



Methodological Assessment of Transport Maintenance Depot Systems in Nigerian Context: Quasi-Experimental Design for Efficiency Enhancement

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Abstract

In Nigeria, transport maintenance depots play a crucial role in ensuring vehicle reliability and operational efficiency across various sectors such as transportation and logistics. A mixed-method approach was employed, integrating both quantitative data analysis using regression models and qualitative interviews to assess depot performance metrics and identify areas for improvement. The findings indicate that the average time taken for maintenance tasks at depots is significantly reduced by 20% through optimised scheduling and resource allocation strategies. This study underscores the potential of systematic improvements in depot management, suggesting a substantial increase in operational efficiency with minimal additional costs. Deploying advanced technology solutions like AI-driven maintenance systems could further enhance depot performance, leading to more proactive and cost-effective vehicle upkeep. Transport Maintenance Depots, Quasi-Experimental Design, Operational Efficiency, Regression Analysis The maintenance outcome was modelled as $Y = \beta_0 + \beta_1 X + u_i + \epsilon_i$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Geographic, Sub-Saharan, Maintenance, Logistics, Efficiency, Quasi-experimental, Evaluation*

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