CityGML overview

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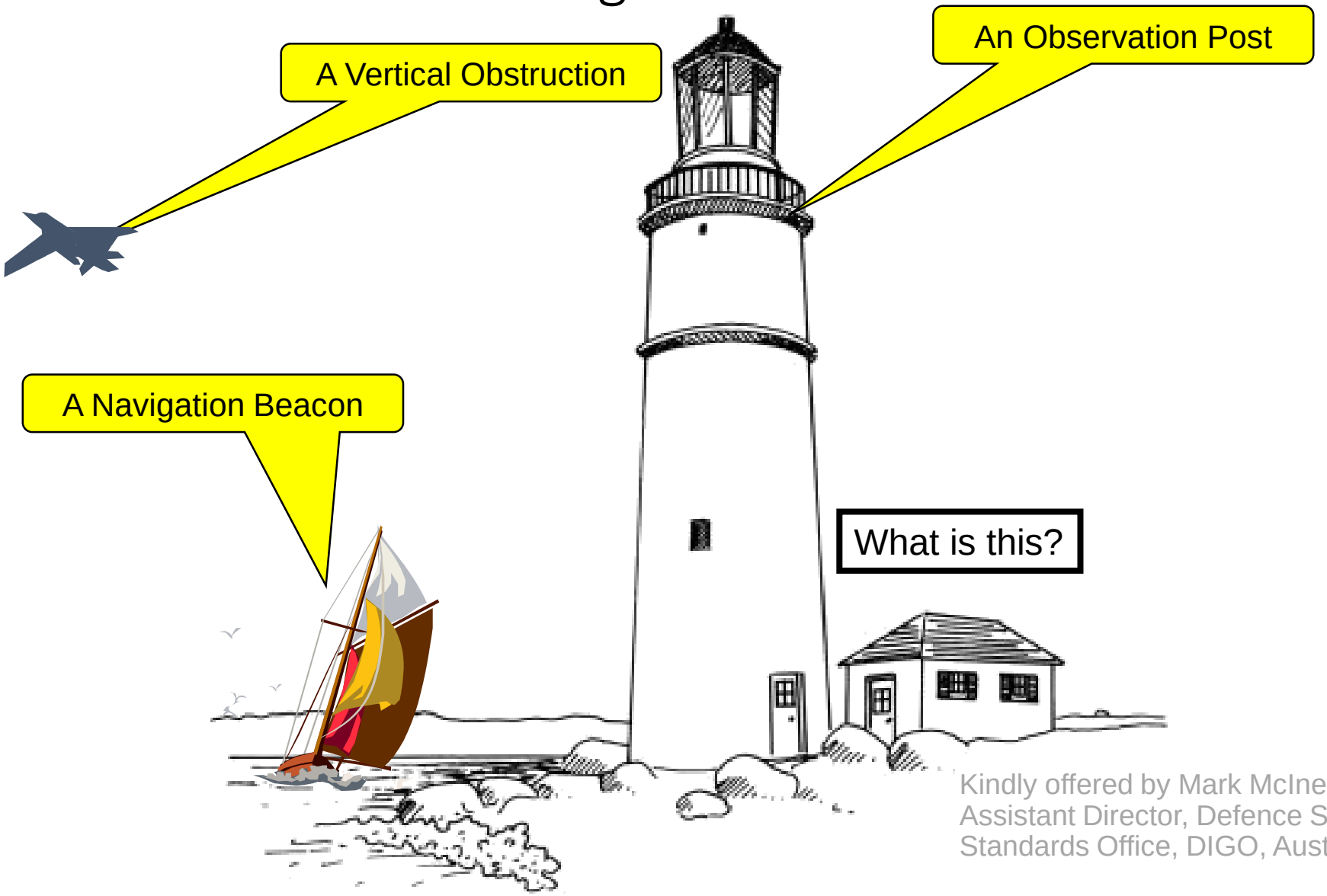
Real world

