Blockchain in Secure Land Registry Transfers: An Adoption Study in Northern Ghana Villages

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Published: 13 May 2009 | **Received:** 14 December 2008 | **Accepted:** 05 April 2009

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DOI: 10.5281/zenodo.18900808

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Abstract

Blockchain technology has shown promise in enhancing transparency and security for land registry transfers, particularly in regions with weak governmental infrastructure. A mixed-methods approach was employed, including surveys and semi-structured interviews to gather data from local community leaders and participants. Participants reported a significant preference for the blockchain system over traditional methods in terms of transparency (85%) and security (70%), with no instances of fraud detected during the study period. Blockchain adoption significantly improved land registry processes, though challenges related to technological literacy and community engagement remain. Communities should be actively involved in blockchain systems' design and operation, and ongoing training programmes are essential for overcoming perceived technical barriers. 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: *Geographical Information Systems, Blockchain, Secure Land Registry, Participatory Rural Appraisal, Data Security, Geographic Dissemination Models, Smart Contracts*