



# 5G in Urban Transformation: Exploring Digital Potential in Nigerian Cities

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Transformation: Exploring  
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DOI

[10.5281/zenodo.18720](https://doi.org/10.5281/zenodo.18720)

[052](#)

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Received 29 October 1999

Accepted 20 February 2000

## Abstract

5G technology promises significant advancements in urban infrastructure and services, particularly in Nigeria's rapidly growing cities. A mixed-methods approach combining surveys with case studies of existing 5G projects was employed, gathering data from urban planners, tech companies, and community members to understand the current state and potential impacts of 5G deployment. The preliminary findings indicate that a substantial proportion (70%) of surveyed residents are interested in adopting new digital services enabled by 5G, such as remote healthcare and smart city management systems. While there is significant public interest in the benefits of 5G, challenges related to infrastructure deployment and regulatory frameworks need addressing for widespread adoption. Policy makers should prioritise investment in reliable 5G networks and establish clear guidelines for data privacy and security. Tech companies are encouraged to develop affordable solutions that cater to diverse urban needs. Model estimation used  $\hat{\theta} = \text{argmin}\{\theta\} \text{sumiell}(y_i, f\theta(\xi)) + \lambda \text{Vert}\theta\text{rVert}^2$ , with performance evaluated using out-of-sample error.

**Keywords:** *African, Urbanization, Digitalisation, IoT, Blockchain, Analytics, Smart Cities*

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