

HOSPITAL PERCEPTION OF A CRM SYSTEM: A STUDY OF CRITICAL FACTORS IN PRIVATE HOSPITALS IN MALAYSIA

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ABSTRACT

The aim of this study was to identify the factors that might influence perception about the benefits of a Customer Relationship Management (CRM) system, and the direction of this influence in private hospitals in Malaysia. Three factors (innovation, organizational, and environmental factors) were identified as influencing perception about the benefits of a CRM system. The study deployed a quantitative research approach, using a questionnaire to collect data. Private hospitals in the northern part of Malaysia were selected using the area sampling method and convenience sampling, and the management of the hospitals became the target respondents. For the survey, the research questionnaire was distributed to the sample of the study and each respondent was given a month to complete the questionnaire. The collected data was analyzed using Backward Multiple Regression Analysis. The results revealed that innovation and environmental factors had a positive significant relationship on perception, while the organizational factor had a significant negative relationship. The results are expected to help the decision makers of hospitals to better plan for the adoption and implementation of CRM systems. In addition, it will benefit the vendors of CRM systems toward a better understanding of the needs of hospitals to be able to expand their market in the healthcare industry.

Keywords: Customer relationship management, CRM system, perception, innovation.

INTRODUCTION

Customer Relationship Management (CRM) systems promise several benefits to hospitals, such as improving customer satisfaction and loyalty, and increasing competitiveness and revenues. Naidu et al. (1999) articulated that hospitals could establish relationships with their customers or collaborate with other partners such as the suppliers, other hospitals, or specialized healthcare providers to improve their service delivery to customers. Hospitals as the major healthcare units are highly dependent on direct contact with the customers. Adopting CRM as an information system innovation will help hospitals to gain benefits from the CRM capabilities in managing their relationship with the customers. On the other hand, previous studies have reported that there is minimum adoption of CRM systems in hospitals. For example, Raisinghani, Tan, Untama, Weiershaus, Levermann & Verdeflor (2005) reported that no hospitals in Germany adopted a CRM system until 2005. In Taiwan, only 41% hospitals have adopted CRM systems and 59% do not (Hung, Hung, Tsai & Jiang 2010). The perception of CRM by organizations is still vague and unclear (Plakoyiannaki, 2005). In addition, there is a lack of studies about the CRM perception by organizational members (Reinartz, Krafft & Hoyer 2004). The efficient adoption and implementation of CRM initiatives in organizations is possible if there is greater understanding of how members in an organization perceive CRM (Plakoyiannaki, 2005). A review of the literature reveals a lack of studies discussing the perceptions of CRM by members of an organization (Reinartz, Krafft & Hoyer 2004). The perceived benefits of CRM influence the CRM strategy adoption significantly (Ko, Kim, Kim & Woo 2008). According to Rogers (2003), the perception of innovation benefits precedes the decision of adopting the innovation, and this perception of CRM benefits has been found to be significantly important in influencing the organizational decision of CRM adoption (Ko, et al., 2008). It is also claimed that CRM as a technology innovation will be adopted by members of an organization only after they realize its benefits.

Based on early observations in Malaysia, the situation in private hospitals in Malaysia can be described as follows; some hospitals do not know about CRM systems; other hospitals just have the orientation to be customer-centric; some have customer service departments; some hospitals have software for managing customer feedbacks; and other hospitals enable their customers to do activities such as making appointments for treatment, or medical tests and checkups, viewing the tests results, and even complaining about the services through the hospital's website (Rababah, Haslina, Huda & Aniza, 2010). Moreover, Rababah, Hasliza dan Huda (2010b) conducted a study to identify

the perception of the benefits of CRM system in private hospitals in Malaysia. They found that there was a limited understanding of the CRM concept, and a low perception of the benefits associated with the implementation of CRM systems in the private hospitals in Malaysia. In addition, the results of the study revealed that no private hospitals in the northern part of Malaysia had adopted a CRM system, and only two hospitals have a future plan for the adoption of a CRM system.

This study aims to identify the main critical factors that may influence the perception of the benefits of CRM systems. In addition, this study has empirically investigated the influence of these factors on the perception of the benefits of CRM systems in private hospitals in Malaysia. The organization of the rest of the paper is as follows; defining CRM and CRM system, describing the roles and benefits of CRM systems to hospitals, identifying the antecedents of CRM system perception in hospitals, proposing the research model and hypotheses, presenting the research method, and providing the results and discussion. The last section discusses the conclusions, limitations, and recommendations for future work.

