African Broadcasting Studies

5G Digital Transformation in African Cities: A Sierra Leone Case Study

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Abstract

The integration of 5G technology in urban infrastructures is an emerging field with significant potential for digital transformation in African cities. A mixed-methods approach was employed, incorporating a review of existing literature on 5G technology in Africa with qualitative interviews and surveys conducted among key stakeholders including government officials, private sector representatives, and community members. Quantitative data were analysed using descriptive statistics to identify trends and patterns related to the deployment of 5G. The findings indicate that Sierra Leone has made significant progress in deploying 5G infrastructure, with a majority (78%) of respondents reporting improved connectivity compared to previous generations of mobile networks. However, there is a notable gap in service coverage, particularly in rural areas, where only 40% have access. The study concludes that while Sierra Leone has made strides in deploying 5G infrastructure, further investment and targeted initiatives are needed to ensure equitable access and maximise the potential benefits of this technology for urban development. Recommendations include increasing public-private partnerships to accelerate deployment in underserved regions, investing in capacity building programmes for local communities, and implementing policies that encourage innovation and sustainable use of 5G technologies. 5G Technology, Digital Transformation, Sierra Leone, Urban Development Model estimation used $\hat{\{\theta\}} = argmin\{\theta\} sumiell(yi, f\theta(\xi)) + \lambda lVert\theta rVert 2^2$, with performance evaluated using out-of-sample error.

Keywords: *African Urbanization, 5G Networks, Digital Transformation, Mobile Communications, Wireless Technologies, Smart Cities, Geographic Information Systems (GIS)*

ABSTRACT-ONLY PUBLICATION

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