

Abstract

Every product that offered into market will be passes a life cycle or known as product life cycle, which is divided into four stages; introduction, growth, maturity, and decline. In reality not all product have all the four stages. Like lowfat milk product which is momentary needed, where the sales growth are non-linear.

Neural networks in forecasting case can be used for monitoring product life cycle. Training algorithm used is adaptive learning rate with momentum which can produce minimal mean square error compared to standard gradient descent algorithm. The data used is time series data, where sales data in time period before effecting sales data in future time period.

Processes in the sistem are training, validation and testing networks process, using sales data which have divided into training, validation and testing set. The purpose of this processes is to find the best network architecture which perform maximum accuration level in recognizing testing set. The best architecture is used as neural networks parameter for predicting product sales in several period in the future. Then product life cycle are analysed based on sales pattern from this predict result.

Sales prediction result for several period in the future from lowfat milk product sales data perform relative constant sales values. This is because lack of networks generalitation ability in recognizing new data prediction result. In 20 months future sales period showed that lowfat milk product are in maturity stage.

Keywords : *neural networks, adaptive learning rate, time series, product life cycle.*