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Simplified BIMs for visualization of city building

The study aims to compare different methods for bridging the differences between how the information technologies BIM (Building information management) and GIS (Geographical information systems) represents building technologies. The bridging between the two fields is made using conversion methods where a BIM model is converted to a geodata model.

Digital tools for 3D visualization and analysis of buildings are becoming more important for the city building processes. Digital techniques where a city modeled in 3D is to a increasing degree replacing traditional municipal maps, in 2D, for visualizing current land use and future city planning. The obvious problem for municipal city planners in Sweden for using these digital techniques is a lack of proper models to visualize. To solve the problem we might find a solution in the adjacent field of construction where architects and civil engineers already create detailed 3D models, but these building information models (BIM) are to detail to used directly for 3D visualization of cities. 3D visualization of city planning would be better met with a geographical data model then with a *BIM*. A *BIM* can be converted into a geodata model that is more suited for visualization of city planning in 3D, however the conversion is not trivial.

The purpose of this study is to show how simplified *BIMs* can be used to help visualize the municipal city building process. To achieve this purpose different method for simplifying *BIMs* by converting them to geodata models where developed implemented and evaluated. Finally, within a case study a method for converting *BIMs* to geodata models where implemented and compared to some already existing conversion methods.

The mapping where made over the technical needs of 3D visualization and what technical standards and software's can be used for conversion and visualization. After the mapping *BIMs* from the municipalities of Lund and Helsingborg were converted to models for graphical visualization within a case study. The conversion was made with a script that was adopted to specifically to convert the *BIMs*. After the models where converted they were visualized via internet with a visualization program.

The result was given by testing four existing conversion methods and the conversion method that was developed in the case study. The comparison between the conversion methods where hampered by the fact that they were implemented with different *BIMs* in mind. The different methods were compared over the models they would convert, what data the extracted from the models, what purpose the conversion entailed and the result of the actual conversion. In addition, the different methods where compared by how automatic the method converts and filter the model. In conclusion this study found that most method of conversion are adapted to specific models. Also, much is still needed to be done to bridge the field of *BIM* and *GIS*