

THE EFFECT OF STRATEGIC AND TACTICAL FACTORS ON THE SUCCESS OF THE IMPLEMENTATION OF WORLD CLASS MANUFACTURING

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Abstract

In such circumstances belong to organizations that can successfully in the global market, maintain and constantly improve its position. The global market consists of organizations which set of different nationalities in the areas of quality, cost, customer satisfaction and to compete with world class manufacturing (WCM) to one of the concerns of manufacturers today in fact, the world has become a world-class manufacturing to achieve the status of an ideology that has produced world-class production capabilities to compete in the international arena is used. Therefore the aim of this study was to investigate factors affecting the success of the organization is implementing WCM. We in this study, the relationship between strategic and tactical elements with WCM and interaction between strategic and tactical elements together and examine factors. The study population included all managers and experts of various departments petrochemical companies, consolidated, Arak Pars Wagon city is the aluminum during the six months of summer and fall of 1389 were studied. In order to achieve those objectives, thirteen hypotheses on the relationship between strategic and tactical elements with each other and with WCM developed and examined. To test this hypothesis, this study LISREL 8.5 software for structural equation modeling (SEM) and path analysis is used. The findings of this study show that, firstly, all strategic factors (commitment and support of senior management, quality circles, continuous improvement and customer orientation) have a direct positive impact on the success of their organizations. The Second WCM in all tactical factors (supply chain management, management technical capabilities and management facilities for production) also has a direct positive impact on the success of the organizations. And thirdly, two important strategic WCM circle tactical factors affect the quality and continuous improvement through them; indirectly affect the success of your WCM Put. As a result, organizations must move towards globalization, all these factors with respect to the direct and indirect impact on the WCM consider.

Keywords: world class manufacturing, continuous improvement, customer satisfaction, supply chain management, structural equation modeling.

Introduction

Without a doubt, a combination of internal and external factors, including population growth, poor infrastructure, foreign debt, inequality between individuals, groups and regions of the obstacles many developing countries to achieve important social and economic progress. Therefore, some developing countries, such as Iran, are the first steps to try to strengthen the management of production.

As for the emphasis on competition, integration with global markets and the increasing privatization of progress is through the process of restructuring their production systems.

Global competitors active in global markets, almost always bowed to world-class performance. And, world class manufacturing (WCM) with three main strategies often customer-oriented, quality, and agility, and six of its backup: engaging employees, supply chain management supply, technology, product development, environmental responsibility and safety of staff and organizational citizenship described. So, in order to compete in global markets, our producers do not necessarily need to achieve world-class performance. Like other new concepts in management, in fact, there is no set definition of WCM. The term "world class" was invented by Hayes and Wheelwright. The term "world class manufacturing" was used because these companies have achieved outstanding performance in international competition, and therefore as "world class" were characterized. (Salaheldin and Eid, 2007, p.552). Went on to discuss the importance and necessity of world class manufacturing challenges facing organizations in the implementation explain it. After it has introduced important factor affecting the success of WCM and we explain the analytical framework and to develop hypotheses based on the model described above.

Problem Statement

Rapid changes in the business environment due to its unique properties, increasing international competition among companies, shrinking market, and dissemination of IT in organizations, trade for consideration and adoption of sustainable strategies, put under pressure. In fact, organizations are looking for new ways to achieve competitive advantage through new techniques are productive. Thus, increasing knowledge and coordination processes that produce contradictory operation is a basic requirement for many companies who are looking for competitive advantage has become. In less developed countries, the manufacturing industry to compete in global markets. Therefore always faces enormous challenges in the country, the government has been trying to improve its industrial sectors. Over the years, ministries and government agencies have used different methods and implementing projects to improve the situation of specific industries. However, since Iran is an example of less developed countries, our country also plans to identify and find solutions to solve the tough problems that hinder the development of productive sectors is. These problems include: high lesions, loss of market share, high inventory levels, poor quality of products and labor, long time delivery of orders and quantities of waste a lot of waste in production processes. Today, one of the things that greatly preoccupied the minds of senior decision makers in our country has discussions of globalization. On the one hand joining international organizations and international treaties necessary for all countries in the international community had dictated that our country is not an exception.

