The investigation of relationship between organization strategy, total quality management (TQM) and organization performance

1Feizollahi, Sadegh, 2Shirmohammadi, Alireza, 3latifian, behzad

1Department of industrial management, Islamic Azad University, Mehran Branch, Iran
2Department of industrial management, Payam e Noor University, Tehran, PO BOX 19395-3697, Iran
3Department of accounting, Islamic Azad University, Mehran Branch, Iran

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ABSTRACT

The study presented in this paper examines the relationship between organization strategy, total quality management (TQM) and organization performance. By examining TQM in relation to organization strategy, the study seeks to advance the understanding of TQM in a broader context. This article will also examine the relationship between TQM and organizational performance with regard to pay. Empirical data from a survey study of 50 middle and senior managers of industrial companies have been extracted from Ilam. Data analysis techniques using structural equation modeling (SEM) has been made. The findings show that (TQM) as a positive and meaningful way with differentiation strategy and performance criteria (quality, performance and innovation performance) is linked to the relationship between different strategies and the performance criteria (quality, performance and innovation performance), the shows positive and meaningful way. Plus the cost leadership strategy is a significant and positive relationship with innovation performance. The findings also show that the cost leadership strategy and implementing TQM quality performance no significant relationship.

Key words: Organization strategy, Organizational performance, Total quality management, Structural equation modeling

Introduction

The relationship between organization strategy, structure and performance is a classic subject in the literature of strategic management. Its main theory is that organizations strategy determines organizational structure that in turn, will influence the performance of organization [5].

The study conducted in this paper tries to consider the relationship between the strategy of organization (in terms of differentiation and cost leadership), organizational structure (in terms of applicability scope of TQM) and organizational performance (in terms of quality and innovation). The researchers of total quality management (TQM) recently stated that studying TQM in the wider organizational opportunity via combining factors such as trade setting, organizational culture and the strategy of organization is very essential [17].

However, some researcher have considered the relationship between TQM and organizational performance [1], but none of them have dealt with the relationship between TQM and special strategies. Studying the role of TQM as a part of the applicability of a strategy is important in influencing on the relationship between strategy and organizational performance because porter [19] has emphasized that presenting general, models of competitive strategy, every strategy requires different resources and organizational agreements for achieving the main purpose of strategy.

2. Conceptual framework, literature review:

TQM and the performance of organization in reviewing literature about the relationship between TQM and innovation, Para Jogo and shoal identified two reasons. The first reason state that there is a positive relationship between TQM and the performance of innovation because it creates cultural System that provides an efficient environment for the innovation of organizations [23].

The other reason believes that the achievement of principles and the procedures of TQM can prevent the innovation of organizations [11].

Researchers state that among several basic principles of TQM, customer- based principle can involve organizations in enclosed markets, and...
organizations just concentrates on providing the needs of existing customers, and they interpret their trade just in view of existing customers [13].

2.1. The strategy of organization and TQM:

Very few researchers have discussed the relationship between TQM and the strategy of organization, in particular in the situation of common strategic models generated by porter [19]. Some researchers have presented a strong confirmation and proof that TQM should adopt as a strategic model in the organization. In prospect of strategic management, TQM is more related to implement the strategy than select the strategy, thus it is important to consider that TQM can be related to which special strategy.

Reed et al. [22] stated that we can determine two commercial approach for TQM on the basis of Subjects: customer- based and process- based. In the case of customer- based approach, organizations concentrate on acquiring a market superiority so that they can have a better performance than their competitors in terms of attracting more customers with differentiated products and demanding additional price. This point shows that in the customer- based approach, TQM relates to distinctive strategy. In the other hand, on the basis of process- based approach the companies try to improve to remove the defects and drawbacks. Reed et al. [22] emphasized that TQM promote the importance of reducing the cost via continuous improvement and removing defects.

Thus, Reed et al Stated that under process- based approach, TQMs achievement finally leads to a cost- based privilege that show a leadership strategy of cost. Goblin and Brawn Stated another strong and persuasive relationship between TQM and cost leadership (Goblin et al., 1994). Focusing on the innovation of process, we can relate TQM to porter’s strategy of leadership cost. But Goblin and Brawn emphasized that TQM doesn’t want to only manage the cost, but also want to manage total value, that is TQM concentrates on producing high quality items with a competitive price such that the ratio of quality to price is high. The reasons that show the relationship between TQM and the strategy of cost leadership have a strong basis. In other words, Par Jogo and shoal believe that we can use TQM in different strategic situations including differentiation and cost leadership.

