

A CRM Adoption Model for Malaysian Telecommunication and Finance Companies

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Abstract— Customer Relationship Management (CRM) plays an important role in managing organization functions and processes in order to create a long-term relationship among customers and stockholders. A study of its adoption is essential to understand the factors influencing management's decision in adopting it. This research studied the *organizational characteristics, technology characteristics* and *environmental factors* on telecommunication and finance companies that have both low and high intention to adopt CRM. A survey on the respondents from MSC companies and a large CRM provider in Malaysia was conducted. This was followed by an interview with the latter. Multiple regression method was used to calculate and to analyze the correlations between the independent variables and their intention to adopt CRM. Research shows that a set of organizational characteristics has the most influence on adoption, followed by a set of environmental factors which is significant only for companies that have lower intention to adopt CRM. Technology characteristics however, are not relevant to Malaysian companies.

Keywords – customer relationship management, adoption model, organizational characteristics, technology characteristics and environmental factors, telecommunication and finance companies

1. INTRODUCTION

The information technology vendor and practitioner community initiated the term “Customer Relationship Management (CRM)” in the mid of 1990s. It is a strategic approach aiming to create and to enhance stockholder values through the development of convenient relationships with customers. It considers an integration of people, processes, operations and marketing capabilities [1] through software applications. CRM integrates the potential of information technology and relationship marketing strategies to create a long-term relationship with customers and stockholders.

With the advent of CRM in the latter half of the 1990s through early 2000, organizations invested millions of dollars on CRM systems but most of them failed to get the expected benefits linked with getting closer to costumers so that many CRM adopters became disappointed. According to Gartner research in 2004, investment in the CRM technology has observed a sharp decline after rising by 28% between 1999 and 2000 so that there was a 5% decline in 2001 followed by a 25% drop in 2002 and a 17% decline in 2003. The same trend was expected to be observed among Malaysian organizations. Where, after gathering data from the studied organizations, it was found that, although most of the organizations are familiar with the concept of the CRM, only about one third of them adopted the CRM and about 18% of those already implemented were not satisfied with that and did not use it anymore.

Many studies about CRM have addressed “installation” issues, such as gaining sponsor support, IT infrastructure, and training [2], but there are a few studies about surveyed factors that influence the CRM adoption, the reasons that firms adopt CRM and other information technology as well as the way they adopt them ([3]; [4], [5]). The main focus of this paper is on CRM adoption in an organizational context.

Telecommunication and financial services are chosen as respondents of this research since according to reference [1], CRM implementation is highly recommended in industries having major contact with customers such as financial and telecommunications services.

2. ADOPTION DECISION BASED ON ORGANIZATION LEVEL

Moore and Benbasat [6] and Slyke, et. al [7] highlighted five factors that influence adoption of an innovation: (1) environmental factors, (2) user characteristics, (3) organizational characteristics, (4) technology characteristics, and (5) task characteristics.

In this paper, the main focus is on organization level, therefore, user characteristics and task characteristics are not considered as effective factors in CRM adoption decision base on organization levels. The factors used in this study are described in the following sections.

A. Environmental Factors

Many researchers believe that environmental factors are effective in publication of technical innovations ([8], [9], [10]). The important point regarding a business environment is that each environment has its own customer relationship and strategy rules. This is referred to as environmental turbulence. In order to investigate the impact of environmental turbulence on technology adoption, two interconnected concepts are measured: market uncertainty and environmental hostility ([11], [12]) These concepts are described below.

- **Market Uncertainty:** Market uncertainty reflects the level of effectiveness of a particular technology in fulfilling the identified needs of customers. This uncertainty also includes the possibility of customer needs to remain unidentified. For example, considering different tasks in a retailing business that may include selling, price setting, investors and customers tracking, etc, there will be a high demand for a customer-oriented strategy in the organization. In this way, market uncertainty also points out the need for a CRM adoption in an organization. So that, in organization involved in a high uncertainty markets, the adoption of CRM could play an important role.
- **Environmental Hostility:** Environmental hostility is a characteristic associated with businesses in which the competitiveness is increased and assessment of the customer's needs is difficult. Adoption of CRM may greatly help to get information about the market and the customers when involved in a business with high environmental hostility.

