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Applying Six Sigma for Reduction Supplier Cost of Poor Quality: A Case Study from A German Electronics Firm

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Abstract

The Cost of Poor Quality (COPQ) is receiving significant attention from many firms and researchers. In fact, given that outsourcing and materials account for an ever-growing proportion of final product costs, practitioners and researchers have recently started implementing different methods to reduce supplier COPQ. Academic research on the Six Sigma methodology has evolved rapidly in the last decade and, to date, there has been scant opportunity for the research community to analyze it in an in-depth case study. This paper, then, seeks to explore the effects of an application of Six Sigma to reduce supplier quality-related costs in the electronics industry; to that end, the present study adapts the Six Sigma DMAIC (Define, Measure, Analyze, Improve, Control) framework to help managers evaluate opportunities for improvement, save costs and generate benefits. By means of the Six Sigma methodology, this research article verifies the proposed DMAIC Six Sigma framework through a case study on the supplier complaint process in an electronics firm in Germany with a worldwide presence. This paper addresses the gap in the literature about Six Sigma and supplier relationships, with a focus on the supplier complaint process, including logistics activities.

Keywords: COPQ; DMAIC; Supplier Quality; Supplier performance; Six Sigma