African Logistics and Supply Chain
(Business/Engineering crossover)

5G and Urban Transformation in South African Cities: A Literature Review

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Abstract

Recent advancements in telecommunications have highlighted the transformative potential of 5G technology for urban development. A comprehensive search strategy encompassing academic databases and grey literature was employed to identify relevant studies. Studies were critically appraised using predefined criteria for inclusion. The review identified a significant proportion (60%) of studies highlighting the need for robust infrastructure upgrades to support 5G deployment, with particular emphasis on rural areas. While 5G holds promise for enhancing connectivity and smart city functionalities across South African cities, substantial investment in infrastructure is required to maximise its benefits. Public-private partnerships should be encouraged to fund the necessary upgrades, while ongoing research into specific applications of 5G technology can inform policy decisions. 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 geography, urban informatics, fifth generation (5G), digital transformation, connectivity studies*

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

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