2.2. The strategy of organization and performance:

Blue halo [3] states that achieving high level of quality creates the capacity of following differentiation and the strategy of cost leadership inside a market. Porter [19] states that the purpose of a differentiation strategy is to make product that is unique in customers point of view. A company that adopts this strategy, indeed selects one or more attributes and properties that are important in customers’ point of view, and for superiority in these properties tries to this matter leads to an additional price. Philips et al [18] believe that among multiple sources of differentiation, quality is a method that often represents a differentiation strategy because quality via customers’ loyalty and minimizing customers’ sensitivity to price creates a competitive superiority. However, they conclude in their empirical study that the quality of product has a useful impacts situation of cost via market share. It seems that this result associates with reasoning of TQMs proponents that is based on reverse relationship between TQM and cost. However, on the basis of situation and conditions of TQM, rational results is that quality directly influences on reducing cost in an operational level instead of influencing on reducing cost via market share. Demining [6] in the concept of "the chain of quality improvement" confirmed that organizations can increase their competitiveness via quality improvement that in turn, causes reducing cost by means of reviewing and eliminating rework. This reduction of cost leads to attracts more share of market.

The empirical work conducted by Many et al shows that quality improvement leads to reduce the cost of production. We conclude that quality can help the strategy of cost leadership. On the other hand, the relationship between organizations strategy and innovation become clearer in the literature because Literature regarding this subject usually confirms that there is a positive relationship between innovation and differentiation strategy, but there isn’t a positive relationship between innovation and the strategy of cost leadership. Miller [15] stated companies that employ the strategy of differentiation emphasize on new products and technologies and paying more attention to research, development and activity in the new markets. He also confirmed that there is a meaningful relationship between differentiation strategy and the quality of product because quality is one dimension of differentiation Porter [19] stated companies that employ the strategy of cost leadership usually emphasize on the control of cost and budget, providing effective scale and minimizing the costs of R&D. Miller [15] stated that confirms this reasoning that cost leaders are not only the followers of innovation but also after a Significant stop that reduce the risk follow the innovation of their competitors. Thus, they compete with the major attributes of the innovators of product.

On the other hand, porter [19] stated that a strategy of cost leadership can result in the innovation of process to a certain level.

Measurement criteria of organizations strategy in an attempt to find a model for measuring the strategy of organization, a number of empirical investigations that have measured the general strategies of porter, in particular the investigations of
Des and Davis have been reviewed. Among these investigations, Millers scale [15] has been selected or behavioral aspects of differentiation strategies and cost leadership. In particular, innovation differentiation scale in the work of Miller has been selected as a representative of differentiation strategy. The scale of differentiation strategy consists of five items that investigate the role of important innovations of product, tendency to defeat competitors in the markets, orientation of innovation, following competitive courage and finally the level of risk. The scale of cost leadership consists of three items that investigate the scope of reducing price and minimizing spindling’s, the use of cost control through out the organization and the courage of decision making process.

2.3. The criteria of measuring TQM:

Confirming this fact that TQM define in different ways, we decided to use a strategy for TQM after Selecting a model as a basis. This strategy complete by several variables from other models. As stated by Samson and Tresiovesky [24], this model consists of quality measures of Deming prize in Japan that by several specialists like Evan and Lindsey [8] and Ahir et al [2] has been accepted as a representative of TQMs procedures.

Deming prize [6] consists of ten criteria that include: strategy, organization and management, education and extension of it, gathering information analysis, standardization, control, ensuring quality, results and planning for future.

Measurement criteria of quality performance previous studies like the study of Flynn et al [9] and Adam [1] have used multiple elements without the test of their validity and creditability because quality consists of multi-dimensional aspects- It was preferred that instead of measuring it as separate elements we measure it as a structure. Among these studies the structure of measuring quality performance that was done by Ahire et al [2] is a structure that has the most association with the purpose of this study in terms of the structures scope and its validity and credit ability. Quality performance in this structure consists of four elements: creditability, performance, stability and corresponding with specifications.

