The Relationship Between Total Quality Management (TQM) and Organizational Performance

(Case study in Kerman Steel and Rolling Plant)

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Abstract
The purpose of present study is to explore the relationship between total quality management establishment and organizational performance in Kerman Steel & Rolling Plant. The conceptual model is a combination of two other models: Malcolm Baldrich Model and EFQM Model as tools for measuring total quality management establishment rate and organizational performance rate respectively. The statistical population includes the senior staff of the above mentioned company based on proportionate stratified random sampling. Data was collected using a mix questionnaire (based on the two above models). The results showed that there is a positive and significant relationship between total quality management establishment and organizational performance. It is noted that this study is descriptive-surveying method with the purpose of applying it.

Keywords: Total Quality Management (TQM), Organizational Performance, Malcolm Baldrich National Quality Award (MBNQA), European Foundation for Quality Management (EFQM)

1. Introduction
Benner and Tushman (2003) proposed that organizations should pay attention to balance between quality and research issues and use them within organizational macro strategy. They argued that existence of organizational qualitative facility is a must for encouraging organizational resources in order to
achieve higher productivity and efficiency. Meanwhile, innovation in an organization is closely related to building potential and active capacity for creativity and innovation as well as development of skills and capabilities of employees to exploit organizational new resources. They concluded that integration of two components (quality and innovation) highly impacts on encouragement of organizational competitive situation and can pave the way for consistent and promising performance of the organization.

Total Quality Management (TQM) has been recently very popular for encouraging quality in business (Ja'fari et al 2004, 11). Today, comprehensive quality management is considered as a new paradigm in management by scholars and practitioners. The basis of comprehensive quality management is consistent improvement of quality, higher organizational performance and paying attention to process instead of concentration on the result (Hajisharif 1997, 189). Increasing change and development in global scale motivates concern and global competition in productivity level leading to unprecedented higher expectancies by consumers. Accordingly, many organizations conclude that they could not survive and achieve constant productivity unless they satisfy consumer's needs and to resist against their competitors (Kiallagton 2002, 108).

Therefore, organizations tend to implement procedures and processes for increasing quality products and services in organization. Today, many issues such as quality management, development of quality performance, ISO, etc. are considered very important in industrial engineering and management (Radmez and Akbarnia 2000).

On the other hand, organizational performance is also considered important. On the whole, performance is defined as the measurable consequences of decisions and operations in an organization signifying its achievements rate. Accordingly, an organization requires evaluation in order to be aware of the rate of its operation acceptability and quality specifically in dynamic and complicated environments. On the other hand, lacking any surveillance, evaluation and monitoring systems in an organization indicates that the organization has no relations with its internal and external environments resulting in its dotage and eventually death. Because of gradualness instead of abrupture of the process, it may not be perceptible by the senior managers of the organization.

However, studies show that lacking any feedback system may make the required improvements for development and improvement of organizational operations impossible and its consequence is the death of the organization. (Rafi'zadeh, Effatidaryani and Ronagh 2008, 125).

Thus, one can conclude that it seems reasonable to analyze the impact of quality management on other variants in the organization after it has been
implemented for a period successfully. For example, Kerman Steel & Rolling Plant has been able to implement comprehensive quality management system successfully and it benefited from its advantages. Though, the senior managers in the organization concern about the relationship between the various dimensions of TQM system and the organizational performance after the system has been implemented in the organization for a long time. Therefore, the purpose of present study is to give a response to the concern and to reduce the existing ambiguities using scientific methodology.

The main and minor questions in this study are as follows:

**The main question:**
- Is there a relationship between total quality management establishment and organizational performance in Kerman Steel & Rolling Plant?

**The minor questions:**
- Is there a relationship between "leadership" and "organizational performance"?
- Is there a relationship between "strategic planning" and "organizational performance"?
- Is there a relationship between "concentration on consumer and business" and "organizational performance"?
- Is there a relationship between "concentration on human resource" and "organizational performance"?
- Is there a relationship between "information and its analysis" and "organizational performance"?
- Is there a relationship between "management of processes" and "organizational performance"?