B. Organizational Characteristics

Organizational characteristics are parameters that affect the decision for adoption of an organizational innovation ([13], [14]). Considered as organizational characteristic that influence the adoption of an innovation, in this paper, the following factors are studied; product knowledge, attitude toward change, firm size, top management support, age of firm and rate of direct relationship with customers. These factors are described below:

- **Product Knowledge:** For CRM and other information technologies, product knowledge refers to retailer's background and knowledge of computer information systems. In conclusion, lack of knowledge about computer and information systems and the (CRM) technology causes the organizations to be less intent to make decision for adopting that technology [15]. Lower knowledge can lead to incorrect estimation of a technology and may cause the organization to assume the technology as complex and incompatible with previous systems. CRM also is not an exception for this rule. Lack of knowledge can also lead to prolong the buying process [16].
- **Attitude toward Change:** Attitude toward change can be considered as being multidimensional in nature, which reflects the common approval of an innovation, a risk-taking tendency, and/or a preference of a new idea [17]. Researchers have proven that people and organizations that have an open attitude toward change are more creative. They also have more tendency to take risk and apply innovations [17] and are more likely to adopt (CRM) technology [18].
- **Firm Size:** Size of firm is a topic investigated in many researches regarding innovations and is noted as an indicator of organizational complexity. Although some researches show a negative relationship between size and innovations [19-20]) many of them have concluded a positive relationship between firm size and capability to innovate since they probably have more slack and more technological knowledge ([21],[22];[19]). On the other hand, what may cause small organizations to be able to innovate is easier availability of cross-functional co-operation [23]. Regarding the positive relationship between size and innovation, it is necessary to mention that, it is shown that this relationship is moderate when process and administrative innovations are the focus [24].
- **Top Management Support:** Quinn (1985) found that top management support and commitment can lead the strategic opportunities to be organized and cause long-term vision that is important for a successful adoption of innovation. In many cases following the agreement of top management with adoption of an innovation, the organization is directed to prepare for adoption and the organizational climate turns to be conducive to innovation. If top management does not agree with innovation, probability of implementation and adoption of new idea will drop since in this situation overcoming with barriers and resistance of change among employees for adopting the new idea is hard [25]. In a small business, top management has the main contribution for decision making so he/she plays an important role for making decision about new technology and innovation.[26] .
- **Age of Firms:** Christensen and Rosenbloom (1995) concluded that new firms have more inclination to adopt new technologies as compared to old firms. There is a relationship between age of firms and firm size. So that, young firms are usually small and old firms are generally large firms. Another point is how flexible companies are for adopting new technologies. Companies that belong to group of firms can risk more since they have more financial resources. Baptista (2000) showed that corporate status of a firm can affect the adoption of a new technology.

- **Rate of Relationship with customers:** As mentioned in the introduction, according to ThuyUyen H. Nguyen, (2007)[1], the needs of organization to adoption of CRM are classified according to rate of contact with customers. Therefore, in this research, one of the factors that is investigated as an organizational factor is the rate of relationship with customers.

C. Technology Characteristics

Roger (1995) presented five factors that affect adoption of technology. These five factors are: (1) relative advantage, (2) compatibility, (3) complexity, (4) triability, and (5) observability. Others have added switching cost (E.g. Speier and Venkatesh 2002).

- **Relative advantage:** Relative advantage refers to the degree to which the CRM technology creates customer information that leads to superior customer service when compared to traditional methods of meeting customer needs. Relative advantage of CRM refers to understanding of how CRM can push forward companies from other competitors for customers ([3, 27]). Many researchers have shown that in today's competitive market, relative advantage is one of the most effective predictors of adoption because excessive competitive pressure forces organizations, and particularly small ones, to employ advanced technologies. Advanced technologies, especially those helping organizations to be more customer-oriented and establish greater operational efficiencies, are critical for the small firms to be utilized [28].
- **Compatibility:** Compatibility indicates that to what extent CRM fits with the past experience of an organization and today's needs. It means that if companies aim to implement the CRM, how they need to change their current situation. If employees feel that they have to change in many aspects, they will resist accepting and adopting the innovation.
- **Complexity:** Complexity shows the level of difficulty for understanding and using the CRM and other technologies. Complexity is recognized as a repressor of adoption ([29]); [30]). Fichman and Kemerer (1997) pointed out that, at any state of time, organizations have a certain level of knowledge and skill based on their current managerial and operational process. Complex technologies increase the knowledge and skill an organization requires to possess for effective adoption and implementation of an innovation [27]. A big gap between the current knowledge of organization and the required knowledge leads the decision making about the innovation to be hard.
- **Triability:** is about the degree to which an organization can experiment and work with a new technology on a limited basis. Innovations that have the ability to be divisible are commonly adopted more rapidly because they can be tried on the installment plan. Totally, innovations that can be sampled easier are expected to be adopted more.
- **Observability:** while some ideas are easily observable and describable to others, some may be difficult to observe or describe. Observability describes the level to which an idea or the result of an innovation could be visible and described to others. So that for an innovation, higher level of observability leads it to be more rapidly adopted.
- **Switching cost:** Adoption of a (CRM) technology may be associated with potential costs. These potential costs may arise from the required financial commitment to purchase the CRM and complementary products, the training and learning costs needed to use the technology in an effective way, and other time commitments. As a result of the switching costs, the total cost associated with the adoption decision is increased, and the likelihood of adoption is reduced.

3. METHODOLOGY

A. Procedure and Participants

In this research, a survey methodology is used for data collection. Questionnaires are designed for understanding the situation of telecommunication and financial services for adoption of CRM. Survey questions are consistent with previous literature and are adopted for this study. From 150 distributed questionnaires, 70 questionnaires are returned and examined.

B. Data Collection

Cooper & Schindler (2003) classified a research design according to the approach that is used for primary data gathering. There are two approaches for this purpose; observing events, processes, and people, or communicating with people about different subjects including attitude of participants, intentions, incentives, and expectations. The communication approach includes surveying people and gathering their responses for analysis. For this research, survey method is chosen as a research strategy for data gathering. In the survey method, different approaches such as personal interview, telephone interview, and

self-administered inquiry were used for collecting data. The latter, the main data collection method used in this research is self-administered questionnaire because the respondents are organizations. Telephone and personal interview with the organizations are also used in pilot study to determine the amount of awareness about CRM and to assess their tendency for the CRM adoption, and to design a draft questionnaire.

Face to face interview was conducted with the project manager of iZeno, which is a company offering CRM to different organizations in Malaysia. In this interview, customers of iZeno from both telecommunication and financial sectors were selected together with respondents from MSC companies in Malaysia found through the website (<http://www.msomalaysia.my>). 150 questionnaires were distributed to the companies. At the end, 70 companies participated in this research survey, that is, 55 from the pool of iZeno's customers and 15 from the MSC companies. All respondents offer services of telecommunication or finance in Malaysia.

C. Questionnaire Items

The questionnaire includes 53 questions in four main sections. The first section is designed for understanding the rate of awareness of organizations about CRM and evaluating their intention for the CRM adoption. Another thing pointed out in this section is the state of adopting of CRM in the organizations. For this purpose, four levels are considered: 1) not convinced to adopt, 2) convinced planning to implement, 3) implementing, 4) already implemented. The second section is related to the organizational factors such as size of organizations, rate of relationship with customers and other organizational factors. The third section of questionnaire is related to environmental factors. The questions are designed for evaluating the effects of an uncertain market and environmental hostility on organization for the adoption of CRM. The fourth section includes evaluation of technology characteristics of CRM and their influence on the CRM adoption.