Virtual model

Shared understanding



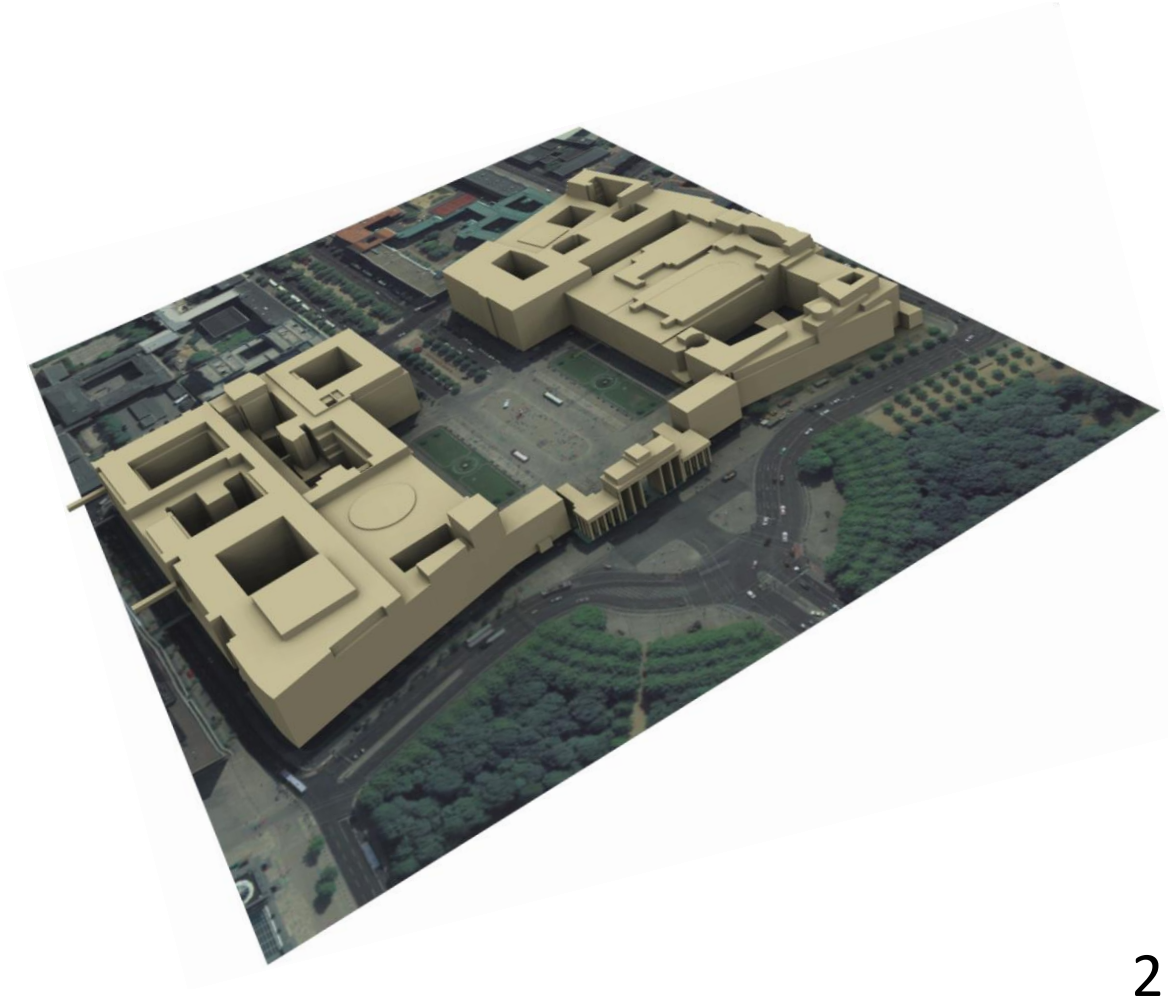
Kindly offered by Mark McInerney
Assistant Director, Defence Spatial
Standards Office, DIGO, Australia

