

# Conceptual Framework Towards Unified 3D Topological Modelling and Visualization Based on CityGML

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**Key words:** GIM; 2D and 3D spatial data, topological data structure, CityGML and multiple LoDs.

## SUMMARY

Designing a unified data model requires reliable data interoperability (module) for sharing 2D or 3D data across multiple scale models, applications and users (e.g. CityGML). Representing 3D objects (e.g. buildings) with multiple representations produce data redundancy and visualization limitations (e.g. only one LoD per viewer). This paper discusses a conceptual view of a new simplified topological structure where the connection of multiple LoDs (geometry, attribute and semantic) could be possible to embed into a single viewer. We truly believed that an integrated or unified model should be made available for sharing information and make use of each LoDs or future spatial applications. Inevitably, this piece of research work could trigger better 3D geoinformation software and new data schema/standard development (e.g. new version of CityGML) for sharing purposes.

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