



Indigenous Knowledge Systems Integration into AI Development in West Africa: A Paradigm Shift Study

Indigenous Knowledge
Systems Integration into AI

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29

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Abstract

The integration of Indigenous Knowledge Systems (IKS) into Artificial Intelligence (AI) development is gaining traction globally, particularly in regions with rich cultural heritages such as West Africa. However, empirical studies focusing specifically on this intersection are limited. A mixed-methods approach was employed, combining qualitative interviews with semi-structured questionnaires to gather data from key stakeholders including government officials, tech entrepreneurs, and community leaders. Quantitative analysis focused on survey responses to assess the perceived benefits and challenges of IKS integration into AI projects. The findings indicate that a significant proportion (78%) of respondents view the combination of local wisdom with AI as beneficial for addressing societal issues such as climate change adaptation, healthcare access, and education. However, there is substantial uncertainty regarding the long-term sustainability of these initiatives due to varying levels of technological expertise among participants. This study underscores the potential benefits of IKS integration into AI development but also highlights the need for structured support systems to ensure successful implementation across different contexts. Policy makers and tech developers should prioritise capacity building programmes that enhance indigenous knowledge application alongside advanced technology. Additionally, establishing regional hubs for collaborative research on IKS-AI integration could foster innovation and equitable access. Model estimation used $\hat{\theta} = \operatorname{argmin}\{\theta\} \operatorname{sumiell}(y_i, f\theta(\xi)) + \lambda I \operatorname{Vert}\theta \operatorname{Vert} 2^2$, with performance evaluated using out-of-sample error.

Keywords: *Sub-Saharan, ethnography, computational paradigms, cultural algorithms, machine learning methodologies, epistemology, data fusion techniques*

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