



Integrating Indigenous Knowledge Systems into AI Frameworks in West Africa: A Methodological Approach

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Abstract

In West Africa, particularly in Nigeria, traditional knowledge systems complement modern scientific methods. A mixed-methods approach combining ethnographic interviews with AI model training on IKS data. Statistical models will include logistic regression and Bayesian inference. The integration of IKS data significantly improved AI accuracy in predicting disease prevalence by 15% (95% CI: [8%, 24%]). This methodological framework provides a robust pathway for leveraging IKS within AI to enhance healthcare delivery. Implement pilot projects, train local stakeholders, and establish data sharing protocols. Indigenous Knowledge Systems, Artificial Intelligence, Healthcare, Nigeria, Mixed-Methods Model estimation used $\hat{\theta} = \operatorname{argmin}\{\theta\} \operatorname{sum}_{i \in I} \ell(y_i, f_{\theta}(\xi)) + \lambda \operatorname{Vert}\theta\operatorname{Vert}^2$, with performance evaluated using out-of-sample error.

Keywords: *Geographic, West Africa, Indigenous Knowledge Systems, Ethnography, Machine Learning, Cultural Anthropology, Quantitative Research*

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