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Compiling Electronic Customer Relationship Management (E-CRM) Strategy with Approach to Balanced Scorecard (BSC) at the Level of MASKAN BANK

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Abstract

Survival of any market requires accepting its necessities and demands. In the market of financial services, banks have online offers and web-base services. Some viewpoints of E-CRM consider a combination of the three factors: people, process, and technology effective. CRM and E-CRM have been categorized in three groups: operational, analytical, and interactive .This research has been done in the second half of 2012 at Maskan Bank branches in Iran, and random sampling has been used for sampling method ,and questionnaires were distributed among the two statistical population of bank employees and bank customers and after validity and reliability confirmation of the research and proper tests to insure absence of unacceptable errors, Pearson and regression tests (t-value) were used to find the primary and secondary equation of the research. Contrary to initial assumption of the researcher, connection of some factors like, continuous improvement of electronic services, increase of exchanges speeding up of processes, and cost reduction of online exchanges were ineffective and were deleted from the research model. Then balanced score cards were designed for each aspect and operational methods were suggested and at the end the strategy plan has been designed and sketched.

Keywords: Electronic customer relationship management, balanced scorecard, strategic goals, financial perspective, process of providing value

Introduction

Appearance of electronic business has changed many aspects of today's businesses and has established new organizations by new models for business .Today, organizations have started reviewing their important relationships and the most important one is reviewing the relationship between organizations and customers. In summary, most organizations in today's digital world face increasing complicated customers demands which require instant and fast services along multi level accessibility channels like internet, e-mail, fax, web etc, and on the one hand ,these requests include all the aspects that the customer interacts with the organization like sales ,marketing and services etc. To overcome these challenges, many organizations adopt E-CRM.

This new and scientific, theoretical concept, provides the ability to gain ,integrate and distribute data through the website of the organization .For this purpose , organizations must gather proper patterns for supervision of customers function with the help of electronic banking by analyzing and tracing and management of events that occur because of electronic trading . On the other hand, today's complicated competitive market has forced managers to try their best to absorb potential customers and keep their actual customers. Measuring customers need's and the market and providing a balance between these two can serve as a Proper tool to achieve this.

As long as the management considers relationship to customers as a business process based on effective relationship management choosing the right technology, would be one of the most important criteria for evaluation. Similarly, Jarrahi (2005) have explained an integrated view point of Combination of 3 factors of people, process and technology.

In many researches, electronic customer relation management has had acceptable results .Also, advancement of connective channels has solved many of the problems in a way that, today, most aspects of business are done electronically.

Combination of these two subjects has made (E-CRM) as a revolution in trading Industry for researchers and managers.

Electronic customer relation management (E-CRM)

In simple statement, the main goal of E-CRM is defined as comprehension of values and better treatment of customers to increase their numbers and loyalty and consequently profit for the company. In other words, companies instead of relying on traditional model of trying to sell more, should try to rebuild the relationship between customers and companies (Radolf, 1999; Tan et al., 2002).

There are three types of E-CRM:

1-Operation electronic customer relation management like , web providing services, and supporting customer services for solving customer problems.

2- Analytical electronic customer relation management (DIche, 2001) ,which presents statistics and analysis about sales condition ,marketing, and supporting and also supports the rate of customer satisfaction and loyalty and includes different creative methods of increasing sales and improving marketing procedures.

3-Interactive E-CRM , In this kind of relationship,The customer uses the easiest tools such as telephone, cell phones , internet and … to contact the company. This kind of relationship causes the customer to return and continue his contact with the company because the customer has the choice ,and the time of data collection from the customer and referring him to the person in charge ,therefore, Processing time and feedback to customer is minimum.

Differences between customer relation management and electronic customer relation management

Customer relation management is a system that can provide customers access to a defined collection of selections or products, but cannot provide the customers unique order. The usage of customer relation management in most organizations have only been designed about work duties and products and webs only act in a business unit and does not cover the whole company ,but in electronic customer relation management ,this design connects all levels of organization, customers ,providers, and company's partners . Traditional customer relation management system does not allow the organization to challenge the market actively, while the electronic customer relation management system, provides this opportunity. As long as trading conditions change, a system capable of electronic customer relation management can directly challenge the customer oriented section.

Electronic customer relation management includes three important perspectives of marketing, services and support which are protected by two other parts, information technology and information system (Kincaid, 2003).

Reasons of usage and managers values of using electronic customer relations system

*reduction of costs in relationship with customers, responding to customers questions and solving their problems in shortest time possible.

*Reduction of operational costs, because internet mainly and alone performs the necessary services.

*Effective processes because of fluency of management programs related to electronic customer relationship.

*Sales improvement by categorizing the market .

* Improvement of interactions with customers which leads to service improvement, customers satisfaction ,their loyalty and eventually increase of customers' values (Noor Raihan Ab Hamif, 2005).

Table1. Comparison of CRM and E-CRM from three perspective

	CRM	e-CRM
Relationship with customer	- Often with traditional methods Like fax telephone and post	-Internet and email plus traditional methods mobile and wireless
System concentration	-As a whole system is about Job duties and products and defined in one unit of organization	-This system is about particular needs of customers and is active in all levels of organization
Protection and refom system	-Performance time is long and Its management is costly, is active in different places and servers	- This team reduces time and cost because it is active in one place and one server

E-CRM advantages

Main Encouraging factors for the companies to use E-CRM, and the main advantages are:

1- Increase of customers loyalty (for example, with personalizing tools to cause customers loyalty (Waltner, 2001) .

2- Effective marketing ,that is , having minor information about customers makes predictions about their purchases possible , and actually by analyzing customers data from different perspectives, it is possible to decide , in this competition which parts affect sales and profitability the most (Greenberg, 2001).

3-Improvement of providing customer services and supporting him.

4-Higher efficiency and cost reduction.

Challenges facing E-CRM, and ways to deal with them

Trying to use E-CRM, many companies before choosing a comprehensive strategy attempt to just make use of it. According to reports from several companies, they are unsatisfied with their E-CRM systems. Research by Gartner group indicate that it is expected that half of E-CRM projects would not get the necessary efficiency (Greenberg, 2001).

The above mentioned problems indicate that there are several problems in trying to use such systems, some of these challenges and ways to deal with them will be mentioned bellow:

*Lack of conformity between organization conditions and E-CRM software, it should be completely tried to find a software enough flexible that fits the organization's projects, and not necessarily be according to the assumptions of the company that makes the software.

*Weak understanding of the organization's commercial process, each business process of the organization should be reviewed and, these processes must be analyzed before buying a E-CRM system.

*Making operational that takes more than 90 days: companies should be pessimistic about results, if making E-CRM project operational takes more than 90 days.

