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FRAMEWORK FOR ADOPTION OF CUSTOMER RELATIONSHIP MANAGEMENT SYSTEMS IN HOSPITAL

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Abstrak

Sistem Pengurusan Perhubungan Pelanggan (CRM) membolehkan hospital untuk menyediakan kualiti perkhidmatan yang lebih baik, meningkatkan kepuasan pelanggan, dan meningkatkan keuntungan dan daya saing mereka. Namun begitu, hanya sedikit sahaja perhatian yang diberikan terhadapnya, dan kurangnya penggunaan sistem berkenaan di hospital-hospital swasta di Malaysia. Selain itu, hanya terdapat beberapa kajian sahaja yang meneliti faktor-faktor yang mempengaruhi penggunapakaian sistem CRM di hospital-hospital swasta di Malaysia. Oleh itu, objektif utama kajian ini adalah untuk membangunkan satu kerangka kerja penggupakaian sistem CRM di hospital-hospital. Soal selidik tadbir kendiri telah digunakan untuk mengumpul data daripada kakitangan pengurusan atasan di hospital-hospital swasta di Malaysia. Sejumlah 148 soal selidik yang diedarkan di mana 79 soal selidik (53%) telah dikembalikan. 72 data soal selidik yang mempunyai ciri-ciri kesahan dianalisis dengan menggunakan teknik Korelasi dan Regresi Berganda untuk mengesahkan kerangka kerja tersebut. Kerangka kerja yang digunakan untuk penyelidikan ini yang telah diubahsuai daripada teori Penyebaran Inovasi (DOI) dan Model Inovasi Sistem Maklumat (IS), telah dibina untuk mengaitkan faktor-faktor inovasi, organisasi, dan alam sekitar dengan persepsi faedah dan pelan pelaksanaan sistem CRM. Dapatan kajian menunjukkan bahawa faktor-faktor inovasi, organisasi, dan persekitaran mempunyai hubungan positif yang signifikan ($p > 0.05$). Keputusan kajian umpamanya kerangka kerja yang dibina menyediakan satu set garis panduan yang diterima pakai yang menyumbang kepada kejayaan penggunapakaian dan pelaksanaan sistem CRM. Kerangka kerja ini juga menyumbang kepada khazanah pengetahuan dalam teori DOI, Model Inovasi Sistem Maklumat, dan domain CRM. Secara praktikal, dapatan yang diperolehi mempunyai implikasi yang banyak seperti memberi penekanan kepada peranan sistem CRM untuk menyelesaikan masalah utama di hospital-hospital dan menggalakkan para pembekal sistem CRM untuk memperbaiki strategi pemasaran mereka serta menyediakan sistem CRM pada harga yang berpatutan.

Kata Kunci : Sistem pengurusan perhubungan pelanggan, Penyebaran teori inovasi, Model inovasi sistem maklumat, Perkhidmatan hospital, Kerangka kerja yang digunapakai.

Abstract

Customer Relationship Management (CRM) systems enable hospitals to provide better quality of services, to improve customers' satisfaction, and to increase their profitability and competitiveness. However, there is little attention and lack of adoption of the CRM systems in private hospitals in Malaysia. Moreover, few studies have investigated the factors influencing the adoption of the CRM systems in private hospitals in Malaysia. The main objective of this study is therefore to construct an adoption model of CRM systems in the healthcare industry. Self-administered questionnaires were used to collect the data from the top management employees in private hospitals in Malaysia. A total of 148 questionnaires distributed in which 79 questionnaires (53%) were returned. The data of 72 valid questionnaires were analysed using Correlation and Multiple Regression techniques to validate the model. The model, adapted from the Diffusion of Innovation (DOI) theory and the Model of Information System (IS) Innovation, was built to relate innovation, organizational, and environmental factors to the perception of the CRM system's benefits and implementation plans. Findings indicate that innovation, organizational, and environmental factors have positive significant relationships (p > 0.05). The results of the study such as the constructed model, provide a set of adoption guidelines that contributes to a successful adoption and implementation of the CRM systems. The model also contributes to the body of knowledge in the DOI theory, the Model of IS Innovation, and the CRM domain. In practical, the results have many implications such as emphasizing on the roles of the CRM systems on solving major problems in hospitals and encouraging the vendors of the CRM systems to improve their marketing strategies and to provide the CRM systems at reasonable prices.

Keywords: Customer relationship management system, Diffusion of innovation theory, The model of information system innovation, Hospital services, Adoption model.

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CHAPTER ONE

INTRODUCTION

1.1 Introduction

In the 1990s, the Customer Relationship Management (CRM) started to emerge across

the majority of the industries. It was aimed at reaching the customer centric practices in

doing business by treating different customers with different ways to achieve mutual

benefits for both the organization and the customer. Among the benefits, CRM was

expected to help the organization to provide products and services fulfilling the

customers' preferences, through the customers' needs to improve customer satisfaction

and increase customer loyalty. In addition, CRM was expected to increase the revenues

and decrease the operational cost (Sun, 2008). Also, CRM could help the organizations

in maximizing the benefits of every customer and making higher performance (Tarokh &

Ghahremanloo, 2007). Additionally, there are intangible benefits for CRM including

improving customer knowledge and boosting customer satisfaction (Mithas, Krishnan, &

Fornell, 2005).

The healthcare sector is one of the crucial sectors for the growth of any community. Also

the healthcare industry is not out-of-the-way from the development and innovations with

regard to Information Technology (IT) and Information Systems (IS). The roles of IT

and IS are increasing in supports of the growth of the healthcare sector (Mantzana &

Themistocleous, 2006). Among the roles of IT innovations in healthcare organizations

include enhancing the quality of services (Chiasson & Davidson, 2004; Chao, Jen, Hung,

Li, & Chi, 2007) and improving the cost-effectiveness and the accessibility of services

(Chiasson & Davidson, 2004). Unfortunately, the implementation of management

information systems and IT in the healthcare industry is still in its infancy (Raisinghani, Tan, Untama, Weiershaus, Levermann, & Verdeflor, 2005; Hung, Hung, Tsai, & Jiang, 2010). Naidu, Parvatiyar, Sheth, and Westgate (1999) articulated that hospitals could make relationships with their customers or collaborate with other partners such as suppliers, other hospitals, or specialized healthcare providers to improve their service delivery to customers. The hospitals as the major healthcare units are highly dependent on direct contact with the customers. Therefore, they have to adopt the CRM as an IS innovation to gain benefits from the CRM capabilities in managing their relationship with the customers. In addition, hospitals have to successfully adopt the CRM systems into the organization to enable them to be competitive globally and locally.

1.2 Problem Background

The adoption of IT can be divided into two categories; individual adoption and organizational adoption (Fichman, 1992). The adoption of innovation by individuals aims to satisfy individual needs, while the organizational adoption of innovations aims to carry out value-adding activities (Fuchs, 2005). However, there are scarce literatures regarding the organizational-level adoption of technological innovations in comparison to the literatures of individual-level adoption despite of its substantial importance (Yu & Tao, 2009). Therefore, this study will focus on the organizational-level adoption of IT innovations, specifically CRM systems.

1.2.1 Adoption of CRM System

Adoption refers to the decision of the organization to implement an innovation (Rogers, 2003). In healthcare organizations, CRM is designed to improve patient health, maintain

relationships, and strengthen loyalty and to help optimize the organizations' revenues (Benz & Paddison, 2004). However, there is a lack of CRM systems adoption in hospitals. As an example, Raisinghani et al. (2005) found that there was no hospital in Germany adopting CRM system until 2005. Also, there is an insufficient attention to adopt CRM systems and to the concepts and principles of CRM in the hospitals in China (Xiaoyun, Xuan, & Qiang, 2005). In addition, only 41% hospitals in Taiwan adopt the CRM system while 59% do not (Hung et al., 2010). Besides, they pointed out that there is a lack of studies that have investigated the status of the adoption of CRM systems in hospitals.

According to Rogers (2003), before taking the decision of the adoption of an innovation, one must understand the potential benefits and challenges of the innovation. On the other hand, Ko et al. (2008) suggest the adoption of CRM system should be coupled with the implementation strategy of the CRM system in the organizations. Therefore, the next two sections discuss the perception of the benefits of CRM and the implementation of CRM systems.

1.2.2 Perception of the Benefits of CRM Systems

The understanding over the CRM among the organizational members may enable the organizations to adopt, and implement CRM initiatives more efficiently (Plakoyiannaki, 2005). However, Plakoyiannaki (2005) found that the evidence on how organizations perceive the CRM is still lacking. In addition, a review of the literatures reveals a lack of studies which discuss the perceptions of organizational members towards the CRM (Reinartz, Krafft, & Hoyer, 2004). In relation, Richard, Thirkell, and Huff (2007a)

pointed out that customers and organizations perceive the CRM technologies differently. Additionally, the perceived benefits of CRM also influence the CRM strategy adoption significantly (Ko, Kim, Kim, & Woo, 2008). Therefore, this study believes that the perception towards the CRM system and the awareness about its benefits influence the adoption model of the CRM system in hospitals. The positive perception of the CRM system benefits could lead for the decision of adopting and implementing the system.

1.2.3 Implementation of CRM System

According to (Rogers, 2003), the implementation of the CRM system means installing and using the system. The implementation of CRM system has been abandoned in the marketing and information system literature (Paulissen, Milis, Brengman, Fjermestad, & Romano, 2007). With the incremental adoption and implementation of the CRM systems, many studies have been carried out (e.g. Merly, 1999; Kotorov, 2003; Raisinghani et al., 2005). Unfortunately, the studies reveal disappointing results, where many of the CRM initiatives have failed in different kinds of businesses; in which only 35% of all CRM implementations were successful (Merly, 1999). In addition to that, a study by the Meta Group Inc. has indicated that in 2001 the failure rate of CRM projects was between 55% and 75% (Kotorov, 2003). Then, industry studies pointed out that 60% of CRM software installations failed (Raisinghani et al., 2005). Further, Peppers and Rogers Group estimated that 80% of CRM projects fail to generate a positive return, while Cap Gemini Ernst and Young reported that 70% of CRM initiatives fail. Similarly, Gartner research showed that more than half of all CRM projects do not produce results, and that 50% of CRM strategies failed (Qingliang, Nongji, & Guangming, 2008). Other commercial market research studies by Gartner Group (2003) reported that,

approximately 70% of CRM projects result in either losses or no bottom-line improvement in company performance (Zhang, Chen, & Fu, 2006). Indeed, Finnegan and Currie (2010) assured for the fact of the low success rate of CRM implementation.

In Malaysia, there are different views or scenarios of CRM in the private hospitals. Among the views and scenarios include; (1) some hospitals do not know what CRM is or what it is for; (2) other hospitals only have customer service departments; (3) some hospitals use some software applications for managing customers feedbacks; and (4) some hospitals have online systems in which customers are able to make appointments for treatment or medical tests and checkups, to view the tests results, and even to provide their complaints (Rababah, Haslina, Huda, & Aniza, 2010).

There are complex reasons or issues in the introduction of a new information system in an organization such as economical considerations and technology (Lehane & Huf, 2005). Additionally, Wettemann (2007) pointed out that there are a set of challenges that faced by the CRM adopters in healthcare such as the multiple data sets in multiple systems, customer data confidentiality concerns, and IT budget challenges. Also, Fitzgerald, Ferlie, Wood, and Hawkins (2002) indicated the need to consider the technical, organizational, human, and social factors to increase the IS adoption in the healthcare industry. In fact, CRM adoption is strongly related to organizational and environmental contexts, in which the introduction of CRM into organizations is closely related to the internal organization culture and structure, which also requires certain consideration on the possible competitive impact from the external environment (Wu &

Wu, 2005). In the following, the innovation (CRM system), organizational, and environmental factors and their issues related to the CRM system adoption are discussed.

1.2.4 Innovation (CRM system) Factor

The variation of adopting CRM in healthcare may refer to the fear of technology, the cost, the privacy concerns, or reluctance to change the status quo (Paddison, 2004). In addition, the more the system is intuitive and easier to use, the higher the adoption rate will be (Carter, 2009). Another issue is provided by Langerak and Verhoef (2003) who refer the disappointing results of CRM projects to the difficulty in embedding CRM in the business strategy and organizational structure. Additionally, the reasons of CRM initiatives' failure include that lack of software flexibility (Caldeira et al., 2008) and the nature of bad technologies (Trembly, 2007). Also, Ramamurthy, Sen, and Sinha (2008) stated that at the organizational-level adoption of innovations, the effects of the innovation characteristics have not been studied extensively.

1.2.5 Organizational Factor

Among the reasons of failure on CRM initiatives are the lack of leadership and top management involvement in the CRM project (Kale, 2004; Caldeira et al., 2008), cultural problems (Trembly, 2007; Caldeira et al., 2008), and not managing organizational change properly (Kale, 2004; Caldeira et al., 2008). Also, there is a lack of business knowledge and skills among managers and executives in healthcare industry in terms of full utilization of automation and technology (Fok, Li, Hartman, & Fok, 2003).

1.2.6 Environmental Factor

Ramdani et al. (2009) have studied the influence of the environmental factor on the organizational adoption of the enterprise systems (ERP, CRM, SCM, and E-Procurement). They found that there is no evidence of the influence of the type of industry, the market scope, the competitive pressure, and the external IS support on the organizational adoption of the enterprise systems. However, Kohli et al. (2001) pointed out that because of the reasons such as limited competition, resistance from professionals, and the lack of need to force a change, healthcare organizations have been very slow in the adoption of information technologies. Therefore, the significance of the environmental factor could also be tested in relation to the adoption of the CRM system in the healthcare organizational level.

