

A Study on the Relation between Electronic Customer Relationship Management (ECRM) and Customers Loyalty in the International Market

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Abstract: This paper aims at investigating whether there is a relation between Electronic Customer Relationship Management (ECRM) and customers loyalty in the international market or not. This paper is an applied research in terms of objective and a descriptive- analytical research in terms of data gathering and processing. Library research method has been applied to gather data required for designing questionnaires. The questions have been designed based on Likert scoring range and by using Kano Model. The statistical universe is infinite. So Mobin Net Company was selected as the server of web services; and from among organizations which implement customer relationship management in the electronic environment (web) by using services of this company, some of them were randomly selected as sample via Cochran formula. This paper has calculated Cronbach's alpha coefficient via SPSS software to test reliability. To estimate validity, Kuder – Richardson method has been applied. Also Spearman correlation coefficient has been used to approve research hypotheses. Friedman ranking test reflected first to third ranks for cognitive, emotional, and active loyalty, respectively. Then factor analysis method based on new and advanced method of partial least squares structural equations has been applied to analyze more important coefficients and factors, to estimate coefficients of independent variables and to determine effect of variables on each other and appropriateness of the questions. Finally Model measurement and structural accuracy have been determined.

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1. Introduction

In the recent years, attentions to the customer loyalty have been increased and today customer loyalty is discussed as an instruction for profitability. In the today world, marketing has taken different features. Among the most important features, skill and power of customer and reduction of advertisements impact on them can be pointed out. Nowadays customers have infinite demands. On the other hand, market products do not have much difference with each other. If a customer desired brand is not available, he substitutes another brand easily, and this indicates reduction of customer loyalty. Price competition has also lost its prior meaning. Market- oriented and customer- oriented organizations think about maintaining and improving customer loyalty as a new means in the marketing instead of competing for price (Leverin, A., 2006). Experts have offered various concepts for customer loyalty and in all of these attitudes, customer satisfaction and loyalty are discussed as competitive advantages for organizations. Loyalty is among concepts for which no uniform and proper definition has been offered and managers have different misinterpretations on that. It is keeping a promise

exactly to re-purchase or re-encourage a preferred service or product constantly in the future. In the loyalty definition, both attitudinal and behavioral approaches are generally seen (Meyer, L. W., 2006). The attitudinal approach is divided into three separate types: Cognitive loyalty which leads to the customer behavior and pertains to customer belief; emotional loyalty that leads to the customer commitment and trust and pertains to his feelings; active loyalty that relates to the customer intention to purchase in the future. Cognitive loyalty has more power to create loyalty among customers compared with the other two types. Some experts believe that loyalty refers to a positive attitude towards a brand, product, or service, and the supportive behavior towards it is associated with three elements: customer behavior that refers to repeating purchase; customer attitude which refers to the customer commitment and trust; availability of many options for selection and purchase (Gee, R., et al., 2008). All organizations working in B2B and B2C businesses must adapt themselves to the new phenomenon of electronic customer relationship management (Dziugas, M., et al., 2004). According to Romano, electronic customer relationship management refers to absorbing and

maintaining customers and creating value for them (Romano, N. C., et al., 2003). Electronic customer relationship management is focused on developing information systems and its related fields including computer science, marketing, and psychology. Business and purchase of customers in the internet is increasing day by day (Cho, Y., et al., 2003).

To take the power in the market, organizations are seeking ways to surpass competitors. Rapid advances in technology lead to increase in the transparency of marketing activities and long term distinction. Customer relationship management is one of the important competitive advantages. Thus, understanding dynamics of ECRM and its effective evaluation on the organizational results are vital for electronic business (Jarahi, M. H., et al., 2009). Different developments in the information technology arena have made institutes and organizations to be consistent with these developments. Information technology has influenced customer relationship management systems and has resulted in raising electronic customer relationship management. In fact, one can say ECRM is bred by CRM (Rezaeiyan, F., 2006).

2. Literature Review

Technology is one of the main dimensions of ECRM. Entrance of information technology into customer relationship management has created extensive changes in the organizations approach towards customer and particularly in the marketing. Applying this technology in CRM and converting it into ECRM have provided innovations which were not imaginable in the traditional CRM.