CRM AND CRM SYSTEM DEFINITIONS

CRM has been defined as a business philosophy, a business strategy, and a business technology as it means different things for different people (Buttle, 2004). Lun, Jinlin and Yingying (2008) stated that “CRM is the philosophy, policy and coordinating strategy mediated by a set of information technologies, which focuses on creating two way communications with customers so that firms have an intimate knowledge of their needs, wants, and buying patterns”. However, a wider definition of CRM that combines the previous three views is provided by Rababah, Haslina and Huda (2010a). They defined CRM as “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”. These information technologies which are found in a 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”. A CRM system may consist of three modules; operational CRM, analytical CRM, and collaborative CRM (Lun, Jinlin & Yingying 2008). The next section addresses the different roles of CRM systems in hospitals.

ROLES AND BENEFITS OF CRM IN HOSPITALS

There are many deficiencies in the relationship between healthcare providers and their customers, such as the long waiting time by patients before receiving treatment whether at the out patient clinics, or at the admission office, and the forgetting of the appointments by patients (Chao, Jen, Hung, Li & Chi 2007). CRM can be referred to as patient relationship management, and it is not a popular concept among chief executives officers (CEOs) of hospitals (Young, 2007). On the other hand, there are many expected benefits from the implementation of CRM systems in healthcare organizations such as (1) optimizing revenues and improving patient health, forging healthcare provider- patient relationships, and sustaining client loyalty (Benz & Paddison, 2004), (2) delivering greater Return on Investments (ROI), and be the perfect solution for the major problems in the healthcare industry (Wettemann, 2007), (3) becoming an essential cost-effective approach to maintain long-term customer relationships (Kohli, Piontek, Ellington, VanOsdol, Shepard & Brazel 2001), (4) increasing the transparency of cost and resource allocations within the hospital (Raisinghani, Tan, Untama, Weiershans, Levermann & Verdeflor 2005), (5) handling effectively the mapping of documentation during the treatment of patients, an aspect which is considered one of the major cost reduction areas (Raisinghani et al., 2005), and (6) reducing the costs associated with the no-shows or cancelled appointments (Young, 2007). After explaining the different roles of CRM in hospitals, the following section reviews and identifies the different factors which affect the perception and adoption of CRM systems.

ANTECEDENTS OF CRM SYSTEM PERCEPTION IN HOSPITALS

There are complex reasons or issues for the introduction of a new IS in an organization, such as economic considerations and technology (Lehane & Huf, 2005). Moreover, Fitzgerald, Ferlie, Wood & Hawkins (2002) argued for the need to consider the technical and organizational factors when trying to increase IS adoption in healthcare industry. CRM adoption is strongly related to the organizational and environmental contexts in which it is to be introduced. The introduction of CRM into organizations is to a great extent determined by the internal organizational culture and structure, and also requires considering the possible competitive impact from the external environment (Wu & Wu, 2005). Therefore, this study will focus on the following three factors; innovation, the organization and the environment.

The innovation factor includes the innovation characteristics found in the CRM system in this study. The focus of this study is on the six characteristics of the CRM system. The first five characteristics are the relative advantage,

complexity, compatibility, trialability, and observability of the CRM system as supported by the DOI theory of Rogers (2003), and the Model of (IS) Innovation by Kwon and Zmud (1987). Moreover, this study also focused on another determinant of CRM adoption in the healthcare industry, which is the security of the CRM system. The importance of security relates to concerns about customer data confidentiality (Wettemann, 2007) and privacy concerns (Paddison, 2004).

From the organizational perspective, among the causes or reasons for the failure of CRM initiatives are the lack of leadership and involvement of top management in CRM projects (Caldeira, Pedron, Dhillon & Jungwoo 2008; Kale, 2004), cultural problems (Caldeira et al., 2008; Trembly, 2007), and improper management of organizational change (Caldeira et al., 2008; Kale, 2004). Moreover, there is also a lack of business knowledge and skills amongst managers and executives in the healthcare industry in terms of the full utilization of automation and technology (Fok, Li, Hartman & Fok 2003). The organizational factor is supported by the model of IS innovation by Kwon and Zmud (1987). The focus of this study therefore, is on the five organizational characteristics which include top management support, knowledge management capabilities, IS experience, organizational readiness, and innovation of senior executives.