1.3 Problem Statement

Based on the issues discussed in the previous section, it could be concluded that the motivation to carry out this study is based on the premise that there is insufficient attention given to the adoption of CRM systems in hospitals. It refers to a set of issues and factors related to the characteristics of the innovation (CRM system), the characteristics of the organization, and the characteristics of the environment. These factors are important as guidelines for the decision makers' implementation strategic plan of the CRM system adoption in the healthcare organizations in the future. In addition, a few studies have tried to investigate the most significantly influencing characteristics among the three characteristics over the CRM systems adoption among private hospitals.

1.4 Research Questions

1) What is the current state of the art of the CRM system adoption in terms of perception, adoption, and implementation in the hospitals?

2) What are the possible factors affecting the CRM system adoption in the hospitals?

3) What is the potential adoption model for CRM system adoption in the hospitals?

4) What is the adoption level of CRM system in the private sector hospitals in Malaysia?

1.5 Research Objectives

The Main Objective is:

To construct an adoption model of CRM systems in the healthcare industry.

In order to achieve the main objective, the following sub-objectives are outlined.

a) To identify the CRM system adoption process in the private sector hospitals in Malaysia.

b) To investigate the factors that may affect the CRM system adoption process in the private sector hospitals in Malaysia.

c) To propose an adoption model of CRM system adoption in the private sector hospitals in Malaysia.

d) To identify the adoption level of CRM system in the private sector hospitals in Malaysia.

1.6 Significance of the Research

The significance of this study appears to be in five directions; (i) The Healthcare Decision Makers: it contributes on giving the awareness of the perception of the CRM systems benefits and the factors influencing the perception and implementation plan of CRM systems in hospitals; (ii) The Hospitals: The adoption of CRM systems in the future will enable the hospitals to know their customers' desires, needs, and expectations regarding the healthcare provided. Hence, that will improve customer acquisition and retention, accompanied with increasing their profits and decreasing their expenses; (iii) The Customers**:** The study is also directly affecting the customers in terms of the enhanced quality of provided services; (iv) The Users**:** The users of the CRM system in hospitals (physicians, nurses, administrators, and technicians) will be able to manage their relationships with patients and serve them more efficiently and effectively. It will enable the users to do more works and will increase their response rate to customers and the accuracy of healthcare delivery; (v) The Country: Malaysia has the potential to benefit from the private hospitals adoption of CRM system in the future. It will increase the competitiveness of hospitals and will enable them to be more attractive for international customers specifically, for the health tourism. The adoption of CRM system is also expected to benefit local customers in terms of acquiring an enhanced quality of life.

1.7 Research Contributions

1) The Body of Knowledge

- The enhancement of the theory of CRM system adoption models and the theory of the adoption of IS innovations.

- This study contributes to the body of knowledge in terms of the CRM system adoption model for hospitals, taking into consideration the main phases of CRM system adoption process and the different factors that influence the process.

- The model is potentially applied in the adoption of different IS/IT innovations or the adoption of CRM system in different industries from various domains.

2) Healthcare Domain

This study provides a set of adoption guidelines of the CRM system in the hospitals that contribute to the successful adoption and implementation of CRM systems in which it is expected to enhance the customers' satisfaction and loyalty.

1.8 Research Scope

The main focus of this study is the healthcare sector in Malaysia, specifically in private sector. This study investigates the northern region of Malaysia: Kedah, Penang, and Perak, regarding the adoption and implementation of CRM systems. All together 12 observed hospitals out of 26 private hospitals in the northern region of Malaysia. The focus of this study is on the organizational rather than individual level of innovations' adoption because the problem is related to the decision makers not users. Therefore, the target respondents in this study were the decision makers in the selected hospitals rather than the individual users of the system.

1.9 Research Plan

Table 1.1 Research Plan

Phase	Objective	Processes	Outcomes
Phase1		1. Identify the problem statement. 2. Literature review.	Problem statement
Phase2	1. To identify the current state of CRM system	1. Literature review. 2. Identify the CRM system	1. The current state of CRM systems adoption

	adoption in the hospitals.	adoption process. 3. Conduct preliminary study 4. Conduct pilot study	process in private hospitals in Malaysia. 2. The valid target sample.
Phase3	2. To determine the potential factors that may affect CRM system adoption in the hospitals.	1. Literature review. 2. Identify the CRM system adoption factors.	Factors that affect the CRM systems adoption.
Phase4	3. To examine the relationships between the factors that may affect CRM system adoption in the hospitals.	1. Construct the model. 2. Formulate hypotheses. 3. Collect the Data using Survey. 4. Analyse the data, validate and revise the research model.	An adoption model of CRM system in the hospitals.

1.10 Structure of Thesis Presentation

The motivation and objectives of this research are well-described in this chapter. Chapter two reviews the previous works that are significant to this study. Among the topics being discussed include the different aspects of CRM and CRM system adoption process. Next, Chapter three details the methodology employed in the study. Then, Chapter four and Chapter five detail the data analysis and discussion. Finally, Chapter six contains the conclusions of the research.

CHAPTER TWO
REVIEW OF LITERATURE

2.1 Introduction

This chapter consists of two parts. The first part describes relevant topics on the adoption of IT innovations, the organizational-level and individual-level adoption of IT innovations, and Existing IT Adoption Theories and Models. It also includes an illustration for Innovation Diffusion Theory and the Model of IS Innovation. The second part presents a review of CRM systems including the explanation of the CRM systems adoption process and the different factors that could influence the CRM system adoption process in healthcare organizations.

2.2 Organizational VS Individual level Adoption of IT Innovations

According to Fichman (1992), the individual-level adoption and organizational-level adoption of innovations are the two focused approaches of the IT adoption literature. Despite the substantial importance of the organizational-level adoption of IT innovations, there are scarce literatures focusing on it and most of the literatures focus on the individual-level adoption of IT innovations (Yu & Tao, 2009). In addition, Kamal (2006) pointed out that most of the adoption and implementation models of IT innovations focus on the individual-level adoption rather than the organizational-level adoption. Moreover, researches on the adoption of IT innovations have concentrated on the end-users point of view and have ignored the other actors responsible for taking the decision of the adoption of innovations such as the decision makers (Hernandes et al., 2008). They added that, in studying the adoption of IT innovations at the organizational-level, the

relying on the perception of the decision makers regarding the adoption of innovations is more reliable than the relying on the perception of the end-users as they do not take the decision to adopt certain technology. In line with that, there are two types of organizational adoption decisions can be identified (i) the decision made by an organization and (ii) the decision made by an individual within an organization (Frambach & Schillewaert, 2002). Therefore, unlike the previous researches, this study focuses on the organizational-level adoption of IT innovations considering the organization as a whole as the IT innovation user and the decision makers as the subjects of analysis. In this way, neglected aspects regarding the organizational-level adoption of IT innovations will be covered and revealed. The following section discusses about the existing adoption theories and models of IT innovations.

2.3 Existing IT Adoption Theories and Models

For understanding and explaining the attitude and the behaviour of the adopters towards the adoption of IT innovations, several models were proposed in the past (Gallivan, 2001). They have been developed to explain the individual and organizational adoption of innovations. A summary of these theories and models is provided in Table 2.1 which includes the main variables or construct and the level of analysis.

Table 2.1 Summary of the Existing Adoption Theories

Theory	Dependent Variables (DVs)	Independent Variables (IVs)	Level of Analysis
Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975)	1) Behavioural Intention. 2) Behaviour.	1) Attitude Toward Behaviour. 2) Subjective Norm.	Individual
Theory of Planned Behaviour (TPB) (Ajzen, 1991)	1) Behavioural Intention. 2) Behaviour.	1) Attitude Toward Behaviour. 2) Subjective Norm. 3) Perceived Behavioural Control.	Individual
Technology	1) Behavioural Intention	1) Perceived Usefulness.	Individual

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Acceptance Model (TAM) (Davis, 1989)	to Use. 2) System Usage.	2) Perceived Ease of Use.	
Task-Technology Fit (TTF) (Goodhue & Thompson, 1995)	1) Individual Performance. 2) System Utilization.	1) Task Characteristics. 2) Technology Characteristics	Individual
Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003)	1) Performance Expectancy 2) Effort Expectancy 3) Social Influence 4) Facilitating Conditions	1) Usage Intention 2) Behaviour	Individual
Diffusion of Innovation Theory (DOI) (Rogers, 2003)	1) Technology Adoption or implementation Success.	1) Innovation Characteristics.	Individual and Organizational
The Model of Information System (IS) Innovation (Kwon & Zmud, 1987)	1) Innovation Adoption or Implementation.	1) Innovation Factor. 2) Organizational Factor. 3) Environmental Factor. 4) Task Factor. 5) Individual Factor.	Individual and Organizational

Olivera and Martins (2011) articulated that TRA, TPB, TAM, and UTAUT are developed to investigate the adoption of innovations at the individual level while the DOI by Rogers (2003) is developed to investigate the organizational level adoption of innovation. In addition, the TTF focuses on the fit of the technology with the task performed by individuals which is out of the scope of this study. Another reason for excluding UTAUT is that it focuses on the post adoption of innovations (Conrad, 2009). The Model of IS Innovation by Kwon and Zmud (1987) can be used for studying both the individual and organizational levels adoption of innovations. Therefore, the DOI and the Model of IS innovation are the most suitable for supporting the development of the model of this study.

2.3.1 Diffusion of Innovation Theory (DOI)

Rogers (2003) defines an innovation as "*an idea, practice, or object that is perceived as new by an individual or other unit of adoption*". Therefore, CRM can be considered as an IS innovation because of its re-engineering for the traditional marketing activities and its

contribution in maintaining the competitiveness of an organization (Wu & Wu, 2005). According to this theory, the adopters of an innovation are categorized into five categories including innovators, early adopters, early majority, late majority, and the laggard (Rogers, 2003). The innovation-decision process is an information-seeking and information-processing activity in which an individual (or other decision-making unit) obtains information in order to gradually decrease uncertainty about the innovation. It consists of five stages: (1) knowledge in which the knowing of an innovation's existence and gaining some understanding of the way it works by an individual or other decision making unit, (2) persuasion that refers to the formation of a positive or negative attitude towards the innovation by individuals or other decision making units, (3) decision which refers to the involvement of actions that ends with the adoption of or rejection of an innovation by an individual or other decision making units, (4) implementation which refers to the beginning of the use of an innovation by an individual or other decision making units, and (5) confirmation that refers to the efforts in searching for enhancement for the adopted innovation by an individual or other decision making units (Rogers, 2003).

Based on the innovation decision process, this study tries to study the perception which is formed in the persuasion stage. The focus of this study is on the persuasion stage because the CRM system has not been adopted yet in the investigated hospitals. In addition, there is a gap in the literature regarding the perception of the CRM system benefits. Regarding the knowledge stage, this study will take into considerations the characteristics of the decision makers which define their knowledge of the innovation existence and its functionality. These characteristics will be included within the

organizational characteristics and their influences on the perception of the CRM systems will be investigated. The outcome of the persuasion stage is the decision to adopt or reject the innovation. By investigating hospitals with the intention to adopt the CRM system, they are considered to have the initial decision of adoption the CRM system. While the hospitals have not implemented the CRM system yet, this study focuses on the implementation plan of the CRM system instead of the actual implementation. Hence, the focus of this study is on the perception and implementation plan stages of the CRM systems adoption process.

According to Rogers (2003), the factors that affect the diffusion of an innovation include innovation, social system, communication channels, and interaction over times. Meanwhile, the innovation factor includes five variables; the relative advantage, compatibility, complexity, observability, and trialability (Rogers, 2003). In addition, a meta-analysis study has identified other characteristics of an innovation including costs, communicability, divisibility, profitability, and social approval (Tornatzky & Klein, 1982). This study indicates the relative advantage, the compatibility, and the costs as the main influencing characteristics on the diffusion of innovations among organizations (Tornatzky & Klein, 1982). Further, the social system factors can be divided into individual, group, organization, decision-makers, specific-role players, such as champions and senior management (Wu & Wu, 2005). The communication channels, mass media channels, interpersonal communication channels, and interactive communication channels, are the ways by which information are transmitted from innovation sources to other places, while the time is the dimension that is involved in

diffusion in the innovation-decision process, the innovativeness of an individual or other units of adoption, and an innovation's rate of adoption in a system (Rogers, 2003).

2.3.2 The Model of IS Innovation

Kwon and Zmud (1987) suggest that the combination of DOI theory with application research will be necessary and useful for studying the IT effectively. They developed this model to provide a broad view of the IS innovations. They relied on an extensive review of many studies regarding the organizational innovation and the IS implementation to identify the main forces/factors that contribute in the successful adoption of innovations (Kwon & Zmud, 1987). The model includes (1) Innovation factor or characteristics: including relative advantage, compatibility, and complexity, (2) Task factor or characteristics: including task uncertainty, autonomy, responsibility, variety, identity, and feedback, (3) Individual factor or characteristics: including job tenure, cosmopolitan, educational background, organizational role involvement, (4) Organizational factor or characteristics: including specialization, centralization, formalization, and informal network, and (5) Environmental factor or characteristics: including heterogeneity, uncertainty, competition, concentration\dispersion, and inter-organization dependence.