On the other hand, globalization has some interest of our country and especially the main motto and philosophy of Islamic Republic of Iran is at odds independence. Because it is known to join treaties and conventions and international organizations that act as cross-border law maneuverability government as weakening it. On the other hand our country joining the World Trade Organization isolation of our country will be final in all areas, for example, up to 600 percent tariff on our goods will be phased. Also, join the organization in addition to tarnishing our independence will be very lack of competitiveness of our industry will be destroyed. Strive for world-class manufacturing can help us in this goal. It thus paving the way for us to join with other different globalization that is considered an internal matter for the producers. This concept can be crushed for our industry is a concept, not a great concept. This means that is between the producers themselves. It should be noted the government's responsibility of providing world-class manufacturing, but the story world-class manufacturing company will be responsible for the internal management. On the other hand, previous studies show that successful production companies in the world, production managers to implement World Class Manufacturing (WCM) is seen as a miracle, is that these problems prior to treatment. (Eid, 2009, p.989) Hence, the Iranian leaders understand the importance of WCM in the development of the national economy and for growth and the rapid development of WCM have large investments in the country. No doubt for economic development, WCM provides enhanced opportunities for developing countries in general and especially for Iran, played a critical role in the rapid economic changes, improve capacity and enhance international competitiveness plays. WCM to deal with some of the key barriers to entry into the global economy is an important tool is transformed old challenges and unique features make for Sustainable Development.

These concerns, by doing research to find answers to these questions will provide scientific purposes. In general, this study includes:

- The effect of strategic factors for successful implementation of WCM;
- The effect of successful tactical implementation of WCM;
- The effect of strategic factors, tactical factors.

Literature Review

Chan and Stavman (2000), in his research to examine the effect of management on the implementation of WCM They have proven that they have lower levels of management, the managers responsible for regulatory, accounting and administration, the most vital element in the success of WCM are. (Eid, 2009, p.992). Overtaken its competitors, the customer is one of the most important factors affecting WCM. Shawnee Burger (1986), his recommendations around four basic categories of quality, cost, waiting time and customer service is pivotal that organizations should consider

(Motwani, Kumar and Kathawala, 1994). Kasvi and Motovany (1995) study also examines the impact of a number of factors involved in the implementation of WCM.

They show that management of supply chain management and manufacturing facilities for the implementation of WCM as is necessary. (Eid, 2009, p.992).

Dabravsky (2001), in his research studied the factors in successfully cut the WCM philosophy showed that the successful implementation of WCM needs to manage the technical skills and broad integration processes in the organization. Hayes and Wheelwright (1984), her research to compare the performance of Japanese and German manufacturers with manufacturers. They United States in their studies concluded that WCM is composed of six dimensions, which include labor skills and abilities, Technical competence management, competition in quality, labor force participation, re-engineering of the production process, and the principles of continuous improvement. They believed that America plants in order to achieve WCM position should these six dimensions. (Salaheldin and Eid, 2007). Poon and Jones (1997), in his research examines the incentives and external factors have been driving WCM. Jesitos (1998) in their study WCM's review the basic requirements. He argues that the WCM at all levels need to create a close relationship between customers and suppliers with employees.

Analytical Framework

This research consists of eight variables. The four variables related to strategic factors (support and commitment of senior management, quality circles, continuous improvement and customer orientation) variables related to tactical factors (supply chain management, technical management and asset management capabilities manufacturing facilities) and WCM is a variable success. The first of the four independent variables and the dependent variable are four of the latter under the description of each of them:

A number of researchers, management support and commitment as the key factor for the successful implementation of innovation in business processes are introduced. As well as different levels of management must be effective WCM implementation process. However, while (1992) suggests that senior management is the most influential group affecting the successful implementation of WCM, Chan (2000) argue that levels lower than management, such as those who have direct responsibility for regulatory and those who are responsible for implementation, are the most vital element in the success of the implementation. (Eid, 2009, p.993).

