ABSTRACT

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MODELLING AND SIMULATION OF THE REVERSE LOGISTIC NETWORK TO COLLECT ELECTRONIC WASTE IN JAKARTA
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Consumers usually dispose of the electronic goods when end-of-life (EOL) of these products has been reached. This behavior must be changed due to the rapid development of technology, which forces consumers to immediately replace the EOL products. The negative impact from this behavior is the accumulation of the e-waste which could impair the human health. One of the solutions to overcome this problem is to collect e-waste. The process of collecting e-waste or commonly referred as reverse logistics itself should be made as efficient as possible.

This research modeled and simulated a simplified reverse logistics network to collect e-waste in the Jakarta area. The development of the model required information on the location of drop-off points and distribution center. The drop-off points are located in the malls, three in each region which is determined randomly. Based on the location of the drop-off points, the location of the distribution center was determined by center of gravity method. After the DC location is determined the model was simulated. The results of the simulation showed that South Jakarta area requires the shortest total time to perform activities of the reverse logistics for a total time of 7 hours 18 minutes 21 seconds. West Jakarta area is the region with the longest total time with 8 hours 38 minutes 21 seconds.

Keywords: Reverse logistics, Center of gravity, Model, Simulation