

Impact of Quality Management Practices on Manufacturing Performance

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Abstract— Quality management practices are important agenda to be implemented by the manufacturing for their survival. Different sector of industries has different element of quality management practices, this study it concern varying constructs of quality practices are required to be implemented according to their field. This study also is to examine the relationship of quality management practices and manufacturing performance in the Malaysian automotive industry. For the purpose of study, a questionnaire was developed and distributed among the automotive vendors based on sample random sampling. Framework of conceptual model using PLS-SEM analysis. This proposal framework model in this study is to investigate the causal relationship between the variables of quality management practices on manufacturing performance.

Keywords— quality management practices, automotive manufacturing performance, Malaysia.

1. Introduction

Quality management practices have received much attention in recent years due to its quality of products, which offer important organizational benefits and sustainability. In such, quality of products is key success factors of manufacturing performance. Many authors have studied that quality management practices created competitive advantage (Kalra & Pant, [10]) and improved organizational performance (Mohd Akhir & Rushami, [14]). However, it has been found inconsistently in the relationship between quality management practices and manufacturing performance by previous studied.

One way to toughen quality management practices is to incorporate the most relevance practices that have a higher impact on the manufacturing performance. For example, Merino Diaz [13] showed that human resources management, process approach, design of product, supplier management and customer focus are the main focus of quality management practices in the Spain manufacturing industry and more recently, Burli et al. [5] found that employee management, process management and customer focus are important elements in India industry. However, despite the various effects of quality management practices on manufacturing performance over a decade, little attention has been paid to the best selection of quality management practices in automotive manufacturing.

The present of this paper to determine the most valuable quality management practices that most constructs have significantly contributed to organizational performance in the Malaysian automotive industry. This study is aimed to formed the framework model in which the incorporated of the significant impact of quality management practices in automotive manufacturing in Malaysia.

2. Literature Review

Quality management practices it is gaining importance strategy in manufacturing in the late 1980s. The comprehensive study of quality management practices of critical success factors had been compiled by Sila and Ebrahimpour [22].

The result claimed that it is more than 25 constructs have been practiced between year 1989 to 2000. Prior to this finding, many industries have been using quality management practices as one important strategy to meet market success and customer demand.

There are many research articles on quality management practices that impact manufacturing performance. The fundamental of this study is used framework from Merino Diaz [13] did studied in the Spain manufacturing industry. The study was claimed that there were five most important constructs in quality management practices it, namely human resources management, process approach, product design, supplier management and customer focus. However, there are still not sufficient constructs in the automotive industry that, such as it was claimed by Flynn et al. [7] study in America industry and Isac. N [9] in the Romania automotive industry. Furthermore, additional constructs are needed to meet customer satisfaction, market share and organization profit. For instance, this study recommended the nine constructs of quality management practices are most influenced in manufacturing performance in the automotive industry.

The extensive investigation by Saraph et al. [20] of quality management and organizational performance was claimed that each constructs played different criteria to meet organizational objectives and strategies. Hence, this study use nine constructs of quality practices that consist of human resources management (Ahire et al., [1]; Flynn et al., [6]; Brah and Lim, [4]; Sila, [21]; Ramesh, [17], leadership (Ahire et al., [1]; Yusof & Aspinwall, [25], customer focus (Flynn et al., [6]; information analysis (Saraph et al., [20]; Sila, [21], human resources development (Ahire et al., [1]; strategic planning (Flynn et al., [6]; Prajogo et al. [15], supplier management (Ahire et al., [1]; Sila, [21], process approach (Terviovski & Samson, [23]; Ramesh, [17], continuous improvement (Imai, [8]; Ahire et al., [1]; Marin-Garcia et al., [12], and product design (Kaynak, [11]; Arawati, [2]; Kalra & Pant, [10]. **Table 1** illustrated the critical success factors of quality management practices in the automotive manufacturing.

Table 1: *The constructs of quality management practices .*

Practices	References
Human management	(Ahire et al., [1]; Flynn et al., [6]; Brah and Lim, [4]; Sila, [21]; Ramesh, [17])
Process approach	(Terviovski & Samson, [23]; Ramesh, [17])
Product design	(Kaynak, [11]; Arawati, [2]; Kalra & Pant, [10])
Customer focus	(Flynn et al., [6]; Rao et al., [19]; Venkatraman, [24]; Ramesh, [17]).
Supplier management	(Ahire et al., [1]; Sila, [21]; Kalra & Pant, [10]).
Leadership	(Ahire et al., [1]; Yusof & Aspinwall, [25]; Zakuan et al., [26]; Ramesh, [17]; Kalra & Pant, [10])
Information analysis	(Saraph et al., [20]; Sila, [21]; Punnakitikashem et al., [16]).
Continuous improvement Strategy planning	(Imai, [8]; Ahire et al., [1]; Marin-Garcia et al., [12]; Mohd Akhir & Rushami, [14]). (Flynn et al., [1]; Prajogo et al., [15])

