

CHAPTER V

CONCLUSION AND RECOMMENDATION

5.1. Conclusion

Based on the results of designing, implementing and testing a system for predicting goods and safety stock requirements using the weighted moving average and reorder point methods at PT. Bina Informatics Solusi Madiun, the following conclusions can be drawn:

1. A web-based goods demand prediction system was successfully developed by implementing the Weighted Moving Average (WMA) method to predict the need for drop core cables and ONT. The system is equipped with a real-time stock monitoring dashboard that displays stock status and automatic notifications, making it easier for admins to make ordering decisions. Based on the results of black box testing on 21 functional scenarios, all scenarios show results that correspond to a success rate of 100%. Accuracy evaluation using MAD, MSE, and MAPE metrics with window size variations of 3, 4, and 5 shows that window size 5 produces the lowest MAPE of 21.89% in the sufficient category for drop core cables and 39.08% in the sufficient category for ONTs. Usability testing using the System Usability Scale (SUS) method produces an average score of 80.0 in the Good category, indicating that the system meets the standards for ease of use from the perspective of direct users at PT. Bina Informatics Solutions Madiun.
2. The integration between WMA prediction results with reorder point and safety stock calculations was successfully implemented dynamically. Every time a prediction is run, the system automatically calculates daily demand, safety stock and reorder point values based on the updated WMA prediction values, thereby producing order recommendations that are responsive to changes in actual demand patterns. The system accommodates two delivery scenarios, namely orders from Cirebon with a lead time of 4 days and local orders with a lead time of 1 day, according to PT's operational characteristics. Bina Informatika Solusi Madiun as a branch office.

5.2. Recommendation

Based on the results of the research that has been carried out, there are several suggestions that can be taken into consideration for further system development:

1. To increase prediction accuracy for goods with lumpy demand patterns such as ONT, other forecasting methods can be explored that are more adaptive to data with high fluctuations, such as Exponential Smoothing, or Croston's Method, then the results are compared with WMA to determine the most appropriate method.
2. The current system only includes two types of items, namely drop core cables and ONTs. Further development can expand the scope of goods to all components of fiber optic network installations managed by PT. Bina Informatics Solusi Madiun, such as connectors, splitters and other supporting devices, so that the system can support comprehensive inventory management.
3. The system currently being developed only provides manual order recommendations without an automation process. Future developments could consider adding integration features with the ordering system or direct notification to suppliers automatically when stock reaches the reorder point.