African Digital Media Studies (Media/Social focus)

Blockchain Innovations for Supply Chain Transparency in Mineral Extraction within Democratic Republic of Congo Context

Mumba Chikowiua[1], **Chipepo Mulenga**[2], **Kasambara Simwaka**[2,3]

[1] Department of Data Science, University of Malawi

[2] Malawi University of Science and Technology (MUST)

[3] University of Malawi

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Correspondence: mchikowiua@yahoo.com

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Author notes

Mumba Chikowiua is affiliated with Department of Data Science, University of Malawi and focuses on Computer Science research in Africa.

Chipepo Mulenga is affiliated with Malawi University of Science and Technology (MUST) and focuses on Computer Science research in Africa.

Kasambara Simwaka is affiliated with University of Malawi and focuses on Computer Science research in Africa.

Abstract

The Democratic Republic of Congo (DRC) is a significant producer of minerals globally, including cobalt and copper. However, due to corruption and weak governance, there are concerns about transparency in mineral extraction supply chains, leading to environmental degradation and human rights abuses. A mixed-methods approach was employed, involving both quantitative data analysis on existing blockchain projects related to mineral extraction and qualitative interviews with stakeholders including local communities, mining companies, and government officials. Blockchain-based supply chain transparency initiatives have shown potential in improving accountability by reducing intermediaries and increasing traceability. However, the integration process is hindered by technical infrastructure limitations and resistance from traditional actors. While blockchain can significantly improve transparency, its successful implementation requires overcoming technological and institutional barriers. Stakeholders should collaborate to develop a comprehensive strategy for blockchain adoption in mineral extraction, addressing regulatory frameworks and community engagement. Blockchain, Supply Chain Transparency, Mineral Extraction, Democratic Republic of Congo Model estimation used $\hat{\{}\theta\}=argmin\{\theta\}sumiell(yi,f\theta(\xi))+\lambda lVert\theta rVert2^{2}$, with performance evaluated using out-of-sample error.

Keywords: *African Geography, Blockchain, Supply Chain Management, Transparency, Governance, Cryptography, Traceability*

ABSTRACT-ONLY PUBLICATION

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

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