As for the environmental factor, Kohli et al. (2001) pointed out that because of reasons such as limited competition, and the lack of pain in forcing change, healthcare organizations have been very slow in adopting IT. In addition, the environmental factor is supported by the model of IS innovation adoption of Kwon and Zmud (1987), and this model includes competitor pressure, customer satisfaction, and marketing approach variables. In relation to their findings, this study focused on two variables namely, competitor pressure and the external IS support.

This study will relate the perception of the benefits of CRM system to three factors; innovation, organization, and environment. The following section describes the research methodology.

RESEARCH MODEL AND HYPOTHESES

As more people, especially those from the high income group have developed a greater interest in getting medication and services from private hospitals, these hospitals need to increase the quality of their services for this new category of clientele. Hospitals are now looking forward to improving their relationships with such clients. However, based on the researchers' early

observation, there is no record to show that hospitals, both public and private ones in the northern part of Malaysia have adopted the CRM system. Since perception can influence the adoption of a new technology, it is important to investigate the perception of these private hospitals towards the adoption of CRM systems.

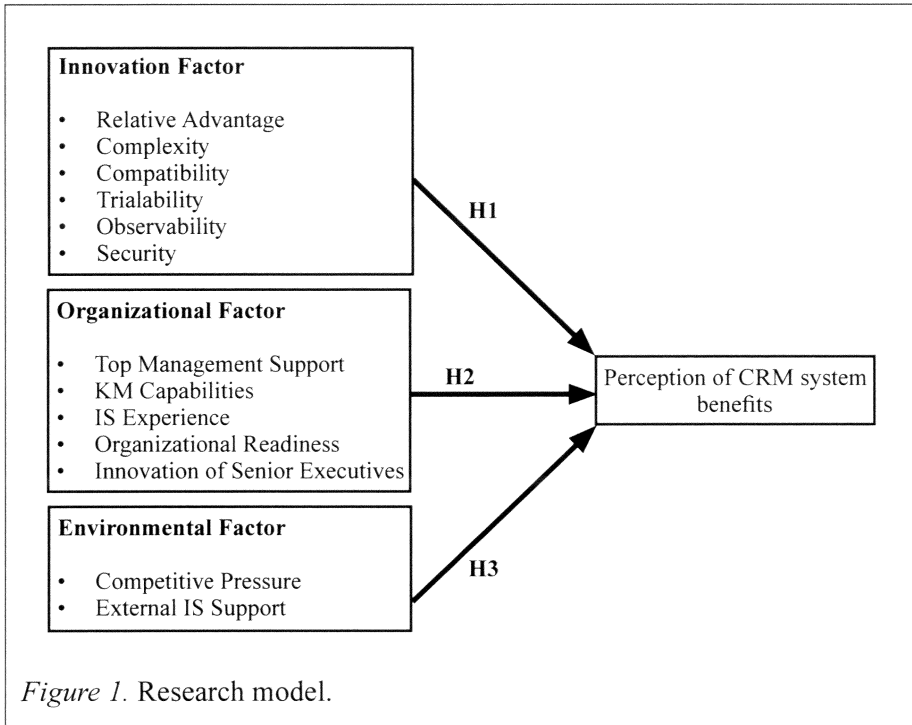
The study is based on the Innovation Diffusion Theory (IDT) of Rogers (2003), and the Model of IS innovation by Kwon and Zmud (1987). IDT has been widely used in the literature to investigate the adoption of innovations at different kinds of businesses (Rogers, 2003). According to Rogers (2003), the innovation adoption process consists of five stages: (1) knowledge, (2) persuasion, (3) decision, (4) implementation, and (5) confirmation. The adoption of an innovation is related to the characteristics of the innovation (Rogers, 2003). Kwon and Zmud (1987) have suggested that the combination of IDT with market research will be highly necessary and useful for studying IT effectively. Kwon and Zmud (1987) developed this model to provide a broad view of the IS innovations. They have relied on an extensive review of many studies regarding organizational innovations, and the IS implementation to identify the main forces/factors that contribute to the successful adoption of innovations (Kwon & Zmud, 1987). This model includes the following: (1) Innovation factor or characteristics, (2) Task factor or characteristics, (3) Individual factors or characteristics, (4) Organizational factors or characteristics, and (5) Environmental factors or characteristics. It was found that this model could provide an understanding of the adoption of IS innovations in organizations in a generic sense (Wu & Wu, 2005). Hence, as there are no adopter hospitals of CRM systems in the northern part of Malaysia, the focus of this paper is on the persuasion (perception) stage of the adoption process as a prior stage before the decision to adopt. This study is therefore, relating the perception of CRM systems to these three factors: innovation, organization, and environment.

