RESEARCH ARTICLE

CUSTOMER RELATIONSHIP MANAGEMENT MODEL FOR CUSTOMER SATISFACTION USING BIG DATA: A SYSTEMATIC REVIEW

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ARTICLE INFO	ABSTRACT

Customer Relationship Management (CRM) is an effective tool in business strategies to improve the customer satisfaction and customer loyalty. Improving the customer relationship helps to improve the customer satisfaction and profit of the companies. Many researches involves in applying the various CRM model and methods to analyze the important factors in CRM. In this paper, the recent researches in the CRM model were reviewed to analyze the advantages and limitations. The regression analysis in the CRM model shows the effective performance in investigating the customer satisfaction and relationship. Some researches uses only positive comments for the CRM model and negative comments were also need to include for effective performance. Social media data are observed to improve the efficiency of the CRM model in terms of customer satisfaction.

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INTRODUCTION

Many research has been focused on the better understanding of the business market management that shows that business marketing consists of many tasks such as building new relationship with the customers, maintaining the existing relationship, adoption of new technology and customer satisfaction (1). Customer Relationship Management (CRM) is a well-known tool that has the competitive advantages for many companies (2). For the past two decades, the CRM is the important stream of the marketing research. The CRM has the potential to significantly improve the firm performance in terms of customer relationship maintenance and to predict new product success (3). In hospitality industry, customer knowledge is important to improve the offer with better quality services, and the relationship with customers. These factors were important in better customer satisfaction that improve the customer loyalty and ensure the repeating customers as well as profitability (4).The emergence of big data provides the new way of CRM strategies in flexible sales and services, and supporting personalization. CRM adopt the Big data for better customer's experiences especially flexible services (5).

In the past decades, many literature has highlighted the importance of the strategies focusing on the acquisition and management of customer relationships. This method helps to build the long-term relationship with the customers based on the marketing strategies (6). Many organization has found difficulties in maintaining the customer databases for the strategic applications, especially in Business-to-Business (B2B) settings. Few firms have the capacity to exploits the valuable information from the customer databases (7). Many researchers have been conducted in CRM to improve the customer satisfaction, long-term relation with customer and profit of the company (8-10). In this study, the researches related to the CRM were reviewed with its advantages and limitations. The CRM with regression analysis and identifying the important factors of the product success were analyzed in this study. This study shows that the factors such as cost, quality, technology adoption and customer satisfaction plays the important role in the successful CRM. The study found that most of research doesn't process large amount of data. The method required to develop to analyze the various factors for large number of customers for effective CRM. The paper is formulated as review of CRM model in the section 2, comparative analysis of

Table 1. Comparative analysis of various methods in CRM

Author(s)	Methodology	Advantages	Limitations
Nyadzayo and Khajehzadeh. (16).	Maximum Likelihood model	The indirect effect of the customer satisfaction is also analyzed in the customer loyalty in this method. The study shows that brand image is the important managerial factors to enhancing customer satisfaction.	The relationship between the CRM and customer loyalty is need to be analyzed in this research.
Rahimi, and Kozak (17).	Qualitative approach is used to investigate the overlaps between customer expectation and managers.	The study shows that money and core product plays the major role in the customer satisfaction in budget hotel.The align management and customer perspective on CRM to optimize the customer value in terms of experience and delivery.	Only positive comments were used to analyze the customer value. Both positive and negative feature were need to consider.
Galvão, *et al*. (18)	The framework that combines the element of CRM strategy and implementation.	The study provides the guidelines to the companies for the systematic methodology that is able to adopt more effectively.	The method is applied on the two main clients.
Santouridis and Veraki. (19)	Regression analysis was employed to analyze the relationship between the CRM dimensions, relationship quality and customer satisfaction.	The CRM practices dimension were observed to have significant impact on customer satisfaction.	More dimensions were need to consider for improving the performance. Customer loyalty and customer personality traits are also need to be measured.
Dewnarain, *et al*. (20)	A conceptual model is used to address the customer relationship management and social media technologies.	The brand loyalty and consumer behavior benefits were effectively analyzed in this study.	Only positive comments were used in this method for the analysis.
Soltani, *et al*. (21)	Partial Least Squares Structural Equation Modeling was used in this research.	The study shows that the important factors that are responsible for the customer satisfaction in CRM success. The result shows that the identified factors are directly impact on the customer loyalty.	Indirect factors were also need to be consider for the effective CRM.
Navimipour, and Soltani. (22)	Structural Equation Modelling was applied to find the effective factors in the CRM.	The result shows that the customer cost plays the important role in the customer relationship that improve the effectiveness of the CRM. The study finds that cost, technology adoption and customer satisfaction are the important factors in CRM.	The method is tested on the less number of data.
Diffley, *et al*. (23)	Chain-of-effects were proposed in this method. Partial Least Squares Structural Modeling was used to test the model.	Results demonstrate that social CRM activities of hotels enhance the hotel service innovative activities. The important factors for customer satisfactions were identified.	The hospitality context factor is need to include to analyze the hotel CRM.
Tseng. (24)	The questionnaires and partial least square technique were used in this study.	The study shows that Knowledge Management Capability (KMC) has the positive impact on the CRM and service quality. The study show the constructive suggestions to strengthen the CRM.	The random sampling can be used for more collective response.
Rahimi, *et al*. (25)	Simple Linear Regression was applied on the questionnaire data.	The result shows that the important factors for the CRM models. The model shows that teamwork is the important factors in the CRM.	The model is analyzed on the less number of data.
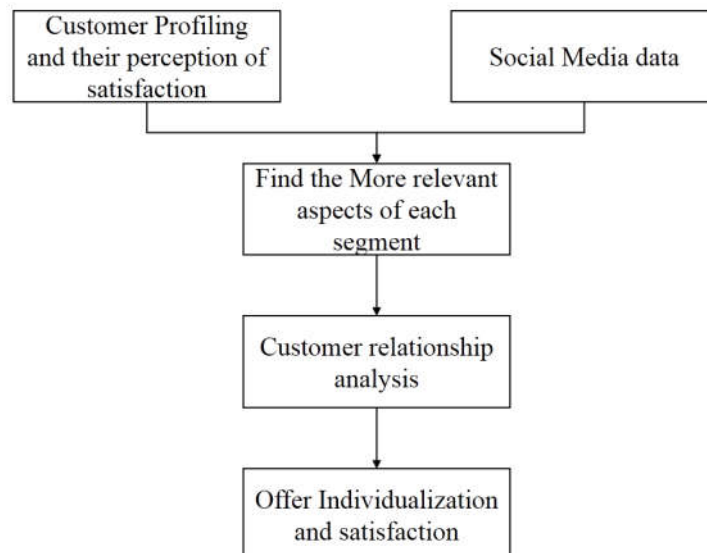
Figure 1. The generic Structure of CRM model

