

## **Development of a Conceptual Model for Implementation of Six Sigma Concept in Manufacturing SMEs: The Indian Scenario**

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### **ABSTRACT**

About four million industrial undertakings in India are under small and medium-sized enterprises (SMEs) category and their contribution to the gross domestic product (GDP) of the nation is very much significant. However, the ever-increasing influx of foreign goods and services in Indian market, either imported or manufactured by multi-national companies (MNCs) within India has rendered many SMEs unviable to compete, especially in terms of cost. For survival and growth of SMEs, it has become highly imperative for them to adapt cost effective manufacturing strategies by eliminating defects from every one of the company's products, process, and business transactions. Defects or rejections from a process may be due to human element, equipment, or material. The focus of this paper is on human element since for most Indian SMEs human element is an important business asset and is an important process element. A study has been undertaken of a sample manufacturing SMEs to know which process elements, namely, human element, equipment, material have become causes of rejections. For this, a survey (personal interview and questionnaire) was conducted in about 73 local small manufacturing firms. The findings of the study point at the human element to be the major cause of rejections in SMEs. Based on the findings, a conceptual model is proposed for SMEs to take up Six Sigma as an improvement strategy. It is found from the existing literature that there is a little focus on the issue of implementing Six Sigma in Indian SMEs and on developing an implementation model. The conceptual model of Six Sigma implementation proposed in this paper from the viewpoint of human element is believed to help most small manufacturing firms to apply Six Sigma to their business processes and enable them to compete successfully in the globalised market. The model also takes into account the necessary process aspects such as process capability.

**Keywords:** Quality improvement strategy, SMEs, Six Sigma, implementation model, human element, process capability