



Critical factors of hospital adoption on CRM system: Organizational and information system perspectives

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ABSTRACT

The recent rapid increase in the amount of medical information has pushed hospitals to confront an essential issue which is how to utilize healthcare information technology to improve healthcare services quality. Customer relationship management system (CRMS) is an innovative technology which facilitates the process to acquire, develop, and maintain customer relationships more efficiently and effectively. From the business perspective, patients represent the major customers of the hospital who receive and feel the healthcare services directly and realistically. Although the critical factors for the adoption of information systems have been identified in previous studies, few have specifically explored CRMS adoption in hospitals despite the fact that it has dramatic impacts on the quality of healthcare services and customer satisfaction. To fill this gap, this study proposes an integrated model that incorporates both organizational and system related factors as primary determiners of CRMS adoption in hospitals. A series of surveys were conducted with three levels of health institutions in Taiwan: medical centers, regional hospitals, and community hospitals. The results indicated that hospital size, IS capabilities of staff, innovation of senior executives, knowledge management capabilities, and relative advantage have significant influence on the CRMS adoption. The research results also reveal constructive suggestions to researchers, hospitals, CRMS vendors, and the government to increase the likelihood of adopting CRMS.

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1. Introduction

Improving quality of care and customer satisfaction are the key business drivers, and these will have the most impact on healthcare in the next 2 years as indicated by a research report from the Healthcare Information and Management Systems Society (HIMSS) [24]. In a recent investigation, the chief information officers (CIO) in hospitals ranked consumer considerations as the second most important business issue that has an impact on the healthcare sector [25]. The American College of Healthcare Executives (ACHE) [3], a renowned international professional society, identified the top issues confronting hospitals based on a survey among 1080 hospitals in 2007. CRM related issues (care for the uninsured, physician/hospital relations, and customer satisfaction) which most concern the chief executive officers (CEO) have been in the top-nine list for three consecutive years. In addition to the results in the United States, CRM has also become more important in the United Kingdom and Germany since a

series of interview investigations have discovered that a large proportion of customers feel dissatisfied with current healthcare services [30,44,45]. This dissatisfaction needs to be remedied through the use of CRM in hospitals.

Customer relationship management (CRM) for healthcare providers is an approach to learn all they can about their customers and prospects, to communicate relevant, timely information to them, and to track results to make program adjustments necessary [7]. From a non-profit organization's perspective, hospitals should provide quality medical services to those who are insured and not insured. In order to keep finance in balance, it is critical for hospitals to manage customer relationships, target those who can afford the health insurance, increase their loyalty, and generate more profits in order to cover the extra expenses of the uninsured. From the business perspective, patients represent the major customers of the hospital who receive and feel the healthcare services directly. Customer satisfaction is the key to maintaining hospitals' profitability since the customers' choice of a favorable hospital is frequently based on their inquiry into healthcare information and the experiences of their friends, family members, or colleagues. In the United States, customers who have medical insurance still have the right to choose a hospital from among several alternatives given by the insurance company. Thus, hospitals need to provide quality CRM to their customers in order to build a positive public image.

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Unlike the scenarios in most countries, the National Health Insurance (NHI) [46] system funded by the government in Taiwan covers almost the entire population because it is compulsory for all who have been granted citizenship for more than 4 months. They only pay a low access fee when visiting the doctor and are free to select a hospital of their choice for medical services regardless of the level and locality of the hospital. Under such conditions, price becomes less important. However, customers may anticipate a higher quality of customer service. Then, the uncovered medical services, such as cosmetic surgery, and health examination, are the other important type of financial source. These services critically need CRM to retain customer loyalty and improve brand image. For these reasons, the adoption of CRM is becoming an important trend in the healthcare industry of Taiwan.

The rapid increase in the amount of medical information has pushed hospitals to confront a critical issue, which is how to utilize information technologies to manage large amounts of customer information and then improve the quality of customer services. The adoption of a customer relationship management system (CRMS) thus is increased globally among hospitals. The percentage of hospitals which utilize Web sites for sales and marketing purposes has increased 2.47 times from 1995 (17%) to 2000 (59%) in the US [18]. A more recent study conducted by the American Hospital Association (AHA) [4] showed that nearly half of all responding community hospitals reported moderate or high use of health IT (HIT) for quality of care and customer safety in 2006, compared to a response of 37% in 2005. CRMS can be utilized in hospitals for enhancing customer satisfaction due to its ability to provide information about customer needs, satisfy their demands and improve ongoing service quality. Ultimately, it helps reduce cases of medical dispute and management costs.