*Instability in the company making the software: before buying the software, the stability and survival of the company should be evaluated.

*Resistance by final users: the new process of E-CRM should be done with an understanding of organization's conditions so it would not damage the success.

*project size: some E-CRM projects fail because of the expansion of the territory of their initial look, therefore, a small experimental E-CRM should be tried first.

*Lack of technical maturity: Most technologies related to E-CRM are in the immaturity stage, and sometimes, running time and costs increase so much and making the E-CRM operational takes so long that it makes customers tired, so combination of Paying attention to customers and technology at the same time seems to be effective in the success of these projects.

*Penetrating personal boundary of people: despite advantages of all the personalization that happens in E-CRM, a lot of customers are unhappy about company penetration into their personal boundaries and following the rules and most importantly , likes and preferences of customers guarantee his satisfaction (Jarrahi, 2005).

Necessity of presenting a strategic framework for E-CRM

Today, customer relation management is considered top priority in a company more than ever. Even so, there is a lot of confusion about the definition and management role in relationship with customers. For solving this two subjects must be seriously considered to:

First that, customer relation management should be looked at in a strategic and systematic way, and second, parts of forming customer values should be understood completely .A strategic framework for E-CRM can include definitions of functions and conformity with framework of different organizations, and it can help use E-CRM as a strategic management tool for profitability. This framework is consisted of five processes of cross-functional and connected processes:

a- process of strategic expansion

b- process of making values

c- process of integration of different channels

d- process of information management

e- Process of function evaluation

Total collective result of these processes is more than total of individual processes added together .

Importance and necessity of evaluation of E-CRM strategy

In recent years, measuring function of usages of information technology and system information projects which have been made operational in the organization have gained a lot of importance. The goal of this evaluation is to estimate the value rate of investment in this area.7 This fact that investment level in information technology has a direct relation to company's profit but not necessarily with the productivity or profitability is stated as, contradiction of productivity in operation (Martinson et al., 1999).

Although efficiency of E-CRM projects is a growing subject in marketing and information technology researches, at present, there is no certain relationship between investing in E-CRM and operation or function ,therefore, the rate of investing in E-CRM projects is not the only cause of success of E-CRM . Bal in his studies has mentioned that CRM is a general and complicated concept that cannot lead to success without leadership ,seeking resources, having a goal and evaluation of strategies (Bull, 2003).

The need for evaluation of E-CRM ,considering disappointed results gained in this area has grown stronger .Studies show that ,about %65 of all E-CRM projects have failed ,so as long as a lot of investment is directly spent for CRM technology, and the necessary attention is not paid to success factors, a lot of reports would emphasize on project failures (Hamill and Stevenson, 2002)

Different approaches to evaluation of E-CRM strategy

Different approaches have been presented for evaluation of E-CRM. Some have dealt with the effect of technology in function of E-CRM and managers support of that in the company on its function and have suggested a framework consisted of environment, technology and organization. Other researches deal with evaluation of function of E-CRM tools on the basis of cost efficiency ,return rate of investment , function of previous application, function ,and compatibility (Hamill and Stevenson, 2002; Karakostas et al, 2005)

Categorizing the work that has been done in the framework of CRM evaluation, four approaches are revealed (Kellen, 2002):

- Frameworks that have concentrated on making the commercial name and on improvement the asset of commercial name.
- Frameworks which have concentrated on customer assets more than commercial name.
- Frameworks trying to collect data for face to face operation with customers.
- Frameworks which concentrate on guidance indexes for future usage, and one of them is balanced scorecard.

Balanced Scorecard

Balanced Scorecard was first presented by Kaplan, Robert and Norton, David in 1992, as a new method for function evaluation of organizations, and was welcomed by economic offices and institutions. Until the first years of1990 decade, organizational evaluation was done only according to financial factors which is a reflection of past function of organizations was not applicable for future conditions. After research, they stated the problems of evaluation systems as mere concentration on financial indexes (Kaplan & Norton, 2001).

The concept of Balanced Scorecard is to determine goals and indexes of strategy and organizational views and using the four financial perspectives, customers, internal functions and learning and growth as a framework for viewing opinions and accomplishing these goals.

Indexes, by using cause and effect relationships are connected together .So, financial indexes and the final expenses of the system show financial results that lead to growth and improvement of the system in the long run .Four perspectives of Balanced Scorecard has been effective among a large number of companies and industries, but we should not look at these perspectives as the only pattern that does not need to change. Balanced Scorecard enables organizations to change their missions and strategies to a complete collection of operational indexes, and therefore, present a framework for performance of strategies.

So far, organizations have used Balanced Scorecards for determining and change of view points and organizational strategies to operational levels ,making relations between strategic goals and their basic indexes ,planning ,determining goals ,and coordinating strategic innovations, and increase of feedback, and strategic learning ,and making success in fulfilling obvious and non-obvious profits resulted from investment (Kaplan & Norton, 2001).

Using Balanced Scorecard in evaluation of E-CRM

The comprehensive nature of BSC has made it a good tool for measuring the function of information system projects and electronic trading .BSC with the help of its integration and flexibility characteristics has been used in many information system technology projects and electronic trading for achieving success .One of the advantages of using BSC for evaluation of E-CRM is the ability to consider the value of financial and nonfinancial indexes at the same time .In other words , it makes distinction between financial indexes which usually evaluates our past activities and indexes which are related to the long term strategies of the institution. Related indexes

with long term strategies are futuristic function indexes and are applicable for unmeasurable ordinary assets like strong relationship with customers, and products and creative services and operational processes.

Research history of BSC:

In a research in (2007), the balanced scorecard of CRM including four perspectives of organizational function, customer, process and substructure for functional evaluation has been presented.

In various studies the four main perspectives of BSC has been used to evaluate E-CRM function, considering the perspective of customer, the variables of attracting customer, keeping the customer, and customer loyalty have been identified as important parameters of E-CRM success ,which various indexes related to them could be defined ,and in researches like (Kim & Kim, 2007; Tan et al,.2002; Ab Hammid & Kassim, 2004; Liamas et al, 2009; Strauss et al., 2006; Kimiloglu & Zarali, 2009; Liu et al,. 2006) they have been dealt with .

Also, considering the internal process perspective ,answering customers needs and the effectiveness of making E-CRM operational which is to improve internal processes , has been studied (Liamas et al., 2009; Strauss et al., 2006; Kimiloglu & Zarali, 2009; Liu et al., 2006).

