2009).
- **Nomological validity** refers to the degree that the summated scale makes accurate predictions of other concepts in a theoretical-based model. Nomological validity is tested by examining whether the correlations among the constructs in the measurement theory make sense. The matrix of construct correlations can be useful in this assessment. Therefore, to demonstrate nomological validity the constructs must be positively related based on the suggested relations in the model (Hair et al., 2009).
- **Face validity** is the extent to which the content of the items is consistent with the construct definition; this must be established prior to theoretical testing using CFA. This was discussed and confirmed in section 4.5.1.

By exploring the result from the analyses of the current research data set, the following were observed:

All the standardized loading estimates were significant and well above the recommended value of 0.7 (see table 5.20).

**Table 5.20: Standardized Regression Weights**

		Estimate		Estimate		Estimate
IP_1	<--- IP	.887	AR_1 <--- AR	.945	ET_5 <--- ET	.933
IP_2	<--- IP	.836	AR_2 <--- AR	.957	PP_2 <--- PP	.963
IP_3	<--- IP	.893	AR_3 <--- AR	.889	PP_3 <--- PP	.843
IP_4	<--- IP	.958	AR_4 <--- AR	.893	PP_5 <--- PP	.850
IP_5	<--- IP	.930	IQ_2 <--- WQ	.875	IQ_1 <--- WQ	.841
PEOU_4	<--- PEOU	.901	IQ_3 <--- WQ	.750	PEOU_3 <--- PEOU	.831
PEOU_5	<--- PEOU	.939	IQ_4 <--- WQ	.847	SQ_5 <--- WQ	.795
PEOU_6	<--- PEOU	.931	IQ_5 <--- WQ	.846	SQ_7 <--- WQ	.756
PU_2	<--- PU	.877	IQ_6 <--- WQ	.788	ET_2 <--- ET	.860
PU_3	<--- PU	.841	ES_1 <--- ES	.899	ET_7 <--- ET	.897
PU_4	<--- PU	.903	ES_2 <--- ES	.937	ET_6 <--- ET	.880
PU_5	<--- PU	.905	ES_3 <--- ES	.868	PEOU_1 <--- PEOU	.829
ET_3	<--- ET	.851	ES_5 <--- ES	.790	PU_6 <--- PU	.907
ET_4	<--- ET	.855	PP_1 <--- PP	.928		

The AVE and CR are not provided by the AMOS software so MS Excel is used to calculate them and Table 5.21 is generated by using the formula cited in (Hair et al., 2009). It can be observed that all AVE values > 0.5 and reliabilities CR > 0.7.

**Table 5.21: Validity and Reliability**

	Composite Reliability	AVE	MSV	ASV
<b>PEOU</b>	0.948	0.786	0.579	0.353
<b>IP</b>	0.956	0.812	0.388	0.253
<b>ET</b>	0.953	0.771	0.508	0.358
<b>AR</b>	0.957	0.846	0.452	0.274
<b>WQ</b>	0.938	0.657	0.654	0.437
<b>PU</b>	0.948	0.785	0.415	0.267
<b>PP</b>	0.941	0.801	0.382	0.215
<b>ES</b>	0.928	0.763	0.654	0.456

Table 5.22 next shows that AVE extracted of each construct is higher than the corresponding squared inter-construct correlation and confirms discriminant validity is at construct level.

**Table 5.22: Factor Correlation Matrix with Square Root of the AVE**

PEOU	IP	ET	AR	WQ	PU	PP	ES
0.886							
0.482	0.901						
0.640	0.559	0.878					
0.478	0.390	0.533	0.920				
0.761	0.511	0.713	0.654	0.810			
0.603	0.482	0.552	0.346	0.644	0.886		
0.396	0.436	0.448	0.505	0.461	0.324	0.895	
0.706	0.623	0.697	0.672	0.809	0.574	0.618	0.873

\*Square Root of AVE is represented in the highlighted diagonal

Finally, for the suggested relationships between constructs in the model, all correlations are positive and significant. This confirms nomological validity.

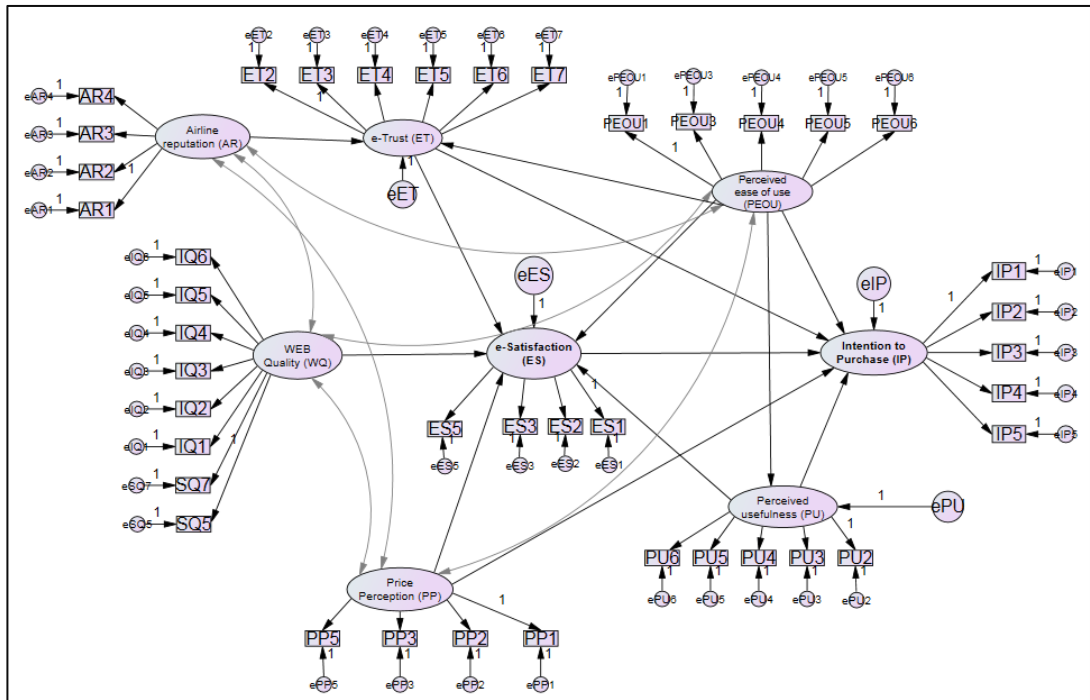
### 5.8.3 Structural Model

Having established reliable and validated measurement/outer-model, the next step is to estimate the assumed causal and covariance linear relationship among the exogenous (independent) and endogenous (dependent) latent variables.

#### 5.8.3.1 Structural Model Fit

The structural model is drawn in AMOS with all the proposed paths between constructs and the items that were remaining from CFA (41 items). The Structural model representation in AMOS can be seen in Figure 5.5.

**Figure 5.5: Structural model**



Testing the model fit for the structural model provided the following indices values: CFI (0.934), RMSEA (0.063 with 90 per cent confidence interval .06 and .066.), Normed Chi-Square (2.95) and NFI (0.904) (see table 5.23). This confirms that the model still has good fit and all fit indicators are within the acceptable levels.

**Table 5.23: Model fit indicators for the structural model**

Model fit indexes	Recommended levels	Structural Model
CMIN		<b>2243.092</b>
df		<b>760</b>
p	< 0.05	<b>0</b>
<b>X2/df or CMIN/DF</b>	<b>&lt; 2 or 3</b>	<b>2.951</b>
<b>RMSEA</b>	<b>&lt;0.05 or 0.07 or 0.08</b>	<b>0.063</b>
<b>GFI</b>	<b>&gt; 0.9</b>	<b>0.819</b>
<b>AGFI</b>	<b>&gt; 0.8</b>	<b>0.8</b>
NFI	>0.9 or > 0.8	<b>.904</b>
RFI	>0.9 or > 0.8	<b>.896</b>
<b>CFI</b>	<b>&gt; 0.9</b>	<b>.934</b>
PNFI	>0.9 or > 0.8	<b>.838</b>

\*Recommended levels based on (Byrne, 2010; Hair et al., 2009; Hooper et al., 2008; Iacobucci, 2010)

As an additional recommended step by (Hair et al., 2009), the results of the structural model were tested again to highlight any significant differences between the loading estimates of SEM model and CFA model. In addition, standardized residuals and modification indices values were checked again to indicate that all values were within acceptable levels.

### 5.8.3.2 Hypotheses testing

The empirical results support almost all of the hypothetical paths presented in the model. H1, H3, H4, H6, H7, H8, H9, H10, H11, H12 and H13 are all supported with p-values less than  $> 0.05$ , while two hypotheses were not supported. The relationship between Perceived Usefulness (PU) and e-Satisfaction (ES) (H2 with  $P=.248$ ) and the relation between Perceived Ease of Use (PEOU) and Intention to Purchase (IP) (H5 with  $p= 0.55$ ). For H12 the relation between Perceived Price (PP) and Intention to Purchase (IP) show a p-value of 0.066 that is slightly above the value of 0.05. However, according to Hair et al. (2009), the results of p-values in AMOS are based on a two tail test and for a one tail test it would be  $0.066/2= 0.033$  less than 0.05. Therefore, as it is marginally significant, the relationship could be accepted with caution.

The most significant relationship in the model is that between Perceived Ease of Use (PEOU) to Perceived Usefulness (PU) (H6 with  $\beta = .623$ ). This is followed by the relationship between Perceived Ease of Use (PEOU) to e-Trust (ET) (H10 with  $\beta = .517$ ). Then, the relationship between Web Quality (WQ) to e-Satisfaction (ET) (H7 with  $\beta = .457$ ) and e-Satisfaction (ET) to Intention to Purchase (IP) (H1 with  $\beta = .357$ ). Table 5.24 below lists all results.

**Table 5.24: Model hypotheses and values**

Hypotheses	Paths	Std. Regression Weights ( $\beta$ )	Standard error SE	Critical ratio CR	p-value	Hypotheses findings
H01	IP ← ES	.357	.072	4.866	***	Supported
H02	ES ← PU	.042	.045	1.156	.248	Not Supported
H03	IP ← PU	.162	.061	3.220	.001	Supported
H04	ES ← PEOU	.125	.062	2.581	.010	Supported
H05	IP ← PEOU	-.037	.078	-.597	.550	Not Supported
H06	PU ← PEOU	.623	.046	13.931	***	Supported
H07	ES ← WQ	.457	.065	8.486	***	Supported
H08	ES ← ET	.162	.047	4.009	***	Supported
H9	IP ← ET	.215	.065	3.754	***	Supported
H10	ET ← PEOU	.517	.049	11.487	***	Supported
H11	ET ← AR	.292	.024	7.109	***	Supported
H12	IP ← PP	.090	.040	1.838	.066	Supported*
H13	ES ← PP	.283	.027	8.862	***	Supported

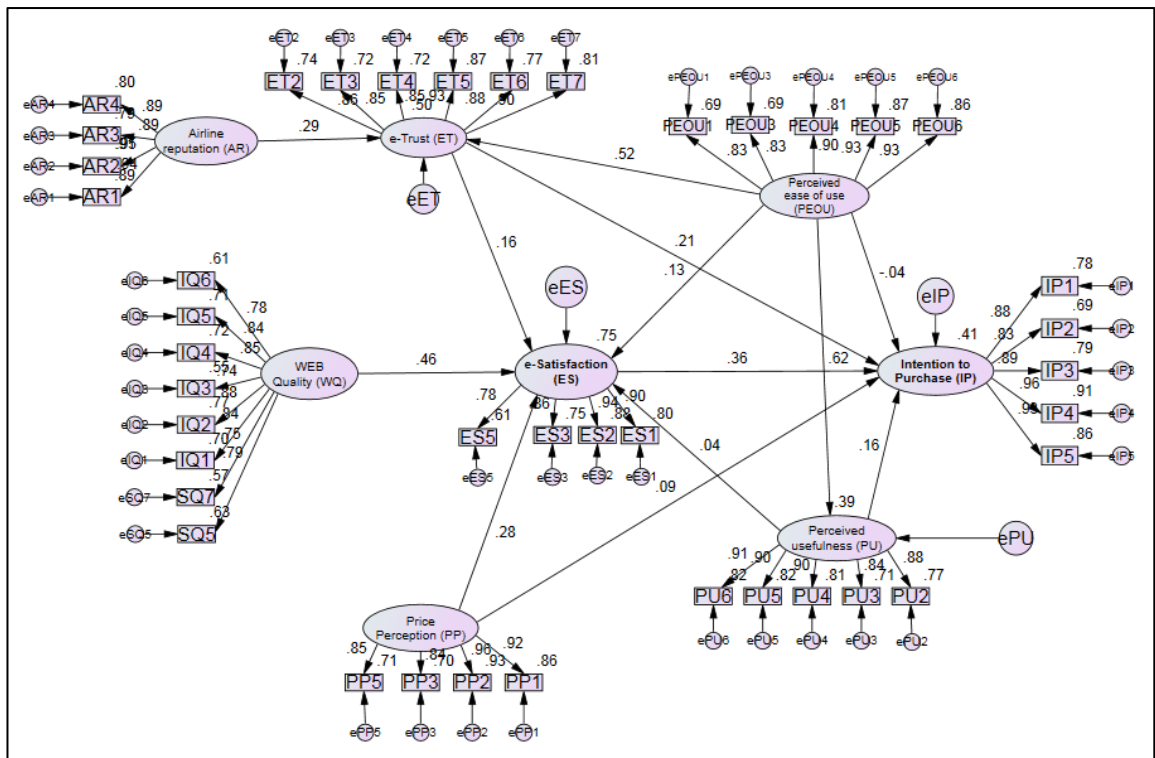


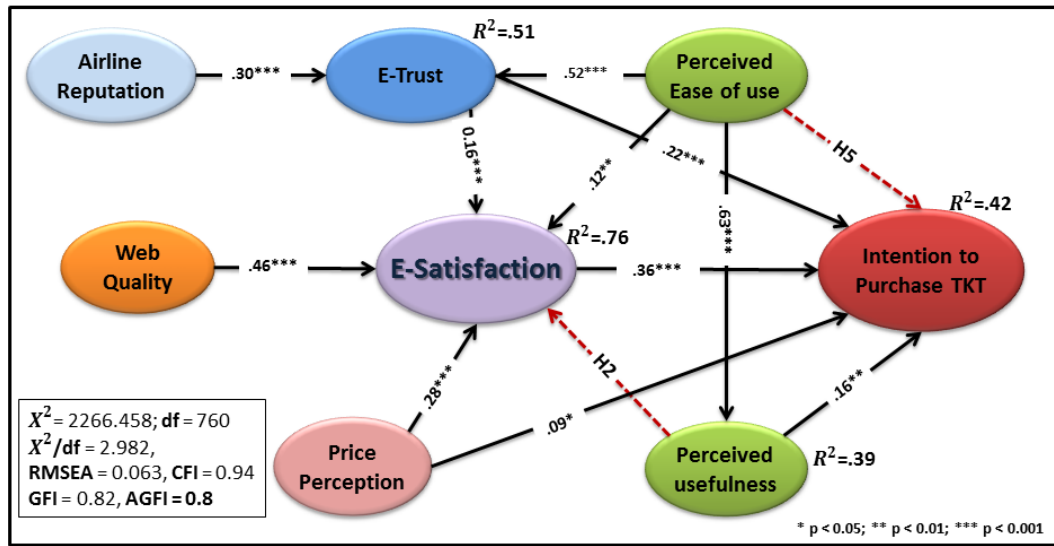
The determination coefficient ( $R^2$ ) was also explored.  $R^2$  provides the percentage of variation in endogenous variable(s) explained by independent variable(s) (Keil et al., 2000). It represents the level of the latent construct's explained variance and therefore measures the regression function's against the empirically obtained observed items.

According to Chin, (1998), models possessing an  $R^2$  of 0.67 are to be considered substantial, 0.33 = moderate, and 0.19 = weak. The current model explained variance  $R^2$  = 76% in e-Satisfaction, 42% in Intention to purchase, 51% in e-Trust and 39% in Perceived usefulness. These results point to a substantial explanation for e-satisfaction and high to moderate explanation for the rest.

Figure 5.6 illustrates the results for the structural model from the output of AMOS software. The researcher developed a simpler representation for the final model with the path coefficients, coefficient of determination ( $R^2$ ) and the model fit. This can be seen in Figure 5.7 below.

**Figure 5.6: Structural model outputs from AMOS**



**Figure 5.7: Refined model and hypothesis results**

### 5.9 Suggested relationships between constructs

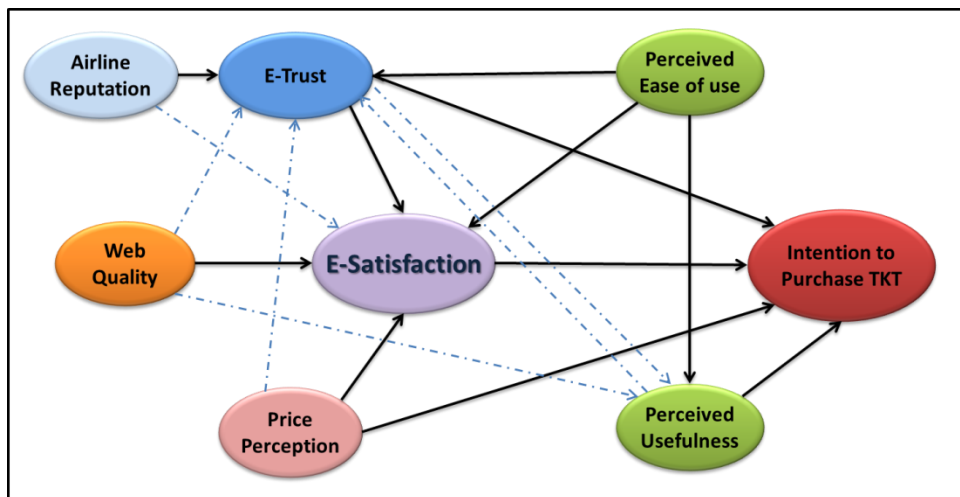
As an additional step when looking at the output of the SEM model, AMOS provides a suggestion for other relationships that might be found between constructs in the model. The suggested paths can be seen by looking at the modification indices regression weight table 5.25. According to Hair et al. (2009), a general rule is that a high modification index (MI) between constructs suggest that the model fit could be improved by freeing the corresponding path. Table 5.25 from AMOS output below represents the suggested paths with the MI values and the changes in chi square. For example, AMOS suggests a positive relationship from Web Quality (WQ) to Perceived Usefulness (PU). The modification index shows that if the analysis is repeated for the structural model with the new suggested path from WQ to PU, the chi square will fall by at least 14.95. As a result, its estimate will become larger (by approximately 0.143) than it is in the present analysis. This step is widely used if exploring relationships between variables is part of the research objectives. New relationships might be added only if there is a theoretical justification. However, the researcher examined the suggested paths by adding each one to the structural model and re-running the model to check the change in the model fit indices. The fit indices new results did not show a noticeable improvement in the model fit (sample results are available in Appendix 8). As such, it was decided that for current research, the suggested relationships do not need to be added to the initial proposed model. Yet, these paths represent possible

avenues for future research, especially the ones with high MIs and previous theoretical justification. Figure 5.8 shows the suggested paths in the model with thin dashed arrows. The discussion chapter will elaborate more on these results.

**Table 5.25: Modification Indices (Regression weights)**

Suggested Paths	M.I.	Par Change
ET <--- PP	7.018	0.066
ET <--- WQ	9.127	0.108
ET <--- PU	13.151	0.134
PU <--- WQ	14.945	0.143
PU <--- ET	13.654	0.132
ES <--- AR	7.81	0.05

**Figure 5.8: Suggested paths by AMOS**



### 5.10 Direct, Indirect and Mediation effects

The direct effect is the relationship that links two constructs with a single arrow between them, i.e., a direct link between two constructs without any mediation (Hair et al., 2009). On the other hand, the indirect effect is a sequence of relationships with at least one mediating construct involved (Hair et al., 2009), i.e., a sequence of two or more direct effects represented visually on the researched model by multiple arrows between constructs. The sum of the indirect and direct relationships between the constructs constitutes the total effect (Hair et al., 2009). Both the indirect effect and the

total effect can facilitate the understanding of important questions and relationships that are not addressed when investigating the direct effect alone (Kline, 2005).

### 5.10.1 Direct and Indirect Effects on Intention to Purchase

The direct, indirect, and total effects toward intention to purchase in Table 5.26 reveal that while the direct effect of PEOU is not significant, it has the greatest indirect effect (0.296) via the mediation of PU. The next greatest indirect influence comes from WQ (0.163) via ES. In addition, PP has a high indirect effect on Intention to purchase (0.101), mediated by ES which is even more than the direct effect (0.09). Additionally, the remaining constructs have a very small indirect effect on Intention to purchase.

**Table 5.26: Direct, Indirect, and total effects in predicting Intention to purchase**

Variable	Direct	Indirect	Total
PP	0.09*	0.101	0.191
WQ	0	0.163	0.163
AR	0	0.08	0.08
PEOU	-0.037	0.296	0.259
ET	0.215***	0.058	0.273
PU	0.162**	0.015	0.177
ES	0.357***	0	0.357

### 5.10.2 Direct and Indirect effect on e-Satisfaction

The results in table 5.27 reveal that with the direct effect from Perceived Ease of Use (PEOU) towards e-satisfaction (.125) there is indirect effect (0.11) as well. This effect is occurring via e-Trust.

**Table 5.27: Direct, Indirect, and total effects in predicting e-Satisfaction**

Variable	Direct	Indirect	Total
PP	0.283***	0	0.283
WQ	0.457***	0	0.457
AR	0	0.047	0.047
PEOU	0.125**	0.11	0.235
ET	0.162***	0	0.162
PU	0.042	0	0.042

### 5.10.3 Mediation effect of e-satisfaction

The information presented in the previous two sections provides evidence that there are mediation effects from both e-satisfaction and e-trust. In this research, e-satisfaction was inserted as a central construct in the model. Therefore, further exploration of the mediation effect of e-satisfaction toward intention to purchase is warranted.

According to Hair et al. (2009), several steps can be taken to test the mediation effect. The first step is to examine the relationship between independent and dependent constructs directly without any intervention of a mediator. The relationship should be significant in order to be able to test the mediation. The second step is to include the mediator in the equation so that the influence of the mediator on the relationship between the independent and dependent constructs can be examined. The result of the direct relationship between the independent and dependent constructs at the second step will be compared with the result from the first step. Three situations can arise: the first situation is that the relationship between the independent and dependent constructs remains significant and regression weights unchanged once the mediator is included in the model; in this case mediation is considered not supported. The second potential situation is that the significant result of the independent and dependent constructs is reduced but remains significant when the mediator is included; the conclusion would be that partial mediation is supported. The final potential situation is that the result of relationship between independent and dependent constructs is reduced to a point where it is not significant after the mediator is included. In this situation, full mediation would be supported.

Table 5.28 below presents the results of running model (1) with direct relationship and without the e-satisfaction as a mediator and model (2) with e-satisfaction mediation the relations.

**Table 5.28: The Mediation Results of e-Satisfaction toward Intention to purchase**

The	Model (1) the direct relationship without the mediator				Model (2) with e-satisfaction as a mediator				The Conclusion
	Regression Weight				Regression Weight				
	Estimate	S.E.	C.R.	P	Estimate	S.E.	C.R.	P	
WQ	.075	.074	1.22	.223	-.194 <sup>#</sup>	.092	-2.1	.034	Mediation cannot be tested
PP	.168	.036	4.62	***	.077	.040	1.92	0.055	Full Mediation
ET	.359	.065	5.5	***	.235	.063	3.71	***	Partial Mediation

<sup>#</sup> there is no conceptual justification for a negative relationship, so this weight is tested as non-significant.

From the results above, the mediation effect of e-satisfaction between WQ and IP cannot be verified because the result shows no significant direct relationship between them (hence the mediation test cannot be performed). However, the indirect effect result shows that WQ has influence on IP but that influence is only indirect. Also the result shows that e-satisfaction is fully mediating the relationships between PP and IP but partially between ET and IP. To conclude, the results of the indirect effects and mediation test are consistent with the relevant hypothesised paths and confirm the importance of having e-satisfaction in the model.

### **5.11 Group Analysis**

Another secondary goal for the study involves examining the role played by the different respondent groups in the final model. In Appendix 9 , thirteen respondent characteristics are examined as part of three main categories: 1- demographic characteristics (i.e. gender, age, education level, monthly income, occupation, and location), 2- Internet experience, and 3- travel habits (i.e. origin of the airline used, actual tickets purchase, travel frequency, motivation for travel, type of travel, and type of funding). Two types of tests were conducted for the different groups. The first test involves comparing the mean scores between different groups for each variable individually to help researchers to identify how each group perceived a particular variable. The second test focused on the model and the relationships between the different variables (i.e. invariance analysis). This will show how the different groups affect the supported relationships in the model. The group analysis is an initial step toward future research on any differences between segments of travellers.

### **5.12 Summary**

This chapter concentrates on the main data analysis with all the techniques needed to confirm the validity of the survey items and the suggested model in order to test the suggested hypotheses. The researcher began by presenting the analysis and the results of the pilot test that was carried out with 65 respondents before the start of the main data collection period. All results provide evidence that the items and the structure of the survey were fine, with only superficial modification suggestions relating to the text of few items. The main study data analysis was then established starting with screening the

dataset by exploring the accuracy of the values and detecting outliers. Following this, the assumption of normality, homoscedasticity, and multicollinearity were explored. It is important that these steps are taken before any factor analysis is conducted. The results were all acceptable and no remedies to the data set were required. The next step was to provide the reader with information about the characteristics of the sample. This included demographic information, internet usage experience, and travel experience.

After that, Exploratory Factor Analysis (EFA) was conducted to explore the interrelationships among the set of variables. As a result, few items were dropped from the measurement items and the combination of two constructs was supported. Statistically, Information Web Quality (IQ) and System Web Quality (SQ) items were perceived by respondents as a single construct. Thus, the researcher adopted the combined “Web Quality” (WQ) construct for the remaining analysis. The Confirmatory Factor Analysis (CFA) was next used to test the structure underlying the set of variables and to confirm the hypotheses. This procedure started by looking at the measurement model first. In order to achieve a better model fit, few items were removed. Construct validity was also examined to obtain a better understanding of the quality of the measures. This was assessed through convergent validity, discriminant validity and nomological validity. The outcomes supported the measurement model and allowed for the movement to the structural model. The structural model fit indices were within acceptable levels, so path relationship testing was conducted. Eleven out of the thirteen suggested hypotheses were supported. The highest predictor of Intention to Purchase (IP) was found to be e-Satisfaction (ES) while the highest predictor of e-satisfaction (ES) was Web Quality (WQ). In addition, statistically suggested paths in the model were revealed and direct and indirect effects of constructs were demonstrated. The research intends to discuss the results in detail in Chapter 6 and their implications in Chapter 7 of this thesis.

