

Three-dimensional visualisations and urban planning

by Ugo Fiorucci

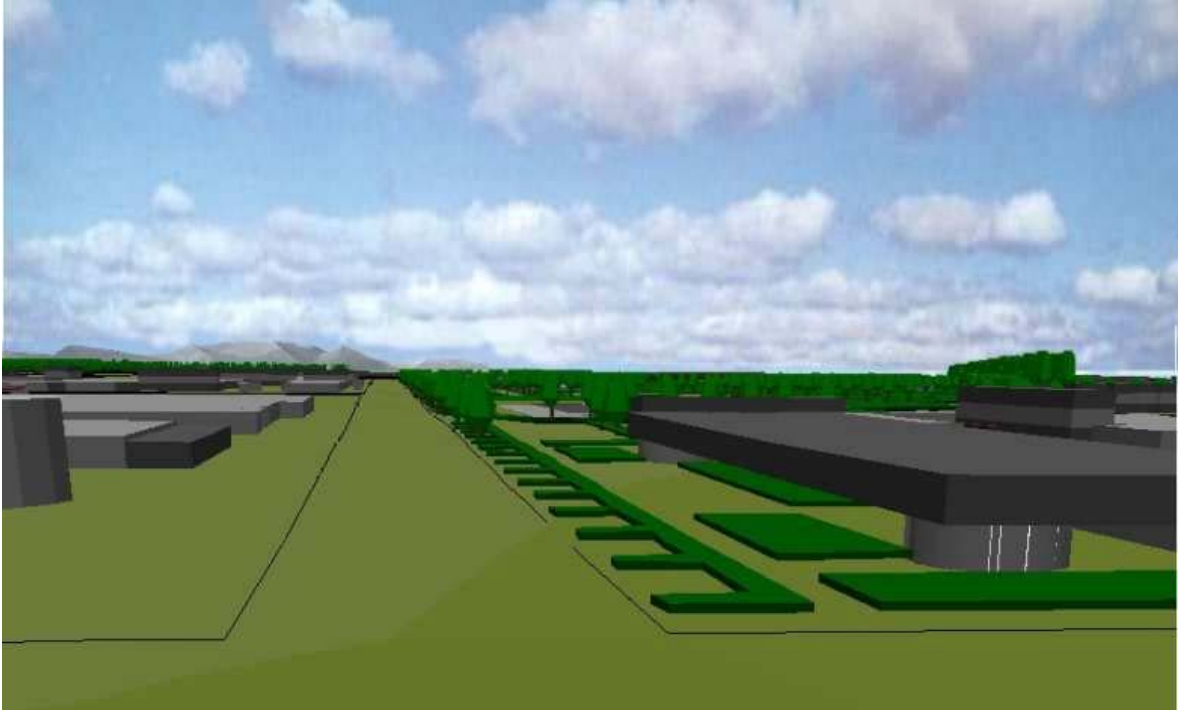
Tutor: Franco Vico

During the project for the new Masterplan in Grugliasco (a town near Turin) the team developed specific projects on 63 small areas, creating, for each one of them, schedules containing building rules for their transformation.

On the one hand, these schedules aim at best monitoring urban changes; on the other hand, they contribute to a more simple management, both for public administration and private companies.

