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Enhancing Customer and Supplier Relationship through the Iterative Customer Relationship Management Process

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Abstract— CRM Process is considered the main critical success factor of CRM systems implementations, so special care should be given for each and every process in the organization supply chain for goal achievements. This paper provides an extensive review of the etiquette regarding the CRM processes. This review aims to increase the understanding of the different perspectives, levels of CRM processes, and CRM process models. The CRM Process either macro process or micro process. On the macro level, we consider merging Knowledge Management (KM) with Customer Relationship Management (CRM) to have Customer knowledge Management (CKM) to reduce the risk of relationship failure and customer intelligence for profitability of the organization supply chain. The knowledge management process starts with data collection, followed by intelligence generation and eventually, intelligence dissemination as iterative process. On the other side the Micro level process (Interaction Management) where its quality determined by Consistency, Relevancy and Appropriateness. In the same context, other scholar classified CRM process into three levels: (Customer facing level, The Functional level, and the Companywide level (Customer oriented CRM process). Then, in the article, we are going to demonstrate the CRM process models and the proposed Iterative CRM process model by the author.

Keywords— *CRM process models, CRM process, CRM Macro Level Process, CRM Micro Level process, Knowledge Management, Interaction Management, and Iterative CRM process Model, Supply Chain Process Management.*

1. Introduction

The core tasks of any given organization are the management and improving the business processes [1], [2], [3], [4], [5], [6], [7]. Therefore, the scholars have conceptualized the CRM definitions into five main major perspectives: Process, Strategy, Philosophy, Capability, and Technology Tool [8]. The researcher previous study for 119 CRM definitions, conclude that there are 14

scholars defined CRM as a process while there are 20 scholars defined CRM as a process shared with other perspectives as in table 1.

Table 1. CRM definition as a process

CRM Perspectives	no. of Def.	Unit	%
Process	14	119	11.76
Strategy + Process	8	119	6.72
Strategy + Process + Technology	7	119	5.88
Process + Technology	4	119	3.36
Strategy + Process + Philosophy + Technology	1	119	0.84
Total	**34**	**119**	**28.57**

Form table 1, it can be concluded that CRM process is one of the main perspective effective elements in CRM success [9]. However, the concept there should be a set of tasks assigned to accomplish that concept desired results. So, it is preferably starting with a process. A Process is a set of tasks or activities constructed to achieve a desired result for the organization [10], [11], [12], [13], [14]. Others refer to the process as a group of activities that convert the organization inputs into desired outputs or the longitudinal view of the relationship [15], [16]. Such a group of tasks can be subdivided or aggregated into lower or higher-level processes depending on the nature of the desired results to be achieved and the nature of the tasks itself.

So, [17] defined the CRM as a macro-level process that subsumes numerous sub-processes. Such sub-processes can be further separated into more refined micro level processes. Accordingly, it is not only the set of activities that organization supply chain undertakes to create the intelligence but also how organization utilizes intelligence to achieve the intended process objective [8]. Furthermore, [18] stated that the CRM processes are subsequently categorized into vertical and horizontal, front-office and back-office, and primary or secondary processes. He articulated that the vertical processes refer to the processes placed completely within the supply chain business

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functions like customers' acquisition process while horizontal processes refer to the cross-functional processes, such as the product development process or the auto dealer supply chain process. Front-office processes, on the other hand, refer to the customer-facing processes like showroom automobile retail sales process and complaint management process; nonetheless the back-office processes refer to the hidden and non-facing processes from the side of customers like the ordering and logistics process. Eventually, the primary processes are the processes with major cost or revenue implications for organizations like the logistics supply chain process in automotive organizations while the secondary ones are those with minor cost or revenue implication for organizations. Moreover, the researcher included the CRM Mind Map Diagram of this article in Appendix (A) for easy digesting the flow of the CRM process.

Worth mentioning, our discussion in the next section will be about the macro-level processes, the researcher considers it the most critical process and should be studied carefully in organizations to avoid customer dissatisfaction and target achievement loss.

