

## An exploration study on influential factors on customer relationship management

Naser Azad\*, Amir Hassanjani Roshan and Somayeh Hozouri

*Department of Management, Islamic Azad University, South Tehran Branch, Tehran, Iran*

**CHRONICLE**

**ABSTRACT**

*Article history:*

Received January 15, 2013

Accepted August 12, 2013

Available online

August 14 2013

*Keywords:*

*Customer relationship management*

*Factor analysis*

*CRM*

These days, we see an increasing competition among different business owners and they strive for customer retention. Customer relationship management plays an important role to increase business performance and attracting new customers in an attempt to have more market shares. One primary concern is to find more about important factors influencing customers being satisfied with different services they may receive. This paper performs an empirical investigation to find important factors influencing customer relationship management (CRM) in information and communication firm is city of Tehran, Iran. The survey uses factor analysis to find important factors using a questionnaire consist of 27 variables. Cronbach alpha is calculated as 0.861, which validates the questionnaire. The survey detects six factors influencing CRM learning performance attributes, enterprise resource planning, perception attributes, structure oriented, perception image and organizational resources.

© 2014 Growing Science Ltd. All rights reserved.

### 1. Introduction

During the past few years, there have been tremendous efforts on investigating different factors on customer relationship management (CRM) since many business models have substantially invested in CRM (Mandják & Szántó, 2010; Mandják & Szántó, 2010; Nguyen & Mutum, 2012; Chikweche & Fletcher, 2013). Smith and Chang (2010), for instance, investigated whether an investment CRM generates the anticipated benefits. They reported that firms that pay more attention to a customer-centric approach could benefit significantly from the implementation of CRM systems. There were no differences in the degree or focus of applying attributable to industry differences. Lambert (2009) stated that CRM can be stated as a strategic, process-oriented, cross-functional, value-creating for buyer and seller, and facilitate for accessing superior financial performance. However, we require for a more holistic view of cross-functional as it is associated with CRM.

\* Corresponding author.

E-mail addresses: dr.naserazad@yahoo.com (N. Azad)

Lambert (2009) described a macro level cross-functional view of CRM and provided a structure for managing business-to-business relationships to co-create value and increase shareholder value. Lambert reported in a framework that managers could implement a cross-functional, cross-firm, CRM process in business-to-business relationships. Lin et al. (2010) investigated the impacts of different dimensions of CRM on innovation capabilities. They identified five dimensions of CRM including information sharing, customer involvement, long-term partnership, joint problem-solving, and technology-based CRM and five aspects of innovation capability including product, process, administrative, marketing, and service innovations. Sophonthummapharn (2009) developed a comprehensive research framework for understanding the adoption of techno-relationship innovations. The author also examined the factors influencing the adoption of electronic customer relationship management (eCRM) applications. They reported the top five influential factors including compatibility, industry pressure, customer pressure, subjective norm, and attitude. Jamali et al. (2013) aimed to develop a valid and reliable technique for assessing and measuring the management relationship level with customers in e-libraries. Besides, the research tried to detect how successful Yazd University Libraries met students' expectations, as a guideline to take steps towards improving its services. Kim et al. (2012) considered a means to create competitive advantage for a company, as well as influence organizational performance. Ata and Toker (2012) investigated the effect of customer relationship management adoption in business-to-business markets. Wang and Feng (2012) investigated CRM capabilities in terms of measurement, antecedents and consequences. Ranjan and Bhatnagar (2011) investigated the role of knowledge management and analytical CRM in business based on data mining based framework.

## 2. The proposed method

The proposed model of this paper uses factor analysis (Azad & Hassanabadi, 2013; Azad & Mohammadi, 2013) to determine important factors influencing data security in information and communication organization in city of Tehran, Iran. The study designs a questionnaire consists of 27 questions and in Likert scale. The sample size is calculated as follows,

$$n = \frac{N \times z_{\alpha/2}^2 \times p \times q}{\varepsilon^2 \times (N-1) + z_{\alpha/2}^2 \times p \times q}, \quad (1)$$

where  $N$  is the population size,  $p=1-q$  represents the yes/no categories,  $z_{\alpha/2}$  is CDF of normal distribution and finally  $\varepsilon$  is the error term. Since we have  $p = 0.5$ ,  $z_{\alpha/2} = 1.96$  and  $N=1100$ , the number of sample size is calculated as  $n=203$ . Cronbach alpha has been calculated as 0.891 in preliminary stage and final 0.856 in final stage, which are statistically acceptable. In addition, Kaiser-Meyer-Olkin Measure of Sampling Adequacy is calculated as 0.74, which is within an acceptable limit and validates the results. Since factor analysis is sensitive on skewness of factors, we have decided to delete seven questions. Fig. 1 demonstrates Scree plot on questions of the survey. Table 1 demonstrates 27 items of the designed questionnaire.

