



# Methodological Evaluation of Manufacturing Plant Systems Adoption in Ghana Using Quasi-Experimental Design

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Published: 24 September 2012 | Received: 10 May 2012 | Accepted: 27 July 2012

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DOI: [10.5281/zenodo.18967386](https://doi.org/10.5281/zenodo.18967386)

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## Abstract

The adoption of manufacturing plant systems in Ghana has been a subject of interest for improving operational efficiency and productivity. A quasi-experimental design was employed to assess the impact of system adoption in manufacturing plants across Ghana. The study utilised logistic regression analysis for modelling and accounting for potential confounders with robust standard errors. The analysis revealed a significant increase ( $p < 0.05$ ) in system adoption rates among firms that received training, indicating its critical role in facilitating successful implementation. Training programmes were found to be the key factor driving system adoption rates in Ghanaian manufacturing plants. Manufacturing companies should prioritise providing comprehensive training for their staff as a strategy to enhance system adoption and benefit from improved operational efficiencies. Model estimation used  $\hat{\theta} = \operatorname{argmin}\{\theta\} \operatorname{sumiell}(y_i, f\theta(\xi)) + \lambda \operatorname{Vert}\theta \operatorname{Vert}^2$ , with performance evaluated using out-of-sample error.

**Keywords:** *Sub-Saharan, African, Socio-technical, SystemsTheory, QualitativeResearch, Quasi-experimentalDesign, EmpiricalEvaluation*

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