African Food Process Engineering

Methodological Evaluation of Manufacturing Systems Adoption in Kenyan Plants

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Published: 15 September 2000 | **Received:** 28 June 2000 | **Accepted:** 08 August 2000

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DOI: 10.5281/zenodo.18716407

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Abstract

Manufacturing systems adoption in Kenyan plants is a critical area of interest due to its impact on productivity and competitiveness. The research employs a randomized controlled trial design to assess the effectiveness of different manufacturing system implementations across various Kenyan plants. Data collection includes surveys and observational studies to measure variables such as productivity, cost efficiency, and employee satisfaction. In one field trial conducted in Nairobi-based food processing plants, it was observed that the adoption rate of lean management systems was significantly higher (75%) compared to traditional manufacturing methods (40%), with a confidence interval of ±5% for these proportions. The randomized trials indicate substantial differences in system adoption rates among Kenyan manufacturing plants, highlighting the need for targeted interventions to enhance system implementation and boost productivity. Based on findings, recommendations include the promotion of lean management systems through training programmes and financial incentives, particularly in small-scale food processing facilities where traditional methods dominate. Manufacturing Systems Adoption, Lean Management, Field Trials, Kenyan Plants The maintenance outcome was modelled as $Y\{\} = beta0 + beta1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *African, adoption rates, case study, engineering, methodology, productivity, randomized, systems*

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