This model could provide an understanding for the adoption of IS innovations in organizations in a generic sense (Wu & Wu, 2005). However, there is a need for extending or modifying the existing adoption theories because of issues that are not described or explained in the existing theories such as: (i) at the organizational-level adoption, some of the variables such as the adopter characteristics are not mapped comprehensively and (ii) there are complex interactions between the organization

stakeholders in the organizational decision process of innovations adoption (Fichman, 1992). In addition, Kamal (2006) suggested the modification of the existing models of the adoption of IT innovations to better explain the reality of the adoption and implementation of the IT innovations within the organizational settings. Therefore, DOI theory needs to be strengthened by the model of IS innovation to support the aspects neglected in the DOI theory, specifically the environmental and the organizational factors. However, organizational and environmental characteristics proposed by Kwon and Zmud (1987) need for some modifications. Based on the literature review, these characteristics will be replaced with more relevant ones to the adoption and implementation of CRM systems in hospitals. In addition, in the model of IS innovation, the innovation adoption is viewed as a single decision stage. By the adaptation of the adoption process provided by DOI theory, the innovation adoption is viewed as a coherent sequence of stages rather than a single stage. Hence, a broader view for the innovation adoption could be constituted and better explanation ability could be provided.

In conclusion, the combination between the DOI theory and the model of IS innovation provides a robust base for the development of the research model. The DOI theory and the model of IS innovation will support the conjunction among the issues and problems described in section 1.2. In particular, this study focuses on two phases of the CRM system adoption process which are perception of the CRM system benefits and implementation plan and will focus on three factors; innovation, organizational, and environmental that influence the CRM system adoption process.

Having discussed the research theories, the following sections provide an explanation of the relevant literature to CRM and CRM system, and the adoption process of CRM systems.

2.4 The Concept of Customer Relationship Management (CRM)

Many researchers have proposed different definitions for the CRM. There is no clear accepted definition of CRM. As the basis, it is defined based on three different perspectives, (i) a business philosophy, (ii) a business strategy, and (iii) a technology (Caldeira, Pedron, Dhillon, & Jungwoo, 2008; Pedron & Saccol, 2009).

There is a little consensus about the nature and scope of the CRM (Buttle, 2004; Zablah et al., 2004; Caldeira et al., 2008) as well as there is little consensus about the meaning of CRM (Winer, 2001; Woodcock & Starkey, 2001; Ngai, 2005; Askool & Nakata, 2010), or how CRM strategy should be developed (Payne & Frow, 2005), or how to best execute or measure CRM (Keefe, 2001). For the healthcare organizations Benz and Paddison (2004) state that "*CRM is a method for healthcare providers to learn all they can about their patients and prospects, to communicate relevant, timely information to them, and to track results to make message and program adjustment as necessary*". For the purpose of this study, a broader view and a holistic approach of the CRM are adopted, which combine all the previous viewpoints. Therefore, CRM is the building of a customer-oriented culture by which a strategy is created for acquiring, enhancing the profitability of, and retaining customers, that is enabled by an IT application; for achieving mutual benefits for both the organization and the customers.

2.5 CRM systems

CRM system is defined by Bibiano and Pastor (2006) as "*an enterprise information system that includes all business processes in sales, marketing, and after-sale service that involve the customer*". One of the most important definitions of CRM systems is provided by Davenport et al. (2001) as cited in Bibiano and Pastor, (2006) which is "*all the tools, technologies and procedures to manage, improve or facilitate sales, support and related interactions with customers, prospects, and business partners throughout the enterprise*". Earlier, Lin (2003) defined it as "*a software system designed to empower a company to maximize profits by reducing costs and increasing revenue; to increase competitive advantage by streamlining operations; and to achieve business goals*". Similarly, Bull (2003) view it as an information system aimed at enabling organizations to realize a customer focus. Foss et al. (2008) define the CRM system as a technology-based business management tool for developing and leveraging customer knowledge to nurture, maintain, and strengthen profitable relationship with customers.

2.6 CRM System Adoption Process

An innovation adoption process consists of five stages; knowledge, persuasion, decision, implementation, and confirmation (Rogers, 2003). As being justified and stated in section 2.4.1, the focus of this study is on two stages namely persuasion and implementation. The persuasion stage represents the stage when an organization searches for information about an innovation as its cost and benefits and the organization needs to be convinced of the potential benefits and competitive advantage the innovation may bring (Ko et al., 2008). In this stage, perception of the innovation which is the CRM system in this study is formed. The perception of how good or bad the innovation is will

lead to the persuasion of taking the decision of its adoption or not. On the other hand, the implementation stage represents the implementation of the innovation into use (Rogers, 2003). This stage represents the beginning of using and implementing the CRM system.

2.6.1 The Perception of CRM System Benefits

The perception of CRM by organizations is still vague and unclear (Plakoyiannaki, 2005). Also, Reinartz et al. (2004) indicate a lack of studies of the CRM perception of organizational members. However, the positive organizational perception on efficient adoption and implementation of CRM initiatives could be enabled by understanding how members in the organizations perceive CRM (Plakoyiannaki, 2005). As an example, Richard et al. (2007a) found an existence of significant differences of the perception on CRM technologies among customers and organizations. Rogers (2003) argues that the perception of an innovation benefits precedes the decision of adopting the innovation. It is supported by Ko et al. (2008), while at the same time claiming that CRM as a technology innovation will be adopted by organization only after they realize its benefits. Empirical evidence is provided by who found that the perceived benefits of the CRM system are influencing its adoption (Alshawi et al., 2011).

2.6.1.1 The Benefits of CRM

Having good customer relationships is crucial for the business success because the customer is one of the most important resources of an organization (Jin-yu, Rui, & He-feng, 2008). CRM is expected to bring-in many benefits into the adopting organization. Among the benefits include (1) helping an organization to maximize the benefits of every customer and drive superior corporate performance (Tarokh & Ghahremanloo,

2007), (2) help an organization in predicting customers' future needs (Winer, 2001; Paddison, 2004; Torkzadeh, Chang, & Hansen, 2006), and (3) increase the profits for both the customers and the organization (Huang and Wang, 2009). In conjunction, Sin et al. (2005) indicated that CRM has positive impacts on the organizational performance and can be a critical success factor for the organizational performance. Table 2.2 summarizes the main benefits of the CRM systems.

Table 2.2 CRM system Benefits

CRM system Benefits	Sources
1. The CRM system will help the organization increase the customer's lifetime value (LTV).	(Ko et al., 2008)
2. The CRM system will help the organization increase the customer satisfaction.	(Croteau & Li, 2003; Chen & Chen, 2004)
3. The CRM system will help the organization reduce the cost of the acquisition of new customers.	(Ko et al., 2008)
4. The good relationship with the customer is a good marketing strategy for the organization through the positive word-of-mouth.	(Winer, 2001; Chen & Chen, 2004; Ko et al., 2008)
5. Building a good relationship with the customer will encourage him to purchase the products and services of the organization more and more.	(Naidu et al., 1999)
6. The CRM system will help the organization increase its profitability.	(Croteau & Li, 2003; Chen & Chen, 2004; Ko et al., 2008)
7. The CRM system will help the organization gain a competitive edge.	(Croteau & Li, 2003)
8. The CRM system will enable the organization to increase customer loyalty.	(Croteau & Li, 2003; Ko et al. 2008)
9. The CRM system will shorten the organization's customer support and service cycle.	(Croteau & Li, 2003)
10. The CRM system will shorten the organization's marketing cycle.	(Croteau & Li, 2003)
11. The CRM system will enable the organization to improve the operational efficiency and productivity.	(Croteau & Li, 2003; Chen & Chen, 2004)
12. The CRM system will help the organization decrease costs related to all customer-related activities.	(Croteau & Li, 2003)
13. The CRM system will enable the organization to improve the understanding among customers.	(Croteau & Li, 2003; Chen & Chen, 2004)
14. The CRM system insures the availability of strategic business decisions that model and predict the future customer satisfaction and customer behaviour.	(Croteau & Li, 2003)
15. The CRM system will enhance the quality of communications between the organization and its customers.	(Richard et al., 2007b)

It can be concluded that studying the perception of CRM system benefits in the healthcare organizations plays an important role in its adoption. Therefore, this motivates

for a study that identifies factors that may influence the perception on the benefits of CRM system. It also motivates for a study that identifies the influences of the perception of the CRM system benefits on the implementation plan of CRM system.

2.6.2 CRM System Implementation Plan

Laudon and Laudon (2004) define "implementation" as "*all organizational activities working toward the adoption, management, and routinization of an innovation*" while, as stated in previous sections, CRM is implemented to bring in benefits to an organization. Hence, Xu and Walton (2005) address that the reasons for CRM implementation include improving customer satisfaction level, retaining the existing customers, improving customer lifetime values, providing better strategic information to sales, marketing, and finance, attracting new customers, and savings cost. In addition, the implementation of CRM programs will lead to achieving a competitive advantage and profitability for an organization (Roberts et al., 2005).

Literatures show that there is a high rate of CRM initiative failures (Rigby et al., 2002; Zablah et al., 2004). In relation, Raisinghani et al. (2005) state that the failure rate of CRM software installations is 60%. Earlier, in 2001 the failure rate of CRM projects was estimated to be between 55% and 75% (Kotorov, 2003). Then, Qingliang et al. (2008) found that up to 80% of CRM projects failed to generate a positive return in terms of improvement in organizational performance, Gartner Group (2003) found that 70% of CRM projects did not succeed (Zhang et al., 2006). More unfortunately, Lindgreen et al. (2006) argued that CRM systems have failed to achieve economic benefits and, in some cases, have destroyed the relationship between an organization and its customers.

Therefore, an adequate plan for the implementation of CRM systems need to be developed in order to ensure the successful implementation of the system. The following Table 2.3 summarizes the main guidelines of the implementation plan. These guidelines were proposed based on the review of the relevant literature of CRM systems implementation. These guidelines with the required modifications could be used for the measurement of the implementation plan of CRM systems in hospitals.

Table 2.3: The Guidelines of the Implementation Plan of CRM system

Guidelines	Sources
1. The implementation of the CRM system in this organization will be based on proper guidelines provided by the ministry of health/ top management.	(Mendoza et al., 2007)
2. The organization will have a clear training plan for the end users on the CRM system.	(Maleki & Anand, 2008)
3. The CRM strategy will be embedded within the organization vision.	(Langerak & Verhoef, 2003; Jun, 2008)
4. The implementation of the CRM system will be based on the technological readiness assessment of the organization.	(King & Burgess, 2008)
5. The end users will be involved in the design and development of the CRM system.	(Maleki & Anand, 2008)
6. The implementation of the CRM system will be based on phased rollout schedule.	(Pedron & Saccol, 2009)
7. The CRM system will be integrated well with the other information systems in the organization.	(Maleki & Anand, 2008)
8. There will be a champion available all the time to support the CRM system's implementation.	(King & Burgess, 2008)
9. There will be measurement systems and metrics for measuring the CRM system's effectiveness.	(Wilson et al., 2002)

The following section discusses the different factors influencing the CRM system adoption process including innovation, organizational, and environmental factors. In addition, the variables of each factor that are important in healthcare settings are also discussed.

2.7 Factors of CRM System Adoption

2.7.1 Innovation Factor

The innovation factor includes the innovation characteristics in which this study refers to the CRM system. In particular, this study focuses on six characteristics of the CRM system which are relative advantage, complexity, compatibility, trialability, and observability of the CRM system as supported by DOI theory by Rogers (2003) and the Model of IS Innovation by Kwon and Zmud (1987). Also, this study focuses on another determinant variable of CRM adoption in the hospitals which is the security in which next paragraph justifies its importance in hospitals.

The confidentiality concerns and the privacy concerns represent the security variable (Kevin et al., 2006). For the adoption of CRM system in hospitals, the importance and need for the attention on the customer data confidentiality concerns are emphasized by Wettemann (2007) and the privacy concerns are emphasized by Paddison (2004). Hence, it is important to add this variable to the innovation characteristics and to investigate its relation to the adoption process of CRM system.

These six characteristics of the CRM system constitute the innovation factor as a one construct. The influence of the innovation factor on the perception of the CRM system benefits and the implementation plan factors will be investigated. The aim of studying the innovation characteristics is to bridge the gap in the literature with regards to identifying their influence on the adoption of innovations at the organizational-level. Two hypotheses are proposed between (i) the innovation factor and the perception of the

CRM system benefits factor, and (ii) the innovation factor and the implementation plan factor. These factors will be used to develop the adoption model of CRM system in hospitals.

2.7.2 Organizational Factor

The organizational factor represents the organizational characteristics in which this study refers to the private hospitals. The characteristics factor is supported through the model of IS innovation by Kwon and Zmud (1987). These characteristics need for modification in accordance to the scope and issues of the adoption of CRM systems in hospitals. In response, this study focuses on five of the organizational characteristics including top management support, knowledge management capabilities, IS experience, organizational readiness, and innovation of senior executives.

These five characteristics of the organization constitute the organizational factor as a one construct. The influence of the organizational factor on the perception of the CRM system benefits and the implementation plan factors will be investigated. The aim of studying the organizational factor is to bridge the gap in the DOI theory with regards to identifying its influence on the adoption of innovations at the organizational-level. Two hypotheses are proposed between (i) the organizational factor and the perception of the CRM system benefits factor, and (ii) the organizational factor and the implementation plan factor. These factors will be used to develop the adoption model of CRM system in hospitals.

2.7.3 Environmental Factor

The environmental factor represents the characteristics of the arena in which the hospital runs it business. Tornatzky and Fleischer (1990) define the environmental context as the arena in which an organization does its business that includes its industry, competitors, access to resources applied by others, and the dealings with government. Similarly, the environmental factor is supported by the model of IS innovation adoption of Kwon and Zmud (1987) and this model includes three characteristics; competitive pressure, customer satisfaction, and marketing approach. With some modifications for these characteristics in accordance with scope the problems of the adoption of CRM systems in hospitals, the focus of this study is on two characteristics including the competitive pressure and the external IS support.

