

## Evaluation of Manufacturers' Quality of Work based on EFQM (Case Study:Mega Motor Co.)

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**Abstract:** *ganizational Improvement Model, is one of the most significant organizational superiority as well as self-assessment which is located based on accessibility of such a model. This model has been found as one of the most powerful and efficient means of assessment as well as improvement in functionality of each system. In this research, on the one hand, the weighing framework standard has been taken into account and on the other hand, domesticating the model by means of providing necessary questions in order to study all sub-standards have been achieved. Furthermore, we have had 300 providers out of random sampling and finally they ended up narrowing the number to only two candidates and while utilizing those random questions ,a thorough comparison had been conducted.This research, according to the result of the questions given to those two above-mentioned providers and recording all the findings, and with the use of SPSS those charts have been drawn in order to find the positive impact of implementing the EFQM model on the quality and constant improvement of the other companies and achieve all the prospective results.*

**Keywords :** *EFQM , quality Management , Functional Quality Assessment, Categorization of Providers*

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### 1. Introduction

One of the weaknesses of project-oriented organizations is the absence of a significant index to assess the success of their project and the only thing they take into consideration is the profit and punctuality of their submission.They can't evaluate their functionality due to lack of implementation of those two factors.This research which has been done is supposed to resolve such a problem, via defining specific indexes related to those companies.These indexes have been extracted out of EFQM base on 9 parameters: 1-leadership, 2- policies and strategies, 3- staff management 4- resources 5- processes6-cooperation and development of staff, 7- clients' satisfaction ,8- employees' satisfaction,9- Results taken from society.Producers have always been challenging with their client's satisfaction and quality of their products, these two have always been dependent on the providers' quality of actions.This research was conducted in the spring of 2012, by the use of collected data and auditing,which was done in late 2011, of those indexes in the chain of Mega Motor which has been producing engines and gear boxes which is the most important and complicated part for all car manufacturing companies .

### 2. Review Of Litreture Research

In 1998, EFQM came into existence in response to the quality of being competitive among European companies.14 leading European companies have come to agreement to meet all the requirements of such model in their working places, and surprisingly, this model has attracted more than 800 members from 38 countries, and in 1995 the general auditing of the model was performed and succeeded with some modifications which enables the model to be used in smaller companies in 1996.The latest auditing of the newest version of the model was presented in 2003, consisting of drastic changes as far as all those indexes are concerned. Finally, a version specifically focusing on dos and don'ts of health and hygiene in a company was issued in 2006 (Mohebbi Moghadam & Ali Akbar, 2007). Numerous studies have been made to assess the influence of organizational excellence model on success rate of different organizations. In most cases, a direct relationship between the implementation of the model and companies' performance has been observed. These findings entailed revision of the model and issuance of newer versions. For instance, from 2001 to 2005 more attention has been paid to health and hygiene in the model's framework. Also, a remarkable notice has been put through the applications and outcomes of the new sub-criteria in organization. In 2001, a survey of model in European Health Organization and health organization of Netherlands was made. Another study conducted in the same

period aimed at evaluation of how has EFQM affected the performance of German hospitals. According to the latter study, more than 50% of German hospital scored over 350 points based on the Excellence Model scoring system. Whereas, private organizations in Germany were entitled to 450 points or more. However, the best scoring sector in Germany was Industry with 750. The results of this study lead to emergence of a new version of excellence model in 2006, focusing on health and hygiene. A study on the outcomes of implementation of EFQM in the pharmaceutical industry of Spain, taking 313 cases into account, revealed the positive effect of implementing the new version by 31%. Following the latest version of excellence model, tendencies toward improving the performance of Iranian organizations and realizing the need for improving the competitiveness of regions by the policy makers motivated many researches on the mechanisms and procedures under which the Organizational Excellence Model works. In particular, a study entitled as "Identification of Performance Indexes of Industrial Projects with an Emphasis on EFQM and BSC" aiming at identification of indexes manipulating the performance of a project adapted the Excellency Model and also the Balanced Score Card frameworks. In addition, a systemic approach was also introduced to evaluate the performance of the projects which was based on a MADM<sup>1</sup> method. In this study 46 manufacturing companies, as suppliers of a major automobile producer in Iran, were categorized into three classes, namely, small, medium and large enterprises. This division was made based on the size of human resources firms. A statistical hypothesis test was made assuming that the mean score of each class are not equal. This test was carried out through the Analysis of Variance method . Additionally, numerous studies are being carried out in Iran examining the effect of implementing the Organizational Excellence Model on reaching the strategic goals. Various businesses have been subject to such studies; automotive industries, financial institutions, universities, hospitals, etc. For example, branches of Mehr Financial and Credit Institution, in Azarbaijan province, has been rated in terms of being customer oriented. This study is done using the criteria of Organizational Excellence Model (Izadi & Salehi 2006)