## **Chapter 6 – Discussion of the Results**

### **6.1 Introduction**

The previous chapter provided data analysis and results. In chapter 5, the measurement items and model were discussed, and the hypotheses were tested. Appendix 9 focused on group differences for three main areas (Demographics, Internet experience, and Travel habits). The analysis process and results were shown in both Chapter 5 and Appendix 9. Thus, this current chapter will discuss these results and describe the findings in relation to previous literature. First, the result of scale purification and model validation is discussed. Secondly, an evaluation of the research hypotheses and their significance is presented. Lastly, the impact of the thirteen categories in relation to the conceptual model is examined. This includes providing justification and reviewing results in light of existing literature in this area.

### **6.2 Discussion of scale and model**

The scale used in the study was developed primarily on the basis of previous research; however, it still needs to be validated. As mentioned in Chapter 4, the measurement items were reviewed by academics, professionals as well as other individuals. A focus group with Business PhD students was also conducted, followed by a pilot test for the survey with 65 individuals. As a result, small refinements were made to the survey items as described in section 5.2. The developed scale was then tested through statistical reduction techniques, i.e. exploratory factor analysis (EFA) and confirmatory factor analysis (CFA).

The EFA revealed that the conceptual model consists of eight constructs instead of the initial suggestion of nine. This was confirmed empirically by conducting the latent criterion (Eigenvalues) test with the Scree plot and followed by the Rotated Component Matrix Factor Loading. Two System Quality Items were lifted due to low or cross loading. Other items loaded together with the Information Quality Items. This means that the responders perceived System quality items and Information Quality Items as a single construct measuring the same thing. SQ items lift represents the quality that reflects the effectiveness of the technical aspects of the website, such as the functionality and visual appeal. IQ on the other hand, focuses on the quality of the



information provided by the airline website, including the content, accuracy, timeliness, reliability, and its presentation (Ahn et al., 2007; Cao et al., 2005; McKinney et al., 2002). The combined construct could be called Web Quality, and consist of web qualities relating to the information of the website and the way it technically performs. Although these results differ from some published studies that suggest the constructs are separate e.g. (Ahn et al., 2007; Cao et al., 2005; McKinney et al., 2002), it is consistent with those having Web Qualities as a single item e.g. (Aladwani and Palvia, 2002; Ethier et al., 2006; Koppius et al., 2005; Qureshi et al., 2009). Thus, this research supports the notion of using a single construct approach. The transformation into a single Web Quality construct leads to a single hypothesis rather than two, from the constructs of Web Quality and e-Satisfaction. Therefore H8a and H8b became H8 only.

In addition, The EFA suggests dropping two items from the airline reputation construct (AR5, AR6). From CFA, one item from each construct was dropped as follows: (PU1) from Perceived Usefulness, (PEOU2) from Perceived Ease of Use, (PP4) from Perceived Price, (ES4) from e-Satisfaction, and (ET1) from e-Trust. The final measurement scale maintains the rule of thumb of having at least three items for each construct (The current scale have at least four items). The full lists of the remaining items (Survey questions) are listed in table 6.1. These items were empirically supported at different stages of the analysis and can be confidently adopted by future research in a similar context. Hence, this adds to the body of existing literature, especially in the context of measurement scales for constructs within airlines websites.

**Table 6.1: Final constructs Items**

	Question
<b>e-Trust</b>	I feel my privacy is protected on the Airline website.
	I feel confident about the Airline website.
	The Airline website is secure.
	I trust the Airline website will not misuse my personal information.
	I feel safe in my transactions with the Airline website.
	The Airline website satisfies ethics standards.
<b>Web Quality</b>	The Airline website provides complete information.
	The Airline website provides accurate and updated information.
	The Airline website provides reliable information.
	The Airline website has sufficient contents where I expect to find information.
	The Airline website provides timely information.
	The Airline website provides site specific information (flight details, prices, policy, etc.).
	The Airline website has good functionality relevant to my travel needs.
	The Airline website creates an appealing visual experience.
<b>Perceived Usefulness</b>	The Airline website enhances my effectiveness in completing my travel arrangements.
	The Airline website makes it easier to complete my travel arrangements.
	The Airline website improves the performance of my air travel arrangements.
	The Airline website increases my air travel arrangements productivity.
	The Airline website enables me to accomplish my air travel arrangements faster.
<b>Perceived Ease of Use</b>	Learning to operate the Airline website is easy.
	The interaction with the Airline website is clear and understandable.
	It is easy to interact with the Airline website.
	The airline website is flexible to interact with.
	The Airline website is easy to use.
<b>Intention to Purchase</b>	I will frequently use the Airline website in the future to purchase tickets.
	I consider the Airline website to be my first choice when I need to purchase air tickets
	I prefer using the Airline website to purchase airline tickets rather than any other methods.
	I will recommend others to use the Airline website for ticket purchasing.
	I will use the Airline website when I need to purchase airline tickets in the future.
<b>Perceived Price</b>	I am pleased with the prices in the Airline website.
	The prices in the Airline website are competitive.
	I think the prices that the Airline website provides are reasonable.
	The prices offered in the Airline website meets my expectations.
<b>Airline Reputation</b>	The Airline has an excellent public image.
	The Airline has a good reputation.
	The Airline provides excellent service.
	The Airline is extremely reliable.
<b>e-Satisfaction</b>	I would recommend the Airline website to a friend.
	Overall, I am pleased with the user experience of the Airline website.
	Overall, I am satisfied with the Airline website.
	Overall, the experience with the Airline website exceeded my expectation.

For convenience, Figure 6.1 and Table 6.2 are reproduced here from chapter 5 (Figure 5.7 and Table 5.24). Both table and figure summarise the fit of the model and relationships testing, whilst the following sections will discuss the results in relation to previous research in the field.

Figure 6.1: Final Model results

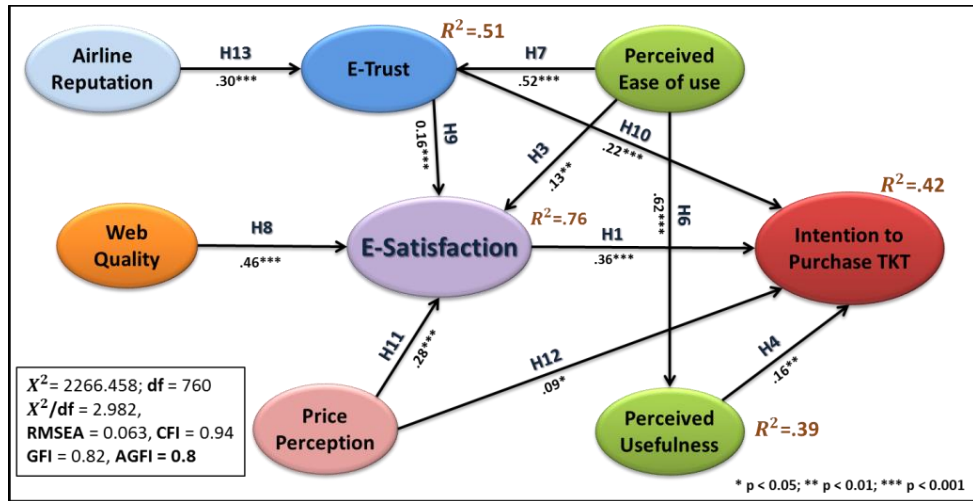


Table 6.2: Model hypotheses and values

Hypotheses	Paths	Std. Regression Weights ( $\beta$ )	Standard error SE	Critical ratio CR	p-value	Hypotheses findings
H01	IP ← ES	.357	.072	4.866	***	Supported
H02	ES ← PU	.042	.045	1.156	.248	Not Supported
H03	IP ← PU	.162	.061	3.220	.001	Supported
H04	ES ← PEOU	.125	.062	2.581	.010	Supported
H05	IP ← PEOU	-.037	.078	-.597	.550	Not Supported
H06	PU ← PEOU	.623	.046	13.931	***	Supported
H07	ES ← WQ	.457	.065	8.486	***	Supported
H08	ES ← ET	.162	.047	4.009	***	Supported
H09	IP ← ET	.215	.065	3.754	***	Supported
H10	ET ← PEOU	.517	.049	11.487	***	Supported
H11	ET ← AR	.292	.024	7.109	***	Supported
H12	IP ← PP	.090	.040	1.838	.066	Supported*
H13	ES ← PP	.283	.027	8.862	***	Supported

### 6.2.1 Determinants of Intention to Purchase

One of the main objectives of this research was to investigate the factors that influence Intention to purchase (IP) airline tickets online. The model explains ( $R^2=.42$ ) 42% of the

travellers intention to purchase their tickets online. Compared to other studies that have used SEM to examine travellers' intention to purchase tickets, it shows good explanatory power of the current research model for intention to purchase. Dehbashi and Nahavandi (2007) had a relatively simpler scale to measure Intention to use Airline websites and achieved a 43.5% explanation of the model. In general, the complexity of a model, the lower the fit and the lower the explanation potential it has. In addition, a recent study examined the intention to purchase travel products online achieved 72.6% explanation (Wen, 2012). However, this study used a population of individuals that had already purchased travel products, i.e. actual buyers. Also, the travel product in the study was not limited to Airline tickets; rather it had included hotel accommodation, car rental, cruise reservation, travel package, or a combination of any of these two. This explains why the study was able to achieve such high variance in customers' purchase intentions. Therefore, the current findings of Intention to purchase Airline tickets, provides important results and supports the existing literature in the context of the Airline industry. The conceptual model suggests that there are five direct influencers to IP. However, the empirical findings reveal that four factors (ES, ET, PU and PP) explain IP whilst the fifth factor, PEOU, does not have a significant impact. These findings will be discussed individually in the following sections by looking specifically at the hypotheses.

#### **6.2.1.1 E-satisfaction (ES)**

Out of the four factors of intention to purchase, e-satisfaction was found to be the highest individual positive contributor. Hypothesis H1:  $ES \rightarrow IP$  reveals a significant positive relationship between ES and IP, with a beta coefficient of ( $\beta = .357, p < 0.000$ ) indicating a positive contribution of Intention to purchase tickets. This suggests that the most important factor that attracts customers to purchase their tickets from an Airline website is e-satisfaction. The more the travellers feel satisfaction with the airline web portal when they perform their travel arrangement, the more ready they are to continue with a purchase transaction. This positive relation is not a surprising result and is consistent with previous research (Bai et al., 2008; Cronin and Taylor, 1992; LaBarbera and Mazursky, 1983; Lau et al., 2011; Zeithaml et al., 1993). However, the importance of this finding demonstrates that e-satisfaction shows much more significant compared with other factors i.e. PP, PU, ET, and PEOU. This result suggests that increasing the level of customer satisfaction whilst using an airline's website is the most important

factor for travellers, more so that factors such as providing better prices. Furthermore, the finding supports the adopted original Expectation confirmation theory (ECT) (Oliver, 1980) and all of Oliver's later work in support of this theory (Oliver, 1993, 2010).

### **6.2.1.2 Perceived Ease of Use (PEOU)**

This study was unable to demonstrate a positive relationship between perceived Ease of Use and Intention to purchase. Hypotheses H5: PEOU → IP was not supported with a beta value of ( $\beta = .042$ ,  $p < 0.2480$ ). Accordingly, the study reveals that an easy to use website does not have an effect on the intention to purchase airline tickets. An explanation for this may be that the relationship is indirect via Perceived Usefulness (PU). By looking at the direct, indirect and total effect toward IP results in Table 5.26 in Chapter 5, this was found to be true. There is a high indirect effect from PEOU to IP ( $\beta = 0.296$ ) mediated by PU. Although these results differ from some previous research (e.g. (Gefen et al., 2003; Venkatesh and Davis, 2000)), the indirect relation was previously found in the work of (Ruiz-Mafé et al., 2009) when they investigated Spanish users behaviour whilst purchasing online airlines tickets. Similar to the current study, Ruiz-Mafé et. al suggest a direct relationship between Ease of Use and Intention, and an indirect relationship via usefulness. The direct relationship was not empirically supported whilst the indirect one was supported. Thus, they stated, "*Ease is also important because, although it does not directly influence behaviour, it does have an indirect influence through perceived usefulness*". Furthermore, Zhang and Prybutok, (2003) have demonstrated similar results whilst testing the relationship with e-commerce portals in general, and Raaij and Schepers (2008) have found this by testing it in a virtual learning environment in China. To conclude, the current research reveals that if an internet user considers an airline's website easy to use then this positively influences their perception of the site's usefulness, and hence can lead to purchases.

### **6.2.1.3 Perceived Usefulness (PU)**

The current section refers to both relationships between H3: PU → IP and between H6: PEOU → PU. Both hypotheses were significant and supported. H3: PU → IP with ( $\beta = .162$ ,  $p = 0.001$ ) confirms that if a customer believes that using the Airline website is useful and will enhance his booking/ticket purchasing experience, then he will proceed with the purchase.

H6: PEOU  $\rightarrow$  PU with ( $\beta = .623$ ,  $p < 0.001$ ) also demonstrated a positive significant relationship between perceiving an airline website as useful and easy to use. In fact, this particular relationship demonstrated the highest significance score within the developed model. Again, both these results were consistent with the original TAM theory (Davis et al., 1989; TAM2; Venkatesh and Davis, 2000; TAM3 Venkatesh and Bala, 2008), in addition to other previous research e.g. (Ahn et al., 2007; Lederer et al., 2000; Moon and Kim, 2001).

Another study that reveal similar finding within airline ticket context is a recent one by (Renny et al., 2013). Using TAM theory, their empirical result shows that perceived usefulness influence the attitudes towards usability of airlines ticket reservation stronger than perceived ease of use. Although the relationship between PEOU and usage was confirmed in their study, it was very weak influence ( $\beta = .04$ ,  $p < 0.001$ ) (ibid).

Current model has only one antecedent of perceived usefulness (i.e. PEOU), and the model explains it by 39% ( $R^2 = .39$ ). Therefore, the results of this study corroborate the findings of a large amount of previous work in this field and further provide support for the context of the airline industry.

#### **6.2.1.4 E-Trust (ET)**

The perceived trustworthiness of an airline is believed to contribute towards the travellers' intention to purchase airline tickets. Hypothesis H9: ET  $\rightarrow$  IP supported this relationship. The empirical results revealed that the hypothesis was supported with  $\beta = .22$ ,  $p < 0.001$ . In fact, trustworthiness exists as the second most important factor toward intention to purchase. As mentioned in Chapter 3, this research adopts the understanding of e-trust provided by Dennis et al (2009), who considered e-trust to include online security and privacy aspects.

The importance of trust in the online environment was extensively discussed in section 3.3.6. Thus the empirical result here provides support to a great deal of the previous work in this field (Garbarino and Johnson, 1999; Gefen, 2000; Gefen et al., 2003; Qureshi et al., 2009; Suh and Han, 2003). However, there is still a lack of research that investigates the relationship between e-trust and intention purchase on airline websites. Koppius et al (2005), Kim et al. (2009), and Qureshi et al. (2009) all support the notion that trust for travel online services in general is an inclination for re-use or intention of a

re-purchase. The current study on the other hand confirms that e-trust also influences initial purchase intention for Airline websites.

Another suggestion for the outcome of e-trust is that it has been explained by two constructs: Perceived Ease of Use and Airline Reputation. These factors were able to explain it by 51% ( $R^2 = 0.51$ ). This is a good percentage of explanation if, for example, it is compared with Suh and Han (2003) who used five types of perceived controls to determent e-Trust and explained 59%.

A high coefficient value was found to be coming from the PEOU factor of e-Trust. Hypothesis H10: PEOU  $\rightarrow$  ET was found to be significant, with the second highest path coefficient in the entire model ( $\beta = 0.517$ ,  $p < 0.001$ ). This means that building an easy to use airline website influences the feel of trust on a website. This finding is in agreement with previous research (Gefen et al., 2003; Qureshi et al., 2009) that have tested this relationship but for different e-commerce retailers type.

In addition, airline reputation (AR) was found to be highly influencing the e-Trust. The support of hypotheses H11: AR  $\rightarrow$  ET with ( $\beta = .292$ ,  $p < 0.001$ ), corroborates the finding that airlines with good public image, services, reliability, and reputation are more likely to increase trustworthiness for individuals using their website. Unlike this study, Graham and Moore (2007) have investigated the direct impact of Airlines reputation on the individual's willingness to pay for Airline tickets. Their empirical result shows a high relationship between airline reputation and willingness to pay ( $\beta = 0.46$ ,  $p < 0.001$ ) (Graham and Moore, 2007). On the other hand, this study confirmed a relation between reputation and paying for airline tickets only via e-Trust. This could be attributed to the fact that in their study they investigated 'purchasing airline tickets' from any distribution channel and not specifically from the specific airline website.

However, the result found here endorses the idea that for airline websites to be trusted by customers it does not only depend on the website, but also on the airline's reputation. The reputation is a key element for enhancing travellers trust on the website.

#### **6.2.1.5 Perceived Price (PP)**

The perception of prices on the website is believed to contribute positively to the decision of purchasing an airline ticket. This was supported in the work of several studies within the travel and tourism industry (e.g. Athiyaman, 2002; Cheung et al.,

2005; Chu, 2001; Koppius et al., 2005; Ruiz-Mafé et al., 2009). The current study is not exceptional. Hypotheses H12: PP  $\rightarrow$  IP with ( $\beta = .09$ ,  $p < 0.0066$ ) demonstrates support of the relationship between the perceived price and Intention to purchase. Nevertheless, the relationship is relatively weak. As discussed earlier in section 5.8.3.2, hypothesis H12 showed a marginally significant p value and a low coefficient value as well  $\beta = .09$ . This emphasizes the notion that even though the price influences the intention to purchase, it is not considered a key factor of determining willingness to purchase tickets.

### **6.2.2 Determents of e-Satisfaction**

E-Satisfaction is centralised in the conceptual model in this study. The concept of e-satisfaction is originally adopted from the satisfaction idea in the Expectation Confirmation Theory (ECT) by Oliver (1980) and the IS Success Model (DeLone and McLean, 1992). The current model explained e-satisfaction very well as  $R^2 = 0.76$ , meaning that 76% of customer's e-satisfaction with the airline website is explained in this model. This is compared to the work of Lau et al (2011) that examined customer satisfaction with airline e-ticketing services, which found 58% of the e-satisfaction variance explained. Koppius et al (2005) also achieved 56% in e-satisfaction upon answering the question: why are customers coming back to buy their airline tickets online?

In the current research, five factors were used to predict e-satisfaction. However, the empirical results revealed that the highest influence for e-satisfaction was web quality, with other factors being PP, PEOU, and ET. Unexpectedly, PU was found to have no significant influence on ES. The following sections will discuss these findings based on the hypotheses.

#### **6.2.2.1 Perceived Ease of Use (PEOU)**

Earlier, it was found that Ease of Use did not directly affect intention to purchase, but did have an indirect relationship. On the other hand, it was statistically validated that PEOU positively influences online user satisfaction whilst using airline website. Hypotheses H4: PEOU  $\rightarrow$  ES with ( $\beta = .12$ ,  $p < 0.01$ ) demonstrated a significant relationship. In previous literature, there are not many models that link ease of use with e-satisfaction. However, a particular study that adopted the TAM constructs (PEOU and



PU) to examine the effect on what they called “Satisfaction with E-Commerce channel” rather than intention, is one example (Devaraj et al., 2002). They found strong support to suggest a relationship between PEOU and satisfaction and between PU and satisfaction.

#### **6.2.2.2 Perceived Usefulness (PU)**

It was found that perceived usefulness (PU) has no significant relationship with (ES). The hypothesis H2: PU → ES with ( $\beta = 0.042$ ,  $p = 0.248$ ) was not significant, indicating that even when using an airline website is perceived as a useful way of making travel arrangement, it does not generate a feeling of satisfaction of the website. However, it directly influences their intention to purchase their tickets from the web as seen earlier from hypotheses H3. Accordingly, e-satisfaction does not play any mediation role between PU and IP. This finding contradicts with other previous research in different contexts. As indicated earlier, Devaraj et al. (2002) found a strong relationship between PU and Satisfaction with e-commerce channels in general. Also, Zviran et al (2005) found that perceived usefulness was one of the factors effecting user satisfaction with ERP systems. Perhaps using an ERP system is directly related to a task that users are required to do, and hence does not reflect the same concept this research is attempting to test. In addition, Bhattacharjee (2001a) test this relationship in an online banking context and confirm that there is a positive, albeit weak prediction of satisfaction. Nevertheless, In his other study that focussed on online brokerage, he did not even predict this relationship in his modified model, even with the presence of both constructs in his framework (Bhattacharjee, 2001b). One reason for the un-supported relationship could potentially be related to a remark in his article, where he suggested that perceived usefulness captures the rationale component of user’s decision in contrast to the affective component embodied in satisfaction. Stating that “*In case the rationale and affective components oppose each other, relative strengths of the two components determine the outcome of the decision process.*” (Bhattacharjee, 2001b). For instance, users may continue using the Airline website if they consider it useful, even if they are dissatisfied with website itself. Therefore, this research adds to the little body of literature that studies the link between PU and satisfaction, by confirming that there is no any influence or effect.

### **6.2.2.3 Web Quality (WQ)**

The strongest predictor of e-satisfaction in the current model was found to be Web Quality. Hypotheses H7:  $WQ \rightarrow ES$  with ( $\beta = .457, p < 0.001$ ) is the highest coefficient in relation to e-satisfaction. The previous literature supports the positive link between website characters and qualities of e-satisfaction. However, most studies adopt similar, albeit not the same constructs, or multi dimensions instead of a single web quality construct. As an example of a similar constructs, Lau et al (2011) looked at the web design elements and Mills and Morrison (2003) looked at travel website interfaces. They empirically demonstrate that the relationship does exist. On the other hand, studies that separate the web quality into more than one construct also demonstrated this relationship. McKinney et al (2002) looked at Information and System quality, Nusair and Kandampully (2008) used information quality only, and Bai et al. (2008) looked at Functionality and usefulness as components of web quality.

In this study, Information Quality and System Quality were combined into a single construct (Web Quality) during the Exploratory Factor Analysis. The Web Quality construct became more comprehensive as a definition, containing items that related to sufficiency, timeliness, accuracy, and website specific information, in addition to items that related to the functionality and the visual aspect of the website. These items fit the description of web quality provided by Aladwani and Palvia (2002) that was discussed in Chapter 3. They explored previous web quality scales and then defined web quality as *“users’ evaluation of a website’s features meeting users’ needs and reflecting overall excellence of the website”*.

The current study demonstrates that the strongest predictor of e-satisfaction is web quality and the strongest factor of intention to purchase is e-satisfaction. This provides support to suggest that main aspects of the developed model are true. The better the visual aspects of a website and the better the information on the website, the higher the level of satisfaction is felt with said website. This feeling of satisfaction increases the intention to purchase airline tickets.

### **6.2.2.4 E-Trust (ET)**

The relationship between e-trust and e-satisfaction was tested. Hypotheses H8:  $ET \rightarrow ES$  was significantly valid ( $\beta = .162, p < 0.001$ ). The higher the level of confidence a customer has about the website’s security, the higher the level of satisfaction the

customer will have with the website. This finding supports previous research in this area e. g. (Ahn et al., 2007; Gummerus et al., 2004; Harris and Goode, 2004; Jin and Park, 2006; Lau et al., 2011).

As discussed in chapter 2, the feeling of trust can be achieved by having effective website security, a commitment to customers' protection, and through investments in advertising the website's security.

#### **6.2.2.5 Perceived Price (PP)**

The impact of the prices on the airline website was found to effect the satisfaction with the airline online portal. Hypotheses H13: PP → ES with ( $\beta = .283$ ,  $p < 0.001$ ) revealed that the relationship was significant and was stronger than the direct relationship with intention to purchase. Earlier in section 6.2.1.5 it was demonstrated that the relationship between PP and IP was weak with ( $\beta = .09$ ,  $p < 0.0066$ ), but with ES it was stronger. This means that price perception is more important in generating a feeling of satisfaction with the airline website rather than inducing travellers to purchase the tickets.

In the online environment, prior studies have noted the importance of price for encouraging purchase (Athiyaman, 2002; Cheung et al., 2005; Chu, 2001; Koppius et al., 2005; Ruiz-Mafé et al., 2009), but very little was found in relation to its influence on e-satisfaction. Fornell et al (1996), Voss et al. (1998) and many others have focused their work on the influence of price on customer satisfaction in general (mostly offline businesses). The present study demonstrated this to be true in the virtual world as well.

### **6.3 Group differences and generalizability**

A secondary objective of this study was to explore and identify changes between diverse segments of consumers, including the role of demographics, internet experience, and travel habits. This will help for understanding how each group affects the model, and will further allow the researcher to discover the generalizability of the study across different groups. In addition, it will provide initial findings that could be a start for future research within the travel industry.

The analysis of the group differences in Appendix 9 involved two types. The first one involved comparing the mean scores between different groups in order to understand how each group of respondents perceived the different variable. T-test analyses were used for this purpose. Although the t-test show differences under the  $p < 0.05$  significant level, the discussion will only involve the critical differences under the stricter Bonferroni corrected p value  $P < 0.0063$ . For more results the reader can return to Appendix 9.

The second analysis focused on the model and the relationships between the different variables i.e. invariance analysis. This will answer the question about how the different groups affect the relationships.

The following sections will discuss the findings for the thirteen different types of groups under three main categories: 1- Demographic characteristic (Gender, age, education level, income per month, occupation, and location), 2- Internet experience, and 3- Travel habits (Origin of the airline used, actual purchase, travel frequency, motivation of travel, type of travel, and type of funding). The discussion is based on the finding in Appendix 9 , which is summarised in Table 6.3 below, with results for both types of analyses, including mean differences and invariance analysis.

