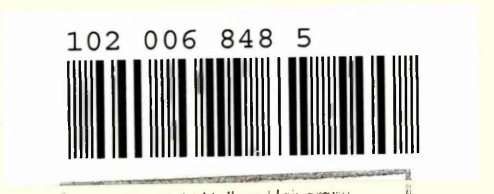

An investigation into factors of e-CRM influencing customer retention in Afriqiyah Airways

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In the name of Allah, the Beneficent, the Merciful
"Oh my Lord increase me in knowledge"
God Almighty has spoken the truth

ABSTRACT

The problem identified in this research is the lack of understanding and knowledge of the factors that produce a propensity towards e-CRM as a predictor of continued customer use. To this end this study investigated the factors contributing to attitude towards the use of e-CRM of that would positively influence customers of Afriqiyah Airways (AAW), contributing to customer retention. The research developed a modified Technology Acceptance Model (TAM) incorporating these factors. The general TAM model proposes that external variables influence perception of ease of use and perception of usefulness of a technology, with perception as a predictor for the adoption of that technology. In our proposed model, the external variables consisted of Trust, Pre-Sales Services, and After-Sales Services, which influenced the variable Perception (borrowed from TAM) that combined perceived ease of use and perceived usefulness of the e-CRM system. The research collected data using a survey questionnaire disseminated to 306 customers of Afriqiyah Airways (AAW) in the United Kingdom. Exploratory and Confirmatory factor analysis established the validity of the survey questionnaire. The partial least squares method was employed to analyse the Customer Retention Modified TAM Model used in the study, while simple and multiple regression analysis were used to test the hypotheses of the study concerning the relationships among the variables. The findings of this study, however, demonstrate that Trust plays a direct and significant role on Attitude toward using e-CRM that is not mediated by Perception, although it accounted for less variance in Attitude than it did for Perception .These results imply that Trust may be one of the most important external variables for developing a propensity towards e-CRM among customers, which suggests that Afriqiyah Airways (AAW) and other similar airlines should ensure that elements of their e-CRM system contribute to customers' subjective evaluation of trustworthiness of the system. Moreover, the findings also demonstrate that the customer's experience with Pre-Sales Services and After-Sales Services can have an effect on Attitude, which suggests that firms should ensure their customer care systems meet the expectations of users of the online system. The findings also have implications for Afriqiyah and other similar firms by indicating that both sale stages can play an important role in the customer's perceptions of an e-CRM system. Hence; when considered together, the finding that Trust, Pre-Sales Services and After-Sales Services each make an important contribution to variance in Perception implies that these external variables antecedent to Perception are necessary for customers to develop a propensity towards e-CRM. In

conclusion, the finding that the Customer Retention Modified TAM Model accounts for approximately more than half of the variance in Attitude and that there are rich inter-relationships with each other suggests that the four variables of Trust, Pre-Sales Services and After-Sales Services are important predictive factors for explaining the variance in Attitude. This suggests that firms seeking to improve attitudes towards e-CRM should focus on these four constructs to ensure that the elements of the e-CRM system meet with customer expectations. Hence, the final finding of the study is the determination that a positive attitude toward e-CRM use is a necessary prerequisite for customer retention.

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Hearty thanks must be passed to my mother and every single member of my family. I might not have been able to complete this without their love, prayers and support.
Lastly, I hope that this thesis will contribute and accelerate the successful development of e-CRM in Libya.

DEDICATION

I dedicate this thesis to the memory of my beloved father, who filled me with the passion to pursue the beauty of life; also to my mother, brothers and sisters, without whose precious prayers and support I would not have been able to finish this work.

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ABBREVIATIONS

1.	AA	American Airlines
2.	AAW	Afriqiyah Airways
3.	B2B	Business-to-business
4.	B2C	Business-to-consumer
5.	BA	British Airways
6.	C2C	Consumer-to-consumer
7.	CLV	Central Leverage value
8.	CRM	Customer Relationship Management
9.	E-CRM	Electronic Customer Relationship Management
10.	GLM	General Linear Model
11.	IT	Information Technology
12.	KMO	The Kaiser-Meyer-Olkin
13.	PCA	Principle Component Analysis
14.	PEOU	Perceived Ease of Use
15.	PLS	Partial Least Squares
16.	PU	Perceived Usefulness
17.	QA	Qatar Airlines
18.	RJ	Royal Jordanian
19.	RS	Computerized Reservation System
20.	SEM	Structural Equation Modelling
21.	SIA	Singapore Airlines
22.	SPSS	Packages for the Social Sciences
23.	TA	Tunisair
24.	TAM	The Technology Acceptance Model
25.	VIF	Variable Inflation Factor

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Chapter One: Introduction

1.1 Introduction

This research concerns customer loyalty and customer retention, both of which are of paramount important in all areas of business. It has been observed that significantly more effort is required in getting new customers than in retaining existing customers; for example, Cheng and Chen (2009) stated that "it costs five times as much to attract a new customer as it does to retain an existing one". This research specifically looks at the introduction of technology in assessing customer retention, an area of research termed as electronic customer relationship management (e-CRM). However, CRM-customer relationship marketing, which underpins e-CRM, has a long tradition of assisting businesses with techniques to improve customer loyalty to a particular company or brand, and hence retention. This notion pervades all areas of commerce or business, from supermarkets who were the first to use loyalty cards to gather data to personalise the reward system, more recently, airline companies who wish to provide a better quality of service by personalising their offers to meet individual needs.

This research looks at what features of e-CRM have a positive influence on airline customers, particularly those of Afriqiyah Airways (AAW), a nationally-owned Libyan company that services the largest market share of airline passengers travelling within Libya, the African continent and world-wide. This company was considering introducing technology, in particular e-CRM, to retain its existing dominant share of the market. Moreover, the company, and in particular a number of senior executives, were keen to assist in cooperating with the aims and objectives of the research as well as providing access to its staff and customer base.

As a Libyan national, part of a large student community which frequently uses the airline, I was personally strongly motivated to conduct research that would contribute to improving customer experience, enhancing the company's aim of providing a quality service and retaining the existing customer base. I also hoped that these improvements would eventually lead to contributing to the economic and social wellbeing of Libya; however, it should be pointed out that these latter motivations are indirect and are not the focus of this research. The primary focus of this research is to assess the deployment of a technology, namely e-CRM, and its impact on customer retention. In doing so, those features of e-CRM that significantly influence customer retention may be determined.

1.2 Context of the Study

Relationship marketing has become important for firms in both manufacturing and service industries, and is intended to establish, develop and maintain customer loyalty (Ab Hamid and McGrath, 2005). This marketing approach attempts to treat each customer in an individualised manner, which enhances the impression that the customer has a personal relationship with the firm. Effective relationship marketing fosters the impression among customers that they are in a collaborative and mutually dependent relationship with the firm, which fosters a positive attitude toward the firm (Wu and Wu, 2005). Because of the perception of the existence of a personal relationship and the positive attitude, the customer is more likely to make future purchases from the firm, thereby improving customer loyalty and customer retention. Higher customer retention provides a benefit for firms by reducing the marketing costs for attracting new customers and by increasing the revenue they can generate from existing customers (Feinberg, et al., 2002).

Customer relationship management (CRM) refers to the processes the firm uses to engage in relationship marketing. The processes are generally automated to provide customer care specialists with information about the customer as rapidly as possible during a customer contact session (Ab Hamid, 2005). The processes used in CRM are related to the three categories of marketing, sales, and service. The marketing processes support functions such as branding, customer acquisition, and obtaining information from customers about their preferences to develop product offerings to meet their perceived needs (Ross, 2005). The sales processes control the sale and distribution of the product to ensure that the customer is satisfied with the transaction. The service processes relate to all methods used to communicate with customers, including call centre management and after-sales support. When appropriately used, the CRM system allows a firm to implement a marketing strategy that integrates technology and all business processes to focus on the customer (Feinberg and Kadem, 2002). Implementation of a CRM system often requires firms to reorganise their internal business processes to ensure that all activities result in greater customer satisfaction (Bradshaw and Bash, 2001). Firms cannot perform effective CRM without the support of technology systems to collect information and make it available when the customer interacts with the firm (Wu and Wu, 2005).

CRM is intended to improve customer retention by increasing customer satisfaction with all phases of contact with the firm, including pre-sales information-seeking, the conduct of the sales transaction, and the customer care provided after the sales transaction. It is based on the assumption that higher customer satisfaction with the transaction will lead to customer loyalty and the intention to purchase goods and services from the firm in the future (La, 2005). The intention of the satisfied customer to patronise the firm in the future is an attitude that theoretically leads to the action of repeat purchasing. In this general theoretical model, CRM manipulates factors that produce customer satisfaction, which is a predictor of customer loyalty and customer retention. The specific way in which the firm implements a CRM strategy, however, depends on the type of industry and the nature of the channels the firm uses to communicate with customers, and this is what this research sets out to examine.

1.3 Key themes and direction of the research

The proliferation of internet usage has led firms to adopt electronic CRM (e-CRM) processes as a means to develop and maintain personalised customer relationships. E-CRM is term that generally refers to the use of a website, email, chat, and other internet-enabled technologies to support communications with customers (Ab Hamid, 2005). The internet functions as the primary channel of communication with the customer with e-CRM. To be effective for supporting customer relationships, the front-end internet-based components of the system must be linked to other back-end technologies such as a database, and must provide alternative methods for communications outside the internet channel. As a result, e-CRM is technology driven, with the ability of a firm to use technical resources to meet the perceived needs of the customer as the main factor in e-CRM effectiveness. At the same time, the e-CRM system functions as a subset of the larger CRM system established by a firm to manage its interactions with customers regardless of the channel the customer uses for communicating and interacting with the firm (Feinberg, et al. 2002). From this perspective, e-CRM is a subsidiary process that contributes to the ability of a firm to implement its overall CRM strategy (Wu and Wu, 2005). It does not function as a substitute for CRM, but rather as an important adjunct to the firm's CRM strategy.

An e-CRM system can be viewed as a three-stage process to improve customer satisfaction and customer retention (Belachew et al., 2007). The first stage uses back end information technology systems, such as a database and data warehouse, to acquire

information about customers. This information functions as the basis for customisation and for the firm to develop products and services meeting the perceived needs of the customers. The second stage uses an information technology system to differentiate customers by allowing them to select products and services that meet their needs and to match specific customers with products and services. The third stage involves relationship building by using e-CRM features such as customisation and monitoring of a customer's behaviours when interacting with the company.

According to La (2005), E-CRM provides direct and indirect benefits to firms. As with any element of a firm's CRM system, it can reduce marketing costs associated with attracting new customers, thereby increasing the firm's profitability. E-CRM can reduce the cost of a firm's overall CRM system by automating many of the processes related to communications and data retrieval (Ross, 2005). However; it must be stated that this only holds provided everything else remains constant. Because most customers using an e-CRM system do not need real-time assistance from a customer care specialist, the firm can reduce its staff costs. It can also produce more efficient work flow when the customer does require assistance by presenting the customer care specialist with a full history of the communications, preferences, and issues specific to the customer. The capacity of e-CRM systems to allow customers to personalise or customise their use of the system also allows a firm to segment its customers and sales incentives more effectively based on individual preferences (Ab Hamid, 2005). An e-CRM system may also benefit the firm by reducing the cost of acquiring marketing information because customers supply data about their preferences when interacting with the e-CRM system. In addition to these specific tactical benefits of e-CRM, it may also provide a firm with a competitive advantage by differentiating services from competitors (Belachew et al., 2007).

Despite the benefits of e-CRM, many firms have not been successful with using a system to improve customer satisfaction and increase customer retention. Research investigating the effectiveness of e-CRM for meeting company objectives indicates that customers consider more than half of the systems as failures because of their inability to meet the perceived needs of the customer (Khalifa and Shen, 2009). The shortcomings in e-CRM systems may be the result of firms developing and implementing features that the firm believes will increase customer satisfaction, but which in fact do not do so. As a result, firms often consider the use of technology to support personalisation or

customisation of the website as the key element influencing customer satisfaction with e-CRM, although this element is ubiquitous in e-CRM (Nusair and Kandampully, 2006). Evidence from prior research, however, suggests that many factors can influence customer satisfaction with an e-CRM system, including trust (Flavian and Guinalu, 2006), perception of price transparency and fairness (Zhang and Feng, 2009), and availability of multiple interactive communication channels for problem resolution (Feinberg and Kadem, 2002).

Prior research has not identified the full range of factors by which e-CRM influences customer satisfaction, with customer satisfaction as a proxy measure for the effectiveness of the e-CRM system (Khalifa and Shen, 2009). In general, for an e-CRM system to be effective in improving customer satisfaction and retention, it must be perceived by customers as easy to use, provide services such as customisation valued by customers, offer the information-gathering functions desired by customers, and contain adequate security assurances (Khalifa and Shen, 2009). The e-CRM system must also provide customers with specific information about the way they can interact with a website or customer care staff to obtain more data about the company and services or to resolve a problem. This information can include methods of internet and real-time contact with customer care representatives or various types of opt-in programmes for promotions such as email announcements (Maswera, Dawson, and Edwards, 2008). Because of the substantial investment in developing and implementing an e-CRM system and its importance for competitive positioning, understanding the factors contributing to e-CRM effectiveness as well as the importance attached to individual factors is essential for firms to provide those features in a system that produce customer satisfaction.

For an e-CRM to increase customer satisfaction with the firm and thereby improve customer retention, customers must have a sufficiently positive experience with the e-CRM system to continue using it as a means to interact with the company (Belachew et al., 2007). The technology acceptance model (TAM) is a theory relevant to e-CRM usage by customers because it postulates the existence of key variables, applicable to any technology, that function as predictors for use of that technology (Hirschheim, 2007). In the TAM, external variables, such as personality characteristics, the purpose for using a technology, and prior experience with similar technologies, influence the dual constructs of perception of usefulness and perceived ease of use of the technology.

These two constructs influence the attitude of a user towards the technology, with a positive attitude being an effective predictor of the intention to use the technology. The TAM can be modified to assist with the identification of those elements of an e-CRM system that increase the ease of use of the system and its perceived usefulness (Wu and Wu, 2005). Based on the TAM model, a customer will have a propensity toward e-CRM and continue to use the system if that customer perceives it as easy to use and useful for meeting the customer's perceived needs. A positive attitude can be considered as analogous to customer satisfaction because it represents a subjective evaluation of all elements of the experience of using e-CRM. Therefore, we can see that e-CRM offers considerable potential benefits for customer retention, but there is some considerable scope for determining the factors that positively influence these benefits: this is what this research sets out to investigate.

1.4 Airlines Servicing Libya and Afriqiyah Airways

The airline industry has extensively deployed e-CRM systems because of their ability to reduce costs by supporting computerised booking systems (Buhalis, 2004). The airline industry can be considered as representative of the use of e-CRM in a service industry, with e-CRM functioning as a primary channel of communication with a customer prior to a sale, at the time of the sale, and after the sale has been completed. At the same time, the development of e-CRM systems in the airline industry is an example of rapid technology diffusion with the expectation that customers will adopt the technology as their primary means of communicating with the company (Sanayei et al,. 2010). Customers can make bookings online without the need for a travel agent to act as intermediary in the transaction.

This allows the airline to save the commission fee that it would pay to an agent for facilitating the transaction. It also reduces the transaction processing and administrative costs by automating the payment and ticket delivery. At the same time, the e-CRM system provides the airline with the ability to manage its relationships with customers more closely through easier information search and greater pricing transparency. The use of e-CRM systems in the airline industry has resulted in all competitors adopting the core elements of e-CRM, such as privacy controls and customisation, with innovations introduced by one airline rapidly copied by its competitors (Stockdale, 2006). As a result, the effectiveness of an airline's e-CRM system for establishing and maintaining competitive advantage depends on the individual airline's ability to provide services that improve customer satisfaction. In effect, merely providing a website that allows a

customer to obtain price and schedule information and to purchase a ticket may not be sufficient to foster the perception of ease of use and usefulness necessary for a propensity towards the e-CRM system.

There are numerous airlines providing services to and within Libya, such as Aeroflot Russian Airlines, Air Algerie, Air Malta, Alitalia, Austrian Airlines, Osterreichische, Luftverkehrs AG, Aviation Enterprise TESIS Limited, Blue Panorama Airlines, British Airways, Deutsche Lufthansa, Egyptair, Emirates, Hemus Air, Libyan Arab Airlines, Jat Airways, KLM, MALEV Hungarian Airlines, Olympic Airlines, Pakistan International Airlines, Qatar Airways, Royal Air Maroc, Royal Jordanian, Saudi Arabian Airlines, Sudan Airways, Swiss International Airlines Ltd, Syrian Arab Airlines, TAROM, Tunisair, Turkish Airlines, Tyrolean Airways and Ukraine International Airlines .

Afriqiyah Airways was rapidly forced to develop the means to deal with many competitors, including competition with the established national carriers Libyan Arab Airlines, but the competition also depends on the route being flown. Alongside the Libyan Arab airline, Afriqiyah is competing with other main contenders such as Royal Air Maroc, Ethiopian Airlines, Kenya Airways, Air France and also British airways with some shared destinations and popular routes, especially to Africa and Europe (whichairline.com 2010-2011). There are competitors because other airlines see there is an opportunity to make profits on the routes Afriqiyah airways flies. Competing with other airlines is good for the consumer as it keeps the airline honest. If Afriqiyah Airways only flew a certain route, it would have a monopoly and could charge higher fares. Airline companies compete with each other on certain features such as "price, costs, customer service, efficiency and productivity. They often use discount fares to attract new customers and undermine their competitors. Addition, airlines use low fare in slow times of business to cover costs and fill planes" (Hameed, 2010). Therefore, the ability for Afriqiyah airways to retain customers depends on the customer's perception of the quality of service.

Afriqiyah Airways is quite a new company which uses an e-CRM system similar to the systems used by other airlines. The company was established in April 2001 and commenced operations on 1 December 2001. Afriqiyah Airways is wholly owned by the Libyan government and in 2009 had more than 1,200 employees. The company has its headquarters in Tripoli, Libya; its major base is Tripoli International Airport. The company services domestic destinations in Libya between Tripoli, Benghazi and Sebha

as well as running worldwide programmed services to over 25 destinations in Africa, Asia, the Middle East, and Europe, including a daily trip to the United Kingdom. When it was formed, Afriqiyah with its central point in Tripoli had hopes of becoming Africa's favourite airline.

The company is related with Arab Air Carriers Organization and the International Air Transport Association (IATA). At the beginning, the airline started operating with Boeing 737-400 aircraft, but by the year 2003 it launched all Airbuses by signing a memorandum of understanding for the possession of six Airbus A320s and three Airbus A319s in addition to five more option aircrafts, as well as for three more Airbus A330-200s. The A320 and A319 aircraft are located into service from the company's major base at Tripoli international airport to seventeen destinations in North-West, Central Africa and the Middle East, and also to various European destinations such as France, Belgium, the United Kingdom, Italy and the Netherlands. The A319 aircraft contain 124 travellers in a two-class configuration while the A320 aircraft seat 150 in relaxed two class shapes. The A330 aircraft, which have a three-class arrangement with 253 seats, serve the long-distance trips to Southern Africa, Asia and Europe. In 2007 and during the Paris Flight Exhibition, Afriqiyah airways subscribed to a contract with the Airbus Company for the purchase of eleven new planes including the five (A-320) and six (A 350) models, besides the right to purchase four more types of the same plane (Afriqiyahairways, 2010).

Afriqiyah Chief Executive Officer Mr Rammah Ettir estimated that "70 percent of the airline's business consists of passengers transiting Tripoli on their way between Europe and various African capitals; the remaining 30 percent of traffic either originates or finishes in Libya; only 15 percent to 20 percent of Afriqiyah's passengers are bona fide tourist" (Clark, 2010). In 2006 the company generated revenue estimated to be US$120 million. However, the increasing business pressures faced by many airlines have also affected Afriqiyah Airways. In recent years the company has seen a downturn in its profits and only slight improvements in numbers of customers carried. In terms of customers, the majority of the increase in numbers is due to carriage of international customers from outside the country. However, the drop in the company's overall profits has prompted a major review of the business strategy of the company, including a major review of its marketing strategy. A major feature of this review has been the potential application of electronic commerce and marketing to improve customer retention and

improve overall performance of the company's business. Therefore, a discussion took place about whether or not to enhance the deployment of an e-CRM system to help the company become more efficient and grow revenue to increase its value in a short period of time.

It would have been desirable to have looked at the improvement in the business model, particular the revenue generated for a "Libyan based" airline that was going to deploy e-CRM. Unfortunately there was none available. Another factor that was quite likely to contribute to not being able to pursue a business-oriented direction was that getting information from the company and national bodies about market share, revenue generated, proportion of GDP that can be attributed to airlines etc in Libya would be based on personal experience. Informal discussions with key individuals prior to the research indicated strongly that this would be extremely difficult, if not impossible. Moreover, there was serious concern that introducing a major business-oriented direction would necessarily widen the scope of the research and could lead to instability if information regarding business parameters was not available, increasing the complexity involved. Therefore, it was highly likely that pursuing a business-oriented direction would be very difficult and widen the scope too far, possibly making the research unfeasible. For that reason it was decided to focus primarily on the success of the deployment of technology, namely e-CRM, on "Afriqiyah Airways" and, depending upon the extent of financial information available, and then see whether it was possible to assess the impact of their decision on revenue and its competitors.

"Afriqiyah Airways is operating to most of the defunct Air Afrique member countries transforming Tripoli into a hub for passengers connecting to Europe and the Middle East" Folly-kossi (2006). In addition, the Libyan government primarily supported Afriqiyah Airways by designating it for all the new routes which were opened, to the detriment of its legacy government-owned carrier Libyan Airlines (Schlumberger, 2010). According to Mr Rammah Ettir, CEO of Afriqiyah, 70% of Afriqiyah's transit traffic is flow traffic and 30% is local, so the company is trying to increase local traffic to get more market share between Libya, Europe and Asia (Ettir, 2011). The Revenue Passenger Kilometers (RPK) of Afriqiyah airways has increased from 1.260 million to 1.596 million over the period 2008 to 2009 with total growth of 26.7%. Similarly, passenger capacity on its aircraft – measured in available seat kilometers (ASK) has increased from 2,699 million in 2008 to 3,240 million in 2009, which resulted in total

growth of 20.1% during this time (Arab Air Carriers Organization, 2011). Therefore, at the time that Afriqiyah airways was expanding its route service, executives realized that the old system was outdated and began searching for a new technology in order for the company to compete with its rivals. Hence, this provided strong justification for choosing Afriqiyah airways. A number of other reasons to support this justification were as follows;

- Afriqiyah airways is a company with a vision to become the premier airline serving and linking Africa to the world, but in recent years it has seen its profits drop compared to competitors in the region.
- The company allowed us access to its customers and staff information.
- The management of the company are considering deploying e-CRM to increase the company's revenue in order to compete with other international airlines.

Because of the difficulties firms encounter with developing and implementing effective e-CRM systems, as noted by Khalifa and Shen (2009), airlines such as Afriqiyah Airways as well as other firms in service industries require specific information about the factors in an e-CRM system that creates a propensity toward the system, to support continued customer usage. Merely implementing an e-CRM system with standardised elements used by all competitors in an industry, such as personalisation capabilities, a privacy policy, and options to telephone a call centre, may not be sufficient to encourage customers to use the system. In addition, differences may exist in the features of an e-CRM system that customers' value in the three phases of e-CRM usage - pre-sales information gathering, the sales transaction, and after-sales customer care.

In summary, the long-term vision for the firm is to become the premier airline serving Africa and connecting African and European capitals. The airline maintains a website with some e-CRM features that provide scheduling and pricing information. The e-CRM system at Afriqiyah Airways can be considered typical of the approach to e-CRM in the airline industry because it is very important to the airline for establishing and maintaining strong customer relationships.

1.5 Aim, Objectives and Research Questions

The aim of this quantitative, cross-sectional study was to develop an e-CRM framework to improve and enhance customer retention at Afriqiyah Airways. The study tested the relationship of the variable constructs of Trust, Pre-Sales Services, and After-Sales

Services on Perception of users and Attitude towards use of an e-CRM system among customers of Afriqiyah Airways in the United Kingdom with data collected by a survey questionnaire. The research was based on a modified TAM model developed for an e-CRM system of the airline industry. The modifications of the TAM substituted factors identified as relevant to customer perceptions of e-CRM for the generic construct of external variables found in the traditional TAM. In this modified TAM model, Trust, Pre-Sales Services, and After-Sales Services are analogous to the independent external variables and function as predictors of Perception of users of the ease of use and usefulness of the e-CRM system. Perception as an intermediate variable is the key predictor of Attitude towards e-CRM use among customers, with Attitude as the dependent variable in the study. The testing of the theoretical model used inferential statistical methods to determine the amount of variance each of the factors accounts for in the construct of attitude, with Attitude presumed to be the primary predictor of continued use of the e-CRM system and customer retention. The research was also based on the theoretical premise that a positive attitude toward an e-CRM system leads to increased use of e-CRM to interact with a company, which increases customer loyalty and customer retention.

Based on the aim of the study, the individual objectives are:

1. To determine customer needs and the mechanisms which create service satisfaction with e-CRM in order to propose key aspects for an e-CRM framework for Afriqiyah Airways which are intended to provide a more thorough understanding of the way in which these factors affect customer retention at the airline.
2. To carry out an empirical investigation of e-CRM through a case study relying on field data to ascertain the current status of CRM and e-CRM at Afriqiyah Airways and to assess the relevance of the key aspects proposed in the modified TAM model for the e-CRM system at the airline.
3. To reveal the key factors of e-CRM that influence customer retention and explain the richness of the relationship between them which can then be synthesised into a framework that has been empirically assessed.

The review of the literature examining e-CRM provided a theoretical foundation for the development of a modified TAM model to support an exploration of the factors influencing e-CRM conducted in this study. Additionally, it also revealed gaps in the research and knowledge related to the factors contributing to attitudes towards e-CRM

use and customer retention. The gaps in the literature included insufficient research examining the effectiveness of e-CRM in the airline industry in pre-sales, sale, and after-sales stages of e-CRM use by customers. The findings of previous researchers also focused on identifying individual variables that contribute to user perceptions of e-CRM systems and did not attempt to develop a model functioning as a framework to accommodate constructs with multiple variables. A critical review of the literature was the basis for formulating the principal research question for the study and three sub-research questions.

The principal research question of the study was:
To what extent does the model underlying the study reflect the role of Trust, Pre-Sales Services, After-Sales Services, and Perception on Attitude towards use of an e-CRM system at Afriqiyah Airways?

This research question is intended to fill the gap in the literature concerning the components of a model explaining the factors contributing to consumer attitudes towards e-CRM. It is based on the assumption that positive attitudes towards e-CRM will lead to increased use of the system and higher customer retention. It is also based on the premise that greater knowledge and understanding of the factors accounting for variance in attitude will enable firms to improve e-CRM to foster a propensity towards use among customers. Although the research question focuses on Afriqiyah Airways, the use of inferential statistical methods supports the ability to generalise the findings.

The first research sub-question of the study was: What is the effect on customer retention of the adoption of e-CRM at Afriqiyah Airways? This research question examines the relationship of the e-CRM system at Afriqiyah Airways to the firm's objective of improving customer retention. It is based on the premise that customer satisfaction with e-CRM leads to increased usage, which improves customer retention.

The second research sub-question of the study was: What factors affect the adoption of e-CRM and influence customer retention? This research question examines the factors related to e-CRM that influence customers to use the system, with increased use related to higher customer retention. This research question examines the antecedent variables affecting customer attitude toward e-CRM, which is a predictor of customer use of e-CRM.

The third research sub-question of the study was: Are there direct relationships between the factors affecting the adoption of e-CRM and attitude towards use of e-CRM, and are the factors interrelated? This research question examines the relationships among the factors to determine the amount of influence they exert individually on the adoption of e-CRM by customers of Afriqiyah Airways.

This research makes a theoretical contribution by developing and validating a modified TAM for e-CRM. While the theory underlying adoption of technology suggests that perceived ease of use and perceived usefulness of a technology are the key predictors of technology adoption, the validity of this premise for the use of e-CRM has not been extensively examined. A more significant theoretical issue is the identification of the external factors that influence perception of ease of use and perception of usefulness, with the technology acceptance model postulating that these antecedent factors are critical for perception. While some previous research has relied on the TAM to support investigations of e-CRM, it has not fully identified the relationship between specific external variables and perception. In addition, previous research has not determined whether interactions exist among the external variables or whether any external variables have a direct influence on attitude towards the e-CRM system that is not moderated by perception. The research findings from this study extend the theoretical model of e-CRM to provide a better understanding of the way in which the elements of the e-CRM system influence customer attitude towards use of the system and their ultimate influence on customer retention.

The research makes a practical contribution by identifying the factors influencing adoption of e-CRM, which firms can use to ensure that their e-CRM systems contain the elements that customers value as a means of improving customer retention. The research also has particular practical relevance to the airline industry, which relies heavily on e-CRM to maintain relationships with customers. The study provides key decision makers with specific information about those factors in e-CRM that customers perceive as contributing to ease of use and usefulness of the system. As a result, firms can ensure that their e-CRM systems incorporate these factors in the system design. The research also provides them with information about the way in which customer attitudes towards the e-CRM system contribute to continued use and hence customer retention. This type of information is valuable for general CRM planning and for improving the contribution of e-CRM to a firm's overall CRM strategy. The research is particularly

relevant to airline companies and other service organisations because the study was based on customers of Afriqiyah Airways, and reflects the perceptions and attitudes of customers using e-CRM to purchase transportation services.

1.6 Thesis Structure

This section contains an overview of the thesis structure, which begins with the current introductory chapter. Chapter 2 of the thesis presents a review of literature related to CRM, e-CRM, and adoption of technology. The literature review discusses the principles underlying CRM and its importance for improving customer retention. It also examines the development of e-CRM as part of the overall CRM strategy of a firm. Chapter 3 presents the theoretical model supporting the research, which is a modified form of the TAM. The chapter discusses the TAM and proposes a modified customer retention TAM model for application to e-CRM. The chapter also examines the elements contributing to the variable constructs of Trust, Pre-Sales Services, After-Sales Services, Perception, and Attitude contained in the modified customer retention TAM model. Chapter 4 contains the research design and the methodology used in the study: it discusses the justification for using a quantitative research design relying on the positivist paradigm. It also presents information on sampling, data collection procedures, and the survey questionnaire used to collect data. The chapter explains the data analysis methods, including the approach for assessing reliability and validity of the survey questionnaire. Chapter 5 of the thesis contains the descriptive statistics produced by the respondents to the survey questionnaire and the exploratory and confirmatory factor analysis used to establish the reliability and validity of the survey questionnaire. Chapter 6 presents the results of the model testing, using partial least squares for the analysis, and the results of the hypotheses testing using simple and multiple regression analysis. The final chapter of the thesis is Chapter 7, which contains a discussion of the findings of the study with reference to the literature and the research questions. It also contains conclusions for the application of the modified TAM for use with e-CRM.

1.7 Summary

E-CRM is part of a firm's overall CRM strategy, which ensures that the business processes focus on customer needs. E-CRM relies on the internet as a channel for communication and interaction with the customer, with customer satisfaction from the use of e-CRM related to increased customer retention. Despite the benefits from

effective e-CRM, many firms have not used e-CRM successfully to improve customer retention, and the range of factors contributing to a positive attitude toward e-CRM has not been fully investigated. E-CRM is particularly important for firms in the air transportation industry because of their use of the internet as a primary channel for interacting with customers to provide information, conduct sales transactions, and provide after-sales customer care. The aim of this quantitative, cross-sectional study is to develop an e-CRM framework to improve and enhance customer retention at Afriqiyah Airways, with the resulting model applicable to e-CRM used by firms in other industry contexts. The principal research question of the study is: To what extent does the model underlying the study reflect the role of Trust, Pre-Sales Services, After-Sales Services, and Perception on Attitude towards use of an e-CRM system at Afriqiyah Airways? The research makes a theoretical contribution by developing and validating a modified TAM for e-CRM and a practical contribution by identifying the factors influencing adoption of e-CRM that firms can use to increase customer usage of e-CRM, thereby improving customer retention.

Chapter Two: Literature Review

2.1 Introduction

Over the past few years, many airlines have experienced increased consumer power because of the choices for consumers created by the entry of low-cost competitors into the industry. Consumers have increased choices for air transportation fares and route schedules, which have resulted in the defection of loyal customers to competitors (Jiang et al., 2003). The current global recession has also created an extraordinarily challenging environment for airlines by amplifying a trend towards decreased passenger traffic that affected the industry prior to the recession (Bejar, 2009).

The importance for airlines of adopting an integrated customer relations management (CRM) strategy for attracting and retaining customers in an increasingly competitive market was noted by Boland et al. (2002). An integrated CRM strategy involves developing a process to communicate and provide value to customers at all points of customer contact with the firm. According to Buhalis (2004), airlines can obtain a competitive advantage from using CRM coupled with information technology tools such as computerized reservation systems and e-mail communications to enhance individual relationships with the customer, which is referred to as an electronic CRM system (e-CRM).

This research focuses on developing a framework to assist Afriqiyah Airlines Company with customer retention through the adoption of e-CRM. To support this specific research, it is necessary to investigate and understand CRM and e-CRM strategies adopted by other international airlines and the methods used to contend with competitors. In addition, the research focuses on the capabilities of a single firm's use of e-CRM to assess whether the system enables the firm to avoid market threats and to capture opportunities, with the findings applicable not only to airlines from the Middle East but also to airlines in general. To this end a literature review in this chapter examines previous research and analyses CRM, e-CRM, and their application in the airline industry.

2.2 Characterizing Customer Relationship Management (CRM)

According to Ngai et al. (2009), researchers do not agree on a precise definition of CRM. In general CRM refers to the broad organisational effort to establish, develop and maintain customer loyalty and to stimulate repeat purchasing behaviours over time (Ab-

Hamid and McGrath, 2005). It is a comprehensive process involving the use of business intelligence to attract and retain customers to maximise customer value to an organisation. In theory, customers prefer long-term relationships with firms because such relationships meet the psychological needs of customers for commitment (Kim et al., 2008). An effective CRM system relies on this psychological need to align the interests of the customer with the interests of the firm. CRM is based on relationship marketing theory in which commitment, communication, customer satisfaction, and trust are necessary to establish a long-term relationship between a firm and its customers (Flavian and Guinaliu, 2006).

In practise, CRM attempts to treat each customer in an individualised manner to create the impression that the customer has a personal relationship with the firm. In practical marketing applications, it requires a firm to shift focus away from the product and onto the customer. It is an attempt to coordinate 'marketing, selling, and service activities across intra-organisational and inter-organisational boundaries' to meet customer needs and expectations (Wu and Wu, 2005). The approach is intended to increase customer satisfaction with the firm, which is the foundation for customer retention (Bradshaw and Bash, 2001). Effective CRM requires a firm to manage customer interaction regardless of the channel of communication the customer selects (Feinberg et al., 2002). In addition, CRM collects data about customers from all customer contact points and mines the data to create a single view of the customer and to identify profiles of key customers that predict purchasing patterns (Al-Momani and Noor, 2009). Despoina (2008) identified four objectives for CRM: acquiring new customers; optimising margins; enhancing value of existing customers; and customer retention. Our focus is the latter of customer retention.

Chen et al. (2010) developed a model for businesses to use when evaluating the effectiveness of business strategy with data obtained through CRM. The model is based on the assumption that CRM contributes to a firm's understanding of the needs and wants of customers and supports the firm's ability to construct a customer-oriented marketing strategy, both of which create value for the customer. The CRM system also supports the ability of a firm to retain customers, which allows the firm to capture value. Therefore, according to Teng and Chen (2010), CRM is a business strategy that aims to promote the understanding of each customer's needs and behaviours and build up a strong relationship with each customer.

Business strategy can be defined as the way in which a firm creates value for customers when compared to its competitors and how it views its position in the market (Weigl, 2008). A firm develops a business strategy based on its assessment of the way in which its internal resources can best be aligned with the external environment to create customer value. CRM is a means of implementing the general business strategy of an organisation because it integrates technology with business processes focusing on the customer (Feinberg et al., 2002). The CRM system supports general business strategy by creating value for customers with customer-driven products that the customers perceive as beneficial (Chan et al., 2010). The CRM system also provides market information to a firm to support new product development to advance business strategy. At the same time, CRM represents a strategic business initiative for firms because it requires the firm to adopt a customer-centric rather than a product-centric orientation to its business processes (Sun, 2009). Our approach will put the customer at the centre of the research.

CRM is an approach for aligning business processes with business strategies to create greater value for the organisation (Kim et al., 2008). By enhancing the value provided to the customer, the CRM system enables a firm in return to capture a greater amount of value from that customer through improved customer retention. It strives to achieve greater collaboration between customer and firm to increase value for both parties in the relationship (Despoina, 2008). At the same time, firms may be forced to adopt CRM because of competitive pressures in an industry in which other firms successfully develop a CRM system to manage customer relations and thereby capture a larger market share (Kim et al., 2009). According to Sun (2009), customers are more likely to engage in business with firms meeting their perceived needs and wants. The CRM system obtains the necessary interaction to convince customers that the firm can meet their needs and wants. Therefore customer satisfaction must be central to our research.

The objective of CRM is the acquisition, retention, and development of customers to increase value for the firm over the long term (Ali et al., 2008; Pezeshki, 2009). The phases involved are termed the customer lifecycle and are generally described as: reaching the customer; acquiring the customer; informing the customer about the value proposition; and retaining the customer. The CRM system is intended to manage the relationship with a customer through all contact channels in the various phases of the customer lifecycle. Ngai et al. (2009) more precisely define the customer lifecycle as

consisting of the four stages of customer identification; customer attraction; customer retention; and customer development. The conclusions for these authors imply that newer firms in the growth stage may not place sufficient emphasis on using CRM for retaining and developing customers. This conclusion justified our chosen focus on customer retention.

2.3 E-CRM

In order to understand e-CRM we initially and briefly consider e-business. E-Business is a term used to describe the overall approach a company uses to conduct business through the Internet. The Internet functions as a platform to interact with other businesses and customers, and to gather information about the environment and the competitive environment. The term e-commerce is used to describe the use of electronic tools and the Internet to facilitate transactions with customers, which is functionally the sale of goods and services (Maswera et al., 2008). E-commerce is generally considered to be a subset of e-business (Brown and Jayakody, 2008). While e-business includes support business processes such as supply chain management or internal e-mail, e-commerce involves the sale of goods and services through the Internet. The transactions in e-commerce can focus on other businesses for firms with goods and service aimed at the commercial market, which is often referred to as business-to-business (B2B) e-commerce. The use of electronic systems to conduct transactions with consumers is referred to as business-to-consumer (B2C) e-commerce (Kim et al., 2010). According to Fjermested and Romano (2009), e-commerce can include business relationships between consumers that occur in online venues such as auction websites, which are referred to as consumer-to-consumer (C2C) commerce.

Alzola and Robaina (2010) noted that e-business has significant differences from the traditional physical forms of business because the seller is remote from any physical facilities operated by the business. As a result, the transaction depends on the quality of the electronic communication channel that connects the customer with the business. Yu (2006) indicated that firms selling goods and services online must differentiate products to a greater degree than in the traditional physical market because of price convergence. The online customer can easily obtain price information from competitors, which creates difficulties for firms attempting to compete solely on price. Because of these differences in the nature of the e-business environment, firms engaged in B2C initially focused on factors such as website design and transaction security to attract customers.

The current trend in B2C is towards greater use of e-CRM to manage interactions with customers (Ong and Singh, 2009).

Various definitions exist for e-CRM. Ab-Hamid and McGrath (2005) use the term to describe elements of CRM that are delivered through the Internet. The Internet functions as the channel for communication between the customer and the firm, with many of the processes automated to personalise the experience for the customer. Sanayei et al. (2010) consider e-CRM as a system for creating knowledge from process automation and the collection of information through Internet and information technology-based interactions between a company and its customers. Harris and Goode (2010) argued that the online environment is substantially different from the physical environment, and requires firms to adopt practices tailored to the environment to create an effective e-CRM system. Al-Momani and Noor (2009) suggested that the only difference between CRM and e-CRM is the use of Internet technology as a medium for communications with the customer. In contrast, Chen et al. (2007) noted that e-CRM systems 'can stand alone as web-based collaborative communication systems, or may be connected to powerful CRM analytics, or may serve as an interaction engine for enterprise-wide CRM systems.' This suggests that the design of e-CRM is flexible, with firms using multiple e-CRM strategies.

The way in which firms adopt e-CRM is related to the organisational context and the operating environment, which shape the needs and expectations of customers (Wu and Wu, 2005). The organisation should base e-CRM on the price-value-loyalty model of the way in which online consumers interact with price and non-price factors when making online purchases (Yu, 2006). The importance of the industry context to the design of e-CRM is underscored by research examining price dispersion in online businesses conducted by Baye et al. (2004). Greater price dispersion is found online in industries with a large number of participants, whereas price convergence occurs online in industries with only a few participants. These findings imply that firms in industries with only a few competitors in specific markets have to rely on providing value to customers based on factors in the e-CRM system other than price.

An effective e-CRM strategy adopted by a firm should theoretically lead to a migration of customers from high cost communications channels such as telephone to the low cost communication channel of the Internet (Sanayei et al., 2010). The e-CRM system should be part of the overall CRM system of the firm and operate as an additional

channel that customers use to obtain information, make purchases, or resolve problems with goods or services (Feinberg et al., 2002). According to Despoina (2008), the next generation of e-CRM implemented by firms is likely to focus on the use of technologies to create a social network of customers to enhance collaboration between the firm and its customers.

Firms adopt e-CRM because of the commonly held belief that it improves customer satisfaction, thereby enhancing customer loyalty and retention (Alhaiou et al., 2009). To achieve this objective, however, e-CRM must be designed to meet the perceived wants and needs of the customer. Some of the ways in which e-CRM can provide services to customers identified in the literature include online catalogues with price information, order processing, and customisation of offerings to the customers' needs. The e-CRM system can also provide a firm with information about customer preferences and characteristics through customers' use of the system, and as a vehicle for providing existing and potential customers with surveys (Ross, 2005). For the e-CRM system to be effective in improving customer satisfaction and retention, however, it must be usable by the customers, provide services such as personalisation valued by customers, offer the functions desired by customers, and provide adequate security assurances (Khalifa and Shen, 2009). Besides these general attributes, the e-CRM system must provide customers with specific information about the way in which interactions can occur with the company to obtain more data about the company and services or to resolve a problem. This information can include methods of internet and real-time contact with customer care representatives and opt-in programmes for promotions such as newsletters (Maswera et al., 2008). Chen et al. (2007) argued that the most important element of e-CRM is its ability to create a human-like quality for communicating and interacting with customers, which is essential for building a relationship in the impersonal Internet environment. The functional elements of an e-CRM interface with the customer should ideally be aimed at establishing the sense that a customer is interacting with real people associated with the firm as a prerequisite for building relationships.

Research conducted by Maswera et al. (2008) determined that most firms in the tourism industry in Africa focus primarily on closing an online transaction with the customer without providing the necessary elements associated with using the websites as effective e-CRM platforms. To some degree, these findings correspond to the conclusions drawn

by Yu (2006) concerning the barriers to B2C commerce in China and other developing nations. To be effective for building a long-term relationship, the e-CRM system has to take into consideration the cultural preferences of the target market for face-to-face contact in transactions and the elements that can develop a perception of trust and value among customers.

