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MODELLING THE SUSTAINABILITY OF HEAVY GOODS VEHICLE DISTRIBUTION OPERATION TOWARDS SUPPORTING GREEN LOGISTICS DEVELOPMENT

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

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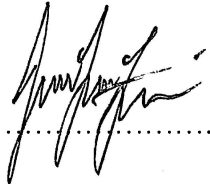
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ABSTRACT

Nowadays, the logistics industry in Malaysia has faced numerous issues and challenges. This industry's critical concern is to reduce operational cost and carbon emission by industry players' fleet. Government and private agencies tend to give more attention to sustain road passenger transports (public and private vehicles) rather than road freight transport (commercial vehicles), especially Heavy Goods Vehicle (HGV) in a matter of service quality and efficiency as a whole. Despite Malaysia, certain road haulage has not yet implemented the right blueprint of green logistics to fully optimize their resources and operation that will lead to a myriad of problems in HGV operations resulting in higher operational costs and carbon emission emitted. Therefore, this study aims to evaluate the sustainability of HGV distribution operation implementation from road haulage companies' perspective to support the bill of efficiency and supports Malaysia's voluntary target to increase economies of scale and indirectly support green logistics development. Sequential quantitative methods research design was used to gather data from questionnaires administered to 100 road haulage companies in the Klang Valley, which have 20 or 40 footer trucks (cargo and container). This research also performed calculations for cost-saving percentage and carbon emission reduction percentage based on three categorised company size, which eventually compared their implementation of sustainable HGV practices. After the data had been analysed to identify the critical dimensions for HGV distribution sustainability implementation, the analyses' results were examined with sustainable HGV distribution implementation in terms of operational strategy, technological system, and vehicle condition. Significant correlations and dimensions were found, and to be used to support the calculation result in the increase of cost-saving and carbon emission reduction by a truck per day. At the end of this study, the researcher provided a conceptual model for sustainable HGV distribution implementation for academic, industry, and body governance to review. Therefore, this study can be one of the industry's guidelines to be aligned with Malaysia 11th Plan and the 2030 Agenda in developing sustainable development goals more aggressively.

Keywords: Carbon Emission, Green Logistics, Heavy Goods Vehicle, Operational Cost, Sustainability.

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