African Infrastructure Planning (Technical focus)

Methodological Evaluation of Process-Control Systems in Uganda: A Quasi-Experimental Assessment of Adoption Rates

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Abstract

Process-control systems (PCS) are essential for ensuring quality and efficiency in construction projects across Africa. In Uganda, adoption of PCS has been limited despite their proven benefits. A mixed-methods approach was employed, including surveys and case study analysis to assess PCS implementation across selected infrastructure projects. Data were analysed using logistic regression models with robust standard errors to account for potential confounders. In the surveyed projects ($n = 50$), *there was a significant difference* $\in$ *adoption rates between sectors*: civil works showed higher adoption compared to utilities and roads, with proportions ranging from 32% to 68%. Logistic regression models revealed an odds ratio of 1.7 for adoption in civil works over other sectors. The quasi-experimental design provided insights into the factors influencing PCS adoption rates, offering a robust method for assessing future implementation strategies in Ugandan infrastructure projects. Future studies should focus on developing targeted interventions to increase PCS adoption across all sectors and explore long-term sustainability measures. Process-Control Systems, Adoption Rates, Quasi-Experimental Design, Uganda Infrastructure

Keywords: *African development, construction quality management, quasi-experimental design, process-control systems, randomized trials, statistical analysis, urban infrastructure renovation*

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