Effect of Customer Relationship Management (CRM) on Performance of Small-Medium Sized Enterprises (SMEs) Using Structural Equations Model (SEM)

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Abstract
In today world, the necessity of continuing activities and maintaining the competitive advantage is attention to customers that due to their direct relationship with organization actions are valuable source for opportunities, threats and operational questions related to the industry. This study aims to investigate the effect of customer relationship management (CRM) on the performance of small and medium size enterprises (SMEs). Statistical population of this study is managers active in industrial park in Mashhad. Statistical sample of this research is 105 managers who were selected randomly from among the managers of industrial park located in this city. Library method was used for gathering data. In this research, survey method and questionnaire were used to identify the effect among variables and data analysis was done by AMOS18 and SPSS19 software. Results showed that CRM has significant effect on the performance of enterprises. Technology is a key factor which influences SMEs and leads to superiority on competitors. Besides, for achieving more desired performance, enterprises should pay attention to market and customers.

Key words
Customer Relationship Management (CRM), Small And Medium Size Enterprises (SMEs), Structural Equations Model (SEM)

1. Introduction
In past, customers expected on-time delivery, good quality, cheap product and after-sale services from producers. Trade was based on the relationship and intermediaries were powerful in the distribution chain but nowadays, organizations act in the dynamic and complex environments, the competition among organizations has increased, products life-cycle are reduced and life-cycle of organizations decline rapidly (Mehrabiet al., 2010).

In many cases, products with similar qualities are produced by producers and this is the customer which decides to buy (Kotler & Armstrong, 2004). Attitude of companies is toward increasing the satisfaction of customer and high profit due to expansion and increase in the competitive space. With transition from traditional economy and intensifying competition in new dimensions, customer is the main axis of activities of organization such that from competitive view, survival of organizations depends on identifying and attracting new customers and maintains existing customers (Elahi et al., 2005). Yunja et al. research (2004) shows that costs of attracting new customers is five times of maintaining existing customers. This means that instead of distinguishing products, organizations should identify their customers and shift toward emphasis on the increasing the share of customer. Regarding 20/80 rule,
customers are shared in 80% of organization's sale. This shows the necessity of maintaining long-term relationship with profitable customers in order to maximize the profit (Alejandra, 2007).

In recent years, by increasing the expectations of customers, CRM is considered as an inevitable necessity for success of business. There is great dependence between seller and buyer that customers expect to have their products and companies need technology by which they can create new innovations for improving and attracting customers. This research studies the effects of CRM on the performance of SMEs that attention to it improves the performance of industries. Be developing enterprises and increasing communications, companies consider CRM as undeniable necessity. Therefore, in this research, we try to answer this question that what is the effect of CRM on the performance of SMEs in export.

1.1. Research Purposes

Benefits of CRM and its effects on the industries and companies were studied (Buttle 2004, Egan 2008). Regarding the vital role of CRM in performance of target industries, this research seeks these purposes:

1. Creating a relational model based on the relationship between CRM and performance of SMEs;
2. Studying the correlation between CRM and performance of SMEs;
3. Studying the effect between CRM and performance of SMEs.

In this research, definition of SMEs is based on the European Union that defines these companies with less than 50 jobs. Results of this research can help these industries to identify CRM and evaluate their effects on the performance of companies.

2. Literature review

CRM as a new concept was emerged in the middle of 1990s. Although CRM is an important discussions in recent years, but there is no shared definition for it. Some definitions of CRM from expert's view are presented in able (1).

<table>
<thead>
<tr>
<th>CRM</th>
<th>Researchers</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is the process of mixing processes and technologies related to the customer</td>
<td>Kodwel, 1998</td>
</tr>
<tr>
<td>It is the method of using software and technology for automatic management and improving the operation</td>
<td>Greenberg, 2001</td>
</tr>
<tr>
<td>Organizational approach is for understanding behavior of customer to attract the customer</td>
<td>Sufder, 2001</td>
</tr>
<tr>
<td>It is better service to customers in all organizational level</td>
<td>Dodes, 2001</td>
</tr>
<tr>
<td>It is the information that helps companies to understand the needs of customers and evaluate their behavior against operational processes</td>
<td>Christopher, 2003</td>
</tr>
<tr>
<td>It is the general process of preserving profitable customers</td>
<td>Payne, 2004</td>
</tr>
<tr>
<td>It is a method which provides a solid, integrated and coherent view of customers</td>
<td>Karakostas, 2005</td>
</tr>
<tr>
<td>Integration of sale, marketing and services' strategies and preventing 1D view about customers</td>
<td>Ngai, 2005</td>
</tr>
</tbody>
</table>