Measuring the success of making E-CRM operational without considering learning and innovation is not possible, because electronic trading process has a creative nature and should be futuristic for survival. So, in studies, parameters showing futuristic views and innovation of E-CRM systems have been indirectly pointed out (Strauss et al., 2006; Kimiloglu & Zarali, 2009). For example, in BSC for electronic trading institutions, creativity in web services and continuous improvement of CRM have been pointed out (Strauss et al,. 2006) which indeed , points to the importance of ,growth and learning of BSC eventually, improvement in the mentioned perspectives leads to usual financial output in E-CRM and in other words, the result of improvements would be revealed in financial indexes (Kimiloglu & Zarali,. 2009; Ko et al,.2008).

The main subject of the research

The main subject of this research is to find out if using the present electronic services in a bank is enough to satisfy customers expectations ,reduces the costs in the organization ,and consequently increases the income of the organization , and step by step goes along with the customer from his acquaintance ,to his loyalty to the organization, or it serves just as a general approach in the organization ,and its exact characteristics have not been illustrated .

Is this strategy capable of getting customers satisfaction and eventually making him loyal? If yes, what is the rate of customer's satisfaction with this approach? And why should paying all the attention to customers (although it is part of E-CRM long term strategy) be chosen by a bank? And which aspects and factors of E-CRM have been neglected in this area, which the bank can study about and possibly make them operational ? .Which variables of E-CRM are important in the four perspectives of BSC with systems function and relationship with electronic customer , and what is the effect of each on the success of this system?

Which variables are connected with customers loyalty in E-CRM strategies, and how much, and finally, what is the best model and strategy (considering the available and known variables) to bring about maximum loyalty? Furthermore, what variables are related to income increase and cost reduction, and what is the best model to reduce costs and increase income? and finally, designing an E-CRM strategy with the help of BSC for the bank.

Research goals: main goal

Compiling electronic customer relation management (E-CRM) strategy with an approach to Balanced scorecard (BSC)

Secondary goals:

Identifying the present system of the electronic customer relationship at Maskan Bank

Compiling a strategy for E-CRM system, from customer's perspective

Compiling a strategy for E-CRM system, from financial perspective

Compiling a strategy for E-CRM system from internal perspectives of processes

Compiling a strategy for E-CRM system from growth and learning perspective

Compiling programs and operational methods

Drawing strategy plan for organization

Research questions:

Main research question:

What is the ideal strategy for E-CRM with the approach to BSC?

Secondary research question:

1-What factors with what effectiveness rate are appropriate for compiling a strategy from customer's point of view? And, what is the proper strategy for this perspective?

2-What factors with what effectiveness rate from financial perspective are effective in compiling a strategy, and what is the proper strategy for this perspective?

3- What factors with what effectiveness rate from internal processes perspective are effective in strategy compiling? and what is the proper strategy for this perspective?

4- What factors with what rate of effectiveness from growth, learning and innovation perspective, are effective in strategy compiling, and what is the proper strategy for this perspective?

5- What are improvement methods of E-CRM?

Research hypotheses:

The goal of research is to compile strategy and the research is of descriptive-discovery type, so there is not necessarily a need for hypotheses, but to do the test according to the model and compile strategy on this basis ,there are the following hypotheses among the model's parts:

1-There is a relationship between variable of continuous improvement of electronic services and E-CRM strategy

2-There is a relationship between training of electronic services and E-CRM strategy

3-There is a relationship between variable of expansion of new subjects and E-CRM strategy

4-There is a relationship between variable of comprehension and improved awareness of customer and E-CRM strategy.

5-There is a relationship between variable of exchange increase and E-CRM strategy.

6-There is a relationship between variable of electronic customer satisfaction and E-CRM Strategy.

7-There is a relationship between variable of profitability increase and E-CRM strategy.

8-There is a relationship between variable of selling service increase and E-CRM strategy.

9-There is a relationship between variable of cost decrease in online exchanges and E-CRM Strategy.

10-There is a relationship between variable of more effective processes and E-CRM strategy.

11-There is a relationship between variable of faster processes and E-CRM strategy.

12- There is a relationship between variable of better quality and E-CRM strategy.

13-There is a relationship between variable of more reliable processes and E-CRM strategy.

14-There is a relationship between variable of increases of using technology and E-CRM strategy.

Research domain: domain of performing the research

Subject domain is research in the area of E-CRM and this research is considered part of strategic marketing research.

a) Time period of doing research: second half of the year 2012
b) Place of research: Maskan Bank

Methodology

This study is a descriptive survey research. Statistical population of research: customers and Maskan Bank workers who perform part or all of their electronic bank work in this bank are considered as statistical population.

Random sampling has been used as method of sampling in this research.

Opinion of university experts have been used to the extent of confirmation of validity and content of the questionnaire.

Considering that people using bank services were of a heterogeneous groups including customers, real and legal people, depositors , loan receivers ,staffs ,experts and bank managers, Kokran formula was used to estimate sample volume.

Also at the level of staffs, experts and managers of the bank who were 11899 people and considering distribution of Z statistic test ,at level of %95 reliability , was 1.96 ,p; possibility of success and q possibility of failure and ε as the standard error which has been considered %5 ,considering that ε=a=0.05,the minimum number of questionnaires sent were 384.15 which 385 questionnaires were distributed.

To analyze descriptive data of questionnaires descriptive statistics and central indexes of dispersion was used, and for extension of data resulted from statistical sample to statistical population, deductive statistics was used, and to achieve this, 20th version of SPSS software was used.

In this research, simple random sampling method was used for staffs and customers and for determining sample volume, sample size formula with unlimited community was used

On this basis, the sample size in customers community is calculated as follows:

$$n = \frac{Z_{1-\frac{\alpha}{2}} pq}{\varepsilon^2} = \frac{3.84 \times 0.25}{0.0025} = 385$$

In this formula, $Z_{\alpha/2}$ is the under curve level of normal standard per meaningful level of 1-a considering the volume of 11899 people of Maskan Bank staffs, Kokran equation has been used and volume of statistical sample was determined as 385 people .For this purpose 400 questionnaires were distributed among some staffs and customers and eventually, 385 questionnaires for customers and 385 correct and analyzable questionnaires for staffs were obtained .

Measuring tools for the research: data collection tools

For this purpose, in the present research questionnaire method (as the main method) by means of physical distribution and intranet bank in branches of bank and customers and methods of studying documentations and library reading has been used (as the complementary methods).

Methods and tools for analyzing data

For descriptive analyzing of questionnaires data descriptive statistics and indexes of central dispersion and for extension of data resulted from statistical data deductive statistics have been used considering the grading nature of questions of questionnaires (comparison of research data) analyzing statistical nonparametric tools like, Pearson unification coefficient and t-value tests have been used and to achieve this goal, 20th version of SPSS Software has been used.

