



5G Digital Urban Nexus: Harnessing 5G Technology for African City Transformations

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Abstract

The rapid urbanization in African cities necessitates innovative solutions to enhance infrastructure and services. A mixed-methods approach combining surveys with qualitative interviews was employed to gather data from urban planners, tech companies, and residents. The integration of 5G technology is projected to increase internet speeds by up to 10 times in selected urban centers, enhancing service delivery efficiency. While the preliminary findings suggest significant potential for digital transformation through 5G, further research is needed to validate these predictions and explore specific applications. Investment in 5G infrastructure should be prioritised along with pilot projects to assess its broader implications on urban development. 5G technology, Digital Transformation, Smart Cities, Nigerian Urbanization 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, Sub-Saharan, Urbanization, Innovation, Digital, Transformation, Networks*

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