2.1 Theoretical Basic Principles

Here, concepts related to the customer relationship management and customer loyalty are theoretically presented.

Customer loyalty cost refers to changes in the profit for one unit change in the customer loyalty. For example, by 5 percent increase in the customer loyalty, profit is increased between 25 to 85 percent (Mohammadi, A., 2003). Maghsudi has concluded in his studies that traditional business organizations have not paid attention to the modern methods of customer relationship management and have lost most of their customers gradually. Studies have revealed that 62 percent of unsuccessful organizations have not considered customer loyalty effective (Maghsudi, M. H., 2003).

Elements of customer loyalty (Butte, K., 2001) are namely,

- Customer behavior that refers to the purchase repeat.
- Customer attitude that refers to the customer commitment and trust.

- Availability that is associated with many options for selection and purchase.

The attitudinal approach is divided into three separate groups (Hamidizadeh, M., 2000).

- Cognitive loyalty which leads to the customer behavior and pertains to the customer belief.
- Emotional loyalty which leads to the customer commitment and trust and pertains to his feelings.
- Active loyalty which pertains to the customer intention to purchase in the future.

Reasons of customer loyalty (Criag, D., 2000) are as following,

- Customers may not have any other proper option.
- They may not know the difference among options, so they do not change their options.
- They may not be risk taker.
- Guiding costs may be more than receiving the value that relates to the next choice.
- Products and services may not be distinctive or they may have a single supplier.
- Organizations may have loyalty programs for encouraging purchase repeat or using the services.

The continuum between customer indifference and customer loyalty includes below points (Rousta, A., et al., 2006).

- Very loyal customers who always buy a product.
- Relative or temporary loyal customers who remain loyal to two or three products.
- Unstable loyal customers that after buying a brand for several times, buy another brand continually.
- Disloyal customers who are not loyal to a brand.

2.2 Research Background

(Oliver, R. L., 1999) defines loyalty as a deep commitment to repurchase or protect a product or service that despite the situational effects and marketing endeavors of competitors makes repeating purchase of a brand or products of a brand in the future. (Keller, K. L., 1998) states that loyalty to a brand was measured in the past simply through repeat purchase behavior, while customer loyalty can be taken into consideration more widely rather being stated by simple purchase behaviors. (Heidarzadeh, K., et al., 1996) regards behavioral loyalty as loyalty to a brand through remarkable purchase during a period and defines attitudinal loyalty based on preferences, commitment or intention to purchase. (Meller, J., et al., 2006) loyalty to a brand means purchase repeat which is due to mental processes. In the other words, purchase repeat is not merely an optional reaction yet it is caused by mental,

emotional, and normative factors. (Baloglu, S., 2002) behavioral loyalty cannot state the actual reasons of purchase by itself, so attitudinal aspects must be taken into account. (Chaudhuri, A., et al., 2001) behavioral loyalty leads to more market share for the brand, while attitudinal loyalty results in a higher relative pricing for the brand. (Morgan, R. P., 2000) the word loyal may be interpreted in different manners; it can be ranged from emotional loyalty, what I feel, to behavioral loyalty, what I do. (Fornell, S., 1992) defines satisfaction as a comprehensive evaluation of purchase process and consumption experience from the target product or service in comparison with pre-purchase expectations over time. (Spath, D., et al., 2007) customer satisfaction depends upon stages of customer relationship life cycle. It is necessary to focus on customers' goals and expectation in these different stages.

3. Research Methodology

This paper is an applied research in terms of objective and a descriptive– analytical research in terms of data gathering and processing. To collect data required to design the questionnaire, documentary - library research method has been applied. In the first stage, factors effective on customers' loyalty in the electronic environment (variables of customer relationship management) were derived from library studies and then evaluated

by interview with the related experts. In the second stage, the evaluated factors were analyzed and ranked based on the research hypotheses. The questions were designed by Likert scoring range and by using Kano Model. Kano Model has been selected to investigate the accuracy of the answers presented by the respondents. Each hypothesis has been designed by two questions in a way that the respondent faces with two positive and negative options. That is, the respondent must give a positive answer to the positive question and a negative answer to the negative question and so the answer will be accepted. Based on H_0 and number of hypotheses and Likert method, 6 questions were considered for the questionnaire. To increase accuracy of assessing the replies, H1 questions have been incorporated into the questionnaire by the previous way. So the number of questions was increased to 12.