These two characteristics of the environment constitute the environmental factor as a one construct. The influence of the environmental factor on the perception of the CRM system benefits and the implementation plan factors will be investigated. The aim of studying the environmental factor is to bridge the gap in the DOI theory with regards to identifying its influence on the adoption of innovations at the organizational-level. Two hypotheses are proposed between (i) the environmental factor and the perception of the CRM system benefits factor, and (ii) the environmental factor and the implementation plan factor. These factors will be used to develop the adoption model of CRM system in hospitals.

2.8 Chapter Summary

The chapter presents the review of the literature of the existing theories of the adoption of innovations. The main theories that could support studying the adoption of innovations at the organizational-level were identified. The theoretical foundations of the study were based on the DOI theory and the Model of IS Innovation in order to construct the adoption model of CRM systems in hospitals. Based on the DOI theory by Rogers, two main phases of an innovation (CRM system) adoption are identified and adapted which are perception and implementation phases. There are three factors that influence the adoption process which are innovation, organizational, and environmental factors. These factors are supported by the DOI theory and the Model of IS Innovation. As suggested by the literature, the existing theories and models of the adoption of innovations need for the modifications to support and study the phenomena under investigation. Therefore, the organizational and environmental contexts were modified to support the issues of CRM systems. By relating these factors to the perception of the CRM system and the implementation plan the research model will be developed.

The following chapter elaborates the research methodology in which the research design is defined, the research model is proposed, the research instrument is developed, the sample of the study is identified, and the data analysis techniques are determined.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

As stated in chapter one, this study aims at proposing an adoption model of CRM system in the healthcare industry. Accordingly, this chapter discusses the methodology that supports achieving the research objectives. It includes research design, research procedure, research model, instruments design, and finally, sample selection and data collection.

3.2 Research Design

Research design represents the plan in which the research flow is organized, managed, and accomplished (Shareef, 2009). This study involves quantitative approach. Quantitative research can be used to describe current conditions, investigate relationships, and correlations between variables (Gay, Mills, & Airasian, 2006). The quantitative approach in this study is survey-based type. It is a cross-sectional field study in which the researcher collects the data at one point in time (Creswell, 2008). The following section illustrates the research procedures that explain the research flow.

3.3 Research Procedures

The whole processes in the procedure are summarized in an illustration shown in Figure 3.1.

Phase 1 — Literature review on CRM systems and the Adoption

Phase 2 — Conduct a preliminary study — **Chapter 2**

Phase 3 — Identify CRM system adoption factors

Phase 4
- Construct the research model
- Formulate hypotheses based on the variables in the model
- Design the questionnaire based on the hypotheses
- Using Area sampling: the northern area is selected.
- Using stratified sampling, the member hospitals in APHM[1] that have intention to adopt CRM system in the future are selected
- Pilot study by interviewing General Managers, Marketing Managers, IT Managers, HR Managers, and other managers in order to identify the target respondents
- Using judgment sampling the target respondents are selected based on three criteria:
  - Decision makers
  - Aware of CRM system
  - Have at least two years of experience in decision making
- Pilot test the questionnaire
- Distribute the revised questionnaire — **Chapter 3**
- Analyze the collected data — **Chapter 4**
- Discussion of the results of the study — **Chapter 5 and Chapter 6**
- Report Writing

Note[1]: APHM refer to the Association of Private Hospitals of Malaysia

Figure 3.1 Research Procedure

3.4 Research Model and Hypotheses

The research model is constructed based on a synthesis of two theoretical perspectives; the DOI theory by Rogers (2003) that emphasizes on the adoption process and the characteristics of an innovation and the model of IS innovation by Kwon and Zmud (1987) that emphasizes on a broader context of IS innovations. However, as suggested by the literature (e.g. Fichman, 1992 and Kamal, 2006), the existing theories and models need to be modified and enhanced in order to better investigate and explain current issues and phenomena. Therefore, by synthesizing and modifying the adapted theoretical perspectives, the research model in this study is divided into two parts; dependent and independent factors as shown in Figure 3.2.
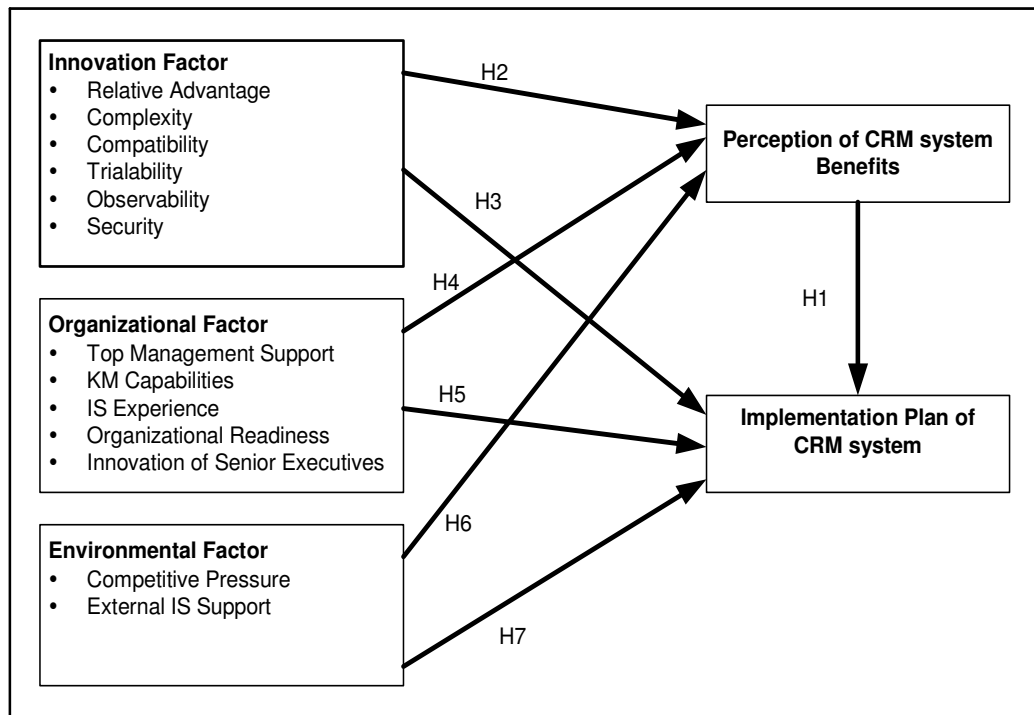
Figure 3.2: Research Model

Based on the research model, the following hypotheses were proposed:

H1: The perception of the CRM system benefits positively influences the implementation plan of the CRM system.

H2: The innovation factor positively influences the perception of the CRM system's benefits.

H3: The innovation factor positively influences the implementation plan of the CRM system.

H4: The organizational factor positively influences the perception of the CRM system's benefits.

H5: The organizational factor positively influences the implementation plan of the CRM system.

H6: The environmental factor positively influences the perception of the CRM system's benefits.

H7: The environmental factor positively influences the implementation plan of the CRM system.

3.5 Questionnaire Design

In this study, the research questionnaire is used to gather data. It is accompanied with a cover letter (Appendix A) illustrating the purpose of the study. The questionnaire (Appendix B) consists of four sections. The first section has two parts; the first part is regarding to the general information of the respondent including their job title, experience, education, gender, and age; the second part is regarding to the general information of the hospital.

The second section contains questions about the perception of the top management of the hospital upon the benefits of the CRM system. This section contains 15 items. The items were constructed based on an extensive review of the literature to measure the perception of CRM system benefits among the hospital's top management. Similarly, the third section contains questions to the top management of the hospital about the CRM system implementation plan. This section consists of 9 items. The items were constructed based on an extensive review of the literature of CRM implementation.

The fourth section consists of sets of items regarding thirteen variables asking the top management of the hospital regarding their perception of the influence of these variables on the perception of the benefits of CRM system and the implementation plan. This section consists of three parts regarding the CRM system characteristics, the hospital characteristics, and the environment characteristics. The first part has six variables. In detail, the variables measure; (1) the relative advantage which is measured by six items; (2) complexity which is measured by five items; (3) compatibility which is measured by four items; (4) trialability which is measured by four items; (5) observability which is measured by three items. The items for these variables are adapted from Moore and Benbasat (1991); and (6) security which is measured by three items adapted from Kevin et al. (2006).

The second part consists of five variables. Specifically, the variables are; (1) Top management support which is measured by four items adapted from Premkumar and Roberts (1999); (2) Knowledge management (KM) capabilities which are measured by six items adapted from Croteau and Li (2003); (3) IS experience which is measured by

three items adapted from Thong (1999); (4) Organizational readiness which is measured by three items adapted from Iacovou et al. (1995) and six items are adapted from Croteau and Li (2003); and (5) Innovation of senior executives which is measured by three items adapted from Thong and Yap (1995). On the other hand, the third part consists of two variables. In particular, the two variables are (1) Competitive pressure which is measured by two items adapted from Premkumar and Roberts (1999) and two items adapted from Premkumar and Ramamurthy (1995); and (2) External IS support which is measured by five items adapted from Premkumar and Roberts (1999).

For sections two to four of the instrument, a 5-point Likert-type scale was used (1-Strongly disagree, 2- Disagree, 3- Neutral, 4- Agree to 5- Strongly agree) to measure all the variables. The 5 point Likert-type scale is recommended to be used to increase the response rate and the response quality, and to decrease the frustration level of the respondents (Babakus & Mangold, 1992).

After the development of the research instrument, the target respondents need to be identified. Therefore, for achieving that, a preliminary study and pilot study were conducted. The next section discusses them thoroughly.

3.6 Preliminary Study and Pilot Study

A preliminary study and pilot study were conducted to help in developing the criteria for selecting the sample and target respondents of the study. During the preliminary study, e-mails were sent to around 60 private hospitals around Malaysia which are listed in the directory of the Association of Private Hospitals of Malaysia (APHM) asking about if

they have a CRM system. Unfortunately, the results revealed that none of them have adopted a CRM system. Therefore, the focus of the study turned into the northern region of Malaysia and on the hospitals that have future plans for the adoption of CRM systems in this region. Hence, e-mails were sent to the 26 private hospitals in the northern region (according to APHM) asking about if they have future plans for the adoption of CRM systems. The results revealed that only 14 hospitals have future plans for the adoption of CRM systems. As a result the first selection criterion is developed and fulfilled which is that the hospital must be in the northern region of Malaysia and have a future plan for the adoption of CRM systems.

On the other hand, a pilot study was conducted to identify the potential target respondents for the study. During the pilot study, interviews were conducted in 10 hospitals out of the 14 hospitals that have future plans for the adoption of CRM systems. In detail, a series of 10 interviews were conducted with; two (2) General Managers, two (2) Marketing Managers, two (2) Customer Relations Managers, one (1) MIS Manager, one (1) Systems Manager, one (1) HR Manager, and one (1) Training Manager. Based on the interviews conducted in the selected hospitals, the top management and senior management including General Managers, Marketing Managers, IT Managers, and HR Managers were found the most probable people to be the target respondents of the study. Those respondents were expected to have the needed information. The next section includes discussions on the sampling plan and identifying the target respondents of the study.

3.7 Sampling Plan

The area sampling method was used to determine the sample of the study. Area sampling is used when the population could be divided into identifiable geographical areas (Sekaran, 2003). Malaysia can be divided into four geographical areas or regions; the northern, the southern, the eastern, and the western areas or regions. The northern region is selected for this study which includes three states; Kedah, Perak, and Penang. Further, the directory of APHM was used to select the hospitals. Altogether, 112 private hospitals are registered as the members of the APHM in Malaysia (APHM, 2010), in which only 26 hospitals are located in the three states, particularly 4 hospitals in Kedah, 9 hospitals in Perak, and 13 hospitals in Penang.

Based on the results of the preliminary study and to meet the criterion of selecting the hospitals that have an intention for the future adoption of CRM systems, stratified sampling method was used to divide the sample into two groups; (1) hospitals intend to adopt CRM system in the future (14 hospitals) and (2) hospitals do not intend to adopt CRM system in the future (12 hospitals).

Apart from the above, purposive sampling method was adopted to define the research sample. It has two types; judgment sampling and quota sampling. This study deployed the judgment sampling. The using of the judgment sampling was in order to meet the selection criteria which are; (i) the respondents must be aware of the CRM systems and (ii) the respondents must be a decision maker and have at least two years of experience in decision making. In addition, based on the pilot study, using the judgment sampling was because not all the management staff have the information needed for this study.

3.8 Data Collection

Having the questionnaire reviewed by a panel of experts and scholars, a pilot study was conducted to identify its reliability. Therefore, 15 questionnaires were distributed for the pilot test of the questionnaire. In this study, SPSS software version 18.0 was used to measure the reliability of the research instruments by calculating the value of Cronbach's Alpha which indicates the internal consistency, which is detailed in Table 3.1. Cronbach's Alpha values greater than 0.60 are considered as acceptable degree of the reliability of the instrument (Hair, Black, Babin, Anderson, & Tatham, 2006).

Table 3.1 The Reliability Results for the Pilot Study

Construct	Cronbach's Alpha
Perception (15 items)	0.852
Implementation Plan (9 items)	0.846
Innovation Factor (25 items)	0.947
Relative Advantage (6 items)	0.918
Complexity (5 items)	0.695
Compatibility (4 items)	0.777
Trialability (4 items)	0.816
Observability (3 items)	0.729
Security (3 items)	0.93
Organizational Factor (25)	0.896
Top management support (4 items)	0.907
Knowledge management (KM) capabilities (6 items)	0.899
IS experience (3 items)	0.711
Organizational readiness (9)	0.863
Innovation of senior executives (3 items)	0.716
Environmental Factor (9 items)	0.866
Competitive pressure (4 items)	0.729
External IS support (5 items)	0.893

3.8.1 Data Handling

After revising the questionnaire based on the pilot study, it was distributed to the study sample. Each person was given one month to complete the questionnaire from 7th January, 2011 to 17th February, 2011. This study contacted the General Managers or the HR managers in the 14 private hospitals in the northern region of Malaysia to invite them to be part of the study. In return, 12 hospitals out of the 14 hospitals agreed to participate

in the study. Altogether, about 148 questionnaires were distributed. At the end of the allocated month, this study managed to gather 72 valid answered questionnaires.

