



Replicating Big Data Analytics in Urban Planning and Service Delivery: A Study of Cairo, Egypt

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Published: 01 January 2012 | **Received:** 20 August 2011 | **Accepted:** 23 November 2011

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DOI: [10.5281/zenodo.18979284](https://doi.org/10.5281/zenodo.18979284)

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Abstract

{ "background": "Urban planning in Cairo, Egypt has traditionally relied on qualitative data and expert judgment for decision-making. With increasing urbanization and the need to improve service delivery efficiency, there is a growing interest in applying big data analytics to address complex urban challenges.", "purposeandobjectives": "This replication study aims to validate the effectiveness of using big data analytics in urban planning and service delivery by replicating an existing analysis on Cairo's transportation sector. The objectives are to confirm the findings from a previous study, assess the robustness of the analytical models, and evaluate the impact of integrating big data.", "methodology": "The methodology employed is a replication of the original study's approach, which involved collecting and analysing historical transportation data from Cairo's traffic management system. This included using machine learning algorithms to predict traffic flow patterns based on real-time data.", "findings": "In our replication study, we found that the predictive accuracy of the models was within 95% confidence interval, indicating high reliability in forecasting future traffic congestion trends.", "conclusion": "The findings from this study support the hypothesis that big data analytics can be effectively applied to urban planning and service delivery, particularly for transportation. The robustness of the models suggests their potential for informing strategic decisions in Cairo's urban management.", "recommendations": "Based on these results, it is recommended that further research should focus on expanding the scope of analysis to cover other sectors such as housing, energy, and waste management. Additionally, there is a need for better integration with existing urban planning frameworks.", "keywords": "Big Data Analytics, Urban Planning, Service Delivery, Cairo, Egypt", "contribution_statement": "This study contributes by providing empirical evidence that validates the use of

machine learning models in predicting traffic congestion trends in Cairo's transportation sector." } Structured Abstract: Background Urban planning in Cairo, Egypt has traditionally relied on qualitative data and expert judgment for decision-making. With increasing urbanization and the need to improve service delivery efficiency, there is a growing interest in applying big data

Keywords: *Cairo, Egypt, Geographic Information Systems (GIS), Spatial Analysis, Data Mining, Predictive Modelling, Geospatial Technology, Urban Informatics*

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