3.1 Statistical Universe, Sample and Sampling Method

The statistical universe is infinite in this paper. Thus Mobin Net Company was selected as the server of internet services, and from among organizations that implement customer relationship management in the electronic environment (web) by using services of this company, a few was selected randomly as sample by Cochran formula. 33 organizations were selected randomly for inquiry and field operations.

$$n_{\text{cochran}} = \frac{\frac{P(1-p) z^2_{1-\alpha/2}}{d^2}}{1 + 1/N \left(\frac{P(1-p) z^2_{1-\alpha/2}}{d^2} - 1 \right)} = \frac{\frac{0.5 \cdot 0.5 \cdot (1.96)^2}{(0.05)^2}}{1 + 1/36 \left(\frac{0.5 \cdot 0.5 \cdot (1.96)^2}{(0.05)^2} - 1 \right)} = \frac{384.16}{11.643} \cong 32.99 \cong 33$$

3.2 Questionnaire Reliability

To estimate reliability, Kuder – Richardson method has been applied. To use the formula, level of difficulty of test questions must be identical.

$$r_2 = \frac{n}{n-1} \left(1 - \frac{\bar{x}(n-\bar{x})}{nS^2} \right)$$

Where, n denotes the number of questions, S^2 is total scores variance, and \bar{x} represents the scores mean. To estimate the reliability coefficient, there is no need to have the ratio between correct and false responses, rather having total scores variance and scores mean suffices. In this paper, the number of questions has been estimated 12, scores mean, 25, and total variance, 26. Level of difficulty of the questions is identical. The reliability coefficient of the questionnaire equals to,

$$r_2 = 12 / 11 [1 - ((7.5(12-7.5)) / (12(7.683)))] = 1.091(1 - 0.3661) = 0.692$$

The result of calculations reveals that reliability of the questionnaire equals 0.69 which is more than half. So the questionnaire has an appropriate reliability.

3.3 Research Hypotheses

With regard to the theoretical literature, this paper is focused on the customer relationship management in the electronic environment with an attitudinal approach (Hamidizadeh, M., 2000). This approach has determined three main hypotheses as per below.

- There is a significant relation between Electronic customer relationship management (ECRM) and cognitive loyalty.
- There is a significant relation between Electronic customer relationship management (ECRM) and emotional loyalty.

- There is a significant relation between Electronic customer relationship management (ECRM) and active loyalty.

3.4 Research Conceptual Model

With respect to the mentioned hypotheses, figure 1 presents the conceptual model.

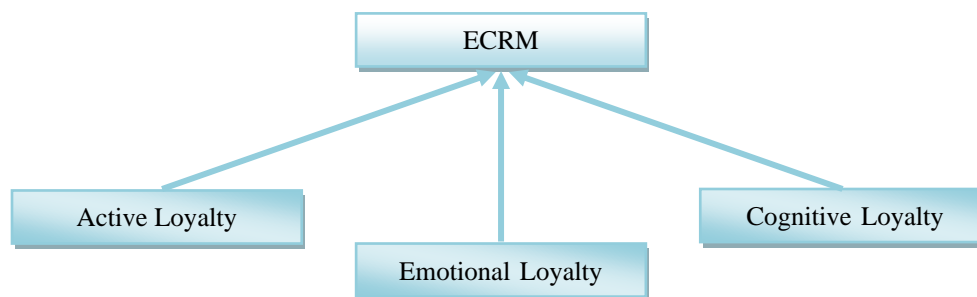


Figure 1. Conceptual Model

4. Research Findings

4.1 Spearman Correlation Coefficient Test

Table 1 depicts the results of this test.

Table 1. Spearman Correlation Coefficient Test Results

			Cognitive Loyalty	Emotional Loyalty	Active Loyalty	Y
Spearman's rho	Cognitive Loyalty	Correlation Coefficient	1.000	.530**	.584**	.640**
		Sig. (2-tailed)	.	.000	.000	.000
		N	33	33	33	33
	Emotional Loyalty	Correlation Coefficient	.530**	1.000	.423**	.617**
		Sig. (2-tailed)	.000	.	.000	.000
		N	33	33	33	33
	Active Loyalty	Correlation Coefficient	.584**	.423**	1.000	.585**
		Sig. (2-tailed)	.000	.000	.	.000
		N	33	33	33	33
	Y	Correlation Coefficient	.640**	.617**	.585**	1.000
		Sig. (2-tailed)	.000	.000	.000	.
		N	33	33	33	33

**. Correlation is significant at the 0.01 level (2-tailed).

- The relation between customer relationship management and cognitive loyalty by the correlation coefficient +0.640 indicates a strong positive relation between these two variables.
- The relation between customer relationship management and emotional loyalty by the correlation coefficient +0.617 indicates a strong positive relation between these two variables.
- The relation between customer relationship management and active loyalty by the correlation coefficient +0.585 indicates a strong positive relation between these two variables.

Thus, all the main hypotheses are approved.

4.2 Friedman Ranking Test

To rank dependent variables, Friedman ranking test was applied. Table 2 depicts the results of this test. As shown in this table, leadership style by the score 2.7 has attained the first rank in implementing the organization strategy successfully. Then organizational culture by the score 1.84 has attained the second rank, and organizational structure by the score 1.45 has gained the third rank.

Table 2. Friedman Non-parametric Test Results

	Mean Rank	N	33
Cognitive Loyalty	2.63	Chi-Square	80.634
Emotional Loyalty	3.07	df	2
Active Loyalty	4.39	Asymp. Sig.	.000

According to the results, the dependent variables are respectively ranked as cognitive loyalty, emotional loyalty, and active loyalty.

4.3 Factor Analysis for Main Hypotheses

Here, factor analysis based on new and advanced method of partial least squares structural equations is applied to analyze more important coefficients and factors, estimate independent variables coefficients, and even determine the effect of independent variables on each other and appropriateness of the questions and in fact their coefficients in explaining the related indices. Figure 2 depicts VPLS output which contains coefficients of variables and their significance (t-statistic).

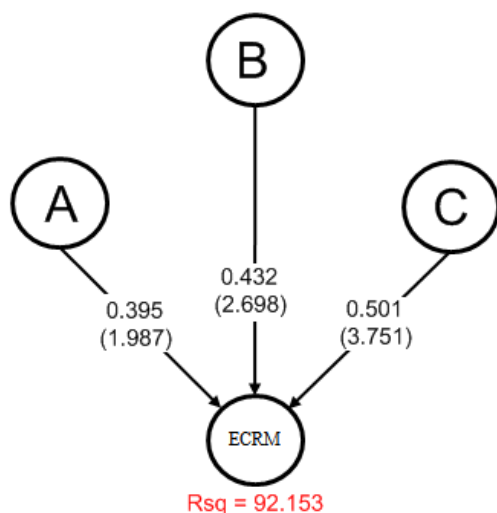


Figure 2. Structural Equations of VPLS Output

A (cognitive loyalty) = by the coefficient 0.395 and t-student value 1.987, it has a direct significant relation with electronic customer relationship management.

B (emotional loyalty) = by the coefficient 0.432 and t-student value 2.698, it has a direct significant relation with electronic customer relationship management.

C (active loyalty) = by the coefficient 0.501 and t-student value 3.751, it has a direct significant

relation with electronic customer relationship management.

This method analysis reveals that how much electronic customer relationship management changes by one unit increase in each dependent variable.

4.4 Model Structural Accuracy

Based on Chin (1998), R^2 by values higher than 0.67 is regarded remarkable, between 0.33 and 0.67 is medium, and lower than 0.19 is weak. In the above model, R^2 approximately equals 0.92 and so R^2 is remarkable and the model structural accuracy is approved.

4.5 Model Measurement Accuracy

Indices one-dimensionality test, composite reliability, and evaluation of distinctiveness of one factor from other factors are applied to assess accuracy of the measured model. The results are presented in the following.

Indices one-dimensionality test

Cronbach alpha of each variable is higher than 0.69. So, the model reliability is approved again. Table 3 presents values of Cronbach alpha.

