

The Relationship of Knowledge Management and Market Segmentation on CRM

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ABSTRACT

The move in recent times towards customer-centric business shifts companies and organizations to be more cautious about customers and clients. Customer relationship management (CRM) has become one of the recognized business strategies in order to manage business dealings with customers. This requires companies to recognize the importance of managing the customer's knowledge, and subsequently categorizing and segmenting this knowledge to provide the best product and service for the customers. This will then result in successful CRM implementation. The objective of this study is to conceptualize and validate the concept of Knowledge Management and Market segmentation in CRM effectiveness by proposing a model. Based on a survey of 150 customers of a company in Malaysia using the CRM system, the study results demonstrate a large, significant, positive relationship between Knowledge Management (KM) Competence and Market segmentation (MS) dimensions with CRM dimensions. Hypotheses are examined through Partial Least Squares (PLS) procedure and the software programs which have been used for analyzing the data is SmartPLS. The results of the model showed that there is a positive relationship between CRM and two proposed hypotheses, namely: MS and KM. Hence, attention and the investing of significant effort on market segmentation and knowledge management in the companies and the organizations would be efficient in the success of CRM. The instrument and comprehensive model in this paper would be valuable and beneficial both for future researchers and practitioners interested in developing CRM effectiveness.

KEYWORDS: Customer Relationship Management (CRM), Knowledge Management (KM), Market Segmentation (MS), Customer, relationship, competence, dimensions.

1. INTRODUCTION

Nowadays, because of the rapid growth of technology, companies and organizations have become increasingly aware of the importance of customers for improving their business. The more a marketing paradigm contains; the more continuing relationships with customers becomes important [1]. In recent years, companies have realized the importance and necessity of contact and participation with customers in order to provide an appropriate business which can reply immediately to the needs and requirements of customers. Managing the customer's knowledge and information has a vital impact on improving the customer relationship. Segmenting and categorizing customers based on their requirements and their differences is another factor which will lead companies to have better contributions with their clients. Therefore, in recent years, it has become essential for the market and businesses to determine the importance of managing and segmenting the knowledge of the clients and customers.

Customer relationship management (CRM) methodology that uses certain information technology such as databases and the internet by which to increase their efficiency in the relationship marketing process [2] is vital for the companies to be a "winner" among other competitors. On the other hand, it is necessary to have a strategy that tries to acquire new customers and save existing customers in order to enhance the competitive advantage, which is called CRM [3, 4]. CRM is based on the swap of values among the organization and the customer, and emphasizes the created values in this relationship[5]. CRM can be considered as managerial efforts to handle business connections with customers through participating business processes and technologies, which try to recognize and know a company's customers [6]. CRM can be explained as the preparation of various supplies and services for a diversity of different people [7]. Thus, a company can categorize its customers and clients to supply its products and services according to the needs of each category [8]. According to Speed and Smith [9], use of segmentation is a way to enhance customer satisfaction, customer loyalty and customer retention. In addition to this, the most important assets or property of each firm is customer knowledge that is saved in a different part of the firm or enterprise. This could be in something such as a central database, relating to key points of the company like sales persons or financial parts. Thus, firms can make and develop enhanced products and services through using this information [10]. According to Kim and Park [11] when a customer's needs are satisfied, and the customer understands fair assessment from his or her relationship with the organization, customer commitment happens. Realizing the customer's needs and expectations, and providing products

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and services based on each customer's requirements, is one of the significant aims of each company. Therefore, customer knowledge management and customer segmentation can be considered as critical keys of CRM to enhance the effectiveness of the relationship with customers. Since Customer Knowledge Management can group and manage the information about the customer to satisfy their required needs, Customer Segmentation is also a key factor that can help in segmenting the clients based on their specifications and features. This will lead to increased customer satisfaction.

The main goal of this study is to present a model in which customer knowledge management and Customer segmentation can be considered as two factors which will have a significant role in the CRM construct. These two factors have an important role in CRM to develop customer loyalty and maintain a long-term relationship with them. Developing a relationship with customers and managing it, is a challenge which new organizations are facing [5]. Knowledge of managing and continuing relationships with customers is a huge challenge. Knowledge management is a way that can help to proceed in this challenge. In addition, the use of market segmentation can help companies to have powerful strategies to handle the customer's needs and requirements. Besides the amount of research and studies on the theories and models of the effect of CRM applications, with some improvement toward empirical validation [12-17] there is limited knowledge of the relationship of Knowledge Management (KM) and Market Segmentation (MS) in CRM [18]. Also, there are few studies that have focused on proposing a model to show the significance of measuring the relationship of Market Segmentation in CRM. One of the fundamental problems is the lack of guidance and a clear model, which can help companies to understand the importance of the relationship between knowledge management and market segmentation with CRM. Therefore, in addition to the lack of previous studies around market segmentation and knowledge management relations with CRM in dealing with customer perspectives, this paper proposes a model to demonstrate the relationship between customer segmentation and customer knowledge management importance in CRM.

