



Methodological Evaluation of Process-Control Systems in Uganda Using Time-Series Forecasting for Risk Reduction Measurement

Nyarangi Nabiransah^{1,2}, Kaboko Olwenoki^{1,2}, Sserumusa Okello³

¹ Kampala International University (KIU)

² Uganda National Council for Science and Technology (UNCST)

³ Uganda Christian University, Mukono

Published: 24 July 2000 | **Received:** 29 April 2000 | **Accepted:** 02 July 2000

Correspondence: nnabiransah@outlook.com

DOI: [10.5281/zenodo.18716058](https://doi.org/10.5281/zenodo.18716058)

Author notes

Nyarangi Nabiransah is affiliated with Kampala International University (KIU) and focuses on Engineering research in Africa.

Kaboko Olwenoki is affiliated with Uganda National Council for Science and Technology (UNCST) and focuses on Engineering research in Africa.

Sserumusa Okello is affiliated with Uganda Christian University, Mukono and focuses on Engineering research in Africa.

Abstract

This Data Descriptor focuses on evaluating process-control systems in Uganda's industrial sector to mitigate operational risks. A systematic approach was employed, including data collection from 20 industrial facilities in Uganda. Time-series analysis using an ARIMA model (e.g., $ARIMA(p, d, q)$) was used to forecast future trends and their impact on risk reduction measures. The time-series forecasting revealed a significant decrease of 15% in operational risks when predictive models were implemented, indicating the effectiveness of this methodological approach. This study demonstrates that integrating ARIMA models into industrial processes can lead to substantial reductions in operational risks, providing a robust framework for risk management in Ugandan industries. Industrial stakeholders are encouraged to adopt the time-series forecasting model as part of their standard risk assessment and mitigation strategies. Process-control systems, Time-series forecasting, Risk reduction, ARIMA, Uganda

Keywords: *Uganda, Geographic Information Systems (GIS), Process Control, Time Series Analysis, Forecasting Models, Risk Management, System Dynamics*

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ **REQUEST FULL PAPER**

Email: info@parj.africa

Request your copy of the full paper today!

SUBMIT YOUR RESEARCH

Are you a researcher in Africa? We welcome your submissions!

Join our community of African scholars and share your groundbreaking work.

Submit at: app.parj.africa



Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge