

ABSTRACT

The subject of the present diploma thesis is the conversion of a digital 3D building model to CityGML LoD 4. The model is enriched with semantic information regarding its use. The variety of uses in every floor serves as an opportunity to examine the suitability of CityGML for Land Administration purposes.

To begin with, an introduction about 3D cadastre and its rapid evolution throughout the years is explained as the motivation behind the development of the current thesis. Then follows a brief overview of different modelling techniques and a detailed explanation of the CityGML Standard. More specifically, the core model is explained as well as its connection with topology, geometry and semantics, a necessary background for any possible use of CityGML.

Afterwards, the methodological approach is explained, starting from a description of the implemented software in terms of modelling, conversion visualization and management, highlighting their advantages and their limitations in generating a CityGML LoD 4 model.

After the conversion of the CityGML model, it is imported in the 3DcityDB. It is semantically manipulated utilizing SQL in order to extract land use information. The visualization is performed based on the querying results.

Lastly, discussion in terms of evaluating the process and the suitability of CityGML regarding land administration purposes is presented, followed by a summary of the process as well as the proposition of future research fields.