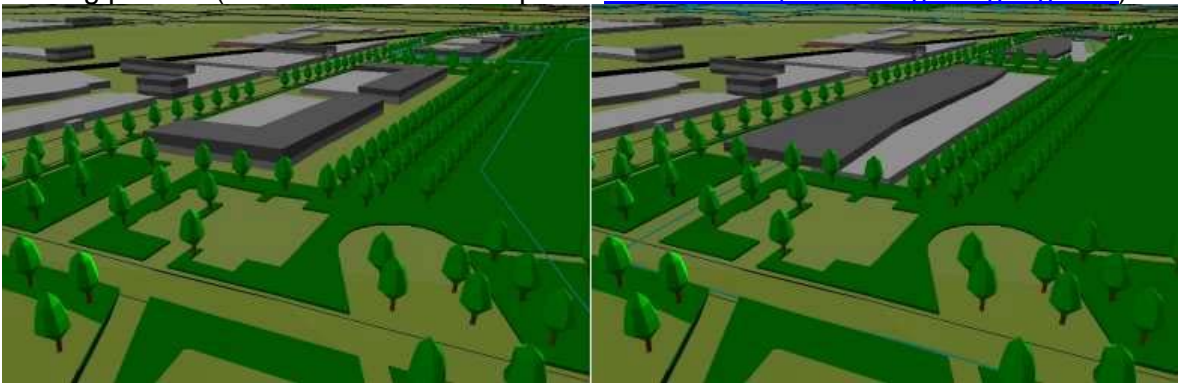
With the use of 3D Analyst 1.0 (an Arcview's extension) we tried to match two purposes:

1. The creation of a "light" DTM (Digital Terrain Model) containing information about large areas and landscape to be used as base for visibility and landscape analysis. The development of this model involved criteria of selection for altimetrical points, such as maximising the resolution of the field near the observer and minimising the one far from the observer (skyline).
2. The definition of "quick tools" for three-dimensional visualisation and communication of geographic information, during the different steps of urban planning processes (e.g. Urban Sketching, planning rules, urban tissue analyses).



Pict. 1 – One of the view during the landscape analysis.

This work implied the use of different databases (from different public archives) and the definition of simple methodologies able to interoperate between different systems. During the planning process the different phases of analysis, the definition of its goals and the various choices do not follow each other in a linear way, but seem to repeat many times in a non-linear way. In this way, GIS instruments make analysis and simulation possible during the whole planning process according to the changing reality. In addition, three-dimensional visualisations encourage public participation to planning processes and involve a larger number of "social actors" in the decision-making phases (in this case we developed a [Virtual Reality Modelling Language file](#)).



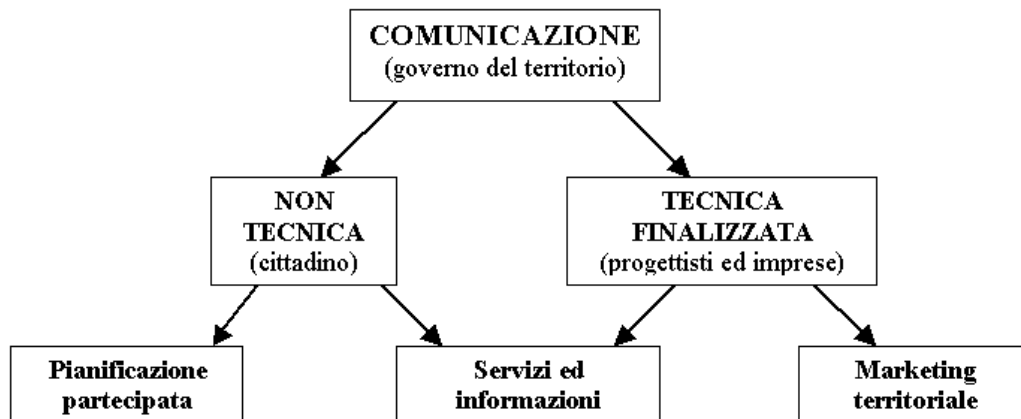
Pict. 2 – Example of different building solution during the urban design process. The three-dimensional visualisation and VRML files are really useful as interchange of information between planners, architects and designers during the brainstorming and as a DSS (Decision Support System).

As such instruments are easy to understand, decision-makers must use them in a "politically correct" way.

All the efforts in generating three-dimensional simulations (using GIS environment) must be addressed to

- standardise the quality of databases;
- produce a one-way method of interchange, collection and transformation of information and data;
- check-out only the necessary information.

Only in this way the use of 3D GIS instruments can be useful to planning processes, improving the flexibility of planning instruments, communication and co-operation.



Pict. 3 – Flow-chart of principal communication path in the local land government

For further information:

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