2.   The CRM Macro-level Process

The CRM macro-level processes refer to the undertaken activities of an organization supply chain to create market intelligence with which the organization can leverage building and sustaining a profit maximizing portfolio of customer relationships. Therefore, it is not only the specific set of activities firms supply chain undertake to create intelligence but also how to utilize it in achieving the process intended objective or in achieving the organization goals as well. Therefore, the firms supply chain critically are in need for a blend of resources (physical, human, and organizational resources) to enable them developing and leveraging customer intelligence for building and maintaining a profitable portfolio of customers' relationships. Moreover, [17], and [19] articulated that the CRM process objective is to constitute customers' perceptions of an organization and its products via identifying customers, creating customer knowledge, and building customers relationships. So, it is recommended not only to consider the specific set of activities the firms supply chain undertake to create the intelligence, but also how they utilize it to achieve the process target.

In general, the customer intelligence is generated through the effective execution of a knowledge management process and the outcome of that intelligence has been utilized to build the profitable portfolio of customers' relationships. However, the company can select the right portfolio, prioritize relationship, and mange interaction with them [8].

In conclusion, knowledge management (Macro-level process) and interaction managements (Micro-level processes) are the major sub-processes of the CRM process for a successful supply chain management.

2.1   The Knowledge Management

Capturing customer information and knowledge is a competitive advantage to companies, but the customers' needs and demands are apt to change over the time [20]. [21], have stated that the integration between knowledge management and the CRM makes companies have a better understanding for the customer needs, demands and behaviour. The knowledge management facilitates the flow of knowledge around customer issues. The CRM systems, as well as knowledge management and customer knowledge, are essential topics for maintaining long term relationships with customers. Moreover, the researcher consider the knowledge as one of the forth core component of CRM [22].

[23], emphasized the effective impact of knowledge management on CRM success. Furthermore, [24], studies showed that, the knowledge management capability factors has effective impact on CRM success [25]. Moreover, [26] stated that the KM is essential for CRM in assessing firms, providing better service, improving quality of product, decreasing cost, besides integrating and sharing knowledge among all organization members. Furthermore, the knowledge management has a significant impact on the CRM and the impeded relationships by improving customer satisfaction and profitability [22], [27].

2.1.1   *Customer Knowledge Management (CKM)*

Merging the knowledge management and customer relationship into customer knowledge management (CKM) may reduce the risk of relationship failure and build the long term relationship through knowledge managing for the customer. That may represent in the CRM customer needs to be satisfied with the service and product availability, knowledge about the customer, and knowledge from the customer which are represented in the CRM customers' insights and experiences of the product or the offered services [28]. The same categorization of customer knowledge has been stated by [29], [30].

Another classification of customer knowledge has been into two types: Behavioral or Quantitative and Attitudinal or Qualitative. Others have categorized the CKM into four types: content; competence, collaboration, and composition [31]. The knowledge management refers to the organizational process highly interested in the creation, storage, retrieval, and application of knowledge [32].

2.2 Knowledge Management Process

The development of knowledge management for a profit portfolio of customer relationships needs saving the (1) desirability of prospects, (2) customer defection intentions, (3) needs and preferences of customers, (4) likely profitability of current and prospective customers, and (5) emergence of market threats. The knowledge management process, however, can be subdivided into three distinct micro-processes as per the figure (1):-

1. **Data collection**: by capturing information about customers and markets, which is an iterative and continuous process.
2. **Intelligence generation**: the process is converting the collected data into actionable intelligence through data mining and modeling methods, to identify trends and patterns related to customers' behaviors and general market conditions.
3. **Intelligence dissemination**: what has been generated by the intelligence should be distributed among the dealer departments and external parties [8], [33].