Research variables

Total variables in the model are of two types:

a)dependent variables: strategy for customer relation management

b) Independent variables:

Customer perspective and its dimensions (improved comprehension of customers increase of exchanges-electronic customer satisfaction).

Learning and innovation perspective (continuous improvement of electronic services-Training of electronic services-expansion of new subjects)

Financial perspective (profitability increase -increase of sales services -cost reduction of Online exchanges).

Exchange perspective and processes (more effective processes-faster processes- processes with better quality - more reliable processes -increase of using technology)

In addition, Cronbach's alpha was 0.81 for customers questionnaires, and 0.82 for staffs questionnaires which indicate reliability of questionnaires.

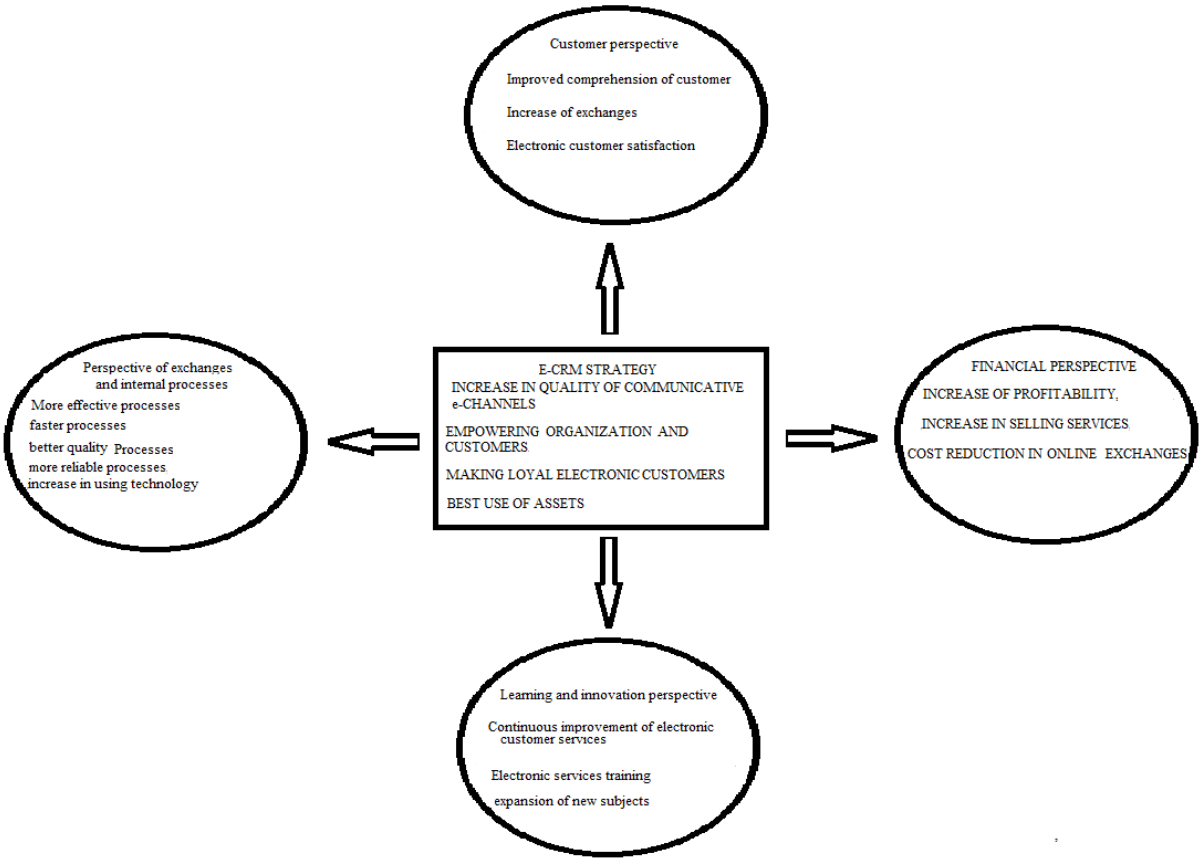

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Figure 1-Model Of Research (Kimiloglu Zarali, 2009)

Data analysis methods:

Identifying strategic goals of the system of customer relationship management for each aspect of balanced scorecard on basis of large goals and strategies of the organization , using studied resources and opinions of university experts, managers and bank experts ,the strategic goals of E-CRM related to each aspect has been compiled as shown in Table 2.

Unification analysis of primary and secondary parts of the model using Pearson test is shown in Table 3.

Table2-Strategic Goals Related To Each Aspect of the Model

Learning aspects of balanced scorecard	strategic goals of E-CRM related to each aspect
Learning and growth	empowering of customer and organization
Customer	making electronic customer loyal
Financial	best use of assets
Internal processes	increase of quality of electronic relationship channels

Table 3. Average deviation standard and Pearson correlation coefficients among research variables (n=385)

Research variables	1	2	3	4	5	average	standard deviation
Financial perspective	1	sig<0.01	sig<0.01	sig<0.01	sig<0.01	3.33	0.486
Learnig &innovation perspective	0.466	1	sig<0.01	sig<0.01	sig<0.01	3.159	0.446
customer perspective	0.543	0.608	1	sig<0.01	sig<0.01	3.136	0.407
perspective of processes & exchanges	.0581	0.603	0.67	1	sig<0.01	3.262	0.462
strategy of electronic Customer relationship Management	0.535	0.699	0.685	0.7	1	3.141	0.505

Using Pearson test, the average standard deviation and Pearson correlation coefficients among all research variables were obtained, and considering the resulted average for all research variables that has been more than usual, (more than3) shows that present condition in the community is higher than average and is in an ideal level . The best satisfaction level of this organization is related to financial variable (3.33) and the least satisfaction level is related to customer perspective (3.159). The relationship between research variables is two by two and has been meaningful at reliability level of %99, (meaningful level less than %1), also Pearson correlation coefficients between the main parts of the model (and 14 secondary parts[1]) and E-CRM strategy were obtained which show that parts of model have a significant relationship with E-CRM strategy and there is a positive unification between them.

Finding the main equation of the research:

Now, to find out the main research equation and also the secondary research equation , t-value test is used . Of course, for each equation (main and secondary), before finding standard and non-standard coefficients, and t-value significant and eventually regression equation, the following tests will be done to evaluate regression presuppositions

Evaluation of normality of errors is seen in the dispersion Figure, and Kolmogorov -smirnov test shows probable expected dispersion and (N-P PLOT) evaluates error normality as one of regression assumptions and errors of regression equation should have normal dispersion .In the Figure of probable dispersion, the expected amount are seen around the line with 45 degree slope which confirms error normality hypothesis (Figure1)

1 - For brevity, results of Pearson correlation coefficients for the sub-components of the research model were not stated.