3. Research Methodology

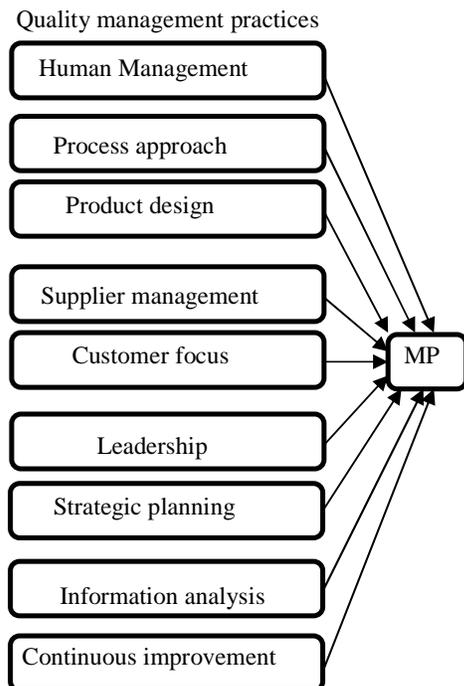
The comprehensive constructed of questionnaires its designed in order to obtain data of management practices in the Malaysian automotive manufacturing. A total of 275 questionnaires was sent to automotive supplier listing in Proton Sendirian Berhad. The sampling data is use sample random sampling techniques. However, 115 respondents were replied and only 91 respondents were validated for data processing and analysis. Respondents of study are among chief executive officer, general manager, managers and those officials are holding the managerial positions in organizations. Furthermore, any abnormality and outlier are comprehensively identified and removed before proceed to analysis data and use PLS – SEM.

4. Research Framework

The framework model of this study is designed between quality management practices and manufacturing performance that was developed based on previous and comprehensive literature review. **Figure 1** its shown the constructs of quality management practices consist of human resources

management, process approach, product design, customer focus, supplier management, leadership, continuous improvement, strategic management and information analysis. Hence, the manufacturing performance was measured by financial and non-financial results.

Figure 1: Framework model of study



Note: MP (Manufacturing Performance)

5. Research Hypothesis

Research hypothesis were constructed to determine the relationship of quality management practices and manufacturing performance. As a result, nine hypotheses in this study are developed in purpose to validate the relationships between quality management practices and manufacturing performance in the Malaysian automotive industry.

The hypothesis of this study are developed as follows:

H1: Human resource management of QMP is positively related to manufacturing performance.

H2: Process approach of QMP is positively related to manufacturing performance.

H3: Product design of QMP is positively related to manufacturing performance.

H4: Supplier management of QMP is positively related to manufacturing performance.

H5: Customer focus of QMP is positively related to manufacturing performance.

H6: Leadership of QMP is positively related to manufacturing performance.

H7: Strategic planning of QMP is positively related to manufacturing performance.

H8: Information planning of QMP is positively related to manufacturing performance.

H9: Continuous improvement of QMP is positively related to manufacturing performance.

Note: QMP (Quality Management Practices).

6. Result and Discussion

The result was revealed that nine constructs of quality management practices have an impact on manufacturing performance in the Malaysian automotive industry. Coefficient of determination, R^2 is 0.425 indicating that quality management practices moderately explained 42.5% of variance in manufacturing performance. The inner model suggested that quality management practices have the strongest effect on manufacturing performance (0.652) with the hypothesis path relationship between quality management practices and manufacturing performance is statistically significant (t-statistics = 9.777 and P-values = 0.000). It supports the hypothesis H1 to H9. **Table 2** illustrated the result of study based on PLS-SEM.

Table 2 shows the result was revealed that the process approach (0.890), information analysis (0.870) and supplier management (0.858) are most significant indicator of quality management practices in the Malaysian automotive industry. Meanwhile, it is also revealed that strategic planning (0.856), continuous improvement (0.843), product design (0.841) also has significant impact on manufacturing performance.

Table 2: Summary result of model

Latent variable	Indicator	Loading	CR	AVE
Quality Management Practices	Customer focus	0.748	0.948	0.672
	Continuous improvement	0.843		
	Product design	0.841		
	Human resources	0.717		
	Information analysis	0.870		
	Leadership	0.756		
	Process approach	0.890		
	Supplier management	0.858		
	Strategic planning	0.856		
Organizational performance	Financial	0.910	0.934	0.877
	Non Financial	0.962		

7. Conclusion

The purpose of this study is to determine empirical evidence of most useable constructs of quality management practices in the Malaysian automotive industry. As reason, the outcome of this study is to persuade organization management to implement construct that most influenced to manufacturing performance. The study has found that nine constructs of quality management practices, namely human resources management, process approach, product design, customer focus, supplier management, leadership, continuous improvement, strategic planning and information analysis are important constructs that effect of manufacturing performance.

Due to market competition, customer expectations and increasing customer demand, quality management practices it seems to be considered the best solution to outcome of all these factors. This study also sheds some light to Malaysian automotive industry and other manufacturing sector to share this finding. It is hoped that this study finding will be beneficial to other industry, academic as their basic knowledge on further improvement of the Malaysian automotive industry and bring it up to the further step of industry growth.

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