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Evaluate the Organizations Performance of Rasht Municipal Transportation Area with BSC Approach and ANP Method

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Abstract: Evaluate the organizations performance and economical institutions and investigating the obtained results of their performance in a given period are considered as a strategic and important process that in addition to determine the competitive position of organization has a significant role in the continuous improvement and improve the quality and effectiveness of organizations management decisions. Performance evaluation should have such universality that it can relate all associated aspects on organizations activity with their function and reflect the role of managers' decisions in their performance improvement goals. In this regard, the balanced scorecard is introduces as a new management tool for strategy planning and performance evaluation of organizations. In this regard, the present study aimed to evaluate the organizations performance of Rasht Municipal Transportation Area on the basis of BSC and prioritize on the basis of ANP that is a descriptive and field research. The research population consist the experts of 4 organizations (bus, taxi, transport and terminals and traffic) and 221 people that 92 of them have been studied using stratified random method. First by the study of literature, some components is selected fit to organizations of Rasht Municipal Transportation Area and some indicators is identified for it and through questionnaires is distributed between experts and finally using the balanced scorecard and ANP Method has been analyzed. The results have shown that the organizations performance of Rasht Municipal Transportation Area is beyond the average range and rise over and at the same time has more distance to ideal range and also indicates that based on the ANP Method, among the organization of Rasht Municipal Transportation Area, the organization of traffic transportation by priority factor of 0.58 is in the first place, the organization of taxi by priority factor of 0.25 is in the second place, the organization of bus by priority factor of 0.11 is in the third place, the organization of terminal by priority factor of 0.05 is the fourth place.

Key words: Evaluation performance, balanced scorecard, organizations of Rasht Municipal Transportation area, taxi, bus, terminals, traffic transportation

INTRODUCTION

Today, due to the expansion of services organizations in the field of international and global competitions, what enable the managers of these organizations in the face of economic challenges, beyond the technical and knowledge, indeed is the optimal use of facilities, resources and existed potential capacities in different parts of the organization. Obviously, achieving to this important issue isn't possible without sufficient and adequate understanding of managers of the utility and quality of facilities, activities and results of their performance in today's complex and dynamic environments. (Azar and Rajab, 2008) In this context, many managers in order to gain competitive advantages turn to the overall evaluation performance of their organizations. In order to the effectiveness and efficiency of the evaluation performance system, the most important step is select the indicators, comprehensive techniques and methods to achieve to this important issue. Some studied research has been in accordance with this important issue that organizational performance measurement is a complex issue because it is a multifaceted phenomenon that its formed elements may be distinguished from each other the priorities of management decisions and they may even make an incompatible contradiction in them (Ahmadi *et al*., 2011).

In this regard, the main issue is the right choice of techniques, tools and comprehensive, logical and scientific models that enable managers to know the inner strengths and weaknesses points and also environmental opportunities and threats more than ever through evaluate the current status of the organizations performance and place the obtained results as the basis of strategic strategies adoption. Researchers to analyze the environment often benefit from the indicator analytical techniques while the obtained results of them aren't

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probably consistent and comparable with together. And in this regard, there are shortcomings (Asgharpour, 2011). Obviously, investigating and rating methods, each have their own advantages and limitations, so the researchers want to introduce some methods to managers that as much as possible have fewer restrictions and encompass more comprehensive ranges of organizations performance (Mirghafoori *et al*., 2010). Unfortunately, in Rasht Municipal and dependent organizations including the organizations of transportation area, financial indicators are the basis of evaluation performance but other important indicators have ignored from the managers which are seemingly unnecessary. Given the benefits of the balanced scorecard that is a measurement tool of comprehensive and integrated performance, it is going to evaluate the organization in Rasht Municipal Transportation Area with regard to the dimensions of the balanced scorecard (indicators of financial, customer, internal business process, growth and learning). In this regard, the present study aimed to evaluate the organizations performance of Rasht Municipal Transportation Area on the base of BSC and prioritize on the base of ANP.

Theoretical and literature

Evaluation performance: Evaluation performance refers to a set of activities and information that is carried out in order to enhance the optimal level of resources and facilities due to achieve the objectives economically with efficiency and effectiveness, so that the evaluation performance express in the aspect of "the ways of using resources", essentially in the form of efficiency indicators. If in the simplest definition consider the ratio of input to output as the efficiency, it is evaluated the evaluation system in fact the efficiency level of management decisions on the use of resources and facilities which the main indicator is the economy or optimize of activities (Ahmed *et al*., 2008).

Balance Score Card (BSC): Balanced scorecard is a strategic planning approach and management system that is widely used in the commercial, industrial, governmental and non-profit organizations in all over the world to place in line businesses activities of organizations with a view and their strategy improve internal and external communications of organizations and monitor on organization performance compared with its strategic objectives (Berryman, 2005).