The knowledge management process depends largely upon the CRM database technology for storing vast amounts of customers' data for manipulation and distribution of actionable intelligence, in addition to human resources, organizational members whom tremendously have huge effect on the knowledge management process. However, they possess significant amounts of knowledge about individual customers, their needs, and preferences. The ability of such intelligence effects on firms' supply chain interaction management efforts [8]. Figure 1, shows the customer relationship management process for macro-level process.
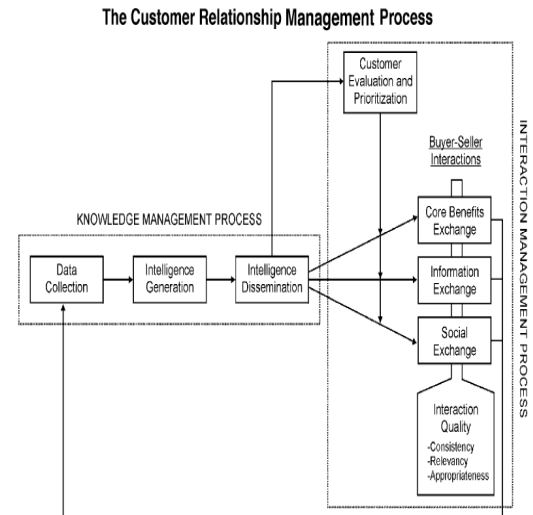

Figure 1. Knowledge management process (Zablah et. al., 2004).

3. The Interaction Management

The interaction refers to any given instance between two active parties having the ability of affecting each other interchangeably; it is also engaged in the exchange of values [34], [35], [36], [37]. However, the interaction can focus on the exchange of core benefits, information or social exchanges and / or any combination of the three [8]. The interaction hasn't been isolated but rather occurs within an ongoing relationship [38]. The interaction's quality is determined by consistency, relevancy, and appropriateness of individual exchange over the course of the relationship's lifecycle [39], [33].

Likewise, the interaction management process depends basically upon the CRM technology in developing marketing campaigns and multichannel communications among the purchasing customers. Additionally, the human ability to understand customers' behavior frequently has huge impact on the relationship.

Hence, it is critical for the effective interaction management. The key dimensions of the interaction quality are consistency, relevancy, and appropriateness [8]. Many scholars considered the interaction management as the CRM micro processes approach [40]. The micro level is totally concerned with the management of customer interaction to maintain a long period profitable relationship, while macro level process concentrates on the CRM as a company-wide process [41].

3.1 The Interaction Consistency

The interaction comes consistent once it was built upon the preceding stream of buyer-seller interactions of the same theme. Furthermore, consistent interactions are a cumulative understanding of the buyer-seller relationship regardless of how or with whom a customer interacts. Moreover, consistency was described as a signal of supplier commitment to a relationship to enhance the effectiveness of the sales process as well as the effects of organizational supply chain communication efforts [8].

Many scholars have considered the interaction consistency as one of the key factors to desirable relationship outcomes (e.g., [42], [43], [44], [45], [8]. The challenge of consistency that buyers want suppliers to demonstrate a consistent concern for their needs, and to be responsive to change. So, it is not about achieving a static consistency, but about consistency and yet dynamic in response to changing environments of the supply chain.

The researcher has a thought, for the customer database structure as three dimensional structure database design where, The most important dimension is the interaction consistency as the cumulative trend of customers purchasing behaves to insight the customers' attributes for building the intelligence of the customer interaction process.

3.2 The Interaction Relevancy

The relevancy refers to the value created by the interaction for a buyer-seller relationship. The value was defined as the buyer perception of the net bundle of economic and psychological benefits gained from the engaging in a particular exchange relationship [46], [47], [48], [49]. The value, also, was created when the net marginal benefits of the interaction came greater than its associated marginal costs [50].

The relevancy is a highly desirable interaction attribute. From the informational exchange point view, the relevancy is highly valued as targeted communications helps the users making a decision and minimizing information overload [51]. In online environment, the customization of communication messages and the personalization of online content are linked to favorable consumer attitudes and behaviors [8].