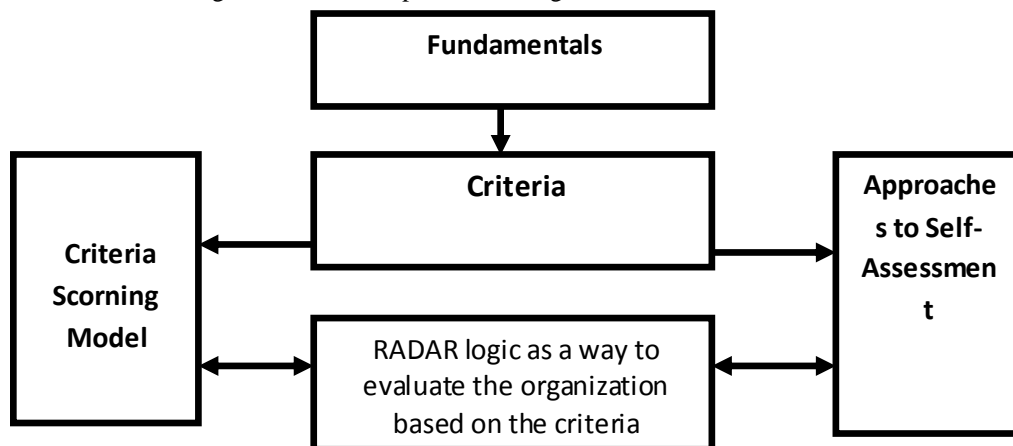
The satisfaction level of students in the University of Mazandaran has been evaluated considering the Customer Results criteria ( Amin & Asghari zade 2007 ). Another study was conducted to evaluate the performance of suppliers of Iran Khodro Co. in terms of quality. This study made based on a localized Organizational Excellence Model using AHP in 2008. Organizational Excellence Model has gained a significant attention in the recent years. Some of the studies carried in this context during the current year are Using a Hybrid Model of BSC and Organizational Excellence Models in Strategic Management of Organizational Intelligence, Performance and Excellence in Isfahan Sport Association, Suggesting a Hybrid Model for Analyzing and Assessment of Statistical Quality in Commercial Organizations, Suggesting a Hybrid Model for Analyzing the Organizational Performance Using Excellency Model and BSC , Suggesting a Model for Analyzing the Operational Organizations . Generally, Organizational Excellence Model is a comprehensive model that can be adjusted to be consistent with any environment. Thus, many small and large enterprises tend to take advantage of this model.

### 3. Analyzing The Suggested Method

#### 3-1 Main Components of EFQM

Figure 1 shows reflects five main components of European Foundation for Quality Management and their relationships.

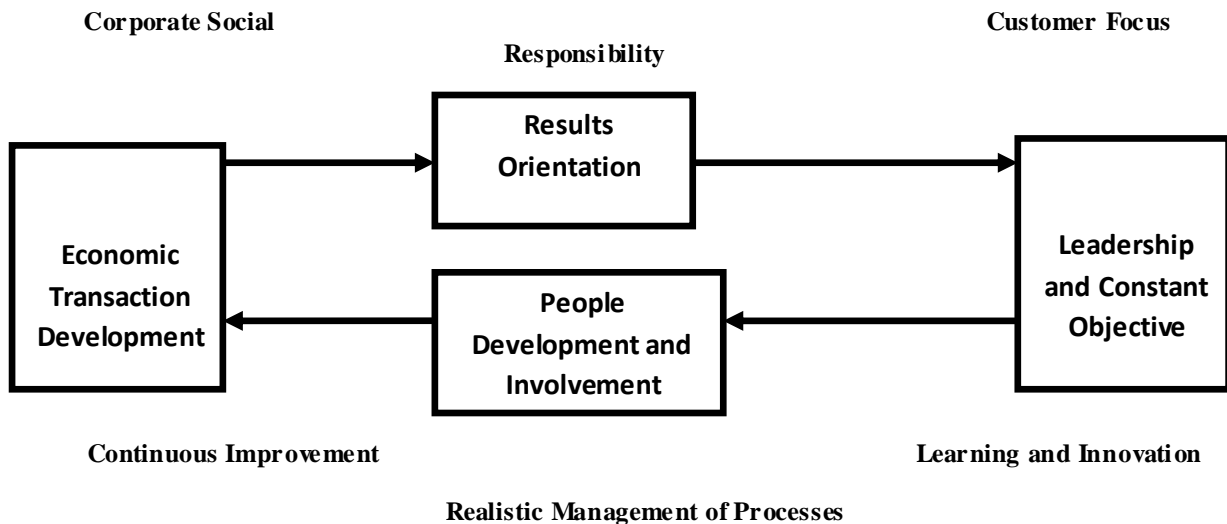
Figure 1: Main components of Organizational Excellence Model



