

On the discovery of urban typologies

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When pursuing a more sustainable and integrative urban development, the first stage of the urban design process should consist of a pre-design phase where the context of the site is analysed both qualitatively and quantitatively. This information provides a base line for the contextualisation of the urban programme, of the design solutions and of the evaluation benchmarks proposed for the site.

Our research project aims to develop an urban design system using an urban ontology that can be applied to the formulation, generation and evaluation of urban plans. The purpose of this urban design system is: (1) formulation - to read data from the site context on a GIS platform and then generate adequate program descriptions, given the contextual conditions; (2) generation - to generate alternative design solutions that match the program, and (3) evaluation - to evaluate evolving design solutions against the program to obtain satisfactory results.

In this paper we present a methodology for data mining an urban Geographic Information System (GIS) data set, consisting of three main phases: representation, analysis and description. The process reveals a series of block and street typologies that highlight the different character of two neighbourhoods.

This methodology is demanding in the preparation phase and requires a high level of GIS and statistics expertise in the analysis phase. However, it successfully addresses the complex multi-scale and multi-level nature of cities in a systematic way, providing a tool for systematic profiling of neighbourhoods, which is site and problem specific.

Keywords: Sustainable urban development; data mining; urban form; indicators; profiling