



# Indigenous Knowledge Systems Integration into AI Development in Gabon West Africa

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### Abstract

Indigenous Knowledge Systems (IKS) in Gabon West Africa are rich repositories of traditional wisdom that can be integrated into Artificial Intelligence (AI) development to enhance local solutions and sustainability. A mixed-methods approach will be employed, including surveys, interviews with local experts, and a comparative analysis of existing AI applications in Gabon. A preliminary survey indicates that up to 50% of respondents favour the integration of IKS into AI for healthcare solutions, suggesting significant interest but also highlighting the need for culturally sensitive design approaches. The study concludes with recommendations on how to bridge the gap between traditional and technological advancements in AI development within Gabon’s socio-cultural context. Develop a standardised framework for integrating IKS into AI models, conduct more detailed ethnographic studies, and establish partnerships between local communities and tech developers. Model estimation used  $\hat{\theta} = \operatorname{argmin} \{ \theta \} \operatorname{sumiell} ( y_i, f\theta ( \xi ) ) + \lambda l \operatorname{Vert} \theta r \operatorname{Vert} 2^2$ , with performance evaluated using out-of-sample error.

**Keywords:** African geography, indigenous knowledge systems, cognitive computing, cultural informatics, hybrid AI models, ethnographic methods, participatory design

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