### 3-2 The Fundamentals of Excellency in EFQM

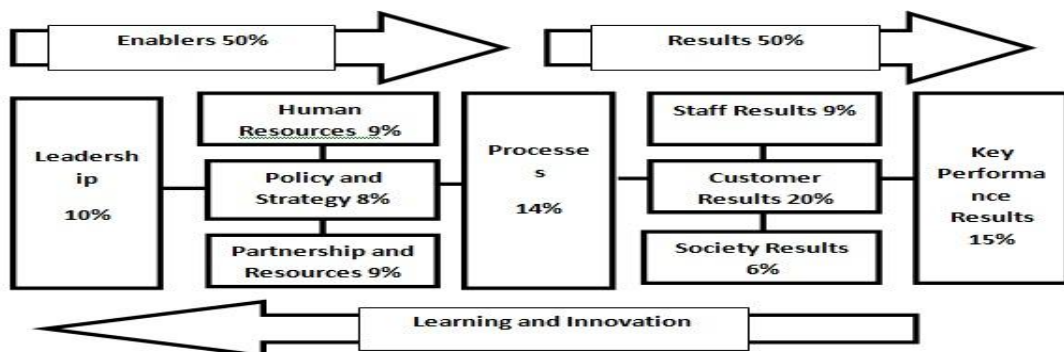
The Organizational Excellence Model is a systematic framework for evaluating organizations focusing on two general contexts i.e. the processes and their results. The outcome of this evaluation denotes the strength points of the organization and potential areas to be improved. This model suggests a list of prioritized actions to realize the existing potentials. According to Total Quality Management (TQM) framework, focusing on 8 fundamental elements are perquisites to continuous improvement and success in an organization. These elements form a basis for planning and implementation of the system. Hence, taking advantage of indexes corresponding to these elements seems to be essential for measuring the performance of organizations. In other words, measuring these indexes reflects the extent to which the octamerous elements are realized within the organization, and subsequently, how successful the organization is (Rezayatmand & Ghasemi, 2006). The aforementioned elements of excellence are discussed as followed. It is noteworthy that these elements support the Organizational Excellence Model and are applicable within any organization regardless of its size and mission. Since the EFQM is not a prescriptive model, obviously, there is not an exclusive path towards the excellence. Rather, the ways by which the organization may become excellent are various. The fundamental elements demonstrate objectives to be achieved within an excellent organization. The fundamental elements of EFQM, as a non-prescriptive method, are Results Orientation, Customer Focus, Leadership and Constant Objective, Realistic Management of Processes, People Development and Involvement, Learning and Innovation and Continuous Improvement, Economic Transaction Development and Social Responsibility (Rezayatmand & Ghasemi, 2006).

Figure 2: Fundamental elements of Organizational Excellence Model



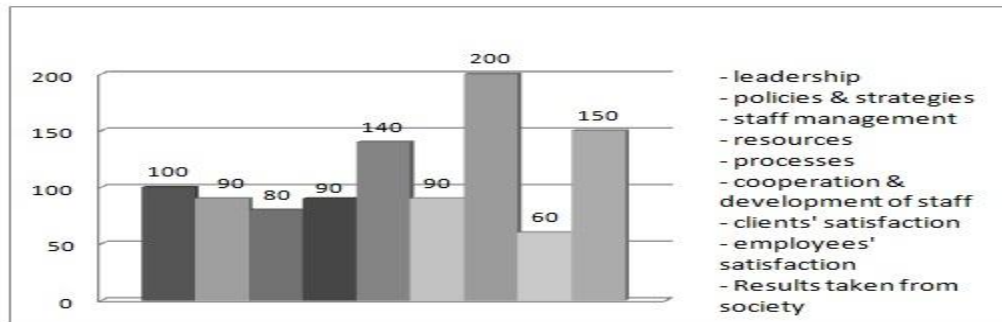
A comprehensive view of EFQM criteria are shown in Figure 3.

