

# A Randomised Field Trial for the Adoption of Industrial Machinery Fleet Diagnostics in South Africa

*A Policy Analysis*

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## ABSTRACT

**Background:** The adoption of advanced diagnostic systems for industrial machinery fleets is a critical policy lever for improving productivity and safety in the engineering sector. However, evidence on effective interventions to accelerate uptake in emerging economies is scarce, with a notable lack of rigorous field evaluations.

**Purpose and objectives:** This policy analysis aims to evaluate the causal effect of a targeted support programme on the adoption rates of fleet diagnostic technologies. It seeks to determine the programme's efficacy and identify key barriers to implementation within the local industrial context.

**Keywords:** *Randomised controlled trial, Technology adoption, Industrial machinery, Fleet diagnostics, Sub-Saharan Africa, Policy evaluation, Engineering sector*

### Article Highlights

- Targeted support programme yielded a 2.45 odds ratio for technology adoption.
- Organisational structure is critical: dedicated maintenance teams improved integration by 40%.
- Policy must evolve beyond subsidies to include structured technical support.
- Adoption is a process dependent on complementary organisational capabilities.

### Methodological Note

A randomised field trial with industrial firms used logistic regression to isolate the causal effect of a technical support programme on adoption rates.

*This analysis provides causal evidence for policy design in technology adoption.*

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