

MODELLING AN URBAN ENVIRONMENT FOR DECISION SUPPORT PURPOSES: A NEW  
PERSPECTIVE

Temy TIDAFI, Ph.D.

GRCAO, Université de Montréal  
C.P. 6128, succursale Centre-ville  
Montréal (Québec) H3C 3J7 Canada

Temy.Tidafi@Umontreal.CA

In this paper we report results of a research conducted with a view to enhance the definition of 3D model of the urban environment for new decision support purposes. On the basis of data available in 3D models built up with traditional modelling software (such as are generally in use at municipal organisations), our original conveyed mandate was to consider and explore a new modelling strategy that allows at least for automatic (1) part replacements for the simulation of new architectural projects and (2) keeping track of urban physical states when modifications occur over time (4D). We developed and adopted a data format as well as a data organisation strategy that allowed us to go far beyond the expected results.

The research is presented in three parts. Firstly, we address the theoretical foundations on which the strategy was developed. These are built on a reconsideration of the present representational paradigm and use a systemic approach to modelling. Secondly, we expose the strategy's instrumentation and implementation in a computer environment. We describe how some corrections to geometrical definitions, distinctions between types of urban information and establishment of a information inferential mechanism were needed and developed in order to support urban decisions processes. Thirdly, we give, through visual documents, a foretaste of possible applications of the strategy we have developed, in relation to different decision tasks.