**Table 6.3: Summary of means differences and invariance analysis between groups.**

		Mean Difference								Invariance Analysis <sup>#</sup>
		Perceived usefulness (PU)	Perceived ease of use (PEOU)	Web Quality (WQ)	e-Trust (ET)	Airline reputation (AR)	Price Perception (PP)	e-Satisfaction (ES)	Intention to Purchase (IP)	
Demographics	Gender						* Male		* Male	No moderation effect
	Age	No any Significant Differences								No moderation effect
	Education	No any Significant Differences								No moderation effect
	Income	No any Significant Differences								WQ --> ES , High Income PP --> ES , Low Income
	Occupation	* Professionals				* Students				PP --> ES , Students PEOU --> PU , Students
	Location	* Inside Saudi				* Outside Saudi				PP --> ES , Outside ET --> IP , Inside
Internet Experience		No any Significant Differences								No moderation effect
Travel Habits	Airline: Saudi or Non	** Non Saudi	** Non Saudi	** Non Saudi	** Non Saudi	** Non Saudi	** Non Saudi	** Non Saudi	** Non Saudi	No moderation effect
	Buyers or Non-Buyers	** Buyers		* Buyers	** Buyers			* Buyers	** Buyers	No moderation effect
	Travel Frequency			* Less frequent		** Less frequent		* Less frequent		No moderation effect
	Motivation of Travel						* Less Serious			No moderation effect
	Domestic or International		* International	** International		** International	** International	** International	* International	No moderation effect
	Self-funded or not		* Self-Funded		* Self-Funded		** Self-Funded	* Self-Funded	** Self-Funded	ET --> IP , Non-Self-Funded

\* Significant at p<0.05 level \*\*Significant at p<0.0063 level, the group with the higher mean score is written in bold under the significance level. For example, the professionals perceived airlines website to be more useful than students whilst students perceived airlines as more reputational.

#The relations with the significant difference are highlighted in the last column with the associated group impacting the relationship higher. For example, people with higher income think that web quality has higher influence on e-satisfaction than the lower income respondents.

### 6.3.1 Demographics groups

The study adopted six different demographic characteristics to investigate. They were: gender, age, education level, income per month, occupation, and residency location. As seen in Table 6.3, the mean comparison for all demographic variables (t-test) revealed that there were no differences in the perception of all of the groups. In regard to the invariance analysis, gender, age, and education level did not demonstrate any significant difference. Nevertheless, income, occupation and location did reveal differences in some relationships.

#### 6.3.1.1 Income WQ --> ES, High Income, PP --> ES, Low Income

With income per month, the people with higher income were found to perceive web quality as more important for e-satisfaction than the people with lower income. A possible explanation for this might be that people with higher income have higher expectations from an airline website in term of the design, process and information. Xue and Harker (2002) studied the impact of price on e-commerce and claimed that households with a higher income tend to spend more online, and thus conduct more online shopping transactions. As a result, they have seen and visited many online shopping websites, and as a result, their expectations are higher based on their expertise. This may explain why it is more difficult to satisfy people earning more with the quality of the website than those earning less.

On the other hand, it was found that individuals with **lower income** perceive airline ticket prices as a more important factor in terms of their e-satisfaction. This finding might be related to the concept of price sensitivity which refers to the extent of which individuals perceive and respond to changes or differences in prices for products or services (Monroe, 1973). According to Wakefield and Inman (2003), “*empirical effort and common knowledge holds that individuals with lower household resources will generally be more price sensitive*”. Thus, this result seems reasonable and logical that people with lower budgets tend to care more about the price they are paying for an airline ticket.

#### 6.3.1.2 Occupation PP --> ES, Students, PEOU --> PU, Students

In relation to previous findings, price perception was found to be more important for students in terms of e-satisfaction than it is with professionals. The possible reason

behind this is that students tend to have less income or are paid by their parents. According to Cao and Mokhtarian (2005), student consumers may consider price more heavily in their decisions of purchasing than the population of online shoppers as a whole. Thus, the money aspect plays a more important role in their satisfaction with the airline website.

Another relationship that was found to be significantly different for students was the relationship between Perceived Ease of Use (PEOU) and Perceived Usefulness (PU). Students consider PEOU as important in order to feel that the site is useful. It worth mentioning that majority of previous research with both TAM constructs used students in their surveys (Al-Qeisi, 2009). Therefore, this research also supports these findings for a non-student sample albeit with a lower strength. A possible explanation for this might be that students usually have lower travelling experience. Thus, for students, the airline web portal has to be easier to use and travel arrangement steps should be clearer in order for them to perceive it as being useful.

### **6.3.1.3 Location** PP --> ES, Outside, ET --> IP, Inside

The respondents' location in this sample has also shown significant differences for two relationships. The price was perceived as more important for people living outside of Saudi Arabia on their e-satisfaction. Moreover, this might be related to their income and occupation status. An important factor about the respondents situated outside of Saudi Arabia should be considered in relation to interpreting the results. During data collection, the majority of the Saudis completing the survey and living outside the country were believed to be students (part of the Saudi education scholarships). According to Higher Education Statistics Center (2012) around 175, 000 Saudi students were registered around the world in 2011/2012. In addition, due to the survey being distributed amongst students within online forums around the world, it is understood that the majority of the respondents from 'outside' are students receiving reasonable, but not high, incomes from the Saudi government.

The other significant relationship was in terms of e-trust. It is found that people living in Saudi Arabia perceive security and privacy as an important factor for purchasing airline tickets. The reason for this is not clear, but it could possibly be due to the implementation of internet security and privacy regulations within the country. The Anti-Cyber-Crime law has been issued by the Saudi Arabian government for a few

years (26 March 2007) (Albur, 2008). However, it is not yet fully implemented and known by the public. This means that Saudis are not yet familiar with what they should do, or whom they should approach, when encountering issues with the online service or seller.

### **6.3.2 Internet Experience**

The research demonstrated no significant difference between experienced and less experienced internet users in term of their perception of each construct, and also in the relationship between the constructs within the model. This result contradicts other existing studies that acknowledge the moderation effect of internet experience. For example, (Jarvenpaa et al., 2000) said “*A consumer’s past experience on the internet in general, or shopping on the internet specifically, might have generated knowledge and consequences that reinforce the consumer’s behaviour and shape and moderate the consumer’s beliefs, attitudes, and willingness to shop in internet stores*”. However, even though the current result does not indicate any significant differences between both groups, a possible explanation for this may be that a high number of respondents had sufficient experience with the internet. While separating the data into two groups for comparison, the author used a strict condition by using the four internet Experience survey questions as described in section A.4.7. However, the first internet usage question from the survey revealed that 89% of the respondents indicated that they had been using the internet for more than 6 years. Therefore, this result must be taken with caution.

### **6.3.3 Travel experience and habits**

The study adopted six different experiences and habits to investigate. They were Airline Origin (Saudi or Non Saudi Airline), Actual Purchase (Buyers or Non Buyers), Travel Frequency, Motivation of Travel, Domestic or International Travellers, Type of Funding. These type of travelling habits and characters are underrepresented in the literature even though they can play an important role in effecting web experience for different groups. As seen in Table 6.3, the t-test revealed that there are differences in the perception of five of the habit groups. Nevertheless, in regards to the invariance analysis, only one relation (i.e. type of funding) shows significant difference.



### **6.3.3.1 Airline Origin (Saudi or Non Saudi Airline)**

It was found that there are significant differences in user perception for all constructs in the model between Airlines that are based (Registered) in Saudi Arabia and others that are non-Saudi Airlines (International Airlines). The eight constructs (PU, PEOU, WQ, ET, AR, PP, ES, and IP) mean scores were significantly higher for non-Saudi Airlines. This means that Saudi citizens felt that airlines that are not Saudi based had a better website in terms of perceived usefulness, perceived ease of use, web quality, e-trust, airline reputation, price, e-satisfaction, and intention to purchase. This finding suggests that Saudis are underestimating the online services provided by Saudi Airlines compared with others (e.g. British Airways, British Midland, Lufthansa, and Delta Airlines). However, this result should be interpreted with caution for two reasons. First, non-Saudi airlines are operating international flights only (Landing or Departing from a Saudi local city, the other leg of the flight are international destinations). On the contrary, Saudi based airlines are operating local domestic flights as well. Typically, international flights offer relatively better services as they generate higher revenues. This explanation is supported and better understood later within this chapter when the finding of domestic and international travellers is discussed. In short, the t-test demonstrated that international travellers have a better perception in terms of a majority of the variables than domestic flyers (This finding will be discussed later).

The second potential reason to explain this finding might be related to the effect of Country of Origin. There is a growing body of literature in relation to cross-cultural comparisons of country-of-origin impact on consumer perception of product and services (Bilkey and Nes, 1982; Kaynak and Kara, 2002). Bhuian (1997) compared consumers' attitudes towards products and marketing practices in Saudi Arabia as well as six other developed countries. The survey found that consumers viewed products and services from the USA, Japan, Germany, Italy, the UK and France as being more positive than those from Saudi Arabia. The phenomenon exists that North American and Western European companies that operate in foreign markets are perceived as providing higher quality services and products than those in local developed countries (Kaynak and Kara, 2002).

### **6.3.3.2 Actual Purchase (Buyers or Non Buyers)**

Buyers (i.e. the respondents in the study that purchased tickets from the airline websites) rated Usefulness, e-Trust, and Intention to Purchase higher than non-buyers. This result seems very reasonable. Those who had already made a purchase from the airline were expected to regard the website as being useful and trustworthy as well as having an intention to re-purchase. These key constructs can be attributed to the fact that once completed a transaction, the fear of depending on the online channel is diminished, and hence individuals will gain confidence in the website. In addition, individuals may have potentially regarded the website as a useful tool, which would increase their willingness to use it again.

### **6.3.3.3 Travel Frequency**

The empirical result demonstrated that individuals that travelled less frequently had perceived the Airline's reputation better than those travelling more frequently had. The observed decrease in perceived reputation from frequent travellers could be attributed to their experience of using more airlines and taking more trips. The individuals that do not travel as frequent might potentially regard the specific airline as having a good reputation, but upon experiencing the same or other airlines, this perception decreases. This shows that travellers are underestimating the airlines reputation when they travel more.

### **6.3.3.4 Motivation of Travel**

The research found that regardless of the reason for travelling, in the sense of it being for either a serious visit (e.g. business, study) or less serious (e.g. vacations, visiting friends), there exists no difference in term of their perception of each construct. Therefore, motivation to travel did not demonstrate a difference in traveller's perceptions or within the relationships between constructs.

### **6.3.3.5 Domestic or International Travellers**

International travellers perceived WQ, AR, PP, and ES significantly higher than domestic travellers did. As mentioned previously, airlines typically provide better services on international flights. This is due to international flights being longer in time, using larger aircrafts and receiving more attention. In addition, the Saudi aviation market is currently facing challenges in catering for local flights, as Saudi Arabian

government is forcing airlines to keep local flight prices fixed and disallowing an increase to price in the last few decades. Despite that Saudi Airlines announced that 68.46% of the their flights were domestic (Alyaum, 2013), the Vice CEO of the company claimed that they were not gaining profit from the local flights in operation (Flying Way, 2013). Thus, this may reflect the quality of services they provide on local flights.

#### **6.3.3.6 Type of Funding**

The mean comparison scores revealed that travellers who self-funded their ticket had a higher intention to purchase and significantly better price perception than those who did not pay for their ticket (i.e. sponsored or paid by others (e.g. husband, parents)). It is difficult to provide an explanation for this result, but it may be related to the idea that when someone is using another person's money, they are usually more hesitant to accept the price and conduct the transaction. For example, if the company is paying for an employee's business trip, they might not be the one that authorises the price and completes the transaction. Approval must be gained from their management, and as a result, they may care about the price and not intend to complete the purchase himself. In another case, if someone's parents are paying for their trip, they may be extra cautious before accepting the price and completing the transaction.

Another result in relation to the type of funding is pertained from the invariant analysis. The relationship between e-Trust and Intention to Purchase shows that people who are self-funding regard e-trust significantly higher than those who are not paying with their own money. A trustworthy website is more important for attracting a traveller to purchase an airline ticket if that individual is paying with his or her own money. A possible explanation for this may be due to privacy and security concerns when a traveller is providing their personal bank or card details. The difference between individuals using their own money or not is a novel case found in this study. There have been no earlier comparisons made in relation to this issue. Thus, this finding can act as a starting point for more research about the moderating role of type of funding.

## 6.4 Summary

The chapter interpreted the data analysis outcomes and discussed the findings by considering it in relation to previous research and providing justification for the reasons behind the results. Firstly, the model structure and the validation of the scale used in the study were both discussed. It was found that the appropriate scale items consisted of forty-one items and an eight constructs model was better for the context of this study.

In regards to the model relationships, four determinants of intention to purchase were confirmed and sorted by strength as: e-Satisfaction, e-Trust, Perceived usefulness, and Price Perception. In the same way, four determinants of e-satisfaction were explained in the following order: Web quality, Price Perception, e-Trust, and Perceived ease of use.

The group difference analysis findings were also discussed. The main purpose of the group analysis was to explore and identify differences between segments of consumers including the role of Demographic, Internet Experience, and travel habits. It was found that the suggested model could be confidently generalised among nine of these segments (Gender, Age, Education, Internet Experience, Airline country of origin, Buyers/ non-buyers, Travel Frequency, Motivation of Travel, Domestic or International). Only four segments demonstrated significantly different relationships, yet the model remained supported. Those were (Income, Occupation, Location, and type of funding). Another useful observation was to do with the perception of each variable for every segment of consumers. The study demonstrated that demographics and internet experience did not show a significant difference in perception. On the other hand, the majority of travel habit groups (all of them except motivation of travel) demonstrated differences across some of the variables in the model, but the relationship remained supported. There exists limited research in relation to travel habits, experience and its impact on traveller's behaviour. This research fills the gap and extends an opportunity for further exploration in this area.

## **Chapter 7 – Conclusions**

### **7.1 Introduction**

The previous chapter provided an analytical discussion of the results. This included the findings from the developed model, the proposed research hypotheses, and the different groups' effects. These findings were presented in the context of the current literature available.

This chapter will summarise what has been achieved in this thesis in relation to the aims and objectives of this study. Following this, it will outline the novelty of this research by discussing its theoretical contributions and practical implications. Finally, the limitations of this study, suggested future research is offered.

### **7.2 Summary of the study**

The current study explored a wide variety of literature related to the topic of airline online consumer behaviour from different perspectives. It explored previous studies within the marketing and consumer behaviour sector with a special focus on the online user's behaviour. Additionally, this research investigated the different web quality scales that are developed mainly from an Information Systems (IS) perspective. In providing an extensive literature review, this research offers a full and grounded insight within the travel, tourism, and airline industry context. Based on the extensive literature, some gaps in the research were identified. Firstly, the need to develop new models that measures online consumer behaviour without the dependence of only traditional theories was identified as a gap. Integrating new factors to cover emerging aspects of new web features and consumer needs is necessary (Cheung et al., 2005; Law et al., 2010). Secondly, the web quality dimensions and scales need to be extended further to the e-service context and the link between web quality and web adoption still needs further investigation (Fassnacht and Koese, 2006; Xu et al., 2013).

While both earlier mentioned gaps has to do with online consumer behaviour and web qualities in general, the lack of research became clearer when a specific type of e-commerce or e-service is chosen to study. A third gap that many researchers identify is

to extend the online consumer and web quality dimensions for a particular industry or product (see for e.g. Aladwani and Palvia, 2002; Kim et al., 2009; Kim and Stoel, 2004; Nusair and Kandampully, 2008; Qureshi et al., 2009). This is because each of them has its own characteristics and that might result in different web quality elements or behaviour. Additionally, a fourth and significant gap in research emerges from the idea of group differences. Exploring potential differences between various types of airline website users has been found to be under investigated (Aksoy et al., 2003). Demographics, internet experience, and travel habits are all factors that may affect consumer behaviour and thus warrant further exploration.

Lastly, the fifth gap is related to the location of research studies. While there is evidence that online consumer behaviour is affected by cultural differences (Ruiz-Mafe et al., 2013), previous research has been mainly carried out in developed or western environments. New under-investigated cultures that have big e-commerce potential needs to be further explored.

As such, a principal aim of this study was to utilize and extend the existing theories on consumer behaviour and scales within web quality to develop and validate a model for measuring the traveller's web satisfaction and willingness to purchase tickets from airline websites. Initially, this research set out with five objectives and these have been met, as will be demonstrated in the following sections. Based on the theoretical findings, and to fill the above-mentioned gaps in the literature, a conceptual model was developed which consists of nine constructs and fourteen hypotheses. The conceptual model utilized several theories and models. The IS Success Model, Technology Acceptance Model (TAM), and web quality dimensions are the fundamental foundations of the current conceptual model. Other constructs were considered to extend the conceptual model for the context of this research, such as e-trust, price, and airline reputation. The current study assumed that travellers' satisfaction with the airline web portal (e-satisfaction) is a central factor in terms of its influence on purchase intention and that web quality dimensions do play a major role in positively influencing e-satisfaction.

The study applied a positivist philosophy, deductive approach, and mainly quantitative methodology. In order to examine empirically the conceptual model, a questionnaire items for each construct were established based on well-validated previous research. A

validation procedure including focus group and interviews were used to make sure that the items are valid and appropriate for this research. In addition, a pilot examination was used before the start of the main data collection.

The actual main data collection involved sample of airline travellers using airlines within Saudi Arabia. A total of 494 usable questionnaires were used for the analysis. In order to validate the conceptual model, a structural equation modelling (SEM) technique was applied and SPSS was used for the exploratory factor analysis (EFA) while analysis of moment structure (AMOS) software was applied to test the hypothesised relationships and perform the invariance analysis. According to the EFA, few items were dropped and two constructs were combined into one. Then, from the confirmatory factor analysis (CFA), other observed variables were dropped from the analysis and a good model fit was achieved. The modified model includes forty-one items, eight constructs, and thirteen relationships. The study found that eleven hypothesised relationships were supported and two were rejected. In addition, the invariance analysis was conducted between thirteen different groups including demographics, internet experience, and travel habits in order to explore the model generalization and differences across groups. Invariance analysis results show some significant differences between some groups and the full results are illustrated in Appendices 9 Table 0.45. The study conducted a comprehensive discussion of the results linking it with the previous findings. Finally, this chapter outlines the research novelty, its contributions to theory and research, implications and applications, and the limitations and suggestions for future research.

### **7.3 Research objectives fulfilment**

The study has set five objectives to be achieved by the end of the research. The following sections will remind the readers with the defined objective and describe how it had been fulfilled in this dissertation.

#### **7.3.1 Objective 1**

*“Explore and critically review the online consumer behaviour literature and web quality research within travel and tourism”*

This objective was accomplished in chapter 2, following a detailed description and critical overview of the theoretical background of this thesis. Studies pertaining to consumer behaviour and web quality were highlighted and discussed. Research that

looked at website qualities and adoption within the travel and tourism industry were also demonstrated. This allowed the researcher to identify gaps in academic research (particularly within web quality perspectives of airline websites) and how web quality can satisfy users and attract them to complete a ticket purchasing transaction.

### 7.3.2 Objective 2

*“Identify the factors most likely to have a significant influence on web e-satisfaction and intention to purchase airline e-tickets”*

In chapter two and three, the factors that influence e-satisfaction and intention to purchase airline tickets were discussed and identified. Based on the literature review, it was initially suggested that five variables positively affect intention to purchase. These variables were e-Satisfaction as a primary influencer, e-Trust, Price Perception, Perceived ease of use, and perceived usefulness. On the other hand, six variables were proposed to positively affect e-Satisfaction: mainly Information quality and System quality, followed by e-Trust, Price Perception, Perceived ease of use, and Perceived usefulness. The study then validated these theoretical suggestions as seen in next objectives. Table 7.1 below reports the list of constructs influencing Intention to Purchase Air Ticket and e-Satisfaction.

**Table 7.1: Suggested influencers of Intention to Purchase and e-Satisfaction**

Influencers of Intention to Purchase Air Tickets	Influencers of e-Satisfaction
1- e-Satisfaction	1- Information quality
2- e-Trust	2- System quality
3- Price Perception	3- e-Trust
4- Perceived ease of use	4- Price Perception
5- Perceived usefulness	5- Perceived ease of use
	6- Perceived usefulness

### 7.3.3 Objective 3

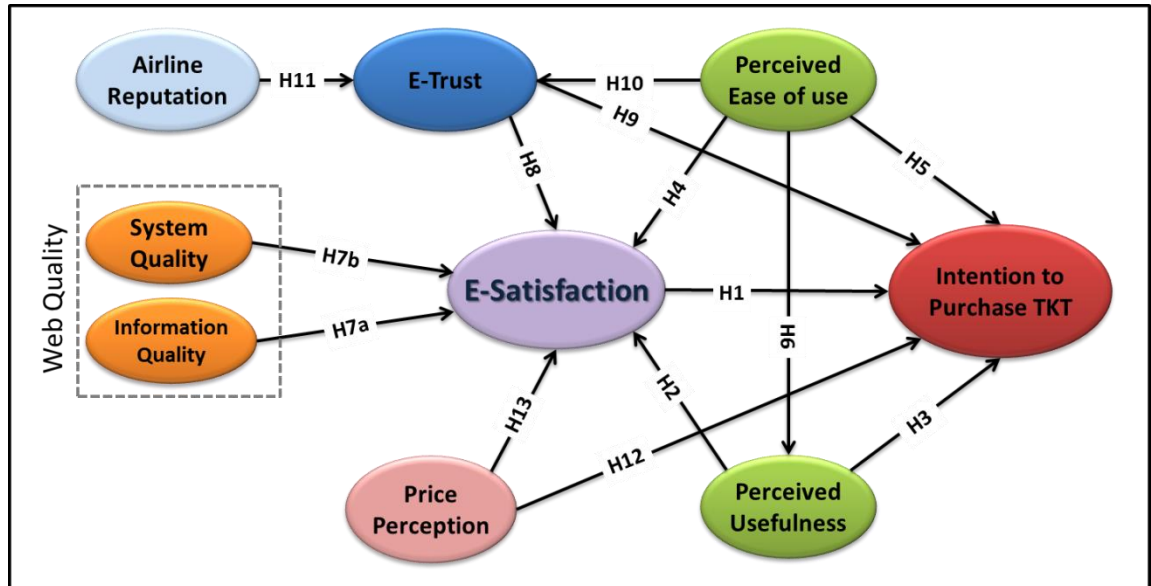
*“Develop a conceptual model concerning the relationships between e-satisfaction its antecedents and consequence (intention to purchase)”*

This objective was mainly accomplished in Chapter three. A conceptual model has been developed, research constructs were defined, and relationships between different constructs have been justified. The measurement items for each construct in the model were then set and customized in chapter four. The model initially consisted of fourteen relationships, later reduced to thirteen and 54 measurement items, later reduced to 41 as illustrated in the different stages of the study. The building of the proposed model and



the developed hypotheses can be seen in Chapter three while the proposed model is shown in Figure 7.1 below (Figure 7.1 is a duplication of Figure 3.8).

**Figure 7.1: Study proposed conceptual model**

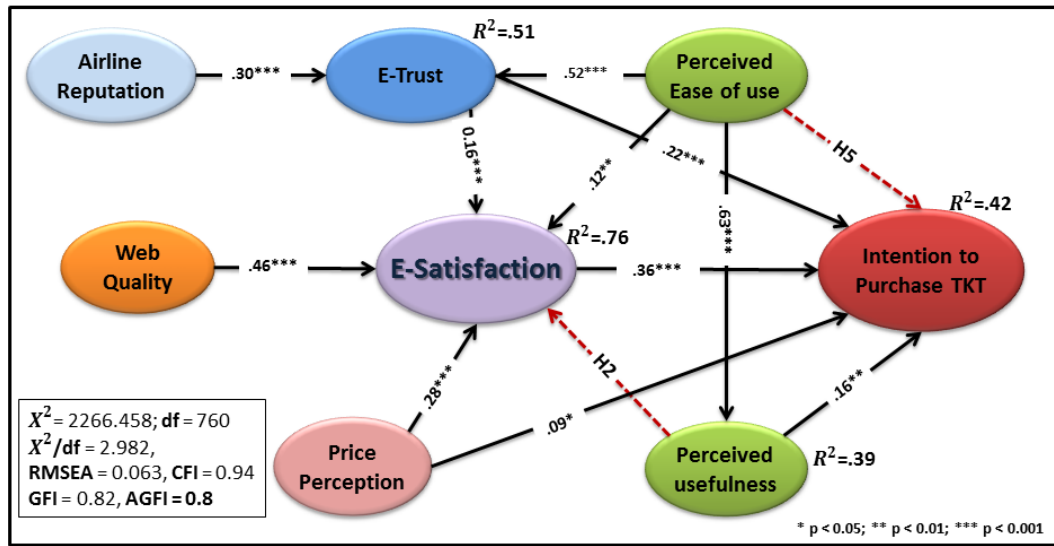


### 7.3.4 Objective 4

*“Empirically assess and validate the proposed conceptual model.”*

A survey methodology was used to empirically assess the conceptual model. The questionnaire was evaluated by experts, translated, developed as an online survey, piloted, and then distributed for the main data collection. Chapter 5 demonstrates all the data analysis techniques used to empirically validate the conceptual model. This involved data-screening, characteristic of data sample, Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA) and hypothesis testing. According to the in-depth data analysis, several findings and results were discussed in Chapter 5 and 7. In short, because of the different stages of the analysis, few items were dropped and two constructs were combined (Information and System Qualities into Web Quality). This achieved good model fit and established discernment and validity. Eleven out of the thirteen suggested that hypotheses were supported. The highest predictor of Intention to Purchase (IP) is e-Satisfaction (ES) while the highest predictor of e-satisfaction (ES) is Web Quality (WQ). In addition, statically suggested paths in the model were revealed and direct and indirect effects of constructs were demonstrated. The final model that this thesis validated and achieved is shown in Figure 7.2 (Figure 7.2 is a duplication of Figure 5.7).

**Figure 7.2: Final model and hypothesis results**



In addition to the above main objectives, this research set a secondary goal that intend to explore and identify for future research any differences between segments of consumers including the role of Demographics, Internet Experience, and travel habits towards the factors and the model. This also allowed the researcher to assess the generalization of the model and learn about the role each group plays.