**2. Overview of Background**
- Government Accounting Office (GAO) in USA (1991) studied 21 companies out of total 23 companies which had been judged initially to receive the famous Balderich National Award for quality based on their performances considering following criteria:
  - Relationship of employees
  - Operational routines
  - Consumer satisfaction
  - Financial performance

Consumer satisfaction was established by evaluating the overall consumer satisfaction, complaint and loyalty. Financial performance was measured as market share, sale - employees ratio, return to asset and
return to sale. Market share annual growth average rate, sale to the employees, return to asset and return to sale for the companies were 13.7%, 8.6%, 1.3% and 0.4% respectively. The findings in that study show that total quality management is suitable for both small (n<500) and large (n>500) companies (GAO 1991, 3).

- Booz, Allen & Hamilton consulting company (1996) implemented a study on 30 service provider companies to give an answer to this question: "Whether TQM is more suitable for productive companies or for service provider companies?" The study showed that TQM is more successful in productive companies than service provider ones due to following issues in the later group:
  - Weakness in overall direction of gradual and constant improvement plans.
  - Using a general model rather a compatible one to the organizational culture.
  - Using quality criteria inconsistent to consumer needs.
  - Limited training.
  - Insufficient support of implementing quality plans after employee training.
  - A separate organizational unit takes the responsibility of quality rather all employees are accounted for implementing quality trends routinely (Rao et al 1996, 7).

- Tim Newman (2001) released the paper "The efficiency of management in 21st century". He cites Greshon (1997) definition of TQM as a tool for launching an organization so that any unit of it gets a descriptive quality. Greshon holds that TQM components are: leadership, constant development, internal and external cooperation, paying attention to customer, employees learning and management trend.

- Asad Hamidi and Asadi (2002) studied "the relationship between TQM and effectiveness in Sports Organizations Head Quarters". The study showed that there is no significant relationship between TQM and effectiveness in Deputy Office for the Health and Physical Training, the Ministry of Education,

- Behrouz Riahi (2002) studied "The new theory of Total Quality Management in Iranian public sector" as his PhD. Thesis in Azad-e-Eslami University, Tehran Branch, Science and research unit. The main question of the study was "What is efficient criterion of the Total Quality Management for Iranian public sector regarding Islamic values and
criteria?" After exploring the suggestions of world scholars and practitioners as well as western models, a model was selected for implementing quality management in Iranian public sector consistent with Iran culture with following components: flexibility in giving service, accountability, good service climate, giving transparent and accurate information quickly to the people who refer to the public offices, employee empowerment, confidence-based service delivering, to treat justice in service delivering, considering opinions of people who refer to the public service providers as valuable ones, observing the human dignities of the people and treating them respectful based on Islamic beliefs and values. The relationship between the above components and the due effectiveness one can expect were evaluated. The study showed that the first priority is given to human dignity and respect components. The questionnaire was distributed among the staff of 5 ministries as statistical population in Tehran with following results: the public organizations achieved 63% rates in citizens' satisfaction, 60% in social values stability and 58% in social capital in terms of observing above mentioned components.

- Lau, Zhao & Xiao (2003) studied "quality management evaluation in China using Malcolm Baldrich Criteria" and concluded that companies can achieve more and better performance by using quality management in following terms: leadership, strategic planning, concentrating on costumer and market, concentrating on human resource, information analysis and process management.

- Farsijani and Samii Neyestani (2010) studied "The impact of integration of total quality management and technologic management on quality performance measurement and innovation for manufacturing companies in the central province". They concluded that the total quality management can predict quality performance of an organization strongly but it shows no significant relationship with innovation performance. The total innovation management can also predict the quality performance of the organization with lower rate than the total quality management. Finally, there is a correlation between the total quality management and the total innovation management.
3. Conceptual Framework, Conceptual Model and the Hypotheses of the Study

The Baldrich Award was suggested in 1987 Congress by many quality experts as the second American Quality Award after Deming Award as the first one and as a national strategy for increasing the competition in terms of quality improvement after many years promotion for quality by American Productivity and Quality Center (APQC) and American Society for Quality Control (ASQC) (Mahoney & Thor 1994, 12) and its goals are as follows:

- Increasing awareness of concepts, methods and strategies of quality management
- Understanding the requirements and strategies of quality management advanced proceedings
- Experience exchange in field of promising strategies for higher quality and the resulted advantages (US Department of Commerce 1998, 33).

This award contains a set of national standards for quality and many large companies implement it as their management guide to plans for higher quality. This award encompasses criteria for quality in American industries (Ross 1999, 15). The criteria in this model include leadership, strategic planning, concentration on market and costumer, focus on human resources, information analysis, process management and results as the consequences of implementing TQM.

