Evaluating the Critical success factors of strategic customer relationship management (SCRM) in textile industry (with Fuzzy Approach)

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ABSTRACT: The customer relationship management is a trading approach to perceive and influence in the customer behavior including improving the customer’s purchasing, maintaining the customer, the customer loyalty, and more profitability. Today, the competition and satisfaction of the customers is considered as a highly important factor in textile industry context. The customer orientation and satisfying the customer is highly considered with respect to the appearance of new and under developing countries in this industry. In this regards, the customer relationship management is an attitude indicating that with an appropriate and successful relation with the customer, all sections of textile companies and parts thereof and as well as marketing, the upcoming services and the companies future will be changed. This paper aims to evaluate the critical success factors of strategic management (CRM) of customer relationship in textile industry. The indices and criteria highly considered as the critical success factors in applying CRM in relation with the customer are determined with respect to three critical aspects including human, technology and processes. Also, using the success factors, a questionnaire is designed based on fuzzy numbers and pair-wise comparison table answered by 7 marketing managers of textile companies.

Key words: Critical factors, strategic management, customer relationship

INTRODUCTION

Considering the fact that CRM has started to grow since 1990, the companies attempt to increase customer relationship and establishing optimum loyalty in them, maintain more customers as well as profitability regardless of the companies’ development to accept the customer relationship management. Different organizations have been adopted different definitions of CRM. Following are some examples of its definitions:

CRM is a strategy to apply information, processes, technology, and employees over the life cycle of the customer in organization (marketing, selling and support services).[¹⁴]

CRM is a comprehensive strategy, buying process, maintaining customer, awareness of the customer’s features, and creating the high and best values for the organization and the customer including marketing, selling, support services, and the supply chain function in the organization to gain efficiency in providing service for the customer.[¹²]

Also, Ketellhohn (1998) with respect to the competition discusses the critical success factors as the minimum capacities the companies require to start the competition.[¹³]

Determining the criteria appropriately, implementing and modifying the processes of CRM continuously can lead to achieve the greater satisfaction of the customers as the main properties of each company. In this regards, it is highly important to prioritize the determined critical success factors. In this paper, Fuzzy Analytic Hierarchy Process approach is developed to prioritize the critical success factors and applying the Fuzzy Analytic Hierarchy Process technique is suggested.[⁵]

AHP is a methodology of key multi-criteria decision making that was highly accepted by the specialists.
AHP is a qualitative methodology to change an unstructured problem into a systematic series of hierarchical decision. In a quantitative mode, it adopts a pair-wise comparison for testing the compatibility to validate the compatibility of the responses.

**Main body**

In spite of the knowledge and the concepts presenting CRM, designing a model to implement and evaluate CRM strategy in textile industry has been less regarded than the other industries. With intensifying global competition in different industries, the managers have focused on the efficiency and the output of the customer relationship. Meanwhile, textile industry is not excluded from this principle and needs to a strategy to absorb customers to achieve its goals, i.e. absorbing and satisfying the customer and this strategy will be tangible with CRM.\(^3\)

To evaluate the successfulness of CRM strategy, the companies should choose the most related criteria to the industry which are the critical success factors determined by the elites. According to Kech (1995), the critical success factors are considered as the characteristic, condition or the variable affecting the business.\(^1\)

**CRM objectives**

The objectives of the customer relationship management can be stated as follow:

- Customer recognition
- Collecting customer info
- Analyzing customer data
- Absorbing new customers
- Improving employees skills
- Improving the customer relationship management strategy

**Customer exchanges**

- Appropriate response to the customer request
- Integrating trading process
- Improving communication channels management
- Increasing the efficiency of organization performance
- Personalizing products and services

**Customer value**

- Improving customer maintenance
- Increasing profit
- Improving customer service (support service)
- Creating virtual space (internet)

**Customer satisfaction**

- Improving the quality of customer service
- Communicating with customer

The affective factors in achieving CRM objectives include the processes, human factors and technology \(^{15}\).

**The critical success factors (CSFs)**

The minimum capacities the companies require starting the competition \(^{13}\). Since CSFs highly influence the performance in CRM, they should be highly considered by the managers consequently \(^{10}\). There are various points of view regarding the CSFs definition which can be categorized into three general types.\(^6\)

In the first view point, CSFs are defined as the required factors to success in industry but not as the competitive advantages in industry. According to this view, all the industrial companies need to CSFs to maintain in industry. But investing in these factors does not mean to be advantageous over the other rivals. In other words, to gain the competitive advantage, the companies should invest in other factors in addition to CSFs.