2.3.1 Infrastructure

According to Ngai et al. (2009), e-CRM infrastructure involves the two major components of operational elements and analytic elements. The operational elements automate business processes such as communications with the customer via the Internet, the exchange of information with the customer, and consummating the sale transaction. The analytic element assesses customer behaviours and preferences to support the organisation's business strategies. To implement an effective e-CRM system, a firm must have an information technology and communication (ICT) infrastructure sufficient to automate processes and provide customers with the expected level of service (Sanayei et al., 2010). At a minimum, the ICT infrastructure contains a database, a web platform, a network, and the necessary software to automate data collection and provide security. Ideally, the ICT architecture is designed to provide the firm's staff with a single view of a customer regardless of the way in which the customer is interacting with the firm. The internet is the medium by which a customer inputs queries into the e-CRM system, with the website functioning as the front end of the system that interacts with the customer. The customer inputs enter the back end of the system, which consists of a database containing information about the firm's goods and services and about the customer. The customer query generates a response that is ideally customised to the specific needs and characteristics of that customer (Ab-Hamid, 2005).

The data mining component of the e-CRM infrastructure is particularly important for the analytic element (Ngai et al., (2009). Data mining can extract and detect hidden customer characteristics and behaviours from the information contained in the database of the firm, with the database developed over time through interactions with customers. As a result, data mining is particularly important for creating features such as personalisation or customisation that increase the value of the e-CRM system for the customer.

At this point we have established the importance of customer satisfaction and trust as central to CRM. We have also developed an overview of e-CRM, its phases in terms of

customer acquisition to customer development, and the infrastructure. We now turn our attention to looking at the transaction stages of e-CRM. We shall establish that they are keys to our approach as well as a basis for structuring the element chosen for our proposed e-CRM system.

2.3.2 E-CRM and the Transaction cycle Stages

Feinberg et al. (2002) identified three stages of e-CRM related to the transaction cycle with customers, consisting of pre-sales information gathering, e-commerce services to consummate the transaction, and after-sales support. Alternative terminologies for the three stages are used by other researchers, with Romano (2003) identifying them as the information gathering stage, the agreement stage, and the settlement stage. Regardless of the terminology, the three stages of the transaction cycle involve different customer behaviours at each point that occur regardless of the environment in which a commercial transaction takes place (Constantinides, 2004). In the first stage of pre-sales information gathering, the consumer initially identifies a problem that leads to an information search, followed by evaluation of the alternatives discovered during the information search. The e-CRM system should provide the customer with as much information as possible to support the evaluation process. The second stage involves the purchase of goods or services, which is the culmination of the pre-sales information gathering stage. At this point the customer has made the decision to purchase, but can still consider factors such as payment options. Consumer behaviour in the after sales stage of the transaction cycle largely depends on the experience of receiving and using the goods or services, with negative experiences generating complaint and problem-solving behaviours. Wu and Wu (2005) noted that the design of an e-CRM system must consider all stages of the transaction cycle by providing different information and communications capabilities in the pre-sale, sale, and post-sale stages of an online transaction.

The stages of the e-CRM transaction cycle fundamentally involve the provision of a service that is valued by the customer, even if a firm is engaged with the online sale of products. According to Sun and Lin (2010), service involves the application of specialised competencies for the benefit of the customer rather than in terms of production of units of output, therefore, significantly, service quality is difficult to measure as it depends on the perceptions of the customer.

Pre-Sales stage of the Transaction Cycle:

In general, the pre-sale stage of the transaction involves providing a customer with the information necessary to support a purchase decision, such as information about product or service characteristics, and account information relevant to conducting transactions with the firm (Alzola and Robaina, 2010). The customer engages in an information search and evaluates alternatives to determine if the product will meet a perceived need or want. Characteristics of e-CRM in the pre-sale stage of the transaction cycle include the ability to customise the website, which allows the customer to obtain information targeted to the customer's specific needs (Feinberg et al., 2002). Alhaiou et al. (2009) argued that the characteristics of an e-CRM system in the pre-sales stage consist of:

1) Website presentation;
2) Access to information regarding products and pricing;
3) Search capabilities for retrieving relevant information;
4) Information quality relevant to the customer needs; and
5) A loyalty programme or other incentive.

Ideally, an e-CRM system provides the customer with the ability to customise and personalise the interaction with the website to obtain relevant information.

Customisation involves a system for optimising the information for a customer segment based on experiences with other customers from the same segment (Ha et al., 2010). Customisation can be implemented by allowing customers to select channels for communication, by memberships, and by local search engines, which support navigation to information relevant to a specific customer segment. From the perspective of the firm, the actions by a consumer resulting in customisation provide segment information to support the use of a recommender system as part of the firm's e-CRM (Baier and Stuber, 2010). The recommender system makes recommendations tailored to the expected purchasing patterns of the segment. If a customer has conducted business with the firm in the past, recommendations can be tailored to the specific preferences of the customer.

Fjermested and Romano (2009) distinguished personalisation from customisation by indicating that personalisation involves the exchange of information between the customer and the enterprise to increase the value of the online services. In effect, a customer must be willing to provide information to the e-CRM necessary to personalise the interaction. The firm then customises information provided to that customer based

on the personal information the customer has shared with the firm through the e-CRM system.

During the personalisation process, a customer must have adequate privacy assurances to support the decision to provide a firm with personal information even if that information does not involve financial data (Sun, 2009). According to Tang et al. (2008), consumers are concerned with two separate forms of privacy risks involving hidden information, such as the unauthorised download of a cookie, and hidden action, such as the unauthorised disclosure of information by a firm to a third party for profit. In addition, the approaches of firms to privacy in an e-CRM system vary. Some online firms do not post a privacy policy in order to avoid legal issues with noncompliance with the policy that can arise in some jurisdictions. In some jurisdictions such as the European Union firms must have a privacy policy that meets minimum legal requirements. The more effective approach to influence customers is to use a privacy policy with assurances that exceed any mandatory minimum legal requirements. Hence privacy is a key element that must be incorporated into an e-CRM system.

La (2005) determined that the characteristics of a website are critical in the pre-sale information gathering stage, with customers evaluating the speed, appearance, search capabilities and overall performance of the website as they gather information. Alzola and Robaina (2010) used a survey methodology to identify the key factors in the pre-sale stage for e-CRM as website design, information availability, security assurances, adaptability for customisation, and value of the offer. A customer's perceptions of the adequacy of these factors are prerequisites supporting a purchase decision. Fjermested and Romano (2009) identified different levels of privacy expectations among customers based on the type of information requested by the website. Personal identification numbers were considered highly sensitive information, financial data was considered moderately sensitive, and demographic information the least sensitive.

Purchase stage of the Transaction Cycle:

Research conducted by Feinberg et al. (2002) identified e-CRM features that firms use in the purchase or e-commerce stage of the online transaction, which include the ability to customise the product, ability to preview the product, and availability of information about purchase terms and conditions. Customers also value the ability to establish an account with personal billing information to reduce the time necessary for subsequent

online purchases from the firm. Buzzi, et al. (2009) determined that the degree of security provided for payment information is also a critical factor supporting the actual purchase of goods and services online.

Alhaiou et al. (2009) suggested that the purchase stage of the e-CRM system is supported by: a variety of payment methods; privacy; security; promotional incentives; and ability to trace the order. Constantinides (2004) emphasised that choice in payment methods was an important factor in customer satisfaction in the at-sale stage of the transaction. Although various researchers consider the purchase stage a separate element of the transaction cycle, many of the elements associated with this stage appear to be related to the pre-sales stage during which a customer forms a purchase intention. In effect, the customer will not form a purchase intention unless there is perceived adequacy of privacy and security and the payment methods conform to the customer's expectations. Khalifa and Shen (2009) identified the importance of membership features to encourage repeat purchasing. A customer establishes an account with a firm with recorded payment information held in the account, which reduces the time necessary for a future transaction. Many e-CRM systems establish a password-protected account for customers at the time of their initial purchase.

The After-Sales stage of the Transaction Cycle:

The after-sales stage of the transaction cycle involves all activities performed by a firm after a sales transaction to ensure that a product is available and useful to customers over its intended lifespan (Shaharudin et al., 2009). Sun and Lin (2010) noted that problems inevitably arise in the delivery of services regardless of whether the services are delivered through e-CRM or in person. Because e-CRM fundamentally provides a service to customers even if a firm is engaged in the sale of goods, the way in which the system supports problem resolution is critical for creating positive customer perceptions of the usefulness of e-CRM.

In the after-sales stage, e-CRM can provide customers with the ability to solve problems, lodge complaints, and to obtain benefits from an affinity or loyalty programme (Feinberg et al., 2002). Research by Alzola and Robaina (2010) identified only the firm's guarantee as influencing after-sales service, with the customers' expectations for quality of service and support to remedy problems based on the guarantee. In contrast, Alhaiou et al. (2009) determined that the capabilities of the e-

CRM system for problem solving, order tracking, and after-sales services influence the customer's perceptions of the e-CRM system. In addition, the customer must have a choice of communication methods, including real-time access to service representatives by telephone or chat. Khalifa and Shen (2009) also emphasised the importance of providing customers with automated order tracking information to increase satisfaction in the after-sales stage of the transaction.

Previous researchers have identified a range of communications approaches used in e-CRM systems, which have particular relevance in the after-sales stage of the transaction. E-CRM systems can be categorised as asynchronous and synchronous, with a delay in communications occurring with asynchronous channels. Asynchronous channels include communications methods such as email, in which the customer generates a query that is answered by the company at some point in the future (Ab-Hamid, 2005). A bulletin board posting may also be considered an asynchronous channel, with the customer posting a message or query on the bulletin board to be addressed in the future by staff. These types of interactive method are suitable when the query is routine but complex and a delay in answering the query will not reduce customer satisfaction. The bulletin board may also provide a benefit to the customer by establishing an online community that allows customers to exchange information with each other as well as with the company, and can contribute to building trust in the firm (Khalifa and Shen, 2005). Synchronous interactive tools allow the customer to interact with the e-CRM system or staff in real time and include FAQs, help search engines, chat, and telephone customer care services. The chat function is a fully interactive e-CRM communications mode because it is enabled by the front-end web platform used by a customer to communicate with the company (Ross, 2005). Chat allows a customer to receive instant resolution to a problem through a real time exchange of information with a customer care representative (Belachew et al., 2007). Some e-CRM sites may also host synchronous chat rooms that enable customers to interact with each other in real time on issues related to the firm, which is intended to foster the sense of belonging to a community. In contrast, telephone contact moves outside the e-CRM system, although the customer care representative may use the firm's CRM system to obtain information necessary to address the customer's issue. The development of new technologies such as voiceover internet protocols, however, could enable full integration of voice communications with the e-CRM system. In addition, intelligent web agents and expert system technologies are increasingly used in e-CRM systems to provide

customers with detailed but automated responses to queries or problems (Khalifa and Shen, 2005).

The literature also indicates that bi-directional communications are particularly important in influencing customer satisfaction during the after-sales stage of the transaction cycle. Communications from the firm to the customer can consist of frequently asked questions (FAQs) concerning the purchase item, its use, or delivery, automated email responses to the customer acknowledging the receipt of an order or a query from the customer, and information about the status of an order (Nusair and Kandampully, 2008). An effective e-CRM system also permits a customer to communicate with a company through multiple channels, with offline communication methods particularly significant for customers that do not have a substantial amount of experience with the Internet (Ab-Hamid, 2005). The use of bi-directional communication in e-CRM allows a firm to ask customers to provide feedback concerning ways in which the online service experience can be enhanced, creating the possibility of continuous improvement to the website (Liu, 2007).

Despite the early findings of Feinberg et al. (2002) and more recently Alhaiou et al. (2009) concerning the value for customer retention of loyalty programmes in after-sales services, research conducted by Liu and Brock (2009) indicates that only a minority of customers take advantage of loyalty programme rewards. This research focused on loyalty programmes for credit cards and determined that customers were often unaware of the programme, did not earn enough points to qualify for a reward, or did not find the rewards valuable. In research examining the perception of B2C customers, Brown and Jayakody (2008) also determined that loyalty incentives did not influence customers' intentions to continue purchasing from a website in the future. The overall findings of the various researchers considering the effect of loyalty programmes imply that the influence of the programmes is uncertain. The findings further suggest that the way in which a firm implements its loyalty programme may influence its usefulness for customers.

Sharharudin et al. (2009) determined that the after-sales services of delivery, installation, and warranty are significant factors determining customer satisfaction following an online purchase. For some types of products, after-sales services include technical support to provide information to the customer about installation. This research, however, focused on sales involving goods that required installation, with the

outcome of the after-sales services dependent on the adequacy of a firm's distribution channels for meeting customer needs. The findings with respect to installation and warranty may not be applicable to the sale of online services such as ticketing or booking services for airlines.

2.4 E-CRM and Customer Retention

The dominant model adopted by researchers investigating e-CRM and customer retention is to assume that a direct correlation exists between service quality, customer satisfaction and the intention to purchase goods and services from the firm in the future, which is a predictor of customer retention (Pezeshki, 2009). Within this model, trust is an important factor contributing to perceptions of service quality and customer satisfaction (Kim et al., 2010). In addition, customer satisfaction can be considered an antecedent variable influencing attitude towards the firm and the use of the e-CRM system, which may be a more accurate predictor of the intention to use e-CRM for future purchases (Baier and Stuber 2010). Further complicating the analyses of previous researchers is the inherent difficulty with the use of e-CRM for firms of low switching costs for consumers, who can easily navigate to the website of a competitor (Chang and Chen, 2009). The greater ability for consumers to switch on the Internet represents a shift in power from seller to consumer (Romano, 2003). In general, however, the findings of researchers indicate that a relationship exists between trust, attitude, customer satisfaction, and customer retention (Brown and Jayakody, 2008; Ha and Akamavi, 2009; Koufaris and Hampton-Sosa, 2002; Palvia, 2009; Wahab et al., 2009).

Therefore, we can see that trust is an important behavioural element in establishing customer satisfaction and retaining customers, so we explore this in greater detail.

2.4.1 Trust

Trust can be defined as a sense of security leading to the willingness to depend on another party (Kim et al., 2010). According to Chiu et al. (2009), trust is the subjective belief that another party will not act opportunistically to take advantage of a situation, and that the other party will behave capably and ethically. Wirtz and Lihotzky (2003) noted that trust is a major driver of stability in the relationship between firms and their customers, with firms often unable to re-establish trust once it has been misused.

Kim et al. (2009) suggested that the concept of online trust differs to some degree from trust in other situations because of the added element of transaction security, with the

term 'e-Trust' used to distinguish online trust from trust in other types of transactions. Similarly, Flavian and Guinaliu (2006) noted that trust online involves both the elements that generate trust between parties in the traditional physical relationship between buyers and sellers and the elements that are necessary to develop trust in an electronic environment. As a result, the factors influencing online trust are more varied and complex than the factors influencing trust in a traditional commercial environment.

In the context of the Internet, developing trust must overcome the risks created by lack of control, uncertainty, the absence of norms, and the potential for opportunism (Angriawan and Thakur, 2008). According to Pavlou (2003), consumers have to rely on the information provided by a website and are vulnerable to incomplete or distorted information presented on the website. Consumers must also face the risk of loss of privacy if an online retailer misuses the information a customer provides. The internet infrastructure also creates risks of unauthorized intrusion into websites or personal computers. The e-CRM system must overcome these risks by building trust. Palvia (2009) noted that trust is critical in any business relationship whenever some degree of risk or uncertainty is present. According to Chen and Li (2009), 'trust is so important that companies should put trust at the centre of internet strategy.' Despite the importance of trust in online commerce and e-CRM, these authors indicated that the full range of factors influencing trust is not well understood and new theories concerning trust in the electronic environment continue to emerge (Angriawan and Thakur, 2008). In addition, researchers vary in the use of the construct of trust based on whether it is a uni-dimensional or multi-dimensional construct (Zhou and Tian, 2010).

Research conducted by Ab-Hamid and McGrath (2005) identified trust as a critical element for e-CRM effectiveness. Trust in an e-CRM system involves the perception that the website has adequate security to prevent unauthorised access to personal information and the perception that the goods and services received from the firm will conform to customer expectations (La, 2005). In the online environment, the risk to a customer is higher than in the physical environment because the customer must not only trust that the business and its employees will protect sensitive information, but also that the data transmission system is secure. In addition, the customer cannot inspect goods prior to purchase and must trust the vendor to ensure that the goods conform to the customer's expectations (Buzzi, et al., 2009). Research conducted by La (2005) confirmed that both the belief that the company would provide the goods and services as

promised and the belief that information provided by the customer would be used only for authorised purposes were antecedent variables for trust. This assessment supports the argument of Kivijari et al. (2007) that trust in the online environment is composed of the two general dimensions of trust in the specific entity with which the consumer conducts a transaction and trust in the reliability of the Internet and e-CRM infrastructure.

The level of trust, however, can vary among individuals based on personality factors and prior dealings with a firm. Chen and Li (2009) developed and tested a model concerning factors influencing trust in e-commerce. The findings indicated that perceived reputation of a company and the perceived adequacy of system security accounted for the majority of the variance in trust. The authors further believed that personality factors can account for much of the remaining variance in trust.

Perceived security is an important element of trust, with customers unwilling to make an online purchase or provide sensitive information unless they have adequate assurances that the information will remain protected and confidential. According to Kim et al. (2010) perceived security 'is one of the most challenging issues for customers who want to buy products or services online.' The consumer must make an assessment of the vulnerabilities of the website based on signals of security from the level of encryption, and the methods for verification and authentication presented on the website. Angriawan and Thakur (2008) used a survey methodology to determine that perceived security accounts for approximately 40% of the variance among customers using B2C e-CRM systems. An examination of the factors influencing trust in information security conducted by Buzzi et al. (2009) determined that the signals or cues contained in a website can enhance trust. Some of these signals include the use of a secured system for data transmission such a secure socket layer seal, a current website authentication certificate, and a privacy policy.

Some research suggests that a privacy policy influences customers' subjective assessment of fairness of the e-CRM processes, which can influence attitude towards trust and use of e-CRM (Lauer and Deng, 2007). Factors in e-CRM affecting perceptions of fairness include the use of a privacy policy that delineates fair information practices. According to Wang and Emurian (2005), the privacy policy should include both a description of the policy and a means for the customer to seek redress from the firm if the policy provisions are violated. The availability of

comparison pricing showing prices charged by competitors and differentiating factors that may justify a higher price also influence the perception of fairness (Alhaiou et al., 2009). A clear presentation of the conditions of sale and the responsibilities of the firm also influence the perception of fairness (Ross, 2005).

Harris and Goode (2010) expanded on the findings of Buzzi et al. (2009) in research that adopted the perspective that a website functions as a 'servicescape' composed of ambient conditions, layout and functionality, signs, symbols, and artefacts. This research verified that a consumer using a website forms an overall impression of trustworthiness based on a subjective assessment of the servicescape based on aesthetics, functionality, and security. The implications of the findings are that the quality of presentation or aesthetics and functionality of the website also contribute to a customer's perception of trust. Chiu et al. (2009) identified the factors of perception of fulfilment capabilities, privacy, system availability, responsiveness, and alternate contact methods as significant influences on trust. Palvia (2009) developed a model in which the variables of belief in integrity, belief in competence, and belief in benevolence influenced perceptions of trust in online transactions. Angriawan and Thakur (2008) identified the factors website usability, expected product performance, privacy, and security, as statistically significant influences on trust. When considered together, there is substantial variability in the constructs used by previous researchers to examine the antecedent variables of trust. There appears to be some agreement among researchers, however, concerning the importance of usability or capabilities of the website, privacy, and security as variables influencing trust.

Evidence exists from some research, however, that cultural differences affect the subjective assessment of the trustworthiness of an e-CRM system (Ha and Akamavi, 2009; Kivijari et al., 2007). A model was developed and tested by Hwang (2009) to identify the antecedent variables influencing trust among online consumers. In this model social norms established by external influences such as family, friends, and media influenced the weight placed by consumers on the elements of trust. These elements are similar to those identified by Palvia (2009), and consist of perceptions of the benevolence, integrity and ability of the organisation. This model accounts for variability in constructs and findings concerning trust among online consumers within the same culture and across cultures.

Research conducted by Chang and Chen (2009) determined that a consumer's perception of adequate security at a website increases customer retention because it raises the switching costs for the customer when using a competitor's website. In effect, the customer believes the security risk is higher when switching away from an online firm that is perceived to provide adequate security. Xiao et al. (2009) also determined that perceived security is related to higher levels of trust and customer loyalty at e-commerce websites. These findings confirm the results of previous research conducted by Koufaris and Hampton-Sosa (2002) indicating that a customer's level of trust in a website increases over time with repeated satisfactory experiences using the website to make purchases.

Ong and Singh (2009) noted that an effective customer redress system in the after-sales stage of the transaction is essential for the continued use of e-CRM by customers. Service failure results in a decrease in consumer trust because the experience suggests that the firm cannot deliver goods and services as promised. The ability to voice a complaint and to seek remedial action, however, can restore trust and allow the firm to recover from a service failure.

Zhou and Tian (2010) noted that trust in e-CRM is developed in the three stages of initiation, building, and maintaining trust. This suggests that the factors in an e-CRM system necessary to initiate trust among potential customers may be different from the factors necessary to build and maintain trust among existing customers. The differences in the factors supporting trust in different stages of the customer relationship may account for the variation in the findings of previous researchers concerning the critical elements of trust in e-CRM.

Eisingerich and Bell (2008) adopted the perspective that the efforts of firms to educate customers can be a factor influencing trust. In research to validate the premise, the authors developed a model in which customer perceptions of technical service quality and functional service quality are the antecedent variables influencing customer trust. Customer education improves customer perceptions of technical and functional service quality. The degree of existing customer expertise, however, moderates the influence of the educational effort. The findings of the research indicated that the degree of positive impact of perceptions of technical service quality decreased as customer education increased, while the positive impact of perceptions of functional service quality increased as customer education increased. The finding with respect to technical quality

service may be because of the generic nature of many online services provided by firms. The general application of these findings, however, may be limited because they focused on the financial services industry in which the functional service of providing timely information is central to meeting customer needs.

Sun (2009) noted that firms face a dilemma related to trust because of the need to acquire a large amount of information from customers while providing assurances to customers that any information they provide will be secure and used only by that company. An attempt by a firm to use e-CRM to obtain information a customer does not believe to be relevant to the transaction or the purpose for using the website could be interpreted as an indicator that the firm is not trustworthy, despite having a privacy policy (Lauer and Deng, 2007). This analysis, however, is not based on empirical evidence presented by the author. In addition, the empirical research findings of Chen and Li (2009) determined that assurances of privacy for information do not have a statistically significant relationship with trust.

As discussed by Despoina (2008) some e-CRM approaches are migrating towards the development of social networks to foster a more collaborative relationship between the firm and the customer. As a result, the research conducted by Casalo et al. (2008) examining the factors influencing trust in virtual communities and the effect of trust on commitment to the community has some relevance to trust in e-CRM. The findings determined that disposition to trust, familiarity, and reciprocity (as defined by reciprocal communications) made statistically significant contributions to trust in the virtual community. The higher level of trust led to greater commitment to the virtual community. Research conducted by Teo and Liu (2006) also determined that propensity to trust, which is analogous to disposition to trust, was a significant moderating factor of perceived trust. The findings suggest that the characteristics of an e-CRM system interact with the personal characteristics of a user to influence the degree of trust, with the positive effect of a virtual community on trust dependant on the individual's propensity to trust.

Having explored in detail the behavioural component 'trust', next we explore the customer behavioural component of attitude in terms of a technology Acceptance Model.

2.4.2 Technology Acceptance Model and Attitude

Ha et al., (2010) define consumer attitude as a 'psychological tendency that is expressed by evaluating a particular entity with favour or disfavour.' In an e-CRM context, consumers' attitudes are a summary of subjective judgements concerning the overall impression of a system. Guo et al. (2009), however, propose that attitude towards an organisation cannot be directly measured, and must be examined using a customer's overall satisfaction with the organisation.

Previous researchers examining e-CRM have often relied on the technology Acceptance Model (TAM) to explain the predictors of technology adoption, with a positive attitude towards the technology determining whether individuals will use it (Sanayei et al., 2010). The TAM was originally proposed by Davis (1989) and has since been validated by researchers for application to the adoption of a variety of different technologies. In this model, the two general factors influencing attitude are the perceived ease of use of the technology and the perceived usefulness of the technology, which are influenced by external variables such as access to the technology, prior experience, and personality factors. These two variables influence attitude towards the technology, which is a predictor of the intention to use it. Perceived ease of use refers to the degree that the user expects the technology system to be free of effort. Perceived usefulness refers to the subjective belief in the user that the technology will achieve a desired objective such as enhanced performance (Davis et al., 1989).

The TAM is based on the theory of reasoned action, which postulates a series of causal links between the perceptions and beliefs of consumers and their actions (O'Cass and Fenech, 2003). According to Baier and Stuber (2010), the TAM is one of the most influential models for relating design alternatives in technology systems to user acceptance. Nonetheless, the range and degree of influence of the external variables antecedent to perceptions of ease of use and perceptions of usefulness have not been fully established and can vary based on situation and type of technology. Research examining the nature of external variables in online transactions suggests that they consist of subjective norms concerning the online interaction that can vary substantially among individuals (Kim et al., 2009). As an example of the nature of external variables examined in previous research, Chen et al. (2007) determined that perceptions of media richness influence perceived ease of use, while perceptions of interactivity influence both perceived ease of use and perceived usefulness.

Park (2007) confirmed the strong relationship between perceived usefulness and perceived ease of use and the importance of the link between them. Research relying on the TAM model has validated its fundamental premise that perceived ease of use of the technology and perceived usefulness account for much of the variation in the attitude toward the technology and the intention to use it with respect to subsystems in e-CRM. A study conducted by Teo (2010) examined "the suitability of the TAM as a model to explain the behavioural intention to use technology among pre-service teachers". The findings of this research determined that the larger portion of the variance in attitude toward use was contributed to by perceived usefulness and perceived ease of use. In an empirical study relying on survey data, Baier and Stuber (2010) determined that ease of use and perceived value account for approximately 30% of the variance in the intention to use a recommended system. Research conducted by Alhujran (2009) investigating adoption of e-government services by consumers determined that, while both perceived ease of use and perceived usefulness have a positive influence on attitude, perceived usefulness was the stronger of the two variables. This finding implies that customers will have a more propensity and form the intention to use an e-CRM system if it provides the customer with a service that meets a perceived want or need. It also suggests that the importance of perceived ease of use of an e-CRM system for influencing attitude may decrease as the customer becomes more familiar with the specific use requirements of the system. Wahab et al. (2009) noted that perceived ease of use varies with the users' familiarity with computers and online purchasing from past experiences. This finding is similar to that of Chen et al. (2008) who used a construct of self-efficacy as a proxy for familiarity with technology in an investigation of user adoption of smart phones. This study also established a relationship between a propensity toward a technology and the behavioural intention to use the technology. In addition, Hwang (2009) determined that social norms influence the degree of personal acceptance of innovation, which in turn influences the perceived ease of use of an e-CRM system.

Based on this body of work considering e-CRM as a system, it seems reasonable to explore the use of TAM as a vehicle for exploring how to structure our behavioural elements. Moreover, we need to explore the relationship between our chosen elements. Following the tradition of this body work on TAM, we should attempt to investigate these relationships from an empirical perspective, so we now look more closely at previous empirical studies in this area.

2.4.3 Empirical studies: Trust, Attitude and satisfaction

Based on their findings from research using the TAM, Koufaris and Hampton-Sosa (2002) determined that perceived usefulness and perceived ease of use accounted for more than half the variability in trust in an e-CRM system. Based on their findings, they argued that trust rather than attitude towards an e-CRM system is the main predictor of both intention to purchase and intention to repurchase in the future using a particular website. This research, however, did not consider the construct of attitude, raising the possibility that the researchers' use of the construct of trust was a substitute for attitude. Subsequent research by Ha and Akamavi (2009) may explain some of the ambiguity concerning the relationship between trust, attitude and intention to repurchase. This cross-cultural research determined that trust has a greater influence than attitude on intention to repurchase among customers from individualistic societies such as the United Kingdom. Among customers from collectivist societies such as Korea, the overall attitude towards a firm and its e-CRM system has greater influence on repurchase intention, with trust as a contributing factor to attitude.

Chiu et al. (2009) determined that the traditional TAM does not provide a sufficient explanation for intention to repurchase in online commerce, with the intention to use the e-CRM system not necessarily equated with repurchase intention. In the model developed and tested with survey research, trust has a direct influence on perceived usefulness but not on perceived ease of use. At the same time, trust has a direct influence on intention to repurchase. These findings imply that trust has both an indirect influence on attitude, moderated through perceived ease of use, and a direct influence on the intention to use e-CRM to make future purchases. Teo and Liu (2006) also determined that perceived risk has an inverse relationship with both attitude and the willingness to buy online, with perceived risk as a proxy measure for trust. As the degree of perceived risk increases, customers demonstrate a decrease in both attitude and willingness to buy.

Early research examining the influence of trust on attitude and loyalty in the B2B e-CRM context conducted by Taylor and Hunter (2003) determined that trust has a statistically significant and direct effect on attitude, but does not have a direct effect on loyalty. More recent research by Wahab et al. (2009) proposed and tested a variation to the TAM model in which the variables of trust, perceived use, and perceived ease of use are separate variables influencing attitude. In this research, however, the concept of trust

was defined as trust in the technology, which focuses primarily on the technical aspects of the security of the online system. As a result, the finding that trust directly affects attitude and intention to use an e-CRM system may be related only to the security and encryption systems used to transmit information. Palvia (2009), however, developed and tested a modified TAM similar to that of Wahab et al. (2009) in which trust operated as an independent variable influencing attitude. This research appears to be more reliable because it used a broad survey of users of e-CRM systems in a wide variety of B2C contexts. When considered together, these three studies indicate that trust has a direct influence on attitude.

The extent to which a customer is satisfied with the elements of the interaction with a firm determines whether the customer will remain loyal to that firm and make repeat purchases (Ab-Hamid and McGrath, 2005; Ouyang, 2010). Customer satisfaction is an affective response to the overall experience of using the e-CRM system (Chang and Chen, 2009). At the same time, most online consumers are goal oriented, using a website for a specific purpose (Khalifa and Shen, 2009). Consumers are satisfied when a website allows them to achieve their goal.

Customer satisfaction is often considered to be a proxy measure for attitude (Guo et al., 2009), with higher customer satisfaction indicative of a propensity towards a technology such as e-CRM that influences the intention to use the system in future (Brown and Jayakody, 2008). The link between customer satisfaction and loyalty as manifested by repeat purchases, however, may be influenced by low switching costs that reduce repeat purchasing despite a high level of customer satisfaction with a firm (Wilkins et al., 2010). Another factor that may influence customer satisfaction with a specific website is the overall perspectives and beliefs of the customer concerning online shopping (Li and Zhang, 2006). If a customer has a generally positive perspective toward online shopping, they are more likely to be satisfied even if they perceive the experience with a specific website as merely satisfactory.

Various researchers have identified numerous elements in an e-CRM system contributing to customer satisfaction. The ability to personalise or customise the website is an important factor for customer satisfaction because it reduces the time a customer spends searching for relevant information (Ab-Hamid and McGrath, 2005). Research performed by Sanayei et al. (2010) determined that the ease of use and the perceived usefulness of a website are significant factors influencing customer satisfaction with the

e-CRM system of a firm. In contrast, the research findings of Ha et al. (2010) indicated that customised information and perceived interactivity at a website influence customer satisfaction. In this model, customer satisfaction functions as an intermediate variable influencing repurchase intention. This model suggests that customer satisfaction is influenced by a larger number of variables than are identified in the research of Ab-Hamid and McGrath (2005). A model developed and tested by Guo et al. (2009) included the degree of behavioural control over the customer influencing customer satisfaction, with higher satisfaction associated with a larger number of behavioural choices for the customer. These additional variables operated as antecedents to perceived usefulness and perceived ease of use in the traditional TAM model used by Sanayei et al. (2010). Some research has also identified loyalty programmes and rewards as a factor contributing to customer satisfaction with e-CRM (Ab-Hamid and McGrath, 2005). Kim et al. (2008) tested a model in which perceived service quality, perceived product quality, and perceived fairness of price are the primary factors influencing customer satisfaction, which is an antecedent variable for trust. When satisfaction and trust are high, a customer believes that the relationship with a firm produces value and is likely to have a higher level of commitment to the firm that manifests itself in repeat purchasing behaviour.

According to Wilkins et al. (2010), the focus of consumer research examining customer retention has shifted away from customer satisfaction and toward loyalty in order to identify the influence of loyalty on repurchase intention. Loyalty can be defined from both a behavioural and an emotional perspective, with the behavioural component being of more interest to firms seeking to foster repeat purchases from consumers. Repeat purchase behaviour can be the result of consumer satisfaction or a manifestation of genuine loyalty to a brand in which the consumer resists switching behaviours because of an emotional affinity to a brand. Flavian and Guinaliu (2006) examined factors influencing the construct of loyalty in online purchasing and determined that trust in privacy policies and security of a website accounts for approximately 29% of the variance in loyalty.

Wilkins (2010) developed and validated a model in which service quality, value and trust influence consumer satisfaction. Consumer satisfaction influences both emotional attitude towards a brand and the actual behaviour of repurchasing. These findings imply that an e-CRM system that fosters a perception of service quality, value and trust will

lead to customer satisfaction and repurchase behaviours. Similar research conducted by Ouyang (2010) in the financial sector determined that customer satisfaction did not have a direct effect on customer loyalty, but did have an indirect affect on customer loyalty by mediating the variable of trust. In effect, these findings extended the model of Wilkins (2010) by indicating that customer satisfaction is an antecedent variable influencing trust, with trust as the more significant factor influencing loyalty. In contrast, Brown and Jayakody (2008) determined that trust does not have a statistically significant relationship with user satisfaction and continuance intention among customers using B2C systems.

In conclusion, it would appear that the literature examining the relationship between customer satisfaction, trust, and attitude remains inconclusive; however, they are important factors in determining customers' intentions to remain as customers. This provides a strong justification for further research into determining the relationship between these factors, and we now explore the work on e-CRM and our domain of interest, namely the airline industry.

2.5 E-CRM and Airlines

According to Wagner et al. (2005), the airline industry is characterised by rapid and unpredictable changes - in demand for services, in the adoption of government regulations, and in the actions of competitors in the market. In addition, the industry is highly fragmented, with firms unable to capture a significant share of the market. Differentiation is based primarily on pricing and the availability of amenities during travel. As a result, the industry is highly competitive, with effective CRM and e-CRM seen as essential for attracting and retaining customers.

Airlines have been using e-CRM systems to enhance relationships with customers for more than a decade (Cheng et al., 2008). In an early assessment of the effect of the Internet on the airline industry, Jiang et al. (2003) noted that the ability of the firms to interact with customers online was having a transformative effect on the methods used to provide information and ticket sales for customers. In the early use of the Internet in the airline industry, a webpage was linked with a computerised reservation system (CRS) with the objective of reducing the costs of commission paid to travel agents by allowing customers to purchase tickets directly from the airline (Buhalis, 2004). Some airlines, however, recognised the potential of the Internet and the firm's database to create an e-CRM system capable of managing relationships with customers whenever

they used an electronic means of communicating with the firm (Boland et al., 2002). The majority of airlines have deployed e-CRM systems that use a front-end internet platform to link the customer to the airline's backend computerized reservation system (CRS) (Buhalis, 2004).

Bejar (2009) noted that airlines have been particularly successful in unbundling services from ticket fares, charging additional fees for baggage, in-flight entertainment, hotel bookings, and other services. At the same time, increasing numbers of passengers are using the Internet to obtain airline information and to make bookings, with the effective use of Internet technology critical to achieving and maintaining competitive advantage. Nonetheless, there is a scarcity of research examining e-CRM deployment in the airline industry. E-CRM systems provide customers with transparent ticket pricing and seating information that is instantaneously updated using yield management software. They also provide a channel to disseminate promotional information rapidly. Many of the airlines also enable customers to establish a personalised account at the website using password protection, which enables the e-CRM system to identify a customer and provide relevant information through a query to the database.

One of the difficulties that airlines face from the almost universal adoption of e-CRM systems in the industry is the speed with which competitors implement e-CRM innovations, undermining the competitive advantage created by such an innovation (Stockdale, 2006). Research indicates that customers now expect airlines to offer e-ticketing, although this provided a competitive advantage to the airlines that first introduced the e-ticketing as part of their e-CRM programmes (McIvor et al., 2003). In this highly competitive environment in which airlines offer similar technical features in their e-CRM systems, customer retention often depends on a customer's perception of the quality of service (Cheng 2008). The way in which an airline communicates with customers concerning fundamental aspects of the value proposition, such as scheduling and pricing data and information about pre-flight, in-flight and post-flight services, also affects customer retention (Wagner, et al., 2005).

According to Stockdale (2006) the airline industry has adopted e-CRM as a technology that performs two separate functions which enhance revenue. The airlines use the e-CRM system to communicate the value proposition to customers by describing services such as flight schedules, seat availability and pricing. A second but equally important objective of the e-CRM system is to reduce operating costs by automating booking,

check-in and other services which eliminate the need for staff to perform these services manually. The secondary objective of the e-CRM system is to cultivate the self-service customer who does not require assistance with the processes necessary for air transportation. Both the full service and low-cost segments of the airline industry have adopted e-CRM as a means of attracting and retaining customers. Because of increased price competition in the airline industry, all airlines have adopted some form of e-CRM to increase revenues while decreasing costs (Buhalis, 2004).

Empirical research conducted by Sam and Tahir (2009) to examine the factors leading to use of an e-CRM system by airline customers determined that empathy and trust are the two most significant predictors of purchase intention (Sam and Tahir, 2009). Other factors such as trust in an airline and in its website, and the amount of information available on the website, also have an influence on the customer decision-making process. This finding corresponds to the findings of Kim et al. (2010) concerning the importance of trust in motivating the purchase intention in general online consumer behaviour. Earlier research investigating the factors contributing to e-CRM success in the airline industry has determined that advanced techniques, such as opt-in promotional email and data acquisition from customers through online and offline campaigns, produce a strong relationship with customers (Buhalis, 2004). In general the research indicates that the majority of airlines have adopted e-CRM in response to competitive pressures, but significant variation remains in the way the airlines use their systems and the effectiveness for fostering a favourable customer attitude towards use of the e-CRM system.

Qualitative research conducted by Park (2007) and Park et al. (2004) suggests that the intention to use an airline e-CRM system for transportation purchases may be influenced by service delivery factors as well as the attributes of the e-CRM system. The aircraft must be modern and the experience accessing the air transportation service in the airport must meet customer expectations. Scheduling of flights must also meet customer needs. While e-CRM may communicate information about the external factors affecting service, customers may place significant weight on these factors in the decision to use the e-CRM system of an airline.

2.6 Synthesising the Literature into a proposal

We established that the literature remains inconclusive in determining the various factors that influence service in an e-CRM system. Feinberg et al. (2002) and Alzola

and Robaina (2010) identified numerous factors related to customer perceptions of the factors contributing to perceived ease of use and perceived usefulness of a website in the pre-sales stage, but did not determine the relative importance of the factors to customers. The relative importance of factors influencing the purchase decision and attitude toward e-CRM can vary by industry and the cost of the product.

The literature review revealed conflicting findings regarding the constructs of attitude and trust as they apply to repurchase intention. Koufaris and Hampton-Sosa (2002) considered trust to be based on positive experiences with a website as the main predictor of current and future purchase intentions. Implicit in their construct of trust is a positive attitude toward a firm's e-CRM system. Other researchers such as Harris and Goode (2010) and Buzzi et al. (2009) considered the construct of trust to be an independent construct that influences attitude towards an e-CRM system. Adding to the uncertainty of the relationship of trust and attitude towards the intention to repurchase and customer retention are the researchers relying on the TAM who consider trust to be an external variable influencing perceived ease of use and perceived usefulness, with attitude as the primary predictor of intention of future use of an e-CRM system (Alhujran, 2009; Baier and Stuber, 2010). In addition, the relationship between trust, attitude and intention to use e-CRM may be mediated by cultural factors.

The literature review also revealed insufficient research examining e-CRM as used by airlines. Sam and Tahir (2009) identified trust as a critical factor fostering customer use of airline e-CRM systems while Buhalis (2004) identified features such as opt-in email and obtaining information from customers as influencing customer use of the e-CRM system. This research is insufficient to determine the effect of different types of e-CRM features found in the various stages of the transaction cycle on customer attitude toward use of e-CRM in airlines.

Implications of the Literature

Although the literature indicates that researchers have adopted many different perspectives towards e-CRM and its effect on customer attitude and customer retention, the model developed by Alhaiou et al. (2009) captures the fundamental features of the models used by other researchers (see Figure 2.1). This model considers that the e-CRM system exerts a separate and distinguishable influence on customer satisfaction in each of the three stages of the transaction cycle, which are pre-purchase, at-purchase and

post-purchase stages. Customer satisfaction produces a positive attitude towards using an e-CRM system, which leads to loyalty as manifested by continued use of the e-CRM system and higher levels of customer retention.

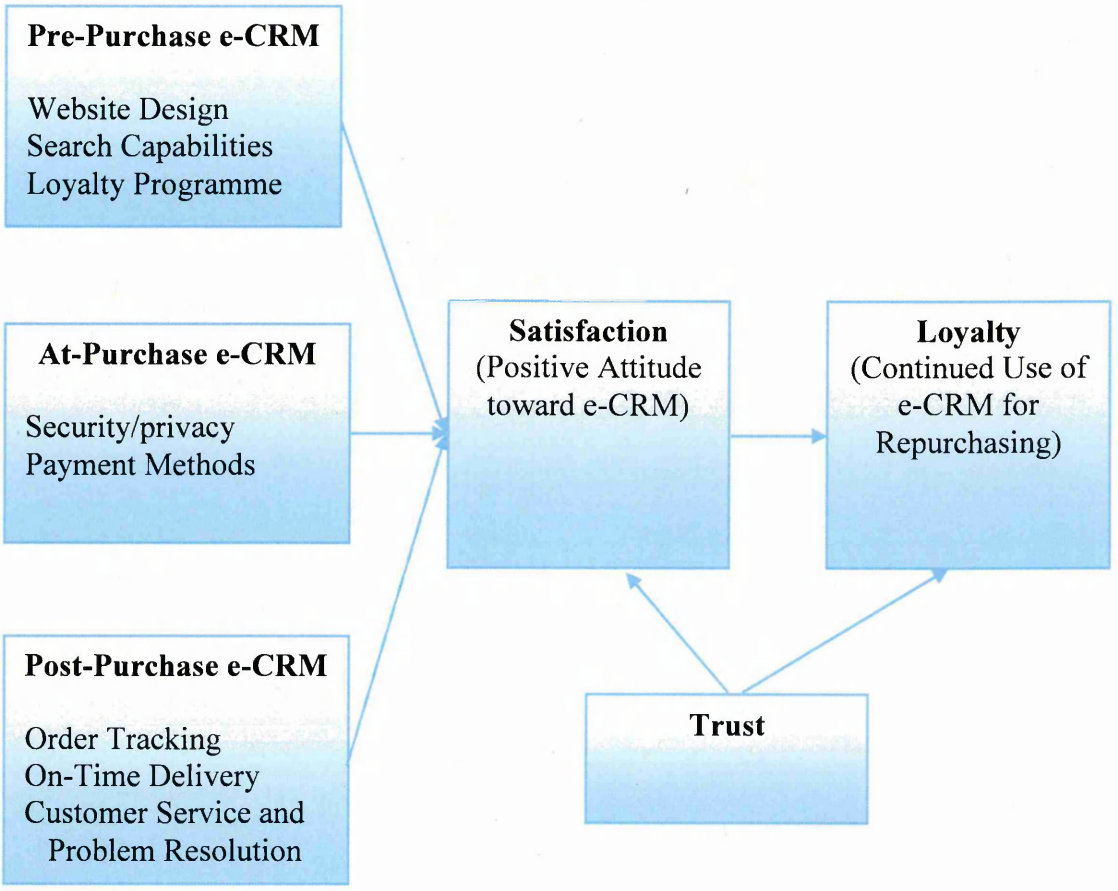

Figure 2-1 E-CRM Model (Alhaiou et al., 2009)

While the general model proposed by Alhaiou et al. (2009) shows that e-CRM exerts a separate influence on customer satisfaction or attitude during the stages of the transaction cycle, with trust functioning as a separate mediating variable, there remains substantial disagreement among researchers concerning the antecedent variables influencing these constructs. The antecedent variables are analogous to the external variables identified in the TAM, which have a significant effect on attitude through their influence on perceived ease of use and perceived usefulness of an e-CRM system (Kim et al., 2009).

