An Introduction to the Next Generation of 3D GIS Technologies in China

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SUMMARY

As GIS technology is developing rapidly, people have found out that 2D GIS technology can't fit all the requirements from end users. The GIS industry is calling for a higher dimension of GIS technology. In this paper, it shows how the "PHIL" challenges of 3D GIS were overcome and how the dimension raising in GIS industry was finished. "PHIL" challenge includes four main challenges in the developing of 3D GIS, which is: P for "Pretty But Not Practical", means that 3D models can only be used for viewing rather than analyzing; H for " High Cost of Data Production", means that it always takes a lot of man work and funds to create 3D models; I for " Indoor Space Hard to Manage", it means that it's difficult for 3D GIS to manage indoor space; L for " Lack of Field Data Model", it means that normal 3D GIS are normally surface based instead of field based.

In this paper, solutions to "PHIL" challenge will be introduced detailedly, including how to achieve quick model building with Symbolized Modeling and Oblique Photography technology, how to achieve 3D analyzing with 2D-3D Integration technology, how to achieve indoor management with BIM+GIS technology and how to simulate field data with making 2D grid and TIN into 3D Voxel Grid and TIM. All these solution technologies have been used in making 3D GIS practical.

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