In the researcher thought, the interaction relevancy in database structure design, should be built upon the interaction consistency through measuring the added value for the customer transaction company wise, and customer wise. Company wise, the profit and the volume of sales

for that transaction as one aspect. From the other aspect, measuring the customer value through "CSI" performance and the feedback of the customer transaction wise. By storing these two values in our customer database, we can build the second dimension of our customer process intelligence of the supply chain.

3.3 The Interaction Appropriateness

An interaction is marked appropriate once it provides customers with an optimal amount of net benefits; as for their lifetime value to the firm. Many authors have addressed the importance of interaction appropriateness in terms of how to provide the right customers with the right services or products. Such services are tantamount as a crucial interaction for enhancing customer satisfaction and retention for creditability of interaction appropriateness [51], [52], [53], [54]. Empirically, the appropriate handling for customer complaints touched a positive impact of customer share and word of mouth behaviours. Moreover, purchasing managers express lucrative satisfaction once they receive appropriate level of service and support from the supplier [55].

In the researcher thought, the value added to the company and the customer through the measurement tools, should be parametrized through a third dimension of building the customer's database structure. This dimension help in clearing the customer attitude while the deal is going on and it is the customer behave for the stored attributes of the same deal with another customer have same attitude, the intelligence of the database prediction will be round 90 to 99% accurate.

In addition to the above discussion views of the CRM process, there are three levels of the CRM processes: (1) the customer-facing level, (2) The functional level, and (3) the companywide level [16], [19]. So, let us discuss the other views perspectives to be considered for an effective supply chain.

4. The Customer-facing level CRM Processes

The CRM process, at the customer-facing level, can be defined as "a systematic process to manage customer relationship initiation, maintenance, and termination across all customer contacts points to maximize the value of the relationship portfolio". There are three CRM processes at the customer-facing level of CRM are: 1) **relationship initiation**; the activities of identifying potential customers, 2) **relationship maintenance**; the activities of cross selling, upselling, or retention programs, and 3) **relationship termination**; the

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activities taken for ending the relationship of bad, unprofitable, or low value customers [16], [19].

[16], provided an explanation for each of these processes as follows:

The customer-facing level CRM processes include setting a single view of the customer across all contact channels and the distribution of customer intelligence. This perspective emphasizes the significance of coordinating information across contact channels of the supply chain to manage the entire customer relationship systematically [33].

5. The Customer-Oriented CRM Processes

Customer process encompasses the customer activities or services performed to satisfy a need or to solve a problem [56]. Furthermore, [57] articulated that changing the business processes into customer centric processes, where all business processes are related to customers to be analyzed and assessed as main success factors of CRM success, is a matter of great concern. [56], have differentiated between three kinds of customer-oriented CRM processes:

i) **The CRM delivery processes**; are the processes of direct contact with customer and considered as part of the customer process including campaign management to generate leads, which can be qualified by leads management and then used by supply chain management. The objective of supply chain management process is to understand the needs of the current and prospective customers as thorough as possible, to satisfy the customer needs. Service and complaint management process for handling the using and expiry of service and "CSI" measuring is also a matter of great concern in supply chain success.

ii) **The CRM support processes**; processes designed to help accomplishing supporting purposes through the market research and the loyalty management process.

iii) **The CRM analysis processes**; are concentrating on combining and analysing the collected customer knowledge in other CRM processes. They are the analysis results passed from the CRM delivery processes and CRM support processes in addition to the service innovation and production processes. We should overlook the process of customer scoring, leads management, customer profiling and segmentation, feedback, and knowledge

management as a vigorous part of supply chain management process [58], [33].

6. The Cross-functional CRM Processes

[58], stated five generic cross-functional CRM processes based on a holistic approach are; (1) the strategy development process; (2) the value creation process; (3) the multichannel integration process; (4) the information management process; (5) the performance assessment process.