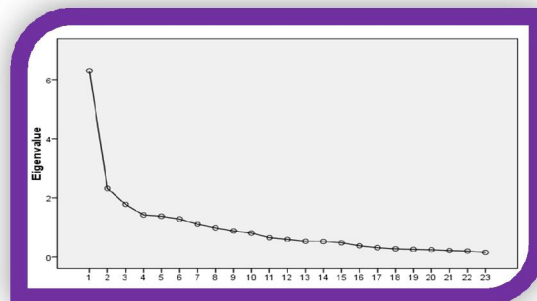


Fig. 1. The Scree plot

**Table 1**

Factor	Description
1	Theoretical methods for measuring Customer Satisfaction Such surveys (Zip - Phone – Email)
2	Quality of services offered by the company
3	Interpersonal influence
4	Subjective norm
5	Moral agency
6	information technology
7	customer retention rates
8	provide after-sale service
9	resolve customer complaints
10	According to the preferences and expectations Customer
11	functional and flexible planning
12	Creating a Customer orientation
13	Product lines and services
14	managing organization as a network
15	identifying opportunities and conflicts
16	Objective methods of measuring customer satisfaction
17	Ensuring return on investment
18	Value Customer received of company
19	Internal standards (process control and improvement)
20	The advertising of products or services
21	Structural factors - Cultural
22	Company leadership style
23	Age, number of years of experience of staff
24	Imagine the customer before the company
25	Customer attitudes to product quality, service, compared with his expectations
26	Develop interest and motivate organizations to improve the quality of products and services offered to customers
27	Minor deviations of customer expectations

After performing preliminary analysis, we have extracted communalities with major factors and Table 2 summarizes the results of our survey.

**Table 2**

The summary of communalities

	Communalities	
	Initial	Extraction
VAR00001	1.000	.431
VAR00002	1.000	.726
VAR00004	1.000	.601
VAR00005	1.000	.738
VAR00006	1.000	.668
VAR00007	1.000	.745
VAR00008	1.000	.621
VAR00009	1.000	.683
VAR00010	1.000	.646
VAR00011	1.000	.731
VAR00013	1.000	.698
VAR00014	1.000	.646
VAR00015	1.000	.618
VAR00016	1.000	.686
VAR00017	1.000	.610
VAR00018	1.000	.631
VAR00019	1.000	.756
VAR00022	1.000	.693
VAR00023	1.000	.721
VAR00024	1.000	.739
VAR00025	1.000	.793
VAR00026	1.000	.684
VAR00027	1.000	.684

In addition, we have extracted important factors using principal component analysis and Table 3 to Table 5 demonstrate the survey before and after rotation happen.

**Table 3**

The results of total variance explained

Component	Total Variance Explained								
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.299	27.386	27.386	6.299	27.386	27.386	3.125	13.587	13.587
2	2.323	10.098	37.484	2.323	10.098	37.484	2.611	11.353	24.940
3	1.773	7.707	45.191	1.773	7.707	45.191	2.535	11.020	35.961
4	1.410	6.132	51.323	1.410	6.132	51.323	2.181	9.481	45.442
5	1.367	5.945	57.268	1.367	5.945	57.268	1.851	8.046	53.487
6	1.277	5.551	62.819	1.277	5.551	62.819	1.743	7.580	61.068
7	1.104	4.798	67.617	1.104	4.798	67.617	1.506	6.550	67.617
8	.981	4.265	71.882						
9	.878	3.819	75.701						
10	.805	3.500	79.201						
11	.652	2.837	82.038						
12	.596	2.589	84.627						
13	.528	2.297	86.924						
14	.520	2.262	89.185						
15	.475	2.063	91.249						
16	.375	1.629	92.877						
17	.311	1.352	94.229						
18	.273	1.188	95.418						
19	.253	1.099	96.516						
20	.242	1.052	97.568						
21	.214	.929	98.496						
22	.195	.850	99.346						
23	.150	.654	100.000						