The effect of the different respondent groups on the final model was examined in Appendix 9. Thirteen respondent characteristics were examined as part of three main categories: 1- Demographic characteristic (gender, age, education level, income per month, occupation, and location), 2- Internet experience, and 3- Travel habits (Origin of the airline used, actual purchase, travel frequency, motivation of travel, type of travel, and type of funding). Two types of tests were conducted for the different groups. The first one involved comparing the mean scores between different groups for each variable individually. The second mode of analysis focused on the model and the relationships between the different variables i.e. invariance analysis. Five categories showed significant difference in the mean scores for all or some of the variables (i.e. airline country of origin, actual purchase, travel frequency, domestic or international travellers, self-funded or paid by others). Four categories moderated the relationship between constructs in the model (i.e. Income, Occupation, Location, Self-Funded or paid by others). These findings were provided in Appendix 9 and discussed in chapter 7.

## **7.4 Research Novelty (Contributions and Implications)**

The novelty of this research lies within the development of a comprehensive theoretical model obtained from different disciplines (i.e. consumer behaviour, Information systems, travel and tourism). This model is capable of investigating and empirically examining the factors that influence travellers' satisfaction and intention to purchase air tickets from airline websites. This is in contrast to previous research that tends to either investigate other types of travel websites (hotels, travel agents) or simply suggest a conceptual model. This study is the first study on the topic of airline travellers' online experience in developing countries that attempts to develop a suitable conceptual model and empirically examine customer experience using Structural Equation Modelling (SEM). The relations and structure in the model developed for this research is novel and has not been suggested or tested before. In addition, an original addition to knowledge pertained from the different group analysis that this study have conducted. The following sections will elaborate on the theoretical and methodological contribution as well as the practical implications drawn from the findings of this study.

### **7.4.1 Theoretical Contribution**

The critical review of the consumer behaviour literature in this research highlighted what has been done in this topic from three different angles. Firstly, it looked at widely used consumer behaviour theories and commonly cited studies. Secondly, it explored the scales that are used within Information Systems (IS) to evaluate web quality and design. Thirdly, it investigated what has already been done within travel and tourism academic research in regards to the evaluation and adoption of travel web portals. The combination of different study fields is recommended by many and considered an approach that leads to better models. For example, Cheung et al. (2005) suggest this in a critical literature review of studies within online consumer behaviour in general, while Law et al. (2010) recommend this approach in the end of a critical review of the tourism studies progress in the last decade. Thus, the synthesis of the literature suggests that Expectation Confirmation Theory (ECT) (Oliver, 1980) has been widely used in the consumer behaviour literature while IS Success Model (DeLone and McLean, 1992) was successfully used in e-commerce studies. Both emphasises satisfaction as central in its models and is broadly used to explain consumer satisfaction (Cheung et al., 2005;

Delone and Mclean, 2004; Premkumar and Bhattacharjee, 2008). On the other hand, the Technology Acceptance Model (TAM) (Davis, 1989) has gained a huge reputation as a robust and valid instrument to measure the acceptance of using different kinds of technologies. In the current research, IS success and TAM theories were utilized in the model along with other important constructs such as web quality, e-trust, price perception, and airline reputation.

- This fostered the formation of a new model capable of measuring the factors that satisfy travellers using airline websites and encourage them to purchase tickets via Airline own websites. To the best of the researcher's knowledge, this is the first empirical work that synthesises concepts from two main theories as well as web quality scales to assess individual perception and behaviour of the online services provided by airlines in the context of a developing or Middle Eastern country.

Moreover, during the development of the research model, the author emphasised two key relations in the model: the role played by web quality on e-satisfaction, and how e-satisfaction affects intention to purchase. Both relations illustrated in Figure 7.3 represent the main bones of the developed model and the empirical findings confirm this view. It is empirically proven that the most important influencer toward traveller's intention to purchase tickets is e-satisfaction while the most important influencer toward e-satisfaction is the quality of the website. Most previous research either studied determinants of e-satisfaction alone (e.g. Ethier et al., 2006; Kim and Stoel, 2004; McKinney et al., 2002; Mills and Morrison, 2003; Nusair and Kandampully, 2008; Szymanski and Hise, 2000) or extended it to the influence of e-satisfaction on intention but not with web quality as the highest influencer (e.g. Koppius et al., 2005; Lau et al., 2011; Premkumar and Bhattacharjee, 2008). For instance, the study by Lau et al. (2011) that had five determinants of e-satisfaction including web design revealed that the most important contributor to customer satisfaction was ease of use followed by responsiveness. They were able to explain 58% of the variance of satisfaction and 36% of intention. On the other hand, the wider definition of web quality adopted for this study proved a better influencer of satisfaction, explaining 67% of the variance. Intention was also explained better in this research, with 42% of the variance explained.

- Thus, to the best of the author's knowledge, this study is the first to develop and empirically confirm the importance of this direct link between these three

constructs. This finding contributes significantly to current understandings of e-satisfaction, intention to purchase tickets, and its relationships with web quality.

**Figure 7.3: Relations between WQ, ES, and IP**



Another contribution pertained from the fact that the current research adopts the airline reputation construct as an influencer of e-trust. The airline reputation construct asks about the perception of the airline's public image, services, reliability, and reputation. Testing the relationship between airline reputation and e-trust has not been carried out in previous research. After testing the relationship empirically, the e-trust explanation reaches a high level of 51% ( $R^2=0.51$ ) using airline reputation and ease of use as antecedents. Airline reputation is confirmed to significantly influence travellers' e-trust.

- This reveals an original conclusion in the case of airlines. Enhancing travellers' trust of airline websites depends largely on the overall airline reputation and not only on the web security/ design elements provided. This result led to several practical implications that will be discussed later in this chapter.

Another contribution arises from the unsupported hypothesis. The claim of a positive effect from perceived ease of use on Intention to purchase has received long-standing contradictory opinions in the literature. Some researchers have confirmed it (see for e.g. Gefen et al., 2003; Venkatesh and Davis, 2000) , while others have found that these variables are not directly related but indirectly via usefulness (see for e.g. Raaij and Schepers, 2008; Ruiz-Mafé et al., 2009; Zhang and Prybutok, 2003). This research supports the latter standpoint in that it rejects that there is a positive direct influence of perceived ease of use on Intention to purchase but rather confirms the existence of the indirect relation via perceived usefulness.

Additionally, many researchers confirm that perceived usefulness affects satisfaction in many contexts (e.g. (Bhattacharjee, 2001a; Devaraj et al., 2002; Zviran et al., 2005)). However, none has tested this relation in the context of airlines travel industry. This study empirically found that this relation is rejected within this context. Perceiving an airline website as useful did not necessarily lead to web satisfaction. Bhattacharjee

(2001b) claimed that users might still use a website if they found it useful even if they are unsatisfied with it. This study empirically supports this view in the context of airlines' websites.

- Another significant contribution to theory arises from examining whether the conceptual model can be generalized across thirteen different groups.

Even though testing the model across groups is considered to be excessively stringent for generalization of the result across different characteristics (Byrne, 2010), the literature notes a lack of research in this area. Much of the existing literature proposes different models, but does not consider whether these models can or cannot be generalized across different groups. The group analysis for the traveller's experience and habits made this study unique in generalization of the model.

- No study to date has tested all of the six travel related habits that this study considers in the context of airlines. They are Airline Origin (Saudi or Non Saudi Airline), Actual Purchase (Buyers or Non Buyers), Travel Frequency, Motivation of Travel, Domestic or International Travellers, Type of Funding.

It has been found that the model can be generalized across all different types of travellers' habits with the exception of the type of funding. The study found that travellers using their parents' or company's money, pay more attention to the security / privacy aspects when they decide to purchase their tickets. Trusting the website plays a more important role in influencing their decision to complete the online transaction.

However, these results might be used with caution. It is always better to use a new set of data or larger responses for each group. Thus, this is only considered as an initial step toward further future research.

Additionally, using AMOS software for the model analysis allows the researcher to evaluate all expected relations in the model including any initially suggested in the research model. This research also provides potential enhancement to the model by empirically suggesting a number of new relations that could exist in the model. These suggested relations are described in section 5.9. The researcher recommends future examination of these relations, particularly those that have theoretical foundations. For example, the positive effect that web quality and e-trust have on

perceived usefulness as well as the effect of web quality and perceived usefulness on e-trust. Those relations can be part of future research suggestions.

Finally, the research also elaborates on testing the direct and indirect effects between the constructs as well as the mediation effect of satisfaction. The results provide extra endorsement to the conceptualisation of e-satisfaction as central to intention to purchase. For example, Web Quality has no direct effect on intention to purchase; the effect is indirect via e-satisfaction. In addition, it has been demonstrated that the effect of price perception on intention to purchase is fully mediated by e-satisfaction. Therefore, this research provides diverse evidence that enhancing travellers' e-satisfaction should be considered as the most important factor influencing their adoption of a website.

#### **7.4.2 Practical Implications**

The model developed and validated for this consists of variables that found to be affecting the travellers behaviour. The relationships in the model and the measurement scale that is suggested can help airlines tailor their web portals to travellers' needs and thus generate more revenue.

From the model analysis and hypotheses testing results, it can be confirmed that a high percentage of travellers' willingness to adopt an airline website for their ticketing needs is based on their satisfaction with the website followed by their trust in the airline's website. While usefulness came next, price perception has the smallest influence on intention to purchase. Thus, airlines should concentrate on satisfying their customers with online experience and ensuring /promoting the safety and security of the website. This can be achieved by enhancing the antecedents of e-satisfaction and e-trust as will be seen next.

The web quality dimension in the current study proved to be an excellent predictor of e-satisfaction, followed by price perception. Such results support the criticality of airline online portal quality as a key component in raising the satisfaction level of travellers. The department in charge of the airline website should develop the site in a way that provides clear, complete, accurate, reliable, sufficient, timely, and up to date content. As customers rely only on what they see in the web portal, it is important that such

information is transparent and easily digestible. Additionally, as part of the web quality dimension, the web performance, functionality, and appealing visual experience should be constantly reviewed in order to maintain travellers' satisfaction with the website.

In terms of assuring security and safety, airlines must clearly show the measures that they are taking to keep the data provided by the customers confidential and safe. Presenting the third-party SSL certificate logo in the site is important as well as showing a clear policy of redress procedures in case something goes wrong during the payment process. However, the study also reveals that enhancing travellers' trust in airline websites depends largely on the overall airline reputation and not only on the web security elements provided. Thus, senior managers should be aware that the overall airline reputation is a key factor for customers to proceed with purchasing transactions notwithstanding the safety of the website. Making extra efforts to enhance the overall services provided by the airline will certainly boost online sales.

As price is the second priority in influencing e-satisfaction, airlines should understand that travellers are expecting better value airfares when using websites. If travellers found a better price for the same flight from another online or offline travel agent, they might not use the airline's own website again. So making sure that the airline's own website is providing the cheapest price for the flight is important in retaining customers. Several web solutions are available in the market to trace and compare the prices provided by for particular sector and for particular airline. The use of such service provider can be of a great help.

Additionally, the group analyses of the study's hypotheses showed that the importance values of the attributes in airline websites might change with respect to some demographics and travel habits of the consumers. As such, airline companies should take into account the characteristics of their target consumers. For example, the empirical findings reveal that respondents from inside Saudi Arabia think that e-Trust is more important in terms of motivating their intention to purchase air tickets. Government and airline policy makers should work on promoting the trust factor among local travellers (people living in Saudi Arabia). In the same way, security / privacy issues also play a crucial role for people funded by their companies. This might encourage e-commerce managers to provide special payment processes for corporate accounts by initiating agreements with major companies in the area.



Another observation that might endorse a practical implementation is based on the results from those respondents who actually purchased tickets from the airlines website. These respondents rated perceived Usefulness, e-Trust, and Intention to Purchase significantly better than non-buyers. Therefore airlines must give special attention to those users who never purchased from their website by endorsing the security and privacy measures they have taken in the website as well as promoting the idea of how useful it is to rely on the website for purchasing tickets. Providing extra incentives for first time online buyers might be also a good approach.

In addition, students have higher sensitivity to price than do others. Airlines might be recommended to provide special ticket prices for students and allow them to buy directly from the airline website.

Lastly, the mean score comparison between the different groups, indicates important facts in regards to the perceptions of travellers which suggests practical implementations. Local airlines based in Saudi Arabia receive significantly less perception for all studied variables than do other international airlines. This means that customers are less satisfied with the online services provided by local airlines. In addition, it is found that international flights receive higher ratings in term of the online services provided. Airlines should take domestic flyers needs seriously and probably provide better online services for domestic sectors.

## **7.5 Research limitations and directions for future research**

As with any research project, this study has its limitations. The following sections outline the theoretical and methodological limitations associated with this research and suggest options for future research. It is hoped that following this part of the thesis, future research will be in a better position to extend the current body of knowledge in the literature of online web behaviour and travel and tourism marketing.

First, the application of the study is within the airline industry. It is unclear whether the analytical results can be generalised and applied to other online services. Nevertheless, the study adopts and utilizes much travel and tourism literature, and therefore it is suggested that further research may confirm the relationships in other tourism industries

such as hotel bookings, online travel agents, and car rentals as well as other types of e-commerce.

Second, there exists a limitation related to the airlines involved in this research. The respondents were mostly from the biggest Saudi-based airline “Saudi Airlines” (65.4%) and other local airlines (i.e. “Nas Airline”) have (7.5%). The remaining responses came from thirty other international airlines operating flights to and from Saudi Arabia. There are, of course, many more airlines operating worldwide. This study could usefully be extended to other airline companies.

Third, most respondents were highly internet experienced. Thus, this research might not fully reflect the opinion of less-experienced internet users. It is recommended that future research target a mixed sample in terms of internet experience.

Fourth, the current research did not consider comparing between low-cost carriers (LCCs) and full service carriers (FSCs) (normal premium airlines). The current model focuses solely on the online experience, thus those differences might not be important. Also, the market in the Middle East does not have many low cost airlines. The work of Escobar-Rodríguez and Carvajal-Trujillo (2013; 2014) considers both types in two different studies and their findings did not suggest any noticeable differences in their model. However, future research is recommended to compare between both types of airlines.

Fifth, since the survey respondents were Saudis or people living in Saudi Arabia, the determinants of e-satisfaction and intention to purchase tickets may be influenced by factors unique to this culture. Saudi Arabia is in the centre of the Arabian Gulf area and the Arab world, with which they share many common cultural characteristics, so research is recommended to confirm generalizability across the Middle East. It is recommended for future studies to test the model again for different countries, extending globally to Asian, European, and American cultures. Correspondingly, it is advised that future research utilise cross-culture studies in order to test and extend the generalizability of the model.

In addition to the previous recommendations for further research demonstrated earlier based on the limitations, still more suggestion can be offered. For instance, some of the results of this study were unexpected, for example the direct effect of perceived

usefulness on e-satisfaction and the direct effect of perceived ease of use on intention to purchase were found to be not significant. Future research could further empirically investigate these relations to confirm the findings and explore possible reasons.

Another future research suggestion includes testing the generalization of the finding in a longitudinal study. The proposed model in the current study was examined at just one point of time. Travellers' behaviour may change over time because of technology development as well as possible changes in consumer behaviour. It might be useful to re-examine the proposed model at different points of time so that travellers' behaviour stability over time can be tested.

This study as seen earlier confirmed that for evaluating Airlines websites, a single construct web quality is better than a multi construct scale. However, this claim might need another set of data to confirm it.

Finally, the proposed model can be extended by adding other constructs, such as the effect of loyalty programs, playfulness, and social media channels (e.g. twitter and Facebook) which may reveal additional factors that influence customers' behaviour.

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## Appendix 1 - Online survey in English languages



I am a PhD research student at Brunel University- London, UK. As part of my thesis, I am conducting a survey to investigate the factors that could affect traveller's satisfaction with the airline website and the willingness to purchase airline tickets online in Saudi Arabia.

The questionnaire designed for this study consists of three parts. The first part asks about the respondent's demographics, Internet experience and Airlines websites. The second part measures different perceptions about the online airline websites. The third part asks about travel related characteristics.

If you are a Saudi or lived in Saudi Arabia and over 18, I would be very grateful if you fill out this questionnaire.

Your participation is voluntary and all responses will be anonymous and treated as completely confidential and it will not be possible for anyone to identify the information you supply.

The questionnaire will only take more than 10-15 minutes of your time and it is recommended not to spend too long on any question. Your first thoughts are usually your best.

You can choose to supply your email address at the end of the survey if you would like to participate in further discussions about the results.

I hope you find completing the questionnaire enjoyable, and thank you for taking the time to help. If you have any queries or would like further information about this research, please don't hesitate to contact me.

Thank you

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## **Part1: Demography**

Here we will collect general information about you.

### **What is your Gender?**

- Male
- Female

### **What is your Age?**

- 18-25
- 26-35
- 36-45
- 46-55
- 56-65
- Above 65

### **What is your level of Education?**

- Less than High School
- Bachelor
- High School
- Masters
- Diploma
- Doctoral

### **What is your Income per Month?**

- Less than 2,000 SR
- 8,001-10,000 SR
- 2,000 -4,000 SR
- 10,001-15,000 SR
- 4,001-6,000 SR
- More than 15,000 SR
- 6,001-8,000 SR
- Dependent on others (e.g. Husband, Parents)

### **What is your occupation?**

- Student
- Government Employer
- Privet Sector Employer
- Businessman/ Businesswoman
- Freelancer
- Retired
- Unemployed

### **How long have you been using the Internet?**

- Less than 1 year

- 1-3 years
- 3-6 years
- More than 6 Years

**How many hours do you spend on average in the Internet daily?**

- Less than 1 hr
- 1-2 hr
- 2-3 hr
- More than 3 hr

**How do you rate your familiarity with the Internet?**

- Very Poor
- Poor
- Moderate
- Good
- Very Good

**How do you rate your computer knowledge?**

- Very Poor
- Poor
- Moderate
- Good
- Very Good

**Have you ever used an airline website before? (Checked flights, made booking, etc.)**

- Yes
- No

**If No Is Selected, Then Skip To “Thank you for your interest”**

**If Yes Is Selected, Then Go to Next Question.**

**Please choose the Airline website that you most frequently use. The questions later will depend on your experience with this Airline.**

- Saudi Arabian Airlines
- Nas Airlines
- Emirates Airlines
- Qatar Airlines
- Etihad Airways
- Gulf Air
- Egyptair
- Kuwait Airways
- Qatar Airways
- Oman Air
- Royal Jordanian Airlines
- Middle East Airlines
- British Midland (BMI)
- British Airways (BA)
- Other Airline, Please Specify .....

**Have you ever purchased tickets from this Airline using their website? (Made an actual transaction to buy tickets)**

- Yes
- No

## Part 2 Airline Website Usage

Based on your experience with “the airline website”, can you please rate your level of Agreement/Disagreement to the following statements for each of the given characteristic?

**Perceived Usefulness:** The degree of your believe that using the website will enhance your booking and ticket purchasing needs.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
The Airline website is useful for searching and buying tickets.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The airline website improves my performance in searching for flights and buying tickets.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The airline website enables me to search and buy tickets faster.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The airline website enhances my effectiveness in flight searching and buying.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The airline website makes it easier to search for flights and purchase tickets.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The airline website increases my productivity in searching and purchasing airline tickets.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Airline website is useful for searching and buying tickets.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Perceived Ease of use:** The degree of your believe that using the airline website is easy and free of effort

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
The airline website is easy to use.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is easy to become skilful at using the airline web.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Learning to operate the airline website is easy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The airline website is flexible to interact with.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My interaction with the airline website is clear and understandable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is easy to interact with the airline website.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Information Quality:** The quality of the information provided by the airline website including the amount of content, accuracy, timeliness, reliability, and the way it is presented.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
Has sufficient contents where I expect to find information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provides complete information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provides site-specific information (flight details, price, policy, est.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provides accurate information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provides timely information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provides reliable information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communicates information in an appropriate format	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**System Quality:** The quality that reflect how technically the website is performing including the pages response (load) time, navigation structure, visual appeal, functionality, and availability.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
Has an appropriate style of design for an airline website	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has easy navigation to complete tasks required.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has proper response time and transaction processing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Can use when I want to use. (Accessible)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has good functionality relevant to travel needs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Keeps error-free transactions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Creates an appealing visual experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**e-Trust:** The degree of the your confidence in the airlines website that it will fulfil obligations set forth in an exchange and will not take advantage of the shared information

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
I feel protected/safe when I use the site	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The website is secure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I trust the airline website will not misuse my personal information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The website satisfies ethics standards	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel very confident about the site	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel safe in my transactions with this website.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel my privacy is protected on this website	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Airline Reputation:** Your perception about the Airline reputation including its public image, commitment to customer satisfaction, and size.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
This Airline has a good reputation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This Airline has an excellent public image.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This Airline Provide excellent service.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This Airline is extremely reliable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This Airline is well known.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This Airline is a big player in the market.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Price Perception:** Your perception about the offered prices in the online airline store.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
I think that the prices the airline website provides are reasonable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am pleased with the prices in the airline website.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Prices in the Airline website are competitive.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Price information helped me make my decision.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**e-Satisfaction:** The extent to which you believe that the entire Airline website experience meets your requirements and expectation

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
Overall, I am satisfied with the airline website.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall, I am pleased with the airline website.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would recommend this Airline website to a friend.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would use the Airline website again.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall, my expectation with the airline website where exceeded.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Intention to Purchase:** The degree to which you might buy from the Airline website.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
I will use this airline website to purchase airline tickets.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I prefer using the airline website to purchase airline tickets rather than any other channel.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I will frequently use the airline website in the future to purchase tickets.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The website satisfies ethics standards	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I will recommend others to use this website for ticket purchasing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



### **Part 3: Travel Characteristic**

Here we will collect some information about your travel habits

#### **What are usually the motivations of your Travel?**

- Leisure / Vacation
- Business
- Study
- Treatment
- Visiting relatives
- Religious reasons (Hajj, Umrah)
- Other, Please Specify

#### **Number of Air travels within the last 3 years**

- Non
- 1-2
- 3-4
- 5-6
- More than 6

#### **What is your frequent destinations kind of travel?**

- Domestic
- International

#### **What is your frequent method of payment you use when you purchase online?**

- Credit Card
- Debit Card
- Other, Please Specify

#### **Who is usually paying for your tickets?**

- Yourself
- Sponsored (e.g. Company, Government)
- Dependent on others (e.g. Husband, Parents)

## Appendix 2 – Translation certification letter



### Certificate of Translation

**Document Title:** "Survey to measure travellers' attraction to use airlines website in Saudi Arabia"

We, International Training and Development Academy (ITDA) declare that we provide translation services by experts whom are fluent in and understand the English language and the Arabic language. We are qualified to translate the study documents.

We hereby certify that the identified [Arabic] translated document is, a true and accurate translation of the original source [English] document titled "*Survey to measure travellers' attraction to use airlines website in Saudi Arabia*".

**Translator's Name (Print):** International Training and Development Academy (ITDA)

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**No.:** 07123331

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A handwritten signature in blue ink, appearing to read 'Talal Almaghrabi'.

