

# Comparative Evaluation of Manufacturing Systems Adoption in Kenya

A Quasi-Experimental Analysis, 2000–2026

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## ABSTRACT

**Background:** The adoption of advanced manufacturing systems in emerging economies is a critical driver of industrial development, yet rigorous empirical evidence on the determinants and impacts of such adoption remains scarce. Prior studies in the region have often relied on descriptive or correlational analyses, lacking robust counterfactual frameworks to establish causal relationships.

**Purpose and objectives:** This study aims to quantify the causal effect of adopting computer-integrated manufacturing (CIM) and lean production systems on operational performance in a developing economy context. It seeks to identify key technological and organisational factors that moderate adoption success.

**Keywords:** *Manufacturing systems adoption, Quasi-experimental design, Industrial development, Sub-Saharan Africa, Technology transfer, Lean manufacturing, Emerging economies*

### Article Highlights

- Causal effect of CIM and lean systems on operational performance quantified.
- Adoption success strongly moderated by pre-existing workforce technical training.
- Findings underscore the systemic nature of technological upgrading in emerging economies.
- Industrial policy should incentivise bundled technology and human capital interventions.

### Methodological Note

Difference-in-differences design with longitudinal plant-level data provides robust causal inference on adoption impacts.

*This study offers rigorous empirical evidence for industrial development policy.*

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