[59], illustrated how only four of these CRM processes are allocated to the CRM types; strategic, analytical, and the operational. It was clarified how they interact with each other, as showed in figure (2). [39], suggested four CRM processes including strategic planning, information management, customer value, and performance measurement processes. The categorization of [39], is very close to [58] classification, where there are profounded meeting points between the two views.
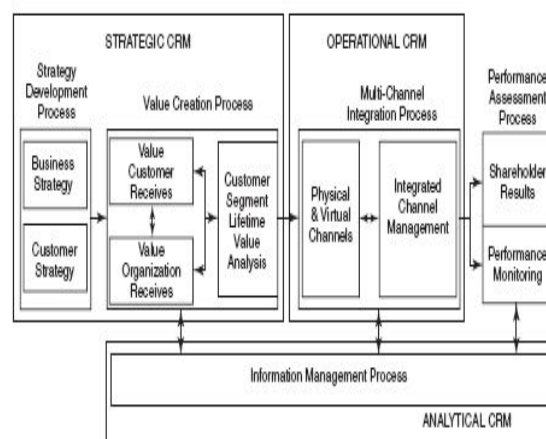

Figure 2. The interrelated CRM forms and processes
Source: Payne, 2006; Payne & Frow, 2005.

The strategy development process (Figure, 2) includes the organization's supply chain business strategy for a periodic development plan corresponded to organization's vision, competitive environments, and customer strategy. The organization's supply chain customer strategy requires the identification of the existing and potential customers simultaneously upon the recognition of the most appropriate customer segmentation [58], [60]. Moreover, [60], indicated the importance of coordination and integration between any given organization's supply chain business strategy and customer strategy, since they are developed for different functions of the business. Thus, the strategy development process involves a detailed assessment for both of business

strategy and development of an appropriate customer strategy at the same time [39].

The value creation process is the outputs of the strategy development process as programs for extracting and delivering value. The elements of the value creation process are: (1) the value the company provides to the customers, (2) The value the organization receives from the customers, and (3) maximizing the lifetime value of the desired customer segments. Unquestionably, that will come true via the successful managing of the relationship exchange values [58], [61], [60]. The value, received either by the customer or the organization, results in enhanced acquisition, retention strategies, and effective supply chain channel management [58], [61], [33].

[39], used the customer value process as an independent process in order to specify the organization's supply chain trends in incorporating the customers' perceptions in product design and offered services. The multichannel integration process takes the outputs of the business strategy, development process, the value creation process and transforms them into value-adding activities for customers. The multichannel integration process focuses on the decision of the most appropriate channels combination for a customer positive interaction. The very clear reason is to have a single and unified view of these multichannel interactions [58], [39], [60], [61]. The information management process is devoted for the collections of customers' data and information from multichannel contact points, basically, to generate customers' insights and proper marketing responses [58], [39], [60], [61]. The information management process depends largely upon the CRM technology tools such as database storage, IT systems, ETL analysis tools, and front and back office applications [58], [39]. Moreover, [58] stated that "The information management process is assisting in sharing customer related information throughout the concerned parties of the enterprise. So, such information helps the organization planning seamless customer service as a base for the performance assessment process. On the other hand to make sure that the organization's strategic aims are covered and the bases for future improvement are established" [33]. [61] Used the performance measurement process in the firm for assuring that both the organization supply chain and the customer goals are achieved.

In conclusion, the cross-functional CRM processes perspective is the most comprehensive, detailed, and complementary perspective. The other perspectives can be entrenched in the cross-functional perspective. For instance, the customer facing level processes are included in the multichannel integration process. Meanwhile, the customer-oriented CRM processes, CRM delivery, support, and analysis processes, can be found respectively entrenched in the multi-channel integration process, the value creation process, and the information management process.

Likewise, the customer facing level processes perspective explains the iterative process of the CRM relationship which starts with initiating a relationship with the customer, then maintaining and enhancing the relationship and, finally, once the relationship becomes unprofitable, it can be terminated and the organization can get rid of the customer. On the contrary, the Macro-level CRM processes perspective has shown two high-level CRM processes at the organizational level. Therefore, the cross-functional CRM processes perspective is the most pervasive one of the CRM as it explains not only the processes list but also the nature of each process and to what extent each process interacts with the other. It provides a coherent and iterative concept for the CRM processes [33].

