Utilising the Virtual World for Urban Planning and Development

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SUMMARY

The twenty-first Century has seen the Asia Pacific region undergo rapid growth in its urban environments, and this shows no signs of slowing. Cities in the region are developing with whole district renewal, mega structures, mass transport corridors and significant population increases … often with only rudimentary spatial data upon which to manage the development. This dearth of traditional spatial data has opened the way for utilisation of the Virtual World to plan, visualise, analyse and better manage the planned developments. The Virtual World involves a realistic 3D GIS, which supports master panning scenarios with ePlanning workflows and storytelling The objective of this paper is to describe how virtual urban citymodels are assisting those in the planning process to better understand the development and then communicate outcomes to the various stakeholders. This paper will discuss the complete process from user needs assessment, data acquisition, planning input, visualisation, required infrastructure, data quality, development analysis, proposal dissemination and stakeholder input. The pros and cons of the various options at each of these steps will be analysed. Case studies will demonstrate how the Virtual World can assist in many of the specific topics of FIG's Spatial Information Management and Spatial Planning and Development Commissions, including Urban and Landuse Planning, Managing Urbanisation, Spatial Data Infrastructure, 3D/4D Models and Web and Mobile GIS. Recent Case Studies will show how the Virtual World can effectively bring government and society together, by spatially enabling the planning and approval process. Processes for managing such spatial data will be described, with regards to available infrastructure and utilisation of existing datasets and data formats. Whilst gaining a foothold in Europe, the Virtual World has largely only existed externally in the Asia Pacific Region. This paper will extend that environment to include indoor applications through the emerging utilisation of Building Information Modelling and Management (BIMs). With increasing pressures on space in Asian cities, authorities are forever searching out alternatives, so the paper will also present case studies and tools for including underground spaces in the planner's virtual World. The paper concludes with a critical review of the components available to construct a Virtual World to best meet Spatial Planning and Development needs within the Asia Pacific region.