Aspects of the balanced scorecard: Balanced scorecard approach with the attitude of the four funds, customers, internal processes and learning and growth are looking for a balance between financial goals as a result of past performance on both sides of the customer and internal processes and goals of other funds. Thus, the balance between retrospective indicators (financial indicators) and prospective (indicators of three other funds) is created (Bose, 2004).

The financial perspective: Strategy tangible results that benefit from traditional financial measures such as economic added value, growth of revenue, costs, profit margins, cash flow, net operating income and other (Eskildsen *et al*., 2001).

Customer perspective: The value proposes that business organizations are adopting in order to satisfy their customers (Hsiao *et al*., 2008). Managers should be aware that the organization has satisfied its customers in meeting their needs. For this, it is necessary to identify and measure all the values that are transmitted to customers (Martin-Castilla and Rodriguez, 2008).

Internal processes perspective: Business processes to achieve the strategic objectives have a special place. However, organizations often will be weak and unable in dealing with them. Measuring the value creation level and the way of relationship between processes can help managers to understand the issues. It is therefore, necessary to identified processes that are vital to achieve the objectives of the customers and shareholders, etc. (Liou and Chen, 2006).

Growth and learning perspective: Intangible assets of organization that are related to the internal skills and abilities that are necessary to support the internal process of creating value (Jamshid, 2008). an organization's ability in innovation, improving and learning directly tied to its value as an organization. An organization can have growth and innovation when is able to develop their leadership and skills and learn from their mistakes and behavior of other organizations and can create new methods.

Analysis Network Process (ANP): One of the efficient examples of outlined techniques in MADM is Analysis Hierarchy Process or AHP . According to what is studied in the following three principles, human mind pass these three principles in analytical thinking and AHP is built based on the three pillars. Meanwhile, AHP is also has some limitations that due to the limitations and failures of this approach in terms of the dependences among the criteria and factors, Sanchez in 2006 developed another approach that is well-known as the process approach of network analysis and its advantage to the AHP is that it considers the dependencies among criteria (Elena *et al*., 2006).

MATERIALS AND METHODS

Since, this study was to evaluate the organizations performance of Rasht Municipal Transportation Area with BSC approach and ANP Method, the research is descriptive and applied and to collect information the questionnaire is used, so this study can be placed in the field research.

Population and sampling: The study population consists of all organizations experts of Rasht Municipal Transportation Area and 221 people that 92 of them have been studied in stratified random sampling as static sample.

Measuring instruments and statistical techniques: In this study, two types of questionnaires has been used. First based on the data collection through library studies and interviews with organizations experts and managers of Rasht Municipal Transportation Area, a number of indicators in each of the four BSC landscapes were collected. Then using experts and supervisors view, the number of indicators have been content validity and adjusted. Finally, the final questionnaire BSC was distributed among the sample of 92 people. They are depending on each indicator in company one of the 5 options of Likert scale gave points from 1-5. In order to determine the reliability test using alpha Cronbach, first a prototype prepared consist of 30 pre-test questionnaire and then using the obtained data, the confidence coefficient in the SPSS software was calculated for the questionnaire 88%. In the second stage, due to using ANP techniques, paired comparison questionnaire has been used which is distributed among 30 top managers of the organization and eventually using ANP Method has been evaluated.

RESULTS AND DISCUSSION

Findings: Demographic research is as Table 1.

Analytical findings

Balanced scorecard: The t-test results are shown in Table 2.

ANP Method

First step; defining the network structure: Since, in the present study, the aim has been the evaluation of organizations performance of Rasht Municipal Transportation Area on the basis of BSC and prioritize ANP. Network structure is as follows Fig. 1.

Table 1: Demographic information of population

Parameters	Information (%)
Contributors gender	90.2 male and 9.8 female
Education	19.6 associated degree, 53.3 BA, 27/2 MA
Job experience	37.0 of 10-15 year, 33.7 of 15-20 year, 29.3 over 20 year
Age	17.4 of 20-30 year, 42.4 of 40-50 year, 28.3 over 50 year

Table 2: The results of organizations points of Rasht Municipal Transportation Area in dimensions of BSC model

Four areas of BSC Model	Taxi	Bus	Terminals	Traffic transportation	Totale performance
Financial	3.45	3.20	3.14	3.51	3.24
Customer	3.48	3.42	3.31	3.60	3.38
Internal processes	3.35	3.29	3.16	3.43	3.19
Growth and learning	3.19	3.12	3.06	3.44	3.13