This paper will assist research to find the importance of knowledge management and market segmentation dimensions for improving CRM success. Moreover, this study will aid future researchers to acquire a good background relating to the relationship of KM and MS on CRM. Providing a model to clarify these relationships also can bring some benefits for each organization or enterprise to have a better background and knowledge about the factors that can have a positive relationship with the success of CRM. This study will also help companies and managers to have a complete view about the impact of KM and MS on managing relationships with customers, and finding a better way to manage this relationship through CRM.

The remainder of the paper is organized as follows: in Section 2 a summary of the literature review is stated, in Section 3 research methodology and model is clarified, and in Section 4 the result of the study is discussed.

2. LITERATURE REVIEW

2.1. Customer relationship management (CRM)

As companies have rapidly become more eager to use information and communication technology over recent years, the way in which companies organize themselves is changing [19]. Moreover, companies must affiliate themselves with changing environments in order to become more innovative in replying to the changes of customers' requirements and wants [20]. Therefore, companies are shifting from product-based service to customer-centric. CRM has a vital role in this shifting, which is underpinned by information and communication [21]. Hence, implementing CRM as an information system has become very common [19]. Deploying CRM will help companies and organizations to become closer to their customers, understand their needs, and especially comprehend the implied needs of their customers [22]. According to Rabahah [23] knowing the customers well will enable companies to serve them better and keep them loyal forever. This is the main theme of CRM. Because the concept of CRM is still incomplete and growing, CRM is known by different definitions such as: business attitude, business strategy, business process, or technological tool. From the perspective of business attitude, Knox [21] quoted that "*CRM is a relationship orientation, customer retention and superior customer value created through process management.*" From the point of view of business strategy, CRM is a customer-focused business strategy with the purpose to increase customer satisfaction and loyalty by presenting more responsive and customized services to every customer [8]. As a business process, CRM was defined as a macro-level process that subsumes many sub-processes, like view classification and customer knowledge creation [24]. As a technology tool, CRM provides the technology for organizations to promote closer relationships with their customers [25]. There are other research studies that have defined CRM as an occasion for profit increasing, attracting and retaining "economically valuable" customers through removing "economically invaluable" ones [26-28].

Through reviewing the previous research and definitions about CRM, it is clear that the customer is the core subject of CRM and also each company. Thus, CRM systems have become a central part of the business process, and it can provide a better use of inventory if the customer's needs are known [29]. Since all people are different and do not exhibit the same behavior, customer relations are in need of more than the usual marketing. Therefore, companies should be capable of modifying their products and services based on customer taste in the CRM [7].

According to Kim [6] CRM systems are divided into four stages, namely: Customer Knowledge, Customer Interaction, Customer Satisfaction and Customer Value. Table 1 shows the dimensions of CRM and its associated indices, which are the perspectives by which we aim to review CRM from the customers' point of view.

The CRM Dimensions	Objectives	Measures
Customer Knowledge (CK)	Collecting suitable customer information , Analyzing customer data , consideration of customer needs	Customer acquisitions , Web marketing, Customer segment personalization , Suggestion ,Customer profile research
Customer interaction (CI)	Proper response to customer requests, Maximizing the value and efficiency of enterprise operations, Customizing products and services	Avg. delivery time after order completion , Answer time to customer inquiry, Product diversity , Detailed product information , Timeliness of sales in well-liked products
Customer satisfaction(CS)	Enhancing service quality , Establishing relationships with customers	Brand image , Service level, Customer fulfillment
Customer value(CV)	Rising customer retention , Improving customer service and support, Building smart virtual community	Channel interface , Usability , Attractiveness , Navigation efficiency , Contents search , Reliability of site structure , Number of retained customers

We synthesize the four phases of CRM dimensions from prior literature by Kim [6]; these phases ultimately form dimensions of our CRM-competence construct. Each of the phases is argued as below.

2.1.1. Customer Knowledge (CK)

Customer knowledge can be known as, namely: collecting and gathering suitable customer information, analyzing customer’s data, finding new customers, enhancing skills of workers, increasing CRM technique, and protected service [7] which can be maintained in structure to a customer information file. According to Kim [6] various needs and preferences of customers make it complicated to categorize customers into a great homogenous population by which to expand marketing strategies. Customer Knowledge Management and Customer Segmentation will help to categorize the information of the customer’s knowledge to improve the efficiency of customizing the information based on diverse categories. This information allows the company to customize its services and products according to the information gained about the customers, and also to provide higher service probability. Use of this knowledge would be helpful to improve customer satisfaction.