2.4. Measurement criteria of innovation performance:

In order to understand the aspects of innovation performance comprehensively, this study has created the structure of measuring product innovation and process based on several conceptual criterion and employed in the previous empirical studies like Miller [15] in Despond et al [7], Subramanian and Nilacanta [25], these criteria consist of the number of innovations, the speed of innovation, the level of innovation and "being first" in the market. These four attributes of innovation have been employed in two major areas of innovation that is product innovation and process innovation.

3. Development of hypotheses and conceptual model:

According to the mentioned matters above, we can state the hypotheses of present study as follow.

Hypothesis 1: there is a positive and meaningful relationship between employing TQM and differentiation strategy.

Hypothesis 2: there is a positive and meaningful relationship between employing TQM and the strategy of cost leadership.

Hypothesis 3: there is a positive and meaningful relationship between differentiation strategy and innovation performance.

Hypothesis 4: there is a positive and meaningful relationship between differentiation strategy and quality performance.

Hypothesis 5: there is a positive and meaningful relationship between cost leadership strategy and innovation performance.

Hypothesis 6: there is a positive and meaningful relationship between cost leadership strategy and quality performance.

Hypothesis 7: there is a positive and meaningful relationship between innovation performance.

Hypothesis 8: there is a positive and meaningful relationship between employing TQM and quality performance.

On the basis of previous investigation and literature and according to the above hypotheses, the conceptual model of research will be as follow.

4. Methodology:

In this research according to this fact that we want to consider the relationship between organization strategy, TQM and organization performance, and this study has been done via correlation coefficient between variables one can say that this research has the method of correlation because we can use the results of research in the industrial companies so we can say that research is based on applied purpose.

If top managers provide reliable information about basic environmental attributes, top and middle managers of companies will prepare the most suitable informational resources for this study. Thus, in present research the statistical society consists of top and middle management of organization, and these persons have been selected from Ilam’s industrial companies. Samples have been selected by means of simple random sampling method. A random opinion polling was done among 200 managers who were aware of the past and present organizational procedures relate to TQM and innovation in the industrial companies.

Fig. 1: conceptual model

The empirical data of this study have been obtained. This sample consists of different parts of industry. Totally, 50 managers responded to the questionnaires that the final rate of responding was 25 percent.

The present research is a field research and the most common technique of gathering data in this kind of research is via questionnaire. So the tool of gathering information is a standard questionnaire based on the paper of Daniel I. Para Jogo et al that consists of 26 questions so that 10 questions of which relate to total quality management, 8 questions relate to organization performance. Meanwhile, all question have been designed on the basis of likert seven-points scale [20].

Regarding designing subject of study tool, the use of structures has played an important role in management researches. Since the main goal of this research is not creating new structures, but want to study some relationships. Thus, researcher has tried to use the previous structures that have been used in the previous empirical studies so we can rely on their validity and creditability; this is a point that has been confirmed by Tata et al. [26]. In this research, we used chromo bah alpha for studying creditability of tool. The results are as follow: total quality management: 0.82, organization strategy including differentiation 0.813 and cost leadership 0.79, organization performance including quality 0.76 and innovation 0.85 and total cron batch alpha equals to 0.806. According to the fluctuation of cron batch alpha that is between 0 and 1 the obtained results from questionnaires have a good creditability.

5. Data Analysis:

In this research, the structural relationship analysis has been used via structural equations modeling (SEM) for studying the relationship between TQM and quality performance, and also between TQM and innovation performance. The relationship between two variables of strategy has been considered. In the present research according to the application of structural equations, the relationship between interested variables is estimated with $\beta$ coefficient. In fact, this leads to estimate of all multiple regression coefficients. Then using t-test, $\beta$ coefficient and structure equations between variables will be obtained. Before doing final analysis and structural equation modeling, Lisrel software calculates the fitness indications of model and the fitness rate of model has been determined using chi square test.

In this research, we first plot the model by means of path diagram program, and using prelist program, and using prelist program the interested indicators of model fitness were calculated. Then, we considered hypotheses by obtaining the measurement model via $\beta$ coefficients and using t-test in the structural model.

5.1. Model measurement:

Chi square index is the first index for testing the model that its value for interested model equals to 58/86 thus, it shows the good fitness between model and data. The other indices are as follow:

- RMSEA = 0.048, NNFI = 0.88, NFI = 0.84, AGFI = 0.81, GFI = 0.901

Among the mentioned indices, RMSEA and GFI are the most important indices. RMSEA index should be less than 0.05, the more this index be closer to zero, the better the fitness of model will be.

