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What are the Factors that affect on Maintaining Effectiveness of Quality Management System in the Production Floor? (A Case of Sri Lankan Apparel Industry)

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ABSTRACT

Effectiveness of Quality Management System (QMS) is one of the paramount requirements to assist an organization to improve their quality performance. This research was carried out in Sri Lankan apparel industry as a case study with an objective of identifying the factors that affect on maintaining effectiveness of QMS. Questionnaires were used to collect data from the employees of the purposively selected apparel manufacturer. The sample consisted of 80 no. of employees who were selected randomly from the quality and production departments. The hypothesis of the relationship between effective maintenance of QMS and individual factors of management leadership, resource management, measurement and feedback, continuous improvement, system and processes, and education and training was tested by using the employee perception with respect to the practice of those factors by the management. The results revealed that the factors of measurement and feedback, continuous improvement, and education and training were significant for maintaining effectiveness of QMS in the selected organizational context. Finally, the study recommends some managerial implications for maintaining effectiveness of QMS within the manufacturing organizational contexts.

KEYWORDS: Effectiveness, Performance Improvement, Quality Management System

1 INTRODUCTION

Export oriented Sri Lankan apparel industry is considered as the most significant and dynamic contributor to the country's economy (Annual Report, 2015). The selected apparel manufacturer of the present study produces a wide range of international branded clothing such as Victoria's Secret, Nike, Gap, and Land's End, etc. With the high performance of the apparel industry, the competition among firms is also high. Hence, the quality of the product is an important factor to survive in this competitive environment.

The necessity to improve the organizational performance has been identified as a strategy due to the competition that may emerge from local and foreign manufactures. In order to achieve high competitiveness, the manufacturers must be able to identify the current quality performance and should realign their strategies, operations, and processes to improve the required quality performance.

The objective of this research is to identify the factors that are necessary to maintain the effectiveness of quality performance through quality management system (QMS).

2 LITERATURE REVIEW

In order to achieve the competitive advantage over the market, the organizations have focused on improving the quality of their products for many years. During the past few decades, this focus has shifted from quality inspection to quality control of products. Through quality control, the organizations are trying to identify direct flaws in the process which can be corrected before producing the products that do not meet the required specifications.

The latest focus in the evolution of quality management is considered to be on QMS, which raises the application of quality management principles to all aspects of the organization, including customers and suppliers, and their integration with the key business processes (Dale, 2003).

Literature has shown that there are eight principles; (1) customer focused organization, (2) leadership, (3) involvement of people, (4) process approach, (5) system approach to management, (6) continual improvement, (7) factual approach to decision making, and (8) mutually beneficial supplier relationship for maintaining an effective quality performance (Majstorovic & Marinkovic 2012).

Among the aforementioned principles, the 'customer focused organization' relates to customer needs and customer service where the business should understand the customers and meet their requirements. Whenever possible, it should aim at exceeding customer expectations (Talib, Rahman & Qureshi, 2010). The benefits of this principle are the increased customer loyalty, increased revenue due to the ability to capitalize new customer opportunities, and increased effectiveness of processes that are related at the delivery of customer satisfaction. The 'leadership' relates to the direction of the organization where the business should have clear objectives and the 'employees' should be actively involved in achieving this. The benefits of this principle are primarily the enhancement of employee engagement and increased motivation within them. Moreover many researchers have shown that if employees are kept align with the business vision, then they are more likely to be productive (Talib et al., 2010).

Adam, Prajogo and Sohal, and Arumugam et al. have stated that a considerable body of literature has suggested the QMS implementation for improving the quality performance of an organization (as cited in Talib et al., 2010). The QMS can be used as a quality management model and as the specific practices which best predict the performance that may vary across the organizations.

The performance measurement is very important for effective management in organizations. The 'organizational performance' refers to how well an organization achieves its market-oriented goals as well as its financial goals (Munizu, 2013). At present, QMS is widely accepted by many manufacturing and service organizations as a strategy to improve their performances because it focuses on many of the aforementioned eight principles such as customer focus, leadership, people involvement, process approach, systems approach, continual improvement, and factual approach to decision making (Turk 2005; Tricker 2008).

From the reviewed literature, a conceptual frame work has been developed to achieve the objective of the present study and is shown in Fig. 1.

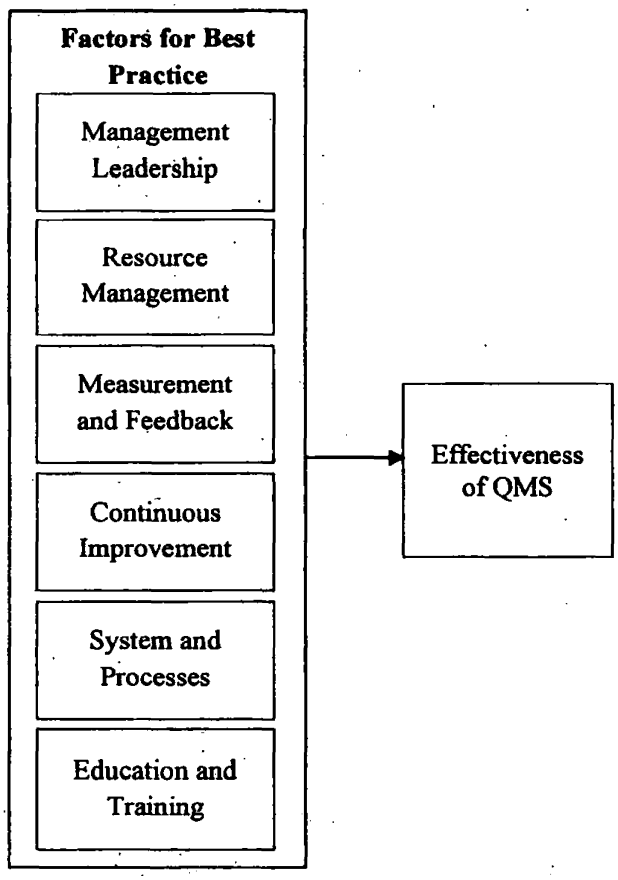

Figure 1: Conceptual Framework

3 METHODOLOGY

The population of this study was the employees of the purposively selected apparel manufacturing firm in Sri Lanka and the sample was selected using simple random sampling technique. Finally, it consisted of 80 no. of employees who were from quality and production departments of the firm.