Use foundation data for multiple purposes

OGC CityGML 2.0 standard

OGC®
Making location count.
www.opengeospatial.org

Attribute:
Entirely/partially above/below ground



CityGML

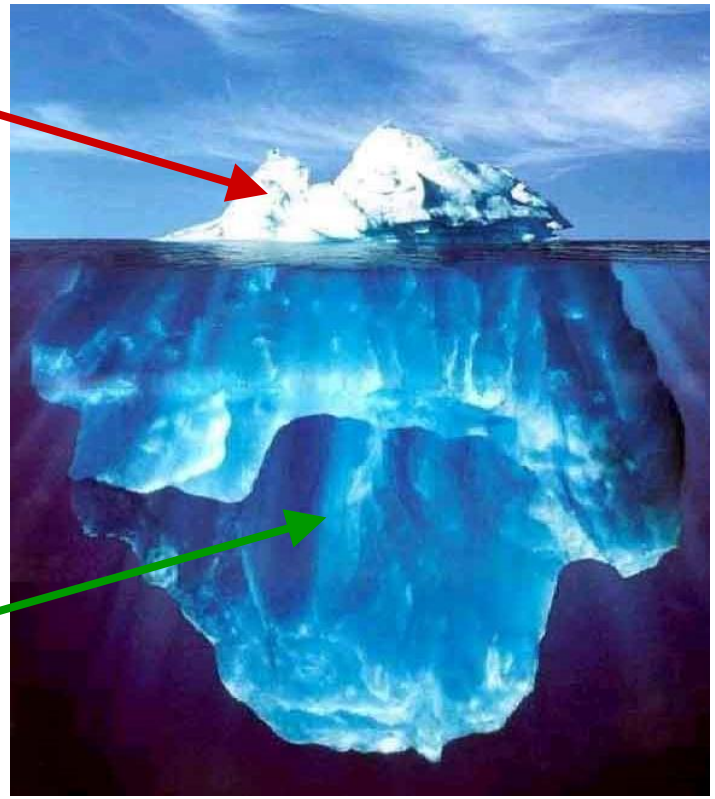
1.Data model

2.Data exchange format

3D **City** modelling

•…is far more than the **3D visualization** of reality

- In fact, the **geometry** and its **appearance** are **only one aspect** of an entity
- Key issue: **Semantic modeling**

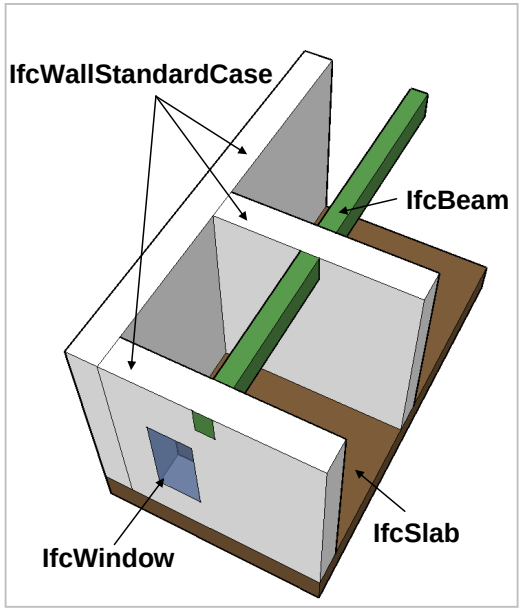


- However: **3D city models often seen as being identical with 3D graphics/geometry models** of the respective region
  - Google Earth (KML/COLLADA), X3D, 3D PDF, 3D Studio Max, etc.

Differing Modeling Paradigms

BIM (e.g., IFC)

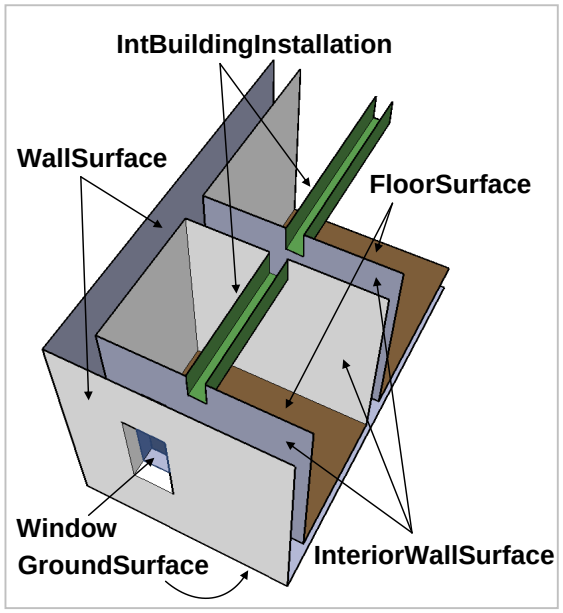
Constructive Solid Geometry



volumetric, parametric primitives representing the structural components of buildings

