

Garrincha Didi Nugroho, 2020, *Forecasting Powder Coating Paint Sales Using Moving Average and Single Exponential Smoothing Method (Study Case : UD. Tiga Putra Sidoarjo)* This undergraduate thesis is under the guidance of Dra. Rini Semiati, M.Si. and Endah Purwanti, S.Si., M.Kom Bachelor of Information Systems Major, Faculty of Science and Technology, Airlangga University, Surabaya.

ABSTRACT

The development of the globalization era that is rapidly impacting in every field, one of which is the development of the powder paint industry. The powder coating paint technique is one of the powder paint techniques that is growing rapidly in the office equipment and household appliances industry. The supply of powder paint is a major problem at UD. Tiga Putra Sidoarjo. This study aims to forecast sales of powder paints at UD. Tiga Putra Sidoarjo uses the Moving Average and Exponential Smoothing methods.

Implementation of decision support systems forecasts for powder paint sales forecasting at UD. Tiga Putra Sidoarjo is needed to avoid the occurrence of excess or lack of inventory of powder paint stock based on the forecast value of sales, get an overview of the state of the sale of powder paint in the future, as well as provide convenience in determining policies to be made. For example the supply and demand for powder paint in the future. The system is implemented through a website based application that uses the Javascript programming language.

There were several stages in building this application. The first stage was the collection of sales data used to forecast. The next stage was data processing, sales data for each medicine was divided into 2, 80% training data and 20% testing data. Then the next step was calculating training data with Moving Average and Single Exponential Smoothing methods to get the best combination of initial value, forecast period, and parameters. Followed by the fourth stage, calculating data testing with the best combination to result the best method. The last stage was forecasting using the best methods and combinations. For system evaluation with *Hitam*-box testing using 5 test cases and comparing the results of system calculations and Excel.

The results of this research were in the form of website-based forecasting for selling powder paint. Through trials using sales data of Black, Silver, and White powder paint of 192 data each, the smallest MSE value resulting from Black paint forecasting was produced by the Single Exponential Smoothing method with an initial value of 2 of 17485,084 and the next period forecast value of 504, Silver paint produced by the Single Exponential Smoothing method with an initial value of 14,25,257,629 and a forecast value for the next period of 211, White paint is produced by the Single Exponential Smoothing method with an initial value of 0 of 13735,533 and a forecast value of the next period of 176.

Kata Kunci: *Exponential Smoothing, Forecasting Medicine Sales, Website, MSE*

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