4. RESULTS AND DISCUSSION

We analyze and summarize the results in Table 1: more than one third of the surveyed organizations are not convinced to implement the CRM. The results also indicate that a rather small percentage of the surveyed companies have the status of "Already Implemented". It must be mentioned that from the survey it is found that most of the organizations are familiar with the concept of the CRM.

TABLE 1: Descriptive statistics of overall sample

Criteria	Value	Average
Intention to Adopt CRM	Not Convinced	35.0%
	Convinced to Implement	27.5%
	Implementing in Process	10.0%
	Already Implemented	27.5%
Age of Firm	Less than 10 years	32.0%
	Between 10 and 20 years	33.0%
	More than 20 years	35.0%
Size of Firm	Less than 10 Employees	12.5%
	Between 10 and 50 Employees	30.0%
	Between 50 and 150 Employees	10.0%
	More than 150 Employees	47.5%
Rate of Relationship with Customer	Very much	42.5%
	Much	27.5%
	Not much	22.5%
	A little	5.0%
	Very little	2.5%

In this research, the Cronbach's alpha is used for reliability test. Reliability test is calculated for all multi-item variables. Table 2 illustrates the alpha value for these variables. As the results show, the Cronbach's alpha value for all variables is acceptable, where all the values are above 0.70. This indicates that the questionnaire and the defined variables are reliable for the study.

TABLE 2: Value of Cronbach's Alpha

Key Variables	Reliability Coefficient Items	Alpha
Attitude toward change	4	0.94
Product Knowledge	5	0.87
Market uncertainty	5	0.92
Environmental hostility	2	0.76
CRM-Relative advantage	6	0.87
CRM-Compatibility	2	0.78
CRM-Complexity	7	0.77
CRM-observability	2	0.73
CRM-Switching cost	3	0.74

The multiple regression method is used for determining the relationships between the variables of the model as independent variables, and the intent of firms to adopt CRM as dependant variables. As it can be seen in the research model (Figure 1), three factors are considered as independent variables: (1) Environmental Factors, (2) Organizational Characteristics, and (3) Technology Characteristics. The dependent variables representing the intent of firms are in two categories: (1) low intent to adopt CRM, (2) High intent to adopt CRM. Multiple regression analysis is carried out for the two categories separately. The results of analysis consist of β coefficient, t-statistic, and significance level for each independent variable as reported in Table 3.

TABLE 3: Multiple Regression Analysis

Dependent Variables	R Square	Independent variables	β	t	Sig
Low intent to adopt CRM	0.430	Environmental factors	-0.214	-2.299	0.025
		Organizational characteristics	-0.613	-6.597	0.000
		Technology characteristics	-0.014	-0.151	0.880
High intent to adopt CRM	0.518	Environmental factors	0.144	1.684	0.097
		Organizational characteristics	0.710	8.302	0.000
		Technology characteristics	0.032	0.368	0.714

As it can be seen in TABLE 3, environmental factors and organizational characteristics were found to be significant determinants of organizations with low intention to use the CRM, describing 43% of the total variance. In case of the low intent group, the effects of the organizational characteristics and the environmental factors are not found to be the same, where the organizational factors show a higher impact on this group. As the results show, the environmental factors and the organizational characteristics have both a reverse relationship with the number of organizations categorized as low intent group for the CRM adoption. For the high intent group, the only significant predictors are organizational characteristics, describing 51.8% of the total variance. Organizational characteristics are found to have a direct relationship with the number of organizations categorized as high intent group for the CRM adoption. Based on previous studies and abovementioned factors, a model is developed in Figure 1. This framework is built after surveying 70 Malaysian telecommunication and finance companies on their intention to adopt CRM.