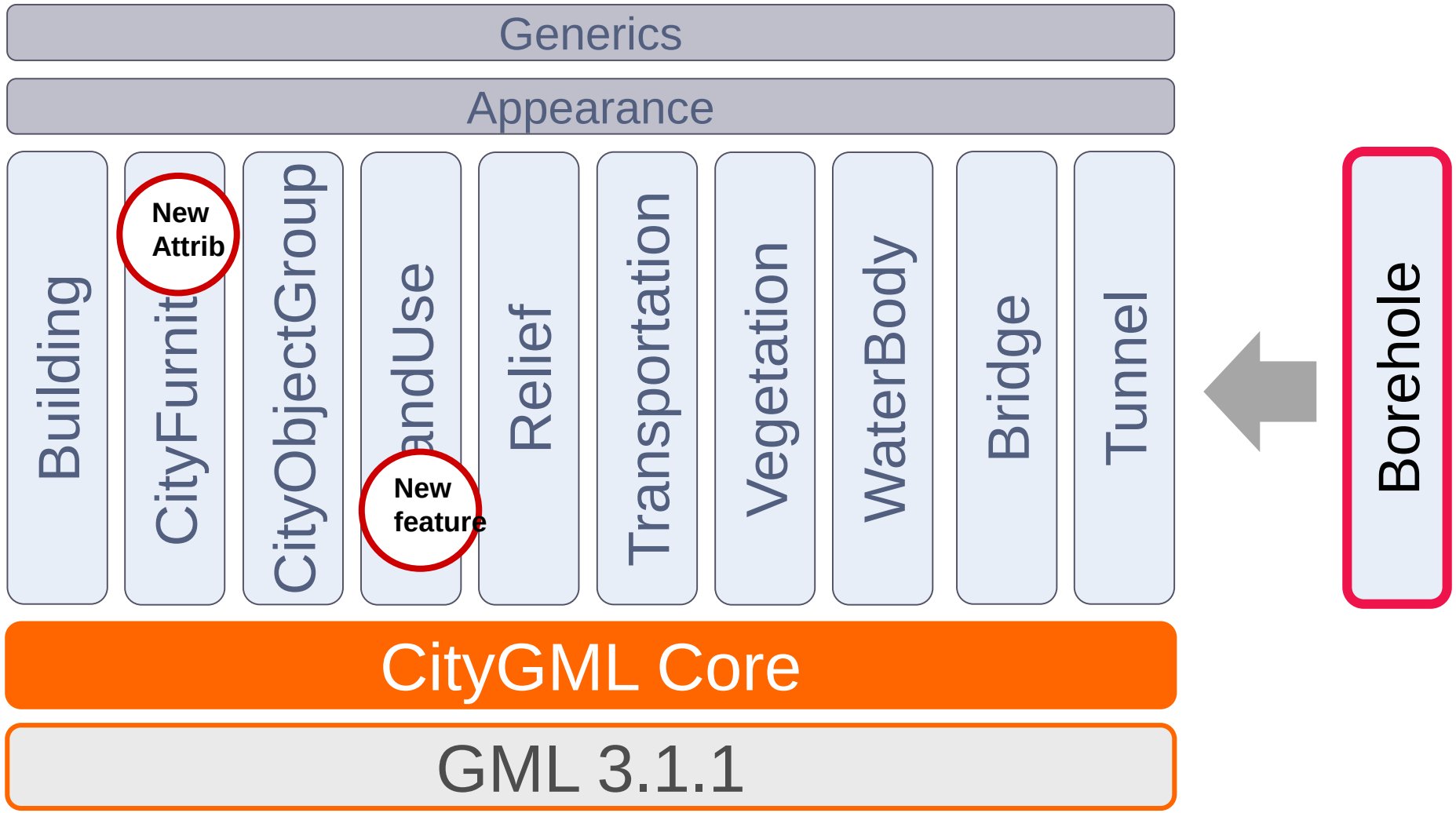
3D GIS (e.g., CityGML)