Figure 1 illustrates the research model used in this study. Three hypotheses are proposed;

H1: The innovation factor will positively influence the perception of the benefits of a CRM system.

H2: The organizational factor will positively influence the perception of the benefits of a CRM system.

H3: The environmental factor will positively influence the perception of the benefits of a CRM system.



RESEARCH METHOD

A quantitative approach was utilized in the study, and a survey was used to collect the data. The target population of this study was the members of top management and senior management, and these included the general managers, marketing managers, IT managers, HR managers, and other managers in Malaysian private hospitals.

A private hospital in this study is defined as any hospital in Malaysia that is owned or managed by individuals or groups for the purpose of profit. The selection of the top management and senior management employees is by virtue of their power and responsibility in the decision making process, and/or their significant influence on taking decisions in their respective organizations. In this study, the decision of adopting such an innovation as the CRM system needs the approval and support from the members of the top and senior management of the hospital.

Wan Yina (2010) pointed out that it was usually senior executives in management who were responsible for the support in making CRM work in hospitals. In addition, Alshawi, Missi and Irani (2010) showed that the decision

to adopt an innovation was always initiated by the members of management team itself, or was the result of the personal decision made by the managing director of an organization.

The area sampling method was used to determine the sample of the study. Area sampling can be used when the population is to be divided into identifiable geographical areas (Sekaran, 2003). In this study, three geographical areas were selected; Kedah, Penang, and Perak, and the hospitals selected were members of the Association of Private Hospitals of Malaysia (APHM). In total, there are 112 private hospitals registered as members in the APHM of Malaysia (APHM, 2010). The 26 hospitals selected from the three states were as follows: from Kedah 4 hospitals, Perak 9 hospitals, and Penang 13 hospitals. In addition, the convenience sampling method was also adopted to define the research sample. Sekaran (2003) defined convenience sampling as “the collection of information from members of the population who are conveniently available to provide it”. Convenience sampling was used in this study because of the unidentified population size and population frame. Moreover, not all the management staff was found to have the information needed for this study. Based on the interviews conducted in these hospitals, the members of top management and senior management, which included the General Managers, Marketing Managers, IT Managers, and HR Managers were identified as the target respondents of the study. These respondents were seen as the most likely sources to provide the required information. The decision was left to the hospital to decide who will participate in the survey based on his/her knowledge about CRM systems. This was compatible with the definition of Hair, Money, Samouel & Page (2007) who said, “A convenience sample involves selecting sample elements that are most readily available to participate in the study and who can provide the information required”.

A questionnaire was designed to collect the data. The questionnaire developed for this study consisted of five sections. Table I below shows the sections and the sources from which they have originated.

Table 1

The Sections and Sources of the Study Questionnaire

Sections	Sources
Section1: General Information	
Section 2: Perception (15 items)	Developed from Multiple sources for the first time

(continued)

Sections	Sources
Section 3: Innovation Factor	
Relative Advantage (9 items)	(Moore & Benbasat, 1991)
Complexity (8 items)	(Moore & Benbasat, 1991)
Compatibility (4 items)	(Moore & Benbasat, 1991)
Trialability (7 items)	(Moore & Benbasat, 1991)
Observability (7 items)	(Moore & Benbasat, 1991)
Security (3 items)	(Kevin et al., 2006)
Section 4: Organizational Factor	
Top management support (4 items)	(Premkumar & Roberts, 1999)
Knowledge management (KM) capabilities (6 items)	(Croteau & Li, 2003)
IS experience (3 items)	(Thong, 1999)
Organizational readiness (9 items)	(Iacovou et al., 1995; Croteau & Li, 2003)
Innovation of senior executives (3 items)	(Thong & Yap, 1995)
Section 5: Environmental Factor	
Competitor pressure (4 items)	(Premkumar & Roberts, 1999; Premkumar & Ramamurthy, 1995)
External information system support (5 items)	(Premkumar & Roberts, 1999)

For Sections Two to Five, a 5 point Likert-scale was used; in which 1 is strongly agree, and 5 is strongly disagree, as a measure of the responses of the hospitals' top management. The 5 point Likert-type scale is recommended to be used to increase the response rate and the response quality, and decrease the frustration level of the respondents (Babakus & Mangold, 1992).