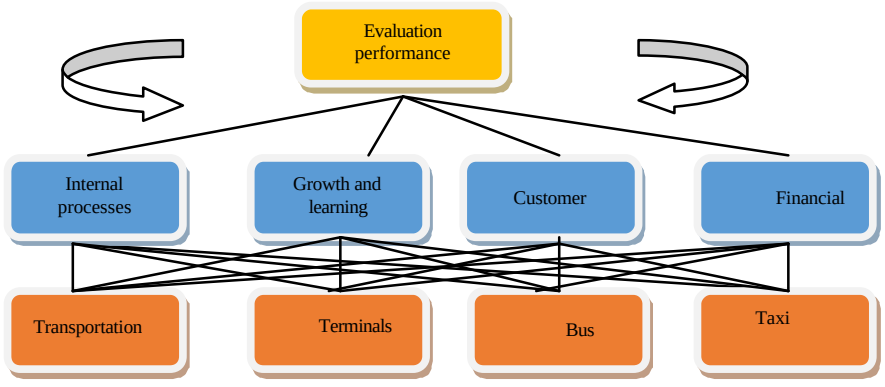

Fig. 1: Definition of the network structure

Table 3: Structure explanation of initial super matrix

	Evaluation performance	Transportation organizations				Balanced scorecard		
Cluster node labels	Criteria	Terminals	Transportation	Bus	Taxi	Growth and learning	Internal process	Financial
Evaluation performance								
Criteria	0	0	0	0	0	0	0	0
Transportation organizations								
Bus	0	0	0	0	0	0.25	0.25	0.25
Taxi	0	0	0	0	0	0.25	0.25	0.25
Transportation	0	0	0	0	0	0.25	0.25	0.25
Terminals	0	0	0	0	0	0.25	0.25	0.25
Balanced scorecard								
Growth and learning	0.25	0	0	0	0	0	0	0
Internal processes	0.25	0	0	0	0	0	0	0
Financial	0.25	0	0	0	0	0	0	0

Table 4:Paired comparion of technique indicators balanced scoreeard

Parameters	Values
Inconsistency	0.00773
Growth and learning	0.04536
Internal processes	0.11353
Financial	0.28449
Customer	0.55662

Table 5: Paired comparison based on financial index

Parameters	Values
Inconsistency	0.00773
Bus	0.13101
Taxi	0.23883
Transportation	0.57381
Terminals	0.05635

Table 6: Paired compared based on client index

Parametar	Values
Inconsistency	0.00773
Bus	0.10144
Taxi	0.24848
Transportation	0.60866
terminals	0.04141

Second step; explain the structure of the initial super matrix: In the initial super matrix before calculation, the points are divided equally among the options which are shown in Table 3.

Step Three: weighted to normalized matrix

Step Three; doing the necessary paired comparisons: Because this study was to evaluate the performance based on the balanced scorecard technique indicators is selected, first is paid attention to paired comparison of the four indicators Table 4.

As can be seen, the client index by a preferred coefficient of 0.55 has the highest importance and obtained consistency coefficient is under 0.1 and is valid Table 5.

As can be seen, the transportation organization with preferred coefficient of 0.57 has the highest performance and obtained compatibility coefficient is under 0.1 and is valid Table 6.

Table 7: Paired comparison based on the internal processes index

Parametars	Values
Inconsistency	0.00773
Bus	0.11891
Taxi	0.29158
Transportation	0.52401
Terminals	0.06550

Table 8: Paired comparison based on growth and learning index

Parametar	Values
Inconsistency	0.00773
Bus	0.15447
Taxi	0.27578
Transportation	0.48180
Terminals	0.08794

As can be seen, the transportation organization with preferred coefficient of 0.60 has the highest performance and obtained compatibility coefficient is under 0.1 and is valid Table 7.

As can be seen, the transportation organization with preferred coefficient of 0.52 has the highest performance and obtained consistency coefficient is under 0.1 and is valid Table 8.

As can be seen, the transportation organization with preferred coefficient of 0.48 has the highest performance and obtained consistency coefficient is under 0.1 and is valid.

Step four; formation of initial super matrix: Initial super matrix (no weight) matrix containing the priority that is obtained from the paired comparisons (binary).

In the weighted matrix, the matrix elements is multiple in the cluster weight. In the hierarchy, weighted matrix isn't different with no weight matrix. Specified box in Table 9 shows the initial super matrix.

Fifth step; formation of weighted super matrix

Sixth step; Calculate the closeness to ideal solution both positive and negative and also ratings the options: Super matrix of measure (finite) obtain from the power supply of paired matrix until it converges and the reach to response (Table 10).

