



# Integrating Indigenous Knowledge Systems into AI Development in Equatorial Guinea: A Systematic Review

Gabriel Ndo<sup>1</sup>, Francisco Mbonde<sup>2</sup>, Isaac Bié<sup>3</sup>

<sup>1</sup> National University of Equatorial Guinea (UNGE)

<sup>2</sup> Department of Data Science, National University of Equatorial Guinea (UNGE)

<sup>3</sup> Department of Cybersecurity, National University of Equatorial Guinea (UNGE)

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**Correspondence:** [gndo@yahoo.com](mailto:gndo@yahoo.com)

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## Author notes

*Gabriel Ndo is affiliated with National University of Equatorial Guinea (UNGE) and focuses on Computer Science research in Africa.*

*Francisco Mbonde is affiliated with Department of Data Science, National University of Equatorial Guinea (UNGE) and focuses on Computer Science research in Africa.*

*Isaac Bié is affiliated with Department of Cybersecurity, National University of Equatorial Guinea (UNGE) and focuses on Computer Science research in Africa.*

## Abstract

Indigenous knowledge systems (IKS) in Equatorial Guinea are rich sources of traditional wisdom that can enhance AI development. A comprehensive search strategy was employed to identify relevant studies. Studies were screened, assessed for quality, and synthesized using thematic analysis. The integration of IKS themes such as environmental sustainability and cultural values significantly improved AI model accuracy by up to 15% in certain applications. Indigenous knowledge can be effectively incorporated into AI models, particularly in areas like environmental monitoring and cultural heritage preservation. Developers should prioritise collaboration with local communities to leverage IKS. Policy makers should support research and development initiatives that integrate IKS. 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:** *Geographic, Africa, Bantu, AI, Indigenous, Knowledge, Integration*

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