According Motovani *et al.* (1994), for efficient implementation of WCM, quality circles and independent entity must have direct access to senior management. Other writers, continuous improvement as a critical success factor in the implementation of

WCM have highlighted. Continuous improvement of the words of a Japanese concept whose definition is changing for the better or continuous improvement and gradual.

In fact, Kaizen are looking for any improvement or modification of the condition that is continuous. Finally, Yang (1991), a strategic factors have increased the bus. He points out that a successful organization primarily customer must consider in every decision.

Tactical Factors

Kasol and Motovany (1995) the importance of supply chain management as a necessity for the fulfillment of the production was based on WCM. (Eid, 2009, p.992). In fact, supply chain management is the process of planning, execution and control of operations associated with the supply chain in the most efficient way possible. Supply chain management includes all shifts and store raw materials, finished products and work available during the initial start point to the end point of consumption.

Abrosky (2001), Kasol and Motovany (1995) showed that successful implementation of WCM requires extensive integration processes in the organization and management of technical capabilities. (Eid, 2009, p.992). Kasol and Motovany (1995) also stressed the importance of managing production facilities as necessary for the fulfillment of their emphasis on WCM-based production.

Methodology

The research method is based on applied research goal, because by doing that to obtain results about the population that results for companies and organizations that are can be used in the field of population. But in terms of methodology and the nature of causal research is placed in category because it can investigate the relationship between factors, such as structural equations statistical technique has been used in this regard. In this study, Cronbach's alpha (α) is used, the method for calculating the internal consistency of measurement tools such as questionnaires or tests that have many variables and different features are used. In this study, a simple random sampling method is used to select the sample. The data collected in this study is a questionnaire.

Statistical Methods to Analyze Data

In this study, to investigate the relationship between the components of the model of structural equation modeling was used. LISREL structural equation modeling or multivariate analysis a very broad and strong family extended regression and more precisely "general linear model" is a set of regression equations that allow researchers to examine any time. This means that if you are fit indices indicate that the model fit

the data to analyze the relationships among the variables that are appropriate and sufficient.

Although various types of fit tests that are called to constantly compare, evolving, but still there is no consensus even an optimized test. Chi-square index to test the null hypothesis that the model in society is justified. Usually the ratio chi-square calculates the degree of freedom should be less than two.

Fitness Test

In order to test hypotheses, path analysis has been used. Chart route can be considered as a means to display this article on what variables are changes in other variables. If a model is constructed in the shape of the graph fit model by confirming its path diagram can be used to test hypotheses about the existence of a causal relationship between the variables in the path diagram used. The first step is to determine the suitability of the model. The basic question raised is whether this model is appropriate? To answer these questions need to test χ^2/df rather than square to degrees of freedom (and other appropriate criteria being examined model).

According to the LISREL output ratio calculated chi-square degrees of freedom equal to 1/478 is. The low proportion reflects the proper fit of the model. This is because the smaller value, the proposed model, the model is more appropriate. The model parameters are as follows: CFI, RMSEA, NFI, IFI, NNFI and RMR optimal modes LISREL results for these indexes are shown in Table 1.

Table 1

Results of the Fitness Test

Conclusion	Amount Of Index	Standard Index	Index
Model is Appropriate	478/1	Less than 2	χ^2/df
Model is Appropriate	056/0	Less than 0/1	RMSEA
Model is Appropriate	079/0	Less than 0/1	RMR
Model is Appropriate	93/0	More than 0.9	CFI
Model is Appropriate	90/0	More than 0.9	NFI
Model is Appropriate	92/0	More than 0.9	NNFI
Model is Appropriate	94/0	More than 0.9	IFI

These indices represent the fitness and appropriateness of the model is very high. In other words theoretical model is confirmed. Since the model fit, approve, so it can be used to test hypotheses.

Structural Equation

Analysis of covariance structures or causal modeling or structural equation modeling is one of the main methods for analyzing complex data structures.

Therefore, since there are several independent variables in this study should be examined its effect on the dependent variable using structural equation modeling will be necessary. LISREL After examining the hypothesized model and obtaining data on the variables presented the final model. The final model that encompasses much of the analysis is presented in Figure 1.