3.9 Data Analysis Procedure

There are several steps for analysing the data including; coding the responses, screening the data, and selecting a proper data analysis strategy (Sekaran, 2000). Data screening involves a set of steps including; dealing with the missing data, treating the outliers, making the descriptive statistics, assessing the normality, making linearity and homoscedascity test, examining multicollinearity, and calculating the correlation and the reliability of constructs. Multiple Regression analysis technique was deployed in this study. It was used to test the correlation between two or more variables as the independent variables and one variable as the dependent variable in many-to-one relationship.

3.10 Chapter Summary

Quantitative methodology that is survey based was used in this study. The research model was developed based on a synthesis of the DOI theory and the model of IS innovation. Based on this model, seven hypotheses were proposed. The study was conducted in private hospitals in Malaysia that have the intention to implement CRM systems in the future. Using the area sampling, the northern region which consists of three states (Kedah, Perak, and Penang) was selected for data collection. Hospitals registered with the APHM are the population of the study, in which there are 112 hospitals in the country with 26 hospitals are in the northern region. From the 26 private hospitals in the northern region of Malaysia, 14 hospitals have future plans for the

implementation of CRM systems which was defined using the stratified sampling method. The units of analysis in the 14 private hospitals were General Managers, Marketing Managers, IT/MIS Managers, HR Managers, and other managers who are aware of CRM systems and have at least two years of experience in decision making and they were selected using judgment sampling. A pilot test of the questionnaire was conducted involving 15 management employees. After the pilot study, 148 questionnaires were distributed to the study sample which was based on a judgment sampling. The collected data was analysed using multiple regression analysis by SPSS (V18.0). The results from the data analysis are discussed in Chapter 4 and Chapter 5.

CHAPTER FOUR
RESULTS

4.1 Introduction

This chapter reports the results of data analysis of the data collected by the survey questionnaires through SPSS version 18. The survey data analysis was conducted through the analysis of the following; the response rate, the profiles of the respondents, data screening including dealing with missing data, normality, and outliers, descriptive statistics, and correlation. The hypotheses were tested using backward multiple regression analysis.

4.2 Response Rate

In this study, 148 questionnaires were distributed to the 12 hospitals that have agreed to participate in the study. Out of this number, 79 questionnaires were returned, giving a response rate of 53%. Table 4.1 summarizes the response rates.

Table 4.1: Summary of Response Rates

Questionnaire Administered	148
Undelivered	69
Delivered	79
No. of Responses	72
Response Rate	53%

4.3 Sample Characteristics

The sample characteristics in this study include nine major variables; Table 4.2 shows

the frequencies and percentage of these variables.

Table 4.2 Sample Characteristics

JOB TITLE	Frequency	Percentage
General Manager	7	9.7
Marketing and Customer Relations Manager	9	12.5
IT manager	7	9.7
HR manager	8	11.1
Others (such as financial managers, purchasing managers, operation managers, and quality assurance managers)	41	56.9
Total	72	100
GENDER	Frequency	Percentage
Male	26	36.1
Female	46	63.9
Total	72	100
EXPERIENCE IN THE CURRENT POSITION	Frequency	Percentage
Less than 2 years	11	15.3
Between 2 and 4 years	21	29.2
Between 5 and 7 years	17	23.6
Between 7 and 10 years	5	6.9
More than 10 years	18	25
Total	72	100
EXPERIENCE IN THE HEALTHCARE INDUSTRY	Frequency	Percentage
Less than 2 years	3	4.2
Between 2and 4 years	5	6.9
Between 5 and 7 years	7	9.7
Between 7 and 10 years	15	20.8
More than 10 years	42	58.3
Total	72	100
EXPERIENCE IN DECISION MAKING	Frequency	Percentage
Less than 2 years	-	-
More than 2 years	72	100
Total	72	100
AGE	Frequency	Percentage

26-35 years	16	22.2
36-45 years	30	41.7
46-55 years	17	23.6
56-65 years	7	9.7
66 and above	2	2.8
Total	72	100
EDUCATION	Frequency	Percentage
Bachelor	66	91.7
Master	5	6.9
PhD	1	1.4
Total	72	100
SIZE (Number of beds)	Frequency	Percentage
50 beds or Less	11 (in 3 hospitals)	15.3
51-100 beds	-	-
101-200 beds	26 (in 4 hospitals)	36.1
201-300 beds	26 (in 4 hospitals)	36.1
301-400 beds	-	-
More than 400 beds	9 (in 1 hospital)	12.5
Total	72 (12 hospitals)	100
MARKET SCOPE	Frequency	Percentage
Local	11 / 2	15.3
Regional	19 /2	26.4
National	6 / 4	8.3
International	36 / 4	50
Total	72 (12 hospitals)	100

Further discussions on the sample characteristics are provided in Chapter 5. The next section discusses on the data screening process in order to clean and prepare the data for further analyses.

4.4 Data Screening

As stated by Pallent (2007), the data screening is processed through checking and correcting the errors in the data file. The first step in the data screening deals with the missing data. In this study, a frequency test was run for every variable which revealed

that the responses to only four questionnaires contained missing data. Therefore, they were excluded from the data analysis.

It is important to find and treat the outliers in the data screening process. The identification and treatment of outliers in the responses is a requirement for any multivariate analysis technique (Hair, Anderson, Tatham, & Black, 1995, 1998). There were two multivariate outliers (cases 21 and 71). Therefore, those two cases were deleted from the data set, leaving a final of 70 dataset to be analyzed.

After the assessment and dealing with the outliers, a normality assessment was conducted. Normality refers to that for most analyses, data should follow the normal distribution in which a stronger assessment can be acquired (Hair et al., 2006). For assessing the normality of data, skewness and kurtosis test was performed. Norman and Streiner (2008) state that the normal range for the values of skewness and kurtosis in which the variables can be considered normally distributed is less than two. As a result, the normality analysis revealed that all the variables and the composite factors are normally distributed.

Linearity and Homoscedasticity are two essential statistical assumptions to be met before conducting any multivariate statistical techniques (Hair et al., 2010). In this study, there was no sign of linearity and Homoscedasticity violation.

Multicollinearity takes place when any single predictor variable is highly correlated with another set of predictor variables (Field, 2009). This study deployed two statistical types

to test the Multicollinearity between the variables; (1) tolerance value and variance inflation factor (VIF) and (2) correlation test (section 4.7). Having analyzed the data in this study, the values of tolerance were found greater than 0.1 and the values of VIF were found less than 10. This explains that there was no Multicollinearity problem among variables.

4.5 Reliability Test

The reliability of the variables and composite factors in the questionnaire was tested using Cronbach's Alpha. Table 4.3 explains that the reliabilities are high except for the IS Experience in which the value of Cronbach's Alpha was acceptable.

Table 4.3 The Reliability Results for the Real Survey

Construct	Cronbach's Alpha Values
Perception of the CRM system benefits (15 items)	0.85
Implementation Plan (9 items)	0.907
Innovation Factor (25 items)	0.941
Relative Advantage (6 items)	0.892
Complexity (5 items)	0.848
Compatibility (4 items)	0.857
Trialability (4 items)	0.87
Observability (3 items)	0.818
Security (3 items)	0.965
Organizational Factor (25 items)	0.932
Top management support (4 items)	0.929
Knowledge management (KM) capabilities (6 items)	0.891
IS experience (3 items)	0.671
Organizational readiness (9 items)	0.904
Innovation of senior executives (3 items)	0.825
Environmental Factor (9 items)	0.911
Competitive pressure (4 items)	0.833
External IS support (5 items)	0.915

Cronbach's Alpha (1.0 Best ;> 0.80 Good; $\geq$0.60 & $\leq$0.80 Acceptable)- Sekaran (2003)

4.6 Descriptive Statistics

The descriptive analysis aims at transforming the raw data that describe a set of factors into information that can be easily understood and interpreted (Sekaran, 2000). This

analysis includes the calculation of means, standard deviation, and frequencies descriptions. The aim of the descriptive analysis was to identify the factors that influence the CRM system adoption process including perception of the CRM system and implementation plan. Table 4.4 shows the descriptive statistics of the main composite factors of the study. It could be seen that the mean values of the perception of the CRM system benefits and the implementation plan factors are high while the mean values for innovation, organizational, and environmental factors are moderate.

Table 4.4   Mean, Standard Deviation, and Variance values of the study composite factors

Factors	Mean		Std. Deviation	Variance
	Statistic	Std. Error	Statistic	Statistic
Perception of the CRM system benefits	4.076	0.049	0.415	0.173
Implementation Plan	4.011	0.067	0.561	0.316
Innovation Factor	3.748	0.050	0.425	0.181
Organizational Factor	3.892	0.050	0.420	0.177
Environmental Factor	3.785	0.074	0.621	0.387

Measurement scale: 1-Strongly Disagree to 5-Strongly Agree
Measurement level: 1-2.49, low; 2.5-3.49, moderate; 3.5-5, high

4.7 Correlation of Constructs

The correlation is used to explain the strength and direction of a linear relationship between two variables (Pallant, 2007). According to Hair et al. (2006), the threshold for the correlation coefficients is less than 0.80. The correlation coefficients (R) of all the research constructs involved in this study are provided in Table 4.5.

Table 4.5 Pearson's Correlations for Independent and Dependent Variables

Correlations					
	Perception of the CRM system benefits	Implementation Plan	Innovation Factor	Organizational Factor	Environmental Factor
Perception of the CRM system benefits	1				

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Implementation Plan	0.409**	1		
Innovation Factor	0.371**	0.462**	1	
Organizational Factor	0.311**	0.418**	0.784**	1
Environmental Factor	0.238*	0.332**	0.515**	0.646**	1

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

4.8 Hypotheses Testing Using Multiple Regressions

4.8.1 Correlation between the Innovation, Organizational, and Environmental Factors with the Perception of CRM system benefits Factor

The hypotheses H2, H4, and H6 were tested using the Backward Multiple Regression Analysis. In conjunction, Tables 4.6 and 4.7 show the results generated from the test for the relationships between the Innovation, Organizational, and Environmental factors with the perception of CRM system benefits factor.

Table 4.6 Summary of Backward Multiple Regression test for the relationships between the Innovation, Organizational, and Environmental factors with the Perception of CRM system benefits factor

Model	R	R^2	Adjusted R^2	Std. Error of the estimation	F	Hypothesis Accepted/ Rejected	Confidence level at 95% Significance
1	0.375[a]	0.140	0.101	0.394	3.592	Accepted	0.018[a]
2	0.375[b]	0.140	0.115	0.391	5.466	Accepted	0.006[b]
3	0.371[c]	0.137	0.125	0.389	10.820	Accepted	0.002[c]

a. Predictors: (Constant), Environmental factor, Innovation factor, Organizational factor.
b. Predictors: (Constant), Environmental factor, Innovation factor.
c. Predictors: (Constant), Innovation factor.
d. Dependent Variable: Perception of CRM system benefits.

Table 4.7 Coefficients of Backward Multiple Regression Analysis for the relationships between Innovation, Organizational, and Environmental factors with the Perception of CRM system benefits factor

Model	Unstandardized	Standardized	t	Confidence level

	Coefficients		Coefficients		at 95%
	B	Str. Error	Beta		Significance
1 (Constant)	2.628	0.493		5.326	0.000
Innovation Factor	0.311	0.174	0.328	1.786	0.079
Organizational Factor	0.015	0.204	0.015	0.072	0.943
Environmental Factor	0.090	0.229	0.059	0.395	0.694
2 (Constant)	2.665	0.483		5.457	0.000
Innovation Factor	0.317	0.125	0.338	2.554	0.013
Environmental Factor	0.089	0.202	0.064	0.484	0.630
3 (Constant)	2.761	0.402		6.861	0.000
Innovation Factor	0.351	0.107	0.371	3.289	0.002

a. Dependent Variable: Perception of the CRM system benefits

All the three generated models from the Backward Multiple Regression show significant relationships between all the factors. Therefore, all hypotheses were accepted. However, only the best model is selected. Model 1 fulfills the selection criteria (as suggested by Miles & Shevlin, 2001) and is preferred in this relationship. Model 1 fits better than the other models with the underlying theories and the literature review.

The results show that the Innovation, Organizational, and Environmental factors have positive significant relationships with the Perception of the benefits of the CRM system. The relationship becomes stronger if the factors are considered all together before the adoption of the CRM system where the R value is 0.375, significant at the 0.018 level. This means the correlation is moderate. Meanwhile, the R^2 (variance explained) value is 0.140, which means that 14.0 percent of the Perception of the benefits of the CRM system are explained by the Innovation, Organizational, and Environmental factors.

4.8.2 Correlation between the Innovation, Organizational, Environmental, and Perception of CRM system benefits Factors with the Implementation Plan Factor

All four hypotheses (H1, H3, H5, and H7) were tested using the Backward Multiple Regression Analysis. In conjunction, Tables 4.8 and 4.9 display the results generated from the test for the relationship between the Innovation, Organizational, Environmental, and Perception of CRM system benefits factors with the Implementation Plan factor.