To summarize the findings of previous researchers with respect to the different variables in the general model depicted in Figure 2.1, two tables are presented below. Table 2.1 contains a summary of the findings of previous researchers concerning the pre-purchase, at-purchase and after-purchase factors in an e-CRM system that influence customer satisfaction, with customer satisfaction considered a proxy measure for attitude.

Although Table 2.1 presents at-purchase services as a separate construct in accordance with the general model in Figure 2.1, most researchers consider the at-purchase factors part of the pre-sale factors because they have an influence on the purchasing decision. Table 2.2 contains a summary of the findings of previous researchers concerning the factors influencing trust among customers using e-CRM.

Table 2-1 Factors Influencing Pre-Purchase Service, At-Purchase Service, and Post-Purchase Service

Attributes	Description	Source
Pre-Purchase Service		
Appearance and Design	Customers evaluate the speed, appearance, search capabilities and overall performance of the website.	La (2005); Yu (2006)
Information	Customers gather information during the pre-purchase stage to support the purchase decision, relying on factors such as account information and information about service or product characteristics.	Alzola and Robaina (2010); Constantinides (2004); Feinberg, et al. (2002)
Personalisation and customisation	Personalisation is the customer's voluntary provision of information to the website, intended to allow the e-CRM system to provide relevant information and to facilitate current and future transactions. Customers must have adequate privacy assurances to encourage them to provide the firm with personal information. Customisation involves the firm optimising the system to support customer retrieval of relevant information. Customisation can include use of a recommender system to reduce information search.	Baier and Stuber, 2010; Feinberg, et al. (2002); Fjermested and Romano (2009); Ha et al. (2010); Sun (2009)
Behavioural Control	Customer satisfaction with e-CRM increases with a wider range of choices. Variety of payment choices and communications methods important for perceptions of customer control.	Alhaiou et al. (2009); Guo et al. (2009)
Security and Privacy	Customers evaluate security based on privacy policy, performance of the website, and reputation of the firm. Privacy and security concerns vary depending on the type of information the e-CRM asks customers to supply.	Alzola and Robaina (2010); Buzzi, et al. (2009); Fjermested and Romano (2009); Xiao, Guo, and D'Ambra (2009)

Loyalty Programme	Availability of rewards valued by customer if regular purchases are made	Alhaiou et al. (2009)
At-Purchase Service (often considered elements of Pre-Purchase Service)		
Security	Customers must perceive that the encryption technology is appropriate for the transmission of financial data	Kim et al. (2010)
Choice in Payment Method	Customers must have a variety of choices for payment to select a method appropriate for their financial circumstances	Constantinides (2004)
Membership	The e-CRM system establishes a password-protected account for customers at the time of an initial purchase to reduce time and effort necessary for subsequent purchases	Khalifa and Shen (2009)
Post-Purchase Service		
Communication	Customers must have a variety of communications channels for problem resolution and redress of service failures. Order tracking capabilities are related to self-help problem solving. Some e-CRM systems send an automated response e-mail at the time of purchase and when an event occurs such as the shipment of an item. The use of bi-directional feedback enables customers to provide information about the e-CRM experience to support continuous improvement.	Ab-Hamid (2005); Alhaiou et al. (2009); Bradshaw and Bash (2001); Liu (2007); Nusair and Kandampully (2008); Ong and Singh (2009); Shaharudin, et al., (2009)
Problem Solving	The customer must have the ability to lodge a complaint if self-help problem solving such as FAQs does not provide sufficient assistance to remedy a problem.	Ab-Hamid (2005); Nusair and Kandampully (2008)
Loyalty Programmes	Loyalty programmes can function as a promotional incentive for purchasing, although few customers take advantage of the programmes offered by firms. After-sales services must include methods for the customer to use loyalty programmes	Alhaiou et al. (2009); Feinberg, et al. (2002); Liu and Brock (2009)
Order Tracking	Influences customer satisfaction when the transaction involves the sale of goods that must be physically delivered and cannot be downloaded via the Internet	Alhaiou et al. (2009); Khalifa and Shen, (2009)
Technical Support	Customers value availability of effective technical support for products requiring installation	Sharharudin, et al. (2009)

Table 2-2 Factors Influencing Trust

Attributes	Description	Source
Information Provided by e-CRM	Customers have to rely on information available from the e-CRM system to subjectively assess the trustworthiness of the system and the firm's ability to provide goods or services as promised. The information available to the customer must support the perception that both the use of the Internet for a transaction and the firm are trustworthy. Efforts to educate consumers lead to an increase in trust.	Ab-Hamid and McGrath (2005); Angriawan and Thakur (2008); Chiu, et al. (2009); Eisingerich and Bell (2008); Kivijari et al. (2007); Pavlou (2003)
Aesthetics and Functionality	The aesthetics and functionality of a website provide indirect cues of the trustworthiness of a firm, with a poorly designed website with low functionality reducing trust.	Harris and Goode (2010)
Security	Customers must perceive that the website has sufficient security to prevent unauthorised access to personal information. The customer must perceive that encryption systems provide sufficient protection. The methods used in the e-CRM system for verification and authentication influence customers' perceptions of trust.	Ab-Hamid and McGrath (2005); Angriawan and Thakur (2008); Buzzi, et al.(2009); Chang and Chen (2009); Chen and Li (2009); Kim, Chung, and Lee (2010); Xiao, Guo, and D'Ambra (2009)
Privacy Policy	The customer must perceive that a firm will use personal information only for the purpose authorised by the customer. Information requested by the firm should be limited to the data necessary to conduct a transaction. The customers evaluate the terms of the policy as well as the way in which they can seek redress if the policy is violated.	Angriawan and Thakur (2008); Wang and Emurian (2005); Kivijari et al.(2007); Lauer and Deng (2007)

Fairness	Customers form a subjective assessment of the fairness of the e-CRM system through factors such as price transparency, the scope of the privacy policy, and information accessibility. Price comparison information improves trust. The conditions of sale should be clearly delineated to increase trust.	Alhaiou et al. (2009); Lauer and Deng (2007); Ross, 2005
Reputation of Firm	The reputation of the firm and the general corporate image contribute to the perception of trust	Chen and Li (2009); Zhou and Tian (2010)
Communications and Alternate Contact Methods	The ability of the consumer to communicate with the firm easily increases trust. Availability of a variety of alternative contact methods including telephone contact increases trust. The ability to lodge a complaint concerning a service failure enhances trust.	Casalo et al. (2008); Chiu et al., (2009); Ong and Singh (2009)
Personality Factors	The propensity to trust varies among individuals, which is a factor influencing trust external to the e-CRM system. The e-CRM system interacts with an individual's propensity to trust.	Kivijari, Laukkanen, and Cruz (2007); Teo and Liu (2006)
Cultural and Social Factors	The factors influencing trust and the effect on attitude vary among cultures. Social factors such as the influence of family and friends influence the propensity to trust.	Ha, and Akamavi (2009); Hwang (2009); Kivijari, Laukkanen, and Cruz (2007)
Personal Experience	Repeated positive experiences using a website and e-CRM system increase consumer trust	Koufaris and Hampton-Sosa (2002)

It can be seen from the previous tables that the number of elements identified is far too great to form the basis of an investigation. Indeed, although in tabulating elements from literature a wide net has been cast in relation to e-CRM generally, these tables now need to be filtered so they are suitable for application to the domain of airlines. In other words, the elements that are most relevant to airlines must be selected and those specific features found in e-CRM for airlines identified. Therefore, the set of features listed above has been reduced by surveying airline websites and using papers published by Feinberg and Kadam (2002), Khan and Shahzad (2005) and Alhaiou et al. (2009) to determine the most commonly available features/services. Those services which it is believed can help airline companies in retaining their customers were then selected. After the number of features was reduced, they were categorized into three stages:

Pre-Sales Services; Trust; and After-Sales Services. The stages of Pre-Sales Services and After-Sales Services were selected from a paper presented by Alhaiou et al. (2009) in which they used the transactional cycle stages (Pre-sales, Sale, and Post-sales) to investigate the relative contribution of satisfaction in these to the formation of overall satisfaction. However, we have replaced the 'At-sale' stage with a 'Trust' stage after considering a number of things. Firstly, as mentioned above, the At-sale service stage is often considered as part of the pre-sales services stage in influencing customers' purchasing decisions. Secondly, the issue of personal trust is exacerbated in an online context; security and information privacy over the internet have a greater impact on the purchase intentions of Middle Eastern and North African customers. Because of the lack of face-to-face communication with the company, most Middle Eastern and North African customers doubt the credibility of online businesses in terms of keeping their personal information confidential, which makes it a big concern for them. In other words, they have no trust in using their credit or debit cards to buy services or company products (Harrigan et al., 2008).

Hence, trust should be included for Afriqiyah Airways as one of the most important elements of an e-CRM that is successful in retaining customers. Thus, trust is a fundamental component that plays a big role in our study; it is a critical antecedent for building long-lasting relationships between customers and firms. The notion of trust is important enough to be investigated in the relationship between Trust and Sales stages, as mentioned by Alhaiou et al. (2009) and further reinforced by Moliner et al. (2007). Thirdly, it was considered that having three factors for sales as well as Trust would be too complex and would make the study too long. Therefore, it was decided to replace the At-sale stage with Trust, so the chosen stages are Trust, Pre-Sales Services, and After-Sales Services.

Using these chosen categories, the researcher examined the websites of Afriqiyah Airways (AAW) and six other airlines representative of the industry. The examination included three airlines primarily serving North Africa and the Middle East with flights to the United Kingdom: Tunisair (TA), Royal Jordanian (RJ), and Qatar Airline (QA). The examination also included three major airlines serving the United Kingdom: British Airways (BA), Singapore Airlines (SIA), and American Airlines (AA). The examination of the websites of the various airlines used the specific e-CRM elements in the factors identified from the literature review and summarised in Tables 2.1 and 2.2.

Each website and e-CRM system was evaluated to determine whether it provided customers with that specific feature. The result of the examination of the airline e-CRM systems is presented in Table 2.3 below. The Table suggests that Afriqiyah Airways does not provide customers with the same range of e-CRM features as many of its competitors.

Table 2-3 e-CRM Attributes in Selected Airlines

Attribute			Airlines						
			AAW	TA	RJ	QA	BA	SIA	AM
Pre-Sales Services	Personalisation and customisation					√	√	√	√
	payment methods			√	√	√	√	√	√
	Information	Account information		√	√	√	√	√	√
		Service information online	√	√	√	√	√	√	√
	Loyalty and rewards programs				√	√	√	√	√
Trust	Fairness	Price comparison				√	√	√	√
		Purchase conditions				√	√	√	√
	Security			√	√	√	√	√	√
	Privacy and confidentiality			√	√	√	√	√	√
Post-Sale/Services	Order tracking					√	√	√	√
	customer support	Ability to lodge complaint				√	√	√	√
		Problem solving				√	√	√	√
		FAQs	√	√	√	√	√	√	√
	Interactive and Communication Channels	Email and automated response				√	√	√	√
		Chat room and Electronic bulletin board							√
		Feedback channels		√	√	√	√	√	√

Legend: AAW- Afriqiyah Airways; TA - Tunisair; RJ - Royal Jordanian; QA - Qatar Airline; BA - British Airways; SIA - Singapore Airways; AM- American Airlines

The examination of the airlines' e-CRM systems provides support for accepting the general model used by Alhaiou et al. (2009) as descriptive of the situation in the airline industry. In addition, the examination of the airlines' e-CRM systems shows that the

main categories of Pre-Sales Services, Trust, and After-Sales Services account for the specific e-CRM elements identified in the literature review. As shown in Table 2.3, all airlines provide some e-CRM services related to Pre-Sales Services, Trust, and Post-Sales Services. In addition the larger airlines, represented by British Airways, Singapore Airways, and American Airlines, offer all of the elements identified in the literature review as important for an effective e-CRM system, with the exception of 'chat room' and 'electronic bulletin board' which were offered only by American Airlines. Clearly the lack of factors offered by Afriqiyah Airways provides us with strong justification for regarding it as a suitable candidate to use in the investigation. The overall analysis suggests that the model and categories are viable because they reflect the actual conditions found in the airline industry.

The following chapter discusses the development of the theoretical model underlying the research. The model was developed by synthesising the elements of the TAM as established by Davis (1989) and Davis et al. (1989) with the more recent model of Alhaiou et al. (2009) that reflects much of the current research concerning e-CRM. The chapter also further discusses the constituent elements of the model and the relationships between independent and dependent variables.

Chapter Three: Theoretical Framework and Research Model

3.1 Introduction

The critical review of the literature indicated that the specific variables of Trust, Pre-Sales Services, After-Sales Services, and Perception affect the variable of Attitude of customers towards the use of electronic customer relationship management (e-CRM). The concept of CRM is defined as coordinating 'marketing, selling, and service activities across intra-organizational and inter-organizational boundaries' (Wu and Wu, 2005). The use of internet based software to interact with customers defines the use of e-CRM. The objective of e-CRM is to attract and retain customers, thereby increasing the profitability of a firm (Khalifa and Shen, 2009). The e-CRM system achieves these objectives by providing value added services to customers, such as price information or direct access to sales personnel through the internet, which theoretically increases the convenience and accessibility of services (Sanayei et al., 2010). An e-CRM system is intended to improve relationships with customers to increase the customer satisfaction with services that leads to higher rates of customer retention.

The literature indicates that an e-CRM system will not meet the organisational objective of increasing customer retention unless customers have a propensity towards use of the system and accept the internet as a medium to support a relationship with a company (Ab Hamid, 2005). Prior research investigating the effect of e-CRM on customers suggests that a correlation exists between the amount of e-CRM a company provides and customer satisfaction (Feinberg and Kadam, 2005). Customer satisfaction influences the perceptions and attitudes towards e-CRM, increasing a customer's loyalty to a firm, thereby increasing customer retention. The extent to which e-CRM is used can mitigate the perception of risk among customers when using an electronic mediated platform to interact with a company (La, 2005). A higher level of trust improves the positive perception of a company while fostering a positive attitude toward e-CRM, which increases customer retention. The amount and perception of the adequacy of e-CRM system used by a company influences a customer's attitude toward the website to create positive customer satisfaction and higher customer retention rates. The experiences with e-CRM in both pre-sales and after-sales services also affect their attitude toward e-CRM, with positive experiences contributing to customer retention (Feinberg and Kadam, 2002). To foster a positive perception of a firm, the pre-sales services and after-sales services available through a website and the e-CRM system

must conform to the customers' expectations (Bradshaw and Bash, 2001). Positive pre-sales services experience also contributes to their attitude towards the use of E-CRM and its acceptability as a means to interact with a company. Similarly, after-sales services provided by an e-CRM system influence customers' perceptions and attitudes. The literature also indicates that a customer's experience with using a website influences satisfaction and acceptance of the website as a method of interacting with a company to obtain desired goods or services, and influences return to the website for subsequent purchases (Khalifa and Shen, 2005).

In general, the literature suggests that if a customer has a propensity towards the e-CRM system used by a firm, they are more likely to be loyal to that firm, with loyalty as a proxy measure for customer retention (Belachew et al., 2007). Increasing customer retention can provide substantial value to a company because the company does not have to incur higher marketing costs to acquire new customers to maintain or increase its volume of revenues. As a result, developing and testing a model to assess the factors contributing to positive attitudes towards e-CRM can provide firms with information that can be used to improve their customer retention rates, which can increase the overall profitability of a firm.

The purpose of this chapter is to develop a theoretical model to guide the research examining the factors influencing attitude towards the use of e-CRM. The chapter provides an overview of the technology acceptance model (TAM), also presents the application of the TAM to e-CRM, and discusses the role that the antecedent variables of Trust, Pre-Sales Services, After-Sales Services, and Perception play in Attitude towards the use of e-CRM. The chapter concludes with a brief summary.

3.2 Overview of the Technology Acceptance Model

The Technology Acceptance Model (TAM) generated by Davis in 1986 has become the most influential research stream for the IS discipline (Hirschheim, 2007). TAM places "more emphasis on psychological predisposition and social influences on behavioral intention to adopt a new innovation" (Uzoka et al., 2009). It has become popular in research because of its prudent approach and the huge amount of recent empirical support related to it (Argawal and Prasad 1999; Lallmahamood, 2007). "The TAM adopted Fishbein and Ajzen's (1975) theory of reasoned action (TRA) as a basis for specifying its casual sequence: beliefs (i.e., perceived ease of use and perceived usefulness)/attitude/behavioural intention" (Kim et al., 2009). It was specially designed

to explain and predict the behaviour of information technology (IT) acceptance at work by specifying the determinants in belief, attitude, intention and IT usage behaviour (Davis, 1989; Davis et al., 1989; Davis and Venkatesh, 2000, Kripanont 2007 and Liao et al., 2009).

The goal of the TAM, according to Davis et al. (1989)," is to provide frugal and theoretically justified models explaining determinants of IT adoption across a wide range of information technologies and user populations".

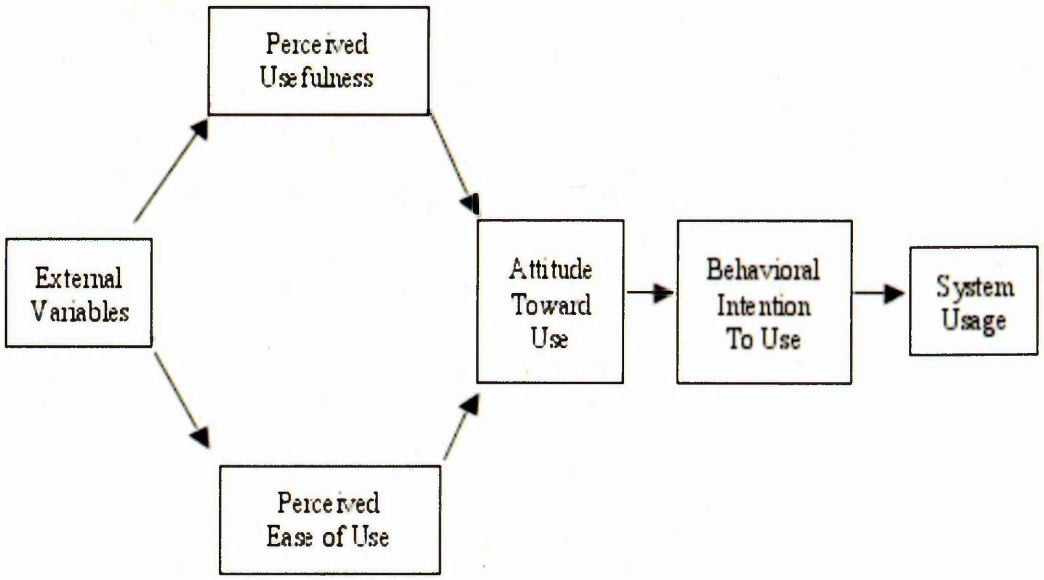

Figure 3-1 Technology Acceptance Model, TAM (Davis, 1989)

Davis (1989) developed better measures for predicting and explaining use focused on two theoretical constructs, which are perceived usefulness (PU) and perceived ease of use (PEOU), which were theorised to be fundamental determinants of system use. According to Taylor and Todd (1995) and Wang and Liu (2005), TAM started by proposing external variables as the basis for tracing the impact of external factors on two main internal beliefs, which are perceived usefulness and perceived ease of use. Moreover, "perceived ease of use is hypothesized as a predictor of perceived usefulness" (Barati and Mohammadi, 2009).

TAM asserts perceived usefulness (PU) and perceived ease of use (PEOU) are influenced by external variables and together determine the attitude towards using IT. It suggests that perceived ease of use and perceived usefulness influence attitude toward using IT, which itself has positive influence on behavioural intention to use IT.

Ultimately, behavioural intention to use IT leads to actual IT use (Koppius et al., 2005; Long, 2009; and Lim, 2009).

From as early as 1986, when TAM was introduced, up to the present, hundreds of researchers have applied it in a broad variety of IT applications to predict user acceptance behaviours of information technology (IT) as well as determining the acceptance of various information systems (Lallmahamood, 2007). As stated above, perceived usefulness has a positive direct impact on attitude as well as behavioural intention. It is expected that customers will accept a particular IT if they believe it will help them to achieve a desirable outcome of job performance, which means that the greater the perceived usefulness (PU) of utilizing a particular IT, the more likely that customers will intend to use that particular IT (Amoako-Gyampah, 2007, and Kripanont, 2007).

Table 3-1 shows some of the studies which applied TAM theory:-

Study	author
Internet /online banking	Al-Somali et al. (2009); Wang et al. (2003)
Enterprise resource planning systems (ERP)	Ramayah and Lo (2007)
Online shopping	Gefen and Straub (1997); Monsuwe et al. (2004)
Wireless Internet	Lu et al. (2003)
Email and voice mail	Adams et al. (1992); Gefen et al. (2003)
Database management system software	Szajna (1994)
Word processors	Adams et al. (1992); Davis et al. (1989)

A critical review of the literature discussing the TAM has provided an insight concerning the factors that can influence users to accept a technology, with acceptance a prerequisite for use of the technology. According to Ma and Liu (2005), "the TAM is believed to be more parsimonious, predictive and robust" than competing models of technology adoption. For this reason, in this research the TAM will be applied as the foundation of the theoretical framework. The TAM was modified to create a specific modified model that explains the factors supporting a positive attitude towards the e-CRM offered by a firm based on the assumption that improvements to an e-CRM system can increase customer usage and customer retention. The model has been validated in numerous empirical investigations (Wu and Wu, 2005).

The TAM is grounded in psychological principles in which beliefs influence attitudes, with attitudes influencing intention to use a technology (Ma and Liu, 2005). The model posits that external variables can influence perceptions of usefulness and perceptions of the ease of use of a technology (Leong and Huang, 2002). These external variables include prior experience with the technology or similar technologies, personality factors such as openness to change, and elements of the technology related to functionality and ease of use. Because the model considers attitudes and behaviours, it is appropriate for evaluating the factors contributing to the attitude of airline customers towards the use of e-CRM, which influences their system usage behaviour.

3.3 Proposed Model

This study expands on the TAM model by adding the three constructs of Trust, Pre-Sales Services, and After-Sales Services. These three constructs are specific external variables that are antecedent to the construct of Perception, which is composed of the two variables of perceived usefulness and perceived ease of use as in the basic TAM model. Additional differences between the model used in the study and the TAM model are the interrelationship between the variables of Trust, Pre-Sales Services and After-Sales Services as well as the direct relationship between the variable of Trust and the variable of Attitude towards use of e-CRM. In the model used in this study, Trust, Pre-Sales Services, and After-Sales Services are independent variables that are determinants of Perception. Perception is an intermediate variable that combines with the external variables of Trust, Pre-Sales Services and After-Sales Services to operate as determinants of Attitude. Attitude is the dependent variable in the model, which is the primary factor influencing the behaviour of customers in usage of the e-CRM system. The modified model is intended to reflect the unique situation of customers' acceptance of an e-CRM system available at an airline. Figure 3.2 below shows the Proposed Model used in the study.

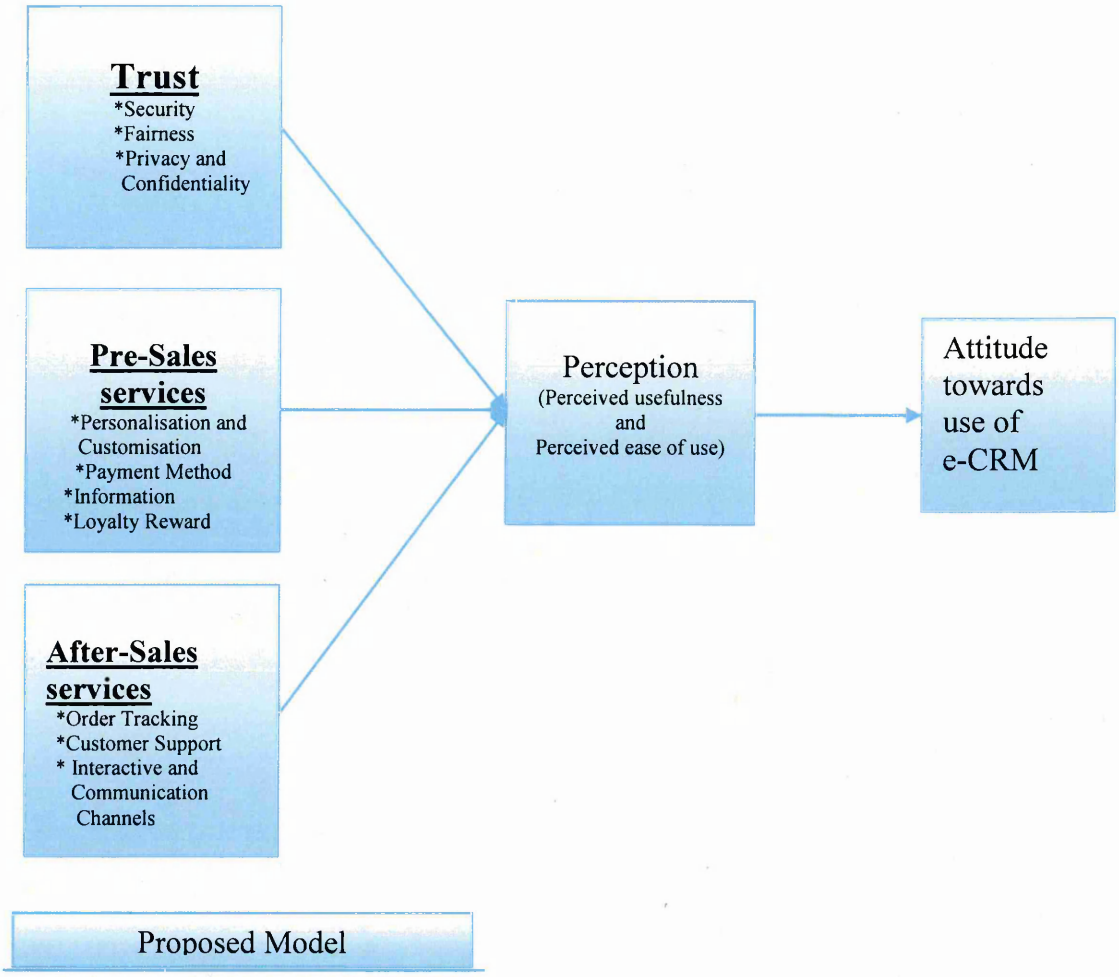

Figure 3-2 Proposed Model

The basic TAM model supports the assumption that Attitude towards the use of e-CRM affects the actual use of an e-CRM system. The modified Customer Retention TAM guides the direction taken by the research to test the validity of the overall propositions contained in the model concerning the effect of the determinant variables on Attitude as well as the individual propositions of the model concerning the interaction among the determinant variables. Previous researchers have frequently introduced variations in the external variables intended to test TAM propositions in specific situations or contexts, which reflects the complex nature of technology acceptance behaviour as well as the constant change in technology that requires users frequently to accept new technologies (Chew et al., 2006). The modifications made to the model by previous researchers have also included propositions relating to the interaction among external variables as well as their combined effect on Perception, and the combined effect of external variables and Perception on Attitude.

The following section contains a literature review and discussion of the external variables of Trust, Pre-Sales Services and After-Sales Services, the interaction among these variables, and their effect on the variable of Perception. The following section also presents a literature review and discussion of the dependent variable of Attitude, which is presumed to be the primary determinant of the actual use of a technology. Because of the modifications to the TAM, the study requires a full understanding of the external variables in the modified model, and the nature of the variables of Perception and Attitude.

3.4 The Relationship between External Variables and TAM Variables

Because the modified TAM model proposes that specific external variables may influence perception and attitude towards e-CRM, it is important to identify the relationship among the external variables (see Figure 3.2). The external variables are critical for assessing the way in which these variables can affect e-CRM usage and the effectiveness of e-CRM for customer retention.

3.4.1 Trust

In this research, Trust is considered an external variable because of its significant influence on the perception of usefulness of a website and the attitude towards use of the website. Trust is generally defined as the 'reliance on the integrity, ability or character of a person or thing' (Lilien and Bhargava, 2008). In many online transactions, trust is implicit, with a user obtaining information or providing data to a website based on an assumption that the entity operating the website is trustworthy. Previous research investigating the role of trust in the use of websites indicates that it is a significant variable influencing perceptions of a website and attitudes towards using the website. Research examining the perception of trust among online users has determined that the presentation and content of a website produced by an unknown entity positively influence the belief that a website is trustworthy (Chang and Chen, 2009). Online users make inferences about the unknown based on the information and cues available in the environment, with factors such as website usability functioning as surrogate factors to assess trustworthiness. Research conducted by Chiu et al. (2009) was particularly significant for the development of the Customer Retention Modified TAM Model. This study determined that trust influences attitude towards the use of a website independently from perceived usefulness and perceived ease of use. At the same time, trust functioned as a moderating variable on perception of usefulness and ease of use.

Factors such as the level of security provided by a firm and any history of breach of security can also influence the trusting belief (Fjermested and Romano, 2009). Trust not only affects the interaction of a user with a website, but also influences the loyalty of the user to that website which results in repeat visits (Flavian and Guinalu, 2006).

Security

The literature indicates that security remains a very critical issue with which customers are concerned (Lai et al., 2010). In regards to the development in e-commerce, Nasir et al. (2007) stated that customers' initial concerns regarding online trust mainly focused on the issues of security and privacy on the Internet; that is because perceived security control and perceived privacy control are essential features of online transactions, which affect the development of online customers' confidence in e-commerce. The goal of security is to protect the confidentiality of customers' data collected by a firm (Charney, 2008). The usage of the most recent security technologies is crucial to improving the level of trust between a firm and its customers (O'Reilly and Finnegan, 2005).

Fairness

The literature also suggests that the perception of fairness in an organisation is a contributing factor to the amount of trust various stakeholders, including customers, place in an organisation (Moorman et al., 1993). An individual who perceives the organisation as fair and equitable is more likely to use that organisation's services, including its e-CRM system. To some degree the perceptions of the power imbalance when using an e-CRM system relate to the perception of fairness. For example, users often consider an e-CRM system unfair if it does not provide transparent information concerning prices (Lancaster, 2000). Zhang and Feng (2009) determined that the relationship of price to the perception of fairness occurs in two dimensions in e-CRM. A customer will perceive the price as fair if it is reasonable when compared to the prices charged by competitors, and if it represents value for the amount charged, which is related to the status or quality provided by the firm. This research determined that a website using any type of practice the customer deems as deceptive will negatively affect the perception of fairness. The research confirms that the perception of fairness of a firm developed from a visit to a website influences the degree of trust that a user will place in the website and any e-CRM system associated with that website.

Privacy and Confidentiality

The literature discussing prior research into trust also indicates that privacy and confidentiality are factors influencing trust in online communications methods. Internet users are increasingly sensitive to the protection of personal information, which affects their perceptions of and attitude towards a website. Privacy can be broadly defined as 'the right of an entity, acting on its own behalf, to determine the extent that it will interact with its environment, including the degree to which the entity is willing to share information about itself with others' (Lilien and Bhargava, 2008). A passive visitor to a website can remain anonymous because the website host is unaware of the identity of the visitor even if a tracking cooking is lodged in the visitor's computer. Once the visitor supplies information to the website, however, anonymity may be lost. As a result, a website has to provide the user with adequate assurances of confidentiality to support a decision concerning the degree of personal information the user is willing to provide (Fjermested and Romano, 2009). Confidentiality is related to the technical security procedures used by a firm operating a website and is a separate construct from privacy (Flavian and Guinalu, 2006).

3.4.2 Pre-Sales Services

'Pre-Sales Services' is a construct that includes the experiences of a customer with an e-CRM system linked to a website prior to forming and acting on the purchase intention. It is composed of factors such as the ability to personalise or customise online interaction, the communication system that collects account information and provides a preview of services, and a loyalty and reward system. The payment methods accepted by the company are also a factor influencing perceptions of pre-sales services. The Pre-Sales Services construct essentially involves the attraction phase of an online transaction during which the customer forms initial opinions about the usefulness and usability of the website based on an interactive communication process (Khalifa and Shen, 2009). The literature suggests that the quality of the customer interface is a significant influence on the perception of usefulness and ease of use of a website (Chang and Chen, 2009). In this model, the subjective quality of a website is an important factor the customer uses when determining whether to make a purchase and in developing a propensity toward the e-CRM system used by a company. The Pre-Sales Services variable is composed of both marketing and sales components, with the interactive nature of an e-CRM system enhancing the quality of information provided to a customer to prompt a purchase decision (Ross, 2005).

Personalisation and Customisation

Personalisation allows the user of a website to make specific changes to the web pages based on preferences, which facilitates ease of use by improving navigability (Ab Hamid, 2005). Prior research has determined that personalisation is a significant factor contributing to satisfaction with websites and the intent to continue using the website in the future (Khalifa and Shen, 2009). Customisation allows the user of a website to filter the content that they see, which theoretically increases the usability of a website by providing only the information the customer believes is relevant (Feinberg et al., 2002). At the same time, customisation and personalisation result in bi-directional communication, with the firm gathering information about individual customer preferences when the e-CRM system captures the inputs used to customise or personalise the webpage (Ross, 2005). Personalisation and customisation of a website occurs during the Pre-Sales Services phase of an interaction with a customer and results in the customer forming a perception of the usefulness and ease of use of the e-CRM system. Some models, using customer satisfaction as a proxy measure for attitude towards website use, consider the user's ability to personalise and customise a website as a construct separate from navigability or perceived ease of use (Nusair and Kandampully, 2006). These models, however, do not preclude the possibility that personalisation and customisation is an antecedent variable for perceived usefulness and perceived ease of use, with both constructs interacting to affect the attitude of a user towards a website.

Payment Method

The payment methods provided by the e-CRM method are another form of customisation for the customer that can create positive perceptions of Pre-Sales Services (Khalifa and Shen, 2005). Choices for payment such as credit card, cash-on-delivery or electronic cash options give a customer a greater sense of control over the relationship, and allow the customer to tailor payment based on the level of trust or confidence with the system. In addition, providing customers with a choice of payment methods can increase the perception of usefulness of the website because the customer can choose a payment method that is believed to be safe and appropriate for the customer's current financial position (Liu, 2007). Research examining choice of online payment methods has found a statistically significant correlation between availability of choice and customer satisfaction with the firm and its e-CRM system (Khalifa and Shen, 2009).

Information

The literature indicates that in the pre-sales stage there are some types of information which a firm should provide to customers, such as account information relevant to conducting transactions with the firm. This could include their credit card or debit card information, if they have authorised the firm to retain this information for repeat purchases (Feinberg and Kadam, 2002). Also, other information necessary to support a customer's purchase decision includes information about the "prices to be paid, delivery charge, stock availability of product, delivery time" and information about product or service characteristics (Alzola and Robaina, 2010).

Loyalty Reward

The opportunities available to customers to participate in loyalty reward programmes is a significant component of Pre-Sales Services because it can influence the intention to continue to purchase goods or services from that company and the perceived usefulness of maintaining a relationship with the company (Lewis, 2004). Customer loyalty is an attitude construct involving the positive intention to use a website to make future purchases that can be distinguished from using a website because no other viable alternative is available (Chang and Chen, 2009). Research investigating the relationship between reward programmes and pre-sales services indicates that the programme is ineffective if a customer does not value the reward, or if a company fails to communicate the way in which the customer can benefit from the reward (Liu and Brock, 2010). Evidence from prior research also suggests that e-CRM systems can improve customer loyalty by providing personalised information or incentives to an existing customer based on past purchase patterns and the inputs the customer uses when customising or personalising web pages (Ross, 2005). Effective loyalty and reward programmes provide personalised incentives because the drivers of loyalty, such as discounts, special terms, or rewards, vary among individual customer, which is a particular advantage of e-CRM (Khalifa and Shen, 2005). Another online loyalty reward approach to improve perceptions of usefulness is to provide a customer with access to a specialised type of value-added service that is available only to loyal customers, such as membership of a club operated by the firm (Ab Hamid and McGrath, 2005).

3.4.3 After-sales Services

The literature generally indicates that After-sales Services can confirm or disconfirm the perceptions of a website formed during the Pre-Sales Services phase of an online

transaction. If the After-sales Services provide a positive experience, they validate the positive perceptions that prompted a purchase decision. If the After-Sales Services provide a negative experience, the affective response of the customer can moderate or eliminate trust as well as any positive perceptions and attitudes developed during the pre-sales phase of e-CRM use (Chang and Chen, 2009). The literature also indicates that the key factors affecting After-Sales Services consist of order tracking, customer support, and availability of interactive channels to obtain information or resolve problems (Ab Hamid, 2005; Feinberg and Kadam, 2002). Research indicates that customers often place different weight on the importance of various after-sales functions, which suggests that firms should have a variety of e-CRM functions such as order tracking and interactive approaches to complaint and problem resolution to increase customer satisfaction and positive attitudes towards e-CRM (Khalifa and Shen, 2009).

Order Tracking

Research examining the types of After-Sales Services that significantly influence customer perceptions and attitudes towards e-CRM systems indicates that order tracking is an important factor. After placing an order, customers have an expectation that order fulfilment will occur in a timely manner (Ab Hamid, and McGrath, 2005). E-CRM systems provide the firm with an opportunity to routinely supply customers with information to allow a customer to track the progress of order fulfilment. In some types of order fulfilment processes, such as electronic ticketing in airlines, fulfilment can occur immediately after a financial transaction is processed. The optimal form of order tracking is interactive, with a customer making a query that generates information about an order, rather than expecting the customer to wait passively to receive information about the status of the order (Khalifa and Shen, 2005). Research has determined that order tracking contributes to the perception of usefulness of a website and fosters a more favourable attitude towards use of e-CRM (Ab Hamid, 2005). Automated order tracking information has also been linked to customer satisfaction with the website and the transaction process (Belachew et al., 2007).

Customer Support

After-sales customer support is primarily concerned with resolving complaints or problems that occurred in the automated processes in the e-CRM system. The customer support function is particularly important for a firm's ability to recover from a service

failure that has produced a negative perception concerning usefulness that may have developed from a service failure or a product failure. Research suggests that the way in which firms recover from service or product failures has a greater influence on customer perceptions and attitudes than the occurrence of the service or product failure. An effective e-CRM system has a specific section which allows customers to inform the company of complaints from service failure and prioritises the complaint for immediate action (Feinberg et al., 2002). Some research has also determined that customers resist using a self-help routine in an e-CRM system when a problem arises and desire direct customer support from a service representative (Feinberg and Kadam, 2002). As a result, customers may perceive an e-CRM feature such as frequently asked questions (FAQs) as an insufficient approach to addressing complaints and resolving problems, and this may contribute to a negative attitude towards use of the e-CRM system. If a customer perceives that the company has adequately addressed the complaint or resolved a problem by using the e-CRM system, the customer is more likely to have a propensity towards the system.

Interactive and communication Channels

The after-sales interactive support in an e-CRM system is fundamentally similar to the pre-sales communication channels, but may include additional channels such as FAQs and self-help routines that allow customers to resolve problems themselves without the need for live staff assistance (Feinberg et al., 2002). The interactive channels available to a customer after the sales transaction is completed provide them with additional indirect cues about the quality of the website and the e-CRM system that produce an affective emotional response influencing their future purchasing intentions (Chang and Chen, 2009). The interactive channels in after-sales services, however, are often lacking in tourism-related e-CRM systems such as airlines (Maswera et al., 2008; Nusair and Kandampully, 2006). The literature also indicates that the interactive channels associated with e-CRM systems can be classified as asynchronous and synchronous with customer expectations for use of the channel determined by the purpose of the after-sales communication (Ab Hamid, 2005).

A bulletin board may also provide a benefit to the customer by establishing an online community that allows customers to exchange information with each other as well as with the company, and can contribute to building trust in the firm (Khalifa and Shen, 2005). Synchronous interactive tools allow a customer to interact with the e-CRM

system or staff in real time and include FAQs, help search engines, chat, and telephone customer care services. Chat functions as a fully e-CRM interactive communications mode because it is enabled by the front-end web platform used by the customer to communicate with the company (Ross, 2005). Chat allows a customer to receive instant resolution to a problem through a real time exchange of information with a customer care representative (Belachew et al., 2007).

3.4.4 Perception

In the TAM model, external variables influence the perceived usefulness and perceived ease of use of the technology, with these two factors combining to create the variable of Perception in the Customer Retention Modified TAM Model. Perception is the determinant of attitude towards use of a technology, including use of an e-CRM system (Ab Hamid, 2008). Perceived usefulness can generally be defined as the 'extent to which a consumer believes that online shopping will enhance his or her transaction performance' (Chiu et al., 2009). Perceived ease of use can be generally defined as 'the extent to which a consumer believes that online shopping will be free from effort' (Chiu et al., 2009).

Research conducted by Ab Hamid and McGrath (2005) identified factors influencing perceptions of usefulness and perceptions of ease of use of an e-CRM system. Factors such as information quality, customer service quality, and ability to track orders influence the perception of usefulness, while factors such as navigability and ability to personalise affect ease of use. The perception of usefulness, however, can be mediated by uncertainties about the possible outcomes when using a technology (Ab Hamid, 2008). Research investigating the factors that influence perception of usefulness among internet consumers has also identified variety of choice, convenience, lower pricing, and information, as significant for positive perceptions of usefulness of a website (Leelayouthayotin, 2004).

3.4.5 Attitude

In the TAM model, the factors of perceived usefulness and perceived ease of use influence attitude towards using a technology, which attitude is presumed to be a significant predictor of the behavioural intention to use the technology that results in actual system usage (Wu and Wu, 2005). In the Customer Retention Modified TAM Model, Attitude towards e-CRM use functions as the dependent variable, with the

antecedent variables of Trust, Pre-Sales Services, After-Sales Services and Perception as determinants of Attitude. The construct of Attitude as it applies in the modified TAM model can be defined as the degree of personal attachment to a website and favourable bias toward the website, both in itself and in comparison with the websites of competitors (La, 2005). The attitudinal construct includes the degree of commitment of customers to a website, which also influences the degree of commitment to the firm.

Research examining the factors that can influence the construct of Attitude towards e-CRM usage has identified factors in addition to perceived usefulness and perceived ease of use as determinants of attitude (Wu and Wu, 2005). Particularly significant among these factors not accounted for in the TAM model was perception of relative advantage from using an e-CRM system, with relative advantage involving the perception that the technology is an improvement or enhancement over existing technologies. In addition, personality variables and demographic factors such as education, experience, and openness to change can influence attitudes towards the use of e-CRM. Research conducted by Sanayei et al. (2010) determined that compatibility with existing habits or practices and the ability to test the technology prior to adoption are also determinants of attitude. As a result, the Customer Retention Modified TAM Model may not account for all the variance in Attitude.

Research examining the effects of a positive attitude of customers towards e-CRM use indicates it has a positive association with customer retention (Sanayei et al., 2010; Wu and Wu, 2005). The positive attitude toward e-CRM contributes to customer retention by encouraging the continued use of a website as a means to interact with a company. Customers' continued use of a website creates additional opportunities for the company to reinforce its relationship with customers through technologies deployed in the e-CRM system that provide additional value to the customer. The positive attitude toward e-CRM is also foundational for the construct of loyalty, which involves the actual behaviours associated with repurchasing that will not occur unless the customer is satisfied with the e-CRM system (La, 2005). The positive attitude contributes to loyalty, or the intention to make future purchases from the company which is the antecedent of the behaviour. Thus, a positive attitude towards use of e-CRM contributes to customer retention.