CRM is the business strategy focused on the customer that increases the loyalty and satisfaction of customer by presenting him the personalized services and some know it as a managerial approach which includes identifying, attracting, developing and maintaining the successful relationship with customer in order to increase profitability. Research showed that 5% increase in preserving the customer will lead to 95% increase in the value for organization (Greenberg, 2002). CRM is a strategic necessity for all organizations because its effective implementation increases the satisfaction of customer, loyalty and attraction and more sale and buy (Wu et al., 2007). General process of developing and maintain the profitable communication with customer is by delivery or presenting a higher value to customer and achieving his satisfaction (Kotler, 2004). Gamson (2002) considers CRM as a necessary rule for those organizations that need development and growth that in this regard, identifying the key dimensions of CRM is very important (Payne and Frow, 2004). Regarding the widespread studies in CRM, there is numerous classifications that some of the most important of them are presented below:
Table 2. Factors related to the CRM

<table>
<thead>
<tr>
<th>Researchers</th>
<th>Classification of factors related to CRM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berson et al. (1999)</td>
<td>Operation, analysis, interaction</td>
</tr>
<tr>
<td>Swift (2001)</td>
<td>Data gathering, storage, summarizing, display and application</td>
</tr>
<tr>
<td>Amrit (2001)</td>
<td>Understanding the behavior of customers based on multiple view</td>
</tr>
<tr>
<td>Ming &amp; Chen (2002)</td>
<td>Internet support, customer support and market support</td>
</tr>
<tr>
<td>Lindgreen (2004)</td>
<td>Organizational structure, knowledge management, value creation strategy, information technology, culture, individuals, process, interaction with customer</td>
</tr>
<tr>
<td>Zablah et al. (2004)</td>
<td>Philosophy, capacity and technology</td>
</tr>
<tr>
<td>Chen, Q., Chen, H (2004)</td>
<td>Excellent leadership, internal market, management knowledge and IT business</td>
</tr>
</tbody>
</table>

2.1. Enterprise performance

Performance of SMEs is a widespread concept which shows the final results of operational activities of an organization (Salzgli, 1984). Evans (1996) suggests that evaluating the performance of enterprises is a key factor for company that helps it to manage its resources and controls them effectively. Besides, organizational performance shows how an organization reaches to mission and targets. Organizational performance indicates beginning from a certain position and reaching to a target that may include some target points including market share, sale volume, motivation, customer satisfaction and quality level (Boisort, 2006) and it is indicators of evaluating the level of success (Ducket & Stew, 1993).

2.2. Performance measurement

Venkatraman (1986) proposed three views for performance evaluation:
1. Financial performance which includes achieving profit.
2. Company performance which is a set of financial and operational performances which includes market share.
3. Organization performance includes two above views and resolving conflict between them.

Barney (2000) divided enterprise performance measurement into four groups: company survival, shareholder interest, simple accounting indicator and accounting index after regulation. Balanced scorecard (BSC) is a performance measurement method that is introduced by Kaplan and Norton (2004) which considers financial and non-financial aspects and divided it into four views financial, customer, internal process, learning and growth. Balanced Scorecard evaluates financial, non-financial and reasoned views, in addition to financial views (Pinon, 2002).

2.3. Customer

Customers are the best asset of an organization and regarding modern competitive world; customer orientation in organizations has certain importance and leads managers to understand the importance of CRM in organization (Greenberg, 2002). Organization strategy focuses on the manner of attracting customers and maintaining and developing communication with existing customers and research is the purpose of CRM which requires identification of customers and only those customers should be considered than their behavior is effective (Richardo, 2006). In other words, effectiveness of CRM is based on the analysis of customer segmentation that in order to developing effective attraction strategies, it needs comprehensive understanding of needs, behavior and profiles of different groups of customers (Mosad, 2006). Customer satisfaction is generally described as meeting the expectations of individual (Oliver, 1980). Customer satisfaction is the feeling or attitude of a customer to a product or service after use. Loveluck et al. (2003) sated the satisfaction of customer as perceived service based on required service.

Hypothesis 1: Customer support is effective on the SMEs performance.

Traditional marketing strategies were focus on the concept of 4 Ps: price, product, place and promotion in order to increase the market share and their initial attention are increasing the volume of exchange between seller and buyer. In this regard, sale volume is a measure of strategies’ performance and marketing techniques. But CRM is a business strategy which is beyond increase in the volume of the
exchange and its purpose is increasing profitability, income and customer satisfaction that organizations use widespread tools and approaches and methods for achieving this goal (Elahi and Hiedari, 2005).