A pilot study was conducted to determine the reliability of the questionnaire. The pilot study shows an acceptable level of reliability where the values of Cronbach's Alpha for all the constructs were greater than 0.6. After revising the questionnaire based on the pilot study, the questionnaire was distributed to the study sample by the researchers. Each person was given one month during the period from 7th January, 2011 to 17th February, 2011 to complete the questionnaire. The researchers had made direct contact with the general managers or the HR managers in order to gain their acceptance to be a part of the study. Unfortunately, only 14 hospitals out of the 26 hospitals in the northern area of Malaysia have agreed to participate in the study, which make it more difficult for the researcher to get a large number of respondents. About 148 questionnaires were distributed. The number of distributed questionnaires in each hospital was based on the availability of the contact person in the hospital (the general manager or HR manager). The researchers themselves had collected the questionnaires at the end of the period. There was continuous

follow up visits to the hospitals, telephone calls, and sending of text messages and e-mails to the selected respondents. As a result of these measures, 79 questionnaires were returned from 12 hospitals. Two hospitals, however, did not return any questionnaire at all. Only 72 questionnaires were valid for the subsequent analysis, giving a response rate of 49%. This response rate can be considered a good response rate in comparison with other similar studies in the same area such as the study by Hung et al. (2010), in which the response rate was only 19%.

RESULTS AND DISCUSSION

Correlation Analysis

The Pearson's correlation was used to explain the strength and direction of a linear relationship between two variables (Pallant, 2007). Table 2 shows the results of the correlation coefficients (R) of all the research constructs. According to Hair, Black, Babin, Anderson & Tatham (2006), the threshold for the correlation coefficients is less than 0.80. Table 2 shows that the correlation coefficients for all the research constructs were less than the threshold (0.80). The correlation between the dependent and independent variables is important and should be more than 0.3 (Pallant, 2007). Table 2 shows that the smallest correlation was between the environmental factor and the perception (0.263). On the other hand, the largest correlation was between the organizational factor and the innovation factor (0.775).

Table 2

Pearson's Correlations of Study Variables

	Perception	Implementation	Innovation Factor	Organizational Factor	Environmental Factor
Perception	1				
Implementation	.409**	1			
Innovation Factor	.376**	.454**	1		
Organizational Factor	.294*	.416**	.775**	1	
Environmental Factor	.263*	.278*	.602**	.733**	1

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

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

Regression Analysis

Backward Multiple Regression Analysis was undertaken to determine the effect of the innovation, organizational, and environmental factors on the perception of CRM system benefits. In order to make sure that the data were suitable for the regression analysis, the statistical assumptions of sample size, Multicollinearity and singularity, Outliers, Normality, linearity, homoscedasticity tests were carried out. Two outlier cases were identified and deleted, leaving a final of 70 datasets to be analyzed (72-2).

Table 3 and Table 4 include the results of the Backward Multiple Regression Analysis. All the three generated models from the Backward Multiple Regression show a significant relationship between all the factors. Therefore, all hypotheses were accepted. However, only one best model was selected. Model 1 fulfilled the selection criteria, and was preferred in this relationship. The F-ratio (3.694) and significance (0.016) provided evidence that the relationship between independent and dependent factors was significant ($R^2=0.144$; $\text{sig}=0.016^a$). The R^2 obtained showed that the antecedent factors accounted for 14.4% of the variation in the perception of CRM system benefits.