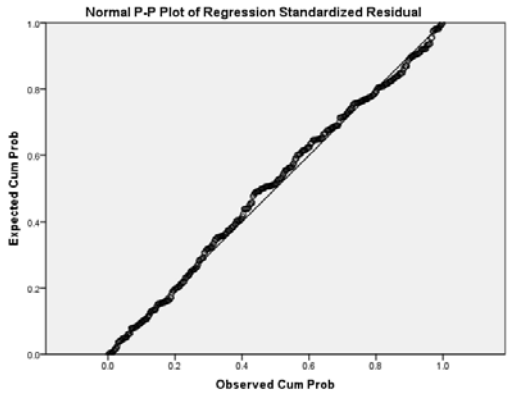

Figure 2- graph of probable dispersion for the expected amounts

To be brief, the results of Pearson correlation coefficients for secondary parts of the model have not been stated.

Also, the result of Kolmogorov- Smirnov test which is (z=0.969 ,Sig=0.305>0.05) shows that errors distribution is normal.

Table 4-results of Kolmogorov- Smirnov test for the main equation of the research

		Standardized Residual
N		385
Normal Parametersa,b	Mean	0.000
	Std. Deviation	0.995
Most Extreme Differences	Absolute	0.049
	Positive	0.030
	Negative	-0.049
Kolmogorov-Smirnov Z		0.969
Asymp. Sig. (2-tailed)		0.305

Using Durbin-Watson statistics, for self-unification test (errors independence) which is of other Regression assumptions in which unification of errors should be rejected. Durbin-Watson statistic evaluates the assumption if in this research this amount equals to2.081 (is in the range of1.8 to 2.2) which indicates that this presumption is correct.

Using VIF indexes and tolerance for evaluation of lack of serious unification for this test, the two indexes of VIF and tolerance (an amount between 0 and 1) is used. For this test to be confirmed, VIF index should be less than 4, and the amount of tolerance should be close to 1 and away from zero. The table below confirms lack of strong linear unification among the research independent variables.

Table5- Vif and Tolerance indexes

independent variables	tolerance index	variance inflation factor(VIF)
1-financial perspective	0.613	1.631
2-learning & innovation perspective	0.555	1.8
3- customer perspective	0.465	2.152
4-exchange&process perspective	0.445	2.246

Now, after confirmation of regression presuppositions, multiple linear regression is used to evaluate the effect of the four variables of: financial ,customer, processes and learning, and Innovation perspectives on E-CRM strategy, and the results of which are seen in the table below:

Table 6. Regression of financial. Learning, customer ,and processes& exchanges perspectives on E-CRM strategy

Model	total squares	degrees of freedom	squares average	F	R	R^2	Sig
Regression	63.291	4	15.823	174.221	0.804	0.647	0
Reminding	34.511	380	0.091				
Total	97.802	384					

Predictor: constant amount ,and maximum effect of the four perspectives of financial, learning and innovation, customer, exchanges and processes

As shown in the table ,the significant amount has been less than one percent ,therefore, F value is significant {F(4 and 384)=1.91<174.221} and consequently the regression model is significant and indicates that the model is meaningful .As a result ,at least one of the independent variables has a significant effect on E-CRM strategy . R^2 or determining coefficient of this model is 0.647,so on this basis ,variables of financial, learning and technology, customer, exchanges and processes perspectives have been able to predict %64.7 of E-CRM strategy changes.%35.3 of remaining changes is prediction error and can include other effective factors on E –CRM strategy and evaluation of these effective errors that suggested for future researches .To evaluate which one of the four perspectives of financial, learning and technology , customer and exchanges and processes have had effects on E-CRM strategy, and which one has not had an effect and also realize which one has had more effect, and to find the weight and effect coefficient of each variable ,the table of standard and nonstandard coefficients ,t-value test have been used which is shown below:

Table 7. Standard, nonstandard coefficients, significant t-value ,entered variable in regression equation

	Prediction variables		non-standard coefficients	standard coefficients	t-value	significance level	hypothesis result
		B	Std. Error	B			
	Constant amount	-0.317	0.135		-2.345	0.02	Confirmed
H3	financial perspective	0.08	0.04	0.077	1.986	0.048	Confirmed
H2	Learning& innovation perspective	0.388	0.046	0.343	8.378	0	Confirmed
H4	customer perspective	0.302	0.055	0.244	5.448	0	Confirmed
H5	Exchange and processes perspective	0.312	0.05	0.285	6.248	0	Confirmed

The results show a significant effect of each four variable of financial, learning and innovation, exchanges and processes, and customer perspectives on E-CRM strategy. Eventually, the linear regression equation is as following, which dependent variable Y ((E-CRM strategy) and X_1, X_2, X_3, X_4 ,are respectively variables of financial, learning and innovation, customer and processes perspectives:

$$\hat{Y} = -0.317 + 0.08X_1 + 0.388X_2 + 0.302X_3 + 0.312X_4 + \varepsilon \ , R^2 = 0.647$$

2- Finding the secondary research equation:

In this stage, after considering the tests below, the effect of 14 key factors for getting the secondary research equation with regression, and standard and nonstandard coefficients and t- value have been entered in regression we find that:

1-Using the Figure of normality of errors and Kolmogorov- smirnov test:

In the Figure of probable dispersion, the shown and expected amounts (N-P plot) are dispersed around the line with 45 degree slope which confirms normality hypothesis (Figure2).

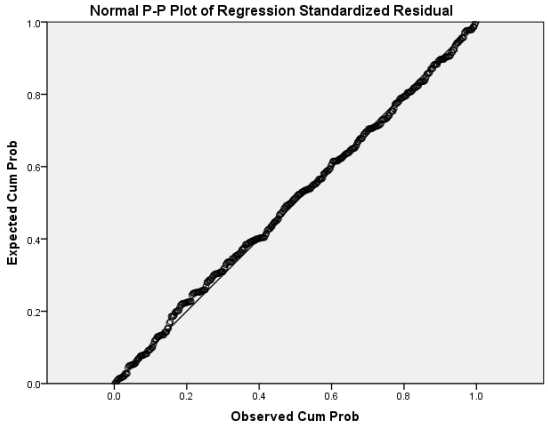

Figure 3.The graph of probable dispersion amounts of secondary parts of the observed and expected in the research model

In addition to the result of Kolmogorov-Smirnov test which equals (z=0.599, Sig=0.866>0.05) and indicates that errors distribution is normal.