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### Appendix 3 - Survey context with the back translation

English	عربي
<p>I am a PhD research student at Brunel University- London, UK. As part of my thesis, I am conducting a survey to investigate the factors that could affect traveller's satisfaction with the airline website and the willingness to purchase airline tickets online in Saudi Arabia.</p> <p>The questionnaire designed for this study consists of three parts. The first part asks about the respondent's demographics, Internet and airlines websites experience. The second part measures different perceptions about the online airline websites. The third part asks about travel related habits and characteristics.</p> <p>If you are a Saudi or lived in Saudi Arabia and over 18, I would be very grateful if you fill out this questionnaire. Your participation is voluntary and all responses will be anonymous and treated as completely confidential and it will not be possible for anyone to identify the information you supply.</p> <p>The questionnaire will only take 15-20 minutes of your time and it is recommended not to spend too long on any question. Your first thoughts are usually your best.</p> <p>You can choose to supply your email address at the end of the survey if you would like to participate in further discussions about the results.</p> <p>I hope you find completing the questionnaire enjoyable, and thank you for taking the time to help. If you have any queries or would like further information about this research, please feel free to contact me.</p> <p>Thank you</p>	<p>أنا باحث لنيل درجة الدكتوراه في جامعة برونيل بلندن - المملكة المتحدة ، وكجزء من أطروحتي، أقوم بإجراء استبيان للبحث عن العوامل التي قد تؤثر على رضا المسافرين عن مواقع شركات الطيران واستعدادهم لاستخدامها لشراء تذاكر الطيران في المملكة العربية السعودية.</p> <p>الاستبيان الذي صُمم لهذه الدراسة يتألف من ثلاثة أجزاء. الجزء الأول يجمع بيانات حول المواصفات الديموغرافية للشخص الذي يقوم بتعبئة الإستمارة بالإضافة الى خبرته في استخدام الإنترنت ومع مواقع شركات الطيران. الجزء الثاني يقوم بقياس مرنياكم المختلفة حول مواقع الإنترنت لشركات الطيران التي قمتم باستخدامها. الجزء الثالث يسأل عن خصائص وعادات تتعلق بسفرياتكم.</p> <p>إذا كنت سعودي أو تعيش في السعودية وعمرك أكثر من ١٨ عاماً ، سأكون ممتنا للغاية إذا أتحت جزءاً من وقتك للرد على هذا الاستبيان. علماً بأن مشاركتكم طوعية (اختيارية) وجميع الردود ستظل مجهولة المصدر وسيتم التعامل معها بسرية تامة ولن يكون من الممكن لأحد تحديد المعلومات التي قمت بإرسالها.</p> <p>تعبئة الاستبيان تستغرق من ١٥-٢٠ دقيقة فقط من وقتك وينصح بعدم الإطالة في أي سؤال. انطباعاتك الأولى هي عادة الأفضل.</p> <p>يمكنك اختيار تزويدنا بالبريد الإلكتروني الخاص بك في نهاية الاستبانة إذا كنت ترغب في المشاركة في مزيد من المناقشات حول النتائج.</p> <p>أمل أن تجد تعبئة الاستبيان ممتعة، وشكراً لإتاحة الوقت للمساعدة. إذا كان لديك أي استفسارات أو تود الحصول على معلومات إضافية حول هذا البحث ، لا تتردد في الاتصال بي.</p> <p>شكراً</p>

<p>Please express your agreement/disagreement with the following statements, based on your experience with 'the airline' website. Some statements may sound similar for surveying purposes. Please kindly answer all the questions</p>	<p>بناء على تجربتك مع موقع "شركة الطيران" على الإنترنت ، الرجاء التفضل بتقييم مستوى إتفاقتك أو اختلافك مع كل من العبارات التالية.</p> <p>بعض العبارات قد تبدو متشابهة أو مكررة ، لأغراض إحصائية قد يتوجب الاستفسار عن رأيكم بأكثر من سؤال ، الرجاء التكرم بتزويدنا بأرائكم على كافة الأسئلة.</p>
<p>The following statements evaluate the extension of your belief in using 'the airline' website will improve processing your travel planning and arrangements. Travel arrangements are those available on airline websites such as presentation, searching, flight bookings, purchasing tickets, issuing boarding cards, etc.</p>	<p>العبارات التالية تقيّم مدى اعتقادك أن استخدام موقع "شركة الطيران" على الإنترنت سيحسن من أداء ما تحتاجه من إجراءات السفر بالجو.</p> <p>إجراءات السفر: هي الإجراءات التي توفرها مواقع شركات الطيران على الإنترنت مثل: استعراض ، بحث ، أو حجز الرحلات ، شراء التذاكر، إصدار بطاقات صعود الطائرة، إلخ.</p>
<p>The airline website is useful in processing my travel arrangements</p>	<p>موقع شركة الطيران مفيد لاستكمال إجراءاتي للسفر.</p>
<p>The airline website enables me to speed up processing my travel arrangements</p>	<p>موقع شركة الطيران يمكّنني من إنجاز إجراءات السفر بشكل أسرع.</p>
<p>The airline website improves processing my travel arrangements</p>	<p>موقع شركة الطيران يحسّن من أداء إجراءات السفر.</p>
<p>The airline website enhances my ability to process my travel arrangements</p>	<p>موقع شركة الطيران يزيد من قدرتي لاستكمال إجراءات السفر.</p>
<p>The airline website makes processing my travel arrangements easier</p>	<p>موقع شركة الطيران يجعل استكمال احتياجات السفر الخاصة بي أسهل.</p>
<p>The airline website increases my productivity in terms of processing my travel arrangements</p>	<p>موقع شركة الطيران يحسن من إنتاجيتي لإتمام إجراءات السفر الخاصة بي.</p>
<p>The following statements evaluate the extension of your belief in using 'the airline' website is easy and effortless</p>	<p>العبارات التالية تقيّم مدى اعتقادكم أن استخدام "شركة الطيران" على الإنترنت سهل وخالي من المجهود.</p>
<p>The airline website is easy to use</p>	<p>موقع شركة الطيران سهل الاستخدام.</p>
<p>It is easy to be fully familiar with the airline website</p>	<p>من السهل أن أصبح ماهر في استخدام موقع شركة الطيران.</p>
<p>Learning how to use the airline website is straightforward</p>	<p>تعلم كيفية استخدام موقع شركة الطيران بسيط.</p>
<p>The airline website is flexible when dealing with it?</p>	<p>موقع شركة الطيران مرن للتعامل معه.</p>

The interaction between the user and the airline website is presented clearly and information is understandable. ??	التعامل مع موقع شركة الطيران واضح ومفهوم.
It is easy to interact with the airline website	من السهل التعامل مع موقع شركة الطيران.
<b>The following statements evaluate the quality of information provided by 'the airline' website</b>	<b>العبارات التالية تقيم جودة المعلومات التي يقدمها موقع "شركة الطيران" على الإنترنت.</b>
The airline website provides sufficient content in relevant areas	موقع شركة الطيران يقدم محتوى كافي في الأماكن التي أتوقع أن أجد فيها المعلومات.
The airline website provides <b>comprehensive</b> information	موقع شركة الطيران يوفر معلومات كاملة.
The airline website provides relevant information (i.e. flight details, prices, terms and conditions, etc.)	موقع شركة الطيران يوفر معلومات تتناسب مع طبيعة الموقع (تفاصيل الرحلة ، والأسعار ، سياسة الموقع ، وما إلى ذلك).
The airline website provides accurate and updated information	موقع شركة الطيران يقدم معلومات دقيقة/ محدثة.
The airline website provides relevant information at the right time	موقع شركة الطيران يقدم المعلومات في الوقت المناسب.
The airline website provides trusted information	موقع شركة الطيران يوفر معلومات موثوق بها.
The airline website provides information in a relevant way	موقع شركة الطيران يقدم المعلومات بشكل مناسب.
<b>The following statements evaluate performance of 'the airline' website from a technological point of view. (e.g. design, browsing, mechanism, etc.)</b>	<b>العبارات التالية تقيم أداء موقع "شركة الطيران" على الإنترنت تقنياً (التصميم، التصفح، الآلية، إلخ).</b>
The airline website has a suitable design to an airline website	موقع شركة الطيران لديه أسلوب تصميم يتناسب مع موقع لخطوط جوية.
The airline website is easy to navigate and achieve the required tasks	موقع شركة الطيران سهل التصفح لإنجاز المهام المطلوبة.
Response time of the airline website is reasonable	زمن الاستجابة وإتمام العمليات لموقع شركة الطيران مناسب.
The airline website is always available to use	يمكنني استخدام موقع شركة الطيران في أي وقت أريد. (متوفر دائماً)
The airline website provides good <b>services</b> that are related to my travel needs	موقع شركة الطيران يوفر خدمات جيدة فيما يتناسب مع حاجات سفري.
The airline website processes transactions without any errors	موقع شركة الطيران يقوم بالمعاملات خالياً من الأخطاء.
The airline website presents an <b>enjoyable</b> virtual experience	موقع شركة الطيران يوفر تجربة مرئية ممتعة.
<b>The following statements measure your trust in 'the airline' website and that it would not abuse personal information</b>	<b>العبارات التالية تقيس درجة ثقتك في موقع "شركة الطيران" على الإنترنت وأنه سوف يفي بالتزاماته وأنه لن يقوم باستغلال المعلومات المزودة من قبلكم.</b>
I feel protected and assured when using the airline website	أشعر بأني محمي/ مطمئن عندما استخدم موقع شركة الطيران.

The airline website is secure	موقع شركة الطيران آمن (secure).
I trust that the airline website would not abuse my personal information	أنا أثق في أن موقع شركة الطيران لن يسيء استخدام معلوماتي الشخصية
The airline website complies with ethical standards	موقع شركة الطيران يلبي المعايير الأخلاقية.
I trust the airline website	أنا أشعر بالثقة حيال موقع شركة الطيران على الإنترنت.
I feel safe when achieving my transactions	أشعر بالأمان أثناء القيام بتعاملاتي المالية مع موقع شركة الطيران.
I feel my personal information is protected by the airline website	أشعر أن معلوماتي الخاصة محمية لدى موقع شركة الطيران.
<b>The following statements measure your impression about the reputation of 'the airline'</b>	<b>العبارات التالية تقيس تصورك حول سمعة ومكانة "شركة الطيران".</b>
The airline enjoys a very good reputation	تتمتع شركة الطيران بسمعة طيبة.
The airline has an excellent image in the eyes of the public	شركة الطيران لديها صورة لدى العامة ممتازة.
The airline offers an excellent service	شركة الطيران تقدم خدمة ممتازة.
The airline website is <b>well trusted</b>	شركة الطيران موثوق بها للغاية.
The airline website is known to be a good one	شركة الطيران معروفة بشكل جيد.
The airline plays a major role in the airlines market	شركة الطيران تلعب دور كبير في سوق شركات الطيران.
<b>The following statements measure your impression about the prices offered by 'the airline'</b>	<b>العبارات التالية تقيس تصورك حول الأسعار المقدمة من موقع "شركة الطيران".</b>
I believe the airline prices on the website are reasonable	أعتقد أن الأسعار على موقع شركة الطيران معقولة.
I am satisfied about the prices offered through the airline website	أنا راضي عن الأسعار المقدمة من خلال موقع شركة الطيران
Prices on the airline website are competitive	الأسعار في موقع شركة الطيران منافسة.
Information on the airline website helped me to make my decision	ساعدتني المعلومات حول الأسعار المتوفرة في موقع شركة الطيران أن أتخذ قراراً.
Prices on the airline website meet my expectations	الأسعار المعروضة في موقع شركة الطيران تتوافق مع توقعاتي.
<b>The following statements measure the extension of your belief in your experience with 'the airline' website satisfies my requirements and meet my expectations</b>	<b>العبارات التالية تقيس مدى إعتقادك أن كامل تجربتك مع موقع "شركة الطيران" على الإنترنت تلبي متطلباتك وتوقعاتك.</b>
Generally, I am satisfied about the airline website	عموماً ، أنا راض عن موقع شركة الطيران.
Generally, I am <b>happy</b> about my experience with the airline website	بشكل عام ، أنا مسرور من تجربتي مع موقع شركة الطيران.

I would recommend the use of the airline website to a friend	سوف أوصي باستخدام موقع شركة الطيران لصديق.
I will use the airline website again in the future	سوف أستخدم موقع شركة الطيران على الإنترنت مرة أخرى.
Generally, the airline website exceeded my expectations	بشكل عام، موقع شركة الطيران تجاوز توقعاتي.
<b>The following statements measure the extension of your belief in your experience with 'the airline' website satisfies my requirements and meet my expectations</b>	<b>العبارات التالية تقيس مدى إمكانية شرائك من موقع "شركة الطيران" على الإنترنت.</b>
I will rely on the airline website to buy flight tickets in the future	سوف أعتد على موقع شركة الطيران إذا احتجت لشراء تذاكر طيران في المستقبل.
I prefer using the airline to buy my flight tickets over any other way	أنا أفضل استخدام موقع شركة الطيران على الإنترنت لشراء تذاكر الطيران بدلا من أي طريقة أخرى.
I consider the airline website to be my first choice whenever I need to buy flight tickets	أنا أعتبر موقع شركة الطيران هو خيارى الأول عندما أحتاج الى شراء تذاكر طيران.
I will use the airline website frequently in the future to buy flight tickets	سوف أستخدم بشكل متكرر موقع شركة الطيران في المستقبل لشراء التذاكر.
I would recommend others to use the airline website when buying their flight tickets	سأوصي الآخرين باستخدام موقع شركة الطيران لشراء التذاكر.

## Appendix 4 – Ethical consent form



Brunel Business School

Research Ethics

### Participant Information Sheet

**1. Title of Research:** “Understanding the factors that attract travellers to buy tickets online in Saudi Arabia”

**2. Researcher:** Student [Saleh Mohammad Fadel Bukhari] on [PhD], Brunel Business School, Brunel University

**3. Contact Email:** E-mail: [saleh.bukhari@Brunel.ac.uk]

**4. Purpose of the research:** To investigate the factors that could affect traveller’s satisfaction and willingness to purchase airline tickets using airlines websites in Saudi Arabia.

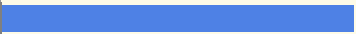

**5. What is involved:** The questionnaire designed for this study consists of three parts. The first part collects data about the respondent's classifications and computer and Internet experience while the second part measures different perceptions about the online airline websites. The third part asks about travel related characteristics.

**6. Voluntary nature of participation and confidentiality.** Your participation is voluntary and all responses will be anonymous and treated as completely confidential and it will not be possible for anyone to identify the information you supply.



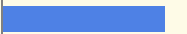



## Appendix 5 - Pilot sample descriptive analysis


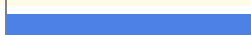


### 1. Gender

#	Answer		Response	%
1	Male		48	74%
2	Female		17	26%
	Total		65	100%

### 2. Age

#	Answer		Response	%
1	18-25		4	6%
2	26-35		27	42%
3	36-45		22	34%
4	46-55		12	18%
5	56-65		0	0%
6	Above 65		0	0%
	Total		65	100%

### 3. Level of Education

#	Answer		Response	%
1	Pre High School		0	0%
2	High School		0	0%
3	Diploma		5	8%
4	Bachelor		34	52%
5	Masters		17	26%
6	Doctoral		9	14%
	Total		65	100%

#### 4. Monthly Income

#	Answer	Response	%
1	Less than 3,000 SR	1	2%
2	3,000 -6,000 SR	6	9%
3	6,001-9,000 SR	4	6%
4	9,001-12,000 SR	2	3%
5	12,001-15,000 SR	9	14%
6	15,001-20,000 SR	11	17%
7	More than 20,000 SR	27	42%
8	Dependent on others (e.g. Husband, Parents)	5	8%
	Total	65	100%

#### 5. Occupation

#	Answer	Response	%
1	Student	6	9%
2	Government Employer	21	32%
3	Privet Sector Employer	32	49%
4	Businessman/ Businesswoman	1	2%
5	Freelancer	1	2%
6	Retired	0	0%
7	Unemployed	4	6%
	Total	65	100%

## 6. Where is your current place of residence? (Outside / Inside Saudi Arabia)

#	Answer		Response	%
1	"Outside Saudi Arabia"		10	15%
2	KSA - Riyadh Region		12	18%
3	KSA - Makkah Region		34	52%
4	KSA - Madinah Region		2	3%
5	KSA - Qasim Region		1	2%
6	KSA - Eastern Region		6	9%
7	KSA - Asir Region		0	0%
8	KSA - Tabouk Region		0	0%
9	KSA - Hail Region		0	0%
10	KSA - Northern Border Region		0	0%
11	KSA - Jizan Region		0	0%
12	KSA - Najran Region		0	0%
13	KSA - Baha Region		0	0%
14	KSA - Al-Jouf Region		0	0%
	Total		65	100%

### 7. How long have you been using the Internet?

#	Answer		Response	%
1	Less than 1 year		0	0%
2	1-3 years		2	3%
3	3-6 years		3	5%
4	More than 6 Years		60	92%
	Total		65	100%

### 8. How many hours do you spend on average in the Internet daily?

#	Answer		Response	%
1	Less than 1 hr		6	9%
2	1-2 hr		15	23%
3	2-3 hr		18	28%
4	More than 3 hr		26	40%
	Total		65	100%

### 9. How do you rate your familiarity with the Internet?

#	Answer		Response	%
1	Very Poor		0	0%
2	Poor		2	3%
3	Moderate		8	12%
4	Good		17	26%
5	Very Good		38	58%
	Total		65	100%

### 10. How do you rate your computer knowledge?

#	Answer		Response	%
1	Very Poor		0	0%
2	Poor		3	5%
3	Moderate		11	17%
4	Good		19	29%
5	Very Good		32	49%
	Total		65	100%

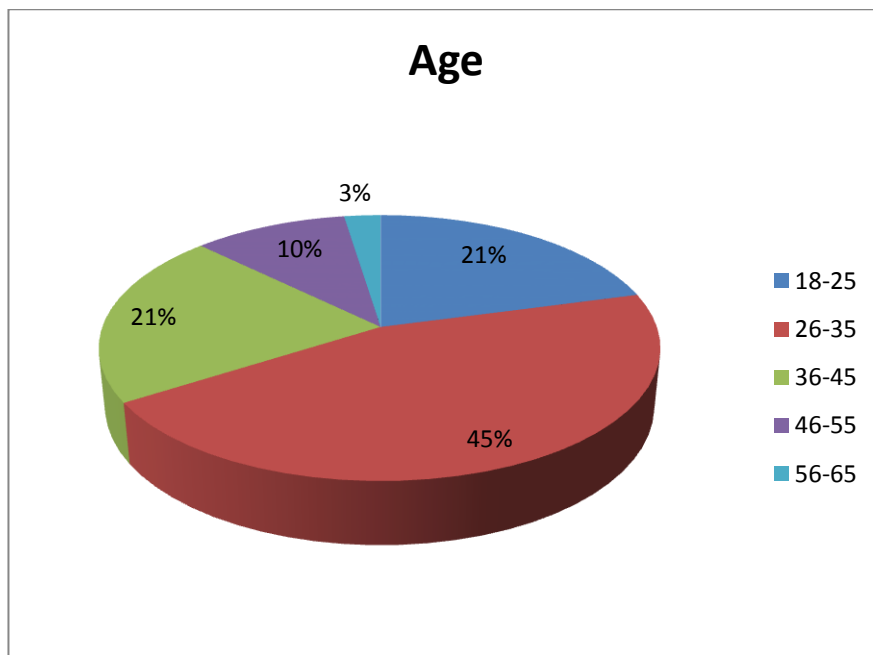
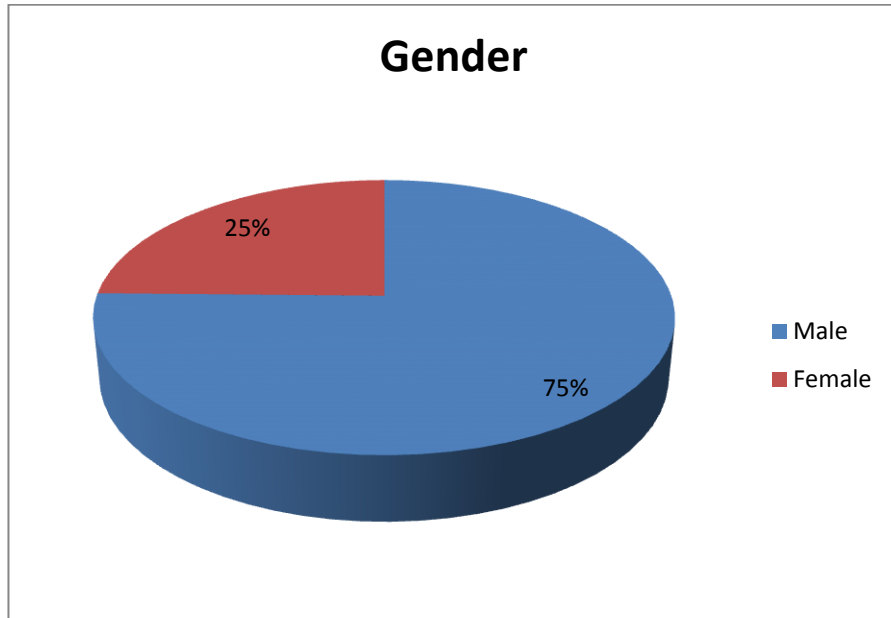
### 11. Have you ever purchased any product or service through the Internet?

#	Answer		Response	%
1	Yes		60	92%
2	No		5	8%
	Total		65	100%

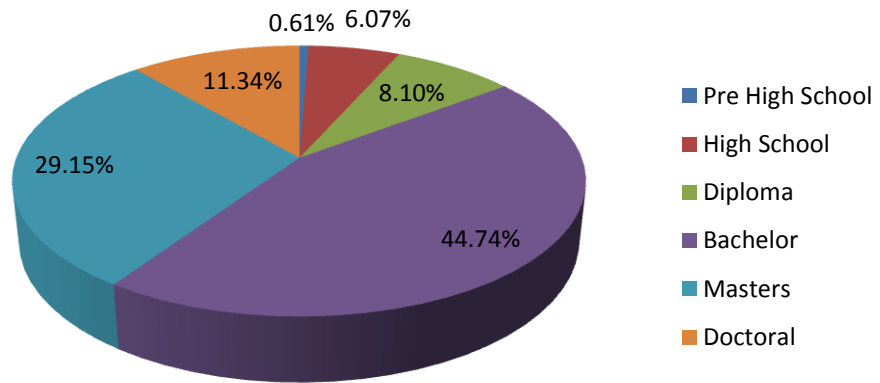
### 12. Have you ever used or visited an airline website? (Even if you just checked flights, made booking, or browsed the site, etc.)

#	Answer		Response	%
1	Yes		63	97%
2	No		2	3%
	Total		65	100%

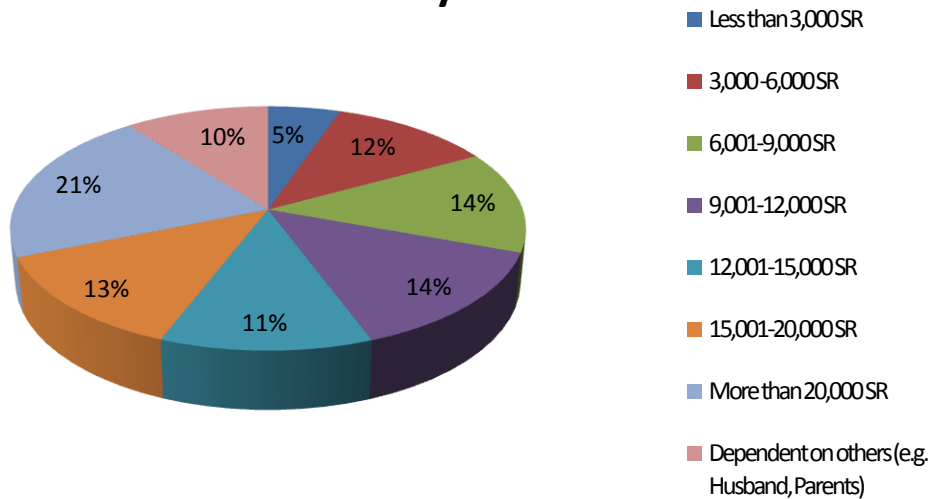
**Appendix 6 - Graphical representation of the descriptive from main data**



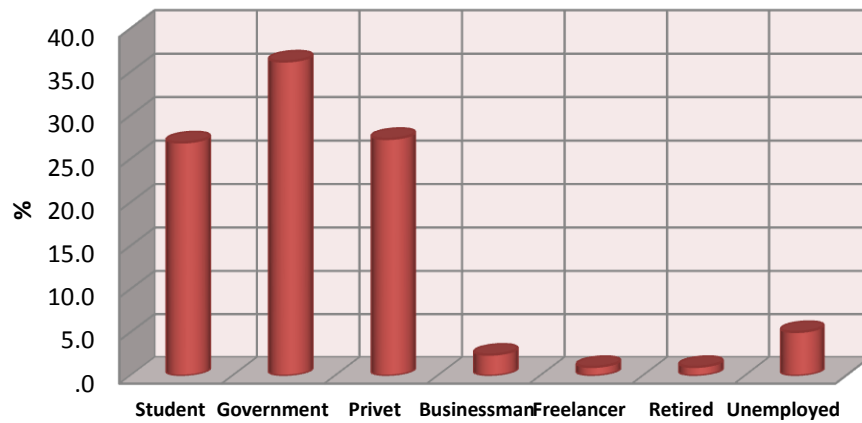
### Level of Education



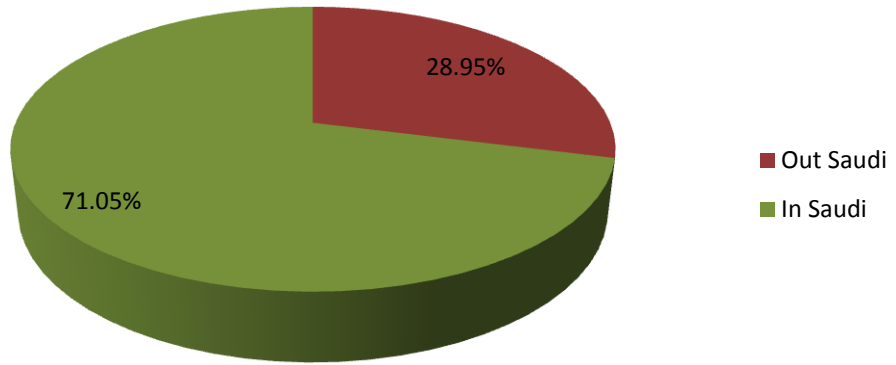
### Monthly Income



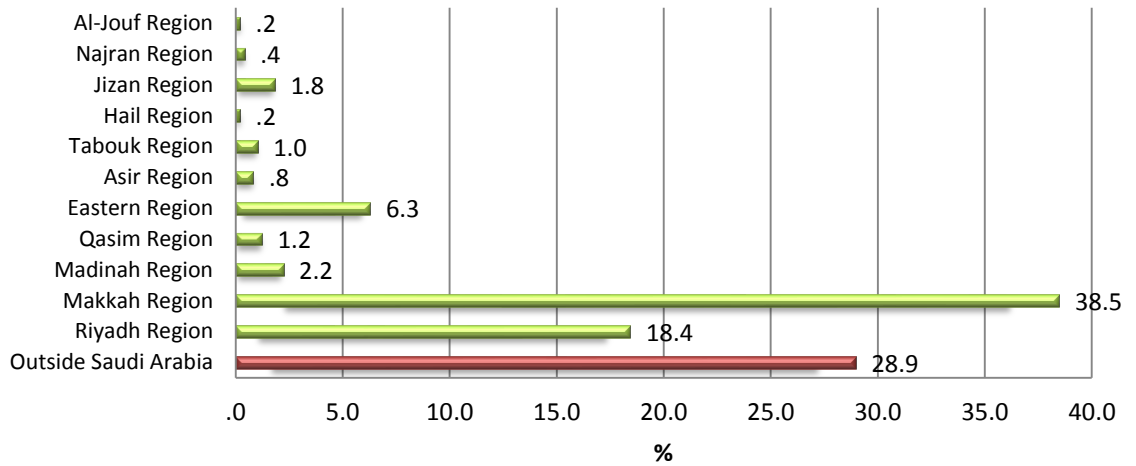
### Occupation



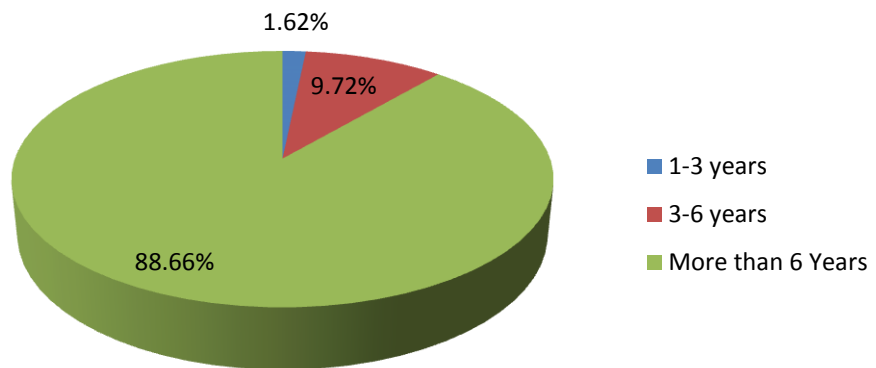
### Residence Inside or Outside Saudi Arabia



### Place of residence

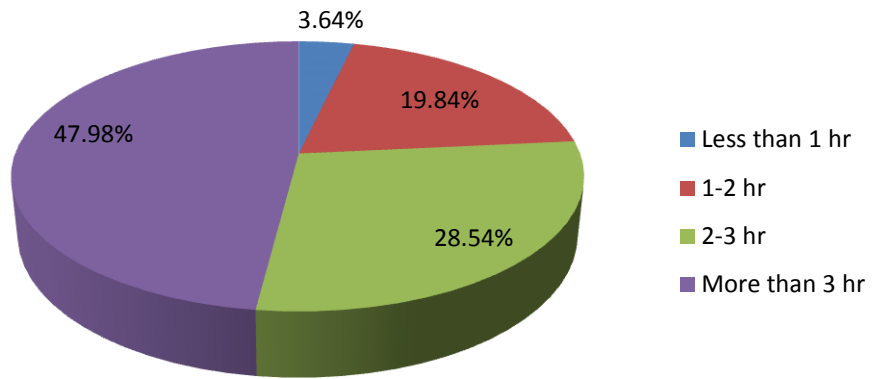


### How long have been using the Internet?

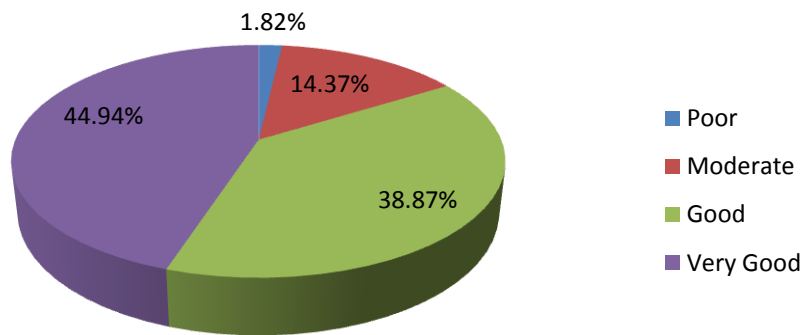




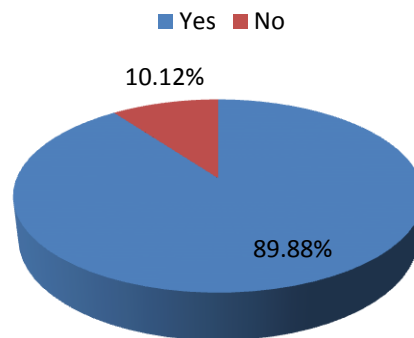
### How many hours spent on average daily online?



