

# Thoughts about the CityGML LOD concept and its modification

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# LOD concept – Achievements

- ▶ the CityGML LOD concept (LOD0-4) is being used and referenced in many projects and places over the world
  - even if groups / systems are not using CityGML as a format
- ▶ the concept has been adopted by national standards in Germany and in the Netherlands as well as within INSPIRE

## Pros:

- ▶ easy to understand / remember
- ▶ just one LOD number specifies the geometric resolution and the maximal degrees of spatial and semantic structuring
- ▶ it can easily be seen whether interiors are intended to be represented (i.e. LOD4)

# LOD concept – Known weaknesses

## Cons:

- ▶ imprecision, vagueness: from the LOD number one cannot conclude the actual degree of geometric and semantic structuring of a given dataset
- ▶ no concept for multiple LODs of the interiors

# Suggested LOD concept modifications

- ▶ complementing the current concept by separate indoor LODs
- ▶ separating the current LODs into semantic and geometric LODs
- ▶ extending the LoD definition not only by semantics and geometry but also by topology and appearance
- ▶ introducing more / less / continuous LOD levels

The modifications induce a fundamental change to the current structure of CityGML

- ▶ alternative suggestions have to be analysed and their advantages and disadvantages over the current concept have to be identified

# Questions for discussion (I)

- ▶ Which problems will the new LOD concept solve?
  - Will the problem of imprecision / vagueness be solved unambiguously by the new LOD concept?
- ▶ What impact will there be on existing CityGML data sets?
  - Is backward compatibility guaranteed?
  - Will it be possible to map CityGML data unambiguously from the current LOD concept into the new LOD concept and vice versa?
  - Is the semantics maintained?
- ▶ Which efforts are required to implement the new LOD concept?

# Questions for discussion (II)

- ▶ To what extent are data providers and tool developers affected?
  - Do existing software tools have to be modified considerably?
  - What consequence does a new LOD concept have on software for façade reconstruction / generalisation tools which refer explicitly to individual LODs?
- ▶ Will the acceptance of a new LoD concept given by the users?

## We plead for:

- an open discussion
- thorough examination
- well-considered decisions

on all these questions and issues within the OGC CityGML SWG, the SIG 3D, and the 3DIM DWG.