Table 4.8 Summary of Backward Multiple Regression test for the relationships between the Innovation, Organizational, Environmental, and Perception of CRM system benefits factors with the Implementation Plan factor

Model	R	R^2	Adjusted R^2	Std. Error of the estimation	F	Hypothesis Accepted/ Rejected	Confidence level at 95% Significance
1	0.538[a]	0.290	0.246	0.488	6.631	Accepted	0.000[a]
2	0.537[b]	0.288	0.256	0.485	8.896	Accepted	0.000[b]
3	0.528[c]	0.279	0.257	0.484	12.957	Accepted	0.000[c]

a. Predictors: (Constant), Environmental factor, perception , Innovation factor, Organizational factor
b. Predictors: (Constant), perception, Innovation factor, Organizational factor
c. Predictors: (Constant), perception, Innovation factor
d. Dependent Variable: Implementation plan

Table 4.9 Coefficients of Backward Multiple Regression Analysis for the relationships between the Innovation, Organizational, Environmental, and Perception of CRM system benefits factors with the Implementation Plan factor

Model	Unstandardized Coefficients		Standardized Coefficients	t	Confidence level at 95%
	B	Str. Error	Beta		Significance
1 (Constant)	0.448	0.731		0.613	0.542
Perception of the CRM system benefits Factor	0.364	0.152	0.269	2.386	0.020
Innovation Factor	0.329	0.221	0.257	1.491	0.141
Organizational Factor	0.105	0.252	0.078	0.414	0.680
Environmental Factor	0.176	0.284	0.085	0.621	0.537
2 (Constant)	0.489	0.719		0.680	0.499
Perception of the CRM system benefits Factor	0.364	0.151	0.269	2.405	0.019
Innovation Factor	0.390	0.163	0.305	2.402	0.019
Organizational	0.230	0.251	0.111	0.915	0.364

Factor					
3 (Constant)	0.766	0.652		1.174	0.244
Perception of the CRM system benefits Factor	0.372	0.151	0.275	2.466	0.016
Innovation Factor	0.461	0.143	0.360	3.223	0.002

a. Dependent Variable: Implementation plan

All the three generated models from the Backward Multiple Regression show significant relationships between all the factors. Therefore, all hypotheses are accepted. However, only the best model is selected. Accordingly, this study finds that Model 1 fulfills the selection criteria (as suggested by Miles & Shevlin, 2001) and is preferred in this relationship. Model 1 fits better than the other models with the underlying theories and the literature review.

Additionally, the results also show that the Perception of the CRM system benefits, Innovation, Organizational, and Environmental factors have positive significant relationships with the Implementation Plan of the CRM system. The relationship is stronger if the factors are considered all together before the adoption and implementation of the CRM system. This is because the R value is 0.538, significant at the 0.000 level which implies a high correlation. Further, the R^2 value is 0.29, which explains that 29.0 percent of the Implementation Plan factor explained by the Perception of the CRM system benefits, Innovation, Organizational, and Environmental factors to the Implementation Plan of the CRM system.

4.9 Conclusions

This chapter explains the data analysis utilized in this study. The data analysis started with estimating the response rate which was 53%. Then, the frequencies and percentages

of nine major characteristics of the respondents were calculated. After that, for screening the data, seven questionnaires were excluded; three invalid and four contain missing data, and two outlier cases were deleted. Regarding the normality, all the variables and composite factor were normally distributed. In addition, there was no violation for the assumptions of linearity, homoscedasticity, multicollinearity, reliability, and correlation. The Backward Multiple Regression has been used for testing the hypotheses. The results of the data analysis reveal that the Innovation, Organizational and Environmental factors are positively influencing the perception of the benefits of CRM systems. The findings also reveal that the Perception of the CRM system benefits, Innovation, Organizational, and Environmental factors are positively influencing the Implementation Plan of CRM systems.

CHAPTER FIVE
DISCUSSION

5.1 Introduction

This chapter discusses the results of the study presented in Chapter 4. The discussion starts with the discussion of the sample characteristics and the results of the descriptive statistics. In addition, this chapter discusses the results of the hypotheses testing using the Backward Multiple Regression analyses. Finally, this chapter ends with the implications of the study.

5.2 Discussion of the Sample Characteristics

The sample characteristics, as presented in Table 4.2 (see Chapter 4, page 41) show that the job titles of the respondents are General Managers, Marketing and Customer Relations Managers, IT/MIS Managers, HR Managers, and other managers. The percentages of the categories of their job titles are quite close (from around 10% to 12%) except for the "other manager" category which is 57%. This justifies the selection of the respondents, in which they are considered the most influencing people in making decisions in the organizations. In terms of gender, the majority of the respondents (64%) exhibited in Table 4.2 are female and only 36% are male. Among the respondents, their ages vary from more than 26 years and older. In detail, the majority of the respondents (around 42%) are between 36 and 45 years old. 22% of them are between 26 and 35 years old, while 23% of them are between 46 and 55 years old. In addition, 13% of the respondents are very senior with 10% are between 55 and 65 years old and 3% are older than 65 years old.

Regarding their education, Table 4.2 explains that 91.7% of the respondents have Bachelor degrees. In the remaining, 6.9% have master degrees and 1.4% are PhD holders. In terms of experience, most respondents (58%) have been more than 10 years in the healthcare industry and 25% have been more than ten years in their current position. On the other hand, all the respondents (100%) met the selection criteria of having more than two years of experience in the decision making. These levels of education and experience show that they have the knowledge and understanding of the CRM systems in order to answer the questions in the surveyed questionnaire.

In regards to the number of beds, the table notes that three hospitals have less than 50 beds (15.3% of the respondents), four hospitals have between 101 and 200 beds and between 201 and 300 beds (36.1% of the respondents for each category), while only one hospital occupies more than 400 beds (12.5% of the respondents). On the other hand, the market scopes of the hospitals are as the following; 2 local (15.3% of the respondents), 2 regional (26.4% of the respondents), 4 national (8.3% of the respondents), and 4 international (50% of the respondents).

Further, the next section discusses the results of the descriptive statistics that focus on the mean values of the factors.

5.3 Discussion of the Results from the Descriptive Statistics (Mean Values)

Table 5.1 shows the summary of the mean values for the related factors in the CRM system adoption model. Detailed discussions on the results are provided in the following paragraphs.

Table 5.1 Results Summary of the mean Values for all factors

Factors	Mean	Comments
Perception of CRM system benefits	4.0762	Mean values for the perception of CRM system benefits and implementation plan factors were high.
Implementation plan	4.0111	
Innovation Factor	3.7488	Mean values for the innovation, organizational, and environmental factors were moderate.
Organizational Factor	3.8921	The lowest mean value was for the innovation factor
Environmental Factor	3.7846	

Measurement scale: 1-Strongly Disagree to 5-Strongly Agree
Measurement level: 1-2.49, low; 2.5-3.99, moderate; 4-5, high

After the discussions on the results of the descriptive statistics, the following section discusses the results of the hypotheses testing using the Backward Multiple Regression Analysis.

5.4 Discussion of the Results from Hypotheses Testing using Backward Multiple Regression Analysis

5.4.1 Discussion of Correlation between Innovation, Organizational, and Environmental Factors with Perception Factor

This section includes the discussions of testing the hypotheses H2, H4, and H6.

H2: The innovation factor positively influences the perception of the CRM system's benefits.

Based on the results of the Backward Multiple Regression Analysis, H2 is supported indicating a positive relationship between the innovation factor and the perception of the CRM system benefits factor. These findings are consistent with the DOI theory by Rogers (2003) who relates the perception (persuasion) of innovation to the innovation characteristics including; relative advantage, complexity, compatibility, trialability, and

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observability. However, in addition to these five characteristics, this study suggests the security characteristics to be added to the innovation factor.

H4: The organizational factor positively influences the perception of the CRM system's benefits.

The results of the data analyses also supported H4, which means there is a positive relationship between the organizational factor and the perception of the CRM system benefits factor. As stated earlier in Chapter 4, there is lack of studies on the perception of CRM systems in organizations. Among the few studies that have investigated the factors that may influence on the perception of the benefits of CRM systems, a study by Ko et al. (2008). They have investigated the influence of the organizational characteristics including; firm size, organizational strategy, maturity of information system, product category, fashion position, seasonality, and CEO's age. They found a significant relationship between the organizational characteristics and the perception of CRM benefits. However, the investigated organizational characteristics in this study are different from the organizational characteristics in the study of Ko et al. (2008); these findings are consistent with the results of this study which found a significant relationship between the organizational characteristics and the perception of the benefits of CRM systems.

H6: The environmental factor positively influences the perception of the CRM system's benefits.

The results of the Backward Multiple Regression Analysis revealed a positive relationship between the environmental factor and the perception of the CRM system

benefits factor which means H6 is also supported. This shows that more competitive pressure and more external IS support leads for more perception of the benefits of the CRM systems in hospitals. In conjunction, this contributes in increasing the awareness of the decision makers in hospitals regarding the adoption of CRM systems in order to deal with the existing fierce competition in the healthcare industry. In addition, it gives the decision makers in hospitals the positive perception towards the availability of all the support needed for the adoption and implementation of CRM systems. Hence, the competition provokes the decision makers in hospitals towards looking for solutions to face the competitors.

As a result, there were three hypotheses (H2, H4, and H6) formulated between innovation, organizational, and environmental factors with perception of the CRM system benefits factor. The results of the Backward Multiple Regression as shown in Tables 4.6 and 4.7 revealed that the level of the decision makers perception of the benefits of CRM system was high (4.063), with the highest power contributed (beta value) by the innovation factor (32.8 percent). The highest mean value of the innovation factor was to the Relative Advantage variable (mean value = 3.998). The analysis using the Backward Multiple Regression showed that the innovation, organizational, and environmental factors have positive relationship to the perception of the benefits of CRM system, which means the three hypotheses (H2, H4, and H6) were accepted.

5.4.2 Discussion of Correlation between Innovation, Organizational, Environmental, and Perception Factors with Implementation Plan Factor

This section includes the discussions of testing the hypotheses H1, H3, H5, and H7.

H1: The perception of the CRM system benefits positively influences the implementation plan of the CRM system.

The data analyses have shown a positive relationship between the perception of the CRM system benefits factor and the implementation plan factor. This means the greater perception of the benefits of the CRM systems will positively influence the implementation plan of the CRM systems. Hence, H1 is supported. These findings are consistent with the suggestion of Rogers (2003) who stated that the perception of the benefits of the innovation precedes its adoption and once the understanding and the persuasion of the innovation is acquired the innovation will be adopted and implemented. The same results is obtained by Alshawi et al. (2011) who found the perceived benefits of the CRM systems as a main contributor to its adoption. These findings show the importance of the creating positive perception of the benefits of the CRM system among the decision makers in order to encourage them to support and embrace the idea of the CRM system implementation.

H3: The innovation factor positively influences the implementation plan of the CRM system.

H3 is supported based on the results of the Backward Multiple Regression Analysis. Therefore, there is a positive relationship between the innovation factor and the implementation plan factor.

There is a variation of the results of the study with the previous studies. The results was consistence in some variables and different in the other variables with the findings of previous studies on the adoption of CRM systems. Hung et al. (2010) have studied the

characteristics of CRM system and found a significant role of the relative advantage and an obscure influence of the complexity of the CRM systems to the CRM system adoption in the hospitals. These findings was consistence with this study findings in terms of the relative advantage and different in terms of the complexity where it has a significant influence. Moreover, Ramdani et al. (2009) found that the relative advantage and the trialability of the enterprise systems (ES) such as CRM systems have a significant influence on the adoption of enterprise systems by organizations which was consistence with the findings of this study. On the other hand, they found no evidence of the influence of complexity, compatibility, and observability which differs from the findings of this study. The results of this study are consistent with previous works for the significant influence of relative advantage on the organizational adoption of IS (e.g. Iacovou et al., 1995). For the compatibility, the results are inconsistent with the results from a study by Grandon and Pearson (2004) who found no evidence of the influence of the variable on the organizational adoption of ES.

H5: The organizational factor positively influences the implementation plan of the CRM system.

The results of the Backward Multiple Regression Analysis revealed a positive relationship between the organizational factor and the implementation plan factor which means H5 is also supported.

Hung et al. (2010) have studied the influence of the organizational factor on the hospitals' adoption of CRM systems and found significant influence of the innovation of senior executives, the IS capabilities of staff, and knowledge management capabilities on

the CRM systems adoption in the hospitals which was consistence with the findings of this study. Ramdani et al. (2009) have studied the influence of the organizational factor on the organizational adoption of enterprise systems such as CRM and found that the top management support and the organizational readiness have significant influence on the organizational adoption of the enterprise systems which was consistence with the findings of this study. On the other hand, they found no evidence of the influence of the organizational IS experience which differs from the findings of this study. In addition, the findings of this study were consistent with the results of Ko et al. (2008) who found a significant relationship between the organizational characteristic and implementation of CRM. For the top management support, the results are consistent with the results from previous researches (e.g. Premkumar & Roberts, 1999, Premkumar, 2003). The results are consistent with previous researches for the organizational readiness (e.g. Iacovou et al., 1995). Moreover, Garrido-Moreno and Padilla-Melendes (2011) found a positive significant influence of the organizational factor on the successful implementation of CRM which is consistent with the results of this study.

H7: The environmental factor will positively influence the implementation plan of the CRM system.

The results of the Backward Multiple Regression Analysis revealed a positive relationship between the environmental factor and the implementation plan factor which means H7 is also supported.

