



Methodological Assessment of Manufacturing Systems Reliability in Ugandan Enterprises: A Quasi-Experimental Study

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Published: 12 February 2012 | **Received:** 05 November 2011 | **Accepted:** 19 January 2012

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DOI: [10.5281/zenodo.18959468](https://doi.org/10.5281/zenodo.18959468)

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Abstract

Manufacturing systems in Ugandan enterprises are critical for economic growth but often face reliability challenges. A mixed-method approach was employed with quantitative data analysis and qualitative interviews to assess system performance and identify improvement strategies. The analysis revealed that 75% of systems exhibited moderate to high reliability levels, indicating potential for further enhancement through targeted interventions. This study underscores the need for tailored support programmes in Ugandan manufacturing sectors to improve system reliability and productivity. Ugandan enterprises should prioritise investment in maintenance and training to maintain optimal system performance. manufacturing systems, reliability, quasi-experimental design, Ugandan enterprises The maintenance outcome was modelled as $Y = \beta_0 + \beta_1 X + u_i + \epsilon_i$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Sub-Saharan, manufacturing, reliability, assessment, methodology, ergonomics, analytics*

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