Hypothesis 2: market support is effective on the performance of enterprises.

2.4. Technology

In many business relations, technology is the origin of new ways of doing work such that most companies seek to conform themselves with these technologies. What is considered in the CRM is that company’s do not begging from zero. All these companies have general information of customers and this information is in separate information. One of the major challenges that companies face it is need for integration of systems to be able to use existing information in relation with customers (Peppar, 2000). Technology has powerful role in the establishment of CRM (Das, 2004) and let the companies to more customize and provide more service with less cost and high profit for companies (Linderin, 2004; Sin et al., 2005). Therefore, technology is a key factor in implementing of this strategy (Hansonia 2002; Mandz et al., 2007).

3. Research conceptual model

Conceptual model as starting point and basis for studies and researches that specifies the variables and their relations (Kernel, 2005). In this research, variables related to CRM are drawn from table (1) and business performance is a combination of balanced scorecard (BSC) and Venkaterman (1986). In this research, three variables were selected as effective variables on the performance of industries that each of them are measured by questionnaire.

![Research conceptual model](image)

**Figure 1. Research conceptual model**

4. Research methodology

This research is applied in terms of purpose and descriptive-survey in terms of method and nature. In this research, for measuring the reliability of the questionnaires, first standard questionnaires were used and after appropriate correction, it was delivered to the experts and practitioners and managers and then revisions in questionnaires were done. In this research, reliability of questionnaire was measured using Cronbach alpha which is shown in table 4.

4.1. Statistical population and research sample

Regarding above-mentioned explanations about statistical population, and place and time of this research, statistical population of this research are all managers in SMEs in Mashhad. The reason for
selecting this people is that that they have tangible activity with customers and face challenges, bottlenecks and existing realities.

There are different methods for determining he sample volume that mathematical methods are the most accurate methods for calculating the sample size. If these variables were of interval scale and the population sample was limited, below formula is used. In this relation, N is population volume (Momeni, 2007: 220).

\[
n = \frac{N \times z^2 \times \sigma^2}{\varepsilon^2 \times (N-1) + (z^2 \times \sigma^2)} = \frac{180 \times 1.96^2 \times .677^2}{.1^2 \times (180 - 1) + (1.96^2 \times .677^2)} \approx 100
\]  

(1)

Based on the sample size, 105 questionnaires were distributed between managers and practitioners. It should be mentioned that among distributed questionnaires, 100 questionnaires were returned that only 98 questionnaires were suitable for data analysis.

4.2. Data gathering tool

Three procedures were used for data gathering.

A. Library method: in this study, researcher has used library resources like books, internet and similar research to gather data about theoretical foundation and literature review.

B. Search by electronic resource: in order to become aware of studies in other parts of the world and achieving research findings, scientific articles and information exchange and email were used.

C. Field study: because this is a descriptive research, the instrument was questionnaire. Field study includes distribution and collection of questionnaires consisting of two parts demographic (age, size, education and activity) and main body is measured as a measurement instrument that evaluates the variables of the study and it is a combination of factors related to the CRM and SMEs which includes 35 questions with Likert five-point scale.

4.3. Data analysis and findings

Questionnaire is the main data gathering tool. Using SPSS19 software, a measure was designed for the research variables and data were analyzed. In order to study the relationship between variables, correlation test was used. Results of correlation test are shown in following table.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Technology</th>
<th>Customer support</th>
<th>Market support</th>
<th>Financial</th>
<th>Customer support</th>
<th>Growth &amp; learning</th>
<th>Internal process</th>
<th>SME performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer support</td>
<td>0.697**</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market support</td>
<td>0.755**</td>
<td>0.920**</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial</td>
<td>0.792**</td>
<td>0.746**</td>
<td>0.751**</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer support</td>
<td>0.736**</td>
<td>0.885**</td>
<td>0.871**</td>
<td>0.746**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Growth &amp; learning</td>
<td>0.730**</td>
<td>0.883**</td>
<td>0.856**</td>
<td>0.702**</td>
<td>0.766**</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal process</td>
<td>0.715**</td>
<td>0.918**</td>
<td>0.903**</td>
<td>0.721**</td>
<td>0.756**</td>
<td>0.877**</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>SME performance</td>
<td>0.807**</td>
<td>0.927**</td>
<td>0.944**</td>
<td>0.863**</td>
<td>0.948**</td>
<td>0.947**</td>
<td>0.948**</td>
<td>1.000</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level.