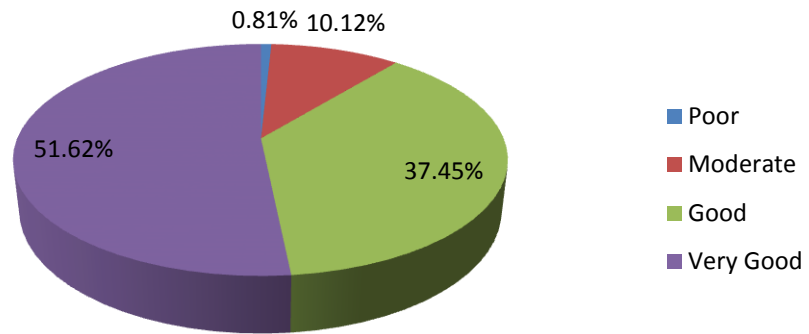
### Computer Knowledge



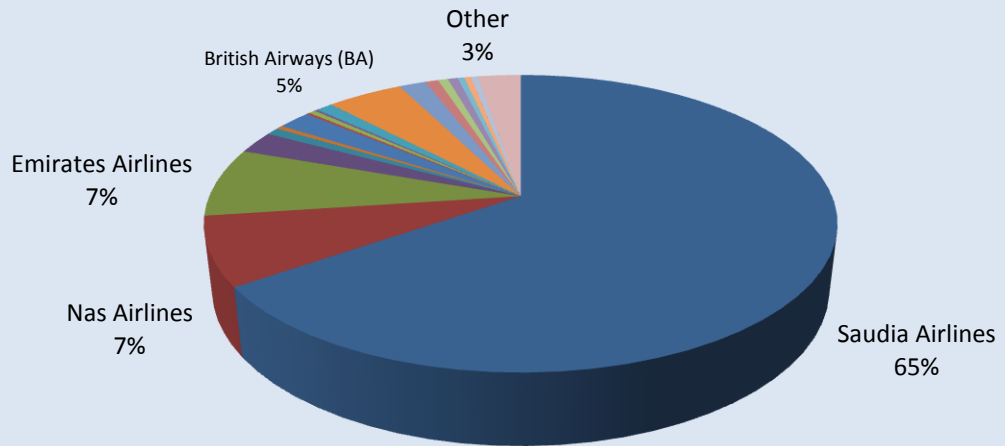
### Ever purchased product or service online



## Familiarity with the Internet

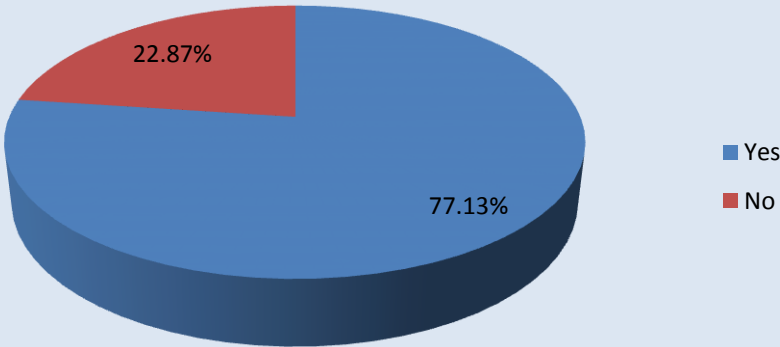


## Airlines Websites Used

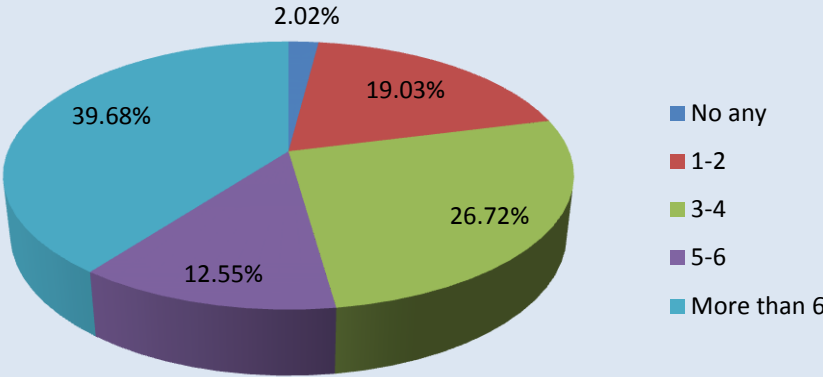


- |                        |                         |                            |
|------------------------|-------------------------|----------------------------|
| ■ Saudia Airlines      | ■ Nas Airlines          | ■ Emirates Airlines        |
| ■ Etihad Airways       | ■ Gulf Air              | ■ Egyptair                 |
| ■ Qatar Airways        | ■ Oman Air              | ■ Royal Jordanian Airlines |
| ■ Middle East Airlines | ■ British Midland (BMI) | ■ British Airways (BA)     |
| ■ Lufthansa            | ■ Turkish Airlines      | ■ KLM                      |
| ■ Malaysia Airlines    | ■ Ryan Air              | ■ Delta Airlines           |
| ■ Cathay Pacific       | ■ Other                 |                            |

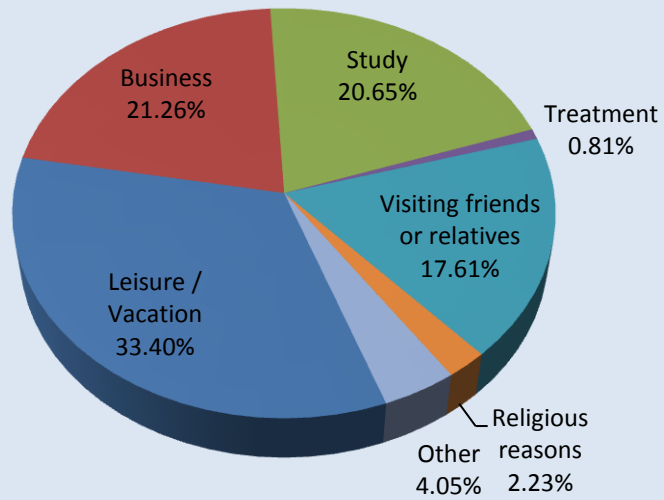
**Purchased Tickets from the Selected Airline**



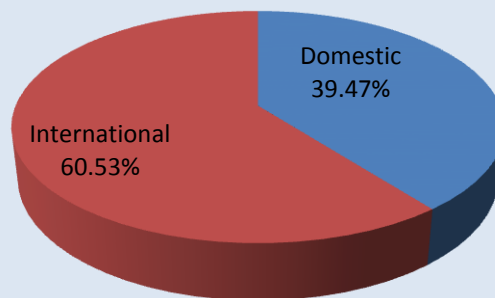
**Air Travel with selected airline in the last 3 years**



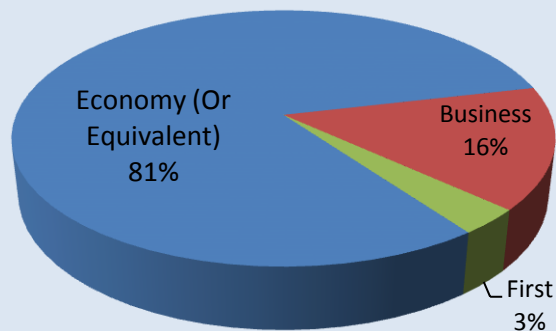
### Motivation of travel by selected Airline



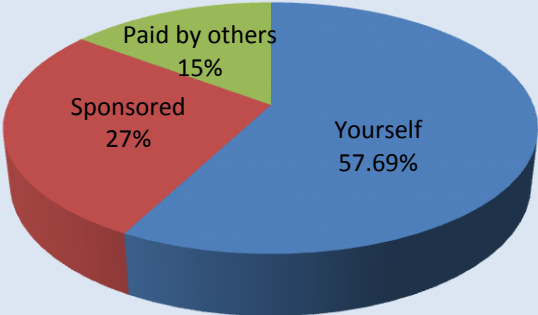
### Travel with selected airline Domestic or International



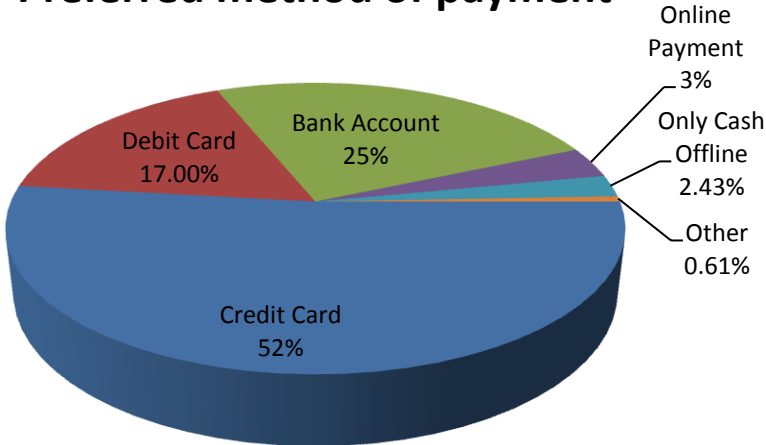
### Used seat class on selected airline



### Who Paid for tickets when using selected airline



### Preferred method of payment



## Appendix 7 - EFA Final round of tests

### EFA Final round of tests: “KMO and Bartlett's Test”, “communality”, “Total Variance Explained: (Eigenvalue)”

#### KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO).		.964
Bartlett's Test of Sphericity	Approx. Chi-Square	25557.076
	df	1035
	Sig.	.000

#### Items communalities

Construct	Initial	Extraction	Construct	Initial	Extraction	Construct	Initial	Extraction	Construct	Initial	Extraction
PU1	1.000	0.668	IQ1	1.000	0.75	AR1	1.000	0.896	ES1	1.000	0.801
PU2	1.000	0.818	IQ2	1.000	0.805	AR2	1.000	0.917	ES2	1.000	0.856
PU3	1.000	0.786	IQ3	1.000	0.648	AR3	1.000	0.86	ES3	1.000	0.848
PU4	1.000	0.835	IQ4	1.000	0.76	AR4	1.000	0.865	ES4	1.000	0.786
PU5	1.000	0.837	IQ5	1.000	0.751				ES5	1.000	0.672
PU6	1.000	0.829	IQ6	1.000	0.712						
			SQ5	1.000	0.674				IP1	1.000	0.842
			SQ7	1.000	0.636				IP2	1.000	0.808
PEOU1	1.000	0.773							IP3	1.000	0.856
PEOU2	1.000	0.748	ET1		0.808	PP1	1.000	0.896	IP4	1.000	0.914
PEOU3	1.000	0.842	ET2		0.819	PP2	1.000	0.853	IP5	1.000	0.875
PEOU4	1.000	0.824	ET3		0.786	PP3	1.000	0.896			
PEOU5	1.000	0.866	ET4		0.772	PP4	1.000	0.82			
PEOU6	1.000	0.853	ET5		0.876	PP5	1.000	0.586			
			ET6		0.807						
			ET7		0.833						

\* Extraction Method: Principal Component Analysis.

#### Total Variance Explained

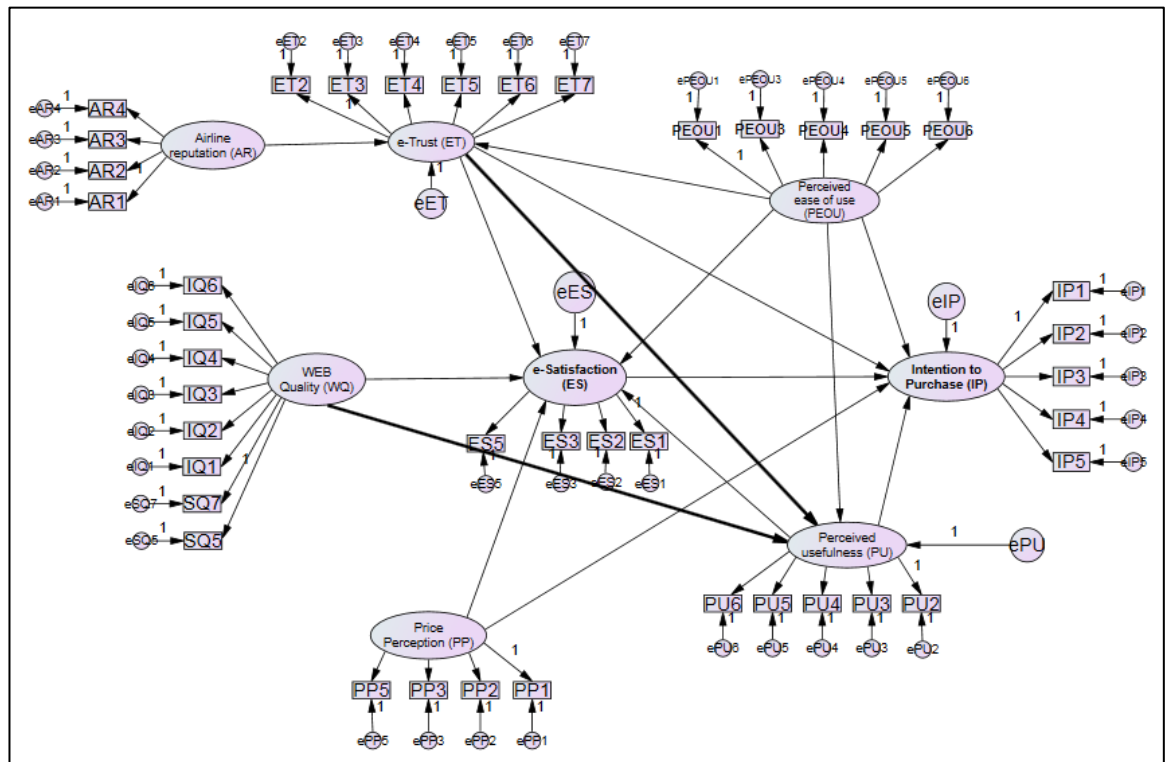
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	22.631	49.198	49.198	22.631	49.198	49.198	5.938	12.909	12.909
2	3.417	7.428	56.626	3.417	7.428	56.626	5.344	11.617	24.526
3	2.833	6.159	62.786	2.833	6.159	62.786	5.313	11.550	36.075
4	2.325	5.055	67.841	2.325	5.055	67.841	4.944	10.747	46.822
5	1.849	4.020	71.861	1.849	4.020	71.861	4.663	10.137	56.959
6	1.718	3.734	75.595	1.718	3.734	75.595	4.435	9.642	66.601
7	1.176	2.557	78.152	1.176	2.557	78.152	4.020	8.738	75.340
8	.930	2.021	80.173	.930	2.021	80.173	2.223	4.833	80.173
9	.638	1.387	81.559						
10	.554	1.204	82.763						

## Appendix 8 - Model fit indicator with suggested links

Model fit indicators for the structural model before and after adding the two suggested relations with the highest modification indices WQ -> PU and ET-> PU.

Model fit indexes	Recommended levels	Structural Model	Structural Model With two suggested relationships
CMIN		2243.092	2190.318
df		760	758
p	< 0.05	0	0
X2/df or CMIN/DF	< 2 or 3	2.951	2.89
RMSEA	<0.05 or 0.07 or 0.08	0.063	0.062
GFI	> 0.9	0.819	0.824
AGFI	> 0.8	0.8	0.801
NFI	>0.9 or > 0.8	.904	0.906
RFI	>0.9 or > 0.8	.896	0.899
CFI	> 0.9	.934	0.936
PNFI	>0.9 or > 0.8	.838	0.838

\*Recommended levels based on (Byrne, 2010; Hair et al., 2009; Hooper et al., 2008; Iacobucci, 2010)



New links from Web Quality and e-Trust to Perceived Usefulness in AMOS

## Appendix 9 - Groups Analysis

### A.1 Groups Differences - Mean Scores (T-Tests)

Comparing scale scores for each construct between groups help researchers to identify how each group perceived a particular variable. T-tests were used in order to identify any statistically significant differences between each pair variable means. Exploring such differences has some applied importance, for example, it is useful to know if there are any differences between males and females in their intention to purchase airline tickets online or not. Independent sample t-tests are used to compare the scores of two different (independent) groups of people (e.g. males and females). Only the set of items (Questions) that were remaining after the EFA and CFA are used for these tests.

In t-tests, a p value of 0.05 ( $p=0.05$ ) or less ( $p<0.05$ ) is indicative of a statistically significant result. However, while this value is widely used in t-tests, another, more precise p value is also suggested in cases where more than one comparison test are conducted. This will reduce the risk of a type 1 error by setting a more stringent alpha value. Simply, a type 1 error means that the more analyses are run the more likely it is that a significant result will be found, even if in reality there are no differences between the groups (Pallant, 2010). One way to control for the type 1 error across multiple tests is to use a Bonferroni-corrected p value. Field, (2009 p 782) defined the Bonferroni correction as “*A correction applied to the  $\alpha$ -level to control the overall Type I error rate when multiple significance tests are carried out*”. He suggest that each test conducted should use a criterion of significance of the  $\alpha$ -level (normally .05) divided by the number of tests conducted. This is a simple but effective correction, but tends to be too strict when many tests are performed. The Bonferroni correction is used in marketing research in order to accurately highlight where mean differences occur in data when the analysis tend to fish for differences e.g. (Dennis et al., 2013).

In this study, there are eight variables. The stricter Bonferroni corrected p value would be ( $0.05/8 = 0.00625$ ). In the following sections, the mean comparison will present the results for the 13 group’s categories at both significant levels (\* significant at  $p< 0.05$  level \*\* Significant at  $p< 0.0063$  level).



## **A.2 Invariance Analysis – Group Difference on Relations**

The next set of analytical techniques will focus on how the different groups will affect the supported relationships in the model. A description of invariance analysis is available in the methodology chapter (Section 4.13.7). However, it is essential to note here that the researcher adopts the following four steps in order to accomplish the invariance analysis using AMOS Software:

- **Step 1: Measurement Invariance Analysis:**

The thesis will test the measurement models for each group separately and check that the model fits within acceptable levels. If not, then the researcher will have to modify the model items until both groups achieve good model fits. This can be done by following similar steps used in the single group CFA used earlier in Chapter 7.

- **Step 2: Factor Loading Equivalence:**

The researcher will run the measurement model again with both groups assigned in AMOS in order to check the measurement weights across both groups. If measurement weight  $p \geq 0.05$  then this confirms that there are no significant differences between both groups in their understanding or perception of the questions and a full metric invariance is established. In this case, the research will continue to the next step. However, if this is not established then it should continue with partial metric invariance only, this can be done by looking at the paths with high estimates differences between both groups and free it until a measurement weights with  $p \geq 0.05$  is achieved. Only then, the next step can be performed. If this cannot be achieved, the researcher cannot continue any further and will stop at this stage declaring that the structural weights cannot be compared between groups. (It was fortunate that this last case has not happened for this research and all groups were able to continue to next stage)

- **Step 3: Structural Weights Equivalence:**

In this step, the research will use the structural model with the Full or Partial metric invariance to check the structural weight across both groups. Again, if the difference is not significant ( $p \geq 0.05$ ), this suggests an invariance structural weight. This means that the research will declare that the relationships between groups are equivalent between both groups. If this not the case and  $p$  is not  $\geq 0.05$ , this indicates that there are

differences in the relationships between groups. In this case, and in order to identify which relationships are significantly different, the research will perform the additional following step.

- **Step 4: Significant Relationships Test:**

In order to check which relationship is causing the insignificance between groups, the researcher will free all construct paths in the model and constrain only one path at a time. With each path, the researcher will re-run the model and check the significance. This will allow for testing each relationship in isolation thus identifying which one is different between groups.

### **A.3 Group Analysis Findings**

In the following sections, the researcher will demonstrate 13 groups including demographic characteristic, internet experience, and travel habits. For each group the researcher will present the number of cases and start by revealing the mean scores across the groups. Following this, the steps for the invariant analysis will be presented.

#### **A.3.1 Gender**

Here, males (372) and females (122) were investigated.

##### **A- Mean Scores:**

The t-test results indicated that there are no significant differences between males and females using the Bonferroni corrected p value. However, using the  $p > 0.05$  value revealed that only two constructs were found to be significant while the rest did not show any significant difference.

- **Price Perception (PP):** the significant \* differences of the mean scores were higher for males (M= 4.5694) than for females (M=4.1852) ( $t=2.538$ ,  $p=.011$ , two-tailed). The differences of the means = .38411.
- **Intention to Purchase (IP):** the significant \* differences of the mean scores were higher for males (M=5.4220) than for females (M=5.0639) ( $t=2.216$ ,  $p=.028$ , two-tailed). The differences in the means = .35811).

Table A.1 below present the t-test results across both gender groups.

**Table 0.1: t-test for Gender impact**

	t	P(2-tailed)	Sig	Mean Score		Mean Difference
				Male	Female	
Perceived usefulness (PU)	1.629	.105				
Perceived ease of use (PEOU)	-.960	.337				
Web Quality (WQ)	-.570	.569				
e-Trust (ET)	.322	.747				
Airline reputation (AR)	.006	.995				
Price Perception (PP)	2.538	.011	*	4.6	4.2	.38411
e-Satisfaction (ES)	.719	.473				
Intention to Purchase (IP)	2.291	.022	*	5.4	5.1	.35811

\* significant at  $p < 0.05$  level \*\* Significant at  $p < 0.0063$  level

### B- Invariance Analysis:

**Step 1:** By testing the measurement model fits for both males and females separately, in the female sample, the model fit (CFI =0.87 RMSEA= 0.09) was **poor** (CFI = 0.87, RMSEA =0.09), so the model items had to be modified in order to achieve better fit. In order to increase the fit for the female sample, 5 items (PEOU6, ET6, AR3, PU6, and IP5) were removed. Following these modifications, the new model fits moved within acceptable levels for both, as indicated in table A.2 below.

**Table 0.2: Measurement model fits for each gender groups**

	Groups	CMIN	DF	CMIN/DF	CFI	RMSEA
Before Modifications	Male	1908.39	751	2.541	0.934	0.064
	Female	1484.92	751	1.977	0.87	0.09
After Modifications	Male	1475.15	566	2.606	0.937	0.066
	Female	984.156	566	1.739	0.908	0.078

**Step 2:** By checking for invariance of the measurement weights across both groups, the P value (0.05) is presented below. This indicates that full metric invariance cannot be established. As such, only partial metric invariance should only be used. This is achieved by freeing measurement paths that have large estimates of differences between the groups. So, by freeing the paths to items PEOU4, PEOU5, and SQ7, it was possible to get a  $\Delta DF = 25$  and  $\Delta \chi^2 = 35.786$  with a  $P = 0.075$ , Thus **partial** metric invariance is

established. Obtaining this result allows the researcher to continue with the next step of the analysis.

**Step 3:** Structural model partial metric invariance is used to check the structural weight.  $\Delta DF = 11$   $\Delta \chi^2 = 10.022$   $P = .528$  is above the value of 0.05 which confirms that there are **invariance** structural weights. **This means that there are no differences in the relationship between males and females.** Table A.3 below demonstrates the results for the structural model fits across the groups.

**Table 0.3: Structural model fits across both Gender groups**

Groups	CMIN	DF	CMIN/DF	CFI	RMSEA
Male/Female	2630.2	1154	2.279	0.922	0.051

### A.3.2 Age

For age, the data were split into two groups: younger subjects (18-35 years) and older subjects (36+). There were 326 subjects in the 18-35 condition and 168 in the 36+ condition.

#### A- Mean Scores:

T-test results indicated that there are no significant differences between younger respondents and older respondents in all eight dimensions. All p values were above the threshold value of 0.05. Table A.4 below presents the t-test results across both gender groups.