Ramdani et al. (2009) have studied the influence of the environmental factor on the organizational adoption of the enterprise systems such as CRM systems and found no

evidence of the influence of the competitive pressure and the external IS support on the organizational adoption of the enterprise systems such as CRM systems. These findings were inconsistent with the findings of this study which found a significant influence of the environmental factor on the implementation plan of CRM systems. Moreover, the results of this study are also inconsistent with results of the study of Thong (1999) who found no evidence of the influence of the environmental factor of competitive pressure on the adoption of IS by organizations. On the contrary, Alshawi et al. (2011) found an effect of the competitive pressure on the implementation of CRM systems.

As a result, there were four hypotheses (H1, H3, H5, and H7) formulated between innovation, organizational, environmental, and perception of the CRM system benefits factors with implementation plan factor. The results of the Backward Multiple Regression revealed that the level of the decision makers agreement on the implementation plan of CRM systems was moderate (3.023), with the highest power contributed (beta value) by the perception factor (26.9 percent). The highest mean value of the perception factor was to "Good marketing strategy for the hospital through the positive word-of-mouth variable (mean value = 4.49)". The analysis using the Backward Multiple Regression showed that the innovation, organizational, environmental, and perception of the CRM system benefits factors have positive relationship to the decision makers' agreement on the implementation plan of CRM systems, which means the four hypotheses (H1, H3, H5, and H7) were accepted. These findings are also consistent with the Model of IS innovation by Kwon and Zmud (1987) who relate the adoption and implementation of an innovation to the innovation, organizational, and environmental factors.

The results of this study provide many indications and implications to the different parties influencing the adoption and implementation of the CRM systems in hospitals. The next section discusses on the implications of this study.

5.5 Implications of the Study

This study provides several implications to the healthcare organizations, the customers, the users of CRM systems, the country, and the vendors of CRM systems.

5.5.1 Implications for the Hospitals

This research has several implications for the hospitals. First, the CRM systems can enable the hospitals to build mutual beneficial relationships with customers. By deploying the CRM systems, the hospitals will be able to manage their relationships with the customers more effectively by providing timely information and quick responses. Second, the results revealed a high level of the perception of the CRM system benefits to hospitals. The adoption of the CRM systems by hospitals will provide successful solutions for major problems in hospitals.

5.5.2 Implications for the Customers of Healthcare Services

The implications for customers will become tangible after the adoption and implementation of the CRM systems in hospitals. The handling and dealing with customers' complaints will be performed effectively and efficiently. Customers will receive more education regarding their diseases and on how to deal with them. In addition, customers will be helped to manage and remember their important medical appointments and tests. The feeling of recognition by customers will be enhanced. Thus,

the quality of health services provided to customers will be enhanced and the satisfaction and loyalty of customers will be increased.

5.5.3 Implications for the Users of CRM Systems

Based on the findings of this study, the innovation factor has a positive relationship to the perception of the CRM systems benefits and the implementation plan of the CRM systems in hospitals. The relative advantage was the highest contributor to the innovation factor. The results revealed a highly moderate level for the relative advantage of the CRM systems to the users. The users of the CRM systems including physicians, nurses, administrators, and technicians will benefit from its deployment in hospitals in different ways. First, it will enable the effective management of their relationships with customers. Second, it will enable the users to efficiently and effectively handle the complaints of customers. Third, it will contribute in facilitating and improving the process of customers' education. Fourth, it will improve the decision making process of users and increase the speed and accuracy of their responses to customers.

5.5.4 Implications for the Country and Government

There are two implications of this study for Malaysia and the government. First, in order to increase the competitive advantage of the private hospitals in Malaysia, they have to adopt and implement the CRM systems. Therefore, the Malaysian government should provide some kinds of incentives to the private hospitals in Malaysia in order to encourage them to adopt and implement the CRM systems. Second, the deployment of the CRM systems will enhance the quality of the health services provided to the local customers or the Malaysian citizens which will increase their quality of life. Therefore,

the government could hold some kinds of training, workshops, or conferences in order to spread and communicate the main benefits and capabilities of the CRM systems to hospitals.

5.5.5 Implications for the Vendors of CRM Systems

This study provides several implications for the vendors and developers of the CRM systems. Among these implications, the vendors of the CRM systems have to improve their marketing strategies. This will help them to expand their market in the healthcare organizations. Further, vendors should give great attention during the system design to; (i) the complexity of the systems and the issues of ease of use, the compatibility of the systems with the hospitals IS, (ii) the issues of observability and trialability of the system, and (iii) the different aspects of the security and privacy issues of the system regarding the hospitals and customers information. Another issue that must be handled is the high prices of the CRM systems which creates an obstacle for the adoption of CRM systems by hospitals, especially the small hospitals. Therefore, vendors and developers of the CRM systems should offer the CRM systems at reasonable prices in order to enable hospitals to adopt and implement them.

5.6 Conclusion

Based on the results in Chapter 4, discussions on the sample characteristics, the descriptive statistics, and the multiple regression analysis are provided in this chapter. The mean values for the perception of the CRM systems benefits and the implementation plan were high while, the mean values for the innovation, organizational, and environmental factor were moderate.

Based on the results of the backward multiple regression analysis, it can be concluded that the factors constituting the CRM systems adoption model in the hospitals are Perception of CRM the system benefits, Implementation Plan, Innovation, Organizational, and Environmental factors. This model is constructed based on the analysis of data collected from the decision makers of the private hospitals in the northern part of Malaysia. Further, this model is expected to help and facilitate the planning for the adoption and implementation of CRM systems in the hospitals.

This study has many implications to the healthcare organizations, the customers, the users, the country and the government, and the vendors of CRM systems. These implications justify the motivation for conducting the study. In addition, the implications turn the attention of the parties involved of or affected by the adoption of CRM systems to very important issues. Among the implications, for example, emphasizing on the roles of CRM systems in helping the hospitals to solve major problems, and encouraging the vendors of CRM systems to improve their marketing strategies to expand their market to the hospitals and to produce the CRM systems at reasonable prices.

CHAPTER SIX
CONCLUSION

6.1 Introduction

This study is conducted to identify the current state of the private hospitals in Malaysia regarding the perception, adoption and implementation of CRM systems. In addition, it was conducted to determine the factors that influenced the adoption process of CRM systems in the private hospitals in Malaysia in order to construct an adoption model for CRM systems in the healthcare industry.

The rest of the chapter provides a summary of the major findings of this study. It includes a discussion of the achievement of the research objectives, a summary of the research contributions, the research limitations, suggestions for the future research, and finally the conclusions.

6.2 Discussions on the Achievement of the Research Objectives

6.2.1 The CRM system Adoption process in the Private Hospitals in Malaysia

The first objective is to identify the CRM system adoption process in the private hospitals in Malaysia. When data were analysed, they revealed that there is a high level of perception of the benefits of CRM systems in the private hospitals in the northern region of Malaysia. Regarding the adoption of CRM systems, there has no hospital been adopting the CRM system which means, there is no implementation for the CRM systems in these hospitals. However, the investigated hospitals have shown intentions for the future adoption of CRM systems.

6.2.2 The Factors that Affect the CRM system Adoption in the Private Hospitals in Malaysia

The second research objective is to investigate the factors that potentially affect the CRM system adoption in private hospitals in Malaysia. The results identified factors and their constituted variables that influence the adoption of the CRM systems in private hospitals in Malaysia. The factors are Innovation, Organizational, Environmental, Perception of the CRM system benefits, and Implementation Plan factors.

6.2.3 The Adoption Model of CRM System in the Private Hospitals in Malaysia

The third research objective is to propose an adoption model of CRM system in the private hospitals in Malaysia. The relationships between the identified factors were tested using Multiple Regression Analysis. The relationships among factors were represented by seven hypotheses. The results have proven that all the seven proposed positive relationships are accepted. Table 6.1 shows the results summary of the hypotheses testing among the factors that constitute the research model.

Table 6.1 Results Summary of the Accepted Hypotheses between the Factors in the Research Model

Hypotheses	Variance (R^2)	Accepted/Rejected
H2: The innovation factor positively influences the perception of the CRM system's benefits.		Accepted
H4: The organizational factor positively influences the perception of the CRM system's benefits.	0.140	Accepted
H6: The environmental factor positively influences the perception of the CRM system's benefits.		Accepted
H1: The perception of CRM system benefits positively influences the implementation plan of CRM system.		Accepted
H3: The innovation factor positively influences the implementation plan of the CRM system.		Accepted
H5: The organizational factor positively influences the implementation plan of the CRM system.	0.290	Accepted
H7: The environmental factor positively influences the implementation plan of the CRM system.		Accepted

6.2.4 The Adoption Level of CRM Systems in the Private Hospitals in Malaysia

The fourth objective is to identify the adoption level of CRM system in the private hospitals in Malaysia. Unfortunately, there was no hospital that has adopted the CRM system in the private hospitals in Malaysia.

By accomplishing these four sub-objectives, the main objective of this study has been achieved which is to construct an adoption model of CRM systems in the healthcare industry. By conducting the data analysis and based on the accepted hypotheses, this study managed to visualize the relationships and correlations among the five factors as illustrated in Figure 6.1.
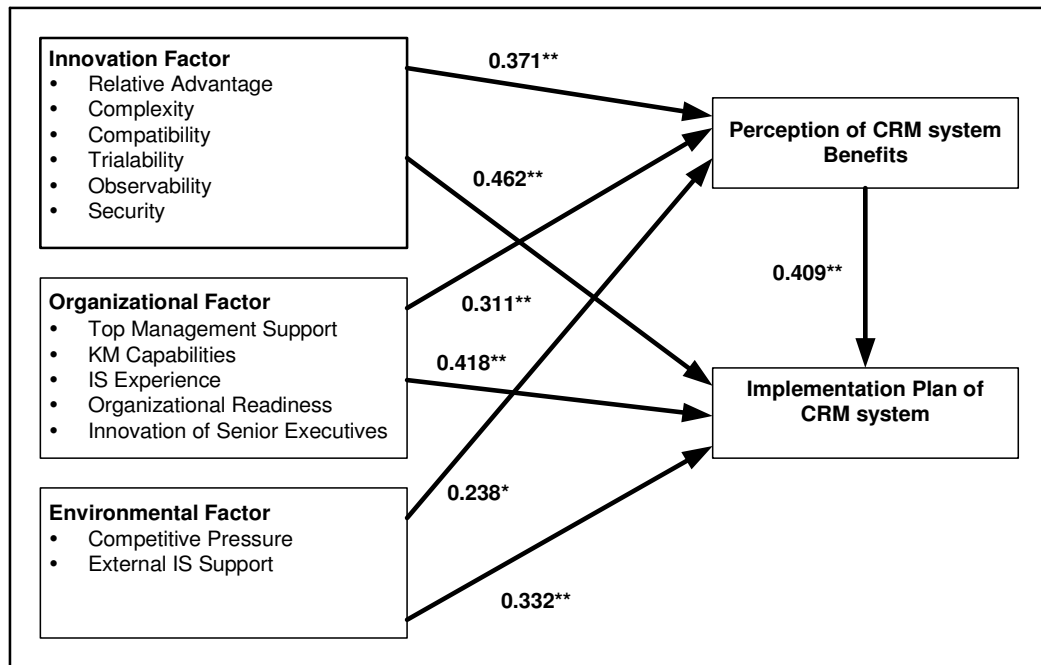
** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Figure 6.1 The Adoption Model of CRM systems in the Healthcare Industry

6.3 Contributions of the Research

The contributions of this study can be divided into three; theoretical contributions, practical contributions, and methodological contributions.

6.3.1 Theoretical Contributions

The most important contribution of the research is toward the theoretical knowledge in the adoption of innovations and the theory of IS innovation. The proposed adoption model of the CRM systems is an alternative model that explains the adoption of an innovation through two phases process; perception of the CRM system benefits and implementation plan and relates these two phases to three factors, Innovation, Organizational and Environmental factors. At the organizational-level adoption of innovations, this model provides a broader understanding and more generic sense for the adoption of innovations. Hence, it could be applied in the adoption of different IS/IT innovations or the adoption of CRM system in different industries.

The proposed model contributes to the theories of the adoption of IS innovations by; (i) suggesting the adoption of an innovation as sequence of stages (from perception to implementation) rather than a single stage (adoption or implementation), (ii) enhancing the DOI theory by adding the organizational and the environmental contexts to the theory, and (iii) modifying the variables in the organizational and the environmental contexts proposed by Kwon and Zmud (1987) in order to investigate different variables at the organizational-level adoption of innovation.

The study contributes to the literature by identifying the influence of the innovation characteristics at the organizational-level adoption of innovations. In addition, this study contributes to the theory by adding the security variable to the defined five characteristics for an innovation by Rogers (2003). The security represents the confidentiality and privacy of the data and transactions of the customers and the organizations. In the matter of fact, the security of the customers' data in hospitals is very important for customers and plays a vital role in their satisfaction and loyalty to the healthcare provider.

6.3.2 Practical Contributions

This study contributes to the knowledge regarding CRM related to the adoption model of the CRM systems in the hospitals. The proposed adoption model in this study aims at increasing and enhancing the adoption of the CRM systems by hospitals. This study also contributes in increasing the understanding of the status of the CRM systems in the healthcare organizations and provides better insights towards the main factors that influence the adoption of CRM systems in private hospitals in Malaysia.

Additionally, this study contributes to the hospitals in providing a set of adoption guidelines of the CRM system in order to plan successfully for the implementation of the CRM systems. Firstly, before implementing the CRM systems in a hospital, the management of the hospital has to give a great attention towards the communicating and sharing the understanding within the hospitals regarding the main benefits of the systems to all parties in the hospital. Secondly, during the planning for the implementation of CRM systems, the nine items that have been used for operationalizing the

Implementation Plan Factor could be used as guidelines to ensure the successful planning for the implementation of the CRM system. The results of this study showed a moderate level of agreement of the decision makers in the investigated hospitals regarding the usefulness of these guidelines in the planning for the implementation of CRM systems in hospitals. Therefore, these guidelines are expected to provide great help for the potential adopters of CRM systems in the healthcare industry.