Many experts believe that the competitive advantage can be created recognizing and obtaining appropriate results in CSFs regarding themselves and the other rivals. Ansef claims that CSFs have an important role to determine the competitive strategies and the organization’s success depends on the accordance between the intra-organizational capabilities and the requirements of the organizational environment. These capabilities are called as "the critical success factors".\(^4\)
Meanwhile, other experts argue that there is nothing as CSFs in an industry and investing in this concept is useless. Consequently, each company should find a way to gain the competitive advantage with respect to its resources and competence. During two recent decades, using CSFs have expanded in the management fields, specifically in strategic management, operations planning management, dedicating resources, security management, planning organization needs, implementing 6 sigma, and evaluating performance. Furthermore, some authors associates CSFs of the organization with critical competence, the chain value and the business process and some of them use CSF concept to create “learning organization”.

Generally, CSFs are described in the effectiveness domain of a specific manager. However, since there are different levels of management in each organization, each of them may have a completely different organizational environment.

Five sources or certain types of CSFs can be described as follow:
- An industry in which the organization competes or lives in it.
- A perception from the organization’s rivals
- The general atmosphere and condition of trading or the organizational environment
- The problems, the barriers or the challenges which the organization faces
- The management layers

The CSFs methodology is a process attempted to specify the number of the key areas determining the organizational success.

**Determining the critical success factors of CRM strategy in textile industry**

Studying the related literature about the CSFs presented to evaluate the establishment and implementation of CRM projects reveal that CSFs are the best technique to evaluate the establishment and implementation of CRM strategy. Therefore, ten CSFs determined with respect to Mendoza’s research regarding the production industries such as textile industry are suggested [15]. These CSFs relate to the evaluation of the establishment and implementation of CRM projects and considers all involves aspects in the establishment process. The determined CSFs cover the following concepts:

- The processes: this section includes the main processes of the customer relationship such as marketing, selling as well as service and there is an attempt to consider the importance of the definitions, their relations and appropriate documentation.
- The human factors: the CSFs of this section should regard the human aspects of the project and considers the organizational aspects as well.
- The technology: this concept involves all the CSFs associating directly with types of technology, components and tools required for each organization intended to implement such strategies.

![Figure 1. diagram of the critical success factors](image-url)
Table 1. the suggested CSFs to evaluate the establishment and implementation of CRM strategies

<table>
<thead>
<tr>
<th>No</th>
<th>Business factors</th>
<th>Human factors</th>
<th>CSFs</th>
<th>Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-</td>
<td>There is a relation</td>
<td>The commitment and participation of the senior management in CRM project</td>
<td>technology</td>
</tr>
<tr>
<td>2</td>
<td>There is a relation</td>
<td>There is a relation</td>
<td>Forming a team with multiple tasks to implement the CRM project</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>There is a relation</td>
<td>There is a relation</td>
<td>Determining and defining the objectives of the CRM project</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>There is a relation</td>
<td>There is a relation</td>
<td>Integrating different parts of the organization to support the general objectives of the organization and the parts thereof</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>There is a relation</td>
<td>There is a relation</td>
<td>Informing all the individuals in the organization about the objectives, advantages and effects of the CRM project</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>There is a relation</td>
<td>-</td>
<td>Assuring the employees’ commitment and responsibility toward CRM project</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>There is a relation</td>
<td>There is a relation</td>
<td>Keeping and managing the customers’ critical information in the organization, the customer service, providing before and after sell services to the customer</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>There is a relation</td>
<td>-</td>
<td>Automatization of sale activities, marketing and keeping the marketing info within the company</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>There is a relation</td>
<td>There is a relation</td>
<td>Establishing the support mechanisms of the operations management</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>There is a relation</td>
<td>-</td>
<td>Existence of the adequate communication channels with the customer</td>
<td></td>
</tr>
</tbody>
</table>

In fact, these suggested factors are a balanced and integrated approach against the human factors, technology and processes to guarantee the successful CRM establishment. Additionally, evaluating suggested CSFs shows that they can be improved and applied in other markets and environments. However, the suggested CSFs are a start point to evaluate the affective CRM strategy from a systematic point of view. The textile companies can apply these factors in each of the following cases:

No CRM strategy has been defined already, but different sections of the textile companies have attempted to establish an acceptable relation with the customers. In this section, the evaluation of these CSFs reveals that which aspects have been considered and which aspects need more attention and enforcement.

The companies are defining the CRM strategy and evaluating these CSFs reveals important points in developing this strategy.