**Table A.4: t-test for Age**

	t	P(2-tailed)
Perceived usefulness (PU)	-0.093	.926
Perceived ease of use (PEOU)	1.873	.062
Web Quality (WQ)	.803	.422
e-Trust (ET)	.683	.495
Airline reputation (AR)	.798	.425
Price Perception (PP)	-0.045	.964
e-Satisfaction (ES)	.960	.338
Intention to Purchase (IP)	1.076	.282

## B- Invariance Analysis:

**Step 1:** By testing the model fits for both young and old people separately, the model fit for the older people sample was **less** (RMSEA=0.085, more than accepted level 0.08). This necessitated some modification in order to establish a better fit. For this purpose, 4 items (IQ4, ET7, SQ7, AR4) were removed. Thus, the new model fits became within acceptable levels for both as indicated in Table A.5 below.

**Table A.5: Measurement model fits for each Age group**

	Groups	CMIN	DF	CMIN/DF	CFI	RMSEA
Before Modifications	Young	1787.482	751	2.38	0.927	0.065
	Old	1652.531	751	2.2	0.902	0.085
After Modifications	Young	1340.143	601	2.23	0.941	0.062
	Old	1207.227	601	2.01	0.924	0.078

**Step 2:** By checking the measurement weight, it can be noted that the  $P = 0.00$  is below 0.05. This indicates that full metric invariance cannot be established and **partial** metric invariance should be used. This is achieved by freeing paths that have large estimate differences between both groups. The researcher had to free many items in order to reach a suitable p value. The paths freed are: IP2, IP4, PEOU5, PEOU6, PU4, ET3, IQ2, IQ5, ES5, PP3, IQ1, and PEOU3. It was possible to get a  $\Delta DF = 16$  and  $\Delta \chi^2 = 26.041$  with a  $P = 0.053$ . Thus, partial metric invariance is established. Obtaining this result allows the researcher to progress to the next step of the analysis.

**Step 3:** Structural model Partial metric invariance is used to check the structural weight.  $\Delta DF = 11$   $\Delta \chi^2 = 16.692$   $P = .117$  above the value 0.05 which confirm that there are **invariance** structural weights. This **means that there are no differences in the relations between young and old users**. Table A.6 below demonstrates the results for the structural model fits across both groups.

**Table 0.6: Structural model fits across both Age groups**

Groups	CMIN	DF	CMIN/DF	CFI	RMSEA
Young/Old	2722.162	1224	2.224	0.922	0.050

### A.3.3 Education Level

Education levels were listed into 6 categories (as seen in Chapter 7). Due to a small sample for some categories, it was decided to combine them into two groups only. Undergraduates and below (294 cases), post-graduates (200 cases).

**A- Mean Scores:**

T-test results indicated that there are no significant differences between both groups for all the nine dimensions. All P values were above the threshold value of  $p > 0.05$ . Table A.7 below presents the t-test for both Education Level groups.

**Table 0.7: t-test for Education Level groups**

	t	P(2-tailed)
Perceived usefulness (PU)	-0.578	.563
Perceived ease of use (PEOU)	-.456	.649
Web Quality (WQ)	.486	.627
e-Trust (ET)	-.122	.903
Airline reputation (AR)	.136	.892
Price Perception (PP)	0.685	.494
e-Satisfaction (ES)	.329	.742
Intention to Purchase (IP)	-0.431	.667

**B- Invariance Analysis:**

**Step 1:** In testing the measurement model fits for both less educated (undergraduates and below) and highly educated (post-graduates) separately, both achieved acceptable model fit results (as can be seen in Table A.8).

**Table 0.8: Measurement model fits for each Education Level groups**

Groups	CMIN	DF	CMIN/DF	CFI	RMSEA
Less Educated	1726.351	751	2.299	0.925	0.067
Highly Educated	1560.757	751	2.078	0.919	0.074

**Step 2:** By checking for invariance of the measurement weights across both groups,  $p=0.026$  (below 0.05). This indicates that full metric invariance cannot be established. So, **partial** metric invariance should be used. This is achieved by freeing paths that have large estimate differences between both groups. By freeing the paths to items PEOU3, it was possible to get a  $\Delta DF = 32$  and  $\Delta\chi^2 = 39.227$  with a  $P = 0.177$ . Thus, partial metric invariance is established. Obtaining this result allow the researcher to continue with the next step of the analysis.

**Step 3:** Structural model Partial metric invariance is used to check the structural weight.  $\Delta DF= 11$   $\Delta\chi^2 = 18.288$   $P =.075$  (above the value 0.05). This confirms that there are **invariance** structural weights. **That is means that there are no significant differences in the relations between less educated and highly educated people.** Table A.9 below shows the results for the structural model fits across both groups.

**Table A.9: Structural model fits across both Education Level groups**

Groups	CMIN	DF	CMIN/DF	CFI	RMSEA
Less/High Educated	3462.4	1524	2.272	.916	0.51

#### A.3.4 Income per Month

The sample was split into two groups: people with high income (45.1%  $n=223$ ) and people with lower income (44.3%  $n=219$ ). Higher income people were those that earned more than 12,000 SAR per month and low-income people earned less than 12,000 SAR per month. Very few respondents indicated “dependent on others” and so were not included in this analysis.

##### A- Mean Scores:

Again, t-test results indicated that there are no significant differences between both groups for all the nine dimensions. All P values were above the threshold value of  $p>0.05$ . Table A.10 below presents all t-tests for income per month groups.

**Table 0.10: t-test for Income per Month**

	t	P(2-tailed)
Perceived usefulness (PU)	-1.386	.167
Perceived ease of use (PEOU)	.183	.855

Web Quality (WQ)	.352	.725
e-Trust (ET)	-1.226	.221
Airline reputation (AR)	.055	.956
Price Perception (PP)	-1.044	.297
e-Satisfaction (ES)	.102	.918
Intention to Purchase (IP)	-0.411	.681

## B- Invariance Analysis:

**Step 1:** By testing the measurement model fits for both low and high income responses separately; both had good model fits as seen in Tale A.11 below.

**Table 0.11: Measurement model fits for each income per month groups**

Groups	CMIN	DF	CMIN/DF	CFI	RMSEA
Low Income	1540.902	751	2.052	0.922	0.069
High Income	1688.863	751	2.249	0.917	0.075

**Step 2:** After checking for invariance of the measurement weights,  $p = 0.01$  (below 0.05). This indicates that full metric invariance cannot be established. As such, **partial** metric invariance should be used. This is achieved by freeing paths that have large estimate differences between both groups. Paths to IQ1 and IQ 2 were freed. Thus, a  $\Delta DF = 31$  and  $\Delta\chi^2 = 42.795$  with a  $p = 0.077$  were obtained and partial metric invariance was established. Achieving this result enabled the researcher to continue with next step of the analysis.

**Step 3:** Structural model partial metric invariance is used to check the structural weight for both groups by running the model with all regression paths constrained. The results were  $\Delta DF = 11$ ,  $\Delta\chi^2 = 21.369$ , and  $p = .03$  (below the value 0.05). This indicates that **the model is significantly different between higher income and lower income people**. In order to identify which path(s) is significantly different (which regression path(s) are non-invariant), step 4 (below) needs to be completed. Table A.12 below shows the results for the structural model fits across both groups.

**Table 0.12: Structural model fits across income per Month groups**

Groups	CMIN	DF	CMIN/DF	CFI	RMSEA
Low/high Income	3375.3	1524	2.22	.913	0.053



**Step 4:** In order to check which relationship is significantly different between groups, all paths in the model should be freed and only one path at a time constrained. Table A.13 shows the significance results after rerunning the model eleven times for each relationship.

**Table 0.13: Structural weight equivalence across Income per Month groups**

Paths	Low Income			High Income			Invariance	
	R Weight	CR	p	R Weight	CR	p	$\Delta\chi^2$	p
ES > IP	0.423	3.337	***	0.317	3.956	***	0.504	0.478
WQ > ES	0.448	4.982	***	0.698	7.51	***	3.958	0.047*
PP > ES	0.323	8.328	***	0.143	3.674	***	10.994	0.001*
PEOU > ES	0.117	1.42	0.155	0.159	1.858	0.063	0.127	0.722
ET > ES	0.218	3.355	***	0.158	2.328	0.020	0.403	0.525
AR > ET	0.196	5.216	***	0.165	4.514	***	0.355	0.552
PU > IP	0.18	1.987	0.047	0.286	3.373	***	0.731	0.392
PEOU > PU	0.61	9.092	***	0.597	10.904	***	0.025	0.874
ET > IP	0.07	0.719	0.472	0.301	3.428	***	3.134	0.077
PP > IP	0.114	1.546	0.122	0.034	0.653	0.514	0.783	0.376
PEOU > ET	0.545	7.467	***	0.569	8.563	***	0.066	0.797

There are significant differences in the regression paths between PP and ES, and between WQ and ES. Low-income customers perceive price to be more influential in determining their e-satisfaction compared to their counterparts. On the other hand, high income customers perceive web quality as more influential in determining their e-satisfaction compared to their counterparts.

### A.3.5 Occupation

The survey collected information relating to the occupations of the respondents. It is interesting to identify any significant differences between the users with jobs and students in perceiving all constructs. The data were split into two categories: students (26.9% n=133) and professionals (67% n=331). Professionals include government and private sector employees, businesspeople, and freelancers. There were only a very small number of retired and unemployed users, so they were not included in this group comparison.

#### A- Mean Scores:

The t-test results indicated that there are no significant differences between students and professionals using the Bonferroni corrected p value. However, using the  $p > 0.05$  value revealed that only two constructs were found, whereas the rest showed no significant difference.

- **Perceived usefulness (PU):** The significant differences of the mean scores were higher for professionals (M= 5.94) than students (M=5.64) ( $t=-2.394$ ,  $p=.018$ , two-tailed). The differences of the means = .29536.
- **Airline reputation (AR):** The significant differences of the mean scores were higher for students (M=4.69) than professionals (M=4.12) ( $t=2.571$ ,  $p=.010$ , two-tailed). The differences in the means = .492.

**Table A.14: t-test for occupation groups**

	t	P(2-tailed)	Sig	Mean Score		Mean Difference
				Students	Professionals	
Perceived usefulness (PU)	-2.394	.018	*	5.64	5.94	-.29536
Perceived ease of use (PEOU)	.418	.676				
Web Quality (WQ)	.046	.964				
e-Trust (ET)	-.992	.321				
Airline reputation (AR)	2.571	.010	*	4.69	4.12	.49200
Price Perception (PP)	-0.461	.645				
e-Satisfaction (ES)	-.372	.710				
Intention to Purchase (IP)	-1.465	.144				

\* significant at  $p < 0.05$  level \*\* Significant at  $p < 0.0063$  level

## B- Invariance Analysis:

**Step 1:** By testing the model fits for both students and professionals separately, both had good model fits as indicated in Table A.15.

**Table 0.15: Measurement model fits for each Occupation groups**

Groups	CMIN	DF	CMIN/DF	CFI	RMSEA
Students	1388.767	751	1.849	0.90	0.08
Professionals	1894.9	751	2.523	0.927	0.068

**Step 2:** By checking for measurement weight invariance, the p value = 0.111 (above 0.05). This indicates that full metric invariance can be established.  $\Delta DF = 33$  and  $\Delta\chi^2 = 43.143$ . Therefore, the researcher can progress to the next step of analysis

**Step 3:** Structural model full metric invariance is used to check the structural weight for both groups by running the model with all regression paths constrained. The results were  $\Delta DF = 11$ ,  $\Delta\chi^2 = 23.105$ , and  $p = .017$  (below the value 0.05). This indicates that **the model is significantly different between both students and professionals**. In order to identify which structural weights are significantly different (which regression path(s) is non-invariant), step 4 should be carried out. Table A.16 below shows the results for the structural model fits across both groups.

**Table 0.16: Structural model fits across both Occupation groups**

Groups	CMIN	DF	CMIN/DF	CFI	RMSEA
Students/ Professionals	3444.08	1524	2.26	.912	0.52

**Step 4:** In order to check which relationship is significantly different between groups, all paths in the model should be freed and only one path at a time constrained. Table A.17 show the significance results after rerunning the model eleven times for each relationship.

**Table 0.17: Structural weight equivalence across both Occupation groups**

Paths	Students			Professionals			Invariance	
	R Weight	CR	p	R Weight	CR	p	$\Delta\chi^2$	p
ES > IP	0.546	3.624	***	0.316	4.114	***	1.894	0.169
WQ > ES	0.533	4.447	***	0.601	7.963	***	0.243	0.622
PP > ES	0.355	6.654	***	0.176	5.678	***	8.595	0.003*
PEOU > ES	-0.026	-0.19	0.849	0.168	2.438	0.015	1.568	0.211
ET > ES	0.249	2.465	0.014	0.223	4.079	***	0.049	0.825
AR > ET	0.178	3.954	***	0.171	5.65	***	0.018	0.894
PU > IP	0.189	1.594	0.111	0.249	3.277	0.001	0.185	0.667
PEOU > PU	0.854	9.402	***	0.544	11.276	***	10.486	0.001*
ET > IP	0.074	0.549	0.583	0.225	2.923	0.003	0.95	0.33
PP > IP	0.01	0.107	0.915	0.08	1.764	0.078	0.466	0.495

<b>PEOU &gt; ET</b>	0.658	6.866	***	0.573	9.847	***	0.64	0.424
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The analysis shows that there are significant differences in the regression paths between PP and ES, and PEOU and PU. Students perceive price to be more influential in determining their e-satisfaction, and ease of use as more influential in determining their perceived usefulness, compared to their counterparts.

### A.3.6 Location

With regard to the country of the study's context (Saudi Arabia), the respondents were located either inside Saudi Arabia (71% n=351) or outside Saudi Arabia (28% n=143). It was worth exploring the relationships for both residency locations, and whether or not they are the same.

#### A- Mean Scores:

T-test results indicated that there are no significant differences between responders from inside or outside Saudi Arabia using the Bonferroni corrected p value. However, using the  $p > 0.05$  value, it was revealed that two constructs were found to be different, while the rest did not show any significant difference.

- **Perceived usefulness (PU):** The significant differences of the mean scores were higher for insiders (M= 5.93) than for outsiders (M=5.65) ( $t=-2.364$ ,  $p=.019$ , two-tailed). The difference of the means = 0.284.
- **Airline reputation (AR):** The significant differences of the mean scores were higher for outsiders (M=4.69) than for insiders (M=4.2) ( $t=2.6$ ,  $p=.01$ , two-tailed). The difference in the means = 0.479.

**Table A.18: t-test for Location groups**

	t	P(2-tailed)	Sig	Mean Score		Mean Difference
				Out Saudi	In Saudi	
Perceived usefulness (PU)	-2.364	0.019	*	5.65	5.93	-.28355
Perceived ease of use (PEOU)	-.732	0.464				
Web Quality (WQ)	-.860	0.39				
e-Trust (ET)	-1.664	0.097				
Airline reputation (AR)	2.592	0.01	*	4.69	4.20	.47876
Price Perception (PP)	-.969	0.333				
e-Satisfaction (ES)	-1.465	0.144				
Intention to Purchase (IP)	-.707	0.473				

\* significant at  $p < 0.05$  level \*\* Significant at  $p < 0.0063$  level

#### B- Invariance Analysis:

**Step 1:** By testing the model fits for both users living inside or outside Saudi Arabia, the model fit was **poor** for data from users from outside (RMSEA= 0.081). Therefore, the model items had to be modified in order to achieve a better fit. In order to increase

the fit for the outside sample, two items (IQ2 and PEOU6) were removed. Thus, the new model fits moved within acceptable levels for both as indicated in Table A.19.

**Table 0.19: Measurement model fits for each Location groups**

	Groups	CMIN	DF	CMIN/DF	CFI	RMSEA
Before Modifications	Outside	1447.477	751	1.927	0.902	0.081
	Inside	1858.556	751	2.475	0.93	0.065
After Modifications	Outside	1243.969	674	1.846	0.913	0.077
	Inside	1666.65	674	2.473	0.933	0.065

**Step 2:** By checking for invariance of the measurement weights across both groups,  $p = 0.001$  (below 0.05). This indicates that full metric invariance cannot be established and that **partial** metric invariance should be used. This is achieved by freeing paths that have large estimate differences between both groups. The researcher had to free paths for five items in order to reach a suitable  $p$  value. The paths freed are IP2, PU5, IQ4, IQ5, and IQ6. It was possible to get a  $\Delta DF = 26$  and  $\Delta\chi^2 = 35.095$  with a  $p = 0.11$ . Thus, partial metric invariance is established. Obtaining this result allow the researcher to continue with next step of the analysis.

**Step 3:** Structural model partial metric invariance is used to check the structural weight for both groups by running the model with all regression paths constrained. The results were  $\Delta DF = 11$ ,  $\Delta\chi^2 = 31.448$ , and  $P = 0.001$  (below the value 0.05). **This indicates that the model is significantly different between respondents located outside Saudi Arabia and others inside Saudi Arabia.** In order to identify which structural weight(s) are significantly different (which regression path(s) are non-invariant), step 4 should be performed. Table A.20 below shows the results for the structural model fits across both groups.

**Table 0.20: Structural model fits across both Location groups**

Groups	CMIN	DF	CMIN/DF	CFI	RMSEA
Outside/Inside	3061.05	1370	2.23	.921	0.50

**Step 4:** In order to check which relationship is significantly different between groups, all paths in the model should be freed and only one path at a time constrained. Table A.21 show the significance results after re-running the model eleven times for each relationship.

**Table 0.21: Structural weight equivalence across both Location groups**

Paths	Outside Saudi			Inside Saudi			Invariance	
	R Weight	CR	p	R Weight	CR	p	$\Delta\chi^2$	p
ES > IP	0.463	3.758	***	0.238	3.09	0.002	2.42	0.12
WQ > ES	0.589	4.344	***	0.594	7.979	***	0.001	0.974
PP > ES	0.388	6.854	***	0.174	5.916	***	11.26	0.001*
PEOU > ES	0.029	0.2	0.841	0.195	2.886	0.004	1.053	0.305
ET > ES	0.133	1.392	0.164	0.205	3.837	***	0.435	0.51
AR > ET	0.132	2.65	0.008	0.185	6.537	***	0.881	0.348
PU > IP	0.098	1.008	0.313	0.244	3.43	***	1.467	0.226
PEOU > PU	0.74	9.066	***	0.597	11.725	***	2.521	0.112
ET > IP	0.018	0.174	0.862	0.372	4.715	***	7.166	0.007*
PP > IP	0.174	2.011	0.044	0.049	1.106	0.269	1.631	0.202
PEOU > ET	0.707	7.256	***	0.513	9.392	***	3.274	0.07

The results reveal that there are significant differences in the regression paths between PP and ES and between ET and IP. Users located outside Saudi Arabia perceive price to be more influential in determining their e-satisfaction compared to their counterparts living inside Saudi Arabia. On the other hand, customers living inside Saudi Arabia perceive e-Trust as more influential in determining their intention to purchase compared to their counterparts outside Saudi Arabia.

### A.3.7 Internet Experience

The sample was split into two categories of internet usage experience (high and low). The highly experienced respondents have used the internet for more than 6 years', spend more than 3 hours daily on the internet (approximately), and rate their familiarity with the internet and their computer knowledge as "Good or Very good". The remaining samples are considered as less experienced. Highly experienced people comprised 39.9% (n=197) of the sample, whereas less experienced comprised 60.1% (n=297).

#### A-Mean Scores:

T-test results indicated that there were no significant differences between both groups for all the nine dimensions. All p values were above the threshold value of  $p > 0.05$ .

**Table 0.22: t-test for Internet Experience groups**

	t	P(2-tailed)
Perceived usefulness (PU)	-.691-	0.49
Perceived ease of use (PEOU)	-1.025-	0.306
Web Quality (WQ)	-1.050-	0.294
e-Trust (ET)	-1.149-	0.251
Airline reputation (AR)	-1.154-	0.249
Price Perception (PP)	1.025	0.306
e-Satisfaction (ES)	-.004-	0.997
Intention to Purchase (IP)	0.129	0.897

**B- Invariance Analysis:**

**Step 1:** By testing the measurement model fits for both highly experienced and less experienced conditions separately, both groups show **good fit** as indicated in Table A.23.

**Table 0.23: Measurement model fits for each Internet experience groups**

Groups	CMIN	DF	CMIN/DF	CFI	RMSEA
Low Experienced	1726.711	751	2.299	0.928	0.066
High Experienced	1603.17	751	2.135	0.911	0.076

**Step 2:** By checking for invariance of the measurement weights, the p value = 0.9 (above 0.05), which indicates that **full** metric invariance can be established.  $\Delta DF = 33$  and  $\Delta\chi^2 = 44.64$ . The analysis continues therefore to the next step.

**Step 3:** Structural model full metric invariance is used to check the structural weight.

$\Delta DF = 11$   $\Delta\chi^2 = 9.084$   $P = .614$  above the value 0.05, which confirms that there are invariant structural weights. **That means that there are no differences in the relationships between highly experienced and less experienced.** Results for the structural model fits across both groups are presented in table A.24 below.

**Table 0.24: Structural model fits across both Internet experience groups**

Groups	CMIN	DF	CMIN/DF	CFI	RMSEA
Low/ High Experienced	3487.33	1524	2.288	.915	0.51



### A.3.8 Airlines origin (Saudi or Non-Saudi Airlines)

Respondents were asked to give their answers for all constructs in the model based on their experience with the website of the airline they selected at the beginning of the survey. Therefore, it is worth checking the user's perception toward Saudi based airlines and non-Saudi based airlines in order to see if they perceive them differently or not. To this end, the sample was split into two groups: airlines based in Saudi Arabia (72.9% n=360) (including Saudi Arabian Airlines and Sama Airlines) and non-Saudi Airlines (27.1% n=134) such as British Airways, BMI, Qatar Airlines, and more (full list of airlines available in section 4.4.3).

#### A- Mean Scores:

The t-test results indicated that there are significant differences between airlines based in Saudi Arabia and non-Saudi airlines using the Bonferroni corrected p value.

Surprisingly, all construct means were lower for airlines based (registered) in Saudi Arabia in comparison with non-Saudi airlines (international airlines). Table A.25 below presents the t-test results for all constructs across both airline-origin groups.

- **Perceived usefulness (PU)\*\*:** The significant differences of the mean scores were higher for non-Saudi airlines (M= 6.1328) than for Saudi airlines (M= 5.7472) ( $t=-4.097$ ,  $p=.000$ , two-tailed). The difference of the means =  $-.38561$ .
- **Perceived ease of use (PEOU) \*\*:** The significant difference of the mean scores were higher for non-Saudi airlines (M=5.9657) than for Saudi airlines (M=5.43) ( $t=-5.084$ ,  $p=.000$ , two-tailed). The difference in the means =  $-.54$ .
- **Web Quality (WQ) \*\*:** The significant differences of the mean scores were higher for non-Saudi airlines (M= 5.9347 ) than for Saudi airlines (M=5.016) ( $t=-9.533$ ,  $p=.000$ , two-tailed). The difference in the means =  $-0.91908$ .
- **e-Trust (ET) \*\*:** The significant difference of the mean scores were higher for non-Saudi airlines (M=5.8) than for Saudi airlines (M=5.28) ( $t=-4.723$ ,  $p=.000$ , two-tailed). The difference in the means =  $-0.533$ .
- **Airline reputation (AR) \*\*:** The significant differences of the mean scores were higher for non-Saudi airlines (M= 6.1) than for Saudi airlines (M=3.7) ( $t=-19.57$ ,  $p=.000$ , two-tailed). The difference in the means =  $-2.42$ .

- **Price Perception (PP) \*\*:** The significant difference of the mean scores were higher for non-Saudi airlines (M= 4.9343 ) than for Saudi airlines (M=4.3) (t=-4.8, p=.000, two-tailed). The difference = -.631).
- **e-Satisfaction (ES) \*\*:** The significant difference of the mean scores were higher for non-Saudi airlines (M=5.8) than for Saudi airlines (M=4.7) (t=-9.66, p=.000, two-tailed). The difference in the means = -1.074).
- **Intention to Purchase (IP) \*\*:** The significant difference of the mean scores were higher for non-Saudi airlines (M=5.77) than for Saudi airlines (M=5.2) (t=-4.513, p=.000, two-tailed). The difference in the means = 0.6).

**Table 0.25: t-test for Airlines origin groups**

	t	P(2-tailed)	Sig	Mean Score		Mean Difference
				Saudi	Non-Saudi	
Perceived usefulness (PU)	-4.097	.000	**	5.7472	6.1328	-.38561
Perceived ease of use (PEOU)	-5.084	.000	**	5.4289	5.9657	-.53678
Web Quality (WQ)	-9.533	.000	**	5.0156	5.9347	-.91908
e-Trust (ET)	-4.723	.000	**	5.2796	5.8122	-.53256
Airline reputation (AR)	-19.57	.000	**	3.6896	6.1063	-2.41676
Price Perception (PP)	-4.784	.000	**	4.3033	4.9343	-.63100
e-Satisfaction (ES)	-9.660	.000	**	4.7299	5.8041	-1.07424
Intention to Purchase (IP)	-4.513	.000	**	5.1722	5.7672	-.59494

\* significant at p< 0.05 level \*\* Significant at p< 0.0063 level

The results reveal that for all constructs, travellers perceived non-Saudi Airlines to be better than Saudi airlines. This is a very important finding and will be discussed in the next chapter.

## **B- Invariance Analysis:**

**Step 1:** By testing the model fit for both Saudi and non-Saudi based airlines separately, it was found that the model for the non-Saudi Airlines sample had a **poor** fit (CFI=0.822, RMSEA=0.97). As such, so the model items had to be modified in order to achieve a better fit. In order to increase the fit for the non-Saudi Airlines sample, 10 items were removed, they are: IQ4, ET3, ET5, PP1, PEOU6, AR2, ET2, IP5, IQ2, IQ6. Following modification, the model moved within acceptable levels for both (as shown in table A.26 below).

**Table 0.26: Measurement model fits for each Airlines origin groups**

	Groups	CMIN	DF	CMIN/DF	CFI	RMSEA
Before Modifications	Saudi	1792.426	751	2.387	0.937	0.062
	Non-Saudi	1683.494	751	2.242	0.822	0.097
After Modifications	Saudi	883.426	406	2.176	0.956	0.057
	Non Saudi	755.319	406	1.86	0.9	0.08

**Step 2:** By checking for invariance of the measurement weights,  $p = 0.00$  (below 0.05). This indicates that full metric invariance cannot be established and that **partial** metric invariance should be used. This is achieved by freeing paths that have large estimate differences between both groups. The researcher had to free paths to three items in order to reach a suitable  $p$  value. The paths freed were PU4, PEOU3, and SQ7. It was then possible to get a  $\Delta DF = 20$  and  $\Delta\chi^2 = 29.149$  with a  $p = 0.085$ . Following this, partial metric invariance was established. Obtaining this result allowed the researcher to continue to the next step of analysis.