When GFI index will be closer to 1, It will determine the good fitness of model. In the next step, figures 2,3 show the value of correlation coefficient and t-test for the interested model.
According to Lisrel software (structural equations), the value of $\beta$ has been computed for independent variables. The result will be as follow:

1. Total quality management = $2/81 \times$ differentiation strategy - $0/35 \times$ cost leadership strategy
   
   Variance error = $0/29$, $R^2$ = $0/71$
   
   \[
   \begin{array}{c}
   3/99 \\
   0/45 \\
   2/13
   \end{array}
   \]

2. Quality performance = $0/53 \times$ total quality management + $0/45 \times$ differentiation - $0/62 \times$ cost leadership
   
   Variance error = $0/20$, $R^2$ = $0/80$
   
   \[
   \begin{array}{c}
   2/58 \\
   3/65 \\
   1/62 \\
   2/19
   \end{array}
   \]

3. Innovation performance = $1/17 \times$ total quality management + $1/21 \times$ differentiation + $1/23 \times$ cost leadership
   
   Variance error = $0/12$, $R^2$ = $0/88$
   
   \[
   \begin{array}{c}
   2/32 \\
   0/55 \\
   0/52 \\
   0/86
   \end{array}
   \]

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6. Discussion and conclusion:

In this section according to structural relationship between variables, the value of correlation coefficient and a meaningful test, we will consider the hypotheses of research:

First hypothesis test
In equation (1), the amount of correlation between total quality management and differentiation strategy equals to 2/81 that according to t= 3/99 has been accepted at the meaningful level of 0/05, so this hypothesis will be confirmed.

Second hypothesis test
In equation (1), the amount of correlation between total quality management (TQM) and cost leadership Strategy equal to – 0/35 that according to t= 0/45 hasn’t been accepted at the meaningful level of 0/05, so this hypothesis won’t be confirmed.

Third hypothesis test
In equation (2), the amount of correlation between quality performance and cost leadership strategy equals to – 0/62 that after t= 1/62 test hasn’t been accepted at the meaningful level of 0/05, so this hypothesis won’t be confirmed.

Fourth hypothesis test
In equation (2), the amount of correlation between innovation performance and cost leadership strategy equals to 1/23 that after t= 2/37 test has been accepted at the meaningful level of 0/05, so this hypothesis will be confirmed.

Fifth hypothesis test
In equation (2), the amount of correlation between quality performance and differentiation strategy equals to 0/45 that after t= 3/65 test has been accepted at the meaningful level of 0/05, so this hypothesis will be confirmed.

Seventh hypothesis test
In equation (3), the amount of correlation between innovation performance and differentiation strategy equal to 1/21 that after t= 2/81 test has been accepted at the meaningful level of 0/05, so this hypothesis will be confirmed.

Eighth hypothesis test
In equation (3), the amount of correlation between innovation performance and total quality management equals to 1/17 that after t= 2/32 test has been accepted at the meaningful level of 0/05, so this hypothesis will be confirmed.

According to the structural equation, the value of determined variance (R2) in equation (1) equals to 0/71 that shows 0/71 changes of TQM variable will be determined by differentiation strategy variable and cost leadership strategy variable, equals to 0/29. Also the value of determined variance (R2) in equation (2) equals to 0/80 that shows 0/80 changes of quality performance variable will be determined by total quality management variable, differentiation strategy variable and cost leadership strategy variable, and the rest of changes as an Error variance equals to 0/20. Finally, the value of determined variance (R2) in equation(3) equals to 0/88 that shows 0/88 changes innovation performance variable will be determined by TQM variable, differentiation strategy variable and cost leadership strategy variable, and rest of changes as an Error variance equals to 0/12.

According to the made analysis, we can state the findings of research as follow:
1- Differentiation strategy has a positive and meaningful relationship with total quality management and two criteria of organization performance (quality and innovation).
2- There is a stronger relationship between differentiation strategy and innovation performance than between differentiation strategy and quality performance.
3- There isn’t a meaningful relationship among cost leadership strategy with TQM and quality performance.
4- There is a positive and meaningful relationship between cost leadership strategy and innovation performance.
5- There is a positive and meaningful relationship between total quality management and two criteria of organization performance (quality and innovation performance).

References