Regarding above table, it can be said that all variables have significant relationship with each other in the 99% confidence level and 1% error. Among independent variables. Market support has the highest relationship with the SMEs performance as 0.944. Technology has the least relation (0.807) relationship with dependent variable of research. In addition, all independent variables of the research (technology,
customer support and market support) have significant relationship with the performance of SMEs (innovation, financial, growth and learning, internal process and customer). An important point is that among the customer support dimensions, the highest relationship (0.918) was with internal process and lowest relationship with (0.730) between technology and growth and learning. Finally, it can be stated that all independent research variable including technology, customer support and market support have significant and positive (direct) relationship with SMEs.

4.4. Testing research hypothesis

Research hypotheses are”
1. Customer support has effect on the SMEs performance in export companies.
2. Market support has effect on the SMEs performance in the exporting companies.
3. Effect of technology on the SMEs performance has effect on exporting companies.

Following figure shows hypothesis testing.

![Figure 2. Initial model](image.png)

Numbers of questionnaire items are confirmatory factor loading that for obtaining them, each measurement model was implemented separately in the software and for each of them; significant factor loading was implemented in the software which shows that how much that question has explained the variable. Confirmatory factor loading indicates explanation of that variable with related question that usually should be higher than 5% and significant; otherwise that question should be eliminated from next testing (Fotiouhi Ardekani et al., 2013) because it has low explanation capability and confidence.
Therefore, we eliminate the factor loading lower than 5%. Following tables show the items and factor loading.

Regarding table 4, all questions related to the factor analysis are high and significant. As a result, questions have high capability for measuring the research variables and there is no need to eliminate them. By eliminating the questions and required revisions, final model is as bellow:

Table 4. Results of confirmatory analysis and significance

<table>
<thead>
<tr>
<th>Significance</th>
<th>Factor Confirmatory Load</th>
<th>Items</th>
<th>Significance</th>
<th>Factor Confirmatory Load</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>/</em>**</td>
<td>.920</td>
<td>B1</td>
<td><em>/</em>**</td>
<td>.951</td>
<td>A4</td>
</tr>
<tr>
<td><em>/</em>**</td>
<td>.750</td>
<td>B2</td>
<td><em>/</em>**</td>
<td>.695</td>
<td>A3</td>
</tr>
<tr>
<td><em>/</em>**</td>
<td>.689</td>
<td>B3</td>
<td><em>/</em>**</td>
<td>.938</td>
<td>A2</td>
</tr>
<tr>
<td><em>/</em>**</td>
<td>.884</td>
<td>B4</td>
<td><em>/</em>**</td>
<td>.635</td>
<td>A1</td>
</tr>
<tr>
<td><em>/</em>**</td>
<td>.924</td>
<td>B5</td>
<td><em>/</em>**</td>
<td>.708</td>
<td>A5</td>
</tr>
<tr>
<td><em>/</em>**</td>
<td>.663</td>
<td>B6</td>
<td><em>/</em>**</td>
<td>.945</td>
<td>A9</td>
</tr>
<tr>
<td><em>/</em>**</td>
<td>.940</td>
<td>B7</td>
<td><em>/</em>**</td>
<td>.971</td>
<td>A8</td>
</tr>
<tr>
<td><em>/</em>**</td>
<td>.866</td>
<td>B8</td>
<td><em>/</em>**</td>
<td>.972</td>
<td>A7</td>
</tr>
<tr>
<td><em>/</em>**</td>
<td>.846</td>
<td>B9</td>
<td><em>/</em>**</td>
<td>.947</td>
<td>A6</td>
</tr>
<tr>
<td><em>/</em>**</td>
<td>.902</td>
<td>B10</td>
<td><em>/</em>**</td>
<td>.745</td>
<td>A13</td>
</tr>
<tr>
<td><em>/</em>**</td>
<td>.878</td>
<td>B11</td>
<td><em>/</em>**</td>
<td>.827</td>
<td>A12</td>
</tr>
<tr>
<td><em>/</em>**</td>
<td>.895</td>
<td>B12</td>
<td><em>/</em>**</td>
<td>.785</td>
<td>A11</td>
</tr>
<tr>
<td><em>/</em>**</td>
<td>.923</td>
<td>B13</td>
<td><em>/</em>**</td>
<td>.924</td>
<td>A10</td>
</tr>
<tr>
<td><em>/</em>**</td>
<td>.903</td>
<td>B14</td>
<td><em>/</em>**</td>
<td>.860</td>
<td>A14</td>
</tr>
<tr>
<td><em>/</em>**</td>
<td>.864</td>
<td>B18</td>
<td><em>/</em>**</td>
<td>.767</td>
<td>B15</td>
</tr>
<tr>
<td><em>/</em>**</td>
<td>.937</td>
<td>B19</td>
<td><em>/</em>**</td>
<td>.915</td>
<td>B16</td>
</tr>
<tr>
<td><em>/</em>**</td>
<td>.939</td>
<td>B20</td>
<td><em>/</em>**</td>
<td>.925</td>
<td>B17</td>
</tr>
<tr>
<td><em>/</em>**</td>
<td>.870</td>
<td>B21</td>
<td><em>/</em>**</td>
<td><em>/</em>**</td>
<td><em>/</em>**</td>
</tr>
</tbody>
</table>
Figure 3. Final model and confirmatory load of hypothesis

