

The intended use of large language models (LLM's) in the automation of indicator extraction for the purpose of measurements of urban resilience in cities.

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Key words: Implementation of plans; Spatial planning; Keyword 1 Urban resilience, LLM's, disaster reduction

SUMMARY

This paper explores the relationship between the manual measurement of urban resilience (UR) by using city planning documents vs the use of large language models (LLM's) in an attempt to automate the processing of planning documents in pdf format. The use of city planning instruments as input towards the assessment of urban resilience is well known and utilised currently to measure UR. In theory LLMs can greatly enhance the measurement of urban resilience by summarising indicators identified as pertinent markers for baseline assessments, providing an objective analysis instead of using manual methods. This can automate the classification of resilient indicators against resilience criteria, process vast amounts of contextual data for a complete analysis and organise complex research theories to measure resilience over time. International urban resilience standards and other stand-alone urban resilience frameworks can be used as a measure of resilience in cities. For example cities in South Africa were used to test this theory, between the reference period 2016 to 2021.

While some cities display their strategic intent in the form of municipal planning instruments, for example the Integrated Development Plan (IDP), align it to the Integrated Urban Development Frameworks (IUDF); others do not, and this is reflected in compliance towards urban resilience norms. An MCDA method was used to manually determine the compliance to urban resilient norms. The work towards achieving these results can be tedious and results unpredictable. A better understanding and use of LLM's could remove the bias in calculations towards cumulative results.

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FIG Congress 2026

The Future We Want - The SDGs and Beyond

Cape Town, South Africa, 24–29 May 2026