African Naval Architecture and Ocean Engineering

Methodological Evaluation of Power-Distribution Equipment Systems in South Africa: Quasi-Experimental Design for Yield Improvement Analysis

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Abstract

South Africa faces challenges in optimising power-distribution equipment systems within its naval architecture and ocean engineering sectors. A comparative study employing a quasi-experimental design was conducted. The study compared two groups: one with traditional systems and another with advanced systems, measuring yield improvements over time using statistical analysis. Significant differences were observed in the output efficiency between the two groups ($p < 0.05$). The quasi-experimental design successfully identified yield improvement trends; however, further empirical testing is recommended to validate these findings. Pilot studies should be conducted on a larger scale before full-scale implementation of advanced power-distribution equipment systems in South Africa's naval architecture and ocean engineering sectors. Power-Distribution Equipment Systems, Quasi-Experimental Design, Yield Improvement Analysis, Naval Architecture, Ocean Engineering The maintenance outcome was modelled as $Y\{\} = beta0 + beta1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Sub-Saharan, naval architecture, ocean engineering, quasi-experimental, econometric, parametric, regression*

ABSTRACT-ONLY PUBLICATION

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