3.5 Principle research question

What part do the external factors Trust, Pre-Sales Services, and After-Sales Services play in Attitude towards the use of e-CRM to retain customers?

3.5.1 Three sub-questions:

- What is the effect of the adoption of e-CRM in Afriqiyah Airways on attitude to retain customers?
- To what extent does the research model assist Afriqiyah Airways and other similar companies in planning and taking up e-CRM adoption?
- Are there any relationships between these factors and are they related?

3.6 Hypotheses and framework

Based on the justifications we mentioned above we have the following framework and hypotheses.

Stages	Hypotheses	Independent Variables	Dependent Variables
1	H1: Trust, Pre-Sales Services, After-Sales Services and Perception have a positive association with Attitude towards use of e-CRM.	**Trust, Pre-Sales Services, After-Sales Services and Perception**	**Attitude toward using e-CRM**
	H2: Perception has a positive association with Attitude towards use of e-CRM.	**Perception**	**Attitude toward using e-CRM**
	H9: Trust has a positive association with Attitude towards use of e-CRM.	**Trust**	**Attitude toward using e-CRM**
2	H3: Trust, Pre-Sales Services, and After-sales Services have a positive association with Perception	**Trust, Pre-Sales Services, After-Sales Services**	**Perception**
	H4: Trust has a positive association with Perception.	**Trust**	**Perception**
	H5: Pre-Sales Services have a positive association with Perception	**Pre-Sales Services**	**Perception**
	H6: After-Sales Services have a positive association with Perception.	**After-Sales Services**	**Perception**
3	H7: Pre-Sales Services and After-Sales Services have a positive association with Trust	**Pre-Sales Services and After-Sales Services**	**Trust**
	H8: Pre-Sales Services have a positive association with After-Sales Services.	**Pre-Sales Services**	**After-sales services**

Table 3-2 Derivation of the hypotheses

This is based on three stages of investigation analysis of the proposed model.

Stage one: involves looking at the relationships of factors with Attitude. First, all factors (Trust, Pre-Sales Services, After-Sales Services and Perception) as independent variables on Attitude as the dependent variable leads to Hypothesis (1); second, Perception as an independent variable on Attitude as the dependent variable leads to

Hypothesis (2), and finally Trust as an independent variable on Attitude as the dependent variable leads to Hypothesis (9).

Stage Two: involves the three individual factors Trust, Pre-Sales Services and After-Sales Services separately as independent variables on Perception as the dependent variable; these correspond to Hypotheses (4), (5) and (6) respectively. Taking all factors together as independent variables on Perception as the dependent variable corresponds to Hypothesis (3).

Stage Three: involves the interrelationships between the three factors themselves (Trust, Pre-Sales Services and After-Sales Services) corresponding to Hypotheses (7) and (8).

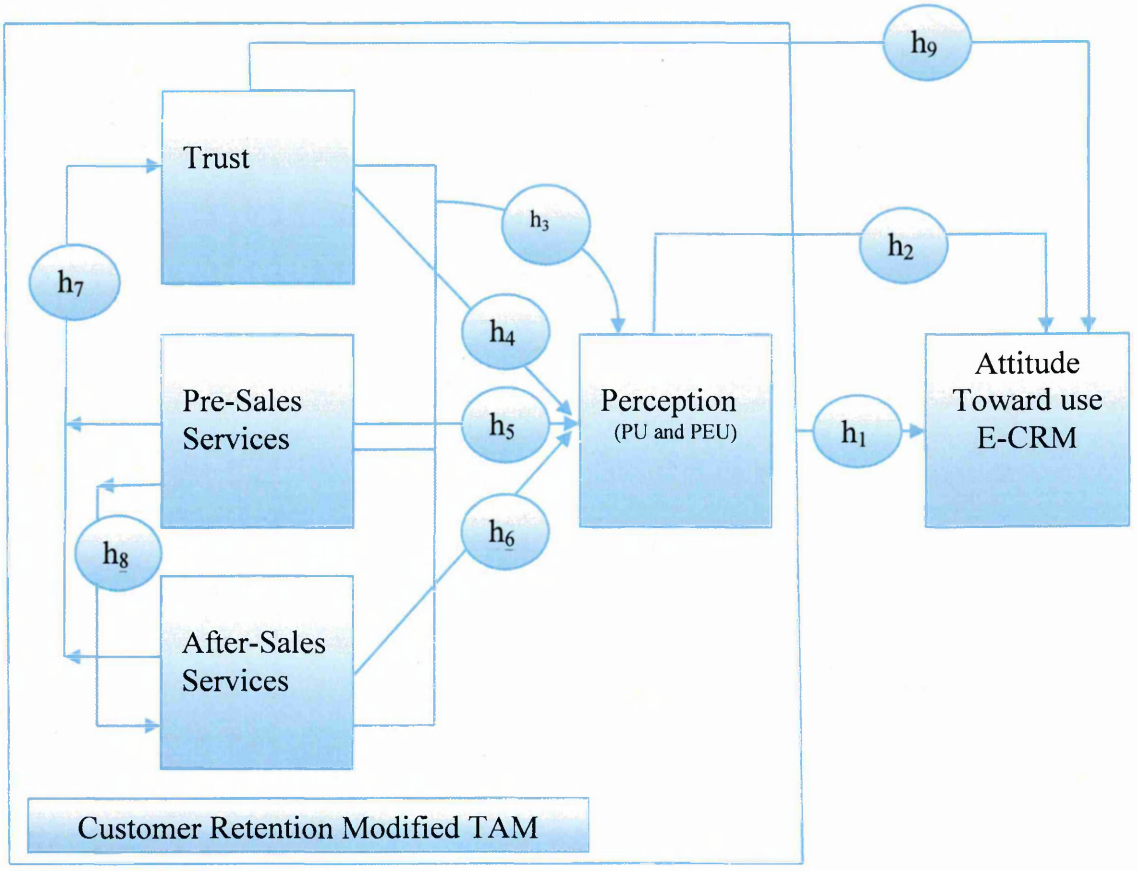

Figure 3-3 Customer Retention Modified TAM Model

H1: Relationship between Pre-Sales Services, Trust, After-Sales Services and Perception, and Attitude towards using e-CRM.

H2: Relationship between Perception and Attitude towards using e-CRM.

H9: Relationship between Trust and Attitude towards use e-CRM.

H3: Relationship between Pre-Sales Services, Trust, and After-Sales Services, and Perception.

H4: Relationship between Trust and Perception.

H5: Relationship between Pre-Sales Services and Perception.

H6: Relationship between After-Sales Services and Perception.

H7: Relationship between Pre-Sales Services and After-Sales Services and Trust.

H8: Relationship between Pre-Sales Services and After-Sales Services.

3.7 Summary

Developing a theoretical model to assess the factors contributing to a positive attitude toward e-CRM is necessary to support the investigation of customer attitudes towards using e-CRM in the airline industry, which has not been extensively examined despite the widespread use of e-CRM among airlines. The objective of e-CRM is to attract and retain customers using an internet platform (Khalifa and Shen, 2009). The theoretical model underlying the study developed a Customer Retention Modified TAM Model for e-CRM from the propositions of the generic TAM that is applicable to the adoption and use of technology. The TAM model is based on psychological principals and proposes that external variables influence the perceived usefulness and perceived ease of use of a technology, which influence the attitude towards the technology (Ma and Liu, 2005). Attitude towards the technology is a determinant of the intention to use the technology and its actual usage. Modifications to the model are based on evidence from prior research that a positive attitude towards use of e-CRM is related to customer retention.

The Customer Retention Modified TAM Model for e-CRM considers the three external variable constructs of Trust, Pre-Sales Services, and After-Sales Services as the determinants of the construct of Perception. The construct of Perception combines perceived usefulness and perceived ease of use into a single construct. In this model, the three external variables have a direct influence on Perception, but also interact with each other. Among the three external variable constructs, Trust is significant because it not only is a direct determinant of Perception, but also has a direct influence on the dependent variable construct of Attitude towards use of e-CRM. The factors of fairness, privacy and confidentiality influence consumers' perception of Trust (Fjermested and Romano, 2009). Pre-Sales Services are the factor that attract a customer to a website and foster the development of purchase intention in customers (Khalifa and Shen, 2009). In e-CRM, these factors include ability to personalise or customise a website, a choice of payment methods, communications, and loyalty and reward programmes. After-sales Services involve the factors that reinforce perceptions and attitudes toward

e-CRM after a purchase decision has been made (Chang and Chen, 2009). These factors include order tracking, customer support and interactive channels. The construct of Perception is considered to be an important determinant of Attitude towards use of e-CRM (Ab Hamid, 2008). Attitude towards use of e-CRM is the favourable bias of the customer towards a website and e-CRM (La, 2005). When a customer has a favourable attitude toward e-CRM, that customer is more likely to use a website to make repeat purchases, thereby improving customer retention (Sanayei et al., 2010).

Based on prior research, it is reasonable to assume that the Customer Retention Modified TAM Model (see Figure 1) will determine that Trust, Pre-Sales Services and After-Sales Services will influence Perception and Attitude towards use of e-CRM. This model supports the purpose of this research in determining the way in which attitude towards use of e-CRM influences customer retention.

Chapter Four: Research Design and Methodology

4.1 Introduction

This chapter presents the research design and methodology used to investigate e-CRM at Afriqiyah Airways and to test the hypotheses of the study. Specifically, the chapter discuses the procedures used to collect and analyse data concerning the factors leading to customer use of an e-CRM system that lead to increased customer retention. The research design used a quantitative methodological approach based on the positivist research paradigm, with the chapter containing a rationale for the selection of the research design and the specific methods employed to answer the research questions.

This research adopted a positivist research paradigm associated with quantitative research, although other research paradigms were considered. The review of literature indicated that many theoretical frameworks have been used by previous researchers to explain the adoption of a new technology by users and its application to e-CRM. These researchers relied on positivist and post-positivist paradigms to guide their research designs. Previous research also empirically established that the variables of Trust (Chang and Chen, 2009; Fjermested and Romano, 2009), Pre-sales Services (Khalifa and Shen, 2009), After-sales Services (Ab Hamid, 2005; Feinberg and Kadam, 2002), and Perception (Adams et al., 1992; Chiu et al., 2009) influence the variable of Attitude towards use of e-CRM (Alhurjian, 2009; Baier and Stuber, 2010). The reliance on empirical methods by previous researchers suggested that the positivist research paradigm and a research design using quantitative methods would be a highly suitable choice for this research.

4.2 Scientific Paradigms

This section considers the various scientific paradigms to support research and particularly examines the post-positivist paradigm used in this research. Each of the scientific paradigms provides a framework based on ontological and epistemological assumptions about the nature of reality and the way in which information should be organised to explain reality. Because of the differences in these assumptions, the underlying paradigm is critical for determining the methodological approach and the research design (Jonker and Pennink, 2010).

The ontological assumptions underlying scientific paradigms are concerned with the nature of reality. Prior to considering the methodology, the researcher makes an assumption concerning the nature of reality that influences the way in which the reality

can be understood. The ontology can be normative, which suggests that reality is objective and the same in all situations, or interpretive, which suggests that reality is subjective and differs depending on the situation (Grix, 2004). Epistemology involves the way in which information or knowledge is organised to provide an understanding of reality. The ontological assumption determines the epistemology used in research because information or knowledge has to be organised in a manner that is consistent with the assumption concerning the objectivity or subjectivity of reality (Grix, 2004). The fundamental ontological and epistemological assumptions produce the general scientific paradigms of positivism, phenomenology, and post-positivism as well as variants of these general paradigms.

The positivist research paradigm is based on the ontological assumption that an objective normative reality exists and the epistemological assumption that the collection and analysis of objective data leads to an understanding of reality (Johnson and Duberly, 2000). In the positivist research paradigm, reality is a series of separate events that can be observed by the human senses. As a result, knowledge consists of the measurements of observations of discrete events that create an understanding of the nature of the reality. In contrast, the phenomenological research paradigm is based on the ontological assumption that only a subjective interpretive reality exists. This ontological assumption results in an epistemology in which knowledge is constructed from the subjective views of individuals who experience a particular phenomenon, with the information used to create a relativistic understanding of reality. In effect, the understanding of reality is a social or mental construct that can change based on situation or circumstances (Edley, 2001).

The post-positivist research paradigm is based on the ontological assumption that reality is neither fully objective nor fully subjective, but rather is composed of both objective and subjective elements interacting with each other (McKenzie et al., 1997). The epistemology in the post-positivist paradigm uses both objective measurements and subjective discourse to obtain an understanding of the nature of reality, with the specific mix of information determined by the nature of the research questions in a study. The post-positivist paradigm presumes that the findings of the research probably but not definitively describes reality (Creswell, 2009).

The scientific paradigms create a fundamental dichotomy in research designs concerning the methods used to collect and analyse data. The epistemology associated

with the positivist paradigm relies on quantitative methods and deductive reasoning whilst that associated with the phenomenological paradigm relies on qualitative methods and inductive reasoning. To assess the appropriateness of a scientific paradigm such as the positivist paradigm used in this research, it is necessary to examine the differences between the deductive and inductive methodological approaches.

4.3 Deductive and Inductive Research Methodology

Deductive research methodology is generally associated with the positivist and portions of the post-positivist scientific paradigms. Deductive reasoning moves from the general to the specific and is based on the logic premise that if a general proposition is true for the specific case under investigation it is also true for other similar cases (Evans, 2000). As a result, deductive reasoning involves making inferences concerning the validity of a general theory based on the observation of specific cases. When used in research, deduction supports the ability to make inferences about hypotheses established at the outset of the research. The variables related to the hypotheses are also operationalised to allow collection of empirical data in an objective manner, with the research fully separate from the object of the research. In practice, deductive reasoning supports research in which 'sense is made of data by locating them within a general or theoretical context' (Given, 2008, p. 429).

Inductive research methodology is generally associated with the phenomenological and portions of the post-positivist scientific paradigms. Inductive reasoning moves from the specific to the general, and is based on the logic premise that observations of a specific case can produce a generalisation that is true for all cases (Babbie, 2007). Inductive reasoning supports a research design in which a series of observations are collected to be used to develop a general theory at the conclusion of the research. The researcher does not have a preconceived hypothesis that is tested and closely interacts with the subjects during the collection and analysis of data. Teddlie and Tashakkori (2009, p. 47) noted that 'inductive reasoning involves observing as many examples of a phenomenon as possible and then looking for the general underlying principles that explain that phenomenon'.

The differences between deductive and inductive reasoning suggest that a research design based on deductive reasoning such as positivism would be appropriate for the current research. Deductive research methods require objectivity in the data collection and analysis to test hypotheses, which results in a greater likelihood that the research

findings can be replicated in different study populations. In contrast, a research design based on inductive reasoning requires the researcher to select cases based on a subjective rationale, increasing the likelihood the findings are influenced by researcher bias and reducing the possibility that the findings can be confirmed through replication.

4.4 Quantitative and Qualitative Research Methods

The fundamental dichotomy between deductive and inductive reasoning is the basis for the differences between quantitative and qualitative research methods. Quantitative research methods use empirical measures for operationalised variables related to the hypotheses that can be used to make deductive inferences and have the objective of quantifying phenomena. Qualitative research uses non-empirical or descriptive measures to assess data to determine if it is possible to make an inductive inference and has the objective of describing phenomena (Newman and Benz, 1998).

In addition to the differences in data collection and data analysis, quantitative and qualitative research methods employ different techniques. In quantitative research, the researcher establishes the boundaries of the study at the outset by formulating hypotheses to test a theory. The data collected is relevant only to the hypotheses, with no other type of data collected. The researcher operates as an external observer of reality and avoids interacting with subjects to reduce the possibility of influencing the subjects. The researcher also seeks to control the data collection environment, which is intended to support the ability to replicate findings (Punch, 2005). In the qualitative approach, the researcher allows the data collection process to establish the boundaries of the investigation, with the subjects able to expand the scope of the inquiry to include areas or data that the researcher had not considered. The researcher interacts with subjects to maximise the amount of data and may involve subjects in the data analysis process. In addition, data is collected in the subjects' natural environment (Flick, 2006).

Table 4.1 presents the differences between the quantitative and qualitative research approaches.

Quantitative	Qualitative
Positivist and post-positivist paradigm	Phenomenological Paradigm
Surveys and experiments	Case studies, ethnographies, grounded theory
Numerical data	Descriptive data
Researcher establishes boundaries	Subjects establish boundaries
Researcher separate from data collection	Researcher part of data collection
Hypothesis testing from existing theory	Formulate theory
Findings can be generalised	Findings related to specific context
Controlled or experimental setting	Natural setting
Replicable	Non-replicable
Findings presented as numerical data	Findings presented as descriptive data

Table 4-1 Contrast between Quantitative and Qualitative Research Approaches (adapted from Creswell, 2009)

Quantitative and qualitative research approaches are not mutually exclusive in all situations, with the pragmatist scientific paradigm suggesting that a single research design can incorporate both quantitative and qualitative approaches to answer research questions. The pragmatist paradigm considers the use of both quantitative and qualitative methods appropriate for the investigation of phenomena, with each approach contributing to understanding reality from different perspectives (Creswell, 2009). The use of mixed methods may be necessary when examining complex phenomena that are subject to the interaction of many variables, only some of which can be measured and quantified (Newman and Ridenour, 2008).

4.5 Research Design

The analysis of the various research choices concerning the interrelationship between scientific paradigms, inductive and deductive reasoning, and quantitative and qualitative approaches presented in the previous sections indicates that each choice has ramifications for the research design. According to De Vaus (2001, p. 9), 'the function of a research design is to ensure that the evidence obtained enables us to answer the initial question as unambiguously as possible.' As a result, the initial research question establishes the aim of the research, which narrows the choices of the research design to some degree by determining the most appropriate scientific paradigm to achieve the research aim. In general, if the aim of the research is to test some element of an existing theory, a positivist paradigm relying on quantitative methods and deductive reasoning is appropriate. If the aim of the research is theory construction, a phenomenological paradigm relying on qualitative methods and inductive reasoning is appropriate (De Vaus, 2001). If the aim of the research is to both test and constructs theory, the

pragmatic paradigm using both quantitative and qualitative methods and inductive and deductive reasoning is appropriate.

Within each of these general choices guiding research design, there may be multiple approaches that can be used to achieve the research objective. The positivist paradigm and quantitative methods support the use of a research design intended to establish the predictive ability of variables, the probability of occurrence of an event and causation (De Vaus, 2001). The choice of a specific research design based on the positivist paradigm depends on the particular type of theory testing that is envisioned for the research. This choice then determines the suitability of other aspects of the research design such as the use of an experimental, quasi-experimental, or non-experimental approach. It may also provide guidance concerning the methods used in the research, such as the way in which data is collected and the type of analysis that should be used to answer the research questions. The phenomenological paradigm and qualitative methods support the use of a research design intended to explore a topic with the intention to create a theory or extend understanding of multifaceted experiences (Creswell, 2009). The choice of specific research design based on the phenomenological paradigm depends on the specific research purpose. Research designs can include case studies, ethnographies, grounded theories or phenomenological investigations. To assume that the choice of research design is exclusively based on the use of either quantitative or qualitative methods is erroneous. Depending on the initial question posed for research, the use of both quantitative and qualitative methods may be necessary to provide an answer to the question with as little ambiguity as possible. Thus, a research design can incorporate both quantitative and qualitative methods for different components of the research. This mixed methods approach can be used to triangulate the findings, to gain a more robust understanding of the results, or to explore divergent findings (Hesse-Biber, 2010).These considerations provided guidance for the selection of the research design, which is based on the aim of this research.

The following section discuses the selection of the design and the rationale for the choice.

4.6 Selection and Justification of the Research Design

Blaikie (2010) noted that research design consists of core elements that are developed sequentially regardless of the specific type of scientific paradigm or research objective. These elements are:

- Research problem and topic, which establish the boundaries for the research
- Research questions and aim of the research, which establish the research paradigm and strategy of enquiry
- Concepts, theories, hypotheses, and models derived from the research questions and aim of the research
- Definition of data types necessary to answer the research questions and strategies for acquisition of the data
- Data reduction and analysis

The details associated with these specific elements create the research design and the methods in the design, which are justified in relation to the purpose of the study.

According to Miller and Salkind (2002), the selection of research design is guided by a series of choices beginning with the selection of a scientific paradigm for the research. The initial choice that guided the selection of a research design was to adopt the positivist scientific paradigm for this research. This choice was based on the nature of the main research question for the study, which is: To what extent does the model underlying the study reflect the role of Trust, Pre-Sales Services, After-Sales Services, and Perception on Attitude towards use of an E-CRM system at Afriqiyah Airways? This research question is based on existing theory concerning e-CRM use and postulates the existence of a relationship between specified variables that can be tested through the collection and testing of data (Johnson and Duberly, 2000). As a result, a positivist research paradigm is appropriate for answering the research question because it permits the testing of a theory that is established at the outset of the research. It is also appropriate because the research question involves specific variables that can be observed and measured.

The alternatives to the selection of the positivist paradigm were to use either the phenomenological or the pragmatist paradigm. The phenomenological paradigm is useful when no existing theory is available concerning the phenomenon under investigation. Prior research, however, has established that the TAM represents a viable theory concerning technology adoption (Baier and Stuber, 2010). In addition, the TAM has been the foundation of investigations into e-CRM adoption (Sanayei et al., 2010). The current state of knowledge concerning e-CRM adoption suggests that exploratory research based on a phenomenological paradigm is unwarranted. Similarly, the use of a

pragmatist paradigm would not result in the need for combined qualitative and quantitative approaches to answer the research question posed by the study.

The selection of a positivist research paradigm leads to the selection of a research design employing quantitative methods to support developing an answer to the research question using deductive reasoning. Quantitative methods are suitable when the variables under investigation in a study can be operationalised and measured and can provide a useful description of the topic under investigation (Williams and Monge, 2001). They are also suitable when the aim of the research is to test relationships among the variables. In this research, the variables of Trust, Pre-Sales Services, After-Sales Services, Perception, and Attitude can be operationalised and measured using a survey questionnaire, which is described in Section 4.7 below. These measurements provide the ability to use deductive reasoning to draw inferences about the relationships among the variables necessary to test the hypotheses of the study.

The selection of the quantitative approach led to the next choice for the research design, which was to use a non-experimental, cross-sectional approach intended to collect data to confirm or disconfirm hypotheses developed from the theoretical model underlying the research. The research design is considered non-experimental because it does not use a control group. The use of a control group was impractical for this research because the researcher did not have full control over the experimental conditions. The e-CRM system under investigation was operated by an airline, with no practical means for the researcher to control treatments. The use of a non-experimental research design is appropriate when no practical means exists to assign subjects to a test group and a control group (Hakim, 2000).

The research design was cross-sectional because data were collected from subjects at a single point in time using a survey questionnaire, with no attempt to obtain any from subjects over time. A cross-sectional data collection approach is suitable when the research question does not attempt to investigate change over time (Ruane, 2005). The main research question for this study examined the e-CRM system of Afriqiyah Airways at a single point in time and did not involve the investigation of the effect of changes to the system on users.

Based on the quantitative, non-experimental, cross-sectional research design, the specific research methods were selected. The research methods were used to gather and

analyse the data necessary to answer the research questions of the study. As a result, the nature of the research questions and the type of data necessary to answer the questions guided the selection of research methods (David and Sutton, 2004). The following sections discuss the remaining methodological elements of the research design to collect and analyse the data necessary to answer the research questions.

4.7 Data Collection

In this study, the use of the positive scientific paradigm and quantitative methodology required the collection of numerical data to test the hypotheses developed for the study and to answer the research questions. The research questions posit a relationship among the specific variables of Trust, Pre-Sales Services, After-Sales Services, Perception, and Attitude. These variables also functioned to establish the type of data necessary to test the hypotheses and answer the research questions, which was numeric data relevant to each of the variables. As a result the data collection instrument had to operationalise these variables adequately to collect the data necessary for hypotheses testing.

A self-administered survey questionnaire was used for the data collection element of the research design. A survey questionnaire is capable of obtaining numerical data from respondents which can support hypothesis testing (Frankfort-Nachmias and Leon-Guerrero, 2009). A survey questionnaire is also appropriate when the aim of the data collection is to obtain information about the attitudes or perspectives of the participants (Oppenheim, 2005). Another benefit of the survey research design is the ability to collect data from many respondents in a short period of time at a low cost when compared to other data collection methods (Wright and Marsden, 2010). In this study, the survey questionnaire was used to collect data about the perspectives of customers of Afriqiyah Airways concerning use of the firm's e-CRM system. Because no existing survey questionnaire was available to test the specific variables of Trust, Pre-Sales Services, After-Sales Services, Perception, and Attitude in the context of e-CRM for airlines, the research design required the development of a questionnaire to collect the necessary data.

4.7.1 The Survey Questionnaire

The development of the survey questionnaire followed the recommendations of Punch (2003) regarding relating the questions to the literature review and the theoretical model.

The literature review established that the variables relevant to e-CRM use are:

- Pre-Sales Services (Chang and Chen 2009; Khalifa and Shen, 2009).
- Trust (Ab-Hamid and McGrath, 2005; Flavian and Guinalu, 2006).
- After-Sales Services (Ab Hamid, 2005; Khalifa and Shen, 2009).
- Perception (Adams et al., 1992; Chiu et al., 2009).
- Attitude (Sanayei et al., 2010; Wu and Wu, 2005).

The theoretical model considered that Pre-Sales Services, Trust, and After-Sales Services are independent variables that influence Perception, which functions as an intermediate variable antecedent to the dependent variable of Attitude. Based on these considerations, the survey questionnaire was designed to obtain data to measure each of these five variables. In addition, the survey was designed to obtain data about the demographic variables of age, gender, and income, which were considered to determine the characteristics of the respondents taking part in the survey.

The survey questionnaire was designed in six sections (see Appendix B). The first section obtained information on the demographic variables of age, gender, and income relevant to the study. Previous research has determined that gender can be a moderating variable in the use of e-CRM and the importance attached to elements of the e-CRM system (Chen et al., 2008; Kim et al., 2008). Some research has also determined that age may be a factor influencing e-CRM use, with older individuals often more reluctant to trust online systems for financial transactions (Eisengerich and Bell, 2007). Income may also be a factor influencing e-CRM use because of the possibility that individuals with higher incomes will use e-CRM systems more frequently to make purchases (Harris and Goode, 2010). The data obtained in the first section of the survey questionnaire was also useful for providing descriptive statistics about the sample population.

The remaining five sections of the survey consisted of fifty-one questions intended to obtain data concerning perceptions of the respondents in the five dimensions of Pre-Sales Services, Trust, After-Sales Services, Perception, and Attitude, which were related to the variables under consideration in the study. The five sections assessing the dimensions related to the variables used a 5-point Likert scale that asked respondents to rate their level of agreement with statements, with a possible level of agreement ranging from 'strongly disagree' to 'strongly agree'. A Likert scale is commonly used in questionnaires intended to assess perceptions and attitudes that cannot be ascertained by

external observation (Brace, 2008). The Likert scale is assumed to yield interval data that can support inferential statistical tests (Mitchell and Jolley, 2007). With the interval scale, the distance between the choices is the same regardless of the positioning in the scale. The Likert scale can also produce summations of the data based on the aggregate of scores based on groupings. The use of the Likert scale is consistent with the quantitative methods guiding the research design of this study because it produces numerical data that can be analysed to test the hypotheses of the study.

The individual statements assessed with the Likert scale in the survey questionnaire were developed from the literature review, which provided information from previous researchers concerning factors that could influence customers using an e-CRM system It was assumed that each of the dimensions of Pre-Sales Services, Trust, After-Sales Services, Perception, and Attitude is composed of multiple antecedent variables that can be assessed to determine the aggregate effect of these variables on the construct represented by the dimension. When the measures associated with these individual antecedent variables are considered together, they provide the ability to quantify the dimension.

The second section of the survey questionnaire consisted of twelve questions related to Pre-Sales Services. This section assessed the aspects of the e-CRM system experienced by the customer prior to a sale, such as perception of the payment method or the ability to personalise the website. The third section of the survey questionnaire was composed of nine questions related to Trust. This section obtained information about perceptions of factors that can influence trust, such as perceptions of the privacy policy and confidentiality and security. The fourth section of the survey questionnaire contained ten questions related to After-Sales Services. This section examined perceptions of factors such as order tracking or problem resolution when using the e-CRM section. The fifth section of the survey questionnaire posed eleven questions related to the construct of Perception. This section assessed factors related to perceived ease of use and perceived usefulness of the e-CRM system, which was assumed to be a predictor of Attitude. The sixth and final section of the survey questionnaire assessed the construct of Attitude with eight questions. Attitude is the dependent variable of the study, and is presumed to be a predictor of continued use of the e-CRM system, leading to higher customer retention.

Table 4.2 presents the relationship between the individual questions in the survey questionnaire and the dimensional construct. It also shows some of the sources in the literature from which the questions were derived.

Construct	Survey Questions	References
Pre-Sales Services	1-12	Chan and Lam (2004); Chang and Chen (2009)
Trust	13-21	Chan and Lam (2004); Flavián and Guinaliu (2006); Ab Hamid and McGrath (2005) ; Ab Hamid (2008); Van La (2005)
After-Sales Services	22-31	Chan and Lam (2004); Ab Hamid and McGrath (2005); Ab Hamid (2008); Khalifa and Shen (2009)
Perception (PU and PEU)	32-43	Koufaris and Hampton-Sosa (2002); Koufaris and Hampton-Sosa (2004)
Attitude	44-51	Lu and Lin (2002); Wu and Wu (2005)

Table 4-2 Constructs, Survey Questions and References

4.7.2 Sampling Size and Sampling Procedure

The use of an appropriate procedure to obtain a sample from the study population is necessary to support analysis using inferential statistics to test hypotheses (Crano and Brewer, 2002). In addition, adequate sampling techniques are necessary to support the external validity of a study, which is the ability to generalise the findings from the sample population to the entire study population. The population for this study consisted of customers of Afriqiyah Airways using the e-CRM system provided by the firm to obtain flight information and tickets. The total size of the study population was not known. The airline provides flights between London and Tripoli three times a week, with total annual passenger traffic estimated at 22,500. The study population, however, was limited to individuals residing in the United Kingdom using the Afriqiyah Airways e-CRM system. The population of customers of the airline in the United Kingdom may be more or less than this estimate because of factors such as frequency of travel and non-residents using the airline.

4.7.3 Data Collection Procedure

The sample from which data was to be gathered was selected to fulfil the following requirements: participants had to be over the age of eighteen, to have travelled at least once with Afriqiyah Airways and, most importantly, have had experience of using an e-CRM system.

From our discussion with senior representatives of Afriqiyah Airways it was clear that students represented a significant proportion of travellers, possibly up to half, so we decided to reflect these criteria in our sampling. This meant approximately half were students and half non-students. For the non-students, sample data were gathered from Manchester and Gatwick airports; this represents approximately half the data gathered. In order to collect students' data, seven geographically distributed cities with Universities have been chosen: two in the South (both in London); one in the Midlands (Coventry); and four from the North (Bradford, Sheffield, Huddersfield and Glasgow).

The rationale for this procedure was to produce a cross-section of the travelling population; attempts were made to select the travellers in any category on a random basis.

The survey questionnaire consisted of six sections, with demographic data collected in the first section. The remaining five sections collected data related to the independent variables of Pre-Sales Services, Trust, After-Sales Services, and Perception, and the dependent variable of Attitude. These five sections used a 5-point Likert scale that asked respondents to rate their level of agreement with statements concerning the variables. The data collection procedure produced 306 usable responses, which was sufficient for the study.

The participants completed the survey questionnaire either face-to-face or by email. No attempt at follow-up was made for non-respondents. The procedure resulted in the administration of 415 questionnaires and the return was a total of 306 usable questionnaires. This represented a response rate of usable questionnaires of 73.7%, which is very high for survey research. The response rate is high enough to conclude that the sampling was not substantially skewed by self-selection bias, which occurs when a high percentage of the study population does not take part in the research (McBurney and White, 2009).

4.7.4 Ethical Concerns

The research posed no physical or psychological risks to the participants. As a result, the main risk to participants was from breach of confidentiality. According to Israel and Hay (2006) a researcher can only give participants in a study assurance of confidentiality because the identity of the participants is known at a minimum to the researcher. In this research, the identity of some participants could be determined by their email addresses. To protect the confidentiality of the participants in the study, the questionnaires returned by participants were identified only by a number. No record was made that could connect that number to the identity of an individual participant. In addition, all survey questionnaires were kept in a locked location, with only the researcher able to access the questionnaires. The questionnaires were destroyed after completion and acceptance of the research.

Brewerton and Millward (2001) note that the fundamental ethical principles associated with research involving human subjects in any capacity require that 'the participants are informed of all features of the research that might reasonably be expected to influence their willingness to participate'. The researcher used the recommendation of Bailey (1994, p. 458) to secure agreement through a written consent form that was part of the survey questionnaire, even though the research did not pose any risk of psychological or physical harm to the participants. The informed consent form provided assurance of confidentiality to the participants. In addition, it noted that participation in the study was voluntary and no compensation or reward would be offered to participants.

4.8 Data Analysis

The analysis of data obtained from the survey questionnaire used both descriptive and inferential statistical methods. Based on the positivist paradigm guiding the research and the quantitative foundation for the methodology, statistical analysis is appropriate for testing the hypotheses of the study and for answering the research questions (Crook and Garratt, 2005). In addition, a variety of inferential statistical methods were used to validate the survey questionnaire and to test the hypotheses of the study. The data analysis involved descriptive and factor analysis as well as model and hypothesis testing. For all data analysis procedures, the Statistical Packages for the Social Sciences (SPSS) software programme was used. The analysis of the data also required the reduction of the data from the raw form produced by respondents to the survey questionnaires to a useable form for analysis. This data reduction followed the

recommendations of Punch (2003, p. 45) and is described in greater detail in Section 5.2 below.

Descriptive analytic methods are used to assess the distribution of variables of interest (Kothari, 2004). In this study, descriptive analysis was used to assess the characteristics of the survey population, using the demographic data obtained in the first section of the survey questionnaire. This approach was to determine the percentage of respondents in each of the demographic categories.

The method of data analysis to test the model for the study established in Section 3.3 of this study was the use of structural equation modelling (SEM). The SEM approach is a partial least squares technique that measures the relationships between the observed and latent variables for the model as a whole. The SEM approach has sufficient flexibility to establish model relationships among multiple predictor and criterion variables with comparatively small sample sizes (Hoyle, 1999). Because SEM is a partial least squares approach, it uses multiple regression analysis to determine the goodness of fit as measured by the coefficient of determination (R^2). When applied to the model for this study, the use of SEM will determine the amount of variance in the dependent variable Attitude accounted for by the antecedent variables of Trust, Pre-Sales Services, After-Sales Services, and Perception when latent or unobserved variables are taken into consideration. The approach also supports the ability to create a path diagram that shows the relationships among the variables and the amount of variance accounted for in the relationship. In addition, it provides both a measurement model to identify relationships between observed and unobserved variables and a structural model to identify relationships between unobserved variables.

Regression analysis was used to test the hypotheses of the study. Regression analysis is appropriate when the objective of the research is to determine the amount of change in a dependent variable that occurs from change in an independent variable (Berry and Sanders, 2000). Stepwise regression was used to test hypothesis H1, which tested the elements of the overall model of the study to ensure that the components making significant contributions were retained in the model (Myers and Well, 2003). Multiple regression analysis was used to test the hypotheses proposing a relationship among multiple variables, with the approach determining the best fit line for a group of variables (Chiulli, 1999). Regression analysis was used to test the hypotheses proposing a relationship between two variables. Testing the hypotheses also involved testing to

ensure the underlying assumptions concerning data distribution necessary for regression analysis were met. For all hypotheses the assumptions were: linearity, homoscedasticity, normality of residuals, and residual independence.

For hypothesis H1 that tested the model, an additional assumption concerning the absence of multicollinearity was tested. An alpha of .05 was used for testing all hypotheses. This alpha level is intended to reduce the probability of a type error of rejecting the null hypothesis when it is in fact true during the testing of the hypotheses. A summary of the hypotheses and the test used for each hypothesis is presented in Table 6.1 (found in Chapter 6).

4.9 Reliability and Validity

Cronbach's alpha was the approach used to determine the reliability of the survey instrument. Cronbach's alpha is an estimate of reliability based on the premise that the sum of the variance of the scale for a dimension will be less than the sum of the variance for individual items if the items measure the same things (Hill and Lewicki, 2006). It is suitable for use with survey questionnaires with different lengths in the number of questions measuring variables in different dimensions (Hayes, 1998). A Cronbach's alpha of .70 or higher is generally indicative of reliability in instruments designed to measure psychological attributes such as attitudes or perceptions.

Validity is fundamentally concerned with how well the concepts under investigation are defined by the measures in an instrument (Eikelenboom, 2005). Factor analysis was used to establish the construct validity of the survey instrument, which is functionally the internal validity of the study. With factor analysis, the observed correlations among groups of variables purporting to measure the same construct are evaluated. Variables with a high factor loading along a dimension are presumed to describe the construct under investigation. Exploratory factor analysis was used to establish the initial assessment of the validity of the instrument. Exploratory factor analysis defines the internal structure of a set of items intended to measure a construct dimension. It also groups the items into factors (Pett et al., 2003). The exploratory factor analysis was followed by confirmatory factor analysis, which is necessary to establish the validity of the instrument. According to Child (2006, p. 109), however, confirmatory factor analysis 'does not prove the validity of the model, but shows how well the data fit.' Based on the goodness of the fit, the instrument can be reasonably assumed to be valid, although it cannot be definitively proved to be valid.

According to Gravetter and Forzano (2009, p. 158), 'external validity concerns the extent to which the results obtained in a research study hold true outside the constraints of the study.' External validity examines the ability to generalise the findings. The use of random sampling methods to select participants in the study reduced threats to the external validity of the study by providing data from a random population. The use of a non-experimental design also reduced threats to the external validity of the study by collecting data in a non-controlled setting.

4.10 Limitations

Despite the selection of the positivist scientific paradigm and quantitative methods, the research methodology has a limitation in the possibility that the perspectives and opinions of the researcher influenced the research design choices, the development of the survey questionnaire, and the interpretations derived from the data analysis. Another limitation to the research methodology is the inherent drawback from the use of the positivist scientific paradigm that requires establishing the boundaries of the investigation at the outset of the study. The theoretical framework developed for the study based on the TAM may have omitted critical variables that influence e-CRM use in the specific operating context of an airline, which can skew the findings. It also precludes determining the effect of any variables exerting an influence on attitudes toward e-CRM use that were not considered in the theoretical model.

4.11 Summary and Conclusion

This research adopted the positivist scientific paradigm to guide the development of the research design and specific methods used to collect and analyse data. The positivist paradigm is appropriate when the research questions can be answered with data that can be measured, quantified and analysed with deductive reasoning. In addition, the positivist paradigm and quantitative methods have been used by the majority of previous researchers examining technology adoption and factors related to e-CRM use. Based on this initial decision, the study used a non-experimental, cross-sectional research design.

In the following section we shall show that the data provided by the survey questionnaire were analysed with descriptive statistics for the demographic information. Cronbach's alpha was used to establish the reliability of the survey questionnaire, and exploratory and confirmatory factor analysis was used to establish the validity of the survey questionnaire. Various forms of regression analysis were used to test the

hypotheses of the study. The results of the various statistical tests are presented in the following chapter.

Chapter Five: Descriptive and Factor Analysis

5.1 Introduction

This chapter contains the analysis of the data obtained from the survey questionnaire used to test the hypotheses discussed previously in this research. This chapter focuses on the factors affecting perceptions of and attitudes towards the use of e-CRM among customers of Afriqiyah Airways. The analysis is divided into four stages:

- Stage 1: Data Preparation (presented in section 5.2).
- Stage 2: Descriptive Statistics (presented in section 5.3).
- Stage 3: Exploratory Factor Analysis (presented in section 5.4).
- Stage 4: Confirmatory Factor Analysis (presented in section 5.5).

5.2 Stage 1: Data Preparation

Statistical Package for Social Science (SPSS) version 17 was used to prepare the data. The data preparation approach used the recommendations of Punch (2003) for using the pre-coded categories of the survey questionnaire as a coding frame, followed by data entry and data cleaning, and the assessment of missing responses in the data. Each completed survey questionnaire was examined to ensure that the responses were clearly legible with the respondent providing only one answer to each question. Any surveys with duplicate answers to the same question were excluded from the database. Following manual entry of the data into the SPSS database, the data was cleaned. The data cleaning process involves examining the data for entry errors and answers outside the possible range of responses (Sue and Ritter, 2007). An initial visual examination was made of the entered data, comparing it to the original survey questionnaires to ensure that no data entry errors had occurred. The data were also examined to ensure that the responses were within the range of possible answers as defined by the survey questionnaire. The assessment of the data for missing responses indicated that it involved less than 0.5% of the database, which was not deemed sufficient to cause non-response error in the findings (Groves, 2004).

5.3 Stage 2: Descriptive statistics

The survey questionnaires were disseminated to 415 customers of Afriqiyah Airways in the United Kingdom, both male and female, over the age of 18. A total of 306 questionnaires was returned, which represents a response rate of 73.7%, with response

rates over 50% considered adequate to minimise the possibility of self-selection bias in the data (Baker et al., 1998; Church and Waclawski, 2001).

The analysis of the demographic data produced by the survey was analysed to determine the frequency distribution. Information about the frequency distribution in terms of numbers and percentages is useful for showing the demographic characteristics of the respondents to the survey questionnaire, who are customers of Afriqiyah Airways residing in the United Kingdom (Weisberg, et al, 1996).

Gender:

Table 5.1 below indicates that the majority of the respondents to the survey questionnaire were male (n = 233) and represented about three quarters (3/4) of the study population. The data indicate that most customers of Afriqiyah Airways in the United Kingdom are males, which is expected because the majority of the airline's customers travelling to the UK are males.

Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	233	76.1	76.1	76.1
Female	73	23.9	23.9	100.0
Total	306	100.0	100.0	

Table 5-1 Gender of Respondents

Age:

Table 5.2 below shows that the majority of the customers of Afriqiyah Airways participating in the study were between 30 and 50 years old (n =223), representing 72.9%, which is approximately three quarters (3/4) of the respondents. This is also the typical age group of the travellers that make up the majority of Afriqiyah Airways customers in the United Kingdom.

Age

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Less than 30	63	20.6	20.6	20.6
30-50	223	72.9	72.9	93.5
more than 50	20	6.5	6.5	100.0
Total	306	100.0	100.0	

Table 5-2 Age of Respondents

Income:

As evident from Table 5.3 below, most of the customers of Afriqiyah Airways participating in the survey had incomes between £1000 and £2000 a month (n = 266), representing 86.9%, more than three quarters (3/4) of the respondents. None of the respondents reported an income less than £1000 a month, with the categories below this amount excluded from the analysis.

Income

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1000-2000	266	86.9	86.9	86.9
2000-3000	28	9.2	9.2	96.1
More than 3000	12	3.9	3.9	100.0
Total	306	100.0	100.0	

Table 5-3 Income of Respondents

5.4 Stage 3: Reliability and Exploratory Factor Analysis

This section examines the reliability of the survey instrument using Cronbach's alpha and the validity of the survey instrument using exploratory factor analysis. Cronbach's alpha provides an estimate of how highly the items in the survey are interrelated, with the approach not requiring any correction for different lengths of the survey questionnaire dimensions (Hayes, 1998). Exploratory factor analysis is a technique for assessing the validity of scale construction by examining the underlying dimensional structure of the scales used in an instrument (Stewart, 2001). It is suitable when the objective of the research is to validate a scale that has not been previously validated (Giles, 2002).