**Step 3:** Structural model partial metric invariance is used to check the structural weight.  $\Delta DF = 11$   $\Delta\chi^2 = 12.937$   $p = .297$  (well above the value 0.05) which confirms that there are **invariance** structural weights. **That means that there are no differences in the relationships between Saudi based airlines and non-Saudi based airlines.** Table A.27 below shows the results for the structural model fits across both groups.

**Table A.27: Structural model fits across both Airlines origin groups**

Groups	CMIN	DF	CMIN/DF	CFI	RMSEA
Saudi/Non Saudi Airline	1792.46	834	2.149	.932	0.048

### A.3.9 Buyers and Non-Buyers

In the survey, participants were asked if they have ever completed a ticket purchase from the airline website they have used. The buyers (77.1%  $n=381$ ) and non-buyers (22.9%  $n=113$ ) groups were compared in order to explore any differences.

#### A- Mean Scores:

T-test results indicated that there are significant differences between buyers and non-buyers using the Bonferroni corrected  $p$  value for three constructs. While, using the  $p > 0.05$  value, it was revealed that two constructs were found to be different. Table A.28 below show the t-test results for both groups.

- **Perceived usefulness (PU) \*\*:** The significant difference of the mean scores were higher for buyers (M= 5.94) than for non-buyers (M=5.6) (t=2.96, p=.004, two-tailed). The difference of the means = .38159.
- **Web Quality (WQ) \*:** The significant difference of the mean scores were higher for buyers (M=5.33) than for non-buyers (M=5.03) (t=2.23, p=.027, two-tailed). The difference in the means = .305).
- **e-Trust (ET) \*\*:** The significant difference of the mean scores were higher for buyers (M=5.55) than for non-buyers (M=4.99) (t=4.19, p=.000, two-tailed). The difference in the means = .558).
- **e-Satisfaction (ES) \*:** The significant difference of the mean scores were higher for buyers (M= 5.1 ) than for non-buyers (M=4.8) (t=2.115, p=.036, two-tailed). The difference in the means = .33736).
- **Intention to Purchase (IP) \*\*:** The significant difference of the mean scores were higher for buyers (M= 5.64 ) than for non-buyers (M=4.31) (t=7.695, p=.000, two-tailed). The difference in the means = 1.33).

**Table 0.28: t-test for buyers and non-buyers groups**

	t	P(2-tailed)	Sig	Mean Score		Mean Difference
				Buyers	non-Buyers	
Perceived usefulness (PU)	2.961	0.004	**	5.9391	5.5575	.38159
Perceived ease of use (PEOU)	1.950	0.052		5.6310	5.3841	.24690
Web Quality (WQ)	2.230	0.027	*	5.3346	5.0299	.30478
e-Trust (ET)	4.190	.000	**	5.5516	4.9941	.55752
Airline reputation (AR)	.915	0.36		4.3871	4.2035	.18360
Price Perception (PP)	1.634	0.103		4.5328	4.2779	.25493
e-Satisfaction (ES)	2.115	0.036	*	5.0984	4.7611	.33736
Intention to Purchase (IP)	7.695	.000	**	5.6367	4.3115	1.32524

\* significant at p< 0.05 level \*\* Significant at p< 0.0063 level

## B- Invariance Analysis:

**Step 1:** By testing the model fits for both buyers and non-buyers separately, the model fit for non-buyers sample was **poor** (CFI= 0.87 RMSEA=0.092). Therefore, the model items had to be modified in order to achieve a better fit. In order to increase the fit for the non-buyer sample, 6 items (ET7, PEOU4, IP5, AR3, IQ5 and IQ6) were removed.

Following this, the new model moved within acceptable levels for both as indicated in Table A.29 below.

**Table A.29: Measurement model fits for each gender groups**

	Groups	CMIN	DF	CMIN/DF	CFI	RMSEA
Before Modifications	Buyers	1979.95	751	2.636	0.929	0.066
	Non-buyers	1456.4	751	1.939	0.872	0.092
After Modifications	Buyers	1368.76	532	2.573	0.94	0.064
	Non-buyers	907.815	532	1.706	0.914	0.079

**Step 2:** After checking for invariance of the measurement weights,  $p = 0.13$  (above 0.05), which indicates that **full** metric invariance is established.  $\Delta DF = 27$  and  $\Delta\chi^2 = 35.366$ , Obtaining this result allows the researcher to continue on to the next step of the analysis.

**Step 3:** Structural model full metric invariance is used to check the structural weight.  $\Delta DF = 11$   $\Delta\chi^2 = 6.131$   $P = .864$  (well above the value 0.05). This confirms that there are invariance structural weights. **This means that there are no differences in the relationships between buyers and non-buyers.** The results for the structural model fits across both groups are presented below, in table A.30.

**Table A.30: Structural model fits across both Gender groups**

Groups	CMIN	DF	CMIN/DF	CFI	RMSEA
Buyers/Non Buyers	2414.05	1086	2.223	.927	0.050

### A.3.10 Travel Frequency

The survey participants were asked about the number of air travel journeys they made with the selected airline in the last 3 years. The data were split into two categories: frequent travellers (with more than 5 journeys with the airline in the last 3 years) and less frequent travellers (with less than 4 air travel in the last 3 years). Frequent travellers comprised 52.2% (n=258) of the sample, whereas less frequent travellers comprised 47.8% (n=236).

### A- Mean Scores:

The t-test results indicated that there are significant differences between frequent travellers and less frequent travellers using the Bonferroni corrected p value in their perception of Airline reputation. While using  $p > 0.05$  value reveals that two constructs were found different. Table A.31 represent the t-test results for frequent and less frequent travellers.

- **Web Quality (WQ) \*:** The significant difference of the mean scores were higher for less frequent travellers (M= 5.4105) than for frequent travellers (M=5.13) (t=2.598, p=.01, two-tailed). The difference of the means = 0.27870.
- **Airline reputation (AR) \*\*:** The significant difference of the mean scores were higher for less frequent travellers (M= 4.657) than for frequent travellers (M=4.06) (t=3.580, p=.00, two-tailed). The difference in the means = 0.6.
- **e-Satisfaction (ES) \*:** The significant difference of the mean scores were higher for less frequent travellers (M=5.15 ) than for frequent travellers (M=4.9) (t=2.044, p=.041, two-tailed). The difference in the means = 0.26.

**Table 0.31: t-test for frequent and less frequent travellers**

	t	P(2-tailed)	Sig	Mean Score		Mean Difference
				More Frequent	Less Frequent	
Perceived usefulness (PU)	-.067-	0.947		5.855	5.8483	-.00670
Perceived ease of use (PEOU)	1.814	0.07		5.4822	5.6754	.19320
Web Quality (WQ)	2.598	0.01	*	5.1318	5.4105	.27870
e-Trust (ET)	1.434	.152		5.3463	5.5092	.16290
Airline reputation (AR)	3.580	0	**	4.0601	4.6568	.59670
Price Perception (PP)	-.381-	0.703		4.4984	4.4483	-.05010
e-Satisfaction (ES)	2.044	0.041	*	4.8992	5.1547	.25550
Intention to Purchase (IP)	1.010	.313		5.2682	5.4051	.13690

\* significant at  $p < 0.05$  level \*\* Significant at  $p < 0.0063$  level

### B- Invariance Analysis:

**Step 1:** By testing the model fits for both less frequent and more frequent travellers separately, both had good model fits as indicated in Table A.32 below.

**Table 0.32: Measurement model fits for each gender groups**

Groups	CMIN	DF	CMIN/DF	CFI	RMSEA
Less Frequent	1648.875	751	2.196	0.918	0.071
More Frequent	1754.438	751	2.336	0.917	0.072

**Step 2:** By checking for invariance of the measurement weights,  $p = 0.101$  (above 0.05) which indicates that **full** metric invariance is established.  $\Delta DF = 33$  and  $\Delta\chi^2 = 43.707$ , Thus obtaining this result allow the researcher to continue with next step of the analysis.

**Step 3:** Structural model full metric invariance is used to check the structural weight.  $\Delta DF = 11$   $\Delta\chi^2 = 19.16$   $P = 0.058$  (above the value 0.05). This confirms that there are invariance structural weights. **That means that there are no differences in the relationships between less frequent and more frequent travellers.** Table A.33 below shows the results for the structural model fits across both groups:

**Table A.33: Structural model fits across both Gender groups**

Groups	CMIN	DF	CMIN/DF	CFI	RMSEA
Less/More Frequent	3551.2	1524	2.33	.912	0.052

### A.3.11 Motivation of Travel

The respondents were asked about their usual motivation for air travel. The data set shows that almost all the sample has 4 motivations to travel via airlines: business, study, leisure and visiting friends. For simplification and ‘rules of thumb’ compatibility, the researcher decided to combine these categories into two groups: a serious reason of travel (business, study) (41.9%  $n=207$ ) and less serious reasons (vacations and visiting friends) (51%  $n=252$ ). Any remaining motivations were sporadic and discounted from analysis. A group difference analysis between both types of motivations can show if there is any difference in the behaviour of travellers when they travel for leisure only or if they travel for business and study.

#### A- Mean Scores:

Using the Bonferroni corrected p value; T-test results indicated that there are no significant differences between serious and less serious reasons for travel. However,

using a  $p > 0.05$  value revealed that one construct is different while the rest showed no significant difference. That construct was price perception.

- **Price Perception (PP) \*:** The significant difference of the mean scores were higher for travellers with less serious reasons (M= 4.67) than for travellers with more serious reasons of travel (M=4.33) ( $t=2.469$ ,  $p=.014$ , two-tailed). The difference of the means = .336.

**Table 0.34: t-test for Motivation of Travel**

	t	P(2-tailed)	Sig	Mean Score		Mean Difference
				Less Serious	More Serious	
Perceived usefulness (PU)	-0.754	0.451				
Perceived ease of use (PEOU)	1.817	0.07				
Web Quality (WQ)	1.959	0.051				
e-Trust (ET)	1.560	.120				
Airline reputation (AR)	.449	0.654				
Price Perception (PP)	2.469	0.014	*	4.6659	4.3304	.33550
e-Satisfaction (ES)	1.956	0.051				
Intention to Purchase (IP)	0.570	.569				

**B- Invariance Analysis:**

**Step 1:** By testing the model fits for each group separately, each groups show **good fit**, as seen in Table A.35 below.

**Table 0.35: Measurement model fits for each gender groups**

Groups	CMIN	DF	CMIN/DF	CFI	RMSEA
Serious reasons	1711.81	751	2.279	0.922	0.071
Less serious reasons	1586.536	751	2.113	0.912	0.073

**Step 2:** By checking for invariance of the measurement weights, the  $p$  value = 0.078 (above 0.05). This indicates that **full** metric invariance can be established.  $\Delta DF = 33$  and  $\Delta\chi^2 = 45.084$ . Thus, the analysis continues to the next step.

**Step 3:** Structural model full metric invariance is used to check the structural weight.  $\Delta DF = 11$   $\Delta\chi^2 = 19.231$   $P = .057$  (above the value 0.05). This confirms that there are invariance structural weights. **That means that there are no differences in the**



**relationships between people travelling for serious reasons like business or study and less serious reasons like for vacation or visiting friends and relatives.** Table A.36 below shows the results for the structural model fits across both groups.

**Table 0.36: Structural model fits across both Gender groups**

Groups	CMIN	DF	CMIN/DF	CFI	RMSEA
Serious/less serious reasons	3441.9	1524	2.258	.912	.052

### A.3.12 Domestic or International Travellers

Respondents were asked if they usually fly on domestic or international flights. A comparison group analysis between both domestic (39.5% n=195) and international (60.5% n=299) travellers can unveil if there is any difference between them in regards to their behaviour toward using the airlines website.

#### A- Mean Scores:

T-test results indicated that there are significant differences between domestic and international travellers, using the Bonferroni corrected p value. The differences involve four constructs. Using  $p > 0.05$  value reveals another two constructs.

- **Perceived ease of use (PEOU) \*:** The significant difference of the mean scores were higher for international travellers (M= 5.66) than for domestic travellers (M=5.43) ( $t=2.106$ ,  $p=.042$ , two-tailed). The differences in the means = .23.
- **Web Quality (WQ) \*\*:** The significant difference of the mean scores were higher for international travellers (M= 5.43) than for domestic travellers (M=5.01) ( $t=-3.82$ ,  $p=.000$ , two-tailed). The difference in the means = 0.415).
- **Airline reputation (AR) \*\*:** The significant difference of the mean scores were higher for international travellers (M=4.86) than for domestic travellers (M=3.56) ( $t=-7.99$ ,  $p=.00$ , two-tailed). The difference in the means = 1.3).
- **Price Perception (PP) \*\*:** The significant difference of the mean scores were higher for international travellers (M=4.68) than for domestic travellers (M=4.2) ( $t=-3.9$ ,  $p=.000$ , two-tailed). The difference in the means = 0.5162).
- **e-Satisfaction (ES) \*\*:** The significant difference of the mean scores were higher for international travellers (M= 5.23) than for domestic travellers (M=4.7) ( $t=-4.14$ ,  $p=.000$ , two-tailed). The difference in the means = 0.522).

- **Intention to Purchase (IP) \*:** The significant difference of the mean scores were higher for international travellers (M=5.46) than for domestic travellers (M=5.13) (t=-2.31, p=.022, two-tailed). The difference in the means = 0.33).

**Table 0.37: t-test for Domestic and International travellers**

	t	P(2-tailed)	Sig	Mean Score		Mean Difference
				Domestic	International	
Perceived usefulness (PU)	-1.083-	0.28		5.7846	5.8957	.11110
Perceived ease of use (PEOU)	-2.106-	0.042	*	5.4359	5.6649	.22900
Web Quality (WQ)	-3.819-	0	**	5.0135	5.4289	.41540
e-Trust (ET)	-1.706-	.089		5.3043	5.5022	.19790
Airline reputation (AR)	-7.990-	0	**	3.5603	4.8570	1.29670
Price Perception (PP)	-3.900-	0	**	4.1621	4.6783	.51620
e-Satisfaction (ES)	-4.143-	0	**	4.7051	5.2274	.52230
Intention to Purchase (IP)	-2.305-	.022	*	5.1333	5.4642	.33090

\* significant at p< 0.05 level \*\* Significant at p< 0.0063 level

## B- Invariance Analysis:

**Step 1:** By testing the model fits for both travellers mostly travel domestic or international flights separately, both groups show **good fit** as indicated in tale A.38 below.

**Table 0.38: Measurement model fits for Domestic and International travellers**

Groups	CMIN	DF	CMIN/DF	CFI	RMSEA
Domestic	1494.715	751	1.99	0.918	0.071
International	1846.304	751	2.458	0.92	0.07

**Step 2:** After checking for invariance of the measurement weights, p = 0.279 (above 0.05). This suggests that full metric invariance can be established.  $\Delta DF = 33$  and  $\Delta \chi^2 = 37.268$ . The researcher can therefore continue with the next step of the analysis.

**Step 3:** Structural model full metric invariance is used to check the structural weight.

$\Delta DF = 11$   $\Delta \chi^2 = 19.138$  p = .059 (above the value 0.05), which confirms that there are invariance structural weights. **This means that there are no differences in the relationships between domestic or international travellers.** Table A.39 below presents the results for the structural model fits across both groups.

**Table A.39: Structural model fits across Domestic and International travellers**

Groups	CMIN	DF	CMIN/DF	CFI	RMSEA
Domestic/ International	3510.2	1524	2.3	.913	.051

**A.3.13 Type of Funding**

Respondents were asked about whom usually pays for the air travel tickets. They were able to choose from ‘themselves’ (57.7% n=285) or ‘paid by others’ (e.g. husband, parents) (42.3% n= 209). A comparison group analysis can unveil any differences between these groups in regards to their behaviour towards using the airline website.

**A- Mean Scores:**

The t-test results indicated that there are significant differences between travellers paying themselves and travellers having their travel tickets paid by others. Using the Bonferroni corrected p value revealed two constructs showing differences. Using  $p > 0.05$  value reveals an extra three constructs different.

- **Perceived ease of use (PEOU) \*:** The significant difference of the mean scores were higher for travellers pay themselves (M= 5.69) than for Paid by Others (M=5.42) (t=2.523, p=.012, two-tailed). The difference in the means = 0.27.
- **e-Trust (ET) \*:** The significant difference of the mean scores were higher for travellers pay themselves (M=5.53) than for Paid By Others (M=5.28) (t=2.19, p=.03, two-tailed). The difference in the means = 0.25.
- **Price Perception (PP) \*\*:** The significant difference of the mean scores were higher for travellers pay themselves (M=4.63) than for paid by others (M=4.26) (t=2.8, p=.005, two-tailed). The difference in the means = 0.37.
- **e-Satisfaction (ES) \*:** The significant difference of the mean scores were higher for travellers pay themselves (M= 5.15) than for Paid by Others (M=4.8) (t=2.5, p=.013, two-tailed). The difference in the means = 0.315.
- **Intention to Purchase (IP) \*\*:** The significant difference of the mean scores were higher for travellers pay themselves (M=5.55) than for Paid by Others (M=5.04) (t=3.7, p=.000, two-tailed). The difference in the means = 0.51.

**Table A.40: t-test for Type of funding**

	t	P(2-tailed)	Sig	Mean Score		Mean Difference
				Self-Funded	Paid By Others	
Perceived usefulness (PU)	1.196	0.232		5.9032	5.7818	-.12140
Perceived ease of use (PEOU)	2.523	0.012	*	5.6891	5.4182	-.27090
Web Quality (WQ)	1.905	0.057		5.3526	5.1453	-.20730
e-Trust (ET)	2.182	.030	*	5.5298	5.2799	-.24990
Airline reputation (AR)	-.759-	0.448		4.2904	4.4199	.12950
Price Perception (PP)	2.802	0.005	**	4.6309	4.2612	-.36970
e-Satisfaction (ES)	2.496	0.013	*	5.1544	4.8397	-.31470
Intention to Purchase (IP)	3.706	.000	**	5.5502	5.0383	-.51190

\* significant at  $p < 0.05$  level \*\* Significant at  $p < 0.0063$  level

### B- Invariance Analysis:

**Step 1:** By testing the model fits for users who pay themselves (Self-Funded) and users who are funded by others (Non-Self-Funded) separately, both had **good** model fits as seen in Table A.41.

**Table A.41: Measurement model fits for each gender groups**

Groups	CMIN	DF	CMIN/DF	CFI	RMSEA
Self-Funded	1769.844	751	2.357	0.921	0.069
Non-Self- Funded	1717.58	751	2.287	0.905	0.079

**Step 2:** Checking for invariance of the measurement weights revealed a p value of = 0.006 (below 0.05), which indicates that full metric invariance cannot be established. Therefore, **partial** metric invariance should be used. This is achieved by freeing paths that have large estimate differences between both groups. The researcher had to free paths to four items in order to reach a suitable p value. The paths freed are PEOU5, PU4, PU5, and ES5. It was possible to get a  $\Delta DF = 29$  and  $\Delta \chi^2 = 36.995$  with a  $p = 0.146$ , Thus partial metric invariance is established. Obtaining this result allows the researcher to continue with the next step of the analysis.

**Step 3:** Structural model partial metric invariance is used to check the structural weight for both groups by running the model with all regression paths constrained. The results were  $\Delta DF = 11$ ,  $\Delta \chi^2 = 25.079$ , and  $p = 0.009$  (below the value 0.05). **This indicates that the model is significantly different between respondents Self-Funded and Non-Self-Funded.** In order to identify which structural paths are significantly different (which

regression path(s) are non-invariant), step 4 should be carried out. Table A.42 below demonstrates the results for the structural model fits across both groups:

**Table 0.42: Structural model fits across both Gender groups**

Groups	CMIN	DF	CMIN/DF	CFI	RMSEA
Self-Funded/Non	3633.522	1524	2.384	.91	0.053

**Step 4:** In order to check which relationship is significantly different between groups, all paths in the model should be freed and only one path at a time is constrained. Table A.43 show the significance results after re-running the model eleven times for each relationship.

**Table 0.43: Structural weight equivalence across both groups**

Paths	Self-Funded			Non-Self-Funded			Invariance	
	R Weight	CR	p	R Weight	CR	p	$\Delta\chi^2$	p
ES > IP	0.401	4.664	***	0.221	2.388	0.017	2.051	0.152
WQ > ES	0.56	6.828	***	0.615	6.366	***	0.203	0.653
PP > ES	0.203	5.983	***	0.282	6.673	***	2.233	0.135
PEOU > ES	0.198	2.392	0.017	0.138	1.596	0.110	0.249	0.618
ET > ES	0.179	2.852	0.004	0.205	2.867	0.004	0.071	0.789
AR > ET	0.147	4.819	***	0.221	5.697	***	2.325	0.127
PU > IP	0.187	2.35	0.019	0.177	2.217	0.027	0.008	0.928
PEOU > PU	0.606	10.758	***	0.688	10.123	***	1.009	0.315
ET > IP	0.026	0.306	0.760	0.47	5.173	***	12.78	0.000
PP > IP	0.054	1.055	0.291	0.114	1.92	0.055	0.587	0.444
PEOU > ET	0.583	9.244	***	0.518	7.304	***	0.512	0.474

There is significant difference in the regression path between ET and IP. Users who are not paying for their tickets themselves perceive E-Trust to be more influential toward their intention to purchase compared to their counterparts who pay for their tickets themselves.

## A.5 Summary

In this Appendix, group analyses were conducted for thirteen different categories. The categories involve three areas:

- Demographics: Gender, Age, Education, Income, Occupation, Location
- Internet Experience

- Travel Habits: Airline country of origin, Actual purchase, Travel Frequency, motivation of travel, domestic or international travellers, Self-Funded or paid by others.

All categories either consisted of only two groups naturally or were intentionally split into two. This was due to a lack of data for some groups and also for simplification. Following this, two main types of group analyses were conducted for each group. First, explorations of the mean differences between groups (t-tests) were carried out in order to assist the respondents' perceptions of each construct. Next, invariance analysis was used to explore the differences in the relationship in the model for each group. Table A.44 and Table A.45 provide a summary of the findings for both analyses. Table A.44 highlights that there are five categories showing significant differences in the mean scores for all or some of the variables. Table A.45, on the other hand, reveals that four categories moderate the relationships between constructs in the model.

**Table 0.44: Summary for the mean scores difference between group**

		Perceived usefulness (PU)	Perceived ease of use (PEOU)	Web Quality (WQ)	e-Trust (ET)	Airline reputation (AR)	Price Perception (PP)	e-Satisfaction (ES)	Intention to Purchase (IP)
Demographics	Gender						* Male		* Male
	Age	No any Significant Differences							
	Education	No any Significant Differences							
	Income	No any Significant Differences							
	Occupation	* Professionals					* Students		
	Location	* Inside Saudi					* Outside Saudi		
Internet Experience	No any Significant Differences								
Travel Habits	Airline: Saudi or Non	** Non Saudi	** Non Saudi	** Non Saudi	** Non Saudi	** Non Saudi	** Non Saudi	** Non Saudi	** Non Saudi
	Buyers or Non-Buyers	** Buyers		* Buyers	** Buyers			* Buyers	** Buyers
	Travel Frequency			* Less frequent		** Less frequent		* Less frequent	
	Motivation of Travel						* Less Serious		
	Domestic or International		* International	** International		** International	** International	** International	* International
	Self-funded or not		* Self-Funded		* Self-Funded		** Self-Funded	* Self-Funded	** Self-Funded

\* Significant at  $p < 0.05$  level \*\*Significant at  $p < 0.0063$  level, the group with the higher score of mean is written in the block under the significance level. For example the professionals perceived airlines website are more useful than students while students perceived airlines as more reputational.

**Table 0.45: Summary of invariance analysis between groups**

		<b>Step 1</b>	<b>Step 2</b>	<b>Step 3</b>	<b>Step 4</b>
		<b>Measurement invariance analysis</b>	<b>Factor Structure Equivalence</b>	<b>Structural Weights Equivalence</b>	<b>Moderation effect</b>
<b>Demographics</b>	<b>Gender</b>	Non-invariance : Fixed	Partial Metric Invariance	Invariant	No moderation effect
	<b>Age</b>	Non-invariance : Fixed	Partial Metric Invariance	Invariant	No moderation effect
	<b>Education</b>	Invariant	Partial Metric Invariance	Invariant	No moderation effect
	<b>Income</b>	Invariant	Partial Metric Invariance	Not Invariant	<b>WQ --&gt; ES , High Income PP --&gt; ES , Low Income</b>
	<b>Occupation</b>	Invariant	Full Metric Invariance	Not Invariant	<b>PP --&gt; ES , Students PEOU --&gt; PU , Students</b>
	<b>Location</b>	Non-invariance : Fixed	Partial Metric Invariance	Not Invariant	<b>PP --&gt; ES , Outside ET --&gt; IP , Inside</b>
<b>Internet Experience</b>		Invariant	Full Metric Invariance	Invariant	No moderation effect
<b>Travel Habits</b>	<b>Saudi - Non Airlines</b>	Non-invariance : Fixed	Partial Metric Invariance	Invariant	No moderation effect
	<b>Buyers or Non-Buyers</b>	Non-invariance : Fixed	Full Metric Invariance	Invariant	No moderation effect
	<b>Travel Frequency</b>	Invariant	Full Metric Invariance	Invariant	No moderation effect
	<b>Motivation of Travel</b>	Invariant	Full Metric Invariance	Invariant	No moderation effect
	<b>Domestic or International</b>	Invariant	Full Metric Invariance	Invariant	No moderation effect
	<b>Self-funded or not</b>	Invariant	Partial Metric Invariance	Not Invariant	<b>ET --&gt; IP , Non-Self-Funded</b>

\*The relationships with the significant difference are highlighted in the last column with the associated group affecting the relationship higher. For example, people with higher income think that web quality has higher influence on e-satisfaction than the lower income respondents do.



**The End**