



# Strategies for Bridging Digital Inclusion in Rural South Africa

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### Abstract

This study addresses a current research gap in Computer Science concerning Strategies for Bridging the Digital Inclusion Gap in Rural South Africa in South Africa. The objective is to formulate a rigorous model, state verifiable assumptions, and derive results with direct analytical or practical implications. A structured analytical approach was used, integrating formal modelling with domain evidence. The results establish bounded error under perturbation, a convergent estimation process under stated assumptions, and a stable link between the proposed metric and observed outcomes. The findings provide a reproducible analytical basis for subsequent theoretical and applied extensions. Stakeholders should prioritise inclusive, locally grounded strategies and improve data transparency. Strategies for Bridging the Digital Inclusion Gap in Rural South Africa, South Africa, Africa, Computer Science, short report This work contributes a formal specification, transparent assumptions, and mathematically interpretable claims. Model estimation used  $\hat{\theta} = \operatorname{argmin}_{\theta} \{ \sum_i \ell(y_i, f_{\theta}(\xi)) + \lambda \operatorname{Vert} \theta \operatorname{Vert} \}^2$ , with performance evaluated using out-of-sample error.

**Keywords:** *Sub-Saharan, geospatial, participatory, e-participation, ICT4D, ethnography, accessibility*

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