CRM uses suitable data mining tools and data warehousing techniques to study customer requirements, and is derived from the statement that improved customer knowledge creates upper profits. Customer knowledge is the general interface of activity-based knowledge management, and CRM is at the middle level within an organization [7]. In addition, the employee should have appropriate skills to use the customer's knowledge effectively [6], and segmenting them based on the appropriate groups. Furthermore, based on Devaraj [30] customers perceive that protection of communication and seller understanding is vital.

2.1.2. Customer Interaction (CI)

Interaction with customers is one of the important steps of business activity towards customer orientation and CRM. There are some channels by which each company can contact and communicate with its customers. Effective management of the multichannel communication ways to interact with customers is necessary since it will lead to pleasing the customers.

To control various communication channels competently, managers should check and observe the business processes [6]. Some important procedures required to measure and analyze customer interaction are namely: marketing campaigns, prices for promotion, content's updates, payment, reply channels, and so on [6]. Hence, the availability of ways to manage and segment interactions with customers can directly impact on customer satisfaction and increase the impact of customer interaction.

2.1.3. Customer Satisfaction (CS)

Customer knowledge contribution and customer interaction will also affect customer satisfaction. Customer satisfaction is an indicator of the future financial success of the company [31]. It also shows the level of satisfaction obtained by products or services. According to Kim [32] customer satisfaction is a reaction that a product or service can provide based on customer needs, and determines if the purchaser becomes a stable customer or not. Customer satisfaction is a very significant ability of a service supplier by which to construct a high degree of satisfaction for product differentiation and develop a tough relationship with customers in today’s business world [33]. Organizing and dividing the requirements of the customer to a specific group could help to focus upon their needs, which will impact on customer satisfaction. Thus, customer satisfaction could be considered as the most important stage for this study.

2.1.4. Customer Value (CV)

Recognizing and calculating the accurate value of customers is an important stage of CRM. According to Su-Yeon Kim [1], marketing management can be implemented for targeted profitable customers, in order to promote customers’ full profit perspectives. The value and profitability of customers and clients should be calculated and used as a guideline to compare to the value of new customers. Several companies have already attempted to measure and use customer value in their management actions to grow the full profit potentials of customers [34]. Su-Yeon Kim [1] suggest a framework for measuring customer value and segmenting customers based upon their value. Using customer knowledge management will help to compile information about the customer or segment them according to their values. Therefore we will have a discussion of the importance of knowledge management and customer segmentation for achieving the aims of CRM in each company.

2.2. Knowledge Management

Through the CRM system, companies can keep and record customer information, such as their goals, needs and events. Moreover, saved knowledge is updated in the CRM system, so the customer’s information will continue to

update without being outdated. With these connections, information is always expanded in the CRM system enhancing the profile data for customers. It works like a strong instrument in making business decisions [35]. Knowledge management (KM) is processed or performed by creating, gaining, capturing, distributing and using customer knowledge, where it is used to improve knowledge and performance in organizations [36]. Companies having attention to KM pay close attention to issues of collaboration, organizational learning, best practices, workflow, academic property management, document management, customer-centric focus, and the more efficient use of data [37].

Technology can ease assembly and analysis of customer information in addition to shifting customer information within an organization. However, they are not as effective in changing the information to knowledge, because knowledge is powerfully connected with a person or a group of people. KM enables CRM to develop from its current “mechanistic, technology-driven, data-oriented advance” to more complete, complex ways of expanding and using customer knowledge [38]. Customer knowledge that is saved in some different part of the firm or enterprise, such as a central database or between the key points of a company like sales persons, financial parts, and other parts of the company are the most important assets or property of each firm. Thus, firms can make and develop enhanced products and services through using this information [10].

Creation and types of knowledge are the major subjects in KM literature studies [39]. Polanyi [40] has categorized knowledge into distinct and tacit knowledge. Explicit knowledge can be expressed through words and statistics, and can be used by IT-systems, as well as identified as formal or codified knowledge. Furthermore, tacit knowledge, recognized as informal or unmodified, is produced by recreation and experiences of individuals.

The previous studies have defined several definitions for knowledge management. For example, O’Dell and Grayson [41] describe managing knowledge as a systematic advance to recognizing, accepting, and using knowledge to prepare value. Moreover, in another definition, the knowledge management process is like a continuing set of actions in the social and physical arrangement of the company, with knowledge as their end creation [42]. Since Customer knowledge is evolving rapidly [43], knowledge management can help CRM applications to assist organizations improve their knowledge about customers by analyzing their purchase behavior through different channels. In this part, as the customers are the critical key of our study we are focusing on managing the knowledge of customers in the knowledge management (KM) area.

According to Sedera (2010), there is a limitation in knowledge needs, types, and sources in support of the ES in previous research. Hence, one of the important objectives of this study is to statistically test the implied, positive relationship between knowledge management competence, and customer relationship management (CRM). Consequently one of the hypotheses of this study is the “*positive relationship between knowledge management and customer relationship management*”.