Table 3. The model Cronbach alpha coefficients

Reliability and AVE	
Construct	Cronbach Alpha
A	0.782649
B	0.800927
C	0.729038

Composite Reliability

This is a criterion for measuring the model reliability that is called composite reliability. If the value of this criterion is lower than 0.6, the model is not reliable. In the model estimated in this project, this criterion mean is higher than 0.6 which indicates the model reliability. Table 4 presents the results.

Table 4. The average of the model convergent reliability

Reliability and AVE	
Construct	AVE
A	0.749028
B	0.692301
C	0.789230

Evaluation of distinctiveness of one factor from other factors

To estimate the model divergent reliability, cross loading criterion has been used. Based on this criterion, it is expected that coefficient of one index correlation with its independent variable is higher than the coefficient of one index correlation with other independent variables. In fact, distinctiveness

of one factor from other factors is evaluated to investigate appropriateness of each question of the questionnaire with the statistical indices and to compare distribution of responses. Calculation of the model divergent reliability by cross loading method is so interpreted that in each line for the related index (the bold number) must be greater than all numbers in the same line. If in a line there is a number greater than the bold number, that question is not an

appropriate question and must be removed so as to minimize the error. The questions related to cognitive loyalty are Q1, Q4, Q7, and Q10, questions of emotional loyalty Q2, Q5, Q8, and Q11, and questions related to active loyalty are Q3, Q6, Q9, and Q12. Table 5 demonstrates the results indicating that there is no lack of distinctiveness among factors.

Table 5. Matrix of evaluating distinctiveness of one factor form other factors

Scale Items	Y	A	B	C
Q1	0.2965	0.6406	0.4873	0.2908
Q2	0.3698	0.5893	0.7118	0.6287
Q3	0.3774	0.2387	0.3872	0.7627
Q4	0.3358	0.6889	0.5093	0.4873
Q5	0.4421	0.6458	0.7343	0.5487
Q6	0.1776	0.2281	0.1983	0.4419
Q7	0.3026	0.5240	0.0757	0.3916
Q8	0.2641	0.3476	0.6748	0.4512
Q9	0.2268	0.2039	0.1279	0.2510
Q10	0.2158	0.4660	0.3381	0.1192
Q11	0.2316	0.2938	0.5087	0.4392
Q12	0.3228	0.2091	0.1194	0.3897

With regard to the results of tables 3, 4, and 5, the model measurement accuracy is approved.

5. Conclusions and Suggestions

With respect to the necessity of maintaining the customers and creating loyalty in them, customer relationship continuity seems necessary and so CRM can facilitate and consolidate the relations. If no relation can be found between data gathered by CRM and customer behavior and loyalty and data cannot be used to maintain the relation, CRM establishment will be nothing but cost. It must be noted that social responsibility of the organization in protecting customers' information and privacy must be enforced. Customer relationship management cannot fulfill the demands gradually; rather a clear strategy must be formulated and implemented against the customers. A good strategy guides the customer towards goods and services with more profits, keeps the profitable customers, grows the percentage of permanent customers, and remains immunized against non-profitable relationship. In a world connected through internet, ECRM is no longer a competitive advantage; rather it is a necessity for the organizations. The impact of electronic world on the customer relationship management transforms the CRM process for most organizations. Electronic customer relationship management elaborates using electronic platforms and tools for directing the organizations affairs and so makes the institutes able

to provide services to their customers more quickly and precisely, within a wide range of time and location and with lower costs and customized goods and services for the customers.

- Suggestions

This paper sought to present a scientific method to determine whether there is a relation between customer relationship management in the web and customers loyalty to the enthusiasts for this research fields. Hence, some suggestions are provided in the following.

- ✓ Spearman correlation coefficient test indicates a strong positive relation of customer relationship management in the electronic environment with cognitive, emotional, and active loyalties. Therefore administrators of ECRM had better define indices for measurement and pursuit of the effect of organization activities on cognitive, emotional, and active loyalties based on business in the current circumstances so as to achieve more effective leadership in CRM.
- ✓ Friedman ranking test indicates prioritization of the related indices in the increase of customers' loyalty. So organizations had better observe this prioritization for ECRM activities.
- ✓ Administrators of ECRM had better observe the coefficients 0.395, 0.432, and 0.501 respectively in allocating the resources to create cognitive,

emotional, and active loyalties in the customers (based on VPLS software outputs).

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