Table 9: Formation on initial super matrix

	Evaluation performance	Balanced scorecard				Alternative		
Cluster Node labels	Criteria	Growth and learning	Internal process	Financial	Customer	Bus	Taxi	Transportation
Evaluation performance								
Criteria	0	0	0	0	0	0	0	0
Balanced scorecard								
Growth and learning	0.045358	0	0	0	0	0	0	0
Internal processes	0.113532	0	0	0	0	0	0	0
Financial	0.284492	0	0	0	0	0	0	0
Customer	0.556618	0	0	0	0	0	0	0
Alternative								
Bus	0	0.156990	0.118915	0.131014	0.101443	0	0	0
Taxi	0	0.271974	0.291579	0.238829	0.248484	0	0	0
Transportation	0	0.482886	0.524006	0.573811	0.608659	0	0	0

Table 10: Formation of weightedsupermatrix

	Evaluation performance	Balanced scorecard				Alternative		
Cluster Node labels	Criteria	Growth and learning	Internal process	Financial	Customer	Bus	Taxi	Transportation
Evaluation performance								
Criteria	0	0	0	0	0	0	0	0
Balanced scorecard								
Growth and learning	0.045358	0	0	0	0	0	0	0
Internal processes	0.113532	0	0	0	0	0	0	0
Financial	0.284492	0	0	0	0	0	0	0
Customer	0.556618	0	0	0	0	0	0	0
Alternative								
Bus	0	0.156990	0.118915	0.131014	0.101443	0	0	0
Taxi	0	0.271974	0.291579	0.238829	0.248484	0	0	0
Transportation	0	0.482886	0.524006	0.573811	0.608659	0	0	0

Table 11: Calculate the measure of super matrix

	Evaluation performance	Balanced scorecard				Alternative		
Cluster node labels	Criteria	Growth and learning	Internal process	Financial	Customer	Bus	Taxi	Transportation
Balanced scorecard								
Criteria	0.022679	0	0	0	0	0	0	0
Growth and learning	0.022679	0	0	0	0	0	0	0
Internal processes	0.056766	0	0	0	0	0	0	0
Financial	0.142246	0	0	0	0	0	0	0
Customer	0.278309	0	0	0	0	0	0	0
Alternative								
Bus	0.057179	0.15699	0.118915	0.131014	0.101443	0	0	0
Taxi	0.125848	0.271974	0.291579	0.238829	0.248484	0	0	
0Transportation	0.291715	0.482886	0.524006	0.573811	0.608659	0	0	0
Terminals	0.025258	0.08815	0.065501	0.056345	0.041414	0	0	0

Table 12: Selecting the preferred option

Parameters	Ideal graphic	Normal	Row
Bus	0.196012	0.114359	0.057179
Taxi	0.431407	0.251695	0.125848
Transpo	1.000000	0.583429	0.291715
terminals	0.086585	0.050516	0.025258

Sixth step: calculate the measure of super matrix: Super matrix of measure (finite) obtain from the power supply of paired matrix until it converges and the reach to response. Specified box in Table 11 is the calculation of measure super matrix.

As can be seen from Table 12. The obtained results of research show that based on ANP Method, in the organizations of Rasht Municipal Traffic Transportation Area, organization traffic transportation by the priority coefficient of 0.58 is in the first place, taxi organization by the priority coefficient of 0.25 is in the second place, bus organization by the priority coefficient of 0.11 is in the third place, the terminal organization by the priority coefficient of 0.05 is in the fourth place.

CONCLUSION

The research results in the technique part of balanced scorecard have shown that the organizations performance of Rash Municipal Transportation Area is beyond the average level and rise over and yet so far from the ideal. Because transportation organizations as a single set in all balanced scorecard indicators have won to achieve more points than 3 (moderate performance). However, in none of these indicators this amount has reached to the number 4 (moderate performance) and 5 (the ideal performance). It is suggested that the organization's strategy for rising from the moderate performance to excellent performance, require the expertise reload.

The results also show that the output of the ANP method shows that the client index by importance coefficient of 0.55 has the most importance, according to experts in evaluating the organization performance of Rasht Municipal Transportation Area, existing the index in average level has made more damage to the organizations performance point. This means that if organizations intend to revise and reload their strategies, the most initial and yet the most effective action of them can target customer domains indicators and with respect to the second place of financial indicators by the importance coefficient of 0.28, the next step is important in this aspect. Although, the results in another aspect suggest that the correction of organization behavior in the face of and correct use of client indicators will lead to financial gains.

The results also show that among the transportation area organizations, organization of traffic transportation by priority coefficient of 0.58 has the highest performance. In the explanation of the obtained results should be stated that looking at the paired comparisons of balanced scorecard indicators in this organization shows that organization in all indicators has showed more favorable performance compared to other organizations. Therefore, ANP technique in the evaluation step has introduce this organization as an ideal model for other organizations.

RECOMMENDATIONS

In line with the obtained results of the research, the following is recommended:

- The use of new technologies in public transportation and ticketing system
- Increase the accurate and timely information to citizens in connection with the special services of transportation
- Appointment of organization managerial positions with education and experience of managers
- Proportion of allocated funds to organizations based on the volume of activities and the obtained results of evaluation performance

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