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Intermittent Demand Forecast in Telecommunication Service Provider by Using Artificial Neural Network

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Abstract : In a telecommunication service provider, quantity and interval of customer demand often difficult to predict due to high dependency on customer expansion strategy and technological development. Demand arrives when a customer needs to add capacity to an existing site or build a network in a new site. Because demand is uncertain for each period, and sometimes there is a null demand for several equipments, it is categorized as intermittent. This research aims to improve demand forecast quality in Indonesia's telecommunication service providers by using Artificial Neural Network. In Artificial Neural Network, the pattern or relationship within data will be analyzed using the training process, followed by the learning process as validation stage. Historical demand data for 36 periods is used to support this research. It is found that demand forecast by using Artificial Neural Network outperforms the existing method if it is reviewed on two criteria: the forecast accuracy, using Mean Absolute Deviation (MAD), Mean of the sum of the Squares of the Forecasting Error (MSE), Mean Error (ME) and service level which is shown through inventory cost. This research is expected to increase the reference for a telecommunication demand forecast, which is currently still limited.

Keywords : artificial neural network, demand forecast, forecast accuracy, intermittent, service level, telecommunication
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