ABSTRACT

The number of smartphone users from year to year is increasing. Competition between smartphone vendors is getting fiercer in order to survive in the industry. Nokia and HTC are some cases where decision-making without considering customers and market conditions is a reason to retreat so that they do not survive in the smartphone competition.

One of the things that can be done to improve the quality of decision making is by doing forecasting. Forecasting is an activity to predict future values based on past values. This study uses the statistical model Seasonal AutoRegressive Integrated Moving Average (SARIMA) and SARIMA with eXogenous variable (SARIMAX) with the help of google trends data as an external variable. This research uses a case study of iPhone brand sales. iPhone sales are represented by Average Selling Price (ASP) data and shipments in the form of time series from Q1 2011-Q4 2020. Meanwhile, Google trends data is obtained by searching for keywords related to iPhone in the same period of time.

The result of the forecasting activity is four predictions models both without and using external variables are obtained. From the RMSE results, the overall model has not been able to predict the existing values so well. In the forecasting activities for the ASP case, the correct pattern has not been obtained, while the shipment pattern obtained is in accordance with the actual data. Even so, based on the RMSE value, it can be said that adding external variables from google trend can improve the performance of SARIMA and SARIMAX modeling.

Keywords : Google Trends, SARIMA, SARIMAX, *forecasting*.