

Integrating Geographic Information System and Building Information Model for Real Estate Valuation

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SUMMARY

In the past decades, geographic information system (GIS) has gained much attention in the real estate valuation industry. However, the current 3D GIS does not support modeling components inside of buildings, which is crucial for applying cost approach to appraise the property value. Thus, the aim of this paper is to introduce building information model (BIM) into real estate valuation industry with 3D GIS to improve the accuracy of valuation. In this paper, the integration of BIM and 3D GIS valuation system has been realized. A software architecture was designed to integrate data transmission between different systems. Based on which, the modified cost approach was implemented. Further, a BIM-based 3D GIS sales comparison approach was proposed. In this approach, micro-environment analyses was integrated, such as indoor daylight analysis, indoor/outdoor ventilation analysis, solar illumination analysis, and so on. Then, based on the national standard and analysis results, the quantitative analysis was conducted and combined with other impact factors to evaluate the performance of each cases. The integration has been realized on our 3DGISSPV system with practical data of Shenzhen, China. The prototype system shows great potential to improve valuation accuracy.