Figure 3 : criteria of the excellence model and their score proportion



The EFQM model consists of criteria that can form a total score of 1000 at most, reflecting that the ideal estate of the model is implemented; 500 points for enabling criteria and 500 for the criteria reflecting the results. In other words, an organization that has managed to implement the model perfectly would get 1000 points. Figure 4 shows the maximum points of each criterion.

Figure 4 : Maximum score of EFQM criteria



The scoring procedure of each criterion, while evaluating the quality of implementation of the model in an organization, each criterion is scored according to the following guideline.

Scoring Criteria				Weight	Element	Type
75-100	50-74	25-49	Up to 24			
Approaches have been developed in more than two-thirds of the area	Approaches have been developed in less than two-thirds of the area	Approaches have been developed in less than half of the area	Approaches have been developed in less than one quarter of the areas	%25	Approaches	Enablers
more than two-thirds of the approaches have been implemented	Less than two-thirds of the approaches have been implemented	Less than half of the approaches have been implemented	Less than a quarter of the approaches have been implemented	%35	Implementation	
More than two-thirds of the implemented Cases, have been evaluated and revised	Less than two-thirds of the implemented Cases, have been evaluated and revised	Less than half of the implemented Cases, have been evaluated and revised	Less than a quarter of the implemented Cases, have been evaluated and revised	%40	Evaluation and Revision	
Improving trend has been presented for more than two-thirds of the relevant parameters	Improving trend has been presented for Less than two-thirds of the relevant parameters	Improving trend has been presented for less than half of the relevant parameters	Improving trend has been presented for less than a quarter of the relevant parameters	%10	Trends	Results
Targets have been achieved in more than two-thirds of the indices	Targets have been achieved in Less than two-thirds of the indices	Targets have been achieved in less than half of the indices	Targets have been achieved in less than a quarter of the indices	%15	Goals	
Causes are mentioned in more than two-thirds of the indices	Causes are mentioned in Less than two-thirds of the indices	Causes are mentioned in less than half of the indices	Causes are mentioned in less than a quarter of the indices	%10	Causes	
Comparison is made in more than two-thirds of the indices	Comparison is made in Less than two-thirds of the indices	Comparison is made in less than half of the indices	Comparison is made in less than a quarter of the indices	%15	Indices	
More than two-thirds of the results refer to the related areas	Less than two-thirds of the results refer to the related areas	half of the results refer to the related areas	A quarter of the results refer to the related areas	%50	Classification	

Table 1: The scoring procedure of each criterion

#### 4. CASE STUDY

By the end of 2006, suppliers that graded D and C- were omitted from the list of Mega Motors certified suppliers. So, these manufacturers were to be replaced by other manufacturers or suppliers. Until an alternative supplier is certified by the department of procurement or department of commercial supplies the parts from an international market, the parts are procured merely through an instant payment from the omitted supplier. Also, such transaction is allowed under authorization of Quality Assurance department in terms of a leniency permit. The MRP assigned to suppliers with C grade is lessened; in 2006 the amount of orders to grade C+ suppliers were reduced to half and in 2007 to one forth. Regarding the suppliers graded D and C-, who are retained in the supply chain due to long-term contracts, the suppliers were held reliable for all inspection fees. However, if these suppliers participate in suppliers upgrading programmes, they will be revised at the end of the programme to see if a significant improvement in their performance is observed. Suppliers who get an A grade, are completely omitted from the parts inspection process and the inspection related fees are refunded to them. However, the A graded supplier shall be responsible for the quality assurance of the products (Department of Quality Systems and Customer Orientation, 2012).

D	C -	C +	B -	B +	A	Grade
500	500-599	600-699	700-799	800-899	900-1000	Periodic Audit Score
250	250-299	300-349	350-399	400-449	450-500	Primary Audit Score

Table 2: The scores according to which the suppliers are graded.