the recent models in CRM is in section 3 and conclusion with problem statement is provided in the section 4.

Reviews on CRM Model: Customer relationship and their loyalty can be effectively maintained by the CRM model of the company. Many researches has been involves in analyzing the important factorsresponsible for the customer relationship with the companies.These methods involve in collecting the information in the form of questioners with customers and mangers. Some researches uses the social media data to analyze the word of mouth about the companies. The generic structure of the CRM model is shown in the Figure. (1). Haislip and Richardson, (11) implemented CRM model in the sample of firm and investigate the relationships. The study provides the evidence of CRM numerous benefits for the firm. The benefits such as operational performance, effectiveness, and earning predictions were achieved by this method. The regression technique can be applied to improve the performance of the analysis. Zerbino, *et al.* (12) investigate the potential impact of the Big data in the success of the CRM model.

A content analysis was used to investigate the consistency of the classifier and suggests the several changes in the critical success factors. The study shows that adopting the Big data improve the performance of the CRM model. The refinement method is need to apply to analyze the direct and indirect effect of the factors. Frempong, *et al.* (13) established a method to assess relationship among customer operant resources, online value co-creation and digital word-of-mouth in the Ghanaian waste collection industry. A structure questionnaires was used to collect data from customer from social media platforms. Hierarchical multiple regression was used to evaluate the factors in the CRM model and its impact. The result of the study guides the firm management to design appropriate strategic and educational program for the customer. The positive comments only consider in this model and negative comments are also need to include in the analysis.

Maecker, *et al.* (14) analyze the role of social media data in the CRM model and analyzed its effectiveness. The result indicates that social media interaction ease the upselling efforts and reduces the risk of churn. The study shows that customers who interact with brand on social media to be more profitable. The other factors of the CRM such as customer loyalty, satisfaction and cost are also need to be analyzed in the model. Keramati, *et al.* (15) presented a framework for measuring the performance of the CRM based on the detailed study of 32 Iranian Internet Service Provider (ISP) firms. The four important factor information is extracted to analyze the performance of CRM model. The Multi criteria decision Making are used to evaluate the CRM performance. The study result shows that learning and growth are the two important factors that improves other factors. The study shows that organization capital, customer retention factors and customer expansion process are essential in succeeding CRM model. Social media data can be used to improve the effectiveness of the CRM model.

Comparative Analysis: Marketing researchers analyze the importance of the customer loyalty and focus on increasing the long-term relationship with customers. The recent researches in the CRM were reviewed in this section to analyze the performance of the model. Table 1 provides the description about the various researches in the CRM.

CONCLUSION

Important Factors in the business strategies were analyzed by the CRM model to provide suggestions for the managers. Many researches were carried out to analyze the CRM model to improve the customer satisfaction and loyalty. In this paper, the recent researches in developing CRM model were assessed to evaluate the performance of the model. Most of the model collect the information in the form of questionnaires to evaluate the CRM. The customer satisfaction and loyalty were also collected to examine the model performance. The limitations of the existing CRM models were discussed below.

- Most of the method were collect the information in the form of questionnaires to evaluate the performance of CRM. Social media data can be used to improve the effectiveness of the CRM model.
- Method in existing CRM model is evaluated in the less number of data and less number of customers. A method is need to be developed to handle the more number of data to provide effective analysis.
- Statistical model has been applied in the CRM model to analyze the relationship between the customer satisfaction and various factors. Regression technique provides the effective performance in analyze the factors and customer satisfaction.
- Some of the researches involves in applying the positive comments in the CRM model to assess the performance. The CRM model also need to consider the negative comments to improve the performance.

The paper shows that the limitations of the methodsare need to overcome for the effective performance of the model. An effective model is need to be developed for the effective CRM model for customer relationship.

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