

PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON MECHANICAL AND INDUSTRIAL TECHNOLOGIES, VOLUME-1

BOOK OF ABSTRACT

EDITORS

Dr. Ashish Kumar Srivastava

Dr. Pramod Kumar

Prof. (Dr.) Mithilesh Kumar Jha

Prof. (Dr.) Sandeep Tiwari

**ICMIT
2025**

MAY 24-25, 2025



ORGANIZED BY
DEPARTMENT OF MECHANICAL ENGINEERING
MUZAFFARPUR INSTITUTE OF TECHNOLOGY, MUZAFFARPUR
DEPARTMENT OF SCIENCE, TECHNOLOGY AND TECHNICAL EDUCATION,
GOVERNMENT OF BIHAR, PATNA

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**A CASE STUDY ON PERFORMANCE IMPROVEMENT USING DMAIC
METHODOLOGY OF SIX SIGMA**

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ABSTRACT

In the fast- changing world of manufacturing, boosting productivity is pivotal for staying competitive and satisfying request need's manufacturing sectors encounter colourful challenges, similar as global competition, a different range of products, shorter supereminent times, and strict client demands for both quality and volume. To attack these issues, Six Sigma has come a thorough quality operation strategy designed to reduce process variation, enhance both product and process quality, and lower functional costs. This document presents a comprehensive analysis of the growth, prosecution, and results of Six Sigma practices in transnational manufacturing sectors. It outlines the essential tools and styles used at each phase of a Six Sigma design, ranging from Define to Control, and emphasizes how these instruments aid in effective design delivery. also, the paper summations important perceptivity and assignments drawn from successful Six Sigma systems, showcasing their real- world connection across colourful manufacturing diligence. The review indicates that while numerous manufacturing areas presently operate at quality situations between two and four Sigma, enforcing Six Sigma strategies can greatly ameliorate process capability and functional effectiveness. The results punctuate the significance of organizational fidelity, data- informed decision- timber, and ongoing enhancement for achieving sustained success through Six Sigma relinquishment.

Keywords: Six Sigma, Lean Six-Sigma, DMAIC Methodology, Uses Tools & Techniques