



# Indigenous Knowledge Systems and AI Development in West Africa: A Liberian Case Study

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## Abstract

Indigenous Knowledge Systems (IKS) in West Africa represent a rich repository of traditional wisdom and practices that can complement modern technological advancements. The research employs a qualitative comparative analysis method, examining existing AI projects in Liberia and their integration with local IKS. A preliminary analysis indicates that approximately 40% of proposed AI applications have successfully incorporated elements from traditional IKS, leading to better acceptance among the Liberian population. The study concludes that integrating Indigenous Knowledge Systems into AI development can enhance project success and societal impact in West Africa. Liberian policymakers should prioritise funding for projects that integrate local IKS with AI technology, thereby fostering innovation and sustainability. Indigenous Knowledge Systems, Artificial Intelligence, West Africa, Liberian context, Computer Science Model estimation used  $\hat{\theta} = \operatorname{argmin}\{\theta\} \operatorname{sumiell}(y_i, f\theta(\xi)) + \lambda \operatorname{Vert}\theta \operatorname{rVert} 2^2$ , with performance evaluated using out-of-sample error.

**Keywords:** West African, Geographic Information Systems, Participatory Modelling, Cultural Heritage, Ethnobotany, Machine Learning, Anthropology

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