

ABSTRACT

Implementation of Integrated MRP and Capacity Planning Based on Odoo ERP System to Improve Production Planning Efficiency at CV Trina Jaya

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This study aims to analyze production planning efficiency before and after the implementation of integrated Material Requirement Planning (MRP) and Capacity Planning based on the Odoo ERP system at CV Trina Jaya, a nata de coco manufacturing company in Tasikmalaya, West Java. Prior to implementation, the company faced delivery delays caused by emergency raw material purchases, uneven production capacity utilization, and cost losses from reactive procurement practices, all resulting from the absence of an integrated production planning system. This research employed a quasi-experimental pretest-posttest one-group design, with the treatment consisting of demand forecasting using Single Exponential Smoothing, development of a Master Production Schedule based on a Level Production strategy, capacity validation through Rough Cut Capacity Planning, and MRP execution using the Lot for Lot method, all implemented within the Odoo ERP system. The results show that on-time delivery improved, capacity utilization became more evenly distributed, and emergency procurement cost losses were eliminated. The integration of MRP and Capacity Planning through the Odoo ERP system is proven to improve production planning efficiency at CV Trina Jaya..

Keywords: *Material Requirement Planning, Capacity Planning, Odoo ERP, Production Planning Efficiency, On-Time Delivery, Nata De Coco.*

ABSTRAK

Analisis Integrasi MRP dan Capacity Planning pada Sistem ERP Odoo dalam Meningkatkan Efisiensi Perencanaan Produksi pada CV Trina Jaya

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Penelitian ini bertujuan menganalisis efisiensi perencanaan produksi sebelum dan sesudah penerapan integrasi *Material Requirement Planning* (MRP) dan *Capacity Planning* berbasis sistem ERP Odoo di CV Trina Jaya, perusahaan manufaktur nata de coco di Tasikmalaya, Jawa Barat. Sebelum penerapan, perusahaan menghadapi keterlambatan pengiriman akibat pembelian darurat bahan baku, distribusi pemanfaatan kapasitas yang tidak merata, dan kerugian biaya dari pengadaan reaktif, yang keseluruhannya bersumber dari ketiadaan sistem perencanaan produksi yang terintegrasi. Penelitian menggunakan desain *quasi-experimental pretest-posttest one-group*, dengan perlakuan berupa peramalan permintaan menggunakan *Single Exponential Smoothing*, penyusunan *Master Production Schedule* berbasis strategi *Level Production*, validasi kapasitas melalui *Rough Cut Capacity Planning*, dan eksekusi MRP menggunakan metode *Lot for Lot*, yang seluruhnya diimplementasikan dalam sistem ERP Odoo. Hasil penelitian menunjukkan bahwa ketepatan waktu pengiriman meningkat, distribusi pemanfaatan kapasitas menjadi lebih merata, dan kerugian biaya pengadaan darurat berhasil dieliminasi. Integrasi MRP dan *Capacity Planning* melalui sistem ERP Odoo terbukti dapat meningkatkan efisiensi perencanaan produksi di CV Trina Jaya.

Kata Kunci: *Material Requirement Planning*, *Capacity Planning*, ERP Odoo, Efisiensi Perencanaan Produksi, *On-Time Delivery*, Nata De Coco.