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The importance of access to information and knowledge coordination on quality and economic benefits obtained from Six Sigma

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Abstract
This paper presents a structural equation model that relates knowledge coordination with access to information in the process of implementing Six Sigma and their impact on the quality and economic benefits obtained. The model integrates four latent variables (knowledge coordination and access to information as independent variables; quality benefits and economic benefits as dependent variables), that are intertwined by five hypotheses validated statistically through the partial least squares technique using data from 301 responses to a survey applied in the maquiladora industry. Findings suggest that to obtain benefits associated with product quality, information and knowledge acquired from Six Sigma, projects must be carefully saved, managed, and analysed with appropriate statistical techniques applied by green and black belts. However, to obtain economic benefits, the information and knowledge must be transformed into benefits associated with quality such as reduction in delivery time, reduction of customer complains and compliance with standards demanded by the customer.

Keywords Decision support systems · Six Sigma · Knowledge coordination · Information management · Economic benefits

1 Introduction

Six Sigma (SS) is a methodology focused on the improvement of production processes by reducing their variability; therefore, it always seeks to minimize the number of defects in the final product [1]. In addition, the main objective of SS is to reach a maximum of 3.4 defects per million opportunities. However, because that level of variability is not easily achieved in the production processes, it may serve as a reference for many companies based on which to set their objective. For that reason, SS is sometimes considered a philosophy [2]. To achieve its main goal, SS is based on statistical techniques (e.g. total quality management and statistical process control) that are also based on the proper use and management of information generated in production processes for methodological decision-making [3].

Furthermore, SS may be considered a scientific method that is applied to production systems because it includes sequential activities that have been implemented in several companies, and although it has been more than 30 years since its first application in Motorola, it is still effective in

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