ABSTRACT

The social restriction policy imposed by the government during the COVID-19 pandemic has encouraged people to carry out digital transformation in various ways. The digital transformation has caused people's need for the internet to increase because the internet is a support for daily activities. Mobile network operators as internet service providers are required to be able to meet increasingly high data needs by providing a reliable network. In addition to providing reliable data services, companies must continue to run their companies efficiently.

This research aims to determine, analyze, and compare the eficiency value of Telkomsel, XL Axiata, and Indosat Ooredoo before and during the COVID-19 pandemic. The observation period before pandemic is 2015 – 2019, while the observation period during the pandemic is 2020.

The method that is used in this research is Data Envelopment Analysis. The variables chosen in this research to obtain the company's efficiency value are number of Base Trasceiver Stations (BTS) as input variable and number of customers and traffic data as output variables. Data are obtained from the company's annual report and then processed using Stata software.

The result from this research shows the order of mobile network operators with the highest efficiency value to the lowest is Telkomsel, Indosat Ooredoo, and XL Axiata. In the research period before pandemic, Telkomsel was able to achieve efficient performance value in 2015, 2016, and 2017. Indosat Ooredoo was able to achieve efficient performance values in 2017. Meanwhile, XL Axiata never achieved efficient performance values. During the pandemic only Telkomsel and Indosat Ooredoo are efficient. While, XL Axiata considered being inefficiency operator.

The results of this research are expected to be an evaluation for mobile network operators to run their companies efficiently. The number of BTS built are expected to be proportional to the number of customers served and the resulting data traffic so that it can be said to be efficient.

Keywords: data envelopment analysis , data traffic, efficiency, mobile network operator