5.4.1 Reliability

Table 5.4 below contains the results of the reliability test for the survey questionnaire. It shows that the five dimensions of Trust, Pre-Sales Services, After-Sales Services, Perceptions, and Attitude toward using the service assessed by the instrument have Cronbach's alphas ranging between .85 and .91. In the social sciences, a Cronbach's alpha of .70 or higher provides good support for demonstrating internal consistency reliability (Morgan, 2004). The evidence from the Cronbach's alpha test indicates that the survey questionnaire is reliable.

Reliability Test		
Instrument Items	**Cronbach's Alpha**	**numbers of items**
Trust	.90	9
Pre-Sales Services	.91	12
After Sales Services	.86	10
Perceptions	.85	12
Attitude toward using system	.90	8

Table 5-4 Reliability of the Survey Instrument

5.4.2 Exploratory factor analysis

Exploratory factor analysis was used to reflect the validity of the survey questionnaire. In this research, the principle component analysis (PCA) approach to exploratory factor analysis was used, which involves reducing the data set to a small number of general factors that explain most of the variance in the data set (Giles, 2002). This approach validated the number of dimensions in the scale and the relationships between the items and the factors. With the PCA approach to exploratory factor analysis, the amount of variance the model accounts for is equal to the number of variables because the variance for each variable is set at 1.00 (Cramer, 2003). In this study, there are five dimensions: Trust, Pre-Sales Services, After-Sales Services, Perceptions, and Attitude, with the total variance at 5.00 for the purposes of PCA analysis. In the analysis, 'the shared variance of a variable is portioned from its unique variance and error variance to reveal the underlying factor structure' (Osborne, et al,. 2008, p. 88). The PCA approach to exploratory factor analysis also relies on the general linear model (GLM), which assumes that linear or straight-line relationships exists among interval data, low multicollinearity is present in the data set, and normality exists in the multivariate distribution (Haworth, 1996).

Exploratory factor analysis was used to assess each of the five scales measuring data in the dimensions of Trust, Pre-Sales Services, After-Sales Services, Perceptions, and Attitude. The coefficient of correlation was used to assess inter-item correlations, with the minimum level necessary to establish a correlation set at .30. Bartlett's Test for Sphericity was used to examine the homogeneity of variances in each of the five dimensional scales. The test examines the products and cross-products of the items in the correlation matrix used in exploratory factor analysis to ensure that multicollinearity was not present. Bartlett's test is used to determine if the null hypothesis concerning the homoscedasticity of the data in a correlation matrix should be rejected, with a significance of less than .05 evidence of heteroscedasticiy in the sample (Child, 2006, p.

52). Bartlett's Test is highly sensitive to normality in the distribution, and should be relied on only when normality is not in doubt (Abel, et al, 1999). The Kaiser-Meyer-Olkin (KMO) test was used to assess the validity of the correlations among the items in each scale, with the criterion for accepting validity of a KMO of .80 or higher. The KMO test relies on the principle that variables sharing common factors will have small partial correlations after controlling for the effects of other variables (Munro, 2005). As a result, a low KMO value for the KMO test is indicative of a correlation among the factors.

Eigenvalues were computed and used to determine the amount of variance accounted for by each component in the scale for each of the five dimensions. The item accounting for the highest amount of variance in the extraction process has the largest eigenvalue, followed by items accounting for lower amounts of variance (Meyers, et al, 2005). A scree plot of the eigenvalues was also developed for each dimension with the scree plot elbow useful for determining the number of variables to retain in the analysis (Izenman, 2008). Factor loading for the retained items was also examined for each scale. The factor loadings represent the correlations between the variables assessed in a question in a survey instrument and the factors. While factor loadings can range from -1 to +1, it is generally assumed that a factor loading of .40 or higher indicates a sizable contribution by the factor to the variance (Dane, 2010). As a result, the criterion to determine if a question should be eliminated from the survey questionnaire was a factor loading below .40.

For the purpose of the analysis it was considered more affective to analyse the dimension of Trust followed by the other dimensions, which are Pre-Sales Services, After-Sales Services, Perceptions, and Attitude.

Trust:

Questions 13 through 21 of the survey questionnaire assessed items related to the variable of Trust. The correlation coefficients as presented in Table 5.5 below indicated that Question 21 should be eliminated from the survey questionnaire because it had a correlation coefficient below .30.

Correlation Matrix[a]

		Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21
Correlation	Q13	1.000	.485	.512	.477	.364	.458	.518	.377	.278
	Q14	.485	1.000	.739	.624	.390	.668	.591	.570	.426
	Q15	.512	.739	1.000	.667	.381	.641	.622	.489	.405
	Q16	.477	.624	.667	1.000	.491	.620	.482	.468	.496
	Q17	.364	.390	.381	.491	1.000	.552	.502	.445	.549
	Q18	.458	.668	.641	.620	.552	1.000	.618	.591	.486
	Q19	.518	.591	.622	.482	.502	.618	1.000	.645	.363
	Q20	.377	.570	.489	.468	.445	.591	.645	1.000	.568
	Q21	.278	.426	.405	.496	.549	.486	.363	.568	1.000

a. Determinant = .006

Table 5-5 Correlation Matrix for Trust

The correlation matrix was revised to account for the elimination of Question 21 from the survey instrument. This revision was necessary to determine whether the elimination of Question 21 produced changes in the correlation coefficient sufficient to result in the elimination of additional questions. The correlation matrix for the variable of Trust as presented in Table 5.6 below shows that Questions 13 through Questions 20 should be retained in the survey questionnaire.

Correlation Matrix[a]

		Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
Correlation	Q13	1.000	.485	.512	.477	.364	.458	.518	.377
	Q14	.485	1.000	.739	.624	.390	.668	.591	.570
	Q15	.512	.739	1.000	.667	.381	.641	.622	.489
	Q16	.477	.624	.667	1.000	.491	.620	.482	.468
	Q17	.364	.390	.381	.491	1.000	.552	.502	.445
	Q18	.458	.668	.641	.620	.552	1.000	.618	.591
	Q19	.518	.591	.622	.482	.502	.618	1.000	.645
	Q20	.377	.570	.489	.468	.445	.591	.645	1.000

a. Determinant = .011

Table 5-6 Revised Correlation Matrix for Trust

The KMO test of the data was well above the minimum acceptable value of .80, which shows that factor analysis is suitable for assessing the validity of the instrument in the Trust scale. Bartlett's test was statistically significant, which suggests that the correlations in the matrix are not due to sampling error. Table 5.7 presents the findings of the KMO test and Bartlett's test for Trust.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.896
Bartlett's Test of Sphericity	Approx. Chi-Square	1353.431
	Df	28
	Sig.	.000

Table 5-7 KMO and Bartlett's Test for Trust

The eigenvalues as shown in Table 5.8 indicated that the first component accounts for the greatest amount of variance in the eight items remaining the Trust scale (i.e. nearly 60%). The scree plot for the Trust scale shown in Figure 5.1 also showed only one component accounting for the majority of variance to the left of the elbow.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.781	59.764	59.764	4.781	59.764	59.764
2	.746	9.324	69.087			
3	.638	7.981	77.068			
4	.611	7.638	84.706			
5	.379	4.741	89.447			
6	.335	4.182	93.629			
7	.291	3.639	97.268			
8	.219	2.732	100.000			

Extraction Method: Principal Component Analysis.

Table 5-8 Explanation of Total Variance for Trust Scale

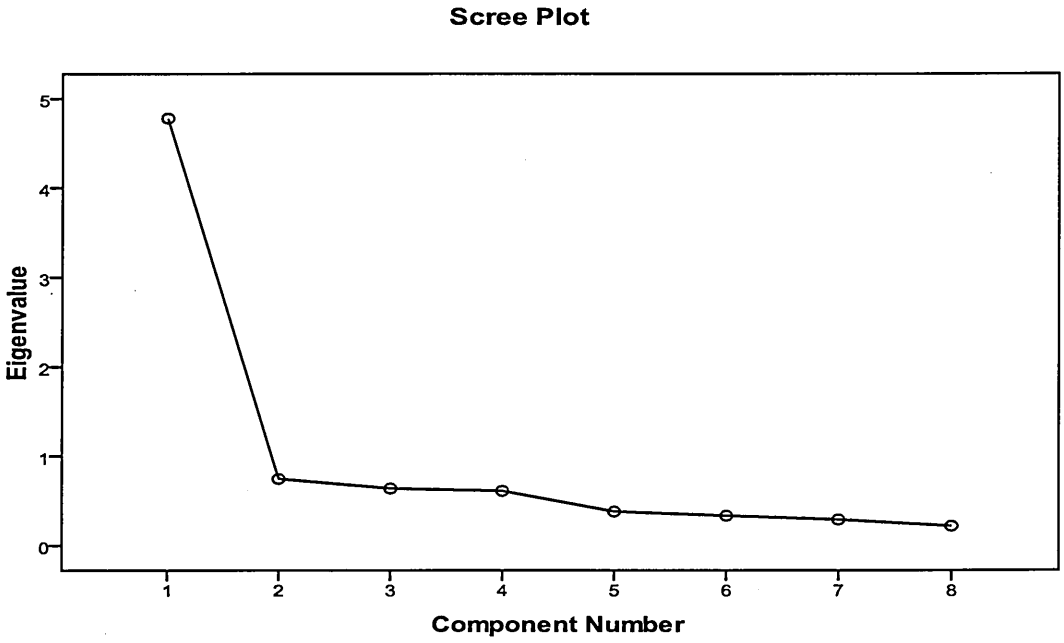

Figure 5-1 Scree Plot for Trust Scale

The factor loading for the eight questions in the Trust scale were all above .40, as shown in Table 5.9, with all items retained in the survey questionnaire, thereby confirming that all of the retained questions are relevant and that a single component accounts for the majority of the variance.

Component Matrix[a]

	Component
	1
Q18	.841
Q14	.832
Q15	.829
Q19	.809
Q16	.785
Q20	.743
Q13	.668
Q17	.653

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Table 5-9 Factor Loading for the Trust Scale

Pre-Sales Services:

Questions 1 through 12 of the survey questionnaire assessed items related to the variable of Pre-Sales Services. The correlation coefficients as presented in Table 5.10 below indicated that Question 11 and Questions 12 should be eliminated from the survey questionnaire because they had correlation coefficients below .30.

Correlation Matrix[a]

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Correlation Q1	1.000	.619	.650	.525	.550	.562	.536	.501	.441	.404	**.278**	**.088**
Q2	.619	1.000	.689	.710	.598	.611	.691	.700	.554	.490	.479	**.242**
Q3	.650	.689	1.000	.595	.568	.586	.631	.655	.623	.527	.420	**.175**
Q4	.525	.710	.595	1.000	.677	.622	.658	.650	.479	.496	.500	**.182**
Q5	.550	.598	.568	.677	1.000	.580	.617	.572	.540	.503	.422	**.119**
Q6	.562	.611	.586	.622	.580	1.000	.636	.644	.396	.455	.341	**.178**
Q7	.536	.691	.631	.658	.617	.636	1.000	.706	.548	.472	.381	**.152**
Q8	.501	.700	.655	.650	.572	.644	.706	1.000	.591	.436	.433	**.182**
Q9	.441	.554	.623	.479	.540	.396	.548	.591	1.000	.592	.507	**.127**
Q10	.404	.490	.527	.496	.503	.455	.472	.436	.592	1.000	.509	**.248**
Q11	.278	.479	.420	.500	.422	.341	.381	.433	.507	.509	1.000	**.194**
Q12	.088	.242	.175	.182	.119	.178	.152	.182	.127	.248	**.194**	1.000

a. Determinant = .001

Table 5-10 Correlation Matrix for Pre-Sales Services

The correlation matrix for Pre-Sales Services was revised to account for the elimination of Questions 11 and 12 from the survey instrument. The revision is necessary to determine whether the elimination of the two questions produced changes in the correlation coefficient sufficient to result in the elimination of additional questions. The correlation matrix for the variable of Pre-Sales Services as presented in Table 5.11 below shows that Questions 1 through Questions 10 should be retained in the survey questionnaire.

Correlation Matrix[a]

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Correlation Q1	1.000	.619	.650	.525	.550	.562	.536	.501	.441	.404
Q2	.619	1.000	.689	.710	.598	.611	.691	.700	.554	.490
Q3	.650	.689	1.000	.595	.568	.586	.631	.655	.623	.527
Q4	.525	.710	.595	1.000	.677	.622	.658	.650	.479	.496
Q5	.550	.598	.568	.677	1.000	.580	.617	.572	.540	.503
Q6	.562	.611	.586	.622	.580	1.000	.636	.644	.396	.455
Q7	.536	.691	.631	.658	.617	.636	1.000	.706	.548	.472
Q8	.501	.700	.655	.650	.572	.644	.706	1.000	.591	.436
Q9	.441	.554	.623	.479	.540	.396	.548	.591	1.000	.592
Q10	.404	.490	.527	.496	.503	.455	.472	.436	.592	1.000

a. Determinant = .001

Table 5-11 Revised Correlation Matrix for Pre-Sales Services

The KMO test of the data was well above the minimum acceptable value of .80, which shows that factor analysis is suitable for assessing the validity of the instrument in the Pre-Sales Services scale. Bartlett's test was statistically significant, which suggests that the correlations in the matrix are not due to sampling error. Table 5.12 presents the findings of the KMO test and Bartlett's test for Pre-Sales Services.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.930
Bartlett's Test of Sphericity	Approx. Chi-Square	2015.248
	Df	45
	Sig.	.000

Table 5-12 KMO and Bartlett's Test for Pre-Sales Services

The eigenvalues for Pre-Sales Services as shown in Table 5.13 indicated that the first component accounts for the greatest amount of variance in the ten items remaining the Pre-Sales Services scale (i.e. 62% of the variance explained by a single component). The scree plot for the Pre-Sales Services scale shown in Figure 5.2 also showed a single component accounting for the majority of variance to the left of the elbow.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.205	62.049	62.049	6.205	62.049	62.049
2	.785	7.848	69.898			
3	.582	5.820	75.718			
4	.546	5.463	81.181			
5	.450	4.498	85.679			
6	.379	3.786	89.465			
7	.312	3.121	92.586			
8	.273	2.731	95.316			
9	.235	2.349	97.666			
10	.233	2.334	100.000			

Extraction Method: Principal Component Analysis.

Table 5-13 Eigenvalues for Pre-Sales Services

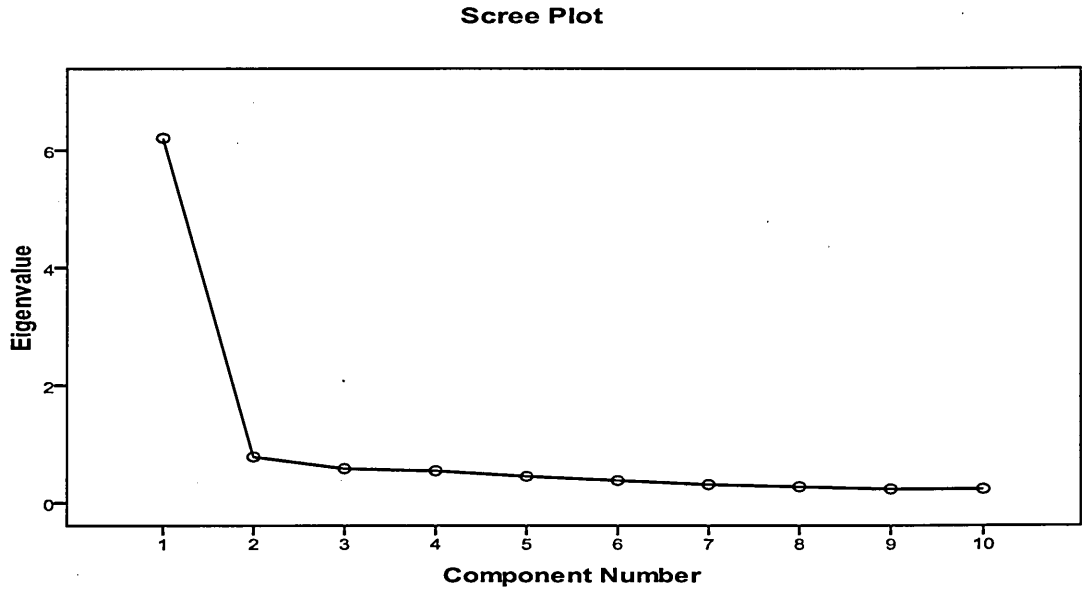

Figure 5-2 Scree Plot for Pre-Sales Services

The factor loadings for the eight questions in the Pre-Sales Services scale were all above .40, as shown in Table 5.14, with all items retained in the survey questionnaire, thereby confirming that all of the questions are relevant and that a single component accounts for the majority of the variance.

Component Matrix[a]

	Component
	1
Q2	.853
Q3	.831
Q7	.831
Q8	.827
Q4	.820
Q5	.789
Q6	.776
Q1	.734
Q9	.726
Q10	.671

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Table 5-14 Factor Loading for Pre-Sales Services

After-Sales Services:

Questions 22 through 31 of the survey questionnaire assessed items related to the variable of After-Sales Services. The correlation coefficients as presented in Table 5.15 below indicated that Questions 29, 30 and 31 should be eliminated from the survey questionnaire because they have correlation coefficients below .30.

Correlation Matrix[a]

	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30	Q31
Correlation Q22	1.000	.694	.506	.414	.417	.747	.417	.372	.379	**.268**
Q23	.694	1.000	.548	.413	.425	.614	.361	**.290**	.402	**.196**
Q24	.506	.548	1.000	.724	.508	.476	.394	.405	.413	**.271**
Q25	.414	.413	.724	1.000	.499	.429	.429	.304	.340	**.284**
Q26	.417	.425	.508	.499	1.000	.373	.366	.323	**.284**	**.184**
Q27	.747	.614	.476	.429	.373	1.000	.434	.341	**.262**	**.213**
Q28	.417	.361	.394	.429	.366	.434	1.000	.388	.335	**.280**
Q29	.372	.290	.405	.304	.323	.341	.388	1.000	.260	**.144**
Q30	.379	.402	.413	.340	.284	.262	.335	**.260**	1.000	.551
Q31	.268	.196	.271	.284	.184	.213	.280	**.144**	.551	1.000

a. Determinant = .012

Table 5-15 Correlation Matrix for After-Sales Services

The correlation matrix for After-Sales Services was revised to assess the effect of eliminating Questions 29, 30, and 31 from the survey instrument. The revision is necessary to determine whether the elimination of the question produced changes in the correlation coefficient sufficient to result in the elimination of additional questions. The correlation matrix for the variable of After-Sales Services as presented in Table 5.16

below shows that Question 22 through Question 28 should be retained in the survey questionnaire.

Correlation Matrix[a]

		Q22	Q23	Q24	Q25	Q26	Q27	Q28
Correlation	Q22	1.000	.694	.506	.414	.417	.747	.417
	Q23	.694	1.000	.548	.413	.425	.614	.361
	Q24	.506	.548	1.000	.724	.508	.476	.394
	Q25	.414	.413	.724	1.000	.499	.429	.429
	Q26	.417	.425	.508	.499	1.000	.373	.366
	Q27	.747	.614	.476	.429	.373	1.000	.434
	Q28	.417	.361	.394	.429	.366	.434	1.000

a. Determinant = .032

Table 5-16 Revised Correlation Matrix for After-Sales Services

The KMO test of the data was above the minimum acceptable value of .80, which shows that factor analysis is suitable for assessing the validity of the instrument in the After-sales Services scale. Bartlett's test was also statistically significant, which indicates that the correlations in the matrix are not due to sampling error. Table 5.17 shows the findings of the KMO test and Bartlett's test for the After-Sales Services scale.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.842
Bartlett's Test of Sphericity	Approx. Chi-Square	1034.460
	Df	21
	Sig.	.000

Table 5-17 KMO and Bartlett's Test for After-Sales Services

Table 5.18 below shows the eigenvalues for After-Sales Services, which indicate that the first component accounts for the greatest amount of variance in the seven items remaining in the After-Sales Services scale, is just over (56%). The scree plot for the After-Sales Services scale as shown in Figure 5.3 also showed only one component accounting for the majority of variance to the left of the elbow.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.935	56.218	56.218	3.935	56.218	56.218
2	.942	13.454	69.672			
3	.687	9.812	79.484			
4	.566	8.083	87.567			
5	.388	5.540	93.106			
6	.249	3.563	96.669			
7	.233	3.331	100.000			

Extraction Method: Principal Component Analysis.

Table 5-18 Eigenvalues for After-Sales Services

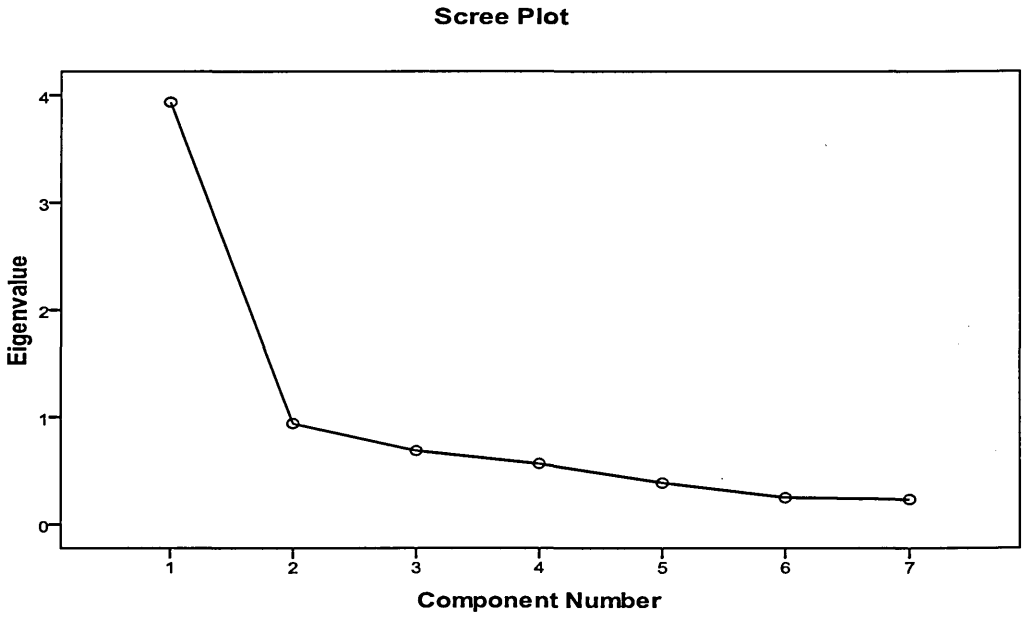

Figure 5-3 Scree Plot for After-Sales Services

Table 5.19 below shows that the factor loadings for the eight questions in the After-Sales Services scale were all above .40, with all items retained in the survey questionnaire, thereby confirming that all of the questions are relevant and that a single component account for the majority of the variance.

Component Matrix[a]

	Component
	1
Q22	.814
Q24	.798
Q27	.788
Q23	.785
Q25	.743
Q26	.672
Q28	.628

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Table 5-19 Factor Loading for the After-Sales Services Scale

Perception:

Questions 32 through 43 of the survey questionnaire assessed items related to the variable of Perception. The correlation coefficients as presented in Table 5.20 below indicated that Questions 40, 41, 42, and 43 should be eliminated from the survey questionnaire because they have correlation coefficients below .30.

Correlation Matrix[a]

		Q32	Q33	Q34	Q35	Q36	Q37	Q38	Q39	Q40	Q41	Q42	Q43
Correlation	Q32	1.000	.376	.434	.307	.460	.370	.376	.351	**.287**	**.292**	**.171**	**.042**
	Q33	.376	1.000	.353	.427	.395	.346	.514	.413	.322	.301	.343	.153
	Q34	.434	.353	1.000	.320	.366	.319	.368	.401	.412	.379	.254	.135
	Q35	.307	.427	.320	1.000	.494	.425	.414	.352	.353	.352	.372	.105
	Q36	.460	.395	.366	.494	1.000	.458	.476	.391	.469	.400	.387	.056
	Q37	.370	.346	.319	.425	.458	1.000	.418	.446	.300	.281	.259	.071
	Q38	.376	.514	.368	.414	.476	.418	1.000	.560	.380	.356	.313	.082
	Q39	.351	.413	.401	.352	.391	.446	.560	1.000	.483	.346	.319	.122
	Q40	.287	.322	.412	.353	.469	.300	.380	.483	1.000	.484	.441	.095
	Q41	.292	.301	.379	.352	.400	.281	.356	.346	.484	1.000	.468	.207
	Q42	.171	.343	.254	.372	.387	.259	.313	.319	.441	.468	1.000	.185
	Q43	.042	.153	.135	.105	.056	.071	.082	.122	**.095**	.207	.185	1.000

a. Determinant = .022

Table 5-20 Correlation Matrix for Perceptions

The correlation matrix for Perceptions was revised to assess the effect of eliminating Questions 40 through 43. The correlation matrix for the variable of Perception as presented in Table 5.21 below shows that Question 32 through Question 39 should be retained in the survey questionnaire.

Correlation Matrix[a]

		Q32	Q33	Q34	Q35	Q36	Q37	Q38	Q39
Correlation	Q32	1.000	.376	.434	.307	.460	.370	.376	.351
	Q33	.376	1.000	.353	.427	.395	.346	.514	.413
	Q34	.434	.353	1.000	.320	.366	.319	.368	.401
	Q35	.307	.427	.320	1.000	.494	.425	.414	.352
	Q36	.460	.395	.366	.494	1.000	.458	.476	.391
	Q37	.370	.346	.319	.425	.458	1.000	.418	.446
	Q38	.376	.514	.368	.414	.476	.418	1.000	.560
	Q39	.351	.413	.401	.352	.391	.446	.560	1.000

a. Determinant = .081

Table 5-21 Revised Correlation Matrix for Perception

The KMO test of the data was above the minimum acceptable value of .80, which indicates that factor analysis is suitable for assessing the validity of the instrument in the Perception scale. Bartlett's test was also statistically significant. Table 5.22 shows the findings of the KMO test and Bartlett's test for the Perception scale.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.882
Bartlett's Test of Sphericity	Approx. Chi-Square	755.946
	Df	28
	Sig.	.000

Table 5-22 KMO and Bartlett's Test for Perception

Table 5.23 below shows the eigenvalues for Perception, which shows that the first component accounts for the greatest amount of variance in the seven items remaining in Perception, nearly 50%. The scree plot for the perception scale as shown in Figure 5.4 confirmed that a single component accounts for nearly 50% of variance to the left of the elbow.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.842	48.024	48.024	3.842	48.024	48.024
2	.796	9.952	57.976			
3	.746	9.328	67.305			
4	.668	8.354	75.659			
5	.593	7.416	83.075			
6	.522	6.519	89.594			
7	.441	5.519	95.112			
8	.391	4.888	100.000			

Extraction Method: Principal Component Analysis.

Table 5-23 Eigenvalues for Perception

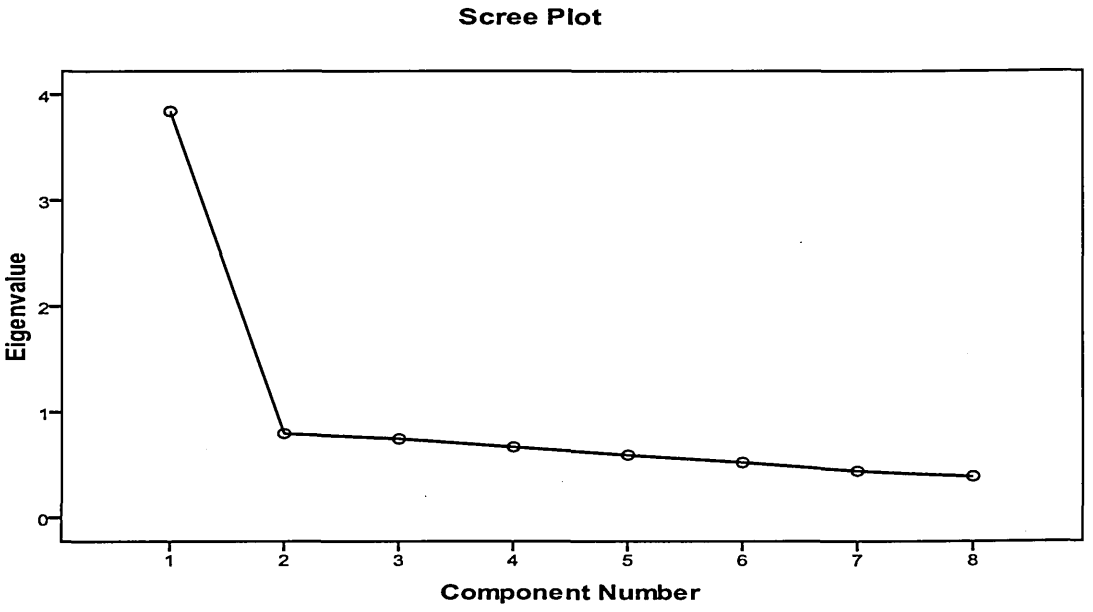

Figure 5-4 Scree Plot for Perception

Table 5.24 below indicates that the factor loadings for the eight questions in the Perception scale were above .40, with these questions retained in the survey questionnaire, thereby confirming that all of the questions are relevant and that a single component accounts for the majority of the variance.

Component Matrix[a]

	Component
	1
Q38	.755
Q36	.735
Q39	.711
Q33	.692
Q37	.682
Q35	.674
Q32	.656
Q34	.631

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Table 5-24 Factor Loading For Perception

Attitude:

Questions 44 through 51 of the survey questionnaire assessed items related to the variable of Attitude. The correlation coefficients as presented in Table 5.25 below indicated that all the questions related to Attitude had correlation coefficients above .30, with all questions retained in the survey questionnaire.

Correlation Matrix[a]

		Q44	Q45	Q46	Q47	Q48	Q49	Q50	Q51
Correlation	Q44	1.000	.333	.460	.401	.538	.409	.545	.490
	Q45	.333	1.000	.566	.590	.554	.466	.369	.433
	Q46	.460	.566	1.000	.629	.704	.656	.619	.477
	Q47	.401	.590	.629	1.000	.629	.561	.541	.614
	Q48	.538	.554	.704	.629	1.000	.663	.644	.561
	Q49	.409	.466	.656	.561	.663	1.000	.639	.540
	Q50	.545	.369	.619	.541	.644	.639	1.000	.618
	Q51	.490	.433	.477	.614	.561	.540	.618	1.000

a. Determinant = .011

Table 5-25 Correlation Matrix for Attitude

The KMO test of the data was above the minimum acceptable value of .80, which indicates that factor analysis is suitable for assessing the validity of the instrument in the Attitude scale. Bartlett's test was also statistically significant. Table 5.26 shows the findings of the KMO test and Bartlett's test for the Attitude scale.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.907
Bartlett's Test of Sphericity	Approx. Chi-Square	1372.559
	Df	28
	Sig.	.000

Table 5-26 KMO and Bartlett's Test for Attitude

The eigenvalues for Attitude as presented in Table 5.27 below indicate that the first component accounts for the greatest amount of variance in the eight items of Attitude scale (i.e. about 60%). The scree plot for the Attitude scale as shown in Figure 5.5 confirmed that a single component to the left of the elbow accounts for the majority of variance.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
sComponent	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.843	60.536	60.536	4.843	60.536	60.536
2	.795	9.935	70.472			
3	.586	7.331	77.803			
4	.557	6.957	84.759			
5	.359	4.488	89.247			
6	.313	3.913	93.161			
7	.288	3.595	96.755			
8	.260	3.245	100.000			

Extraction Method: Principal Component Analysis.

Table 5-27 Eigenvalues for the Attitude Scale

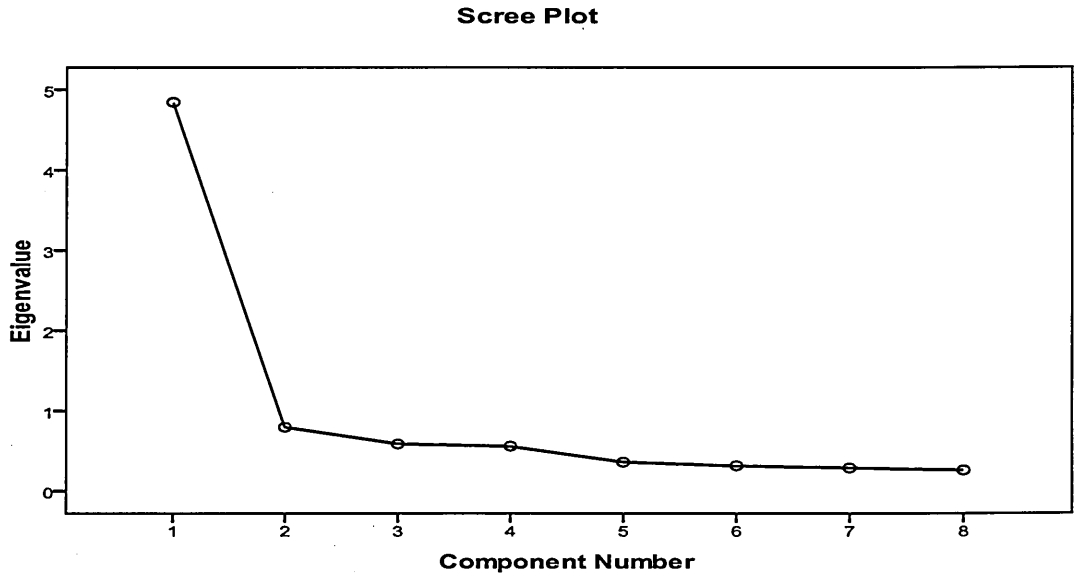

Figure 5-5 Scree Plot for the Attitude Scale

The factor loading for the eight questions in the Attitude Scale were above .40 as shown in Table 5.27 below, with these questions retained in the survey questionnaire, thereby confirming that all of the questions are relevant and that a single component accounts for the majority of the variance.

Component Matrix[a]

	Component
	1
Q48	.859
Q46	.830
Q50	.805
Q47	.802
Q49	.801
Q51	.760
Q45	.687
Q44	.659

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Table 5-28 Factor Loading for the Attitude Scale

5.5 Stage 4: Confirmatory factor analysis

The exploratory factor analysis in the preceding section used PCA and established the general validity for the variables of Pre-Sales Service, Trust, After-Sales Services, Perceptions, and Attitude, but did not examine the latent constructs in the instrument, which involve the "unobserved underlying constructs" in the survey questionnaire (Harrington, 2009, p. 7). Confirmatory factor analysis was used to test whether the items in the survey questionnaire were related to the hypothesised latent variables of the study. It is often considered superior to exploratory factor analysis because it does not permit all factors to vary freely, with a constraint setting some loadings to zero (Comfrey and Lee, 1992). It is used when the factor loadings have been validated, which was established with the exploratory factor analysis and supports the use of confirmatory factor analysis. The factor loadings for the confirmatory factor analysis considered only those factors with a value above 0.50. Table 5.29 below shows the results of the confirmatory factor analysis. The table shows that all factor loadings were above 0.50 and were therefore retained in the survey instrument. The confirmatory factor analysis supports the conclusion that the instrument is validated. It also supports the conclusion that Pre-Sales Services, Trust, After-Sales Services, Perceptions, and Attitude are significant factors explaining the variance in attitude toward eCRM among customers of Afriqiyah Airways.

	Pre-sales	Trust	After-sales	Perception	Attitude
PRES1	0.726434				
PRES10	0.679436				
PRES2	0.847835				
PRES3	0.829365				
PRES4	0.818322				
PRES5	0.791958				
PRES6	0.773047				
PRES7	0.830960				
PRES8	0.825922				
PRES9	0.734751				
TRUST1		0.649132			
TRUST2		0.807209			
TRUST3		0.842684			
TRUST4		0.824753			
TRUST6		0.831932			
TRUST7		0.784492			
TRUST8		0.759235			
TRUST9		0.677162			
AFTS1			0.820951		
AFTS2			0.794778		
AFTS3			0.790281		
AFTS4			0.738741		
AFTS5			0.667077		
AFTS6			0.792534		
AFTS7			0.606034		
PERC10				0.659131	
PERC3				0.632090	
PERC4				0.663647	
PERC5				0.741193	
PERC6				0.677336	
PERC7				0.727372	
PERC8				0.727780	
PERC9				0.712294	
ATT1					0.658521
ATT2					0.686598
ATT3					0.831524
ATT4					0.804713
ATT5					0.857505
ATT6					0.802942
ATT7					0.805124
ATT8					0.760575

Table 5-29 Summary of the Exploratory Factor Analysis

5.6 Summary

This Chapter presented the results from the assessment of the reliability and validity of the survey questionnaire, which occurred in four stages. The first stage involved the data entry procedure, which included coding, data entry, data cleaning, and analysis of missing responses in the database. In the second stage, descriptive statistics of the respondents were presented. The third stage used Cronbach's alpha to assess reliability and PCA to conduct exploratory factor analysis to determine if the five components in the survey questionnaire of Pre-Sales Services, Trust, After-Sales Service, Perceptions, and Attitude are significant factors in customer attitudes towards using eCRM at Afriqiyah Airways. In this stage, the final form of the survey questionnaire was developed. The fourth stage, confirmatory factor analysis, was used to assess the final form of the survey questionnaire, with factors with a value above 0.50 retained in the instrument. The procedure established that the survey questionnaire is reliable and valid and is appropriate for collecting data for other analysis such as regression performed in this study. Therefore, it is argued that each of the factors Trust, Pre-Sales Services, After-Sales Services, Perceptions and Attitude, could be presented by a single component and the retained questions measuring each factor were clearly relevant. We conclude that the factors proposed in the model are key factors in its explanation. In the next section we assess through a series of hypotheses the relationship between these factors in terms of the proposed model.

Chapter Six: Model Testing

6.1 Introduction

The factor analysis of the survey questionnaire presented in the previous chapter demonstrated that the model had sufficient reliability and validity, and the items retained in the model were able to measure the constructs examined in this study. This chapter presents the results of the testing of the structural model of study shown in Figure 6.2 and the hypotheses of the study shown in Table 6.1. The testing of the model used Partial Least Squares (PLS), which is an iterative algorithm that initially solves the blocks of the measurement model followed by estimation of the path coefficients in the structural model (Vinzi, et al., 2010). The derived variables are specifically constructed to retain the information in the independent variable that helps to predict the dependent variable while reducing the dimensionality of the regression (Izenman, 2008). A series of simple linear regressions and multiple linear regressions was performed to test the hypotheses of the study. Simple linear regressions were used to test hypotheses H2, H4, H5, H6, H8, and H9, while multiple linear regressions were used to test hypotheses H1, H3, and H7. The relationship of the hypotheses to the variables in the structural model is shown in Figure 6.2. The structural model was tested with the SmartPLS 2.0 statistical software package, while the hypotheses were tested using SPSS 16.0 for Windows.

For our purpose we should follow the convention of labelling correlation value:

Coefficient of Determination	Low	Moderate	Strong	Highly Strong
R^2	$R^2 \leq 0.2$	$0.2 < R^2 \leq 0.5$	$0.5 < R^2 \leq 0.75$	$R^2 > 0.75$

Table 6-1 Values and Strength of Association

6.2 Structural Equation Model

This section presents the results of the structural equation modelling (SEM) used to test the research model. According to Vinzi et al. (2010), SEM is a systematic approach that can use different statistical methods to estimate a network of causal relationships defined by a theoretical model that links two or more latent concepts that can be measured through observable indicators. The modelling is based on the assumption that manifest variables can be used as indicators of latent variables. The use of SEM is appropriate in situations in which there are many observable measurable variables that

can be influenced by latent constructs that cannot be measured (Foster et al., 2006). The model produces a path diagram in which an outcome variable in one relationship can become a predictor variable in the next relationship in a series (Blaikie, 2003). The PLS approach to SEM was used in this study, with the analysis performed by the SmartPLS 2.0 software package. PLS is a component-based estimation approach that initially separates the component blocks in the model and then estimates the path coefficients. It estimates the residual variance of the latent variables and the residual variance of the manifest variables in the model (Vinzi et al., 2010).

A shortcoming of the Partial Least Squares (PLS) approach to SEM modelling is that it does not provide an effective goodness-of-fit measure to determine the degree of fit between the model and the observations. However, Chin (1998) indicated that the PLS model should be evaluated based on prediction-oriented measures rather than covariance fit. As a result, the model can be assessed by examining the betas, β, for the relationships between the independent variables and the dependent variable and the coefficient of determination, R^2, for the model. The interpretation of the R^2 is similar to the interpretation used in traditional regression analysis. It can also be used to interpret the corresponding standardised path estimates. In effect, the R^2 can be used to determine if the latent variable has a small, medium, or large effect in the structural model. The model as shown in Figure 6.1 examined the goodness-of-fit based on R^2. In the model, the four variables of Perception, Trust, Pre-Sales Services and After-Sales Services accounted for approximately 53% of the variance in Attitude (R^2 = .529). When it is used in the SEM, the R^2 provides an estimate of the goodness of fit, with a value of 1 indicating a fit in which all of the variance is explained (Mueller.1996). As a result, the model explains the strong presence of variance in Attitude. The betas represent the relative predictive power of the dimensions. In the model depicted in Figure 6.1 below, Perception has the greatest amount of predictive power (β = .510). These initial values provide bases for further in-depth analysis.

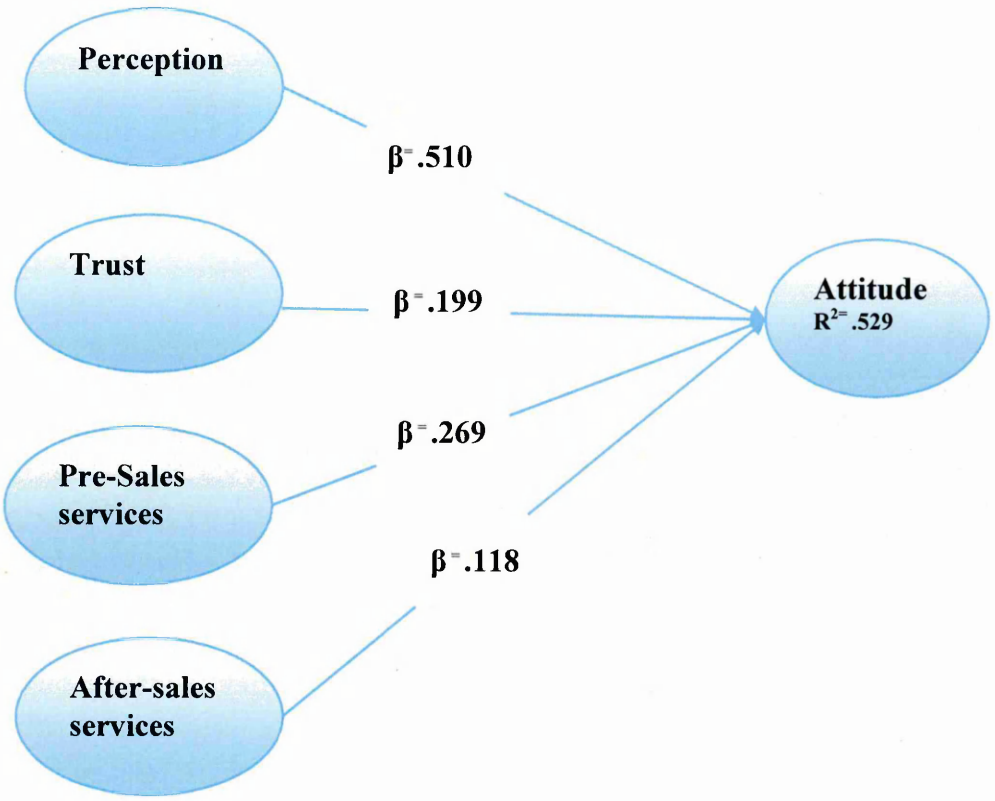

Figure 6-1 Partial Least Squares Results

6.3 Analysis Stages

This section discusses the stages in the process used to test the hypotheses of the study that were presented in Chapter Three, Section 3.6, and to assess the way in which the predictor variables combined to influence the dependent variable. In Table 6.2, the hypotheses are listed, together with the type of analyses used to test each hypothesis and the independent and dependent variables involved in the hypothesis test. Figure 6.2 presents a graphical depiction of the relationships among the variables tested by the hypotheses of the study.