On the other hand, EFQM is used frequently as one of scales for measuring performance with two separate factors: "Empowering factors" and "Consequences". Empowering factors include leadership, employees, policies, strategies, resources, stakeholders and processes. Consequences include results from personnel, results from costumers, results from society and key results of performance. Managers can use "empowering factors" as tools for achieving promising consequences (Neely 2011). The following conceptual model is presented for present study based on above description. It is noted that independent variant components (total quality management) include the 6 dimensions of Baldrich Model and the dependent variant components (organizational performance) include the 9 dimensions of EFQM Model.
Regarding above conceptual model, the hypotheses of study areas follows:

The main hypothesis:
- There is a relationship between total quality management establishment and organizational performance in Kerman Steel & Rolling Plant.

The minor hypotheses:
- There is a relationship between "leadership" and "organizational performance.
- There is a relationship between "strategic planning" and "organizational performance.
- There is a relationship between "concentration on consumer and business" and "organizational performance".
- There is a relationship between "concentration on human resource" and "organizational performance".
- There is a relationship between "information and its analysis" and "organizational performance".
- There is a relationship between "management of processes" and "organizational performance".
4. Methodology of Study

The present study is descriptive-surveying method with applying goal. The statistical population include the senior staff (managers and supervisors in different levels and senior staff)(n=132) in Kerman Steel and Rolling Plant. The sampling group (n=97) was selected randomly based on Kergy-Morgan Table (Danayifard, Alvani and Azar 2009, 347) using proportionate stratified method. The data collection tools were two standard and closed questionnaires (based on five-item likert scale): Malcolm Standard Questionnaire for measuring total quality management components and EFQM standard questionnaire. The validities and reliabilities of both questionnaires were explored and established before they were distributed. The data was analyzed using SPSS software and descriptive and inferential data (Pierson Correlation Test).

5. Findings

After inserting data into the software and measuring Pierson Correlation Coefficient, the results are obtained as follows (it is noted that the confidentiality rate is 0.05):

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Organizational Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership</td>
<td>Pearson Correlation</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Organizational Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic Planning</td>
<td>Pearson Correlation</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
</tr>
<tr>
<td></td>
<td>N</td>
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</table>

<table>
<thead>
<tr>
<th>Table 3</th>
<th>Organizational Performance</th>
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<tbody>
<tr>
<td>Concentration on Consumer and Business</td>
<td>Pearson Correlation</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
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<tr>
<td></td>
<td>N</td>
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</tbody>
</table>
Since sig. rate in all relationships (Except a relationship) is lower than 0.05, all relationships (Except a relationship) are significant:

- According to table 1, there is a positive and significant relationship (0.43) between "Leadership" and "Organizational Performance", so the first hypothesis is established.
- According to table 2, there is a positive and significant relationship (0.61) between "Strategic Planning" and "Organizational Performance", so the second hypothesis is established.
- According to table 3, there is a positive and significant relationship (0.31) between "Concentration on Consumer and Business" and "Organizational Performance", so the third hypothesis is established.
According to table 4, there is a positive and significant relationship (0.84) between "Concentration on Human Resource" and "Organizational Performance", so the fourth hypothesis is established.

According to table 5, there isn’t a significant relationship between "Information and its Analysis" and "Organizational Performance", (because sig. is more than 0.05), so the fifth hypothesis isn’t established.

According to table 6, there is a positive and significant relationship (0.61) between "Management of Processes" and "Organizational Performance", so the sixth hypothesis is established.

According to table 7, there is a positive and significant relationship (0.63) between "TQM" and "Organizational Performance", so the main hypothesis is established.

6. Conclusion and Suggestion
On the whole, the results showed that there is a positive and significant relationship between establishment of Total Quality Management and the organizational performance in Kerman Steel and Rolling Plant. It means that if the components of TQM (leadership, strategic planning, focus on costumer and market, focus on human resources and process management) in the company are elevated, organizational performance would rise by 63% probability and vice versa. It is noted that “information and its analysis” as one the components of TQM was the only component which showed no significance relationship with organizational performance though it has been established in some previous studies that this relationship is significance.
References


Radmaz, Azadeh and Akbarnia, Reza (1999):” ISO 9000 training” Elmosana’t University, Industry Department, Cultural office, scientific unit.