Reviewing the previous research and studies shows four common phases across the knowledge management. We synthesize the most important phases of knowledge management from previous literature. These phases will finally form dimensions of our KM-Competence construct lifecycle which are namely: Creation, Retention, Transfer, and Application. The following discussion will represent each clear phase.

2.2.1. Knowledge Creation

Customer relationships can create and offer a platform for knowledge. Consequently, knowledge and data can be transferred between an organization and its customers. The achievement of knowledge management implementation enhances the creation of the new knowledge [38]. The knowledge creation step corresponds mainly with the planning and implementation phases of the enterprise system (ES) life cycle [18]. Since there is a particular peak in new knowledge supplies and related knowledge creation, knowledge creation occurs beyond ES implementation, during implementation and upgrades [18]. Customer knowledge creation is a process that engages an ontological measurement, which is obtained via learning from the customer, collection and organizational level; as well as an epistemological aspect that contains the two corresponding types of explicit and tacit knowledge [44].

2.2.2. Knowledge Retention

Knowledge retention is one of the other phases of knowledge management which will contain the mechanism or approaches of retention and maintain knowledge about each transaction in the company or an organization's customers. This codification refers to the way that companies use knowledge to institutionalize the information of its customers for use in the future [7].

There are some ways to form and maintain knowledge such as: documents, e-mails, databases, movies, illustrations, spreadsheets, images, and Web pages. These can be useful to make knowledge explicit, transportable, available and practical. Knowledge retention implicates embedding knowledge in a warehouse and as a result it exhibits some determination over time [45]. So it is vital to capture and keep the obtained knowledge of the customer in order to improve the ongoing relationships with customers. It is important to record this knowledge in companies to predict future trends [7].

2.2.3. Knowledge Transfer

According to Yaghoubi [7], knowledge transfer is a procedure by which one unit can be affected by the knowledge of another. Linkages between knowledge transfer and psychological contracts stay behind understudied in the implementation of a CRM, or any other, system [46]. With the intention of preparing a rational service contribution across dissimilar

expertise of each organization or company, it is critical to distribute customer-specific knowledge among professionals, business functions and other areas [47].

There are some ways by which to transfer knowledge from company to customers and also from company to customers. Transferable knowledge throughout the CRM project of the call center is knowledge in relation to the CRM advance. It also includes technical and computer-related knowledge in addition to organizational knowledge [48]. Customer knowledge can be transferred from individual communications, codified announcements, and embodied knowledge transfers [49]. Successful customer-specific knowledge transfer is the foundation stone of customer value production and creation of expert service organizations [47].

Finally, knowledge transfer in CRM looks forward to rapidly and efficiently processing customers' claims, therefore gaining their satisfaction. This is simplified by knowledge coding and the use of detailed terminology [48].

2.2.4. Knowledge Application

Once the knowledge is shaped, transferred and maintained, individuals relate same when interacting with the enterprise systems [18] which also contain CRM systems. According to Markus (2001), the foundation of competitive benefit resides not in knowledge itself, but in the application of the knowledge.

Additionally, from a theoretical and academic perspective, it is significant to determine whether the relationship of CRM applications is useful in the development of customer satisfaction, which is mediated by an enhancement in customer knowledge [50]. Useful knowledge application is important in all phases of enterprise systems such as CRM life cycle, mainly in maintenance and upgrades[51]. Based on Ross [52] and Sumner [53], knowledge application is an organizational concern that happens to be intimately related to ES-success (Ross et al., 2003; Sumner, 2003).

2.3. Market segmentation

Segmentation is in the center of a process by which objects or items are categorized or classified into groups that split similar characteristics. Since these characteristics can have one or more attributes, segmentation can be defined as subdividing the popularity based on an already known beneficial discriminator. In CRM, segmentation is used to categorize customers according to some similarity, such as industry [54]. According to Ronald S. Swift, a reliable forecaster of future behavior is past behavior. Transaction data in addition to interaction information is obligatory. A culture must be fostered that endlessly gathers customer-specific information so as to improve the customer information databases. Each encounter must be seen as a chance to find out additional data. This information forms the foundation of a company's real property and its interaction with its customers [55]. All of this information can be gathered and used for segmenting and grouping the customers with CRM applications.

The significance of CRM has developed in recent years because of a competitive environment shifting the company to implement a dynamic organization of clients seeking to achieve both higher profits and a more advanced market share than its competitors. One of the most vital impacts of CRM on retailers is the creation of proficient direct marketing politics, particularly when a new product or service enters into the market [56].The growth of a CRM program requires the completion of several succeeding stages namely: customer segmentation and the dimension of the success of the CRM program being two of the important steps.

