

Assessing Inventory Management Practices and their Impact on Operational Efficiency-Case Study of a Large Integrated Public-Sector Steel Manufacturing Enterprise in India

Running Title: *Assessing inventory management practices and their impact in operational efficiency*

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Abstract: *Effective inventory management is a fundamental determinant of operational performance and cost optimisation in capital-intensive manufacturing industries. In steel manufacturing, production processes rely on uninterrupted availability of raw materials, spare parts, and maintenance supplies. Therefore, efficient inventory management is essential for sustaining productivity and organisational competitiveness. This study evaluates inventory management practices implemented in a large integrated public-sector steel manufacturing enterprise in India and examines their impact on operational efficiency. A descriptive case study design was adopted, using a mixed-methods approach that integrated both qualitative and quantitative data. Primary data was obtained through interviews, discussions with management and operational personnel, while secondary data was collected from organisational records, annual reports, inventory documents, and other relevant sources. The findings indicate that there are established structured inventory control mechanisms that support production continuity and material availability. Nevertheless, there still exists several operational challenges, including procurement delays, inventory record discrepancies, elevated carrying costs, and supply chain uncertainties, which adversely affect inventory performance and resource utilisation. The analysis demonstrates that strengthening demand forecasting, improving inventory information systems, enhancing supplier coordination, and implementing regular inventory audits can substantially improve inventory accuracy, minimise inventory-related costs, and increase operational effectiveness. The study concludes that inventory management extends beyond a routine operational function and represents a strategic capability that significantly influences organisational performance within the steel manufacturing sector. The findings provide practical insights for manufacturing organizations seeking to strengthen inventory control systems and improve supply chain resilience.*

Keywords: Inventory management; inventory control; operational efficiency; supply chain management; procurement; steel manufacturing industry; organisational performance