Data Analytics: Forecasting Asset Maintenance Failure using Holt Winter's Exponential Smoothing

Noor Hafila Syifaa Mohd Hatta, Norshakirah Aziz, Emelia Akashah P Akhir

INTRODUCTION

Data analytics are important for performance measurement and management of companies. This research is a case study research that focused on improving asset maintenance for an automotive company by utilizing their datasets. Deep understanding of their datasets is needed to identify which data will be valuable for the dashboard development. The automotive industry is experiencing shifting marketing conditions, globalization, increased competition and cost pressure [1]. Data analytics can improve performance by having meaningful data, it can provide related insights such as cost and profitability, product pricing or customer behaviour. These insights can be transformed into valuable decisions. Data analysts and managers have a vast amount of data that comes from variety of resources. These data can be both structured and unstructured. They can be cleansed and transformed into valuable data through many methods [2].

The presence of data analytics has enabled organizations to improve demand forecasts, reduce operational costs and improve performance management. The application of data and business analytics has been able to extract insights from information flows to support decision-making is the factor for effective and successful management of supply

chain [3]. In the future, the study claimed that data analytics will solve security problems in the exchange of sensitive data among partners, supplier performance can be predicted accurately, supply negotiations can be conducted autonomously by machines and fundamentally improve quality of demand planning.

An essential role for companies today is to make the right business decisions to stay operating as the world keeps on competing. By using data analytics, it can provide insights about market trends, customer buying behaviour and production cycles as well as providing suggestions to lowering production costs, expenses and enables business decision [2]. According to the study, the emergence of data analytics is due to the widespread use of digital technologies. Data analytics has become a critical business component that gives companies a powerful competitive advantage by providing valuable data for decision-making processes.

Data analytics are one of the in-trend methods being used by companies for demand or inventory management forecasting. Analysing and interpreting results in real time can assist them in making better and faster decisions to satisfy customer requirements. It also helps companies to improve their management by reducing costs and mitigating risks. The widespread use of data analytics has gained the attention of companies in all industries. Data analytics are important for the success of performance measurement and management for the company's growth. A company's daily operation with its clients and customers constantly generate informational data. These data can be analysed and used to monitor the company's well-being and diagnose potential issues [4].

The amount of data produced and communicated in the companies is significantly increasing, creating challenges for the companies to use the benefits from analysing these data. The data that comes from a variety of resources can be both structured and unstructured. Thus, the data can be cleansed and transformed into valuable data through many methods using data analytics process [2]. The presence of data analytics has enabled companies to improve performance by having meaningful data such as data related to operational cost and profitability, product pricing, demand forecast or customer behaviour. These meaningful data can help data analysts and managers to make valuable decisions