Customer segmentation contains a group of customers who share similar sets of desires and requirements [57]. In addition, market segmentation is known as one of the key basics of current marketing and is the procedure of separating the market place into some groups according to some factors such as demographic, geographic, psychological and behavioral factors[58].Consequently, the second of the hypotheses of this study is the *"positive relationship between Market segmentation and customer relationship management."*

There are many techniques for classifying and segmentation. Demographic, geographic, psychological and behavioral factors are four ordinary groups of segmentation variables in consumer markets, which will lead business to improve the loyalty and satisfaction of customers. Ronald S. Swift said that: for being capable to do even basic segmentation, companies need to identify at least customers' names, addresses, ages, and gender. On the other hand, usual marketing segmentation methods such as demographics, psychographics, demographics, and behavioral cluster have a specific role in some organizations.

There are other areas for market segmentation that should be considered for marketing a product such as; mass marketing, product differentiated marketing and target marketing. Companies are accepting target marketing gradually. This should follow a sequence of Mass Marketing, which can be explained as selling the product to all customers. It also includes product-differentiated marketing, that is, where some products, with diverse features, styles and characteristics are offered to a range of buyers. Target marketing occurs when customers are heterogeneous in their purchasing behavior, and companies would be in a stronger position to supply customer segments [59].

Considering each of the segmentation factors in CRM segmentation would be helpful in improving the efficiency of the appropriate use of CRM competences. Since we want to investigate the relationship of Market segmentation and CRM, we synthesize the four phases of market segmentation from past studies, namely: demographic, geographic, psychological and behavioral to form the dimensions of the market segmentation construct.

2.3.1. Demographic segmentation

In demographic segmentation customers are divided into segments according to demographic values such as: age, life cycle, income, generation, social class and nationality, race and culture [57]. Each of the inconsistencies is helpful

knowledge when segmenting markets, and some of the mentioned variables will be elaborated in the following [60]. In CRM it is critical to group the clients according to their demographic information. Providing the services or products for each group can help customers to find their specific needs and improve their satisfaction.

2.3.2. Geographic segmentation

In geographic segmentation, customers are divided into segments based on geographical factors such as: countries, states, cities and neighborhoods [60]. A company can aim at one or more areas and should be conscious about varying data according to geographic segmentation because of population transfer [61]. Furthermore, consumers can change their purchasing behavior based on the region they live in, and geographic segmentation should provide the base to a segmentation strategy [60]. Subsequently, many companies and organizations customize their products, marketing, promotion and sales efforts and their services based on the needs of the geographical variables [58].

2.3.3. Psychographic segmentation

Another method used to recognize and learn consumer segmentation is that of psychographic segmentation. The psychological variables are obtained from two main types of customers namely: personality profiles and lifestyle profiles [60]. Psychological segments are often used as a complementary factor for geographical and demographics when there is not a complete view of the customer behavior. It has been found that by combining this information with geographic or demographic data, a much better depiction of the segments can be gathered [60, 62].

Some researchers use actions, interests and opinions, as well as the values of others and trends to discover psychographic segmentation [62]. However, finding data for psychographic segmenting is more complicated as the data is primary data. Moreover, providing a psycho-graphic segmentation strategy is expensive for a company to achieve [62].

2.3.4. Behavioral segmentation

Customers' attitude about use of, or response to, a product is considered as behavioral segmentation. Behavioral segmentation can be categorized into two separate theories. These theories are product usage and product benefit segmentation. Through incorporating the different behavioral variables, it is possible for companies to obtain a view of a market and its segments, and so the marketer can improve targeting strategies [63].

