



Cybersecurity Threats and Mitigation Strategies in East African Financial Systems: A Kenya Perspective

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Odhiambo Kibet Nganga is affiliated with Department of Software Engineering, Egerton University and focuses on Computer Science research in Africa.

Abstract

This study addresses a current research gap in Computer Science concerning Cybersecurity Threats and Mitigation Strategies for Financial Systems in East Africa in Kenya. The objective is to formulate a rigorous model, state verifiable assumptions, and derive results with direct analytical or practical implications. A structured analytical approach was used, integrating formal modelling with domain evidence. The results establish bounded error under perturbation, a convergent estimation process under stated assumptions, and a stable link between the proposed metric and observed outcomes. The findings provide a reproducible analytical basis for subsequent theoretical and applied extensions. Stakeholders should prioritise inclusive, locally grounded strategies and improve data transparency. Cybersecurity Threats and Mitigation Strategies for Financial Systems in East Africa, Kenya, Africa, Computer Science, working paper This work contributes a formal specification, transparent assumptions, and mathematically interpretable claims. Model estimation used $\hat{\theta} = \operatorname{argmin}_{\{\theta\}} \sum_{i=1}^n \ell(y_i, f(\theta; \xi)) + \lambda \|\theta\|_2^2$, with performance evaluated using out-of-sample error.

Keywords: East African, financial systems, cybersecurity, threat analysis, mitigation strategies, blockchain technology, data encryption

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