INTISARI

Tesis ini memuat penelitian yang bertujuan untuk merancang model manajemen persediaan yang optimal, dimana terdiri dari perencanaan jumlah produksi untuk pengisian kembali persediaan yang optimal, *re-order point*, dan jumlah persediaan pengaman yang tepat dalam rangka meningkatkan performa perusahaan dalam memenuhi permintaan konsumen.

Data-data dianalisa dengan menggunakan 3 metode analisa, yaitu model persediaan dengan kehilangan penjualan, perhitungan *re-order point*, dan perhitungan jumlah persediaan pengaman. Penentuan metode peramalan permintaan konsumen yang tepat juga diperhitungkan di penelitian ini sebagai salah satu inputan data verifikasi apakah model persediaan yang telah ditentukan tepat atau tidak sebagai solusi operasional. Metode peramalan permintaan konsumen yang tepat ditentukan berdasarkan metode mana yang mempunyai 3 parameter kesalahan peramalan yang paling sedikit, yaitu *Mean Absolute Error*, *Mean Squarred Error*, dan *Mean Absolute Percentage Error*. Metode Peramalan yang dibandingkan adalah Metode Peramalan *Moving Average, Weighted Moving Average*, dan *Exponential Smoothing*.

Hasil penelitian menunjukkan Metode Peramalan *Exponential Smoothing* mempunyai kesalahan peramalan yang paling sedikit, sehingga bisa digunakan sebagai metode peramalan permintaan konsumen sesudah periode amatan penelitian. Model persediaan yang optimal juga telah ditentukan berdasarkan 3 metode analisa yang digunakan di penelitian dimana kesimpulan yang diperoleh adalah tidak diijinkannya adanya kehilangan pasokan permintaan konsumen karena biayanya lebih besar dari biaya pengadaan dan pergudangan. Model persediaan ini pun telah dibuktikan dapat menanggulangi kekurangan pasokan permintaan konsumen melalui simulasi yang menggunakan data permintaan konsumen sesuai hasil peramalan.

Kata Kunci: Pemenuhan permintaan konsumen, Manajemen persediaan, Peramalan permintaan konsumen, Metode *moving average*, Metode *weighted moving Average*, Metode *exponential smoothing*, *Mean Absolute Error, Mean Squared Error*, *Mean Absolute Percentage Error*, Jumlah produksi untuk pengisian persedian kembali, *Re-order point*, Jumlah persediaan pengaman

ABSTRACT

This Thesis contains a study aimed at designing an optimal inventory management model, which consists of planning of production quantities for optimal inventory replenishment, re-order point, and the appropriate amount of safety stock in order to improve the company's performance in meeting consumer demand.

The data were analyzed by using three analytical methods, namely inventory model with loss of sales, re-order point calculation, and calculation of amount of safety stock. Determination of precise consumer demand forecasting method is also taken into account in this study as one of the input data verification whether the inventory model that has been determined precisely or not as an operational solution. The exact method of forecasting consumer demand is determined based on which method has the three least forecasting error parameters: Mean Absolute Error, Mean Squared Error, and Mean Absolute Percentage Error. Compared forecasting methods are Moving Average Methods, Weighted Moving Average Methods, and Exponential Smoothing Methods.

The results show Exponential Smoothing Forecasting Method has the least forecasting errors, so it can be used as a method of forecasting consumer demand after observation period. The optimal inventory model has also been determined based on the 3 analytical methods used in the study where the conclusions obtained are no allowance for the loss of supply of consumer demand because the cost is greater than the cost of procurement and warehousing. This inventory model has also been proven to overcome the lack of supply of consumer demand through simulations using consumer demand data according to forecasting results.

Keywords: *Order fulfillment, Inventory management, Forecasting, Moving Average method, Weighted Moving Average method, Exponential Smoothing method, Mean Absolute Error, Mean Squared Error, Mean Absolute Percentage Error, Total production for inventory replenishment, Re-order point, Safety stock*