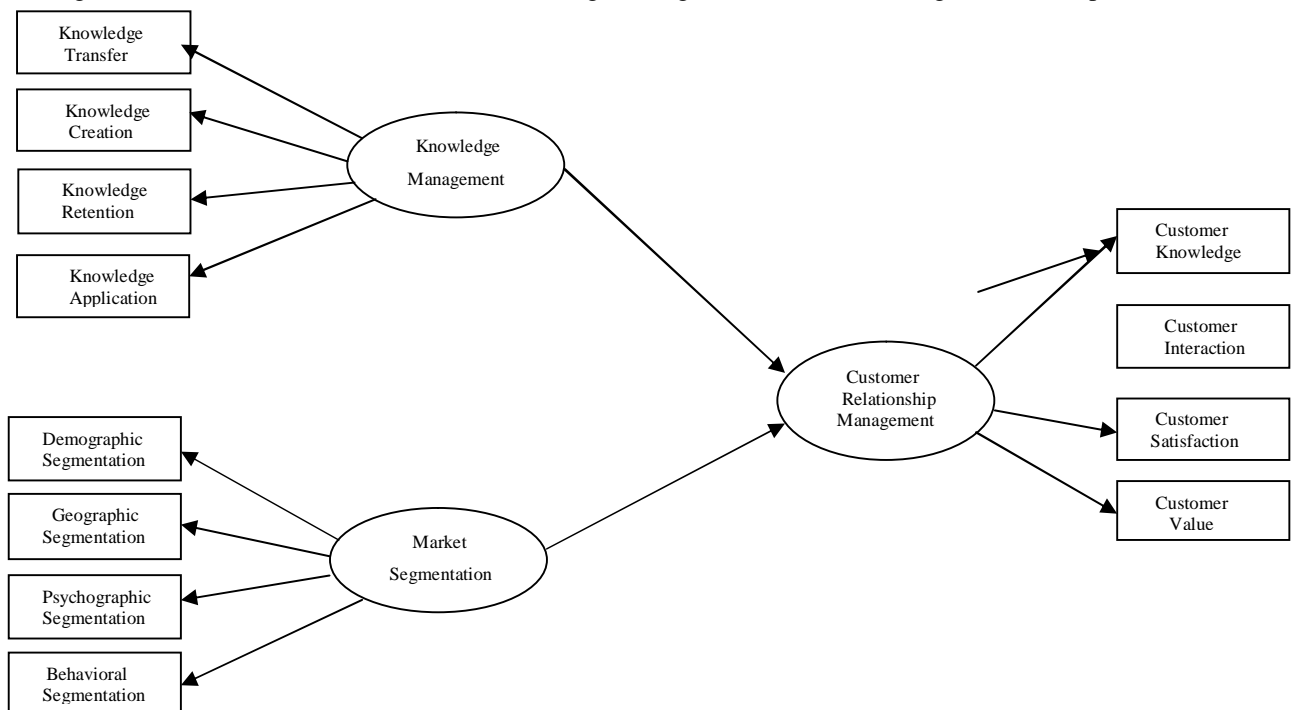
3. METHODOLOGY

3.1. The Research Model

Consistent with the literature reviewed above, we suppose that the four knowledge management phases (i.e. Creation, Transfer, Retention, and Application) and the four market segmentation phases (i.e. Demographic, Geographic, Psychographic, and Behavioral) have a positive relationship with CRM competencies (Customer knowledge, Customer interaction, Customer satisfaction, Customer value). It is predicted that the positive relationship between KM and MS phases can influence the CRM implementation. As discussed earlier, knowledge creation and knowledge retention have a clear impact on developing and creating the appropriate information about the customers of a company. In addition, through knowledge transfer this information can move toward all parts of the company by knowledge applications. Transferring knowledge is one of the CRM objectives that can be done through knowledge management. Besides measuring the impact of MS and its competencies on CRM, it will also show the vital emphasis of market and customer segmentation in companies who have implemented CRM applications.

Figure 1 depicts the research model and illustrates the hypothesized relationship between Knowledge management and market segmentation competence and CRM competence.

Figure 1: The Research Model: customer knowledge management and customer segmentation impact on CRM



3.2. The Survey Instrument

3.2.1. DATA COLLECTION AND ANALYSIS TOOL

The Questionnaire is comprised of four different sections. Three questions are related to personal information of the respondents. The next section includes 16 statements measuring the 4 Knowledge management (KM) activities, namely: Knowledge creation (KC), Knowledge transfer (KT), Knowledge retention (KR), and Knowledge application (KA). The third part contains the 16 statements measuring market segmentation (MS) constructs, namely: Demographic segmentation (DS), Geographic segmentation (GS), Psychographic segmentation (PS), and Behavioral segmentation (BS). The last section comprised 16 statements that measured the CRM activities, namely: Customer knowledge (CK), Customer interaction (CI), Customer satisfaction (CS) and Customer value (CV), which is formulated by Kim, (2003). Respondents were asked to fill out their degrees of agreement via a five-point Likert scale (with 5 = completely agree, to 1 = completely disagree).

In order to establish the content validity of the questionnaire, questions regarding measuring dimensions were posed in an interview with three persons at doctoral level and five practitioners in order to alter, reduce and refine those items that were not valid. The last questionnaire contained 51 questions. Pre-testing and pilot testing of the actions were done by chosen users from the CRM field, in addition to experts in the area. Only 5 items were modified in this level.

For analyzing data resulting from the questionnaire, the Partial Least Squares (PLS) procedure has been used and the software which has been used for analyzing the data is SmartPLS. PLS facilitates simultaneous analysis of the association between dimensions and their equivalent constructs, and the empirical associations between model constructs.

3.2.2. Population and Sample Size

The population of this study is “members of the AEON (Jusco) company in Malaysia, who are using CRM”. To provide the accuracy and precision of the analysis, respondents’ samples have been estimated at 160 people. Therefore, 160 questionnaires have been randomly disseminated between customers. Finally, 150 questionnaires have been gathered. Out of 150 respondents, education levels were namely: nine people under high-school graduation, 16 persons were high school graduates, 52 people held diplomas, 25 held bachelor degrees, 43 people held masters’ degrees, and lastly, only five people held a PhD degree. The ages of 23% of these people were between 18 to 24 years, 52% people between 25 and 34, while 25% of the respondents were more than 35-years-old.

