

ABSTRACT

Efficient and timely product distribution is a critical aspect in the cement industry. PT Solusi Bangun Indonesia (SBI), as a national cement manufacturer, collaborates with third-party logistics providers (3PL) to distribute its products. However, in practice, transporter performance often faces challenges, particularly in terms of safety and operational efficiency. The existing performance evaluations are still general and have not been able to categorize each transporter based on their specific performance characteristics.

This study aims to evaluate transporter performance using driving behavior data, such as Harsh Braking, Harsh Acceleration, Hard Cornering, Over Speed, Rest Time, Driving Time, KM Tripped, and Total Violation, which were collected through the In-Vehicle Monitoring System (IVMS). The K-Means Clustering method was applied to classify transporter performance patterns, while linear regression analysis was used to examine the influence of behavioral variables on distance traveled.

The results show that transporters can be grouped into three performance clusters: high, medium, and low violation levels. Cluster 3 exhibited the highest violation rates, particularly in rest time and speeding, while Cluster 1 demonstrated the best overall performance. The linear regression analysis indicated that driving violations significantly influence the distance traveled by transporters.

Based on these findings, it is recommended that PT SBI apply tailored evaluation and development strategies for each transporter group. This approach is expected to improve distribution quality and foster a culture of safety and operational efficiency across the logistics network.

Keywords: *Transporter, K-Means Clustering, IVMS, Performance Evaluation, Linear Regression*