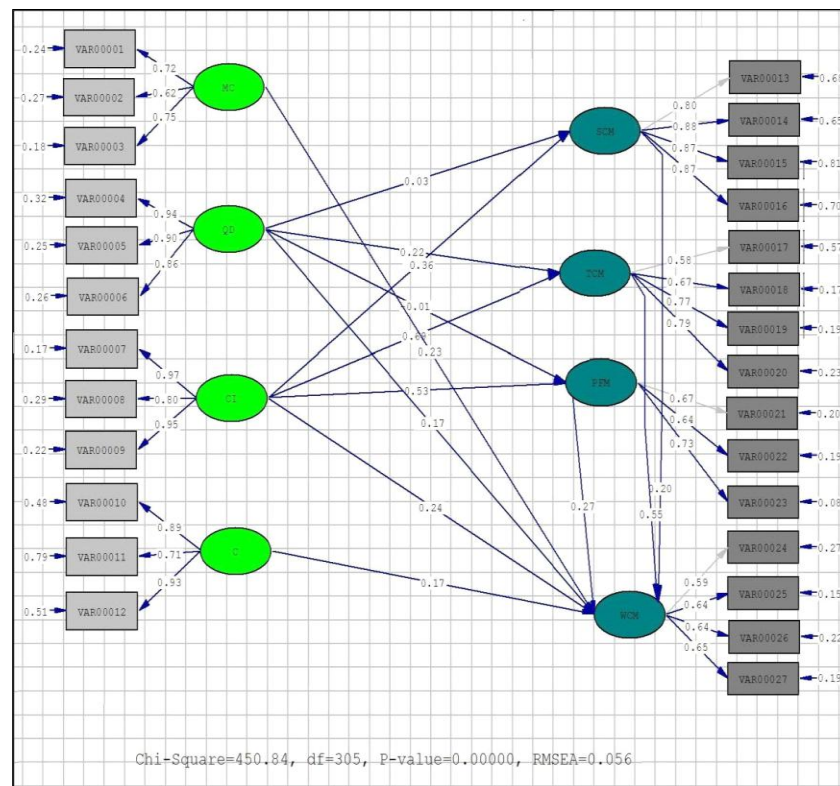


Figure 1. Output LISREL (standardized coefficients)

Description of the form:

MC: commitment and support of senior management

QD: Quality Circle

CT: Continuous Improvement

C: Customer

SCM: Supply Chain Management

TCM: Management Technical Capabilities

PFM: Equipment for production facilities

WCM: the successful implementation of world class manufacturing

Study to determine the impact of variables, structural equation modeling using LISREL software on generalized least squares method was formulated as follows:

$$SCM = 0.029*QD + 0.36*CI, \text{ Errorvar.} = 0.88, R^2 = 0.12$$

$$TCM = 0.22*QD + 0.69*CI, \text{ Errorvar.} = 0.28, R^2 = 0.72$$

$$PFM = -0.013*QD + 0.53*CI, \text{ Errorvar.} = 0.72, R^2 = 0.2$$

$$WCM = 0.20*SCM + 0.55*TCM + 0.27*PFM + 0.23*MC + 0.17*QD + 0.24*CI + 0.17*C, \text{ Error var.} = 0.096, R^2 = 0.90$$

Assess the significance of relationships between variables.

In order to demonstrate the significance of each of the parameters of the t-statistic is used. This statistic is the ratio obtained for each parameter error standard deviations of parameters that need to test, t absolute value greater than 1.96, so these estimates are statistically significant.