3.2.3. Reliability and validity

For preparing the reliability of the research, the Cronbachs Alpha method has been used [64, 65]. Every construct shows Cronbach’s alpha readings of suitable values of above 0.60 [66]. The Cronbach’s alpha for each constructs is prepared in Table1.

In addition, we can determine the composite reliability through investigating the loadings of the obvious variables with their individual dimension. A usually correct threshold value for composite reliability is 0.7 or upper, even though values below 0.7 have been considered acceptable [67]. The composite reliability value for the three constructs (CRM, knowledge management, market segmentation) is mentioned in Table1.

Convergent validity is measured by factor loading and composite reliability measures [67].

From the confirmatory factor analysis consequence in Table 2, we observed that the factor loadings of all items are larger than 0.90. The factor loadings or regression assessment of latent to the experiential variable should be more than 0.50 [68]. It shows that all the constructs are according to a construct and convergent validity test [69]. For composite reliability outcome, a threshold value of 0.5 was situate for testing the convergent validity [70].

Table 2: Reliability and validity results of final measurement models

	Alpha	Composite reliability	Indicators	Factor Loading
CRM - competence	0.961470	0.972455	CI	0.949932
			CK	0.946472
			CS	0.951000
			CV	0.943580
KM- competence	0.962239	0.973775	KA	0.953532
			KC	0.940718
			KR	0.942496
MS- competence	0.964099	0.971921	KT	0.950358
			DS	0.943483
			GS	0.952761
			PS	0.952515
			BS	0.951742

Discriminant validity is measured by comparing the association between the construct, and the square root of AVE. AVE shows the general amount of variance in the indicators accounted by the latent construct. The square root of AVE should be more than the correlations among the construct for acceptable discriminant validity [71, 72].Table 3 represents

satisfactory discriminant validity between every pair of constructs, with all AVE square roots that are more than the correlation being among the constructs.

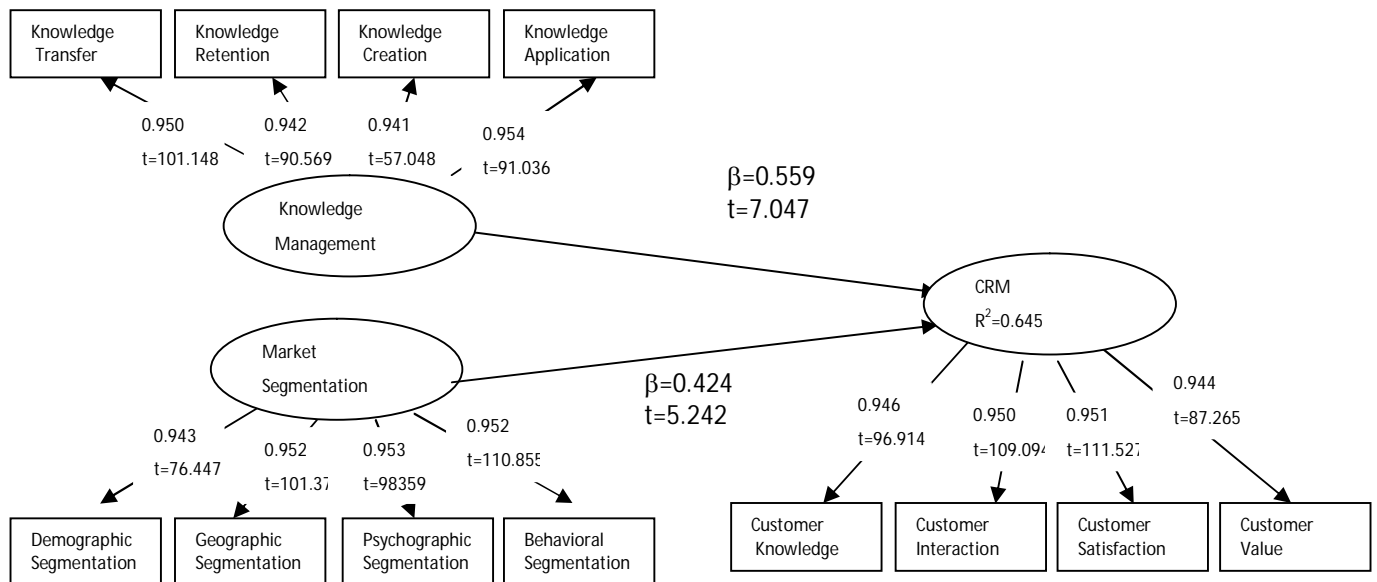
Table 3: AVE Square roots and inter-correlation

Constructs	KM	CRM	CS
KM	0.94679		
CRM	0.695340	0.94775	
CS	0.322085	0.604369	0.95013