The analysis occurred in three stages. The first stage tested the hypotheses relating to Attitude toward e-CRM as the dependent variable and included stepwise regression analysis to determine the best. The second stage tested the hypotheses with Perception as the dependent variable. The third stage tested the hypotheses with Trust and After-Sales Services as the dependent variables consecutively.

Stage	Type of Analyses	Hypothesis	Independent Variables	Dependent Variables
1	Stepwise multiple regression analysis	**H1**: H1: Trust, Pre-Sales Services, After-Sales Services and Perception have a positive association with Attitude towards use of e-CRM.	**Trust, Pre-Sales Services, After-Sales Services and Perception**	**Attitude toward use E-CRM**
	Simple Linear Regression	**H2**: Perception has a positive association with Attitude towards use of e-CRM.	**Perception**	**Attitude toward use E-CRM**
	Simple Linear Regression	**H9**: Trust has a positive association with Attitude towards use of e-CRM.	**Trust**	**Attitude toward use E-CRM**
2	Multiple Linear Regression	**H3**: Trust, Pre-Sales Services, and After-sales Services have a positive association with Perception	**Trust, PreSales Services, After-Sales Services**	**Perception**
	Simple Linear Regression	**H4**: Trust has a positive association with Perception.	**Trust**	**Perception**
	Simple Linear Regression	**H5**: Pre-Sales Services have a positive association with Perception	**Pre-Sales Services**	**Perception**
	Simple Linear Regression	**H6**: After-Sales Services have a positive association with Perception.	**After-Sales Services**	**Perception**
3	Multiple Linear Regression	**H7**: : Pre-Sales Services and After-Sales Services have a positive association with Trust	**Pre-Sales Services and After-Sales Services**	**Trust**
	Simple Linear Regression	**H8**: Pre-Sales Services have a positive association with After-Sales Services.	**Pre-Sales Services**	**After-Sales Services**

Table 6-2 Summary of analysis types and hypotheses undertaken in this investigation

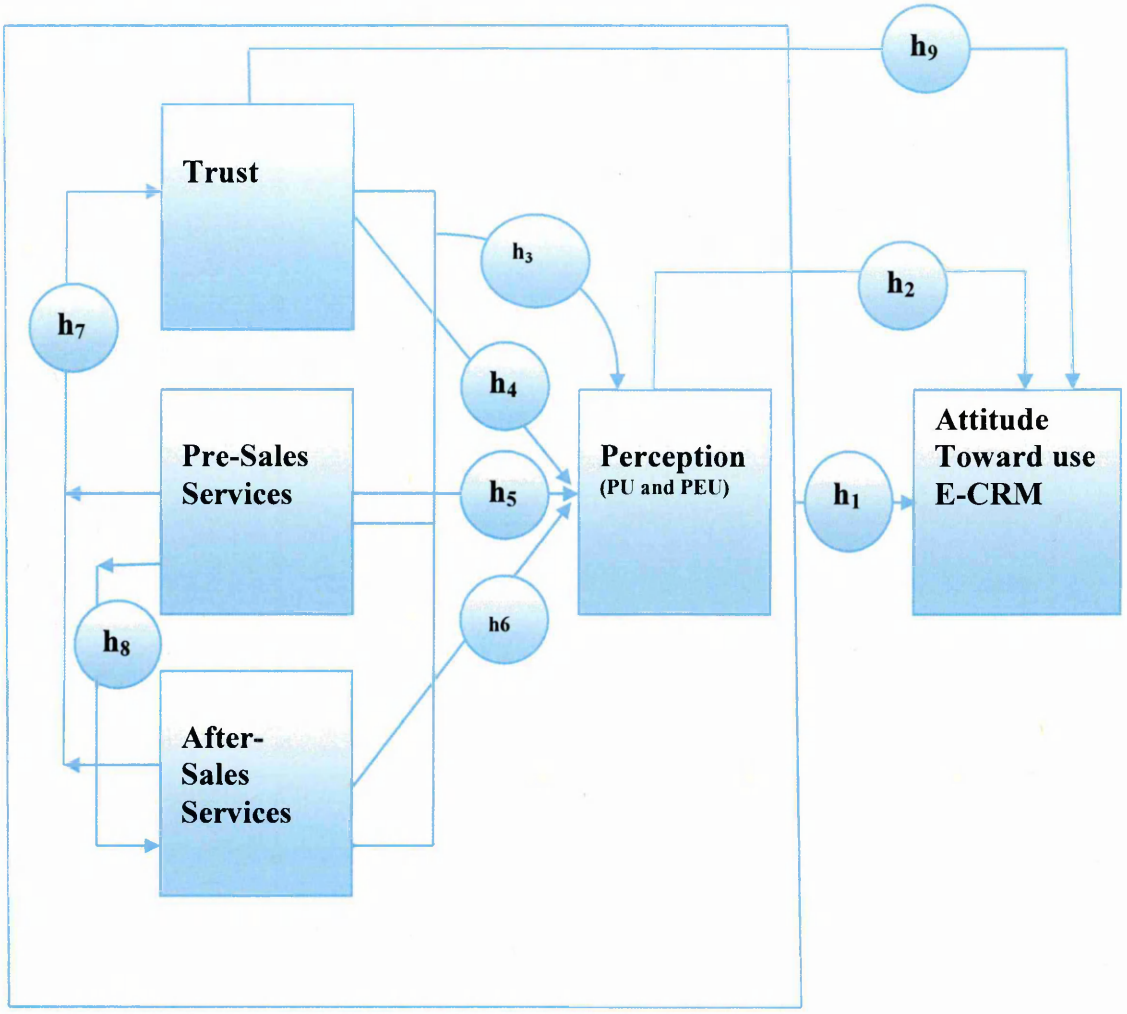

Figure 6-2 Relationship of Hypotheses to Variables

6.4 Analysis Stage (1): Influence of Trust, Pre-Sales Services, After-Sales Services and Perception upon Attitude.

Stage 1 is divided into two parts, with the first part analysing H1 through stepwise regression and the second part analysing H2 and H9 through simple linear regression. Part 1 examined the cumulative effect of the four independent variables of Trust, Pre-Sales Services, After-Sales Services and Perception upon Attitude towards use of e-CRM using stepwise multiple regression analysis. Part 2 examined Perception (H2) and Trust (H9) individually upon Attitude towards use of e-CRM using Simple Linear Regression analysis.

6.4.1 Analysis Stage-1 Part (1) Influence of Trust, Pre-Sales Services, After-Sales Services and Perception upon Attitude

The analysis of this stage tested the following hypothesis using stepwise multiple regression analysis for hypothesis H1.

H1: Customers' Trust, Pre-Sales Services, After-Sales services and Perception have a positive association with Attitude towards use of e-CRM.

Figure 6.3 presents a graphical depiction of the relationships tested in stage 1 part 1 through stepwise regression analysis.

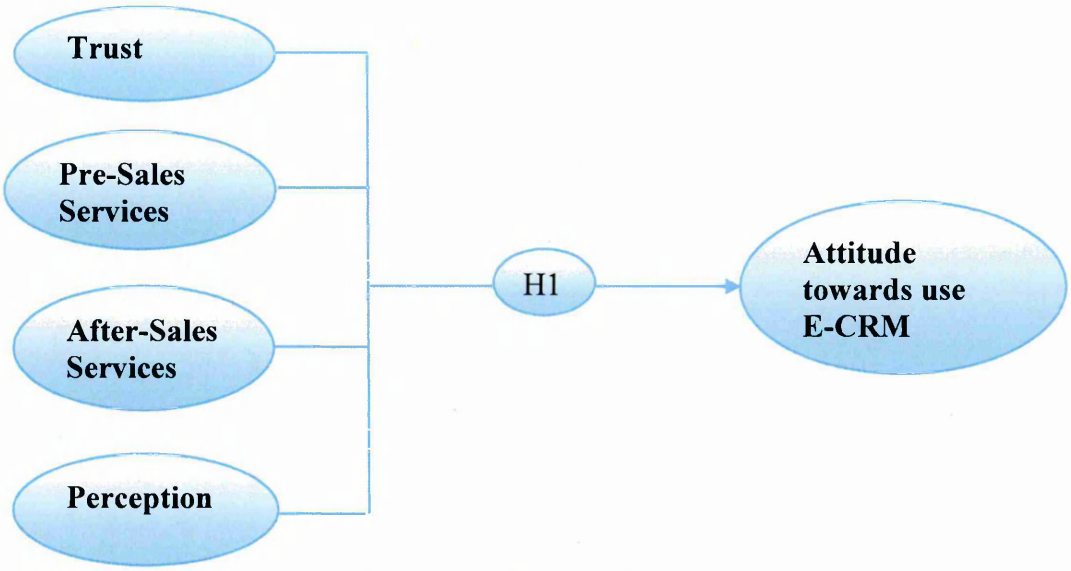

Figure 6-3 Model to Test H1

Testing the Underlying Assumptions

The purpose of stepwise multiple regression analysis is to reduce the number variants to those that have a non-zero weighting in the simplified regression variant, which identifies the variables in each phase of the analysis that make the largest contribution to R^2 (Harris, 2001). The stepwise initially computes an average variance score for variables examined in the model with the total score as the average of the variance.

The underlying assumptions in the multiple regression models include: linearity, homoscedasticity, normality of residuals, outlier analysis, multicollinearity, and residual independence. Testing for the validity of the underlying assumptions is important in stepwise regression analysis for determining whether a significant independent variable is left out of the model because of data anomalies that could lead to incorrect inferences and conclusions (Christensen, 1998). Each of these assumptions is assessed for the stepwise linear regression model in the following subsections.

Linearity and Homoscedasticity

The linearity assumption concerns the form of the model, with a linear or straight line relationship between the dependent and independent variables (Chatterjee and Hadi, 2006). In a simple regression analysis a plot of the dependent and independent variables appears as a straight line, although some variance may exist. In a multiple regression

analysis, there is a higher degree of dimensionality in the data that can create an appearance of non-linearity in the data. Creating a scatter plot of the relationship of the variables is the usual approach to assessing the linearity of the model. A scatter plot with an oval shape or distribution of the data points is indicative of a linear relationship between the variables (Kemp and Kemp, 2004). The scatter plot for the model as shown in Figure 6.4 shows the oval shape expected with a linear relationship among the independent variables and the dependent variable of Attitude, thereby providing support for the assumption of linearity in the data used for the stepwise regression analysis.

In the homoscedasticity assumption of the regression model, the variance of the dependent variable to changes in the independent variable is equal across the range of the independent variable tested in the model. Homoscedasticity is significant because it indicates that the dependent variable has similar responsiveness to changes in the independent variable throughout the full range of dimensions, with the variance in the dependent variable not limited to a narrow range of changes in the independent variable (Chatterjee and Hadi, 2006). Homoscedasticity can be assessed by examining the actual residuals of the variance of the dependent variable plotted against the predicted residual values of the dependent dimension, with a similar dispersion predicted across all data points. Figure 6.4 below shows that the dependent variable Attitude in the stepwise linear regression model has high homoscedasticity and meets the assumption of the linear regression model.

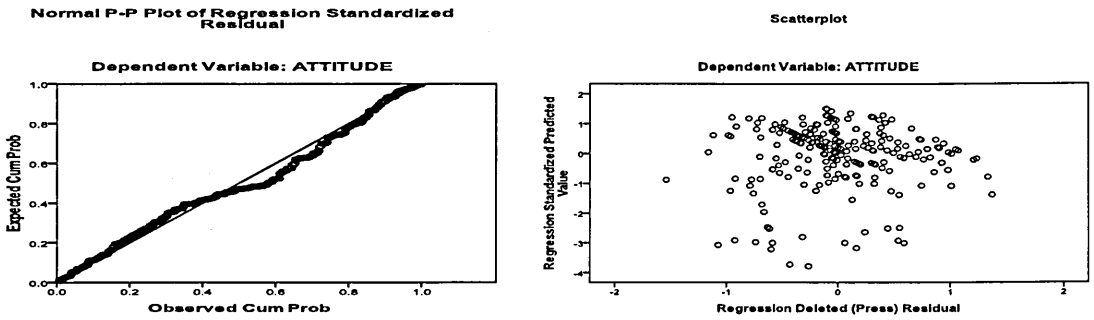

Figure 6-4 Residual Plot and Scatter Plot for Hypothesis H1

Normality of residuals

The assumption of normality of residuals is that the residuals in the data used in the model have a normal distribution around the mean, which creates the characteristic appearance of a bell-shaped distribution (Onder and Zamen, 2003). As a result, the normality in regression is determined by assessing the residuals. While there is little

agreement concerning the appropriate method to assess residuals, examining the skew of the distribution can be used to provide an indication of normality. In addition, large samplings increase the probability that the residuals will have a normal distribution, which was the case in this study. The scatter plot is also helpful for determining whether the assumption of normality of residuals has been violated (Chatterjee and Hadi, 2006).

Multicollinearity

Multicollinearity exists when multiple independent variables in a regression model are inter-correlated, and is a problem related to a specific data set and not to the general population (Berry and Feldman, 1985). Multicollinearity can occur when a variable contains elements that overlap with the elements of other variables and from the operationalisation of the same concept in two or more variables. A high level of multicollinearity can lead to an underestimation of the true relationship between the independent and dependent variables and possible produce a Type II error in which the null hypothesis is accepted when it is in fact false (Boslaugh and Waters, 2008). To test for the existence of multicollinearity in the data set, the tolerance value and the variable inflation factor (VIF) are commonly used (Myers et al., 2006). The tolerance value is determined by $1\text{-}R^2$ of the independent variable with each variable acts as a criterion variable for the remaining variables. The tolerance values can range from 0 to 1, with multicollinearity indicated by a tolerance value of less than .01. The VIF is the reciprocal of the tolerance and determined as 1/tolerance. It measures the degree of linear association between a specific independent variable and the remaining independent variables in the analysis. A VIF greater than 10 is an indicator of multicollinearity. As shown in Table 6.3 below, the predictor variables used to test hypothesis H1 had tolerances above .01 and VIF well below 10.

For our purpose, we can conclude that the analysis indicates that multicollinearity did not affect the variables of Perception, Trust, Pre-Sales Service and After-Sales Service and these variables operated independently of each other.

Predictor variable	Collinearity Statistics	
	Tolerance	VIF
PERCEPTION	.423	2.365
Trust	.312	3.207
Pre-Sales Services	.417	2.400
After-Sales Services	.390	2.562

Table 6-3 Tolerance Test and VIF for H1

Independence of Residuals

Independence of residuals is necessary for regression analysis because it determines how well the model fits the data. If the residuals are not independent, it suggests that the observations have been ordered in some manner that results in autocorrelation (Chatterjee and Hadi, 2006). An approach to test for the possibility of autocorrelation in the sample is to use the Durbin-Watson statistic. The closer the value of the Durbin-Watson statistic to 2, the less likely that autocorrelation exists in the sample and the greater the likelihood that the residuals are independent. If the Durbin-Watson statistic is close to 0, however, there is a strong likelihood that the residuals are not independent (Mimmack, et al, 2001). As a result the Durbin-Watson statistic for the four predictor variables (DW=1.604) is at an acceptable level to indicate that the residuals were independent because it is approaching 2.

Outlier Analysis

A data point is generally considered an outlier if it has a very large residual when compared to the other data points in the analysis, but no standard criterion is used to assess whether data points have a large enough residual to be classified as an outlier (Chatterjee and Hadi, 2006). A useful measure of the effect of outliers is Cook's distance, which estimates the amount of change in the regression coefficient if a data point is omitted from the analysis (Kleinbaum et al., 2008). The Cook's distance statistic indicates that outliers do not have an effect on the regression analysis if the statistic is less than 1, but this approach to outlier analysis should be used in conjunction with other methods such as the central leverage value (CLV). The CLV is an additional test to determine whether outliers are unduly influencing the multiple regression analysis by examining the deviation from the averages of the outlier residuals (Person, 2010). The closer CLV is to zero, the less likely that the multiple regression analysis has been influenced by outliers. The analysis of the data used in the multiple regression analysis for this study found a Cook's distance of 0.005 and a CLV of 0.013, which shows that outliers did not have an effect on the analysis.

Regression Analysis and Interpreting Results

To determine the importance of each variable in the research model, the analysis examined the beta coefficients. The beta coefficient assesses the relative change in the relationships between the independent variables and the dependent variables, with the magnitude of the coefficient demonstrating the strength of the relationship and the sign

of the coefficient demonstrating the direction of the relationship. The beta output of the multiple regression analysis provides an indication of the level of significance in the relationship between variables. Based on the level of the beta, the results can be classified as highly significant ($p < .001$), significant ($p < .01$), or of intermediate significance ($p < .05$) (Kleinbaum et al, 2008).

Selecting the best model by stepwise regression analysis

A stepwise regression analysis was performed to determine the best model for predicting the effect on Attitude of the variables of Trust, Pre-Sales Services, After-Sales Services and Perception. In the stepwise regression analysis, the data from the four independent variables on the dependent variable are simultaneously entered into the model to determine the variables that account for the majority of the variance. The models are constructed by using forward criteria using the value of R^2 as the criterion for adding the variables to each model. Stepwise regression is appropriate for selecting model variables when a large number of dimensions must be considered (Wang and Jain, 2003).

6.4.1.1 Results of hypothesis testing

The stepwise regression analysis was used to assess the effect of Trust, Pre-Sales Services, After-Sales Services and Perception on Attitude to identify the most appropriate model. The stepwise regression analysis as shown in Table 6.4 below indicates that model 1, which contains only the variable of Perception, accounts for most of the variance in the dependent variable of Attitude ($R^2 = .510$). In model 2, the variable of Trust is added, with the amount of variance accounted for in the model increasing slightly ($R^2 = .529$). Model 3 contained the three variable of Perception, Trust, and Pre-Sales Services, with an increase in the amount of variance accounted for in the model ($R^2 = .579$). In the third model (Table 6.5), however, the Trust variable is not statistically significant and has a negative beta coefficient, which suggests that Trust does not contribute to the variance. Model 4, which includes all four variables, shows a slight increase in the amount of variance accounted for in the model ($R^2 = .584$). In this model, the variable of Trust also has a negative beta that is not statistically significant while the variable of After-Sales Services is statistically significant. Nonetheless, the amount of variance accounted for by the four variables increases in each model, albeit only slightly in the final model. As a result, the findings provide support for accepting

hypothesis **H1**: Customers' Trust, Pre-Sales Services, After-Sales Services and Perception all have a positive association with Attitude towards use of E-CRM.

Table 6-4 Models and their associated R^2 values

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig	Durbin-Watson
1	.714[a]	.510	.509	.51739	316.890	.000[a]	
2	.727[b]	.529	.526	.50819	170.295	.000[b]	
3	.761[c]	.579	.575	.48145	138.355	.000[c]	1.604
4	.764[d]	.584	.579	.47914	105.746	.000[d]	

a. Predictors: (Constant), PERCEPTION

b. Predictors: (Constant), PERCEPTION, TRUST

c. Predictors: (Constant), PERCEPTION, TRUST, PRESALES

d. Predictors: (Constant), PERCEPTION, TRUST, PRESALES, AFTERSALES

Coefficients[a]

Model	Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1 (Constant)	1.328	.146		9.071	.000
PERCEPTION	.697	.039	.714	17.801	.000
2 (Constant)	1.130	.155		7.308	.000
PERCEPTION	.556	.056	.570	9.964	.000
TRUST	.189	.054	.199	3.481	.001
3 (Constant)	.526	.178		2.954	.003
PERCEPTION	.556	.053	.570	10.524	.000
TRUST	-.023	.063	-.025	-.373	.709
PRESALES	.369	.062	.316	5.966	.000
4 (Constant)	.492	.178		2.766	.006
PERCEPTION	.520	.056	.533	9.326	.000
TRUST	-.044	.063	-.047	-.703	.482
PRESALES	.315	.067	.269	4.679	.000
AFTERSALES	.122	.061	.118	1.978	.049

a. Dependent variables: ATTITUDE

Table 6-5 Four factors and their individual beta values

6.4.2 Analysis Stage-1 Part (2) Influence of Trust and Perception upon Attitude

The second part of the Stage 1 analysis involved testing hypotheses H2 and H9 to determine if a relationship exists between the variables of Perception and Trust and Attitude towards use of e-CRM. These two hypotheses were:

H2: Customers' Perception has a positive association with Attitude towards use of e-CRM.

H9: Customers' Trust has a positive association with Attitude towards use of e-CRM.

In the stepwise regression analysis, these two variables accounted for the majority of the variance in Attitude, as seen in model 2. Regression analysis was used to test the relationship between the variables, with the correlation coefficient R indicating the

existence of a relationship and the coefficient of determination R^2 indicating the strength of the relationship. Figure 6.5 below contains a graphical depiction of the relationship among the variables tested in this stage of the analysis.

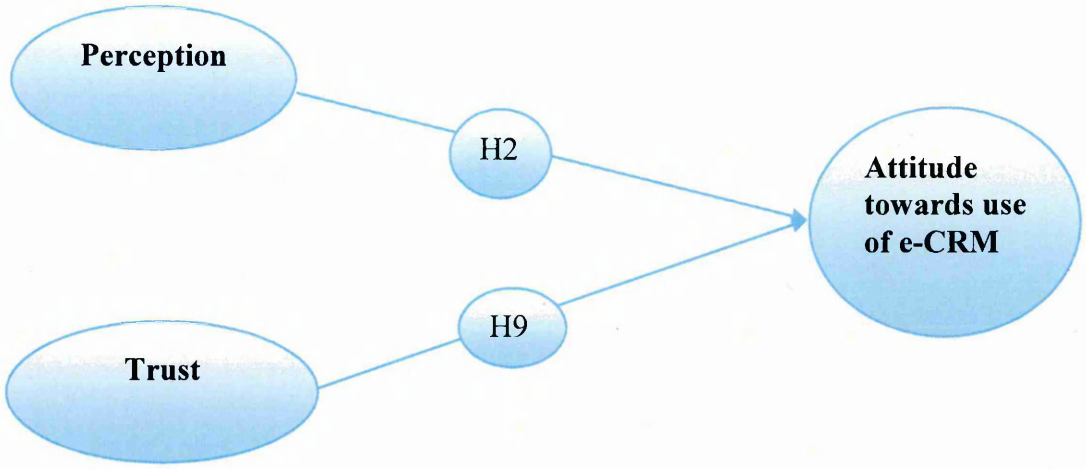

Figure 6-5 Relationship of Perception and Trust to Attitude

Testing the underlying assumption for simple linear regressions for H2

To ensure that simple linear regression is appropriate for the analysis of the data it is necessary to test for the presence of the regression assumptions (Chatterjee and Hadi, 2006). In a simple linear regression model, the underlying assumptions include: linearity, homoscedasticity, normality of residuals, outlier analysis and independence of the residual. Multicollinearity is moot with a simple linear regression because the analysis involves testing the relationship between only one independent variable and the dependent variable.

Linearity and Homoscedasticity

The scatter plot for the data related to Perception has the oval form that is indicative of linearity in the relationship between Perception and Attitude. The plot of standardised residuals also shows little variance between the actual and predicted residuals of the data, which is indicative of homoscedasticity. Both the scatter plot and plot of the residuals are shown below in Figure 6.6.

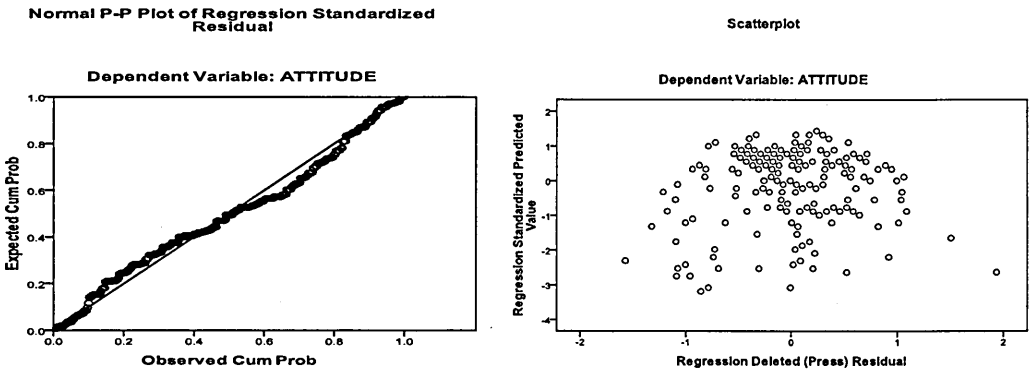

Figure 6-6 Scatter Plot and Residuals for H2

Independence of residuals

The Durbin-Watson statistic for the relationship between Perception and Attitude is 1.450, suggesting that there is sufficient evidence to support the assumption of independence of residuals to use the data for regression analysis (Mimmack, et al, 2001).

Outlier analysis

The Cook's distance statistic for Perception and Attitude was 0.005, which indicates that the omission of outlier data points does not have a substantial effect on the outcome of the regression analysis. The central leverage value was also very small at 0.003, which shows that the outliers did not have an effect on the analysis.

6.4.2.1 The Results of Testing H2

The findings from the simple regression analysis of Perception with Attitude as shown in Table 6.6 below provide support for accepting H2. The correlation coefficient showed a statistically significant and strong correlation between Perception and Attitude (R = .714) and the coefficient of determination showed that Perception accounted for 51% of the variance in Attitude (R^2 = .510). The analysis leads to the conclusion that Perception is a key variable influencing Attitude.

Table 6-6 Perception and its associated R^2 value upon Attitude

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig	Durbin-Watson
1	.714[a]	.510	.509	.51739	316	.000	1.450

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.328	.146		9.071	.000
PERCEPTION	.697	.039	.714	17.801	.000

a. Dependent variable: ATTITUDE

Table 6-7 Perception and its Individual Beta Value

6.4.3 Analysis of Trust on Attitudes H9

Testing hypothesis H9 also used simple regression analysis to assess the effect of the independent variable of Trust on the dependent variable of Attitude. As with hypothesis H2, an initial assessment was made of the underlying assumptions necessary for the regression analysis.

Linearity and Homoscedasticity

The scatter plot for the data related to Trust shows an oval that suggests linearity in the relationship between Trust and Attitude. The plot of standardised residuals also shows little variance between the actual and predicted residuals of the data, which supports the assumption of homoscedasticity. Both the scatter plot and plot of the residuals are shown below in Figure 6.7.

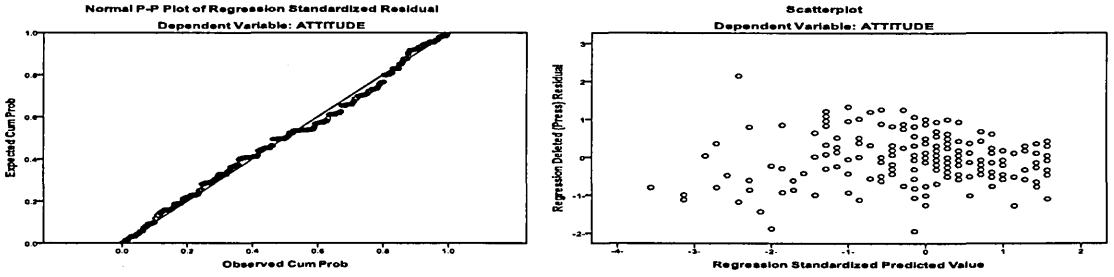

Figure 6-7 Scatter Plot and Residuals for H9

Independence of residuals

The assumption of independence of residuals for Trust and Attitude was established through the Durbin-Watson statistic. The statistic produced a result of 1.51, which is relatively close to the value of 2 indicating independence of residuals.

Outlier analysis

The Cook's distance statistic for Trust and Attitude was 0.005, and the central leverage value was small at 0.003. Because Cook's distance was well below 1 and the central leverage value was close to 0, the data support the assumption that the outliers did not have an effect on the analysis.

6.4.3.1 The Results of Testing H9

The findings from the simple regression analysis of Trust with Attitude as shown in Table 6.8 below provides support for accepting H9. The correlation coefficient showed a highly significant and moderate correlation between Trust and Attitude (R = .612) and the coefficient of determination showed that Perception accounted for approximately 38% of the variance in Attitude (R^2 = .375). The analysis leads to the conclusion that Trust is an important variable influencing Attitude.

Table 6-8 Trust and its associated R^2 value upon Attitude

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig	Durbin-Watson
1	.612[a]	.375	.373	.58459	182.360	.000	1.515

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	1.686	.166		10.164	.000
TRUST	.581	.043	.612	13.504	.000

a. Dependent variable: ATTITUDE

Table 6-9 Trust and its Individual Beta Value

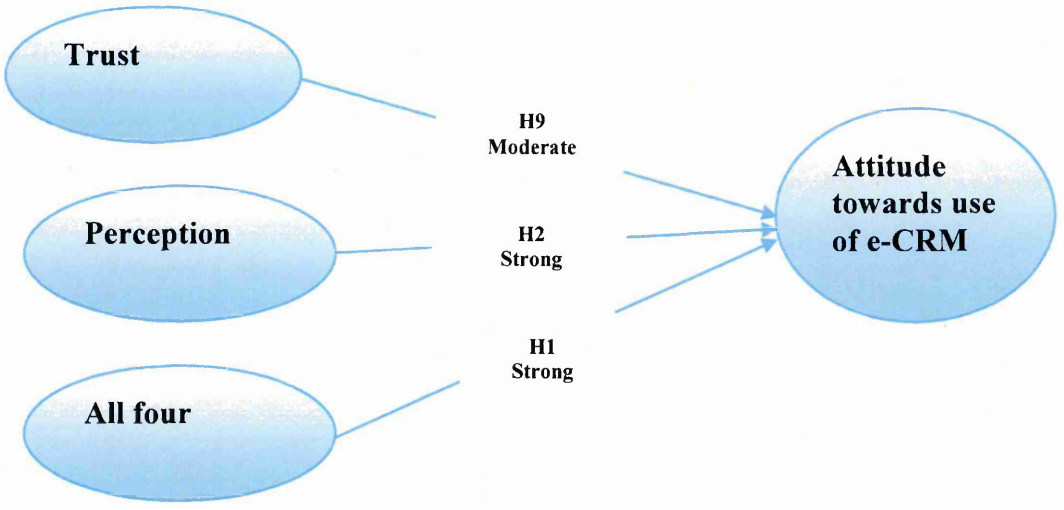

Figure 6-8 Strength of association: H9, H2, and H1

In summary, we have shown that all the four factors Trust, Pre-Sales Services, After-Sales Services and Perception influence Attitude. In particular, Perception has the strongest influence on Attitude. Additionally, it should be noted that in the case of H1 Trust has a negative beta coefficient (see Table 6.5), so this may indicate that there is some interaction between the three factors (Pre-Sales Services, After-Sales Services and Trust); this needs further investigation.

6.5 Stage (2): Influence of Trust, Pre-Sales Services and After-Sales Services upon Perception

The Stage-2 analysis examined the relationships between the independent variables of Trust, Pre-Sales Services, and After-Sales Services with Perception as the dependent variable. Stage 2 was intended to test the following hypotheses:

H3: Trust, Pre-Sales Services, and After-sales Services have a positive association with Perception

H4: Trust has a positive association with Perception.

H5: Pre-Sales Services have a positive association with Perception

H6: After-Sales Services have a positive association with Perception.

Because Perception is the largest significant factor influencing Attitude, the next stage of the analysis is intended to assess the effect of the other factors on Perception.

6.5.1 Testing Hypothesis H3

Multiple linear regression was used to test hypothesis H3, with the correlation coefficient R indicating the existence of a relationship and the coefficient of determination R^2 indicating the strength of the relationship. Figure 6.9 below depicts the relationship between Trust, Pre-Sales Services and After-Sales Services and Perception.

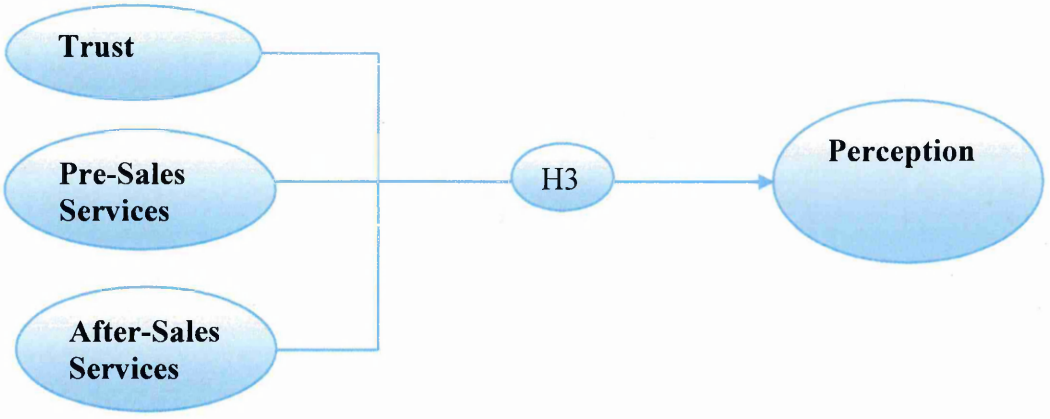

Figure 6-9 Relationship between Trust, Pre-Sales Services and After-Sales Services and Perception

Testing the underlying assumption for multiple linear regressions: H3

Because testing hypothesis H3 used multiple regression analysis, the following assumptions applied: linearity, homoscedasticity, normality of residuals, outlier analysis, and residual independence. Each of these assumptions was tested separately. The assumption of multicollinearity was established for the entire model in the Stage 1 analysis.

Linearity and Homoscedasticity

The scatter plot for the data for the three independent variables and the dependent variable of Perception shows an oval that suggests linearity in the relationship. The plot of standardised residuals also shows little variance between the actual and predicted residuals of the data, which supports the assumption of homoscedasticity. Both the scatter plot and plot of the residuals are shown below in Figure 6.10.

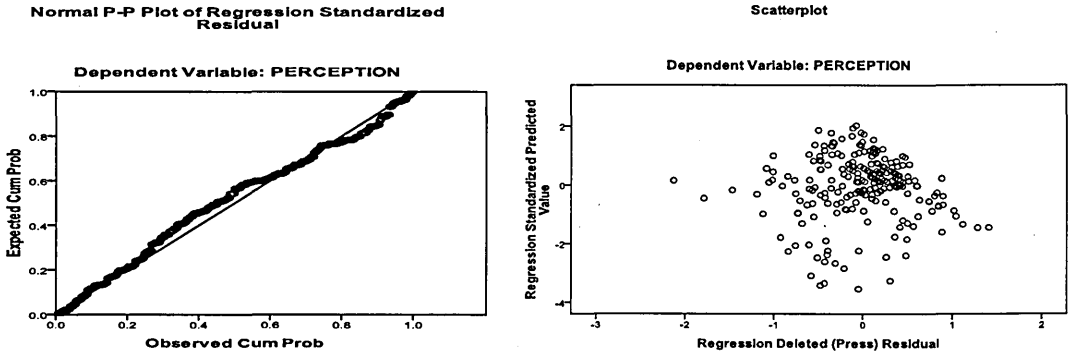

Figure 6-10 Scatter Plot and Residuals for H3

Independence of residuals

The independence of residuals for the variables of Trust, Pre-Sales Services, and After-Sales Services was established with the Durbin-Watson statistic of 1.730. The statistic is close to the maximum value of 2, which shows independence of residuals.

Outlier analysis

The Cook's distance statistic for Trust and Attitude was 0.005, and the central leverage value was small at 0.010. Because Cook's distance was well below 1 and the central leverage value was close to 0, the data supports the assumption that the outliers did not have an effect on the analysis.

6.5.1.1 The Results of Testing H3

The multiple regression analysis of the relationship between Trust, Pre-Sales Services, and After-Sales Services and Perception as shown in Table 6.7a below found a strong and highly significant correlation (R = .760). Moreover, it also indicated that the three independent variables accounted for approximately 58% of the variance in Perception (R^2 = .577). In addition, each of the three independent variables has statistically significant betas but there is a negative coefficient correlation in the Pre-Sales Services (Table 6.10); this may be because there is some interaction between the three factors.

Table 6-10 Trust, Pre-Sales Services and After-Sales Services and their associated R^2 values upon Perception

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig	Durbin-Watson
1	.760[a]	.577	.573	.49463	137.427	.000	1.730

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	.792	.178		4.449	.000
PRESALES	-.163	.069	-.136	-2.366	.019
TRUST	.566	.056	.581	10.016	.000
AFTERSALES	.365	.060	.344	6.086	.000

a. Dependent variable: PERCEPTION

Table 6-11 Trust, Pre-Sales Services and After-Sales Services and their Individual Beta Values

6.5.2 Analysis of Trust upon Perception: H4

Simple regression analysis was used to test hypothesis H4, which assessed the relationship between Trust as an independent variable and Perception as a dependent variable. Figure 6.11 shows the relationship tested in the hypothesis.

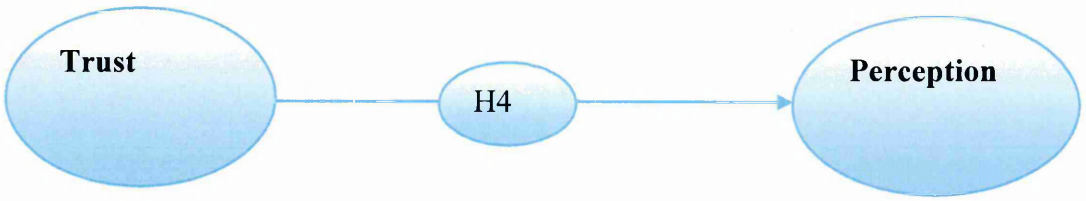

Figure 6-11 Relationship between Trust and Perception

Testing the underlying assumption for simple linear regressions: H4

As with other models using a simple linear relationship between variables, testing the assumptions for regression examined linearity, homoscedasticity, normality of residuals, outlier analysis, and residual independence. The scatter plot for the data for the independent variable of Trust and the dependent variable of Perception showed an oval that suggests linearity in the relationship. The plot of standardised residuals also shows little variance between the actual and predicted residuals of the data, which supports the assumption of homoscedasticity. Both the scatter plot and plot of the residuals are shown below in Figure 6.12.

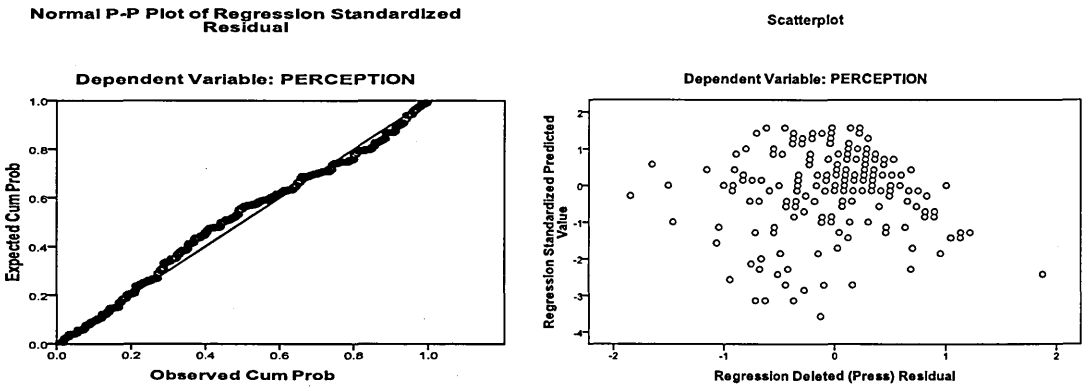

Figure 6-12 Scatter Plot and Residuals for H4

Independence of residuals

The Durbin-Watson statistic verified the assumption of independence of residuals for Trust and Perception. The statistic produced a result of 1.709, which is relatively close to the value of 2, indicating independence of residuals.

Outlier analysis

The Cook's distance statistic for Trust and Perception was 0.004, and the central leverage value was small at 0.003. Because Cook's distance was well below 1 and the central leverage value was close to 0, the data support the assumption that the outliers did not have an effect on the analysis.

6.5.2.1 The Results of Testing H4

The findings from the simple regression analysis of Trust with Perception as shown in Table 6.12 below provides statistical support for accepting H4. The correlation coefficient showed a highly significant but strong correlation between Trust and Perception (R = .725) and the coefficient of determination showed that Perception accounted for approximately 53% of the variance in Attitude (R^2 = .525). The analysis leads to the conclusion that Trust is an important variable influencing Perception.

Table 6-12 Trust and its associated R^2 value upon Perception

Model	R	R Square.	Adjusted R Square	Std. Error of the Estimate	F	Sig	Durbin-Watson
1	.725[a]	.525	.524	.52236	336.462	.000	1.709

a. Predictors: (Constant), TRUST

b. Dependent variable: PERCEPTION

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
1 (Constant)	1.000	.148		6.747	.000
TRUST	.705	.038	.725	18.343	.000

a. Dependent variable: PERCEPTION

Table 6-13 Trust and its Individual Beta Value

6.5.3 Analysis of Pre-Sales Services upon Perception: H5

Simple regression analysis was used to test hypothesis H5, which assessed the relationship between Pre-Sales Services as an independent variable and Perception as a dependent variable. Figure 6.13 below shows the relationship tested in the hypothesis.

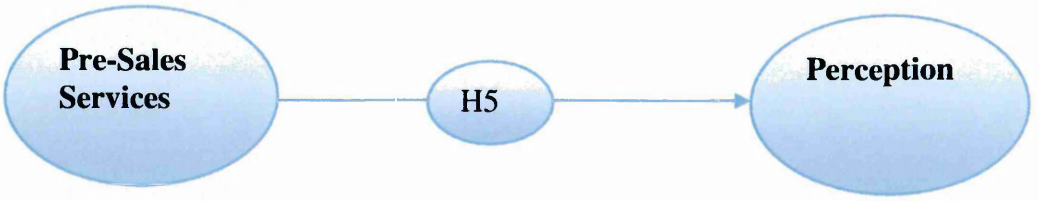

Figure 6-13 Relationship between Pre-Sales Services and Perception

Testing the underlying assumption for simple linear regressions: H5

The scatter plot for the data for the relationship between Pre-Sales Services and Perception showed an oval that suggests linearity in the relationship. The plot of standardised residuals also shows little variance between the actual and predicted residuals of the data, which supports the assumption of homoscedasticity. Both the scatter plot and plot of the residuals are shown below in Figure 6.14.

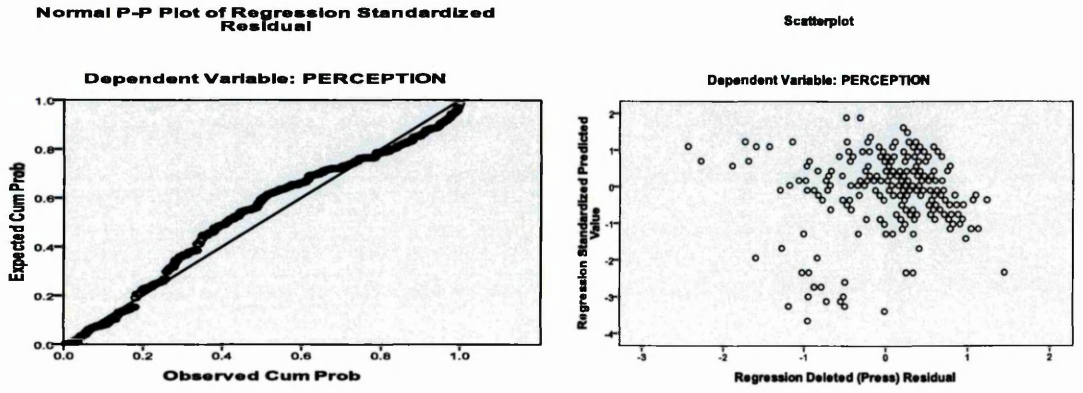

Figure 6-14 Scatter Plot and Residuals for H5

Independence of residuals

The Durbin-Watson statistic indicates the assumption of independence of residuals for Pre-Sales Services and Perception is valid. The statistic produced a result of a comparatively low value of 1.274, but it remains high enough to suggest that the residuals are independent.

