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Methodological Evaluation of Process-Control Systems in Rwanda: A Randomized Field Trial for Cost-Effectiveness Assessment

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Abstract

The evaluation of process-control systems in Rwanda is crucial for assessing their effectiveness in various sectors such as urban development and public health. Randomized field trials were conducted across two districts in Rwanda to evaluate the performance and cost-efficiency of different process-control systems. Data collection included both quantitative and qualitative methods. The analysis revealed a significant reduction in operational costs by 15% for systems with automated monitoring compared to manual control, indicating higher efficiency and lower expenses. The randomized field trial demonstrated the superiority of automated process-control systems over manual ones in terms of cost-effectiveness and performance metrics. Based on findings, it is recommended that Rwanda's government agencies adopt more automated process-control systems to enhance operational efficiency and reduce costs. The maintenance outcome was modelled as $Y\{\} = beta0 + beta1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Rwandan, Geographic Information Systems (GIS), Randomized Controlled Trials (RCTs), Evaluation Frameworks, Quantitative Methods, Process Mapping, Cost-Benefit Analysis*

ABSTRACT-ONLY PUBLICATION

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