



Cybersecurity Challenges and Countermeasures in East African Financial Systems

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Abstract

Financial systems in East Africa are increasingly interconnected through digital platforms, exposing them to cybersecurity risks such as cyber-attacks and data breaches. A mixed-methods approach combining quantitative survey data with qualitative interviews was employed, ensuring comprehensive coverage of the region's financial sector. The findings indicate that phishing attacks account for over 50% of all reported cyber incidents in East African financial systems, necessitating enhanced awareness training programmes among employees. Despite challenges, a robust cybersecurity framework can be established with targeted interventions and continuous monitoring to protect financial data integrity and prevent future breaches. Financial institutions should prioritise the implementation of multi-factor authentication (MFA) systems and conduct regular security audits to mitigate vulnerabilities effectively. Model estimation used $\hat{\theta} = \underset{\theta}{\operatorname{argmin}} \{ \sum_{i=1}^n (y_i - f(\theta; \xi))^2 + \lambda \|\theta\|_2^2 \}$, with performance evaluated using out-of-sample error.

Keywords: East African, Geopolitical, Digitalization, Blockchain, Encryption, Fraud, Analytics

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