Outlier analysis

The outlier analysis indicates that outliers did not have an effect on the data. Cook's distance statistic for Pre-Sales Services and Perception was 0.004, which is well below 1. The central leverage value was small at 0.003, which is close to 0.

6.5.3.1 The Results of Testing H5

The findings from the simple regression analysis of Pre-Sales Services with Perception as shown in Table 6.14 below provide statistical support for accepting H5. The correlation coefficient showed a statistically significant and moderate correlation between Pre-Sales Services and Perception (R = .513). Because the correlation is moderate, the coefficient of determination showed that Pre-Sales Services accounted for only approximately 26% of the variance in Attitude (R^2 = .263). The analysis leads to the conclusion that Pre-Sales Services influence Perception.

Table 6-14 Pre-Sales Services and associated R^2 value upon Perception

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig	Durbin-Watson
1	.513[a]	.263	.263	.65092	108.445	.000	1.274

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.323	.228		5.808	.000
PRESALES	.615	.059	.513	10.414	.000

a. Dependent variable: PERCEPTION

Table 6-15 Pre-Sales Services and Individual Beta Value

6.5.4 Analysis of After-Sales Services upon Perception: H6

Simple regression analysis was used to test hypothesis H6, which examined the relationship between After-Sales Services and Perception. Figure 6.15 below shows the relationship tested in the hypothesis.

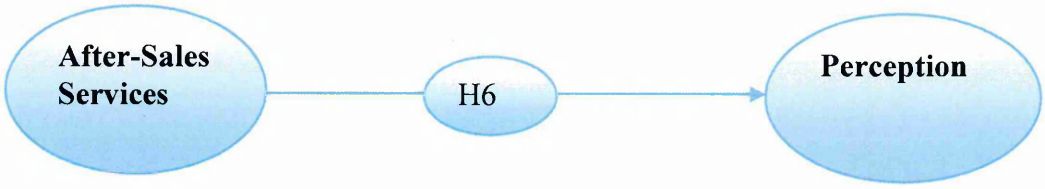

Figure 6-15 Relationship between After-Sales Services and Perception

Testing the underlying assumption for Simple Linear Regression: H6

The oval shape characteristic of a linear relationship was present in the scatter plot for After-Sales Services and Perception. The plot of standardised residuals also shows little variance between the actual and predicted residuals of the data, which supports the assumption of homoscedasticity. Both the scatter plot and plot of the residuals for hypothesis H6 are shown below in Figure 6.16.

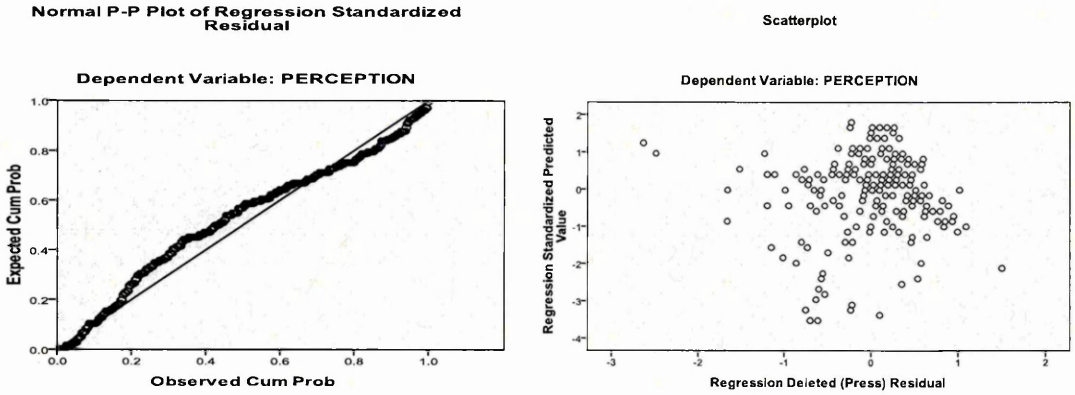

Figure 6-16 Scatter Plot and Residuals for H6

Independence of residuals

The Durbin-Watson statistic indicates the assumption of independence of residuals for After-Sales Services and Perception is valid. The statistic had a value of 1.404, which is high enough to suggest that the residuals are independent.

Outlier analysis

Cook's distance statistic for After-Sales Services and Perception was 0.004, which is well below 1. The central leverage value was small at 0.003, which is close to 0. These values indicate that outliers did not have an effect on the analysis.

6.5.4.1 The Results of Testing H6

The findings from the simple regression analysis of After-Sales Services with Perception as shown in Table 6.16 below provide support for accepting H6. The correlation coefficient showed a statistically significant and moderate correlation

between After-Sales Services and Perception (R = .665). The coefficient of determination showed that After-Sales Services accounted for 43% of the variance in Attitude (R^2 = .430). The analysis leads to the conclusion that After-Sales Services influence Perception.

Table 6-16 After-Sales Services and associated R^2 value upon Perception

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig	Durbin-Watson
1	.665[a]	.430	.428	.57263	228.935	.000	1.404

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.082	.174		6.226	.000
AFTERSALES	.695	.046	.655	15.131	.000

a. Dependent variable: PERCEPTION

Table 6-17 After-Sales Services and Individual Beta Value

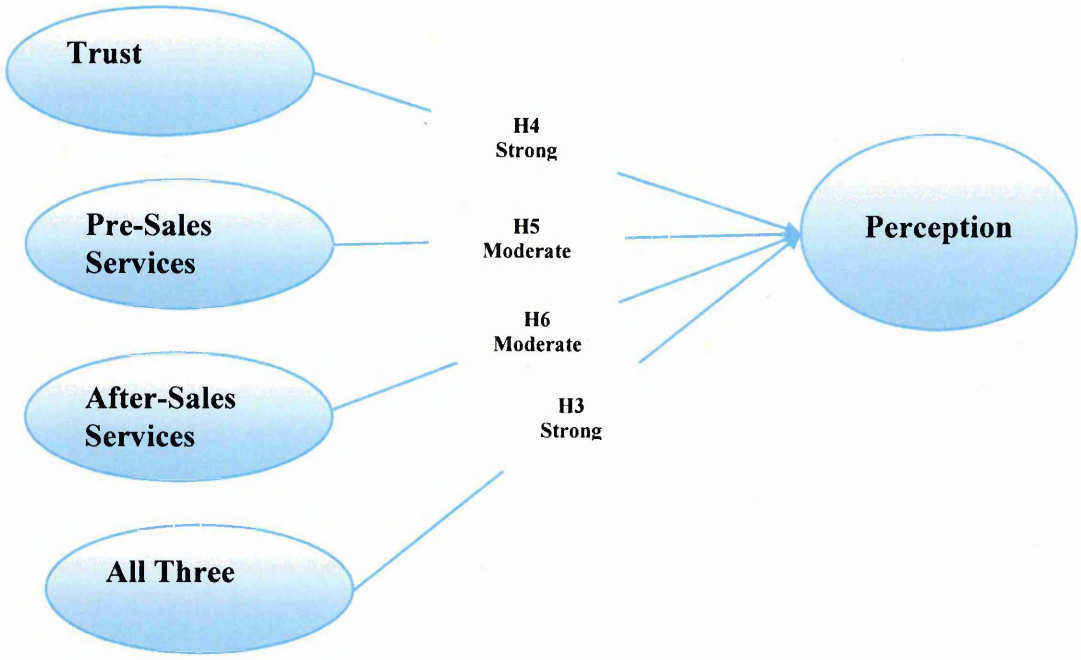

Figure 6-17 Strength of association: H4, H5, H6 and H3

In summary, all the three factors Trust, Pre-Sales Services and After-Sales Services taken together have a strong association with Perception. Individually two of them, Pre-Sales Services and After-Sales Services, have a moderate association, but Trust has a strong association with Perception.

It should be noted that In the case of H3 Pre-Sales Services has a negative beta coefficient (see Table 6.5), so this may indicate that there is some interaction between the three factors; this needs further investigation. It should also be noted that in Stage 1 of our investigation, when investigating H1 (i.e. all four factors upon Attitude) we saw that there was some interaction between Pre-Sales Services, After-Sales Services and Trust. Similarly, in Stage 2, investigation of H3 (i.e. all three variables upon Perception) also indicated that there was interaction between these three variables; this motivated our investigation to explore these in Stage 3 of the analysis.

6.6 Stage (3): The interaction between Trust, Pre-Sales Services and After-Sales Services

Stage 3 analysis examined the remaining two relationships in the model used in this study. The first relationship was between Pre-Sales Services and After-Sales Services and Trust. The second relationship was between Pre-Sales Services as the independent variable and After-Sales Services as the dependent variable. Stage 3 was intended to test the following hypotheses:

H7: Customers' Pre-Sales Services and After-Sales Services have a positive association with Trust

H8: Customers' Pre-Sales Services have a positive association with After-Sales Services.

6.6.1 Analysis for association of Pre-Sales Services and After-Sales Services with Trust H7

Multiple linear regression was used to test hypothesis H7, with the correlation coefficient R indicating the existence of a relationship and the coefficient of determination R^2 indicating the strength of the relationship. Figure 6.18 below depicts the relationship between Pre-Sales Services and After-Sales Services and Trust.

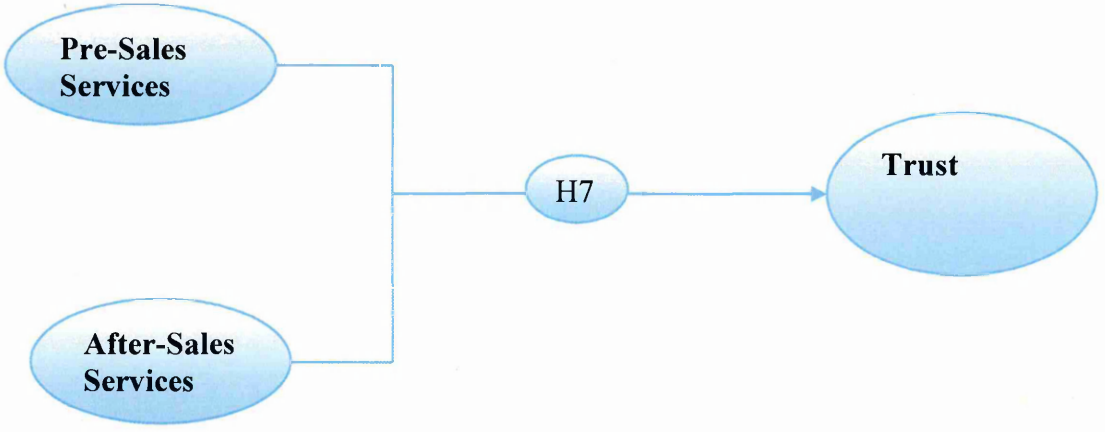

Figure 6-18 Relationship between Pre-Sales Services and After-Sales Services and Trust

Testing the underlying assumption for multiple regressions: H7

Because the testing of hypothesis H7 used multiple regression analysis, the following assumptions applied: linearity, homoscedasticity, normality of residuals, outlier analysis, and residual independence. Each of these assumptions was tested separately. The assumption of multicollinearity was established for the entire model in the Stage 1 analysis.

The oval shape characteristic of a linear relationship was present in the scatter plot for Pre-Sales Services, After-Sales Services and Trust. The plot of standardised residuals also shows little variance between the actual and predicted residuals of the data, which supports the assumption of homoscedasticity. Both the scatter plot and plot of the residuals for hypothesis H6 are shown below in Figure 6.19.

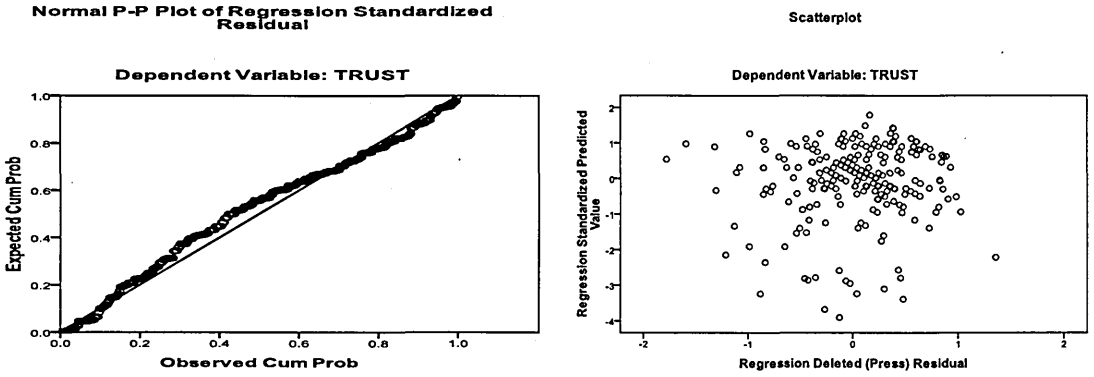

Figure 6-19 Scatter Plot and Residuals for H7

Independence of residuals

The Durbin-Watson statistic supports the assumption of independence of residuals for Pre-Sales Services, After-Sales Services and Trust. The statistic had a value of 1.407, which is high enough to suggest that the residuals are independent.

Outlier analysis

Cook's distance statistic for Pre-Sales Services and Perception was 0.004, which is well below 1. The central leverage value was small at 0.007, which is close to 0. These values indicate that outliers did not have an effect on the analysis.

6.6.1.1 The Results of Testing H7

The results of the multiple regression analysis as shown in Table 6.18 below indicated that Pre-Sales Services and After-Sales Services had a moderately strong and statistically significant correlation with Trust (R = .765). In addition, the coefficient of determination indicates that Pre-Sales Services and After-Sales Services account for

approximately 59% of the variance in Trust (R2 = .585). The findings provide support for accepting hypothesis H7 and show that Pre-Sales Services and After-Sales Services make an important contribution to Trust.

Table 6-18 Pre-Sales Services and After-Sales Services and their associated R^2 value upon Trust

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig	Durbin-Watson
1	.765[a]	.585	.582	.50307	213.163	.000	1.407

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.129	.181		.715	.475
	PRESALES	.535	.063	.435	8.511	.000
	AFTERSALES	.433	.056	.397	7.780	.000

a. Dependent variable: TRUST

Table 6-19 Pre-Sales Services and After-Sales Services and their Individual Beta Values

6.6.2 Analysis for association of Pre-Sales Services with After-Sales Services H8

Simple regression analysis was used to test hypothesis H8, which examined the relationship between Pre-Sales Services and After-Sales Services. Figure 6.20 shows the relationship between the two variables.

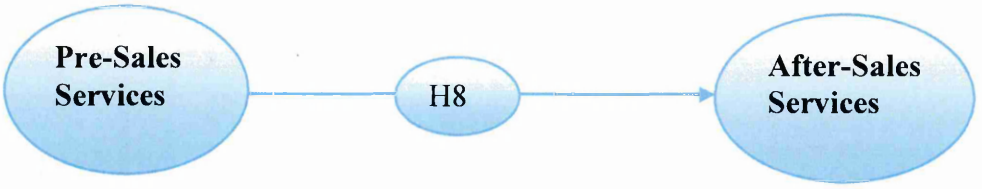

Figure 6-20 Relationship between Pre-Sales Services and After-Sales Services

Testing the underlying assumption for simple regressions: H8

The scatter plot for the analysis of the data for the relationship between Pre-Sales Services and After-Sales Services shows the oval supporting the assumption of linearity. The plot of standardised residuals also shows little variance between the actual and predicted residuals of the data, which supports the assumption of homoscedasticity. Both the scatter plot and plot of the residuals are shown below in Figure 6.21.

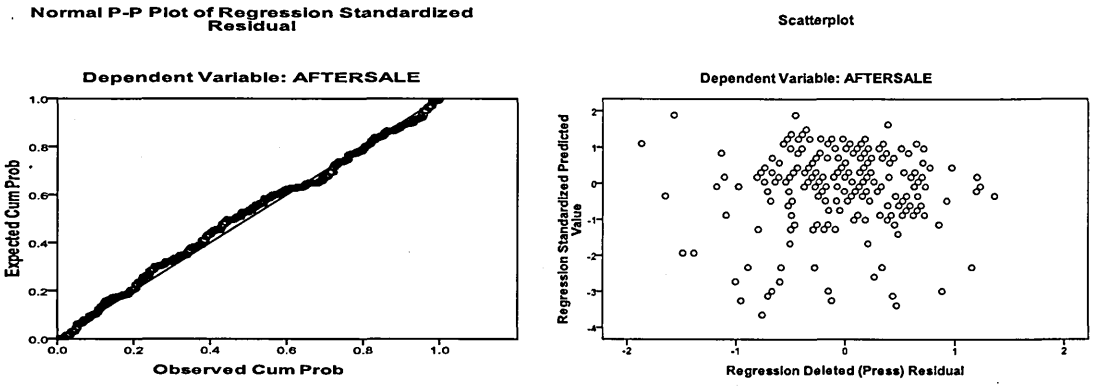

Figure 6-21 Scatter Plot and Residuals for H8

Independence of residuals

The Durbin-Watson statistic supports the assumption of independence of residuals for Pre-Sales Services and After-Sales Services. The statistic had a value of 1.539, which is high enough to indicate that the residuals are independent.

Outlier analysis

Cook's distance statistic for Pre-Sales Services and After-Sales Services was 0.004, which is well below 1. The central leverage value was small at 0.007, which is close to 0. These values indicate that outliers did not have an effect on the analysis.

6.6.2.1 The Results of Testing H8

The results from the simple regression analysis of Pre-Sales Services with After-Sales Services as shown in Table 6.20 below provides support for accepting H8. The correlation coefficient showed a statistically significant and moderate correlation between Trust and Perception (R = .689).The coefficient of determination showed that After-Sales Services accounted for approximately 47% of the variance in Attitude (R^2 = .474). The analysis leads to the conclusion that Pre-Sales Services influence After-Sales Services.

Table 6-20 Pre-Sales Services and associated R^2 values upon After-Sale

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig	Durbin-Watson
1	.689[a]	.474	.472	.51866	274.199	.000	1.539

a. Predictors: (Constant), PRESALES

b. Dependent variable: AFTERSALES

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.751	.182		4.137	.000
PRESALES	.779	.047	.689	16.559	.000

a. Dependent variable: AFTERSALES

Table 6-21 Pre-Sales Services and Individual Beta Value

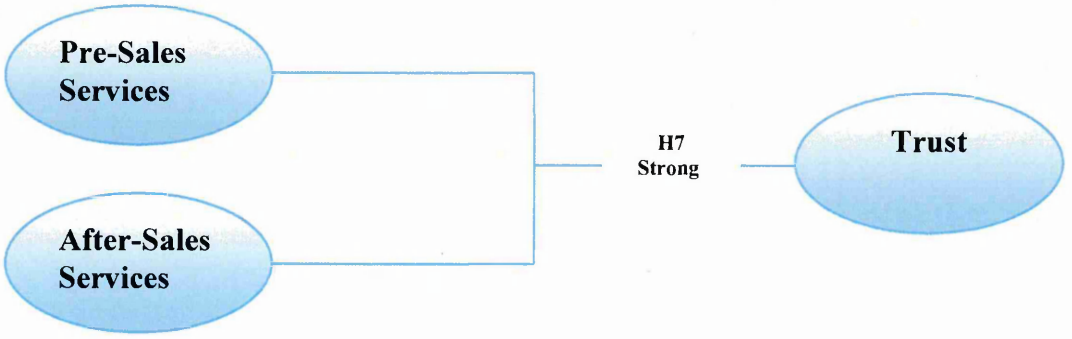

Figure 6-22 Strength of association: H7

Figure 6-23 Strength of association: H8

The analysis results of the three stages are summarised in the tables below.

Stage 1: Exploring the relationship between the variables of Perception, Trust, Pre-Sales Services and After-Sales Services as independent variables and Attitude as the dependant variable, involving hypotheses H1, H2 and H9.

stage	Hypothesis	Variable	Dependent variables	strength of association
1	H2	Perception	Attitude	strong
	H9	Trust	Attitude	Moderate
	H1*	Perception ,Trust, Pre-Sales Services and After-Sales Services	Attitude	Strong

Table 6-22 Strength of association: H1, H2 and H9

*Interestingly, in the case of H1 Trust has a negative beta coefficient, i.e. correlation changes from a positive association to a negative association. This may indicate that there is some interplay between Pre-Sales Services and After-Sales Services and Trust.

Stage 2: Exploring the relationship between the variables of Trust, Pre-Sales Services and After-Sales Services as independent variables upon Perception as the dependent variable, involving hypotheses H3, H4, H5, and H6.

Stage	Hypothesis	Variables	Dependent variable	Strength of association
2	H4	Trust	Perception	Moderate
	H5	Pre-sales services	Perception	Strong
	H6	After-sales services	Perception	Moderate
	H3*	Customers' Trust, Pre-sales services, After-sales services	Perception	Strong

Table 6-23 Strength of association: H3, H4, H5, and H6

* Interestingly, in the case of H3, Pre-Sales Services have a negative beta coefficient, i.e. correlation change from a positive association to a negative association, so this may indicate that there is some interaction between the three variables.

Stage 3: Exploring the relationship between the three variables themselves: Trust, Pre-Sales Services and After-Sales Services, involving hypotheses H7 and H8.

Stage	Hypothesis	Variables	Dependent variable	Strength of association
3	H7	Customers' Pre-Sales Services and After-Sales Services	Trust	Strong
	H8	Pre-Sales Services	After-Sales Services	Moderate

Table 6-24 Strength of association: H7 and H8

Clearly, H8 demonstrate that there is a moderate association between Pre-Sales Services and After-Sales Services. More significantly, H7 shows that Pre-Sales Services and After-Sales Services have a strong association between them.

6.7 Synthesis of the results

Based on the above analysis we summarise the results of our finding in three main stages as follows:

Stage 1, testing hypotheses H1, H2, and H9 and involving the four factors of Trust, Pre-Sales Services, After-Sales Services and Perception with Attitude towards e-CRM use has three key findings.

I. From H1, all four factors - Trust, Pre-Sales Services, After-Sales Services and Perception - have a strong association with Attitude (R^2 =.584); this strongly confirms our choice of factors.

II. From H2, the factor Perception on its own accounts for a high proportion of variance (R^2= .510); this confirms our choice of Perception.

III. From H9, Trust on its own has a moderate positive association with Attitude (R^2= .375); this confirms our choice of Trust. However, when Trust is taken with the other factors, it changed to a small negative association rather than a positive association; this may be because there is some interaction occurring between Trust and the Sales factors.

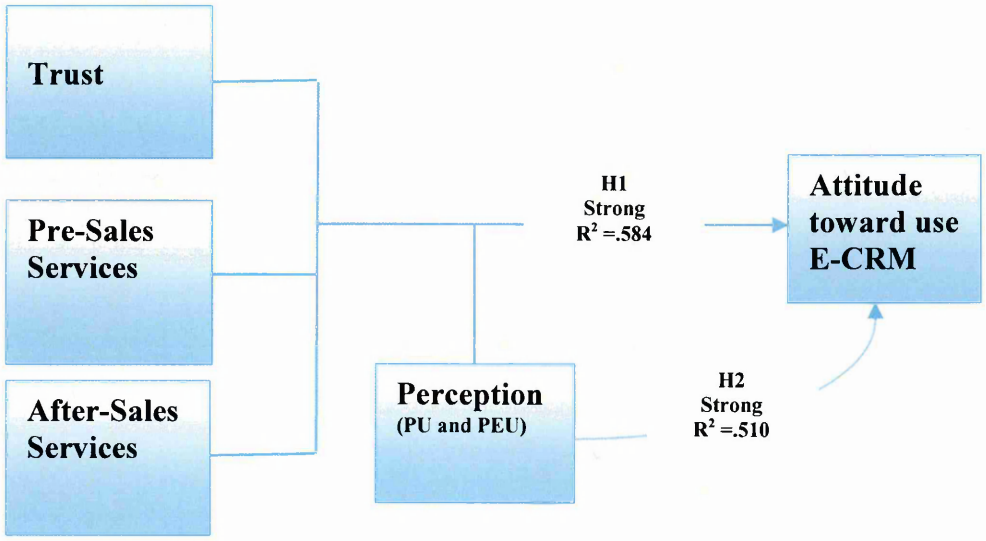

Figure 6-24 Strength of Association upon Attitude

Stage 2, exploring the relationship between the factors of Trust, Pre-Sales Services and After-Sales Services as independent variables upon Perception as the dependent variable, involving hypotheses H3, H4, H5, and H6, has three key findings.

I. From H3, there is a strong association between our factors combined together and Perception.

II. From H3, however, Pre-Sales Services which have a positive and moderate association, become negative and not significant.

III. From H4, Trust on its own has the strongest association with Perception.

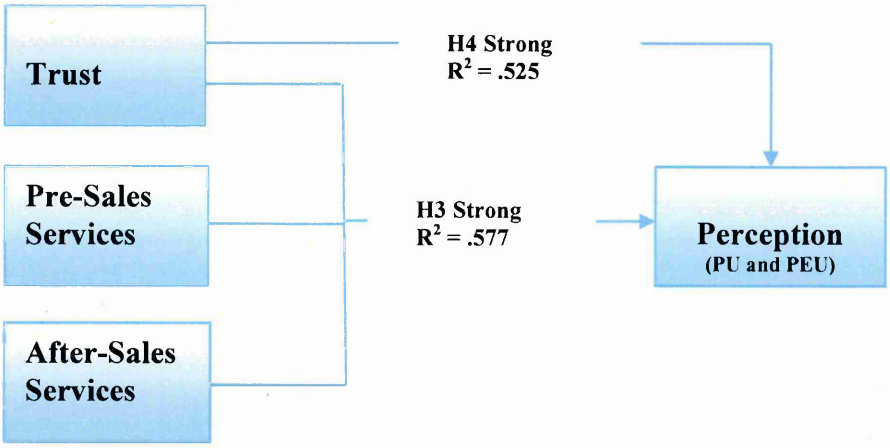

Figure 6-25 Strength of Association with Perception

Figure 6.25 above clearly confirms our choice of Perception as an antecedent for Attitude and at the same time confirms the importance of Trust on both Attitude and Perception.

We can see as a result that Stage 1 and Stage 2 confirm that all of our factors (Trust, Pre-Sales Services, and After-Sales Services) contribute to both Attitude and Perception, with Trust as the strongest factor among them on Perception, which is a proxy for Attitude. However, there are some anomalous interactions between Pre-Sales Services, After-sales Services and Trust.

Stage 3, exploring the relationship between the three factors Trust, Pre-Sales Services and After-Sales Services themselves, involving hypotheses H7 and H8, has 2 findings

I. H7 suggests that the factors Pre-Sales Services and After-Sales Services are strongly related as antecedents to the variable of Trust (R^2 =.585).

II. H8 suggests that the factor of Pre-Sales Services has a moderate association with After-Sales Services (R^2 =.474).

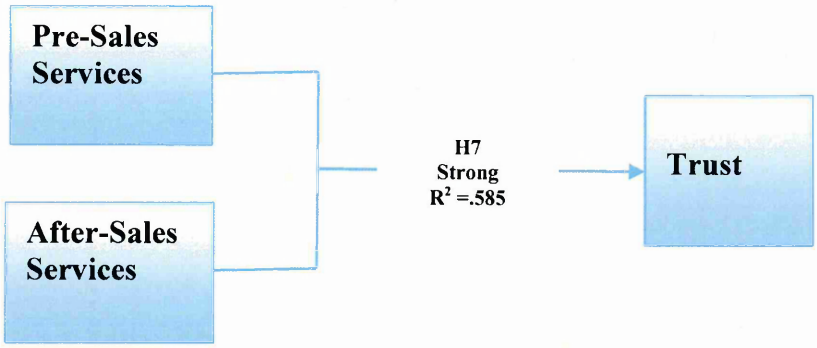

Figure 6-26 Interaction between Factors

We can see from Stage 3 that the factors Pre-Sales Services and After-Sales Services have a strong association with Trust, represented in H7; moreover, Pre-Sales Services has a moderate association with After-Sales Services, which is represented in H8.

Therefore, according to this summary we should revise our proposed model and the strongest most likely model for our study is as follows.

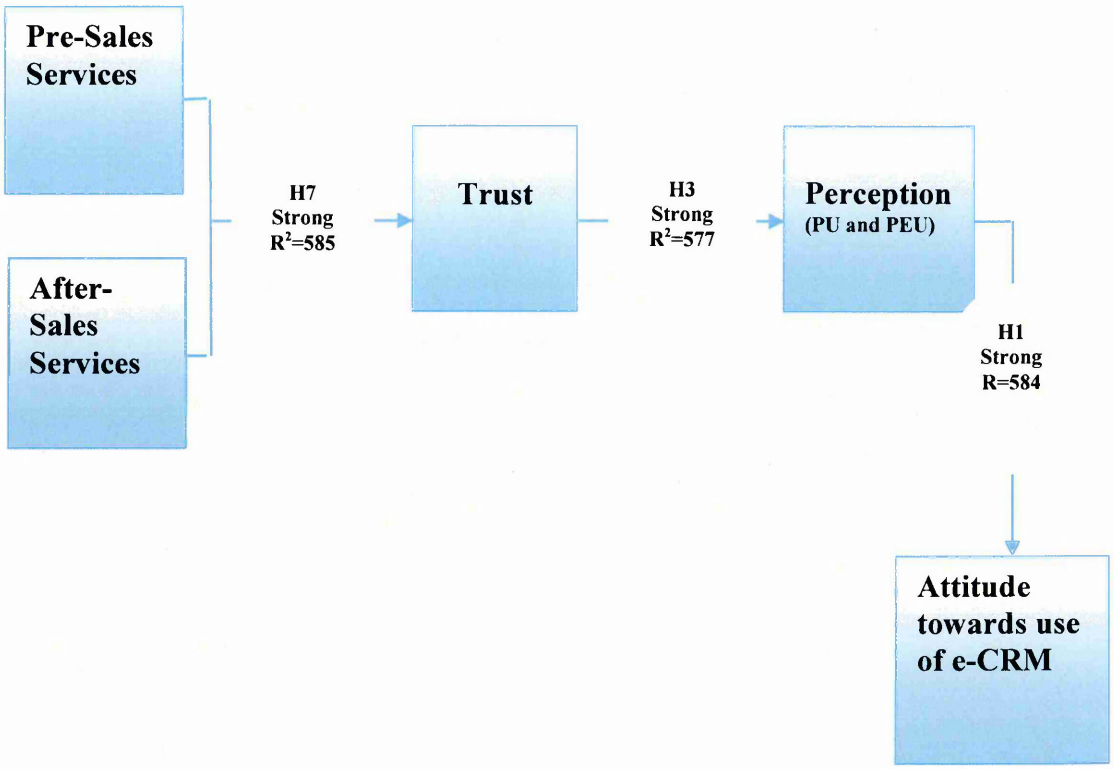

Figure 6-27 Customer Retention Modified TAM Model (Revised Version)

Chapter Seven: Discussion and Conclusion

7.1 Introduction

This chapter presents a discussion of the results of the data analysis presented in the previous two chapters. The discussion interprets the results of the data analysis with reference to the findings of previous researchers, examining the factors influencing customer usage of e-CRM and its role in customer retention. The discussion also focuses on the relationship of the TAM to e-CRM in the specific context of improving customer retention for airlines.

This study investigated the factors contributing to the use of e-CRM by customers of Afriqiyah Airways using a survey questionnaire to obtain data from customers in the United Kingdom who have used the airline's e-CRM system. The research was based on modifications to the TAM in which external variables influence perceived usefulness and perceived ease of use of a technology, which in turn influence attitude towards use. Attitude towards use is a predictor of intention to use and the actual use of a technology such as an e-CRM system. In this research, the external variables consisted of Trust, Pre-Sales Services, and After-Sales Services, which were postulated to have a direct influence on the variable of Perception. These variables were determinants of Attitude, which is a predictor of intention to use an e-CRM system leading to the actual use of the system. The use of the e-CRM system theoretically improves customer retention because it provides an electronic venue for a firm to manage its relationships with customers and provides the customer with a customised online interaction with the company. The main research question of the study was:

To what extent do the external factors of Trust, Pre-Sales Services and After-Sales Services influence Attitude towards e-CRM use?

A survey questionnaire designed for the study was used to collect data, with the reliability and validity of the questionnaire established with factor analysis. Exploratory, confirmatory factor analysis and regression analyses were among the statistical methods used to test the relationships/hypotheses of the study.

7.2 Interpreting the results

This section discusses the main findings of the data obtained from the survey questionnaire completed by the customers of Afriqiyah Airways used to develop the Customer Retention Modified TAM Model used in the study and to test the hypotheses.

The discussion consists of three sections: the findings from the descriptive analysis of the data provided by the sample population; the model testing; and the testing of the hypotheses of the study. The discussion section also relates the findings of the study to the research questions and to previous research examined in the literature review.

7.2.1 Findings of the Descriptive Analysis

The survey questionnaire provided data from the respondents for the three demographic variables of: 1) gender; 2) age; and 3) income. Frequency analysis was used to assess the demographic composition of the sample population and to determine if substantial differences existed within the demographic categories. The analysis examines the demographic composition of the sample population and discusses the implications of the demographic characteristics to the findings.

As discussed in Section 5.3, the sample was composed of 76.1% males, which suggests that fewer women than men use Afriqiyah Airways for travel between the United Kingdom and North Africa. The frequency of gender distribution differed from some previous researchers examining the use of e-CRM who found that the number of males and females in samplings were approximately equal (Ab Hamid and McGrath, 2005; Chang and Chen, 2009). The substantially higher percentage of males in the sample for this study may be because more men than women travel between North Africa and the United Kingdom. For other types of online consumer behaviours involving purchase of goods and services, women may represent a greater proportion of the customer base. A high percentage of the sample population was between 30 and 50 years old (72.9%), which is also an expected age distribution because most of the customers of Afriqiyah Airways travellers are typically in this age range. Among the respondents, 89.6% reported incomes between £1000 and £2000 a month. The finding of moderate to high income levels was also expected because it is consistent with the general characteristic of the sample population. Although the descriptive statistics revealed that the sample population was skewed towards men between 30 and 50 years old, this finding may not affect the ability to generalise the findings to a larger population. While the demographic characteristics of the sample population is characteristic of the customers of Afriqiyah Airways, the demographic may be similar to other airlines or firms that provide services primarily to business customers and have implemented an e-CRM system.

7.2.2 Model Testing

Testing of the model developed for the study was necessary to address the main research question of the study, which was: *To what extent do the external factors of Trust, Pre-Sales Services and After-Sales Services influence Attitude towards E-CRM use?* The model as shown in Figure 3.2 contains the fundamental assumptions of the study concerning the relationship between the external variables of Trust, Pre-Sales Services, and After-Sales Services with Perception and between these four variables and Attitude towards e-CRM use. Attitude towards e-CRM affects intention and behaviours towards usage of the e-CRM system, with increased usage leading to higher levels of customer retention.

Chapter 5 presented the results of the statistical analysis of the measurement model, which determined that the survey questionnaire had sufficient reliability and validity with the retained items to measure the constructs in the model effectively. Because the survey questionnaire had not been previously used to assess the constructs in the modified TAM model used in this study, establishing reliability and validity was necessary to ensure that the survey questionnaire provided appropriate measures of the constructs under investigation. Cronbach's alpha was used to reassure the internal consistency of the scales, with a value above .70 for the five scales of Trust, Pre-Sales Services, After-Sales Services, Perception, and Attitude indicating that the scales were reliable (Morgan, 2004).

Exploratory factor analysis using the PCA approach was used to establish the validity of the survey questionnaire. The analysis examined the underlying factor structure by assessing whether the shared variance of a variable was portioned from its unique variance and error variance based on the assumptions in the GLM (Osborne et al., 2008). The results of the exploratory factor analysis indicated that some of the questions should be eliminated from the survey questionnaire. Confirmatory factor analysis was then used to assess whether latent constructs from unobserved variables influenced the instrument scales (Harrington, 2009). The confirmatory factor analysis supported the conclusion that the survey instrument is valid and that Pre-Sales Services, Trust, After-Sales Services, Perceptions, and Attitude are significant factors explaining the variance in attitude toward CRM among customers of Afriqiyah Airways. The exploratory and confirmatory factor analysis indicated that the data from the revised survey

questionnaire could be used to test the theoretical model and the hypotheses of the study.

In Chapter 6, the findings from a statistical testing of the model using structural equation modelling (SEM) were presented. The literature described SEM as systematic approach using different statistical methods to estimate a network of causal relationships defined by a theoretical model linking two or more latent concepts that can be measured through observable indicators (Vinzi, et al., 2010). The modelling process relies on the assumption that measurements of manifest variables can be used as indicators of latent variables contained in the model. The literature also indicated that SEM is useful for modelling when many observable and measurable variables are present in the model that can be influences by latent constructs that cannot be measured (Foster et al., 2006). The development of the SEM model used the PLS approach to estimate the residual variance of the latent variables and the residual variance of the manifest variables in the model. It also relied on the coefficient of determination to evaluate the goodness of fit of the model (Vinzi, et al., 2010).

The analysis of the Customer Retention Modified TAM Model using SEM showed that it accounted for approximately 53% (R^2 = .529) of the variance in Attitude towards use of e-CRM among customers of Afriqiyah Airways, with attitude as a predictor of the intention to use the e-CRM system (see Figure 6.1). This estimate of goodness of fit for the model is even better than the findings of other researchers modifying the TAM model to investigate the effect of different external variables on Perception and Attitude, for instance, Alhujran (2009). The percentage for the goodness-of-fit of the Model which he presented was around 40% of the variance (R^2=0.407). This suggests that the variance explained by our proposed model is significant, and therefore the model has demonstrated a satisfactory goodness of fit. The Customer Retention Modified TAM Model used Trust, Pre-Sales Services, and After-Sales Services as the external variables that have a direct influence on Perception. The variable of Perception is composed of the two sub-variables of perceived usefulness and perceived ease of use found in the original TAM model. Perception can be considered as an intermediate variable that influences Attitude towards e-CRM use. The model also includes a direct effect of Trust on Attitude towards e-CRM use that operates without the intermediation of Perception. In the modified model, Attitude is presumed to be a predictor of intention to use e-CRM, which precedes the behaviour of actual use of the e-CRM system by the

customer. Because of the positive effect of e-CRM usage on customer retention, the Customer Retention Modified TAM Model can be considered as a construct for determining the amount of variance in customer retention resulting from propensity of customers toward e-CRM.

The analysis indicates that the Customer Retention Modified TAM Model has moderate validity for predicting e-CRM usage among airline customers. The SEM analysis of the Customer Retention Modified TAM Model indicated that Perception accounted for the largest beta influencing Attitude ($\beta = .510$), which is consistent with the proposition of the basic TAM. The external variables of Trust, Pre-Sales Services and After-Sales Services had betas of .199, .269, and .118 respectively, suggesting that they had a relatively small effect on Perception and Attitude.

The findings, however, suggest that the variance not accounted for by the model could be due to additional external variables, not assessed by the model, which influence Perception and Attitude. Some of the possible external variables not accounted for in the model include personal skills with computer systems (Wu and Wu, 2010), personal preference for traditional media for communicating with a firm (Sanayei et al., 2010), and comparative price sensitivity (La, 2005). Because of the many different external variables, the finding that the Customer Retention Modified TAM Model accounts for approximately 53% of the variance in Attitude suggests that the variables of Trust, Pre-Sales Services and After-Sales Services are important predictive factors for explaining the variance in Attitude.

The analysis establishing the validity of the research model also provides information relevant to answering the main research question of the study by indicating that the external factors of Trust, Pre-Sales Services and After-Sales Services play an important role in the Attitude of customers toward e-CRM, and account for slightly more than half the variance in Attitude. The analysis also provides information relevant to answering the sub-research question concerning the validity of the model for assisting Afriqiyah Airways and other similar firms in their planning for e-CRM processes. The model demonstrates that Trust is an important variable affecting Attitude, which suggests that firms using e-CRM should ensure that the system has adequate safeguards for customer information to encourage use. The model also demonstrates that the customer's experience with Pre-Sales Services and After-Sales Services can have an effect on Attitude, which suggests that firms should ensure their customer care systems meet the

expectations of users of the online system. This is similar to the outcome of an early research conducted by Bradshaw and Bash, (2001) which determined that in order for firms to foster positive perception and attitude, the pre-sales services and after-sales services available through the e-CRM system must conform to the customers' expectations.

7.3 Overview of hypothesis testing results

The study developed and tested nine hypotheses intended to obtain answers to the main research question of the study and the three sub-research questions. Chapter 6 presented the methods used for hypothesis testing and the results of the testing. This section contains a discussion and interpretation of the results of the hypothesis testing and focuses on the proposition relevant to the Customer Retention Modified TAM Model.

The regression analysis performed to test hypotheses of the study found support for accepting hypotheses H1 through H9. The coefficient of correlation in each of the hypotheses tested indicated that a statistically significant relationship existed, and the coefficient of determination assessed the strength of the correlation. The analysis of the individual hypotheses provides further evidence of the predictive validity of the Customer Retention Modified TAM Model as it is applied to e-CRM. Figure 7.1 below shows the R^2 and the significance for the variables in the model assessed with the individual hypotheses tests.

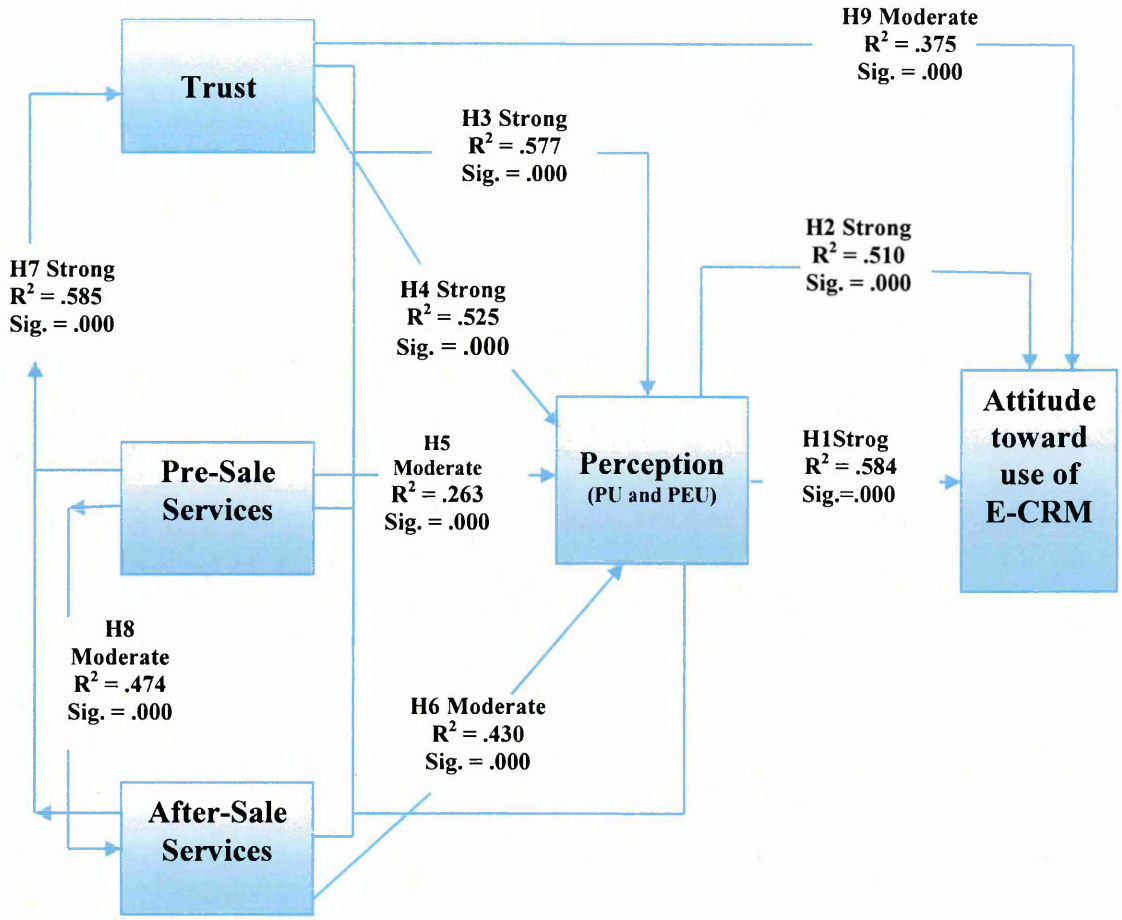

Figure 7-1 Overview of Hypothesis Testing

As shown in Figure 7.1, Perception accounted for a large portion of the variance in Attitude toward use of e-CRM (R^2 = .510), with the relationship between Perception and Attitude tested with hypothesis H2. This finding is significant for firms using e-CRM systems because it indicates that Perception influences Attitudes toward use of e-CRM. Perception, however, is influenced by antecedent external variables that have to be assessed to fully understand the factors that contribute to a positive perception of e-CRM, which is demonstrated by the relationship between Trust, Pre-Sales Services and After-Sales Services and Perception.

7.4 Determining Influence of our factors

This section contains three stages of analysis: first, the influence of our investigative factors Trust, Pre-Sales Services, After-Sales Services and Perception on Attitude; second, the influence of the three factors Trust, Pre-Sales Services, and After-Sales Services on Perception; and finally, the interaction between these factors.

7.4.1 Influence of Trust, Pre-Sales Services, After-Sales Services and Perception on Attitude

A separate test was performed on hypothesis H1 using stepwise regression analysis Figure (7.2) with the results of the testing contained in Section 6.4.1. The stepwise regression analysis tested the proposition that the four independent variables of Trust, Pre-Sales Services, After-Sales Services and Perception have an effect on the dependent variable of Attitude toward e-CRM use (R^2=.584) Figure 7.2. The testing of this hypothesis was fundamental to establishing the validity of the Customer Retention Modified TAM Model because it established the basic propositions that Trust, Pre-Sales Services and After-Sales Services function as external variables that have a relationship with Perception, and that the four variables together have a relationship with e-CRM use.

Figure 7.2 contains a graphical representation of the findings of the stepwise regression analysis containing all four predictor variables used to test hypothesis H1.

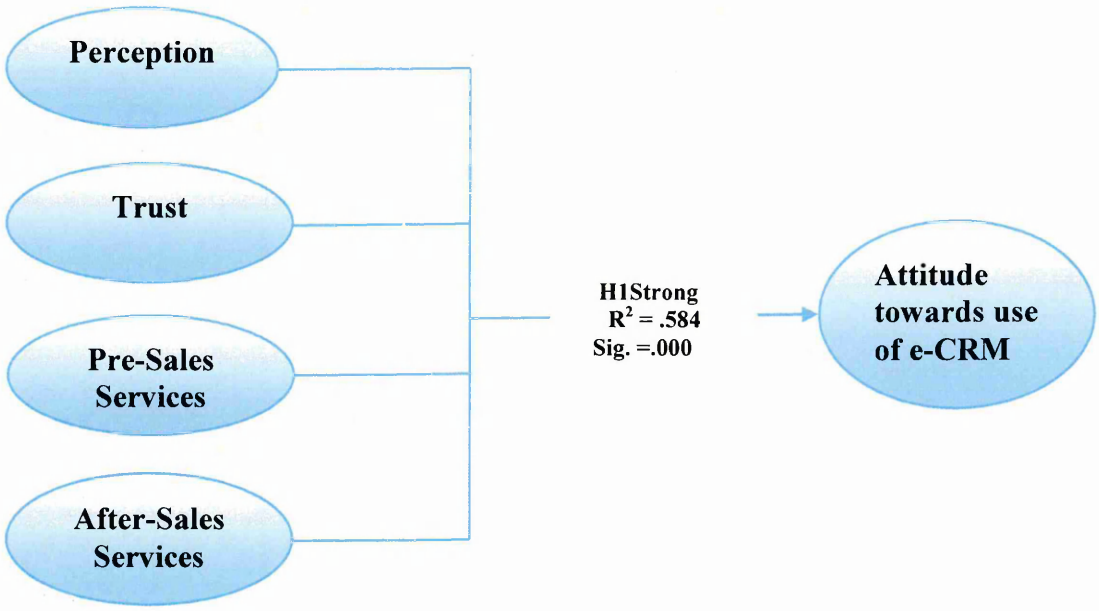

Figure 7-2 Stepwise Regression Model

The outcome of the stepwise regression analysis provides support for accepting hypothesis H1: Customers' Trust, Pre-Sales Services, After-Sales Services and Perception have a positive association with Attitude towards use of e-CRM (R^2=.584). Although the stepwise regression analysis indicated that the model containing only Perception accounted for the majority of the variance in Attitude of users toward E-CRM (R^2 = .510), the models that included the other variables of Trust, Pre-Sales

Services, and After-Sales Services remained positive and statistically significant. It should be noted that the second model in the stepwise regression analysis contained only Perception and Trust, with this model the only one in which Trust had a statistically significant relationship with Attitude toward e-CRM use. In the subsequent models that introduced only Pre-Sales Services, and both Pre-Sales Services and After-Sales Services, Trust no longer had a statistically significant relationship with Attitude toward e-CRM use. This finding suggests that Trust has a direct relationship with Attitude. In addition, the finding that Trust is not statistically significant in combination with Pre-Sales Services and After-Sales Services suggests that some interaction occurs between these two variables and Trust.

The finding of H2 that Perception accounted for the majority of the variance in Attitude (R^2 = .510) was expected based on the propositions of the basic TAM model and the findings of previous researchers. For example, a study by Teo (2009), which examined pre-service teachers' self-reported behavioural intentions to use technology, found that perceived usefulness and perceived ease of use (represented by perception in our study) have the greatest effects on attitude toward usage, and this demonstrates the strong relationship between Perception (PU and PEU) and Attitude. Perception, which is composed of perceived usefulness and perceived ease of use, remains an important predictor of Attitude toward e-CRM use, with Attitude presumed to influence the customer satisfaction and loyalty that result in customer retention as noted by Belachew et al. (2007).The basic TAM model, however, adopts a very parsimonious approach in which Perception is influenced by a group of undefined external variables (Ma and Liu, 2005).

The parsimonious approach produces greater flexibility to adapt the basic TAM model to the use of a specific technology such as an e-CRM system. As a result, the range of external variables is not specifically defined in the basic TAM model and can include a variety of factors, including personality traits, knowledge and skill in technology, and demographic factors (Ab Hamid and McGrath, 2005). The nature of the external variables may also be affected by contextual factors such as the purpose for using a technology. The lack of external variable specificity suggests that Perception is the key variable influencing Attitude, with Perception influenced by many different factors that cannot be fully captured in a unified model. Previous research has also determined that Perception is the most effective predictor of both attitudes toward technology in general

and attitudes towards e-CRM. For instance, a study by Park and Chen (2007) investigated "the Acceptance and adoption of the innovative use of smart phones". The finding of that study indicated that perceived usefulness and perceived ease of use positively determine attitude towards the use of a smart phone. Also the finding of another study by Wu and Wu (2005) implied that perceived usefulness plays a significant role in predicting attitudes towards using e-CRM.

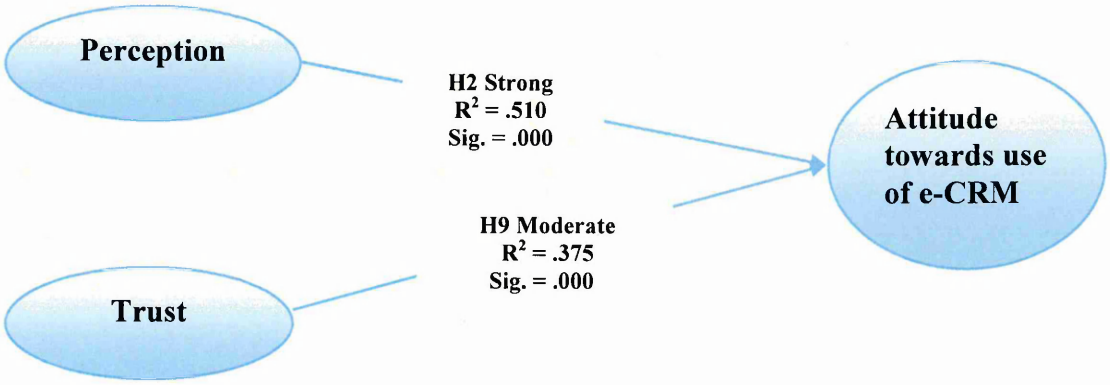

Figure 7-3 Influences of Perception and Trust on Attitude

An additional finding of the study from the testing of hypothesis H9 was the independent influence of Trust on Attitude when Trust was separately regressed against Attitude (R^2 = .375). The findings lead to the conclusion that Trust plays a significant role on Attitude that is not mediated by Perception. The direct relationship of Trust with Attitude was expected because of the implications of previous research for the importance of trust in the acceptance of online technologies. The findings of Flavian and Guinalu (2006) suggested that trust is important both for the amount of interaction between a user and a website, and for influencing the customer loyalty that leads to return visits to the website (Fjermested and Romano, 2009). In addition, previous research determined that the presentation of the content in a website contributes to trust and a positive attitude toward use of the website (Chang and Chen, 2009). The determination in this study that Trust accounts for some of the variance in Attitude towards use of the e-CRM system verifies the findings of previous researchers concerning the importance of Trust for the Attitude of users.

Because Trust has both a direct influence on Attitude and an indirect influence mediated by Perception, the findings imply that Trust may be one of the most important external variables for developing a positive attitude towards e-CRM among customers. While an external variable of trusting belief can influence the use of any technology, the findings indicate that it is particularly significant for the use of an e-CRM system. When using

an e-CRM system, a customer is expected to provide some personal information necessary to interact with a company even if the use of the system is to obtain information rather than to conduct a financial transaction. As a result, the way in which an e-CRM system provides direct and indirect indicators of trustworthiness are important for users' attitudes towards the system. The importance of Trust further implies that it may be a critical factor for customer retention because a high level of Trust influences repeated use of e-CRM that can influence customer loyalty in the long run.

7.4.2 Influence of Trust, Pre-Sales Services and After-Sales Services on Perception

Perception is one of the most important variables in the Customer Retention Modified TAM Model because it accounts for more than half the variance in Attitude. An airline is similar to other online firms which offer goods and services that can be purchased in the internet medium through the operation of an e-CRM system. The importance of Perception as determined by the testing of hypotheses H2 indicates that customers take into consideration both the perceived usefulness of the e-CRM system and the perceived ease of use when developing an attitude towards a firm's e-CRM system. This finding was expected because of the importance of Perception in the basic TAM, which has been validated in many different contexts (Leong and Huang, 2002; Ma and Liu, 2005). In this study, Perception was considered as a single construct composed of perceived usefulness and perceived ease of use, which is in accordance with previous research suggesting that that usefulness and perceived ease of use are interrelated and difficult to parse into separate constructs (Adams et al., 1992). Hence, because Perception has on its own the highest association with Attitude, we investigated our factors influencing it.

The testing of hypotheses H3 through H6 (Figure 7.4) found positive relationships between the variables of Trust, Pre-Sales Services, and After-Sales Services and Perception. The results of the hypothesis testing confirmed that these variables function as antecedent external variables that influence Perception. This finding conforms to the general propositions of the TAM model in which many different external variables can influence perceptions of usefulness and ease of use of a technology (Ma and Liu, 2005).

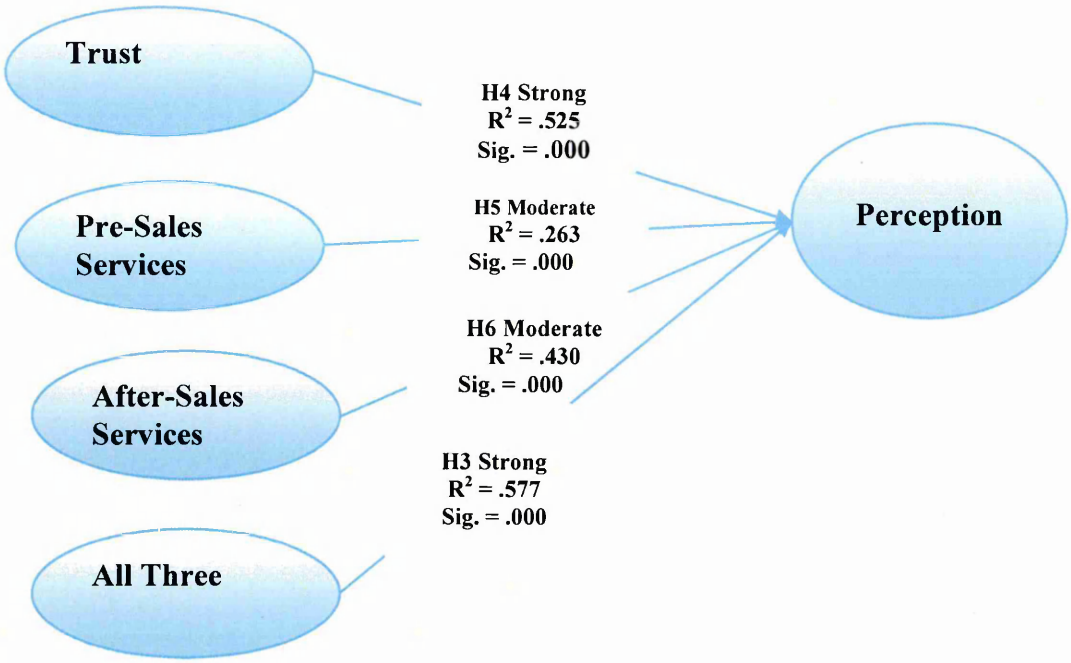

Figure 7-4 Influence of Trust, Pre-Sales Services and After-Sales Services on Perception

The combined effect of the variables of Trust, Pre-Sales Services and After-Sales Services on Perception presented in H3 determined that the three variables accounted for more than half the variance in Perception (R^2 = .577). This finding leads to the conclusion that these three variables are important contributors to Attitude towards e-CRM use through their combined influence on Perception, which functions as a predictor of Attitude. When the hypotheses tests of H4, H5, and H6 were conducted to determine the individual relationships of Trust, Pre-Sales Service and After-Sales Services with Perception, the results indicated that Trust accounted for more of the variance in Perception (R^2 = .525) when compared to both Pre-Sales Services (R^2 = .263) and After-Sales Services (R^2 = .430).

The importance of Trust for customers' Perception may be because a higher level of trust may mediate uncertainties about the possible outcomes when using a technology, as identified by Ab Hamid (2008). A high level of trust in an e-CRM system increases the perception that the online platform is useful for obtaining information or conducting a transaction such as the purchase of an airline ticket by reducing uncertainty concerning the possibility of compromise of personal information. The importance of Trust for Perception determined from testing hypothesis H4 also implies that the findings of previous research concerning the role of perception of balance of power in the online environment for improving trust in an e-CRM system are valid (Araujo and

Araujo, 2003). The findings generally suggest that actions taken by a firm to improve the perceived trustworthiness of an e-CRM system will result in more positive customer perceptions of the usefulness and the ease of use of the system, thereby encouraging the customers to have a more propensity toward the e-CRM system.

Pre-Sales Services account for the least amount of variance in Perception among the three external variables assessed in hypothesis H5 testing, although it remains a statistically significant predictor variable for Perception. While this result from the hypothesis testing does not contradict the findings of previous research, it was nonetheless lower than expected based on the research of Khalifa and Shen (2009) who determined that the ability to customise or personalise a website fostered a more favourable perception of the website. Nusair and Kandampully (2006) also determined that website attributes such as the ability to personalise content increase a customer's perception of the usefulness and ease of use of a website. Several possibilities may account for the relatively small amount of influence that Pre-Sales Services has on Prediction. The customers of Afriqiyah Airways participating in the study may have withheld judgement concerning usefulness and ease of use of the E-CRM system until after their transaction was consummated, which would imply that the finding is created by an anomaly in the sample population. A possibility also exists that the Pre-Sales Services of Afriqiyah Airways do not always meet customer expectations, which would result in the pre-sales attributes of the e-CRM system having a more negative influence on perceptions of usefulness and ease of use. Liu and Brock (2010) determined that ineffective communications informing customers how they can benefit from a website reduce the perception of utility of the website.

The testing of hypothesis H6 examining After-Sales Services accounted for a higher amount of variance in Perception (R^2 = .433) than Pre-Sales Service, but remained below the amount of variance to Perception accounted for by Trust. The findings suggest that the After-Sales Services at Afriqiyah Airways has a positive effect on Perception by confirming the opinion of usefulness and ease of use that customers form during Pre-Sales Services, as suggested by the findings of Chang and Chen (2009). The results of the hypothesis testing also confirm the importance of After-Sales Services such as order tracking and customer care for positive perceptions of usefulness and ease of use of an e-CRM system, as suggested by Feinberg and Kadam (2002) and Belachew et al. (2007).

7.4.3 Interrelation between variables of Trust, Pre-Sales Services and After-Sales Services

Additionally to the combined and individual effect of Trust, Pre-Sales Services and After-Sales Services on Perception, the three variables have some interaction among themselves that potentially modifies their effect on Perception. The testing of hypothesis H7 (Figure 7.5) determined that Pre-Sales Services and After-Sales Services accounted for more than half the variance in Trust (R^2 =.585). The analysis indicates that Pre-Sales Services and After-Sales Services have a high degree of interaction with Trust, which exerts a strong influence. This finding suggests that the experiences of customers with an e-CRM system prior to making a purchase and after making a purchase contribute to their subjective evaluation of the trustworthiness of the system. The specific constructs of pre-sales and post-sales experiences and their effect on trust have not previously been examined by researchers. The finding from the hypothesis test, however, conforms to the prior research identifying specific e-CRM elements as contributing to trust, such as: transparent pricing information (Lancaster, 2000); privacy and confidentiality (Lilien and Bhargava, 2008); and fairness in pricing (Zhang and Feng, 2009). The finding also supports the argument of Fjermested and Romano (2009) that the trusting belief of a user is influenced by experiences with the security and degree of permitted user control embedded in an e-CRM system.

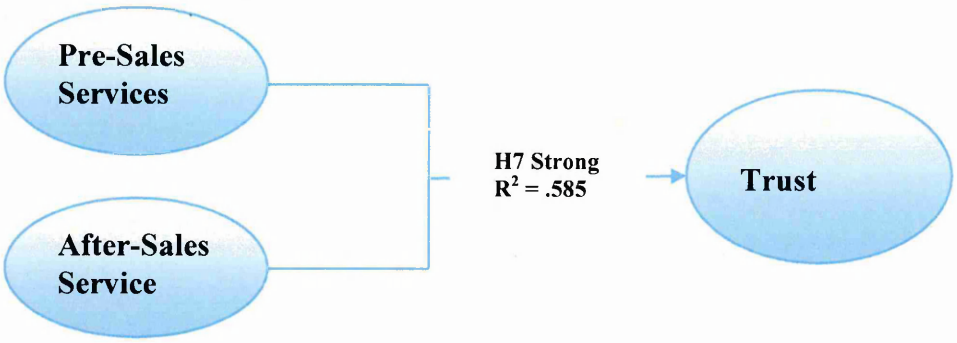

Figure 7-5 Interaction between Pre-Sales Services and After-Sales Services and Trust

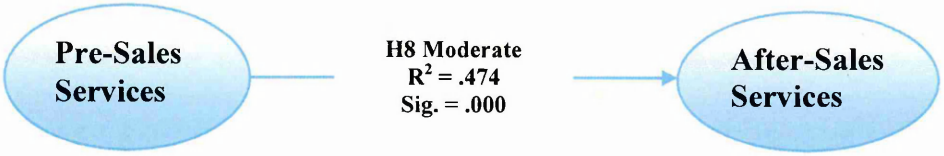

Figure 7-6 Interaction between Pre-Sales Services and After-Sales Services

Another type of interaction among the external variables established through testing of hypothesis H8 (Figure 7.6) was the relationship between Pre-Sales Services and After-Sales Services. Pre-Sales Services accounted for some of the variance in After-Sales Services (R^2 = .474). The analysis indicates that Pre-Sales Services have a relationship with After-Sales Services and exert a moderating influence. This finding suggests that the perceptions of usefulness and ease of use of an e-CRM system have some influence on perceptions during the After-Sales Services phase of e-CRM use. The findings imply that the perceptions established from the initial use of an e-CRM system have a residual effect on attitudes during subsequent use of the system. The findings also imply that the Pre-Sales Services variable may be more important for establishing positive perceptions of the e-CRM system than suggested by the amount of variance in Perception directly attributed to Pre-Sales Services (R^2 = .263). Because of the secondary effect of Pre-Sales Services on After-Sales Services, the variable has both a direct and indirect effect on Perception.

When considered together, the finding that Trust, Pre-Sales Services and After-Sales Services each make an important contribution to variance in Perception implies that these external variables antecedent to Perception are necessary for customers to develop a positive attitude towards e-CRM. For a customer to develop sufficient trust to perceive an e-CRM system as useful and easy to use, the customer must have sufficient trust in a firm and its website to use the system. The initial pre-sales experiences with an e-CRM system result in the customer forming an initial opinion about the usefulness and ease of use of the system that contributes to the subjective evaluation of the trustworthiness of the e-CRM system. Similarly, after-sales experiences confirm or disconfirm the validity of the pre-sales experience with the e-CRM system and the subjective evaluation of trustworthiness. As a result, all three variables are important for determining Perception.

7.4.4 Summing up hypothesis testing results

The testing of hypotheses H1 through H9 collectively provided information relevant to answering the second sub-research question of the study, which was: *To what extent does the research model assist Afriqiyah Airways and other similar companies in planning and up-take in e-CRM adoption?* The findings of the hypothesis testing indicate that the three external variables of Trust, Pre-Sales Services and After-Sales Services have a significant relationship with the variable of Perception, with Perception as an important predictor of Attitude towards e-CRM use. In addition, Trust has an

effect on Attitude towards e-CRM use independent of the effect of Perception. Based on these findings, Trust is a key variable influencing Attitude towards use of e-CRM, which suggests that Afriqiyah Airways and other similar firms should ensure that elements of their e-CRM contribute to customers' subjective evaluation of trustworthiness of the system. Some of the elements contributing to Trust in e-CRM identified in the literature include a high level of security for personal information (Fjermested and Romano, 2009), providing customers with control over the degree of information they provide to the e-CRM system (Araujo and Araujo, 2003), and transparent pricing of goods and services (Lancaster, 2000). The findings also have implications for Afriqiyah and other similar firms by indicating that both Pre-Sales Services and After-Sales Services play an important role in the customer's perceptions of the usefulness and ease of use of an e-CRM system. While numerous specific factors contribute to the experience of customers with Pre-Sales Services and After-Sales Services, the findings of the study suggest that these factors are interrelated and can influence Trust as well as Perception. As a result, firms should ensure that all aspects of their e-CRM system meet customer expectations to foster a positive attitude toward using e-CRM and to provide the benefit of frequent use of e-CRM for customer retention.

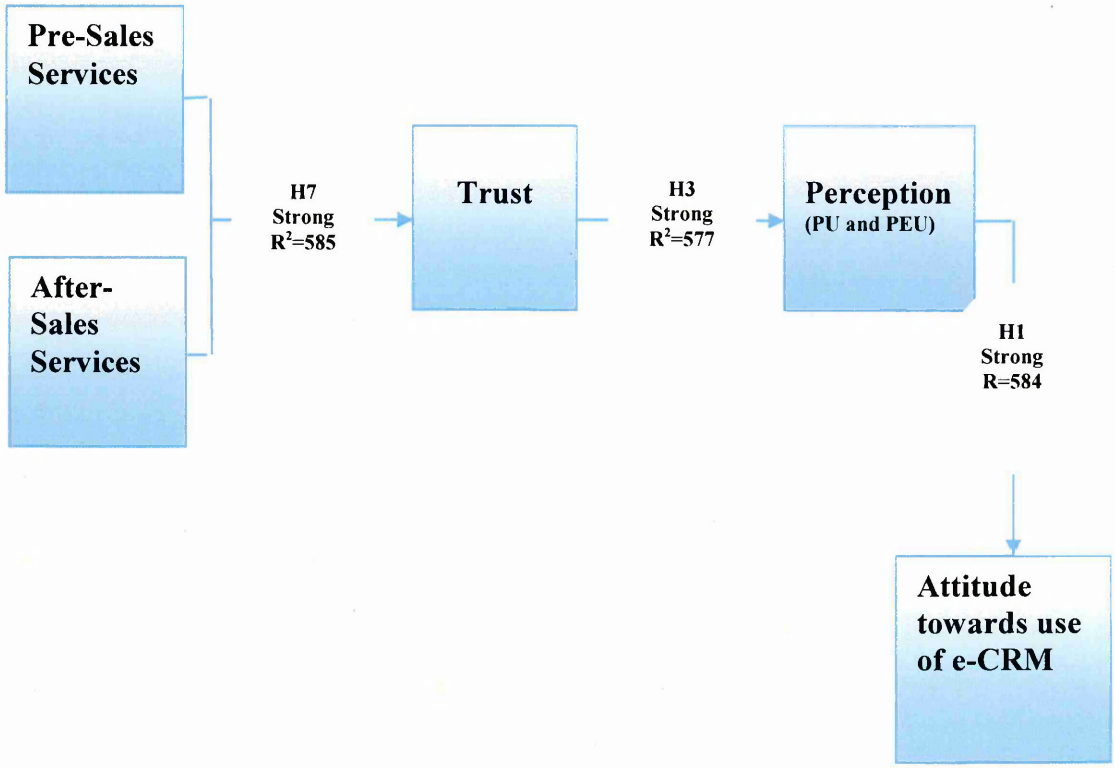

Figure 7-7 Customer Retention Modified TAM Model

7.5 Summary of Results

This chapter examined the effect of Trust, Perception, Pre-Sales Services, and After-Sales Services on Attitude using a modified TAM model. The results from the various analyses indicate that the TAM is an appropriate theoretical model to support the investigation. Both PLS and stepwise regression was applied to test the model adopted for the study, with the findings indicating that the model accounted for approximately 53% of the variance in Attitude. The results from the testing of the hypotheses showed that all the hypotheses of the study should be accepted. The results of the analyses in the three stages are summarised below.

The first stage of the analysis examined the four factors of Trust, Perception, Pre-Sales Services, and After-Sales Services as independent variables and Attitude as the dependent variable. This stage tested hypotheses H1, H2, and H9 and determined that the four factors are significant predictors of customers' Attitude towards e-CRM use.

The second stage of the analysis examined the three factors of Trust, Pre-Sales Services, and After-Sales Services as independent variables with Perception as the dependent variable. This stage tested hypotheses H3, H4, H5, and H6, and found that the three factors are significant predictors of Perception of e-CRM use.

Stage Three of the analysis involved examining factors of Pre-Sales Services and After-Sales Services as independent variables with Trust as the dependent variable to test hypothesis H7, and the factor of Pre-Sales Services as the independent variable and After-Sales Services as the dependent variable to test hypothesis H8. The findings for both tests showed that the independent variables were statistically significant predictors of the dependent variable.

The most interesting point is that the revised model incorporates the elements of Pre-Sales Services and After-Sales Services, selected from Alhaiou et al. (2009), as well as the important variable of Trust, which we introduced, and Perception, borrowed from the TAM model, to provide a novel and rich explanation of customer attitude towards using e-CRM. Moreover, the empirical evidence gathered and testing the model represents the major contribution of our research.

7.6 Contributions of the Study

This section discusses the theoretical and practical contributions of the study. The general theoretical contribution of the study is to extend the application of the TAM model to the use of e-CRM systems by service firms. The practical contribution of the study was to develop and validate the Customer Retention Modified TAM Model that can be used by Afriqiyah Airways, other airlines and companies providing services in order to improve customers' attitudes towards e-CRM use and thereby increase customer retention.

The findings of this study contribute to the theory concerning technology use by applying the TAM model to e-CRM use by service firms and demonstrating its validity for assessing attitudes towards e-CRM use. The TAM model is based on the fundamental proposition that attitude toward use of a technology is the most important predictor of actual use of the technology. In the case of e-CRM, the actual use of the e-CRM system provides an opportunity for a company to strengthen its relationship with its customers and thereby improve customer retention. The TAM model, however, does not specify the external variables that influence perceived ease of use and perceived usefulness of the technology, which are the two most important predictors of attitude towards that technology. As a result, the critical external variables influencing perceptions of ease of use and usefulness can be different depending on the type of technology.

The findings of this study identified the three important external variable constructs of Trust, Pre-Sales Services and After-Sales Services as relevant to customers' perceptions of the ease of use and usefulness of e-CRM. Each of these three constructs consists of sub-variables influencing the main variable which increases the flexibility of the model for accommodating different types of antecedents that ultimately influence perception and attitude towards e-CRM use. As a result, the model expands TAM theory by creating a framework in which different external variables relevant to e-CRM can be examined to determine their specific influence on attitude towards e-CRM.

The study also made a theoretical contribution by establishing that the external variable of Trust has a direct relationship with Attitude towards e-CRM use. In the fundamental TAM theory, all external variables are considered antecedent to perceived usefulness and ease of use of the technology. The basic TAM model does not consider the possibility that one or more external variables can have a direct influence on Attitude

toward the technology without the mediating effect of Perception. The findings of this study, however, demonstrated that Trust can have a direct relationship with Attitude, although it accounted for less variance in Attitude than it did for Perception. Although the findings were specific to e-CRM, they nonetheless suggest that Trust may theoretically make a direct contribution to the variance in attitude towards the use of other types of technology that require the user to form a positive opinion about the trustworthiness of the technology. This finding also raises the theoretical possibility that other external variables may have a direct effect on Attitude, although testing for the effect of additional variables on Attitude was beyond the scope of this study.

An additional theoretical contribution of the study is the determination that a positive attitude toward e-CRM use is a necessary prerequisite for customer retention. If customers have a propensity toward e-CRM, they are more likely to use the system, which provides a firm with the ability to strengthen its relationships with customers, leading to higher customer retention. The findings of the study indicated that while many factors can influence attitude toward e-CRM use, these factors also ultimately influence customer retention.

The main practical contribution of the study was developing and validating the Customer Retention Modified TAM Model, which can be used by Afriqiyah Airways, other airlines and companies providing services to improve customers' attitudes towards e-CRM use. This model establishes a framework for firms to understand the way in which customers form their perceptions about the usefulness and ease of use of an e-CRM system, which can assist a firm in identifying deficiencies in the system that can be remedied to improve customer attitudes towards e-CRM use.

The study also makes a practical contribution to service industries using e-CRM by identifying the factors affecting attitude towards use of e-CRM. The findings of the study established that Trust, Pre-Sales Services, After-Sales Services and Perception account for most of the variance in Attitude towards use of e-CRM. The findings suggest that firms seeking to improve attitudes towards e-CRM should focus on these four constructs to ensure that the elements of the e-CRM system meet with customer expectations. In addition, the findings of the study suggest that firms with e-CRM systems should particularly focus on ensuring that the elements of the system related to customers' subjective assessment of trustworthiness may be more significant for the customers' positive attitude towards e-CRM than other factors. Based on these findings,

firms should give special attention to those components of the e-CRM system that can enhance customer trust.

In practical applications for Afriqiyah Airways and other airlines, the Customer Retention Modified TAM Model can be used as a guideline for firms collecting data concerning the attitude of customers towards their e-CRM systems. The data for each of the four major constructs can be used to establish a baseline concerning the effects of different elements of the e-CRM system on the perceptions of customers. From this data, a firm can determine if changes are required to the system to increase trust or to enhance the pre-sales and after-sales experience of customers. The model can also be useful for determining the effect of changes to elements of the e-CRM system on the perceptions of customers.

7.7 Limitations

A limitation of the study is the possibility that the findings and conclusions may not be capable of generalisation outside the airline industry. The data were collected from a sample of customers from a specific airline, Afriqiyah Airways. In addition, the data were based on the customers' perceptions and attitudes toward the specific e-CRM system used by Afriqiyah Airways. This sample may not be representative of the larger population using e-CRM systems in other business contexts. The sample was also primarily composed of individuals from North African cultures because the airline services specific destinations in the region of North Africa. The e-CRM system used by Afriqiyah Airways may also have specific elements that result in customers having perspectives towards the importance of constructs such as Trust, Pre-Sales Services and After-Sales Services and Perception based on the unique attributes of the e-CRM system used by the airline. The findings of a similar study conducted on a different e-CRM system and with a different sample population may produce different results.

Another limitation of the study is the inherent boundary created by the use of a positivist research paradigm, which confines the research to the propositions and variables identified at the outset of the study. The research conducted in this study established the Customer Retention Modified TAM Model and the propositions tested by the hypothesis based on the TAM model and the findings of previous researchers. The research examined only the variables established at the beginning of the study and did not consider other variables that may have contributed to the variance in attitude towards e-CRM use. As a result, some variables may exist that make a significant

contribution to attitudes towards e-CRM use that were not considered by this study. The finding that the Customer Retention Modified TAM Model accounts for only a majority of the variance in attitude toward e-CRM use suggests that other variables exist that could account for the additional variance in attitude.

7.8 Future Research

A possible avenue for future research concerning the factors affecting perception of and attitude towards e-CRM use is to examine changes in perception and attitude of customers using an e-CRM system resulting from a change to the system. This type of research could use a pre-test of perceptions and attitudes toward an e-CRM system to establish a baseline concerning the effectiveness of the system for encouraging customer use. The research would examine effectiveness of changes to the e-CRM system intended to improve perceptions and attitude towards use with a post-test. This type of research could determine the specific external variables that can influence changes in Trust, Pre-Sales Services and After-Sales Services in the e-CRM system.

Because the findings of this study determined that Trust has a direct relationship with Attitude towards use of e-CRM in addition to an influence on Perception, another possible area for future research would be to determine if other variables have a direct relationship with Attitude. In this study only Trust was hypothesised as having such a direct relationship with Attitude. Future research could formulate and test hypotheses concerning the direct relationship of broad constructs such as Pre-sales Services and After-sales Services with Attitude as well as specific elements of the constructs such as personalisation and customisation capabilities, or order tracking.

7.9 Conclusion

The findings of the study support the conclusion that the Customer Retention Modified TAM Model is effective for describing the relationship of the factors of Trust, Pre-Sales Services, and After-Sales Services to Perception and the relationship of Perception to Attitude towards use of e-CRM. The findings also support the conclusion that these factors are important contributors to the use of an e-CRM system by customers, which leads to higher customer retention because of the ability of a firm to use an e-CRM system to create a closer and more personalised relationship with customers. An important conclusion of the study is the significant role that Trust plays in customers' attitude towards use of e-CRM through its indirect influence on Perception and its direct influence on Attitude. Based on this conclusion, firms using e-CRM should ensure that

their system contains the elements demonstrating trustworthiness in the online environment expected by customers.

To reiterate what was stated in Chapter 1, getting information to pursue a business-oriented direction would have been very difficult. Indeed, despite several attempts, getting financial information from decision-makers at the company was well-nigh impossible. Moreover, the National bodies seemed extremely unwilling to co-operate and often claimed not to have the information. This confirms our chosen direction was the right one and also re-affirms that, in this case, pursuing a business-oriented direction might have confused the primary objective, possibly making it unstable or, worse, unfeasible, because the complexity would then have become too great.

This research has assessed the deployment of e-CRM and found that the factors Trust, Pre-Sales services, After-sales Services, and Perception contribute to customers' attitude toward using e-CRM and therefore contribute to increasing customer retention.

As was mentioned in the introductory chapter, it is not possible to directly evidence the improvement in business, but it is reasonable to speculate on likely business improvement due to improvement in customer retention. There is enough evidence that the improvement in customer retention can increase firms' profitability; for example, a study by Faed and Forbes (2010) emphasized the benefits of customer retention and stated that "a 1% improvement in retention can increase firm value by almost 5%. Similarly, 5% increase in customer retention increases a firm's profits at a range between 25% and 85%", which means that the retention elasticity is almost five times more than the discount rate elasticity. Therefore; retaining profitable customers for life require firms to focuses on service "adaptability – delivering" not what the market wants, but what customers want (Wu, and Hung, 2009). Customer retention has a significant impact on firm profitability, the system of CRM customer service model, gives the firms the edge in customer support and call centre services. They can increase customer satisfaction as well as reducing the cost of support (Zhang, 2009). Though, using the outcomes of these researches and the specific research findings relating to those factors that have been identified by this research that directly contribute to customer retention namely: Trust, Pre-sales services After-sales services and Perception, it is reasonable to speculate that the improvement in customer retention caused by these factors might in turn lead to business improvement.

To-this-end the Customer Retention Modified TAM Model as well as the findings of the study can inform the efforts of firms using e-CRM to improve the system and to encourage customers to have a propensity toward use of e-CRM. The Customer Retention Modified TAM is flexible enough for use in many different types of organisations using e-CRM to maintain relationships with customers and increase customer retention. The findings of the study also demonstrate the interrelationships among all the attributes of an e-CRM system that can affect attitude towards use, which increases the complexity of designing an e-CRM system effective for improving customer retention.

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Appendix (A) Cover letter

I am a PhD student at Sheffield Hallam University, where I am conducting a research study concerned with customer retention in Afriqiyah airways .Our research is located within the informatics research theme group led by professor Jawed Siddiqi .This theme is mainly concern with social-technical aspects of e-service, e-business, e-learning and e-CRM in emerging countries such as Libya.

I would like to invite you to be part of my research study entitled: ***An investigation into factors of e-CRM influencing customer retention in Afriqiyah Airways.***

This survey is intended to obtain information regarding your opinion about the e-CRM services the Afriqiyah Airways provides; in order to help the company to provide better services therefore retaining its customers.

I want to assure you that the survey is purely for academic and research purposes. Please note that your participation in this survey is completely voluntary and all the responses will be anonymous. It will take you about 15 to 20 minutes of your valuable time; please feel comfortable stating your own opinion in completing the survey questionnaire.

Thanks for your assistance

Naser Aniba

Appendix (B) Questionnaire

This questionnaire focuses upon customer retention in the Afriqiyah airways (AAW) Company. You will be asked a series of questions related to general marketing and customer services. Please answer the following questions and do not spend too much time on each question. These questions will be used as part of a research study being conducted by Mr Naser Aniba for a PhD at Sheffield Hallam University, UK.

AAW = Afriqiyah airways

E-CRM = Electronic customer relationship Management

Your Profile:

Q1. Your Gender?

Male ☐	**Female** ☐

Q2. Your Age?

Less than 30 ☐	**30-50** ☐	**Greater than 50** ☐

Q3. Your Monthly Income?

Lessthan £500 ☐	**£500-1000** ☐	**£1000-2000** ☐	**£2000-3000** ☐	**£3000+** ☐

Note:

In hindsight, the use of 'Less than 30' in the age section lacked clarity; it should have read 'Between 18 and 30', though it is clear from the responses that it was not misunderstood. Similarly, the use of 'Less than £500' in the income section was an inappropriate choice as hardly anyone in the UK earns less than £500 a month. Indeed, this was confirmed from the data gathered. More importantly, neither of these choices had any significant impact on the data gathered.

Q4. For the following sections please state how much you agree or disagree with the statements – with 1 indicating 'strongly disagree' and 5 indicating 'strongly agree'.

Question Number	Pre-sale /services	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
1.	I think that the company website should have access to personalised account.					
2.	I think that the advertisement and promotion which I receive from the company should suit my needs.					
3.	I think that different payment and delivery options services should be offered.					
4.	I think that the company's website should allow customers to browse products/service from different points of view.					
5.	I think that customers should be able to select and configure services online before ordering (online meal request, online seat request, online check-in services etc.)					
6.	I think that customers should be able to update their-self profile at any time.					
7.	I think that personalized services and discounts for repeat flying with company would be appreciated.					
8.	I think that the company's website should allow users to create their own Account that will record all past transactions.					
9.	I think that incentives based on customers' preferences should be used.					
10	I think that providing Frequent Flyer Programs (reward and loyalty) to customers would be appreciated.					
11	I think that rewarding customers for returning would be appreciated.					
12	I believe that incentives for joining the loyalty program should be offered.					

Questions Number	Trust	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
13.	I think that prices of products/services provided by the company are always lower compared to other airline companies.					
14.	I think that the terms and conditions laid out by the company are customer friendly and fair.					
15.	I think that the return/cancellation policies of the company should be customer-friendly and fair.					
16.	I think that the reputation of the company in terms of security is important.					
17.	I think that the company should always send a confirmation of secure payment and transmission.					
18.	I think that providing third party verification (e.g. seal of approval) to verify the company's website authenticity for customers is vital.					
19.	I think that providing a privacy statement to guarantee customer information is kept confidential is necessary.					
20.	I feel comfortable when providing sensitive information (e.g., credit card/debit card numbers) for online purchase.					
21.	I think that the online service of the company does not share customers' personal information with other sites.					

Questions Number	After sale /services	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
22.	I think that the company website should enable customers access to track their orders online.					
23.	I think that customers should be able to check orders placed on the Internet through the physical and vice-versa.					
24.	I think that facilities for changing ticket details including cancellation should be available.					
25.	I think that the company handles my Complaints efficiently and effectively.					
26.	Customer services are always fast in resolving my problems.					
27.	I think that Self-help, Frequently Asked Questions (FAQs), and help contact services should be available.					
28.	I think that Email based flight detail updates, and new flight discounts etc should be available.					
29.	I think that service of sharing/exchanging information about the company with my buddies in online chat rooms should be available.					
30.	I think that feedback channels such as; online surveys email and discussion forums should be available.					
31.	I think that customers should be able to contact customer service through various channels.					

Questions Number	Perceptions (Perceived ease of use / Perceived usefulness)	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
32.	Learning to operate the company website is easy.					
33.	My interaction with the website is clear and understandable.					
34.	It is easy to become skilful at using the company's website.					
35.	It is simple to buy online from the company's online purchasing.					
36.	The company's website provides easy steps whenever a customer needs to register.					
37.	Obtaining useful information about products/services is easy.					
38.	The web site improves my performance when searching for and purchasing products/ services.					
39.	The company's web site increases my productivity when searching for and purchasing products/ services.					
40.	The company's website makes it easier for me to search for and purchase product/ service.					
41.	I find it easy to search and purchase products/services using the website.					
42.	The web site is useful for searching for and buying services.					
43.	Rich and varied information is provided.					

Questions Number	Attitude towards use of e-CRM	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
44.	My attitude towards e-CRM usage is positive.					
45.	I am favourable toward using the company's e-CRM system.					
46.	It is beneficial to use an e-CRM system.					
47.	Using e-CRM enables an increase in customers' retention rate.					
48.	Using e-CRM enables improved sales revenue.					
49.	Using e-CRM can effectively segment customer based on profitability.					
50.	Using e-CRM benefits building strategic relationships with customers.					
51.	Using e-CRM will improve differentiated services to different type of customers.					

Thank you for your assistance.