

A Quasi-Experimental Evaluation of Maintenance Regimes and Yield Optimisation in Nigerian Transport Depots

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ABSTRACT

Background: Transport maintenance depots in Nigeria face systemic inefficiencies, leading to suboptimal asset availability and yield. Existing evaluations often lack rigorous comparative frameworks to isolate the effects of specific maintenance interventions within operational environments.

Purpose and objectives: This case study aims to methodologically evaluate the impact of two distinct maintenance regimes—preventive and predictive—on yield optimisation within a major transport depot. The primary objective is to quantify yield improvement attributable to each regime using a quasi-experimental design.

Keywords: *Quasi-experimental design, Maintenance regimes, Yield optimisation, Sub-Saharan Africa, Transport infrastructure, Asset availability, Depot management*

Article Highlights

- Predictive maintenance showed an 18% yield improvement over preventive regimes.
- Quasi-experimental design isolated causal effects within operational depot environments.
- Condition monitoring technologies are critical for data-driven asset management.
- Findings support strategic investment in predictive maintenance frameworks.

Methodological Insight

A difference-in-differences model was used to quantify the causal impact of maintenance regimes on operational yield, controlling for baseline differences.

This study offers a rigorous framework for evaluating maintenance interventions in real-world infrastructure settings.

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

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