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Estimation of Cost of Quality of a Garment Manufacturing Line to Reduce Cost of Failure

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Abstract

The fast-changing economic conditions such as lower profit margin, higher demands of quality, a variety of the products, and lead time reduction have created a dynamic business environment. Manufacturers must provide high-quality products with the lowest price to survive in the current competitive market. In this regard, the acceptance of advance techniques and methodologies have been increased in recent past. One of these methodologies is the Cost of Quality (COQ) that enables the organizations to improve overall performance through identification of potential areas for improvements. Although the concept of COQ is being accepted by many organizations yet large numbers of organizations are still lacking in the true implementation of COQ and some of them are neglecting this tool all together like textile and clothing sector.

In order to fulfill this gap, the present study has been conducted to measure the COQ of a garment manufacturing line. In this regard, a comprehensive literature review was conducted and different models of COQ were studied. The PAF model is chosen on the bases of the literature for this study. The PAF model is the most recognized approach for the calculation of the quality costs. By focusing on key processes within an organization this model splits the cost into three categories: prevention, appraisal, and failure. Firstly, a t-shirt manufacturing line is studied with respect to the elements of PAF model. Then a mathematical model is proposed to calculate the each quality cost that includes prevention cost, appraisal cost, and failure cost. The proposed model was implemented on the same manufacturing line by collecting the values of input variables that further used to calculate the quality costs of each category. After conducting this baseline study, it was observed that the appraisal cost is high as compared to the failure and prevention costs currently. It was suggested that the industry can reduce the cost of quality by the successful planning of the preventive activates that will ultimately reduce failure cost automatically along with appraisal cost associated with this particular line.

The proposed model is developed based on the sewing line of a simple t-shirt however further work can also be done by focusing on the different articles and a complete supply chain of garment manufacturing.

Keywords
Quality costs, Preventions, Appraisal, Failure, Garment manufacturing.

Biographies

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