They are implementing the CRM strategy; therefore, considering all the CSFs is highly regarded.

They have implemented the CRM project and intend to evaluate this strategy.

Considering the fact that the CRM in textile industry is at the beginning of improvement, the first case is applied in this study.

METHODOLOGY

In implementing each project, the methodology section can ensure the researcher form the obtained results. The methodology of the present study indicates the logical reasoning principles based on them, the critical success factors were evaluated with a fuzzy approach. The descriptive research is a research method describing the existing conditions and includes data gathering for testing hypotheses. This study is a descriptive survey research determining the relation between the critical success factors (CSFs) and the customer relationship management (CRM) in the textile industry.

In this study, the field method was used and the data was obtained based on the opinions of the marketing and sale units of 7 best textile companies in Kashan. A questionnaire was designed based on pair-wise comparison table answered by the respondents considering the column to row and row to column priority. Then, the verbal words were converted into the fuzzy numbers. Finally, the extracted data from the questionnaires were analyzed based on the fuzzy principles and logarithmic least squares method to rank the critical success factors using SPSS software.
Considering the unsafe condition of the textile industry, focusing on the customer orientation and establishing CRM can improve its present condition. Thus, based on the mentioned facts, the importance of this study is revealed.

**DISCUSSION AND RESULTS**

**Evaluating the CSFs with Grouped Fuzzy Logarithmic Least Square Method**

After determining the critical success factors, the data is analyzed. In this section, the criteria are prioritized regarding the obtained data from the questionnaires with computing the weight of the criteria using logarithmic least square method. Ying-Ming-Wang (2006) stated the weaknesses of the extent analysis method of Chang in his article and the algorithm of the logarithmic least square method was improved in 2007. Based on the suggested method by Ying-Ming-Wang, suppose to have a group pair-wise comparisons matrix as follow:[7]

\[
\begin{align*}
\begin{bmatrix}
    (1,1,1) \\
    (l_{211}, m_{211}, u_{211}) \\
    (l_{12812}, m_{12812}, u_{12812}) \\
    \vdots \\
    (l_{n11}, m_{n11}, u_{n11}) \\
    (l_{n186n1}, m_{n186n1}, u_{n186n1}) \\
\end{bmatrix}
\end{align*}
\]

Where \( \tilde{a}_{ijk} = \tilde{a}^{-1}_{ijk} = (1/u_{jk}, 1/m_{jk}, 1/l_{jk}) \tilde{a}_{ijk} = (l_{ijk}, m_{ijk}, u_{ijk}) \) are the fuzzy evaluations in which:

\[
i, j = 1, 2, ..., n, i \neq j, k = 1, ..., \delta_{ij}
\]

There is a normal fuzzy weight vector for the above mentioned group pair-wise comparisons matrix as follow:

\[
\tilde{W} = (\tilde{w}_1, ..., \tilde{w}_n)^T = ((w^l_1, w^m_1, w^u_1), ..., (w^l_n, w^m_n, w^u_n))^T
\]

In the edited logarithmic least square method by Ying-Ming-Wing, the resulted fuzzy vector from solving the following non-linear logarithmic problem will results in normal fuzzy weight vector\( \tilde{W} \).

\[
\begin{align*}
\text{Min} & \quad J = \sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{k=1}^{\delta_{ij}} \left( (lnw^L_i - lnw^U_j - lnm_{ijk})^2 + (lnm^M_i - lnm^L_i - lnm_{ijk})^2 + (lnm^U_i - lnm^L_i - lnm_{ijk})^2 \right) \\
\text{s.t.} & \quad w^L_i \sum_{i=1, i \neq j}^{n} w^U_j \geq 1 \\
& \quad w^U_i \sum_{i=1, i \neq j}^{n} w^L_j \leq 1 \\
& \quad \sum_{i=1}^{n} w^M_i = 1 \quad i = 1, 2, ..., n \\
& \quad \sum_{i=1}^{n} (w^L_i + w^U_i) = 1 \\
& \quad w^U_i \geq w^M_i \geq w^L_i > 0 
\end{align*}
\]

Considering the fact that all the limitations are linear, solving this problem with related software like Lingoseems very easy and quick. Note that in this method, there is no need to acquiring mean or the evaluations of the individuals or normalizing the weights.[8]

The obtained results from the fuzzy pair-wise comparisons table computations of 7 marketing and sale managers are as follow:
After computing the weight of each criterion using Lingo software, the defuzzy method is done using BNP and the criteria will be prioritized in this way:

\[
BNP = \frac{(U-L)+(M-L)}{3} + L
\]