A questionnaire was developed to collect the data and it consisted of question items to measure the independent variables of management leadership, resource management, measurement and feedback, continuous improvement, system and processes, and education and training and the dependent variable of QMS effectiveness in 5-point likert scales. Table 1 shows the results of the reliability analysis of the selected question items that were selected for measuring the aforementioned variables. The pilot surveyed data were used for this analysis.

Table 1: Results of Reliability Analysis

Variable	No. of Question Items	Cronbach's Alpha Value
Effectiveness of QMS	12	0.838
Management Leadership	6	0.702
Resource Management	5	0.716
Measurement and Feedback	5	0.828
Continuous Improvement	4	0.754
System and Processes	4	0.756
Education and Training	4	0.716

According to the results shown in Table 1, a high internal consistency existed among those questions items. Hence, the final survey was carried out using the questionnaire and it was done during a cross section of the firm's production time horizon.

Based on Fig. 1, following hypotheses were developed to test the significance of each independent variable quantitatively to assess the dependent variable in SPSS 20 version.

H_1: Management Leadership has a significant influence on effective maintenance of QMS.

H_2: Resource Management has a significant influence on effective maintenance of QMS.

H_3: Measurement and Feedback has a significant influence on effective maintenance of QMS.

H_4: Continuous Improvement has a significant influence on effective maintenance of QMS.

H_5: System and Processes have a significant influence on effective maintenance of QMS.

H_6: Education and Training have a significant influence on effective maintenance of QMS.

4 DATA COLLECTION AND ANALYSIS

According to the respondents, the objectives of implementing QMS in the firm have been perceived as to reduce defects (47%), to improve customer service (28%), to improve employee involvement (15%), and to improve internal communication system (9%).

4.1 Descriptive Statistics

Table 2 shows the descriptive statistics of the responses.

Table 2: Descriptive Statistics

Variable	Mean	Standard Deviation
Effectiveness of QMS	4.202	0.523
Management Leadership	3.998	0.629
Resource Management	3.612	0.983
Measurement and Feedback	3.945	0.825
Continuous Improvement	3.722	0.984
System and Processes	3.962	0.736
Education and Training	4.072	0.651

According to Table 2, the education and training has been identified as the top most factor in assessing the effective maintenance of QMS within this firm.

4.2 Correlation Analysis

The correlation analysis was performed to investigate whether there is any significant correlation between the factors that are used to assess the QMS principles and their influence on the effective maintenance of QMS.

According to the significance values that are shown in Table 3, the factor of resource management have not shown as significant at its correlation with the assessment of effective maintenance of QMS.

Table 3: Correlation Analysis

Independent variable	Dependent Variable: Effectiveness of QMS	Significance
Management Leadership	0.477	.000
Resource Management	-0.133	.238
Measurement and Feedback	0.902	.000
Continuous Improvement	0.660	.000
System and Processes	0.783	.000
Education and Training	0.511	.000

4.3 Regression Analysis

The multiple regression analysis was performed to identify the impact of independent variables on the dependent variable of the study and the summary is shown in Table 4. Accordingly, when the other factors are being held constant, 85.1% of the variation in effective maintenance of QMS can be explained by the factors of measurement and feedback, continuous improvement and education and training.

Table 4: Regression Model Summary

Adjusted R^2 Value	0.851	
P Value	0.000	
F value	76.445	
Model		
	Coefficient	**P value**
Constant	1.828	0.000
Management Leadership	-0.048	0.298
Resource Management	-0.047	0.058
Measurement and Feedback	0.512	0.000
Continuous Improvement	0.063	0.043
System and Processes	-0.011	0.865
Education and Training	0.129	0.007

5 RESULTS AND DISCUSSION

Based on the results of the hypothesis testing as shown in Table 3, except the hypothesis that has been established to test the relationship between the resource management and the effective maintenance of QMS (H2), the other five hypotheses have been accepted. That means, the factors of management leadership, measurement and feedback, continuous improvement, systems and processes, and education and training have been perceived by the employees as significant to maintain the QMS effectively within the firm. However, the results of the multiple regression analysis to check the impact of the said six factors on maintaining the QMS effectively, have shown that measurement and feedback, continuous improvement and education and training are the factors that have a high significance at the maintenance of QMS effectively. Hence, the management of this firm has to pay high attention on those three factors before adopting any strategy to sustain QMS within them.

Moreover, when comparing the mean values as indicated in Table 2, the factor of education and training is the most important for maintaining QMS effectively. Hence, by educating and giving training for employees, the firm can achieve the said objective. For further development of the QMS, the firm should also consider the measurement and feedback and continuous improvement aspects.

6 CONCLUSION

The effective maintenance of QMS can be achieved by clearly identifying the quality objectives and properly communicating them to the employees. Further, the top management commitment, proper documentation on QMS, and the satisfied working conditions have to be considered when reforming the existing QMS.

According to the views of the participants of the present study, the 5S technique and the Traffic Light system can be identified as the most effective quality control tools.

Finally, the study recommends that non-significant variables can be considered in future researches and thereby they can increase the generalizability of study findings in manufacturing contexts.

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