

Modeling of Customer Relationship Management (CRM) Approach and Knowledge Management (KM)

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Abstract---Customer Relationship Management (CRM) consists of methodologies, process, and software's that assist in organized management of customer relationship. The current research aimed to analyze the relationship between CRM dimensions and product innovation process with concentration on knowledge management. A 380 employees from dairy products companies participated in this research, which the sample size was calculated of 192 people based on Krejcie and Morgan formula. The reliability and validity of the questionnaire were verified by Cronbach's alpha and concept and construct-convergent validity technique (Lisrel software), respectively. Shapiro-Wilk test, Structural Equation Model (SEM) techniques, and Kendall's W test were used to test the normality of the research variables as well as research hypothesis and questions, respectively. Among the CRM components, the attention to knowledge management and having a modern technology showed a significant correlation with product innovation process. The results indicated that the concentration on key customers in the organization, having a modern technology, attention to knowledge management, and organizing the business process respectively have the most priority.

Keywords---Customer Relationship Management, Innovation, Product, Knowledge Management, Business Process.

I. INTRODUCTION

With increasing acceleration of transformations in current world, the continuous change and transformation process is the main ruling factor in human being life, therefore, companies and organizations who wish to create or maintain the competitive advantage, are obliged to flexibility and acceptance of the changes. In this era, innovation became the main support for organizations. Having said that, organizations realized that customers are their most important property, therefore they consider customers relationship as a beneficial interaction that requires appropriate management (Plakoyiannaki, 2005). This concept consists of four elements of strategy, process, people, and technology. Researchers have presented different definitions for the CRM. Some consider it strategy, others technology, process or information system (Thompson, 2004). Since 1990, many companies have paid attention to the areas such as how to maintain positive relationships with customers, how to increase customer loyalty and how to develop customer lifetime value; therefore, the current strategies of organizations will change to

Han, 2003; Rigby and Ledingham, 2004). On the other hand, as O'Reilly mentioned (Branson, 2002), innovation is arisen from three factors as follows: "internal development resulted from Research and Development (R&D) programs", "managers and employees thoughts about how to make activities more effective" and "changes made in competition nature". This concept has been studied in various fields such as relationship with technology, business, social systems, economic development, and political structures; therefore, innovation has a wide range of definitions (Fagerberg, 2004). In one of the most reliable and practical definitions, Butler (2006) stated innovation as creating new changes in a process based on organization strategy. Nonaka (1994) also believes that innovation occurs when the workforce shares the knowledge with the organization, thus it creates a new common insight in a process of difference and approach (convergence and divergence), which would be a new guidance for organization capabilities that increase innovation. These findings are organization learning in development, acquisition, transmission and utilization of new knowledge that train organization innovation (Jimenes, valle & Hernandes, 2008).

II. LITERATURE REVIEWS

Gebbert, Geib Kolbe and Brenner (2003) findings showed that by unifying the CRM systems and knowledge management, the advantages could be increased while the risk could be decreased. The CRM requires knowledge management from, for and about customer. The results show that knowledge management is the reason for RELATIONSHIP success. Reinartz, Krafft and Hoyer (2004) found out applying the process of customer relationship have a fairly positive correlation with economic, objective and conceptual behavior of a company. They proposed process-oriented indexes in order to assess the effectiveness of this concept in three separate stages of initiation, maintenance and termination. Jain, Jain and Dhar (2007) developed an index to measure the effectiveness of CRM. This index comprises effective variables on customer relationship activities in business organizations that include all possible dimensions of interaction and relationship. In this study, eight effective factors on the CRM are identified. In addition to explaining different dimensions of customer relationship, this study has also presented some applications and suggestions for researchers and professionals. In Keramati and Nikzad study (Shahrivar 1387), the indexes and criteria that were important as key success factors in CRM application in textile industry were determined considering three key aspects of human,

technology and process. Using the key success factors, a questionnaire was designed based on paired comparison table and fuzzy numbers set. Moghli and Yavandpour (1389) objective was to analyze the relationship between key factors and effectiveness of the CRM. In this study, in addition to identification of the CRM relationship with effectiveness of the CRM dimensions (market and customer behavior, internal behavior of organization), predictability of eight components of CRM (attitude of senior managers, management of change, culture and organization, the CRM strategy, information technology, people, knowledge management, process) in relation with dimensions of CRM effectiveness were analyzed.

III. RESEARCH HYPOTHESIS

The Research hypotheses are as follows:
 The CRM components do not have equal priority.
 There is a significant correlation between attention to knowledge management and product innovation process.

IV. RESEARCH METHODOLOGY

From the objective and data collection point of view, the current research is practical and descriptive, respectively. The research methodology is based on the questionnaire, which one of the main advantages is to generalize the results. The data was collected from all 380 employees companies. According to Kokran formula, the sample size was calculated for 192 people using available sampling method. In order to assess the internal consistency of the questionnaire, Cronbach's alpha coefficient was separately calculated for each factor, which is shown in Table 1. The Cronbach's alpha coefficient value for different parts of the questionnaire shows that this tool has sufficient reliability.

TABLE I
 THE CRONBACH'S ALPHA VALUE FOR RESEARCH VARIABLES

| Variable | Numbers of questions | Variable alpha |
|---------------------|----------------------|----------------|
| CRM | 16 | 0.784 |
| Product innovation | 14 | 0.759 |
| Total questionnaire | 30 | 0.837 |

Therefore, the validity of the questionnaire in this study was approved using the Lisrel software.

