

## ABSTRACT

*PT Tirta Investama is a company engaged in the distribution sector. PT Tirta Investama distributes Aqua gallon mineral water products on a large scale divided into 4 consumer segments, namely Home of Delivery (HOD), Away From Home (AFH), Minimarket, and Modern MDC. In meeting the demand for each different segment, PT Tirta Investama uses the PO system or preorder in the AFH and Modern MDC segments, while for the Minimarket and HOD segments, PT Tirta Investama carries out an estimation system that is calculated using traditional methods by determining the demand based on data previously for 12 weeks and calculated the average demand of each consumer in the segment. However, with the application of this method in determining estimates, companies often experience a mismatch between the estimation calculations that have been determined with the actual demand from each consumer.*

*This research begins with determining the inputs and targets of the network to conduct training and testing in MATLAB from each network that is made with different parameters. After conducting training and testing, the results issued using MATLAB will be calculated the performance of each network using the formula Mean Squared Error (MSE), Mean Absolute Deviation (MAD) and Mean Absolute Percentage Error (MAPE).*

*The results of the MSE, MAD, and MAPE calculations from the ANN method are compared with the application of the existing method in company forecasting to determine whether the ANN method is better if used as a forecasting method in the company. In addition, from the network that has been conducted training and testing will be determined the best network based on the smallest total MSE value in January 2018 to January 2020.*

*Keywords: Artificial Neural Network, Backpropagation, Demand Forecasting, Mean Absolute Deviation (MAD), Mean Absolute Percentage Error (MAPE), Mean Squared Error (MSE)*