Table 8-Kolmogorov- Smirnov test results

		Standardized Residual
N		385
Normal Parameters a , b	Mean	0.000
	Std. Deviation	0.982
Most Extreme Differences	Absolute	0.031
	Positive	0.018
	Negative	-0.031
Kolmogorov-Smirnov Z		0.599
Asymp. Sig. (2-tailed)		0.866

2- Durbin-Watson test evaluates errors dependence, Durbin-Watson statistics. Watson evaluates the hypothesis that, here this value is 1.964 (in the range of 1.8 to 2.2) which indicates the correctness of this presupposition.

3- Confirmation of lack of strong linear relation between independent variable by VIF and tolerance indexes. As it has been mentioned, for this test two indexes of VIF and tolerance (an amount between 0 and 1 is selected) are used. For confirmation of this test VIF index must be less than 4 and amount of tolerance must be closed to 1 and away from zero. The table below confirms the hypothesis of lack of strong linear unification between independent variables of the research.

Table 9-VIF and Tolerance Indexes

Independent variables	variance tolerance index (tolerance)	variance inflation factor
Continuous improvement of electronic services	0.653	1.532
Training of electronic services	0.621	1.61
Expansion of new subjects	0.642	1.558
Improved comprehension of customer	0.512	1.952
Increase of exchanges	0.675	1.481
Customer satisfaction	0.446	2.244
Profitability increase	0.471	2.121
Sales increase	0.527	1.897
Reduction of cost of online exchanges	0.569	1.758
More effective processes	0.623	1.606
Faster processes	0.589	1.697
Better quality processes	0.574	1.742
More reliable processes	0.602	1.66
Increasing use of technology	0.462	2.164

After doing these three tests and confirmation of regression presuppositions, multi level Linear regression was used to evaluate the effect of 14 secondary parts of research model on E-CRM strategy .These results are shown in the table below:

Table 10- Sub-component regression model of the research

Model	Total squares	degree of freedom	average of squares	F	R	R^2	SIG
Regression	71.548	14	5.111	72.024	0.855	0.732	0
Reminding	26.254	370	0.071				
Total	97.802	384					

As seen in Table 10, the significant amount is less than %1, therefore, F value is significant {F (14,384)=1.91<72.024} and consequently the regression model is significant.

Determination coefficient of $\mathbf{R^2}$ evaluates ,how many percent do the independent variables explain the change in dependent variables ,or in simpler words ,how many percent of dependent variable changes are resulted from independent variables ,on this basis ,all dimensions of financial ,learning and technology, customer, and exchange and processes perspectives have together been able to predict %73.2 of changes of E-CRM strategy .,the remaining %26.8 of changes include prediction

errors or other unpredictable independent variables and can include other effective factors on E-CRM, which is suggested for future studies .

Compiling a strategy with approach to Balanced Scorecard requires key factors for success. Since these factors existed in the model ,the 14 criteria are brought up as key factors for success, until after t-value tests , those which are confirmed would be screened, and then , to evaluate which ones are key factors for success in four perspectives of growth and learning customer ,financial and internal processes and finding which ones have affected E-CRM strategy and which ones have had no effects ,and also evaluation of the rate of effect of each one with the help of standard and non standard significant value entered in regression equation and t-value used, and existence of a significant relationship between some dependent variables was rejected, as below table:

Table 11. Standard and nonstandard coefficients, significant t-value entered into regression equation for finding secondary equation of research

	Prediction variables		non-standard coefficients	standard coefficients	t-value	significance level	hypothesis result
		B	Std. Error	B			
	Constant amount	-0.141	0.135		-1.043	0.298	Rejected
H1-1	Continuous improvement of electronic services	0.007	0.026	0.008	0.253	0.8	Rejected
H1-2	Training of electronic	0.278	0.032	0.294	8.607	0	Confirmed
H1-3	Expansion of new subjects	0.016	0.028	0.019	0.577	0.565	Rejected
H2-1	Improvement of customers comprehension	0.174	0.036	0.184	4.882	0	Confirmed
H2-2	increase of exchanges	0.0027	0.032	0.028	0.84	0.401	Rejected
H2-3	increase of customer Satisfaction	0.176	0.036	0.195	4.83	0	Confirmed
H3-1	increase of profitability	0.073	0.035	0.081	2.074	0.039	Confirmed
H3-2	increase of sales services	0.082	0.028	0.107	2.893	0.004	Confirmed
H3-3	Exchanges cost decrease in online	0.013	0.029	0.016	0.444	0.658	Rejected
H4-1	Effective making processes more	0.051	0.022	0.079	2.301	0.022	Confirmed
H4-2	making processes faster	0.041	0.026	0.057	1.611	0.108	Rejected
H4-3	giving processes more quality	0.106	0.026	0.145	4.078	0	Confirmed
H4-4	Making processes more reliable	0.098	0.034	0.1	2.887	0.004	Confirmed
H4-5	increase in using technology	0.083	0.029	0.113	2.861	0.004	Confirmed

Eventually, the 9 key factors for success below were confirmed and the weight of each coefficient was also determined by multilevel linear regression equation which in this stage with the help of t- value test, first the weight between BSC aspects and then the weight between key elements of success in E-CRM was determined. For better incorporating of experts ideas average geometric method was used, then the final weight of each factor was calculated and put in table 5. The rate of inconformity for all indexes were calculated between 0.02 and 0.09 and because it is under minimum acceptable amount ,all judgments are considered as compatible and appropriate.

Table12.Weights of indexes of aspects of BSC

Perspective	Number of Each Index	Key Success Factors	Level;s Weight (Perspective)	Key Index Weight	Final Weight
Growth & Learning	T_1	Training of electronic services	0.008	0.278	0.0222
Customer	T_2	Improvement of customer comprehension	0.388	0.174	0.0675
	T_3	Increase in customer satisfaction		0.176	0.06825
Financial	T_4	Increase in profitability	0.302	0.073	0.0220
	T_5	Increase of sales services		0.453	0.137
Internal processes	T_6	Making processes more effective	0.312	0.051	0.016
	T_7	Giving more quality processes		0.106	0.033
	T_8	Making processes more reliable		0.098	0.0306
	T_9	Increase of using technology		0.083	0.026

With the help of previous equation obtained from linear regression- which determined weight of each perspective- the final weight of the effect of each factor was calculated by multiplying weight of perspective in the remaining key factor coefficients.

Conclusions

According to results obtained from secondary regression equation with the help of standard, nonstandard and t-value entered in the test, out of 14 initial secondary variables,5 variables were rejected and 9 variables remained. On this basis the reformed model would be as it is shown in Figure 4.