**Table 4**

The results of principal component analysis before rotation

	Component Matrix <sup>a</sup>						
	Component						
	1	2	3	4	5	6	7
VAR00022	.688						
VAR00025	.660	-.390					-.371
VAR00010	.634						
VAR00004	.631	-.338					
VAR00027	.631						-.390
VAR00026	.601					-.441	
VAR00014	.597		.445				
VAR00005	.574		-.378		-.367		
VAR00023	.566	-.335	-.332				
VAR00002	.562			-.375			
VAR00006	.553			-.510			
VAR00024	.551	-.353		.503			
VAR00018	.550			.429			
VAR00008	.428	.348	-.379				
VAR00017	.432	.605					
VAR00009	.437	.583					
VAR00011		.500			.490		-.342
VAR00015		.517	.561				
VAR00016	.500		.541				
VAR00013	.395	.393	-.498				
VAR00007	.529				-.628		
VAR00019	.443				.335	-.556	
VAR00001	.355					.396	

**Table 5**

The summary of principal component analysis after rotation

	Component						
	1	2	3	4	5	6	7
VAR00025	.795						
VAR00027	.759						
VAR00010	.720						
VAR00004	.540					.363	
VAR00026	.523				.478		
VAR00008		.749					
VAR00009		.738					
VAR00017		.494		.398	.372		
VAR00005	.341	.462				.384	.392
VAR00018		.359					.331
VAR00023			.769				
VAR00024	.391		.740				
VAR00022			.714				
VAR00016				.741			
VAR00015				.724			
VAR00014	.419			.540			
VAR00001				.427			
VAR00019					.837		
VAR00013		.460			.618		
VAR00002			.428			.691	
VAR00006		.460				.584	
VAR00011		.390					-.742
VAR00007		.407					.687

As we can observe from the results of Table 5, we may extract six important factors influencing on data security. Next, we explain all these factors in details.

### 3. The results

The implementation of factor analysis helps us group different factors and find better insight on market development.

#### 3.1. Measurement attributes

The first factor is associated with the measurement attributes and it includes four factors including improving quality of product and services, traditional methods to get customers' feedbacks, explicit observations for measuring quality and resolving existing conflicts. Table 6 summarizes the results of our findings.

**Table 6**

The summary of different components associated with measurement attributes

Option	Factor weight	Eigenvalue	% of variance	Accumulated
Improving quality of product and services	.775			
Traditional methods to get customers' feedbacks	.716	2.489	62.223	62.223
Explicit observations for measuring quality	.784			
Resolving existing conflicts	.750			

Cronbach alpha = 0.80

As we can observe from the results of Table 6, improving quality of product and services is the most important factor followed by traditional methods to get customers' feedbacks, explicit observations for measuring quality and resolving existing conflicts.

### 3.2. The second factor: Integrated system

The second factor is associated with integrated system, which consists of four factors summarized in Table 7 as follows,

**Table 7**

The summary of different components associated with integrated system

Option	Factor weight	Eigenvalue	% of variance	Accumulated
Managing firm in forms of network	.781			
Recognizing opportunities and threats	.807	2.562	51.241	51.241
Leadership style	.668			
Information technology	.672			

Cronbach alpha = 0.67

According to the results of Table 7, managing firm in forms of network is the most important factor followed by recognizing opportunities and threats, leadership style and information technology.

### 3.3. The third factor: Perception components

Integrated system is the third factor and it includes three items summarized in Table 8 as follows,

**Table 8**

The summary of different components associated with perception components

Option	Factor weight	Eigenvalue	% of variance	Accumulated
Subjective norm	.863			
Moral agency	.863	2.093	69.782	69.782
Interpersonal Influence	.778			

Cronbach alpha = 0.78

According to the results of Table 8, subjective norms as well as moral agency are the most influential factors followed by interpersonal influence.

### 3.4. The fourth factor: Structure oriented

Structure oriented is the fourth factor and it includes four items summarized in Table 9 as follows,

**Table 9**

The summary of different components associated with structure oriented

Option	Factor weight	Eigenvalue	% of variance	Accumulated
Advertisement on products and services	.780			
Cultural features	.798	1.530	38.238	38.238
Rate of customer retention	.525			
Flexible programs	-0.98			

Cronbach alpha = 0.40

According to the results of Table 9, cultural features are the most important issues followed by advertisement on products and services.

### 3.5. The fifth factor: Perception from product and services

The fifth factor is associated with perception from product and services, which consists of three factors summarized in Table 10 as follows,

**Table 10**

The summary of different components associated with organizational learning

Option	Factor weight	Eigenvalue	% of variance	Accumulated
Perception of customer from products	.75			
Past experience from the firm	.806	1.729	57.625	57.625
Value received from products and services	.718			

Cronbach alpha = 0.63

According to the results of Table 10, past experience from the firm is the most important factor followed by Value received from products and services and Perception of customer from products.