Table 3

Summary of Backward Multiple Regression Test for Relationship Between Innovation, Organizational, and Environmental Factors with Perception Factor

Model	R	R ²	Adjusted R ²	Std. Error of the estimation	F	Hypothesis Accepted/ Rejected	Confidence level at 95% Significance
1	.379 ^a	.144	.105	.39314	3.694	Accepted	.016 ^a
2	.378 ^b	.143	.118	.39032	5.599	Accepted	.006 ^b
3	.376 ^c	.141	.128	.38792	11.170	Accepted	.001 ^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

Table 4

Coefficients of Backward Multiple Regression Analysis for Relationship between Innovation, Organizational, and Environmental Factors with Perception Factor

Model	Unstandardized Coefficients		Standardized Coefficients	t	Confidence level at 95%
	B	Str. Error	Beta		Significance
1 (Constant)	2.626	.485		5.417	.000
Innovation Factor	.356	.177	.364	2.012	.048
Organizational Factor	-.043	.210	-.044	-.206	.838
Environmental Factor	.118	.261	.076	.451	.653
2 (Constant)	2.612	.476		5.483	.000
Innovation Factor	.333	.138	.341	2.408	.019
Environmental Factor	.089	.220	.058	.406	.686
3 (Constant)	2.708	.412		6.571	.000
Innovation Factor	.367	.110	.376	3.342	.001

a. Dependent Variable: Perception

The research has shown that the innovation, organizational, and environmental factors have positive significant relationships with the perception of the benefits of CRM systems.

CONCLUSIONS

This study has pointed out that there is a lack of studies about the perception of the benefits of CRM systems in private hospitals in Malaysia. To meet the urgent need for studies of such a nature, three aspects were identified as potential factors that may influence the perception of the benefits of a CRM system in private hospitals in Malaysia. By adapting a quantitative research methodology, and using a questionnaire, the influence of these factors were investigated. Using area sampling and convenience sampling of private hospitals in the northern part of Malaysia, the study selected members of top and senior management as target respondents. For the pilot test of the research instrument, the results of the reliability test showed an acceptable level of reliability for all the constructs. The questionnaires were distributed to and retrieved from the study respondents personally by the researchers, and each respondent was given a month to complete the questionnaire. The collected data was analyzed using Backward Multiple Regression Analysis to

examine the research hypotheses. The results showed that there was a positive significant relationship between the innovation and environmental factors in the perception of CRM system benefits. On the other hand, the results showed a negative significant relationship between the organizational factor and perception of CRM system benefits.

This study has contributed to a deeper understanding of the status of CRM system in the healthcare industry, and provided better insights towards the main factors that influence the perception of the benefits of CRM system in hospitals. It is argued here, that the research model provides a broader understanding of the perception of innovations such as CRM systems at the organizational-level. The results have provided a source of significant input for decision makers in the healthcare industry; with a better understanding of the key factors involved, they are now in a better position to plan for the successful adoption and implementation of CRM system in their respective organizations. In addition, this study also contributed significantly in terms of providing several indications for the vendors and developers of CRM system. For example, in light of the fact there is limited knowledge and understanding among the hospital managers about the benefits of CRM systems to their hospitals, the vendors of CRM system have to improve their marketing strategies in highlighting the benefits of CRM system to hospitals. This will help them to expand their market in healthcare organizations. They also have to take into consideration the importance of the main characteristics of the CRM system, such as the relative advantage of the systems to hospitals, the complexity of the systems, and the issues of ease of use, the compatibility of the systems with the hospitals information systems, the issues of observability and trialability of the system, and the different aspects of the security and privacy issues in terms of information about the hospitals and their patients. These aspects have far-reaching implications for the vendors of CRM system, and provide them with the business opportunity to expand their investments in the healthcare industry, which has become a challenging and yet promising market.

RESEARCH LIMITATIONS AND FUTURE WORK

The adoption of CRM system 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 – healthcare providers which are more customer-satisfaction oriented – will be a major boost to the healthcare industry, as well as a significant contribution to the field of study.

The successful adoption and implementation of CRM systems is affected by the decision makers and the actual users of the system. This study is 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 might have impacted the decision-making process.

The study has followed a cross-sectional research design whereby it is carried at a single point in time. The nature of this kind of studies limits the full understanding of the influence of the investigated factors on perception. Therefore, this study recommends that future investigations of factors on the perception of the benefits of CRM system in hospitals use a longitudinal study in order to gain a better understanding of their impact on perception.

In the future, the model can be tested in the public hospitals on the basis of customer satisfaction orientation rather than profit orientation. This will have the advantage of excluding the competitive pressure variable and including the governmental support variable to the research model.

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