3.3. Structural Model Testing

Figure 2 shows the structural model with path coefficient (β) between KM-competence, MS- competence and CRM-competences, R2 for CRM, computed t-values and path loadings for all variables (weights of all variables are accessible in the table). Supporting the main hypothesis, results show that KM and CS are extensively associated with CRM. The path coefficient (β) = 0.559, $p < 0.005$, $t = 7.04$ between CRM and KM shows the comprehensively associated relationship. However, path coefficient (β) = 0.424, $p < 0.005$, $t = 5.242$ between CRM and CS proves the extensive positive relationship. Also the squared multiple correlation coefficients (R^2) of 0.645 demonstrate that KM and CS predict more than half of the variance in the CRM construct. It presented the strong and significant path coefficients between the Knowledge Management competences and market segmentation dimensions. It has shown that factor loading of knowledge management and all of its dimensions are above 0.94. It can be deduced that these positive relations have a significant impact on the success of CRM implementation. Also, MS and its dimensions factor loading, which is presented in Table 2 and Figure 2, are more than 0.94. This shows the appropriate convergent and construct validity. These high factor loading rates show that the enterprises can improve the rate of successful CRM implementation through investing more effort in the relationship between market segmentation and CRM competencies. Therefore results in Figure 2 confirm the existence of a positive relationship between KM and CRM, MS and CRM as hypothesized .

Figure 2: relationship between KM and CRM, MS and CRM



4. RESULTS AND DISCUSSION

The results in the provided model test the positive relationship between KM-competences and MS-dimensions with CRM competences. This shows that, since the level of hypothesizes is higher in Knowledge Management and Market segmentation, the level of the CRM dimensions would be higher. This research affords quantitative, empirical confirmation of a significant, positive relationship existing between Knowledge Management and market segmentation with CRM. The squared multiple correlation coefficients (R^2) of 0.64 shows that there is a statistically considerable, positive relationship between hypotheses of this study.

The results of the study show that the relationship between the CRM and knowledge management which was suggested in earlier studies [3, 7, 18, 73, 74] is proven.. The path coefficient for the CRM and knowledge management is 0.559, which indicates the powerful relationship between the CRM and KM. Therefore the companies and the managers can improve the efficiency of managing the knowledge of customers through more

emphasis on Knowledge Management in their CRM implementation. Focusing on KM will assist enterprises to gain more absolute output from CRM implementation. Also it is considered that each dimension of the knowledge management process (Creation, Transfer, Retention, and Application) has a direct impact on the final result of the KM and CRM positive hypothesis. So it is vital for the companies to use each of these dimensions effectively in CRM.

Moreover path coefficient (β) = 0.424 in the results shows the comprehensively associated connection between MS and CRM dimensions. Segmenting the market and customer knowledge based on demographic, geographic, psychographic, and behavioral factors in CRM will impact directly on the success of CRM. Thus it should be vital for companies and organizations to focus on market segmentation more than before in order to develop the obtained result of CRM.

As we discussed, this study is one of the few research works to investigate the importance of examining the relationship of KM and MS in CRM implementation. In addition this research provides practical direction to future researchers with an interest in empirically measuring relations between CRM dimensions and its probable antecedents and consequences. There are many researches that have been studied on knowledge management influences on CRM [7, 18, 75, 76] . Further, some studies have been done on the marketing segmentation in CRM [1, 56]. While companies have access to the information and data of their customers, such as their age, gender and name, they still have some problems in capturing, managing and controlling this knowledge, as well as grouping and categorizing them. Successful CRM needs a deep knowledge of the customer, however there is a lack of approach to fit this knowledge in together[3].

In all the past studies, researchers have studied the impact of each factor of knowledge management and market segmentation specifically and individually on CRM to show that each of these variables is highly correlated and this association has had a great influence on business processes. There is, however, a lack of a simple and general model for integration of CRM – containing perspectives with knowledge management and Market segmentation capabilities.

This study has identified KM and MS dimensions as being an important antecedent for CRM, which has almost half of the variance of CRM performance. The result proves that emphasizing KM and MS in CRM capabilities can have a positive effect in improving the success of CRM implementation in organizations.

In another view, this study depicts that transfer, creation, retention and application of knowledge of customers and segmenting them according to demographic, geographic, behavioral, psychographic areas in the organization impacts on increasing customer satisfaction. It also impacts on the profitability of organizations which will lead to a successful implementation of CRM. Examining KM-competences and MS dimensions on CRM has showed that customers have benefited from these relationships through measuring customer knowledge, retention, satisfaction and increased customer lifetime value. Since customer retention and satisfaction is the final aim of CRM implementation in the companies, so increasing the rate of these capabilities has a direct impact on CRM implementation. It has been shown that companies can create new ideas and present better and enhanced services by use of knowledge management and market segmentation originating from CRM. Since our proposed model is limited to knowledge management and market segmentation, we encourage future research to consider other important constructs that may have a positive relationship with CRM in order to improve the effectiveness of CRM.

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