### 3.6. The sixth factor: Organizational resources

The last factor is associated with organizational resources, which consists of three sub-components summarized in Table 11 as follows,

**Table 11**

The summary of different components associated with feasibility study

Option	Factor weight	Eigenvalue	% of variance	Accumulated
Strategy for providing product and services	.857			
Personal characteristics of products	.804	1.424	47.476	47.476
Return of investment	-0.209			

Cronbach alpha = 0.40

According to the results of Table 11, strategy for providing product and services is number one priority followed by personal characteristics of products.

## 4. Conclusion

This paper has presented an empirical investigation to detect important factors influencing customer relationship management in information and communication technology firm in city of Tehran, Iran. Using a questionnaire in Likert scale, the survey used factor analysis to detect influencing factors in CRM. The survey has detected six factors influencing CRM learning performance attributes, enterprise resource planning, perception attributes, structure oriented, perception image and organizational resources.

The first factor is associated with the measurement attributes and it includes four factors including improving quality of product and services, traditional methods to get customers' feedbacks, explicit observations for measuring quality and resolving existing conflicts. In our survey, improving quality of product and services is the most important factor followed by traditional methods to get customers' feedbacks, explicit observations for measuring quality and resolving existing conflicts. The second factor is associated with integrated system, which consists of four factors where managing firm in forms of network is the most important factor followed by recognizing opportunities and threats, leadership style and information technology. Integrated system is the third factor and it includes three items where subjective norms as well as moral agency are the most influential factors followed by interpersonal influence. Structure oriented is the fourth factor and it includes four items where cultural features are the most important issues followed by advertisement on products and services. The fifth factor is associated with perception from product and services, which consists of three factors where past experience from the firm is the most important factor followed by Value received from products and services and Perception of customer from products. The last factor is associated with organizational resources, which consists of three sub-components where strategy for providing product and services is number one priority followed by personal characteristics of products.

## Acknowledgement

The authors would like to thank anonymous referees for constructive comments on earlier version of the paper.

## References

- Ata, U. Z., & Toker, A. (2012). The effect of customer relationship management adoption in business-to-business markets. *Journal of Business & Industrial Marketing*, 27(6), 497-507.
- Azad, N., & Hassanabadi, M. (2013). An empirical investigation on factors influencing on brand loyalty. *Management Science Letters*, 3(7), 2113-2118.
- Azad, N., & Mohammadi, M. (2013). An empirical survey on factors influencing on packaging dairy products. *Management Science Letters*, 3(7), 1901-1906.
- Chikweche, T., & Fletcher, R. (2013). Customer relationship management at the base of the pyramid: myth or reality?. *Journal of Consumer Marketing*, 30(3), 295-309.
- Jamali, R., Moshabaki, A., Aramoon, H., & Alimohammadi, A. (2013). Customer relationship management in electronic environment. *The Electronic Library*, 31(1), 119-130.
- Kim, M., Park, J. E., Dubinsky, A. J., & Chaiy, S. (2012). Frequency of CRM implementation activities: a customer-centric view. *Journal of Services Marketing*, 26(2), 83-93.
- Lambert, D. M. (2009). Customer relationship management as a business process. *Journal of Business & Industrial Marketing*, 25(1), 4-17.
- Lin, R. J., Chen, R. H., & Chiu, K. K. S. (2010). Customer relationship management and innovation capability: an empirical study. *Industrial Management & Data Systems*, 110(1), 111-133.
- Mainela, T., & Ulkuniemi, P. (2012). Personal interaction and customer relationship management in project business. *Journal of Business & Industrial Marketing*, 28(2), 3-3.
- Mandják, T., & Szántó, Z. (2010). How can economic sociology help business relationship management?. *Journal of Business & Industrial Marketing*, 25(3), 202-208.
- Nguyen, B., & Mutum, D. S. (2012). A review of customer relationship management: successes, advances, pitfalls and futures. *Business Process Management Journal*, 18(3), 400-419.
- Ranjan, J., & Bhatnagar, V. (2011). Role of knowledge management and analytical CRM in business: data mining based framework. *The Learning Organization*, 18(2), 131-148.
- Smith, M., & Chang, C. (2010). Improving customer outcomes through the implementation of customer relationship management: Evidence from Taiwan. *Asian Review of Accounting*, 18(3), 260-285.
- Sophonthummapharn, K. (2009). The adoption of techno-relationship innovations: a framework for electronic customer relationship management. *Marketing Intelligence & Planning*, 27(3), 380-412.
- Wang, Y., & Feng, H. (2012). Customer relationship management capabilities: Measurement, antecedents and consequences. *Management Decision*, 50(1), 115-129.