Compiling key function indexes and balanced Scorecard for every aspect:

Key functional indexes are financial and nonfinancial measurement criteria that which are used for determining the quality of goals and reflection of strategic function of an organization. These indexes are used to evaluate the present condition of the company and determining proper methods for making the business intelligent.

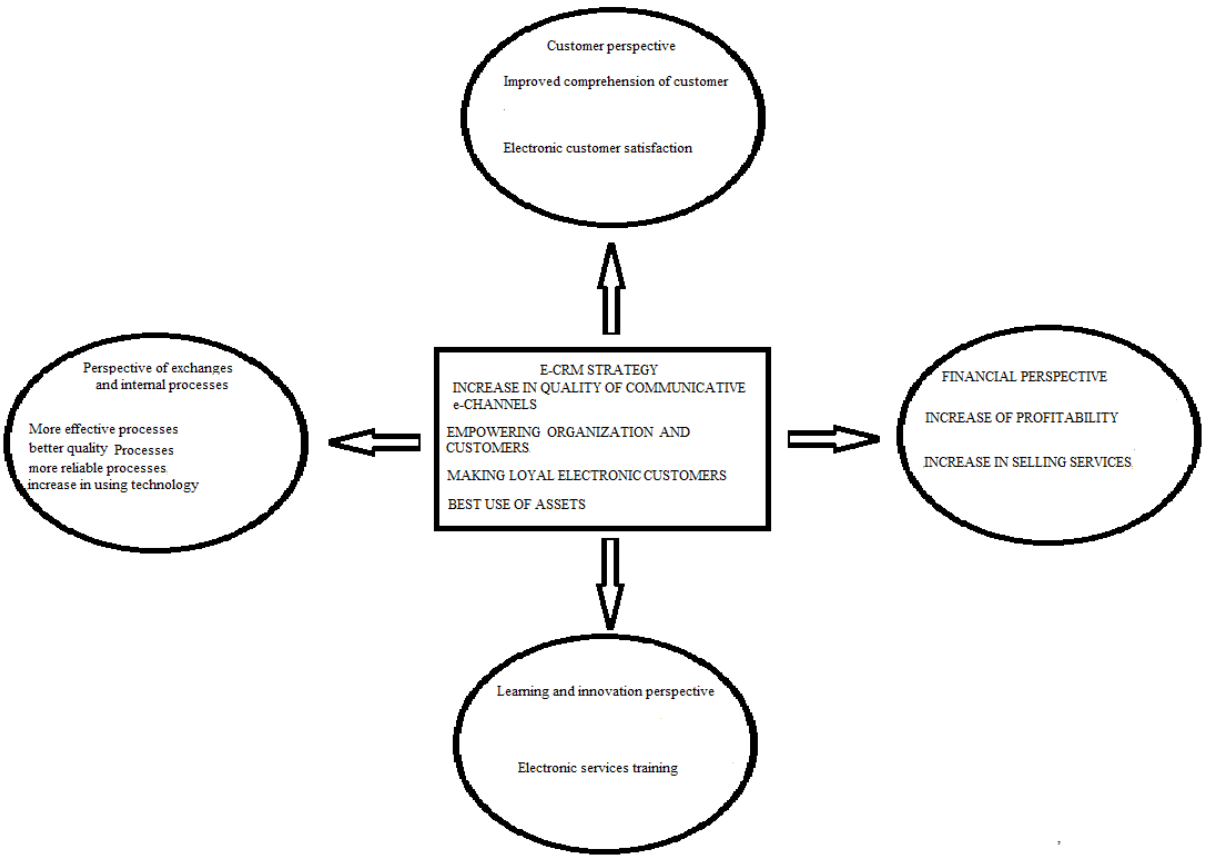

Figure 4. Final model of research

At this step of the research , for compiling key functional indexes, key functional indexes of the bank, books and articles(theoretical foundations) and Delphi method (expert group) have been used . Final summing up of functional key indexes related to for aspects of BSC for non- rejected key elements of success with t-value test has been compiled according to the table

Below Meanwhile, Pierson test results because of contradiction with t-value results, (confirmation of all hypotheses in contrast to t- value test) and the need to use all obtained weights in t- value test, was not used. These key functional indexes will be mentioned in the suggestion section and in each Balanced Scorecard.