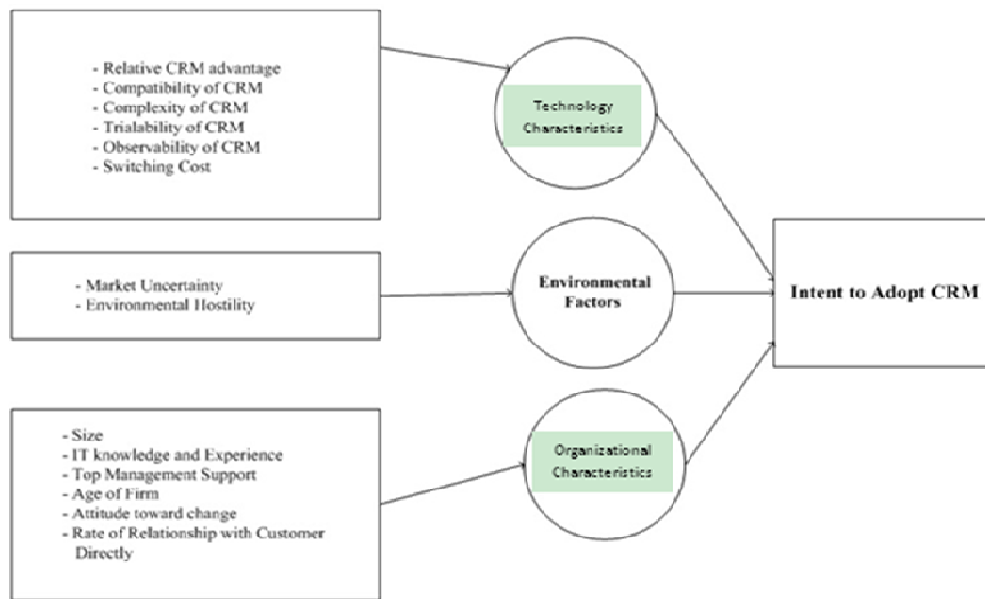


Figure 1: A CRM Adoption Model for Malaysian Telecommunication and Finance Companies

5. CONCLUSION

This research examined the influence of environmental factors, organizational and technology characteristics on intention of organizations for the adoption of CRM. The study shows that, willingness of surveyed organizations for the CRM adoption is not high; however, telecommunication and financial services in Malaysia are not in the beginning stage in terms of awareness about CRM. Among the three factors examined, technology characteristics did not appear to have any effect on the adoption of CRM for respondents in this research because Malaysian organizations had a relatively good knowledge about CRM technology and its features.

Organizational characteristics indicate the most impact on the CRM adoption. It is significant for both groups; low intent and high intent for the CRM adoption. The results show an inverse relationship between organizational characteristics and the number of organizations categorized in the low intent group which is in line with a direct relationship between these factors and the number of organizations categorized in the high intent group. The results, are in accordance with the definitions presented while describing the organizational factor like; attitude towards change, top management support, rate of relationship with customer, firm size, age of firm, product knowledge, in section 2.

Another noticeable result is that the environmental factors are significant only for the low intent group. They also have a reverse relationship with the percentage of low intent group. Therefore, if market uncertainty and environmental hostility that are environmental factors increase, the number of organizations in the low intent group of CRM adoption will decrease. The results are in accordance with the fact that, in a market of high uncertainty and high environmental hostility, companies have more tendencies to adopt CRM for rectifying this situation.

The findings of this research assist Malaysian organizations, especially telecommunication and financial services for better understanding on factors that affect adoption of CRM. This study could be further enhanced: First, it should be noted that the research model explained 43% of the variance on the lower intent group for adoption of CRM and 51.8% of the variance on high intention group for CRM adoption. A large percentage of unexplained variance indicates that more research should be done in this field to cover other factors affecting the CRM adoption. Second, this research investigated only Malaysian telecommunication and financial services. This research can be extended to other organizations with different type of activity and organizations located in other countries. Third, there are 70 respondents in this survey; if the numbers of respondents could be increased, the results could be generalized to all Malaysian telecommunication and financial services. At this stage, our results from a preliminary investigation are reported.

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