The researcher considers the macro level process as the detailed and pattern of the organization processes towards organizations supply chain goal achievements. So, a macro level cross-functional process is the base for co-create value and increasing the shareholder value [62]. Anyhow, the macro-level process impact should be studied and scrutinized carefully for adequate analysis, developing the relation processes; the main urging of the customer satisfaction and the base for organization learning knowledge management.

7. The CRM Process Models

The researcher believes that the CRM process is the most critical success factor for CRM implementation. Therefore, in this section we are going to review the two CRM process models and the researcher iterative CRM process model.

7.1 The CRM Traditional Process Model

The traditional CRM process model was represented by [63] in figure (3). While the CRM systems are operated as integral tools of the IT to improve the customer relationship, customer satisfaction and to support the business front office, it is an application of IT collecting and storing customer data besides being a system for delivery [64]. In addition to the analysis capabilities and management tools [65].

The traditional process model of the CRM is divided into five phases are; (1) collecting the customers' data continuously; (2) implementing the

collected information to manage customers' contact; (3) development of marketing and business strategy; (4) marketing programs development; (5) measuring of successfulness while refining and increasing customer database [63], [66].

To help the company strategy of CRM in this model, information collecting, refining, and enhancing continuously should be accomplished and stored to be used appropriately in developing the approved new marketing programs. As it is clear in the figure 3, this system is iterative and continuous. [67], [68].
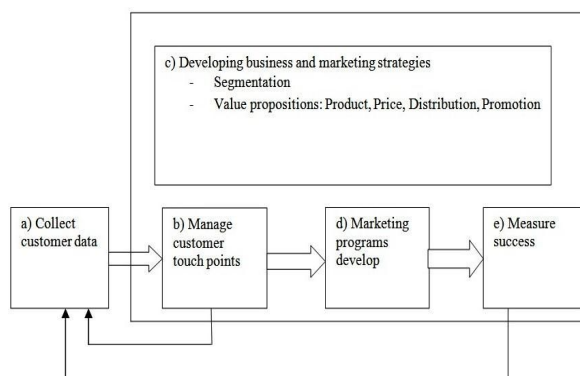

Figure 3. The CRM process Model (Roberts, 2003).

7.2 The CRM Process Model (Fahey et. al.)

Figure (4) illustrates [15], the CRM process model. The model starts by developing the customer strategy to identify the target market to differentiate and develop strategies for customers' segmentation and profitability. Next, gradually, comes the setting of customer objectives for organization performance, satisfaction, loyalty, and value. Then, assessing the organizational supply chain readiness is carried out through turning the organization focus toward customer rather than products, assuring the top management commitment and support, and planning for the implementation of a CRM system. After that, the alignment of the organization behind the corporate CRM goals that are in lack of enterprise-wide program of management alteration. Once the change happened, it may release to either a change in the organizational supply chain fundamental processes or a fundamental transformation in the organizational supply chain culture (product-centric to customer-centric). The time has come to execute the CRM programs; the focus now is on carrying out differentiated strategies for each customer segments by a specific program. Finally, the measurement of the CRM program effectiveness is carried out through the developing a set of metrics supposed to measure the attainment of customer objectives, the contribution of each individual