V. FINDINGS

In order to test the normality of research variables' distribution, Shapiro-Wilk test was used, which is shown in Table 2.

TABLE II
 SHAPIRO-WILK TEST

| Research variables | Shapiro-Wilk | Degrees of freedom | Significance level |
|-------------------------------------|--------------|--------------------|--------------------|
| RELATIONSHIP | 0.912 | 192 | 0.351 |
| Attention to knowledge management | 0.912 | 192 | 0.348 |
| Having modern up-to-date technology | 0.906 | 192 | 0.313 |
| Product innovation | 0.901 | 192 | 0.14 |
| Strategic innovation | 0.869 | 192 | 0.099 |
| Behavioral innovation | 0.888 | 192 | 0.210 |
| Process innovation | 0.847 | 192 | 0.060 |

The results prove the normality of research variables' distribution. Figure 1 and 2 show the effectiveness level and the significance of RELATIONSHIP on product innovation. As it is shown, all the relationships are significant.

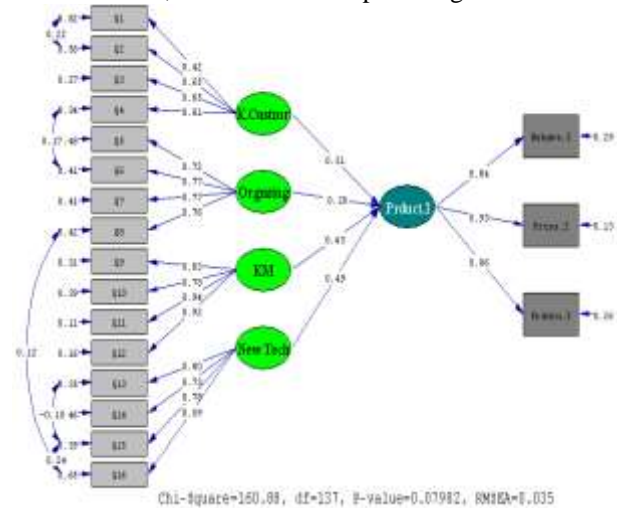


Fig. 1 Structural model of the sub-hypothesis in the standard estimation state

In order to test the significance level, the structural model in significant coefficient state is shown in Figure 2.

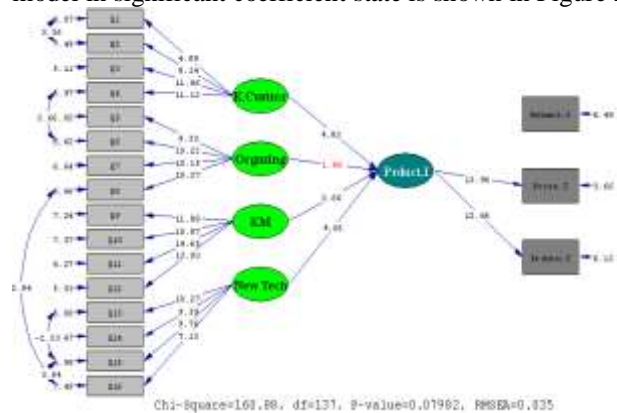


Fig. 2 Structural model of the research sub-hypothesis in the significant coefficient state

The results of the sub-hypothesis test are shown in Table 3.

TABLE III
 HYPOTHESIS TEST

| Main research hypothesis | Path coefficient | t | Test result |
|---|------------------|------|-----------------------|
| Attention to knowledge management has a significant impact on product innovation. | 0.43 | 3.66 | Accept H ₁ |
| Having a modern technology has a significant impact on product innovation | 0.49 | 4.05 | Accept H ₁ |

The main Fit Indexes of the model are shown in Table 4.

TABLE IV
FIT INDEXES OF SUB-HYPOTHESES MODEL

| Fit Indexes of conceptual model | Calculated values | Acceptable values |
|---------------------------------|-------------------|-------------------|
| χ^2/df | 1.17 | <3 |
| RMSEA | 0.035 | <0.08 |
| P- value | 0.08 | >0.05 |
| GFI | 0.92 | >0.9 |
| AGFI | 0.91 | >0.9 |
| NFI | 0.88 | >0.9 |
| NNFI | 0.90 | >0.9 |
| CFI | 0.93 | >0.9 |
| IFI | 0.91 | >0.9 |

As it is shown in Table 4, all indexes values indicate that the Fit Index in the research conceptual model is acceptable and good.

In order to rank the RELATIONSHIP elements, Kendall's W test was used. The results are shown in Table 5.

TABLE V
RANKING OF RELATIONSHIP ELEMENTS

| Element | Average rank | |
|-------------------------------------|--------------|--------------------|
| Concentration on key customers | 3.78 | |
| Having modern up-to-date technology | 3.39 | |
| Attention to knowledge management | 2.64 | |
| Organizing business process | 1.85 | |
| Test value | χ^2 | Significance level |
| 0.119 | 68.521 | 0.000 |

The results show that the rank of four elements is different.

VI. CONCLUSION

The results obtained from the main hypothesis showed that among RELATIONSHIP elements, concentration on key customers in the organization, having a modern up-to-date technology, knowledge management and organizing business process have one to four ranking, respectively.

In addition, the results obtained from the sub-hypotheses showed that knowledge management and having a modern up-to-date technology have a significant impact on product innovation, which is in accordance with Hemati study (1389).

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