

**PEMILIHAN METODE PERAMALAN PERMINTAAN
INTERMITTENT: SINGLE EXPONENTIAL SMOOTHING,
CROSTON, DAN SYNTETOS-BOYLAN APPROXIMATION
UNTUK PENENTUAN *SAFETY STOCK* DAN *REORDER POINT*
DI PT MRT JAKARTA**

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ABSTRAK

Ketersediaan *spare part* yang optimal penting untuk menjaga kelancaran operasional MRT Jakarta. Salah satu komponen krusial adalah Main Contact Strip (MCS), yang memiliki pola permintaan *intermittent*. Ketidakseimbangan antara persediaan dan permintaan dapat menyebabkan *overstock* atau *stockout*, sehingga diperlukan metode peramalan yang tepat. Analisis ADI-CV menunjukkan bahwa permintaan suku cadang bersifat *intermittent* dengan $ADI > 1,32$ dan CV^2 antara 0,08 - 0,31. Penelitian ini membandingkan metode *Single Exponential Smoothing* (SES), *Croston*, dan *Syntetos-Boylan Approximation* (SBA). Hasil peramalan menunjukkan bahwa metode SBA paling dominan, digunakan pada 14 trainset (87,5%), sedangkan metode SES digunakan pada 2 trainset (12,5%). Metode Croston tidak digunakan karena memiliki tingkat error tertinggi. Evaluasi *tracking signal* mengonfirmasi bahwa model peramalan yang dipilih tidak mengalami bias signifikan. Berdasarkan metode terbaik, ditetapkan *safety stock* 177 unit dan *reorder point* (ROP) 745 unit. Penelitian ini memberikan rekomendasi strategi pengelolaan persediaan berbasis peramalan guna mengoptimalkan manajemen inventaris di PT MRT Jakarta.

Kata kunci: *Main Contact Strip, Demand Intermittent, Peramalan Persediaan, Croston, Syntetos-Boylan Approximation, Single Exponential Smoothing, Safety Stock, Reorder Point.*

**SELECTION OF FORECASTING METHODS FOR
INTERMITTENT DEMAND: SINGLE EXPONENTIAL
SMOOTHING, CROSTON, AND SYNTETOS-BOYLAN
APPROXIMATION FOR DETERMINING SAFETY STOCK
AND REORDER POINT AT PT MRT JAKARTA**

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ABSTRACT

Optimal spare part availability is crucial for ensuring smooth operations at MRT Jakarta. One of the critical components is the Main Contact Strip (MCS), which exhibits an intermittent demand pattern. An imbalance between inventory and demand can lead to either overstock or stockout, making it necessary to employ an appropriate forecasting method. ADI-CV analysis indicates that spare part demand is intermittent, with an $ADI > 1.32$ and CV^2 ranging from 0.08 to 0.31. This study compares the Single Exponential Smoothing (SES), Croston, and Syntetos-Boylan Approximation (SBA) methods. The forecasting results show that the SBA method is the most dominant, applied to 14 trainsets (87.5%), while the SES method is used for 2 trainsets (12.5%). The Croston method is not used due to having the highest error rate. Tracking signal evaluation confirms that the chosen forecasting model does not exhibit significant bias. Based on the best method, a safety stock of 177 units and reorder point (ROP) of 745 units are determined. This study provides recommendations for inventory management strategies based on forecasting to optimize inventory management at PT MRT Jakarta.

Keywords: Main Contact Strip, Intermittent Demand, Inventory Forecasting, Croston, Syntetos-Boylan Approximation, Single Exponential Smoothing, Safety Stock, Reorder Point.