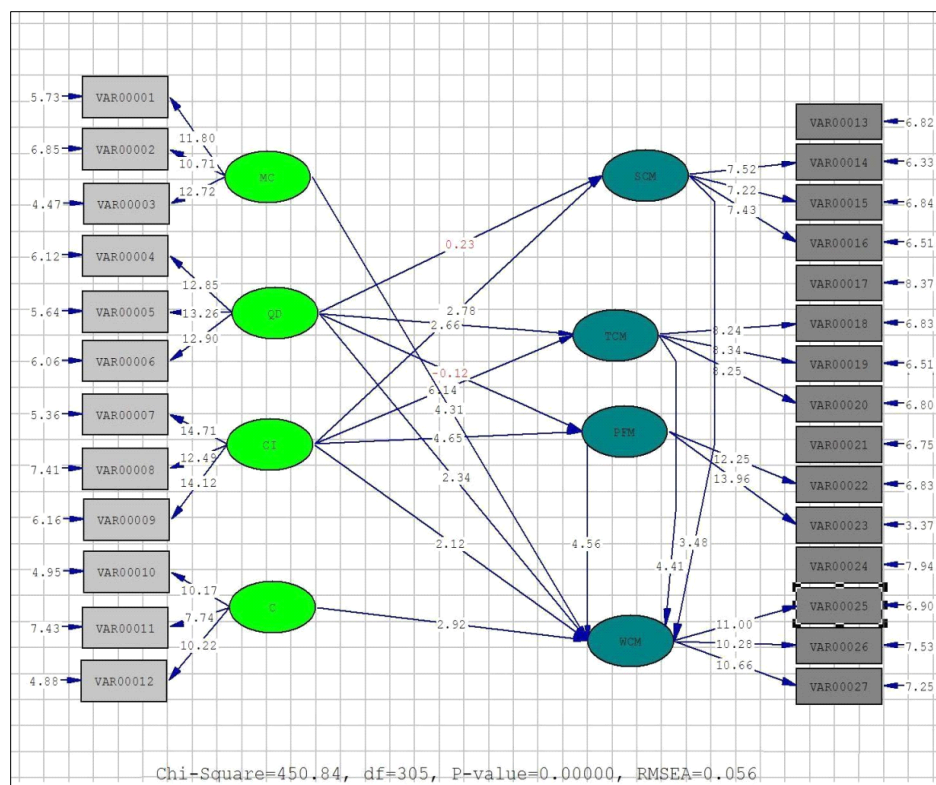


Figure 2. Output LISREL software (significant correlation)

In Table 2, the results of testing according to LISREL output are:

Table 2

Results of Hypotheses Testing

Conclusion	T Value	Standard Factor	Description Hypothesis	Theory Number
Confirmation	31/4	23/0	Commitment and support of senior management, WCM has a positive impact on success.	H1
Confirmation	34/2	17/0	Quality circles, WCM has a positive impact on success.	H2
Confirmation	12/2	24/0	Continuous improvement, WCM has a positive impact on success.	H3
Confirmation	92/2	17/0	Customer-oriented, positive impact on the success of its WCM.	H4
Confirmation	23/0	03/0	Quality circles, positive impact on the quality of supply chain management.	H5
Confirmation	66/2	22/0	Quality circles, positive impact on the management of technical capabilities.	H6
Confirmation	12/0-	01/0-	Quality circles, positive impact on the management of facilities for production.	H7
Confirmation	78/2	36/0	Continuous improvement, positive impact on the quality of supply chain management.	H8
Confirmation	14/6	69/0	Continuous improvement, positive impact on the management of technical capabilities.	H9
Confirmation	65/4	53/0	Continuous improvement, positive impact on the management of facilities for production.	H10
Confirmation	48/3	20/0	Supply chain management has a positive effect on the success of WCM.	H11
Confirmation	41/4	55/0	WCM has a positive effect on the success of the management of technical capabilities	H12
Confirmation	56/4	27/0	Equipment for manufacturing facilities, has a positive effect on the success of WCM	H13

Conclusion

Formula variable coefficients in structural equations indicate that all strategic factors (commitment and support of senior management, quality circles, continuous improvement and customer orientation) has a direct positive impact on the success of WCM in their organizations. But among these factors is the continuous improvement greatest impact on the success of WCM. And then, commitment and support of senior management, customer orientation and quality circles, respectively, have the most significant influence. So we can conclude that the most important strategic factor for success in the WCM organizations is constant improvement. This result was achieved so far reaching, because continuous improvement is one of the principles of WCM philosophy and its implementation in the organization is a necessary condition for the beginning of a move towards WCM. Due to factors related to customer and quality circles, the organizations studied these factors than the above-mentioned factors have less impact on the success of WCM.

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