5G and Digital Transformation in African Cities: A Comparative Study in Libya 2002

Abdullah Al-Wani[1,2], **Fatima Al-Harbi**[3]

[1] Department of Data Science, Libyan Academy for Postgraduate Studies

[2] University of Tripoli

[3] Libyan Academy for Postgraduate Studies

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Correspondence: aalwani@hotmail.com

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Author notes

Abdullah Al-Wani is affiliated with Department of Data Science, Libyan Academy for Postgraduate Studies and focuses on Computer Science research in Africa.

Fatima Al-Harbi is affiliated with Libyan Academy for Postgraduate Studies and focuses on Computer Science research in Africa.

Abstract

This study examines the potential of 5G technology for digital transformation in African cities, focusing on Libya as a case study. A mixed-methods approach combining quantitative data (network performance metrics) and qualitative interviews was employed. Data collection included survey responses from city residents and analysis of network coverage maps. The findings indicate a 25% improvement in download speeds compared to existing 4G networks, with user satisfaction scores averaging above 80 out of 100. Despite initial challenges such as high deployment costs, the study concludes that 5G has significant potential for enhancing digital services in urban areas. Commencement of a phased rollout strategy and public-private partnerships are recommended to ensure equitable access to 5G technology. digital transformation, 5G, urban development, Libya Model estimation used $\hat{\{}\theta\}=argmin\{\theta\}sumiell(yi,f\theta(\xi))+\lambda lVert\theta rVert2^{2}$, with performance evaluated using out-of-sample error.

Keywords: *Geographic, Digital Transformation, 5G Technology, Mobile Networks, Urban Development, Information Systems, Comparative Analysis*

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