6.3.3 Methodological Contributions

The methodological contributions represent in the development of the measurement items of the Perception of the CRM system benefits and Implementation Plan factors. These items have been developed involving an extensive review of the literatures and have been reviewed and validated by specialized personnel in the CRM and IT disciplines. Future studies may adapt or adopt these items to measure the perception or the implementation plan factors in the same industry or under different circumstances such as in the public hospitals.

6.4 Limitations of the Research

The adoption of CRM systems is important for the private and public hospitals. The study was conducted only in the private hospitals that are profit-oriented. Therefore, the replication of this work in the public hospitals that are customer-satisfaction oriented will be necessary for the generalization of the study findings to the healthcare industry.

The successful adoption and implementation of CRM systems is affected by the decision makers and the actual users of the system. This study concerned about the

organizational-level rather than the individual-level adoption of the CRM systems in hospitals. Therefore, the focus of this study was on the decision makers and their opinions towards the adoption process of CRM systems and the factors that may influence on it.

Because the model proposed in this study was validated in hospitals that do not adopt the CRM systems, it would be necessary to validate the model in hospitals that adopt the CRM systems. In addition, the study has followed cross-sectional research design in which it is conducted at a single point of time. The nature of this kind of studies limits the full understanding of the influence of the investigated factors on the adoption process. Therefore, this study recommends the future investigation of these factors on the adoption process by a longitudinal study in order to gain further understanding of the influence of the investigated factors on the adoption process of CRM systems in hospitals.

Another limitation of the study is the small number of respondents of the study which limits the ability to conduct some kinds of tests such as the factor analysis. In addition, it limits the ability to use the Structural Equation Modelling (SEM) technique of analysis, in which better validation results of the research model could be provided.

6.5 Directions for Future Research

In the future, there are several directions for the researchers to follow. First, the model could be enhanced to include the individual and the task factors in order to investigate the individual-level adoption of the CRM systems in hospitals. Second, the adoption process could be enhanced to include other stages such as the knowledge stage, the

decision stage, or the confirmation stage which may provide a better explanation ability of the research model. The future studies may also try to find and study the potential moderators or mediators between the stages of the CRM systems adoption process. Third, the future research should attempt to use additional theories such as TPB, TTF, or TAM in order to enhance the proposed adoption model of the CRM systems. Fourth, the model can be tested in the public hospitals on the basis of customer satisfaction orientation rather than profit orientation. In the public hospitals context of customer satisfaction, the model could be enhanced by excluding the competitive pressure variable and including the governmental support variable to the research model. Fifth, the future research may deploy different analysis techniques such as SEM or Partial Least Square (PLS) techniques in order to strengthen the validation process of the research model.

6.6 Conclusions

The study has achieved its research objectives to construct the adoption model of the CRM systems in the hospitals. It has been developed and validated by robust statistical analyses. The results generated based on the proposed adoption model of the CRM systems in the hospitals can be used as an empirical evidence for the decision makers in the hospitals to provide a plan for the successful adoption and implementation of the CRM systems in hospitals. The results also can help the vendors and developers of the CRM systems to enhance the existing CRM systems in order to meet the requirements and needs of the hospitals.

The research makes several contributions to the CRM domain, especially to the knowledge of the adoption of the CRM systems in hospitals. The empirical support

suggests that the factors determining the CRM systems adoption include Innovation, Organizational, and Environmental which are related to the perception of the benefits of the CRM systems and to the implementation plan of the CRM systems. These findings lead to the construction of the adoption model of the CRM systems in the hospitals that is composed of the innovation, organizational, environmental, and the perception of the CRM system benefits and implementation plan.

The relationships between the factors in the research model are proven significant using Backward Multiple Regression analysis. The validation of the model was conducted in private hospitals which slightly limits the study. The study was also limited to the organizational-level adoption of the CRM systems. Another limitation is the utilization of cross-sectional research design. These limitations could be solved in the future research as suggested at the last section of this chapter. The study could be replicated in the public hospitals, could follow a longitudinal research design, or could focus on the individual-level adoption of CRM systems in hospitals.

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Appendix A
The Questionnaire Cover Letter

Dear Respondent,

Thank you for participating in our research study. We would appreciate your taking a few minutes of your time to answer the questionnaire. The purposes of this research are to analyse your perception towards Customer Relationship Management (CRM) systems benefits and the CRM systems implementation plan, and to find out the variables that play a significant role in the CRM system adoption process.

There are no personal risks greater than those encountered in daily life by participating in this study. The data collected from this survey will be used for education and research purposes only. Your participation is completely VOLUNTARY and ANONYOMOUS. The information will be kept strictly CONFIDENTIAL. You may exit this survey anytime you want.

If you have any further questions about this study, please contact the principle investigator, Khalid Ali Rababah, a PhD Candidate in the College of Arts and Science at University Utara Malaysia. Phone (+60136069163), (email: Khalid_Rababah@yahoo.com). Alternatively, you may contact Dr. Haslina Mohd, (email: Haslina@uum.edu.my) about the research compliance of the project.

Thank you for your precious participation.

Sincerely,

Khalid Ali Rababah
PhD Candidate

Appendix B

The Survey Questionnaire

Part 1: General Information

These questions are for the classification purposes only. Answers to the following questions are important for our research, and will be kept confidential.

Part 1A: Demographic Information of the Respondents

1. What is your job title?

☐ CIO ☐ CEO ☐ CFO ☐ COO

☐ General Manager ☐ Marketing and Customer Relation Manager

☐ HR Manager ☐ IT/MIS Manager

☐ Others, please specify _____.

2. Gender: ☐ Male ☐ Female

3. How long have you been working in the current position?

☐ Less than 2 years ☐ Between 2-4 years ☐ Between 5-7 years

☐ Between 7-10 years ☐ More than 10 years

4. How long have you been working in the Healthcare Industry?

☐ Less than 2 years ☐ Between 2-4 years ☐ Between 5-7 years

☐ Between 7-10 years ☐ More than 10 years

5. Your experience in decision making:

☐ Less than 2 years ☐ More than 2 years

6. Please check the highest level of education that you have obtained.

☐ High school ☐ College ☐ Bachelor

☐ Master ☐ PhD

☐ Others, please specify _____.

7. Your age:

☐ 25 or less ☐ 26-35 ☐ 36-45

☐ ☐ 85 ☐

46-55   **56-65**   **66 and above**

Part 1B: General Information of the Hospital

1. How many beds are there in the hospital?

☐ **50 or Less**   ☐ **51-100**   ☐ **101-200**

☐ **201-300**   ☐ **301-400**   ☐ **More than 400**

2. How wide is the market area of your hospital?

☐ **Local**   ☐ **Regional**   ☐ **National**   ☐ **International**

Part 2: The Perception of the benefits of CRM systems

Perception refers to the understanding and persuasion of the benefits associated with the adoption and implementation of the CRM systems.

Instruction: In answering, please use the following scale and select the number that best represent your opinion.

1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly Agree

1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly Agree					
	1	2	3	4	5
1. The CRM system will help the hospital increase the customer's lifetime value (LTV).					
2. The CRM system will help the hospital increase the customer satisfaction.					
3. The CRM system will help the hospital reduce the cost of the acquisition of new customers.					
4. The good relationship with the customer is a good marketing strategy for the hospital through the positive word-of-mouth.					
5. Building a good relationship with the customer will encourage him to visit the hospital more and more.					
6. The CRM system will help the hospital increase its profitability.					
7. The CRM system will help the hospital gain a competitive edge.					
8. The CRM system will enable the hospital to increase customer loyalty.					
9. The CRM system will shorten the hospital's customer support and service cycle.					
10. The CRM system will shorten the hospital's marketing cycle.					
11. The CRM system will enable the hospital to improve the operational efficiency and productivity.					
12. The CRM system will help the hospital decrease costs related to all customer-related activities.					
13. The CRM system will enable the hospital to improve the understanding among customers.					
14. The CRM system insures the availability of strategic business decisions that model and predict the future customer satisfaction and					

customer behaviour.					
15. The CRM system will enhance the quality of communications between the hospital and its customers.					

Part 3: The Implementation Plan of CRM system

Instruction: In answering, please use the following scale and select the number that best represent your opinion.

1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly Agree

1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly Agree					
	1	2	3	4	5
1. The future implementation of the CRM system in this hospital will be based on proper guidelines provided by the ministry of health/ top management.					
2. The hospital will have a clear training plan for the end users on the CRM technologies.					
3. The CRM strategy will be embedded within the hospital vision.					
4. The implementation of the CRM system will be based on the technologically readiness assessment of the hospital.					
5. The end users will be involved in the design and development of the CRM system.					
6. The implementation of the CRM system will be based on phased rollout schedule.					
7. The CRM system will be integrated well with the other information systems in the hospital.					
8. There will be a champion available all the time to support the CRM system's implementation.					
9. There will be measurement systems and metrics for measuring the CRM system's effectiveness.					

Part 4: Factors affecting the CRM system adoption process

Instruction: In answering, please use the following scale and select the number that best represent your opinion.

1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly Agree

1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly Agree					
	1	2	3	4	5
Innovation Factor					
Relative Advantage					
1. I believe using the CRM system will enable the employees to accomplish their tasks more quickly.					

2. I believe using the CRM system will improve the quality of work the employees do.					
3. I believe using the CRM system will make it easier for the employees to do their work.					
4. I believe using the CRM system will improve the performance of the employees.					
5. I believe using the CRM system will enhance the effectiveness of the employees.					
6. I believe using the CRM system will increase the productivity of the employees.					
Complexity					
7. I believe the CRM system will be cumbersome to use by the employees.					
8. I believe it will be easy for the employees to remember how to perform their tasks using the CRM system.					
9. I believe using the CRM system will require a lot of mental effort.					
10. Overall, I believe the CRM system will be easy to use by the employees.					
11. I believe learning to operate the CRM system will be easy for the employees.					
Compatibility					
12. I believe using the CRM system will be compatible with all aspects of the employees' work.					
13. I believe using the CRM system will be completely compatible with the employees' current situation.					
14. I believe using the CRM system will fit well with the way the employees like to work.					
15. I believe using the CRM system will fit into the employees work style.					
Trialability					
16. I believe my employees will have a great deal of opportunity to try the various CRM system applications.					
17. I believe the CRM system will be available for my employees to adequately test run various applications.					
18. I believe my employees will be permitted to use the CRM system on a trial basis long enough to see what it could do.					
19. I believe my employees will be able to experiment with the CRM system as necessary.					
Observability					
20. I could see what others hospitals do using their CRM system.					
21. I could see the CRM system in use outside my hospital.					
22. I could have a plenty of opportunity to see the CRM system being used in others hospitals.					
Security					
23. The security of the CRM system for the hospital's data and transactions will affect its adoption.					
24. The security of the CRM system for the customers' data will affect its adoption.					

25. The privacy of the CRM system for the customers' data will affect its adoption.					
Organizational Factor					
Top Management Support					
26. The owner or manager enthusiastically supports the adoption of the CRM system.					
27. The owner or manger will allocate adequate resources to the adoption of the CRM system.					
28. The top management is aware of the benefits of the CRM system.					
29. The top management will actively encourage employees to use the CRM system in their daily tasks.					
Knowledge Management Capabilities					
30. The hospital is able to provide fast customer response because of the integrated customer knowledge across several functional areas.					
31. The hospital is able to provide fast decision-making due to customer knowledge availability.					
32. The hospital is able to provide fast decision-making due to knowledge precision.					
33. The hospital can provide authentic customer information for quick and accurate customer interaction.					
34. The hospital can provide authentic product and services information for quick and accurate customer interaction.					
35. The hospital can generally predict the future customers' expectations.					
Information System Experience					
36. My employees are all computer-literate.					
37. There is at least one employee who is a computer expert.					
38. I would rate my employees' understanding of computers as very good compared with other hospitals in the healthcare industry.					
Organizational Readiness					
39. The hospital is able to pay the installation cost of the CRM system.					
40. The hospital is able to pay for the implementation of any subsequent enhancements for the CRM system.					
41. The hospital is able to handle the ongoing expenses during the usage of the CRM system.					
42. The hospital possesses a good information system infrastructure.					
43. The hospital possesses a good telecommunication infrastructure.					
44. The hospital's information systems are integrated across several functional areas.					
45. The hospital possesses the necessary infrastructure to capture customer data from all customer interaction points.					
46. The hospital has the ability to consolidate all acquired customer-related data in a centralized database.					
47. Data-sharing technologies to enable data access between					

information systems are available.					
Innovation of Senior Executives					
48. Senior executives have original ideas.					
49. Senior executives would sooner create something new than improve something existing.					
50. Senior executives often risk doing things differently.					
Environmental Factor					
Competitive Pressure					
51. We believe we will lose our customers to our competitors if we do not adopt the CRM system.					
52. We feel it is a strategic necessity to use the CRM system to compete in the marketplace.					
53. There are pressures to use the CRM system to meet partner's requirements.					
54. There are pressures from the industry to use the CRM system as a standard for managing the relationship with customers.					
External Information Systems Support					
55. There are businesses in the community which provide technical support for effective use of the CRM systems.					
56. Community agencies provide incentives for the adoption of the CRM system.					
57. There are agencies in the community who provide training on the CRM systems.					
58. Technology vendors actively market the CRM systems by providing incentives for each adoption.					
59. Technology vendors promote the CRM systems by offering free training sessions.					