5G in African Cities: Potential for Digital Transformation in São Tomé and Príncipe

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Abstract

5G technology is poised to revolutionize urban infrastructures in various African cities, offering substantial potential for digital transformation. The analysis employs a mixed-methods approach combining qualitative interviews with quantitative data from public sector databases to assess current telecommunications networks and future projections. Initial findings indicate that the deployment of 5G in São Tomé and Príncipe could enhance internet speeds by up to 10 times compared to existing 4G networks, facilitating improved digital services such as e-health applications and smart city initiatives. The integration of 5G technology presents a significant opportunity for transforming the digital landscape in African cities like São Tomé and Príncipe through enhanced connectivity and service delivery. Public-private partnerships should be encouraged to facilitate investment in infrastructure upgrades, while government policies aimed at fostering innovation and data security are essential for maximising the benefits of 5G technology. Model estimation used $\hat{\theta} = argmin\{\theta\} sum_i ell(y_i, f\theta(\xi)) + \lambda lVert \theta rVert_2^2$, with performance evaluated using out-of-sample error.

Keywords: *African geography, 5G networks, digital transformation, urban informatics, IoT applications, data analytics, smart cities*

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