Two suppliers of the Mega Motor Co. are subjects to our study. Sanat Pazhouhan-e-Kia Co. supplies Siemens cylinder head and cylinder heads of Pride. The supplier code assigned to this company is 383. The Laton Manufacturing Company, supplier code 548, supplies Bosch flywheel. A comparison is made between these two companies reviewing their working environment, managing capabilities, staff training programmes, registered reports by QC laboratory on rejected parts from each supplier and the C/100 index. Considering the automotive industry specific standards were taken into account for the comparison. The findings reveal that Laton has to make more efforts to reach organizational excellence and its targets. The Organizational Excellence Model is supposed as a proper guide for establishing continuous improvement in an organization. Therefore, considering the accuracy and precision of the suppliers in implantation of the model and the extent to which they have adhered the localized model of organizational excellence, along with their final quality, would lead to an understanding of the relation between the existence of continuous improvement in the company and their success in implementation of the Organizational Excellence Model. The inspection records are mentioned in the following section along with the comparison of the findings of the study.

**Supplier's Name: Sanat Pazhoohan-e-Kia**

**Supplier Code: 383**

**Part Name: Siemens cylinder head and cylinder heads of Pride**

Supplier's Score	Maximum Score	Criterion	
43	50	Leadership	Enablers
23	30	Policy and Strategy	
32	40	Staff	
51	80	Partnership and Resources	
243	300	Processes	Results
225	300	Customer Results	
28	30	Staff Results	
29	30	Society Results	
128	140	Key Performance Results	
<b>802</b>	<b>1000</b>	<b>Total</b>	

**Supplier's Name: Laton**

**Supplier Code: 548**

**Part Name: Bosch Flywheel**

Supplier's Score	Maximum Score	Criterion	
22.5	50	Leadership	Enablers
8.1	30	Policy and Strategy	
16.6	40	Staff	
31.1	80	Partnership and Resources	
155.8	300	Processes	
247.7	300	Customer Results	Results
6	30	Staff Results	
6	30	Society Results	
28	140	Key Performance Results	
<b>521.8</b>	<b>1000</b>	<b>Total</b>	

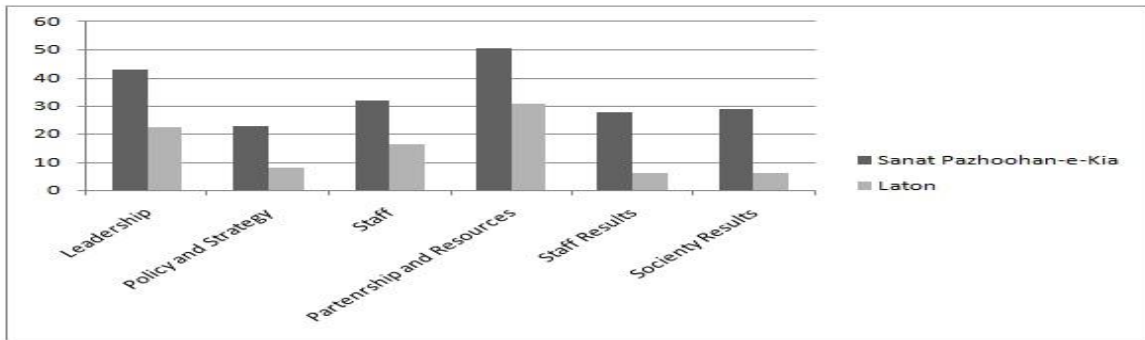
Table 4 : the inspection scores of Laton Co.

### 5. Discussion And Conclusion

The hypothesis of the study is the influence of implementing the Organization Excellence Model in an organization on its advancement in achieving the goals. Two random suppliers of Mega Motor Co. were taken as cases to be discussed. Analyzing the extent to which they have conformed to the model and their respective inspection scores is assumed to be a proper basis for testing the hypothesis. According to inspection records, Sanat Pazhoohan Co. is graded B- with a score of 802 and Laton Co. scoring 521.8 has obtained a C grade. Among the criteria of the model, the sub-criteria of Processes, Customer Results and Key Performance Results are relatively of greater importance. According to inspection records and also scores of excellence model criteria, Sanat Pazhoohan-e-Kia Co. lacks 57 points for Processes, 75 for Customer Results and 12 for Key Performance Results. These values for Laton Co. are respectively 48.9, 144.2 and 112. Thus, Laton Co. is more distanced from the ideal estate than Sanat Pazhoohan-e-Kia. In other sub-criteria, the scores reflecting the distance from ideal estate are as followed:

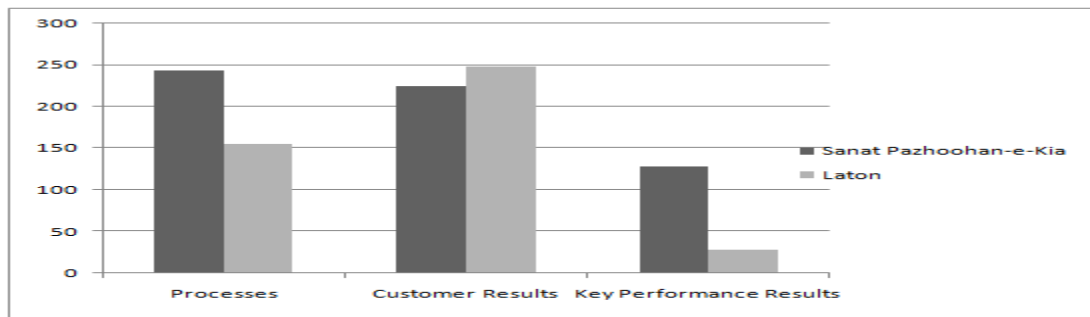
Sanat Pazhoohan-e-Kia Co.: Leadership 7 points, Policy and Strategy 7 points, Partnership and Resources 8 points, Staff Results 2 points, Society Results 1 point. According to these scores, Sanat Pazhoohan-e-Kia Co. is not much far from the ideal estate, thus, it is considered a B- supplier of Mega Motor Co.. Laton Co.: Leadership 27.5 points, Policy and Strategy 21.9 points, Partnership and Resources 23.4 points, Staff Results 52.3 point, Society Results 24 point. So, Laton Co. is considered a C- supplier of the Mega Motor Co.. Sanat Pazhoohan-e-Kia Co. enjoys several strength points. Through making efforts on improving the Processes and Customer Results sub-criteria, it can become a grade A supplier. The criteria which their maximum level is less than 60 are showed in the following Figure 5.

Figure 5: criteria with scores less than 60



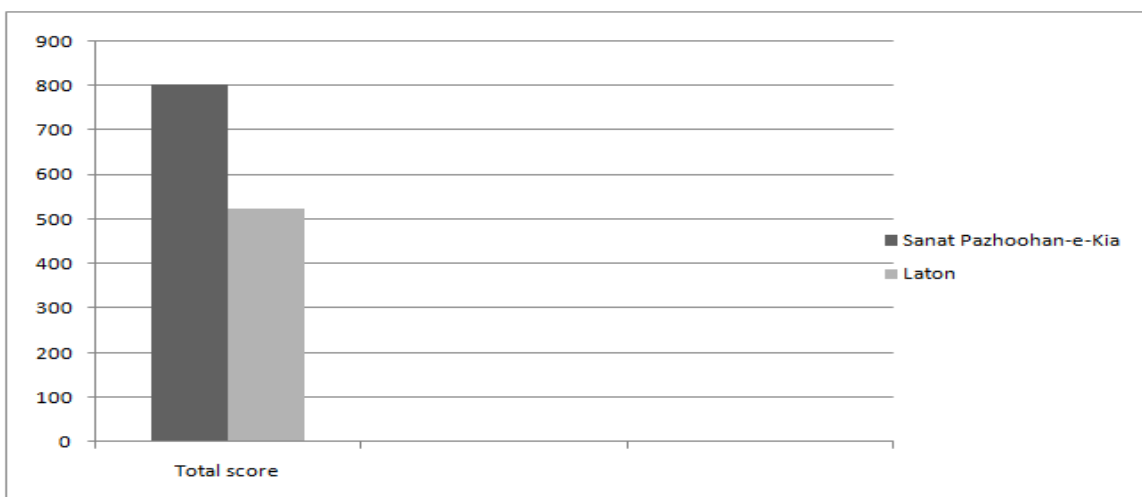
The scores related to Processes, Customer Results and Key Performance Results of the two suppliers are shown in Figure 6 .

Figure 6: comparison of the results for the two suppliers



Final comparison of total scores is shown in Figure 7.

Figure 7: Final results



Considering the findings from quality assessment of the mentioned companies and comparing these findings with their achievements in implementing the excellence model, a direct relationship between these variables is observed. Thus, it can be concluded that conforming to the excellence model framework within an organization and making consistent efforts to reach excellence has positive effect on the organization's quality of service/products, so that continuous improvement would be an outcome.

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