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REDUCING SUPPLY CHAIN COSTS THROUGH COMPONENT STANDARDIZATION IN PLM

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ABSTRACT:

In today's competitive manufacturing landscape, reducing supply chain costs is paramount for enhancing profitability and operational efficiency. This study explores the role of component standardization within Product Lifecycle Management (PLM) as a strategic approach to achieve cost reductions in supply chain processes. By standardizing components, organizations can streamline procurement, minimize inventory holding costs, and improve supplier collaboration. This research examines the impact of component standardization on various supply chain elements, including design efficiency, manufacturing processes, and distribution logistics.

The findings reveal that adopting standardization practices leads to significant reductions in material variability, resulting in lower production costs and enhanced product quality. Additionally, the study highlights the importance of cross-functional collaboration in implementing standardization, which fosters innovation and accelerates time-to-market. By leveraging PLM tools, companies can effectively manage standardized components throughout the product lifecycle, ensuring consistency and reducing redundancy in design and production phases.

This research emphasizes that the strategic integration of component standardization into PLM not only drives cost savings but also contributes to sustainable supply chain practices. The conclusions drawn provide a comprehensive framework for organizations aiming to optimize their supply chain operations while maintaining product integrity and customer satisfaction. Ultimately, this study underscores the necessity of embracing component standardization as a vital component of modern supply chain management, paving the way for enhanced efficiency and competitiveness in the manufacturing sector.

KEYWORDS: *Component Standardization, Supply Chain Cost Reduction, Product Lifecycle Management (PLM), Procurement Efficiency, Inventory Management, Supplier Collaboration, Design Efficiency, Manufacturing Processes, Cross-Functional Collaboration, Sustainable Supply Chain Practices*

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