

## GIS Development September 2010 Vol. 1 Issue. 2

3D TECHNOLOGIES | Caroline Tasse

### UNLOCKING THE POTENTIAL of urban design



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Whatever be the urban strategies implemented by the governments, the need to understand and exchange information is essential to enable a sustainable urban design and planification dedicated to a better quality of life for the citizens. The 3D technologies and expertise developed by Vectuel aim to support major urbanism and architecture projects at each stage of their development: from the design to the support of decision-makers in the project promotion.

From this perspective, the 3D technologies - 3D data, tools and 3D virtual simulator - strongly contribute to a better understanding of the existing environment as well as a more efficient urban planification of the territory. These tools also enable a mutualisation of the information and an innovating communication on the future projects. Visualising, simulating and communicating, that is the ambition of urban design.

**Understanding the environment for a better planification**

The rapid development of digital technologies enables fully building a city in 3D in high definition.

Thanks to a detailed and interoperable data, the analysis of a city can be done in different ways: technical analyses and calculations thanks to GIS tools, visualisation in high definition on VStory, display on the web globes with worldwide visibility, edition through urbanism software - the choice is wide and meets all needs of the stakeholders of city management. The results of these analyses will support the town planners in their design of new projects in the purpose of improving the urban living area.

**Simulation and visualisation, success keys to plan and design the future**

Crossing the world of GIS and architecture is the mission of Vectuel. Taking into consideration the existing environment for the urban design and including the future developments in the spatial analyses opens new doors in planification and urban management.

That was the motivation of the Fajarah Emirate (United Arab Emirates) in the acquisition of a virtual 3D simulator VStory. Its objective is to take into consideration the existing cities to design and plan in a harmonious way the

future developments of its territory.

The 3D virtual simulator VStory enables the insertion of architecture projects to visualise "before/after project", what are the impacts of my new development on the existing environment? What are the changes to make? Thus we are talking about the 4th dimension - 4D - with the display of the future - what will my city look like in 2020 or in 2030? What are the different phases of construction of my future city?

This simulation and visualisation tool is adapted for architecture competition. In a fair and transparent way, one can assess the different projects and choose the one which will best meet one's expectations and requirements. Although the projects are varied - revitalisation of a parking into a public garden, development of an accommodation building, insertion of a tramway line downtown or creation of a new city - the main need is common: to be understood by all project stakeholders, who sometimes have different work culture and diverse expertise, in the purpose of easing an efficient common work. That is the reason why they are interested in tools and data usable by all in order to

mutualise the information, exchange their work and capitalise an experience for the future projects.

**Interoperability of the GIS and architecture world for a better information mutualisation**

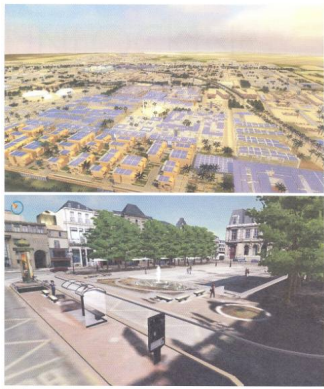
Being able to display architecture projects in GIS tools and an existing urban environment in design software is today available for all with the RCP technology. It enables

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usage of one single data in diverse applications and to exchange it with partners. At the scale of a city, this mutualisation of data coming from diverse sources benefit the department of building permits: the use of 3D tools and data enables the simulation of the future project into the existing environment for validation

after analysis. Making data available to all and simplicity of use requires some specifications: the data should be geometrically accurate and detailed and benefit from a high definition texture in a standard format. With software like RCP, one can optimise and convert data for all business applications.

**3D dedicated to wide communication of the territory**

Such 3D data also offers advantages beyond the technical circles and the traditional businesses. It offers the possibility of better communicating to citizens about the choices and future developments that they do not always fully understand.

It can also serve as a promotion tool when used via the Web. The virtual visit in 3D high definition gives the possibility to display, as close to reality as possible, the tourist points of interest, the economic attractiveness or the real estate offerings of the territory. This asset is fundamental to attract investors, tourists, citizens and to build the image of its territory. In this regard, the 3D virtual simulator VStory has been chosen by the Abu Dhabi Future Energy Company (Masdar) to promote among diverse public, including general public, companies, investors, decision-makers, etc. the future city of Masdar during the World Future Energy Summit in the UAE. Introducing a new city goes beyond a simple presentation.

The needs are numerous: making the visitor understand the concept of Masdar, the design of the new city with its advantages and synergies, experiment the future lifestyle, etc. This technology enables a real experience of the future project by walking and flying freely into the virtual city.

**Caroline Tassin**  
Branch Manager  
Virtual Media East  
ctassin@bectel.com