

Enabling Quantitative Urban Sustainability Assessment with Big Data

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Abstract : Sustainable urban development has been widely accepted a common sense in the modern urban planning and design. However, the measurement and assessment of urban sustainability, especially the quantitative assessment have been always an issue obsessing planning and design professionals. This paper will present an on-going research on the principles and technologies to develop a quantitative urban sustainability assessment principles and techniques which aim to integrate indicators, geospatial and geo-reference data, and assessment techniques together into a mechanism. It is based on the principles and techniques of geospatial analysis with GIS and statistical analysis methods. The decision-making technologies and methods such as AHP and SMART are also adopted to address overall assessment conclusions. The possible interfaces and presentation of data and quantitative assessment results are also described. This research is based on the knowledge, situations and data sources of UK, but it is potentially adaptable to other countries or regions. The implementation potentials of the mechanism are also discussed.

Keywords : urban sustainability assessment, quantitative analysis, sustainability indicator, geospatial data, big data

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