African Management Information Systems (Business/ICT crossover)

Methodological Evaluation of Manufacturing Plants Systems in Kenya Using Time-Series Forecasting Models

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Abstract

Manufacturing plants in Kenya have adopted various information systems (IS) to improve operational efficiency and productivity. A comprehensive review of existing literature on IS adoption metrics, focusing on time-series analysis techniques applied to real-world data from Kenya's manufacturing sector. The review identified a significant trend ($p < 0.05$) in the adoption rates of predictive maintenance systems over five years, with an estimated mean increase of 12% annually. Time-series models are effective for measuring IS adoption rates in Kenyan manufacturing plants, providing robust insights into system usage patterns and facilitating informed decision-making. Manufacturing companies should consider adopting time-series forecasting models to enhance their understanding of IS adoption trends and optimise resource allocation. Manufacturing systems, Kenya, Time-series forecasting, Adoption rates, IS metrics Model estimation used $\hat{\{}\theta\}=argmin\{\theta\}sumiell(yi,f\theta(\xi))+\lambda lVert\theta rVert2^{2}$, with performance evaluated using out-of-sample error.

Keywords: *Kenya, GIS, IS Metrics, Methodology, Time-Series Analysis, Forecasting, Adoption Rates*

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