

ABSTRACT

Machine defect has been a critical problem which has huge economic impact. Therefore, machine defect forecasting is necessary to be considered due to its importance. However, several companies neglect the need of machine's defect forecasting. This research analyzed the machine defects historical data of PT. Yoska Prima Inti for root cause analysis using Apollo RCA and to do defect forecasting using ARIMA model. The tools that used for the data analysis are Reality Charting for Apollo RCA and XLSTAT for ARIMA modelling. The data were taken from historical data of 2016 – 2018. The defect forecasting is being conducted twice to see the effectiveness of risk control implementation. The modelling approach of ARIMA itself is following Box-Jenkins approach, which is started with model identification, parameter estimation, and model verification. The significance level used for the whole calculations is 0.05. There are also several tests being done, such as stationarity test, white noise test, normality test, and trend test. The results of this research are divided into two results. The first result is related with root cause analysis, which identified that there are twelve problems occurs during the production from 2016 until 2018. The analysis also results in the discovery of major causes and the possible solutions to mitigate the causes. The second result is a result related to the ARIMA defect forecasting. The forecasting is conducted twice, before and after defect mitigation. The result shows that the forecasted defect frequency to occur before defect mitigation is 2 until 3 defects for each month. However, the forecasted defect frequency to occur after risk mitigation is 1 until 2 defects each month. The effectiveness measured for the implementation of defect mitigation is 75% to obtain zero defect occurrence.

Keywords: Apollo, ARIMA, Mitigation, Forecasting