

PENGENDALIAN PERSEDIAAN BAHAN BAKU *MOUNTING* HM17 UNTUK PT HUAWEI DI PT BUKAKA MENGGUNAKAN PENDEKATAN *LOT SIZING* DAN SIMULASI *MONTE CARLO*

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ABSTRAK

PT Bukaka Teknik Utama menghadapi tantangan dalam mengelola persediaan bahan baku, terutama pada produk *mounting* HM17, dimana terjadi ketidakseimbangan antara kekurangan dan kelebihan stok bahan baku. Oleh karena itu, diperlukan perencanaan yang cermat terhadap persediaan bahan baku *mounting* HM17 agar operasionalnya dapat berjalan secara efisien dan optimal. Penelitian ini menggunakan beberapa metode peramalan, seperti *Moving Average (MA)*, *Weighted Moving Average (WMA)*, dan *Single Exponential Smoothing (SES)*, serta teknik *Lot sizing* seperti *Lot for Lot (LFL)*, *Economic Order Quantity (EOQ)*, dan *Period Order Quantity (POQ)*, dengan pemilihan teknik yang paling sesuai dan disimulasikan menggunakan metode simulasi *Monte Carlo*. Berdasarkan hasil perhitungan *Mean Squared Error (MSE)* terkecil, metode yang terpilih adalah *Weighted Moving Average (WMA)* periode 3 dengan nilai 58.511. Sedangkan dari analisis *lot sizing*, teknik yang terpilih adalah *Period Order Quantity (POQ)* *Weighted Moving Average* periode 3 yang menghasilkan total biaya sebesar Rp. 9.725.732. teknik POQ dipilih karena mampu menghasilkan pemesanan bahan baku yang minimal dan persediaan bahan baku yang optimal.

Kata kunci: Peramalan, *Lot Sizing*, simulasi *Monte Carlo*.

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ABSTRACT

PT Bukaka Teknik Utama faces challenges in managing raw material supplies, especially for HM17 mounting products, where there is an imbalance between shortages and excess raw material stocks. Therefore, careful planning is needed for the supply of HM17 mounting raw materials so that operations can run efficiently and optimally. This research uses several forecasting methods, such as Moving Average (MA), Weighted Moving Average (WMA), and Single Exponential Smoothing (SES), as well as Lot sizing techniques such as Lot for Lot (LFL), Economic Order Quantity (EOQ), and Period Order Quantity (POQ), with the selection of the most appropriate technique and simulated using the Monte Carlo simulation method. Based on the results of the smallest Mean Squared Error (MSE) calculation, the method chosen was the 3-period Weighted Moving Average (WMA) with a value of 58,511. Meanwhile, from the lot sizing analysis, the technique chosen is Periodic Order Quantity (POQ) which produces a total cost of Rp. 9,725,732. Of the three methods analyzed, namely the company method, Period Order Quantity (POQ) technique, and Monte Carlo simulation, the POQ technique was chosen because it is able to produce minimal raw material orders and optimal raw material supplies.

Keywords: *Forecasting, Lot Sizing, Monte Carlo simulation.*