program to the overall CRM initiative, the contribution of each program in the enhancement of an organization's data capability, and the potential plan for improving the future programs.
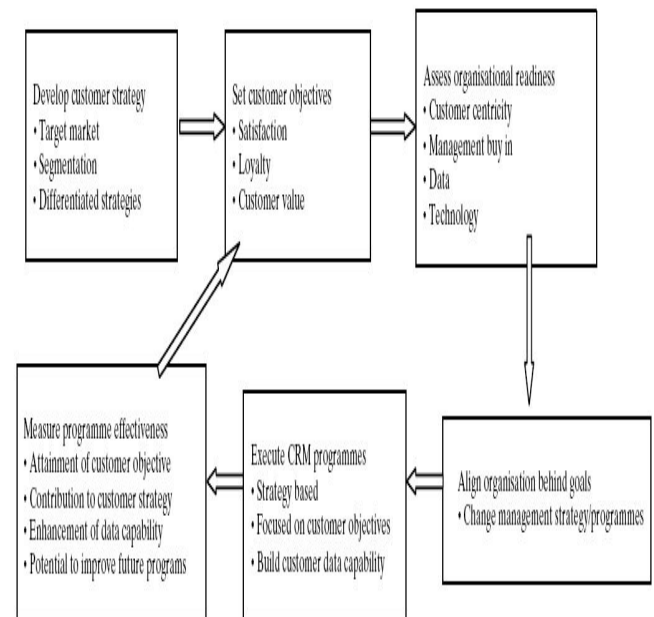

Figure 4. CRM Process Model
Source: Customer Relationship Management Processes from theory to practice: the Pre-implementation Plan of CRM system, [33].

[33], suggested that the model can be improved and enhanced to provide a better illustration and representation of the requirements of CRM processes. The first thing for the model to set off is undoubtedly to create a customer-oriented culture in the organization. This customer-oriented culture will aim to initiate the need and create the awareness of CRM, high lightening the importance of the main principles, and visualizing the CRM values. The second issue is to reflect the feedback, after measuring the program effectiveness steps, to the development of customer strategy. Based on this feedback, there may be a need to change the target market, the customer segmentation, or the differentiation strategies.

7.3 The Iterative CRM Process Model
The researcher has considered the traditional CRM model as an entry level and iterative process for the CRM process model by, [15]. Both have emphasized the corporation and marketing requirements for a successful CRM process. Hence, the researcher maintain that the traditional CRM process model can be the entry iterative step for [15], CRM process model. The organization supply chain has to collect the customer data and manage his/her touch points. The organization also has to measure the performance upon which the organization can develop the customer strategy…etc. where, in the automotive world or

any business supply chain the iterative process of gathering the information and verifying the data it is a vital in any business for that to have a an iterative process of such process model, will be a vital one for target achievement and revenue generation as mainly will be for customer retention and customer follow-up generation process. The main purpose of the iterative CRM process model to be linked to the system thinking concept of analysis and customer supply chain through the concept of the database structure design which we elaborated in the interaction management section. Figure (5) shows the proposed iterative CRM process model by the researcher.
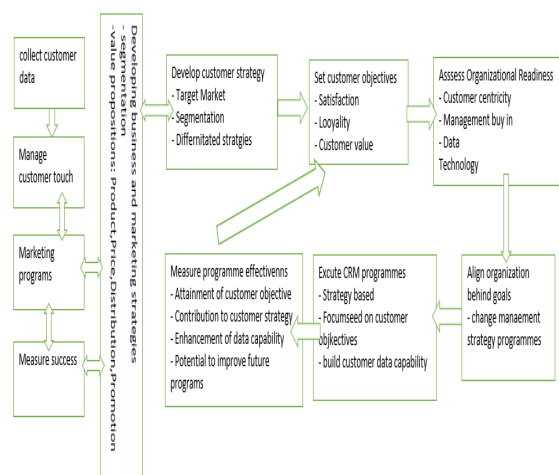

Figure 5. The Proposed Iterative CRM process model by the researcher

8.   Conclusion

Most of CRM processes start with one task, followed up by manipulation the data of that task, then the results which are the normal processes of any system as inputs, process, and outputs. As daily live the process and the events always happen and repeated in different ways and consciences, so, the repetitive process is high for most of the transaction in our supply chain daily lives. Thus, we studied the two CRM process models and came out with the iterative CRM process model. As the process naturally is repeatedly happening. Hence, the most critical success factor of any business is the iterative process which always happens to produce a profit or loss to the organization supply chain. Moreover, the more critical processes are the micro to be relevant within the macro processes of the organization supply chain.

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Appendix (A): CRM Mind Map Diagram