Cost of Quality: 
A Review and Future Research Directions

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ABSTRACT

Quality management is the key to sustainability in any manufacturing business. The cost of quality has been the topic of discussions these days in various research forums. The purpose of the study is to present a review of prior literature and present a complete picture of past, present and future directions in the domain of Cost of Quality. Authors have used systematic literature review methods to conduct the analysis of literature. The study concludes with some food for thought to future researchers.

KEYWORDS

Activity, Cost of Quality (COQ), Literature Review, Resources, Total Quality Management

1. INTRODUCTION

Nowadays manufacturing companies consider improving quality to upgrade customer satisfaction by reducing cost of the manufacturing and increasing efficiency. Integrating quality-oriented manufacturing strategy and sustainability is key to success of manufacturing business (Ocampo & Clark, 2017). Therefore, Cost of Quality (COQ) plays a critical role in every manufacturing firm. Monitoring and controlling are critical component of quality improvement programs. Estimation of the COQ can be used to decide the limits of budgets. The COQ analysis help organization to identify; measure and control consequences of the poor quality (Schiffauerova & Thompson 2006).

Organizations must identify; measure and analyse, to ensure that the product not only meet the required level of quality, and also satisfy the customer in terms of the cost competitiveness (Celko & McDonald, 1995; Davenport, 1997; Dubey & Chakrabarty, (2011); Dubey et al., 2016). The COQ is used as a performance measure, cost reduction in order to prioritize quality improvement initiatives (Davenport, 1997). COQ is the total costs incurred in the design, implementation, operation and maintenance of quality system, resources committed to continuous improvement, product failure and all costs involved in achieving quality of a product (Schiffauerova & Thompson 2006).

Gurus of Total Quality Management (Groocock, 1977; Crosby, 1979; Feigenbaum, 1991) claimed that by improving quality of a product or service will reduce manufacturing costs, maximise productivity and customer satisfaction. COQ is seen as a tool to help organizations to reduce manufacturing costs by identifying uncontrolled costs and waste.

Nowadays manufacturing companies are forced to review and tightly control their costs (Douglas 2009).

Rasamanie & Kanapathy (2011) highlighted that business environment globally is highly competitive as they have made quality costs a useful tool to monitor and achieve costs reduction to remain competitive. COQ help organizations to quantify specific quality levels and ultimately improve

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productivity (Chopra & Garg, 2011). It has been declared that in the production environment, the annual cost of poor quality can be approximately 15% of sales and 30% of production costs (Gryna & Juran, 1999).

Chiadamrong (2003) have estimated about proportion of 10% of production costs, (Kent, 2005) claimed that costs of quality were 5-15% of turnover.

For any organization to achieve success internationally, they must introduce the practice and principles of Total Quality Management (TQM). TQM can be used as a tool in achieving a targeted return on investment of the organization through employee involvement in decision making, by minimizing cost of quality and increasing customer satisfaction. When TQM programme is implemented successfully, it will automatically affect the cost of quality of a product (Sohal & Shah, 1994). The first step in TQM journey is cost of quality. COQ have potential of cost saving while improving quality of a product as time goes on (Dale and Plunkett, 1990). It is proven that in theory of COQ that investing in prevention and appraisal the internal and external costs are reduced drastically. To evaluate and prevent costs, it is vital to measure costs of quality as is the first step towards implementation of TQM (Dale & Plunkett, 1991; Elshennawy et al., 1991; Morse 1993). Customer value management by (Gale & Wood, 1994) have stated the first and second phases of TQM deals with understanding of internal and external costs, while the third and fourth phases relates to investment in prevention activities which will decrease the total external failure costs. Dahlggaard et al., (1995) has suggested that total quality successfully lowers costs, and without cost consideration it is tough to achieve continuous improvement in the end. Quality costs programmers differ in terms of objectives, approach, effectiveness and other attributes. The savings of costs of quality are believed to be huge from the evidence; the Department of Trade and Industry have quoted 5-25% of turnover as total costs in its publication (Plunkett and Dale et al., 1987). A survey from consultant has indicated that the total costs are almost 40% of turnover (Carson, 1986). Those levels are demonstrated by expects like Deming, Juran and Crosby. There is also a term called “quality leverage effect.” COQ incorporates the costs incurred during the repetition of the process, testing, warranty and similar activities related faulty product or process. COQ is simply measured to justify the fact that prevention is cheaper than fixing. The benefits of accurate measurements of COQ are as follows:

- Focuses on areas of poor performance that’s need improvement
- Assist in quality control
- Raise the organization competitive advantage through quality and lower costs (Yang, 2008).

According to Angell and Chandra (2001), COQ can be used to attract senior management attention for quality programmes. It is very important to develop COQ system and foundation to start quality culture and implementing TQM; and develop quality culture and management in terms of practices (Prickett & Rapley 2001; Mandal & Shah, 2002). Quality cost programme is regarded as the parameter and performance measure that can be utilized for planning and estimating future quality costs (Dahlggaard et al., 2008). COQ can be used to initiate to maximize the product value and process throughput and enhance customer satisfaction. The objective of quality costs is to increase customer satisfaction requirements through quality design and quality of production, it is similar to Ishikawa methods of forward looking and backward-looking quality (Kondo, 1993).

It was discovered that after adoption of quality cost system, there was a huge decrease in customer complaints, rework, scrap, warranties expenditures, and failure costs and increase in sales was also noticed. Rasamanie & Kanapathy (2011) confirmed that implementation of quality costs reporting brings benefits to the organizations. Organizations apply cost of quality to improve productivity. In COQ, quality costs must be quantified, because spending money on quality programmes without quantifying can lead to a low or no impact on financial results (Schiffauерova & Thompson 2006). Organizations can easily lose money as they fail to use opportunity to minimise their costs of quality (Rodchua, 2006).
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