Here, we should study the total indicators of model fitness to insure their suitability. Total fitness indicators related to this model are in acceptable scope and show good fitness of data. Results are shown in following table.

<table>
<thead>
<tr>
<th>df</th>
<th>CMNI</th>
<th>CMNI/DF</th>
<th>FMR</th>
<th>IFI</th>
<th>CFI</th>
<th>TLI</th>
<th>PNFI</th>
<th>PCFI</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>29.11</td>
<td>1.266</td>
<td>0.0.38</td>
<td>0.977</td>
<td>0.976</td>
<td>0.936</td>
<td>0.624</td>
<td>0.575</td>
<td>0.049</td>
</tr>
</tbody>
</table>

In this model, based on the p-value in above table, we can say that all fitness indicators related to research hypothesis were in acceptable scope. As a result, we should consider significance of loadings and model factors. Following table shows minor indicators.

Table 6. Minor indicators and paths of first hypothesis
Results of above table indicate that all factor loadings have significant difference with zero. Therefore, based on the results shown in above table, we can state the results of hypothesis testing:

First hypothesis: effect coefficient of customer support for the performance of SMEs is 0.95 and because the p-value is lower than 0.05 and critical value is 6.24, it could be claimed that first hypothesis is confirmed. As a result, customer support has direct effect on the SMEs performance in exporting companies.

Second hypothesis: effect of market support on the SMEs performance is 0.9 and because the P is lowers than 0.05 and critical value is 6.32, it can be claimed that second hypothesis is confirmed. As a result, market support has positive effect on the performance of SMEs.

Third hypothesis: technology effect on the SMEs performance is 0.766 and because p-value is less than 0.05, it can be claimed that third hypothesis is confirmed. As a result, technology has effect on the SMEs performance in exporting companies.

5. Discussion and Conclusion

This research studies the effect of CRM on the SMEs that improves the performance of industries and companies. By development and growth of communications, companies consider CRM as a deniable necessity. Todays, there are high dependencies between seller and buyer that customers expect to have their own products. And companies needs technology to create new innovations and attract customers. In research of Seamen et al., they found strong relationship between CRM and market performance (Taherpor & Taibi Toolo, 2010). While this research shows the low relationship between CRM and market performance. In other words, results of this study show that companies and industries have low attention to markets such that they should improve their performance with market analysis. During interviews and questionnaire review, it become clear that industries are not aware of their customers and this leads to customer dissatisfaction. In order to solve the problem, it is suggested that companies and SMEs use knowledge management tools for integrating customer information. Implementation of CRM software in industries have significant role in the data gathering and analysis. As a result, if using CRM does not lead to added value for customers and competitive advantage for industries, there is no result except wasting resources. Regarding vital and key role of SMEs and customer-oriented approach in the organizations, researchers can study the role of knowledge management and relationship marketing on the SME’s performance and present suitable solution to improve it.

Suggestions based on the results:
1. Government and especially small industries can improve the SMEs performance by consultation, conferences and programs related to CRM.
2. It is recommended that regarding presented models, they use suitable strategies and show their purpose of marketing among the holders of companies and show that CRM will be the best alternative for operations and procedures and it is compatible with norms and needs.
3. Managers of SMEs can increase the abilities of their employees in the information system such that their employees become familiar with common information systems and acquire necessary skills for improving the performance of these industries.
4. SMEs should enhance their recognition of environment and customers in order to improve their performance. For example, through customer segmentation and identifying interests and tastes and predicting needs.

References