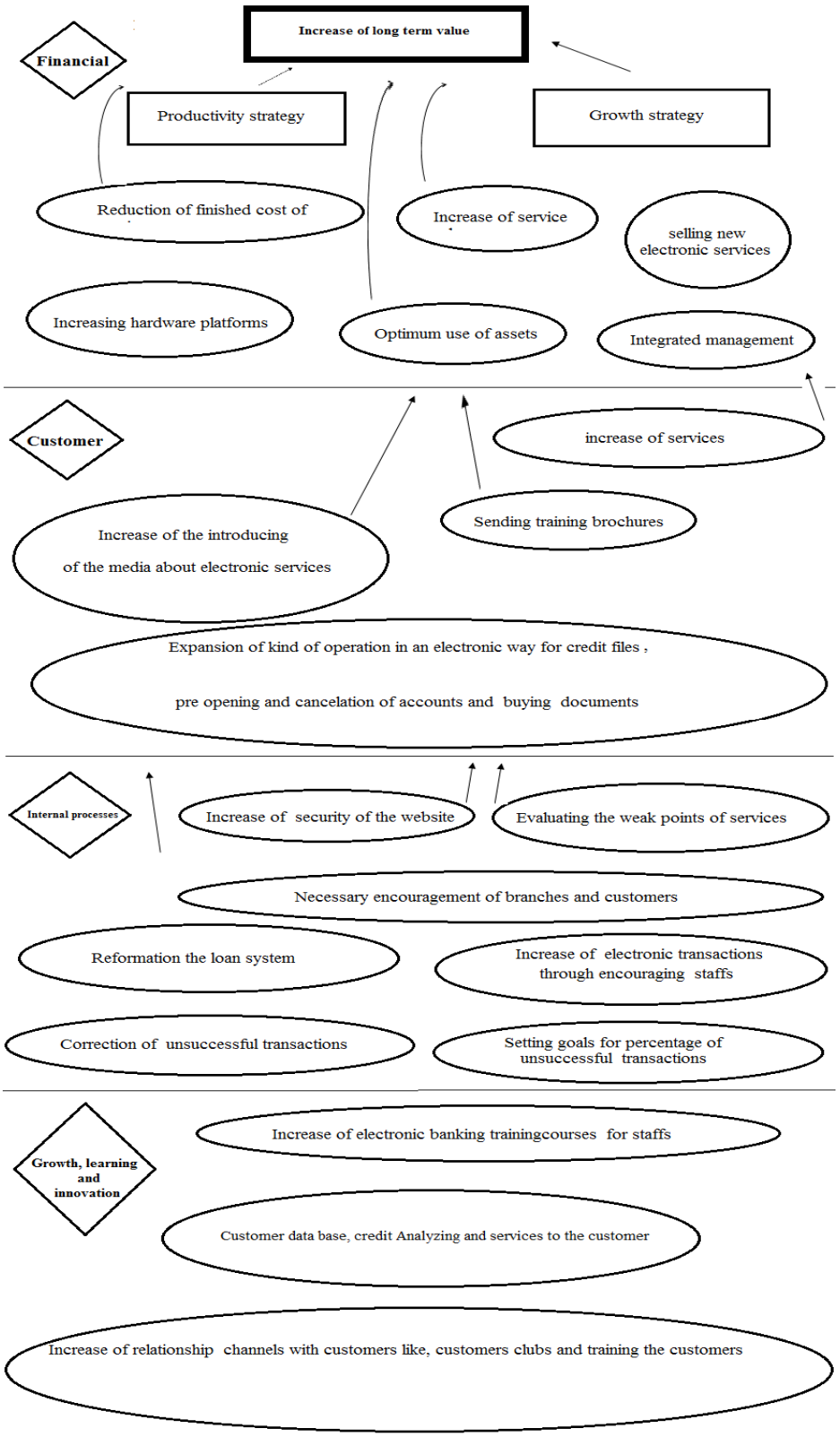

Figure 5- the Strategy Map of Organization

Suggestions

Suggestions in the area of each perspective while determining the related strategy, will be explained in the frame of Balanced Scorecard.

Table13 -Scorecard of learning and growth perspective:

Aspect	strategic goals	key success factors (CSF)	key functional indexes (KPI)	related executive suggestions
Growth & Learning	organization Empowering and customer	training of electronic services	Per capita of specialized electronic banking training and E-CRM for staff	Increase of electronic banking training and E-CRM for staffs Increase of communication ways with customers like customer clubs
			number of established new channels for customer training	
			number of accepted suggestions for fulfilling customers needs	

Table14-Score card of customer perspective

Aspect	strategic goals	key success factors (CSF)	key functional indexes (KPI)	related executive suggestions
Customer	Making electronic Customer loyal	improvement of customers comprehension	number of hours, pages of media introduction, advertisements Maskan Bank electronic banking services	Increase of quality of services by receiving feedback from customer Increase of support of customers expansion of electronic services in a way that face to face services would be given electronically, too. Services such as file making request, loan request files, in this area growth strategies must be used like, expansion of services and penetration in customer groups who Have not been regular customers yet by providing new services Increase of advertising and introduction of banking services in various media Sending training brochures to loyal customers and communities like schools and universities
			Number of training brochures set to customers	
		Increase Customer Satisfaction	Percent of customer satisfaction from Maskan Bank electronic services	
			Time period of electronic connection of customer with Maskan Bank(The average lifetime of an electronic customer)	
			Growth of amount and number of electronic transactions compared with the previous year	

Table 15- Scorecard of financial perspective

Aspect	strategic goals	key success factors (CSF)	key functional indexes (KPI)	related executive suggestions
Financial	optimum use of assets	profitability increase	rate of net annual profit of electronic transaction	Adding electronic services to all organizations and companies which sell services through bank networks like help to charity organizations, selling mobile charge , Talia ,Rightel ,and Irancell Selling credit cards for university tests , selling book tickets electronically Distribution of hardware equipments and software programs of Maskan Bank like POS, ATM, by encouraging acts like lottery for bank customers especially pos (Maskan Bank in the area of electronic income through electronic equipments is not in a good condition and although it has an average standing in the industry, but is far away from first and second rank in any area)
			Average costs of registered document	
		Increase of sales services	number and rate of electronic services sales and growth compared with previous year	
			Percent of share of market of electronic financial services in the country	
			Growth rate of electronic services compared with previous year	
			Number of provided services relevant to other organizations (mobile charge, credit card of university tests … and amount revenue from each	
			Number and rate of electronic transaction done by electronic terminals especially POS	

Suggestion for future researches

The present research to be done with analytical phase approach (AHP) or Dematel according to Correlation matrix method.

- The cost of each physical or non-attendance document to be calculated non presence way and be consisted In determining the present situation of the bank.
- The bank has no vision ,statement ,mission and compiled essential values .It is suggested that the mentioned items to be designed by experts compiled and determination of organizational values be done according to views of organization's experts and university experts .
- It is suggested that background and factors of acceptance and performing strategies and also evaluation of strategies and their actualization, to be studied in separate researches.
- An special unit to be established in the organization for performing strategies to compile goals in each area and also act in the direction of making them operational and also be the connector between strategy and other related units of organization and evaluate compiled and performed strategies and consider the feedbacks for reforming the strategies.

Table 16- score card of internal processes perspective

Aspect	strategic goals	key success factors (CSF)	key functional indexes (KPI)	related executive suggestions
Internal Processes	increase of quality of communication channels	making processes more effective	percent of unsuccessful transactions to all transactions	Strengthening or providing the necessary incentives not to cut branches ATM connection increase of electronic transactions of branch customers and introducing the best branchs in each area Strengthening POS equipments and providing POS services for stores through consulting companies with more experience and capability Increase electronic services portal providing the necessary incentives Increasing website security by using experienced experts and using domain of https Evaluating ways to misuse ATM and POS machines and ways to resolve them Periodic evaluation and hack tests by website experts at least by seasonal tests and hacking by bank experts to Identify network's weak and vulnerable points reforming centralized loaning system in the area of electronic payments and calculation of late payments Giving formal annual reports of percentage of successful and unsuccessful transactions Setting goals for percentage of unsuccessful transactions by decrease method for the related units in bank
			Percent of unsuccessful transactions not corrected to total unsuccessful transactions	
			Percent of traditional transactions to total transactions	
		giving processes more quality	average exact time of each electronic tools (ATM, POS) of terminals at branches, internet bank, phone bank and web kiosk)	
			saving resulted from suggestions for improving quality and lowering customer cost	
		making processes more reliable	number of equipments and softwares which are up to date used compared to previous year	
			number of cards having multi accounts	
			number and amount of sold ducuments to customers fully electronic	
		increase of using technology	number of hacked accounts in one year	
			number of successful hacked attacks and getting into firewall of the website	
			number of reports of misuse of electronic equipments like, ATM, and POS	

- It is suggested that, in a separate research with survey finished cost for banking services in the present condition, the results and analyze the benefits of following the present strategy must be evaluated so that, the results from this strategy from the view point of financial dimension be revealed as well.

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