A number of studies focused on exploring the factors affecting the adoption of CRMS in various industries, for example, financial servicing [32], fashion [34], and manufacturing industries [65]. Although they found some factors or characteristics, the applicability of these factors in the healthcare environment is questionable because the medical customer sometimes needs to be considered differently from a business client or customer since they expect to receive more care, for example, expecting doctors to remember their attitudes and expectations [43]. Payton and Zahay [49] examined a hospital and found that trust and quality play a crucial role in the adoption of data-warehousing technology for CRM applications, and that these two factors are correlated. Although this is a useful finding, that study focused only on the adoption of data-warehousing technology which is but one of many CRM technologies. The factors affecting the adoption of other technologies were not explored.

This study aims to identify the critical factors influencing the adoption of CRMS in hospitals from the perspective of the customer. Typically, insurance companies and healthcare providers are the parties negotiating the terms of agreement for payment schedules and services available in the healthcare system of the United States. It is different in Taiwan since the NHI is the major insurance company and covers most of the insurance business. As mentioned previously, the NHI lets its customers choose their hospital for medical treatment. Keeping a strong relationship with customers is thus far more important for hospitals than for the NHI, in Taiwan. In line with this perspective, patients are the major customers of the hospital, and direct receivers of medical services. Thus, this research will not focus on the factors affecting the adoption of CRMS in hospitals from the viewpoints of insurance companies or other stakeholders.

Because hospitals lag behind other industries in terms of IT adoption, it is more difficult for them to adopt CRMS. Although we have currently seen initiatives of CRMS adoption in a number of hospitals in Taiwan, the percentage of successful projects is quite low. A deep understanding of the critical factors of CRMS adoption therefore can provide substantial help and useful implications to

associate academics, potential CRMS adopters, the government, and CRMS vendors.

The rest of this paper is organized as follows. Firstly, it reviews the literature related to CRM, CRM supporting systems in healthcare, and antecedents of CRMS adoption from an IS innovation perspective. Secondly, a research model for investigating the adoption of CRMS is presented, followed by the research method, data analysis and results. Lastly, discussion of the research findings and implications for associated academics and practitioners is provided before the final section—the [Conclusion](#).

2. Literature review

2.1. Customer relationship management

Various definitions of CRM have been suggested. From a managerial perspective, Tiwana [61] believed that CRM is a process which manages relationships with current customers and selectively retains newer customers in order to enhance customer loyalties, and increase customer profitability. Swift [57] believed that CRM is an organizational method which is used to improve customer acquisition, customer retention, customer loyalty, and customer profitability through a meaningful way of communication that understands and influences customer behavior. From a strategic perspective, Kalakota and Robinson [31] treated CRM as an integrated framework, organizational strategy, or a process which provides customer demanded services that aim to sustain a long term relationship and fulfill ongoing dynamic customer needs.

Researchers also viewed CRM from both managerial and technological perspectives. Peppers and Rogers [50], from a narrower and IT-oriented perspective, believed that CRM is one-to-one marketing which utilizes computer technologies, such as database, interactive technologies, and mass production in order to develop and manage the learning relationship existing between customers and organizations. Through the tracking of customer response rate, interactive information, and historical transaction information, organizations are able to provide the products and services which are required by each individual customer. Ling and Yen [41] argued that CRM not only considers how to utilize customers effectively and identify high value customers from current and potential customers, it also considers how to optimize customer relationships from the customer's perspective and maximize the customer's profitability to the organization. This research adopts a balanced perspective, and defines CRM as: *A managerial strategy that helps organizations collect, analyze, and manage customer related information through the use of information technology tools and techniques in order to satisfy customer needs and establish a long term and mutually beneficial relationship.*

The CRM process includes four parts [57]. The first is “Knowledge Discovery” which involves the analysis of customer information in order to assure marketing opportunities and investment strategies. Knowledge Discovery provides detailed customer information that enables the sales department to make the best decision based on developed historical marketing records and analysis of customer attributes. The second is “Market Planning” which defines specific products, sales channels, time, and some related considerations to support the development of strategic communication plans or activities, such as pre-defined marketing types, preferences of channel, product development, and services. The third is “Customer Interaction” which includes the use of relevant and real time information through communication channels and front office applications, including customer service applications, sales applications, customer contact applications, and interactive applications to communicate with customers. The last is “Analysis and Refinement” which represents communicating with customers and continuously learning from them. Through the analysis of the interaction with the customer, organizations can adjust their communication model, product price,

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