Table 2. the weights of the main criteria of CRM strategy

<table>
<thead>
<tr>
<th>L</th>
<th>M</th>
<th>U</th>
</tr>
</thead>
<tbody>
<tr>
<td>W_1</td>
<td>0/0676</td>
<td>0/0827</td>
</tr>
<tr>
<td>W_2</td>
<td>0/0718</td>
<td>0/0814</td>
</tr>
<tr>
<td>W_3</td>
<td>0/0853</td>
<td>0/1009</td>
</tr>
<tr>
<td>W_4</td>
<td>0/1218</td>
<td>0/1458</td>
</tr>
<tr>
<td>W_5</td>
<td>0/0392</td>
<td>0/0444</td>
</tr>
<tr>
<td>W_6</td>
<td>0/0244</td>
<td>0/0262</td>
</tr>
<tr>
<td>W_7</td>
<td>0/1059</td>
<td>0/1366</td>
</tr>
<tr>
<td>W_8</td>
<td>0/1526</td>
<td>0/2218</td>
</tr>
<tr>
<td>W_9</td>
<td>0/0301</td>
<td>0/0342</td>
</tr>
<tr>
<td>W_{10}</td>
<td>0/1026</td>
<td>0/1260</td>
</tr>
</tbody>
</table>

Table 3. prioritizing the main criteria of CRM strategy

<table>
<thead>
<tr>
<th>BNP</th>
<th>The main criteria</th>
<th>Row</th>
</tr>
</thead>
<tbody>
<tr>
<td>0/2173</td>
<td>the Automation of sale, marketing and keeping information</td>
<td>1</td>
</tr>
<tr>
<td>0/1458</td>
<td>Integration of the units</td>
<td>2</td>
</tr>
<tr>
<td>0/1342</td>
<td>Management of the customer’s information before and after sale</td>
<td>3</td>
</tr>
<tr>
<td>0/1231</td>
<td>Existence of the adequate communication channels with the customer</td>
<td>4</td>
</tr>
<tr>
<td>0/1020</td>
<td>Determining and defining the objectives of the CRM project</td>
<td>5</td>
</tr>
<tr>
<td>0/0853</td>
<td>Forming a multiple tasks project team</td>
<td>6</td>
</tr>
<tr>
<td>0/0852</td>
<td>The senior manager’s commitment and participation</td>
<td>7</td>
</tr>
<tr>
<td>0/0455</td>
<td>Informing the employees about the CRM project</td>
<td>8</td>
</tr>
<tr>
<td>0/0351</td>
<td>Establishing the support mechanisms of the operational</td>
<td>9</td>
</tr>
<tr>
<td>0/0301</td>
<td>Management</td>
<td></td>
</tr>
<tr>
<td>0/0265</td>
<td>The commitment of the work forces toward the CRM project</td>
<td>10</td>
</tr>
</tbody>
</table>

CONCLUSION

Today, the companies should plan the whole life of the customer instead of focusing on a specific period of it in textile industry. To this purpose, the customer relationship management to have long time relations with the customer and appropriate management of the relation is suggested which can lead to gathering the customers information and using this information in providing more desirable products for them. Also, appropriate evaluation based on the critical success factors can inform the companies from their weaknesses and strengths in the customer relationship management. In Iran, some companies including the carpet factories using the customer orientation software systems have attempted to identify the customers’ needs, satisfy them and maintain the long term relations with them. Note that the customer relationship is not only a software system but regarding the customer relationship management in the textile industry; a series of main factors including determining customer relationship management strategy should be considered to reveal the efficiency of this system.

In all companies, passing the stage of determining the strategy and entering the stage of implementing the strategy involve changing the responsibilities, i.e. the responsibility is removed from the strategists’ shoulders and assigned to the managers of the units and sections. In case of appropriate determination of the strategy, the managers and the employees are motivated to progress. Therefore, it is necessary for the managers of the sections and units to participate in determining the strategy and its related activities. The determined critical success factors indicate the direct and indirect role of all the units of a company in determining the strategy and implementing the customer relationship management project.

The ambiguity in the concept of the customer relationship management will result in inefficient implementation and its failure. With the advent of new trading environments and implementing the CRM strategy, one of the main problems the textile companies face is the limited numbers of the models designed to direct the companies. That is why; a model has been designed to direct the textile companies to implement and evaluate the CRM strategy with respect to the obtained results and prioritizing the CSFs (figure 2).
Figure 2. The model of evaluating the success of the CRM strategy in textile industry
(The arrows direction are based on the CSFs prioritization)

REFERENCES