Boundary Representation

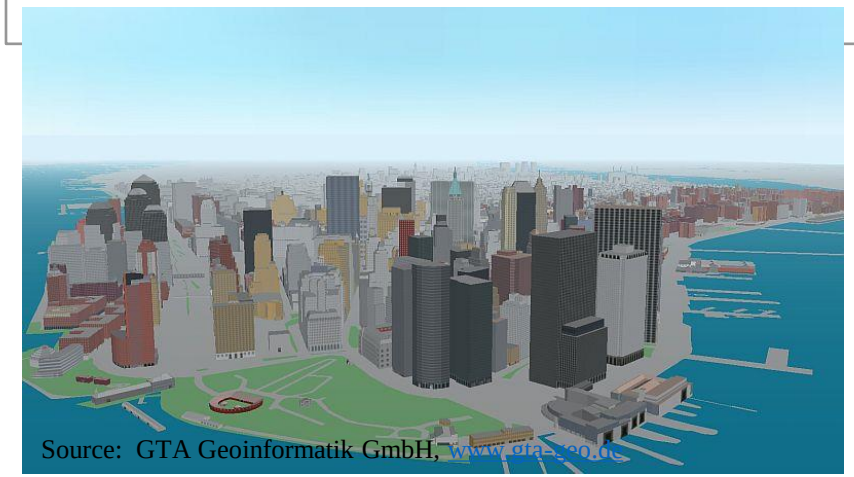


Accumulation of observable surfaces of topographic features

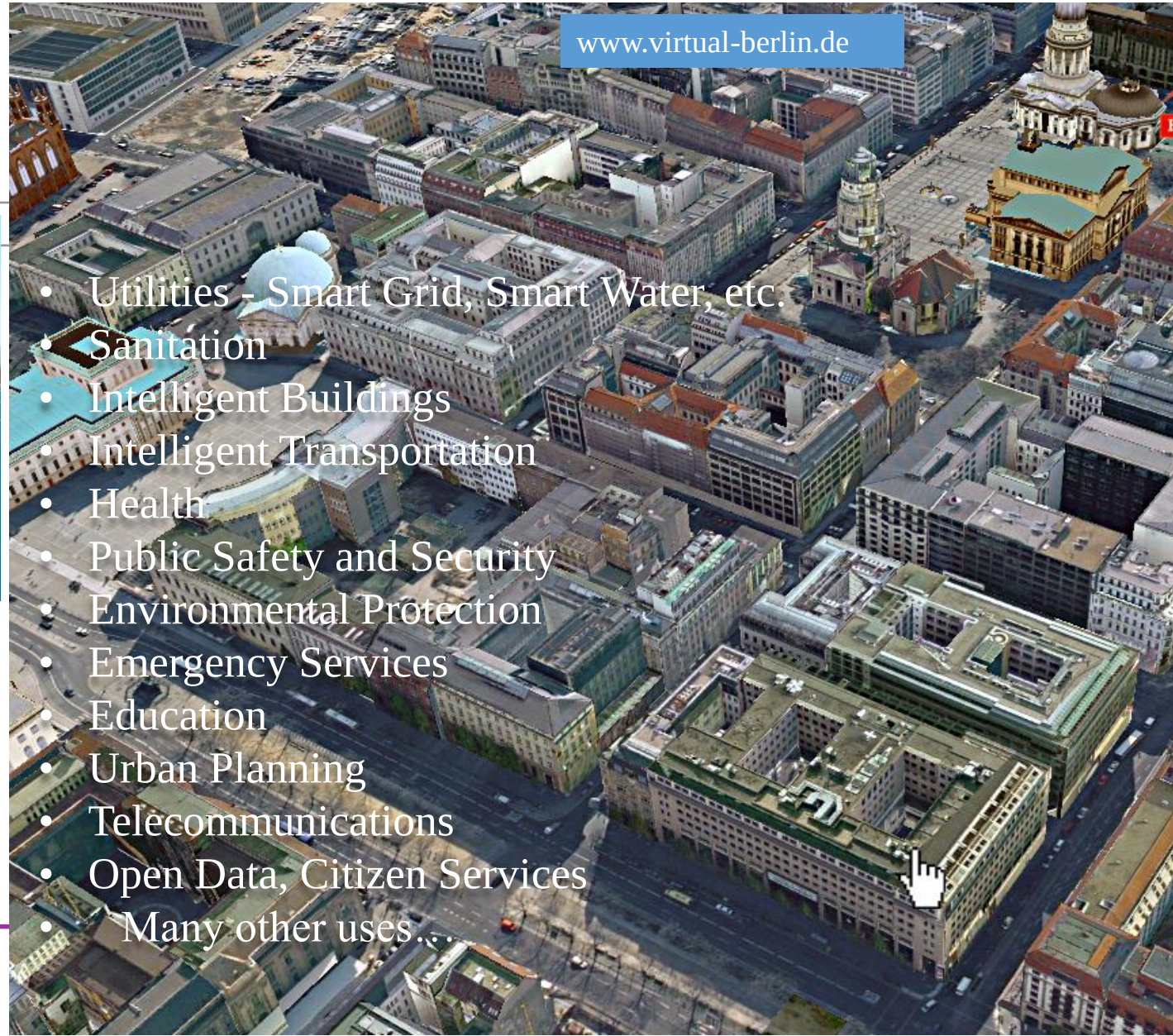
CityGML modules



OGC Focus – 3D Urban Models



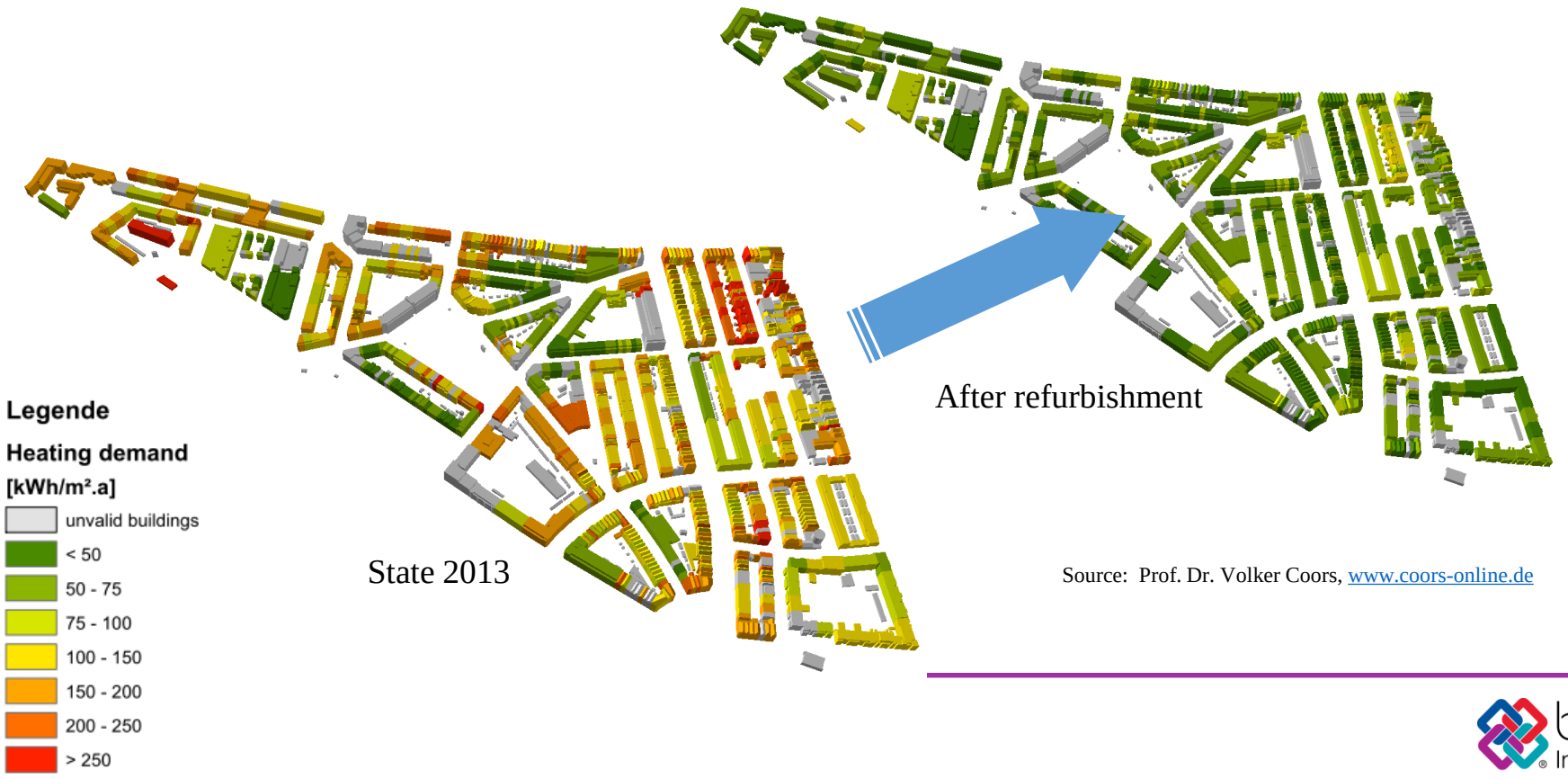
Source: GTA Geoinformatik GmbH, www.gta-geo.de



- Utilities - Smart Grid, Smart Water, etc.
- Sanitation
- Intelligent Buildings
- Intelligent Transportation
- Health
- Public Safety and Security
- Environmental Protection
- Emergency Services
- Education
- Urban Planning
- Telecommunications
- Open Data, Citizen Services
- Many other uses…

Projecting Heating Demand Through Refurbishment

- Generation of building refurbishment scenario
  - defined by an energy standard goal
  - defined by specific refurbishment measures
  - defined by new U-values (thermal library)

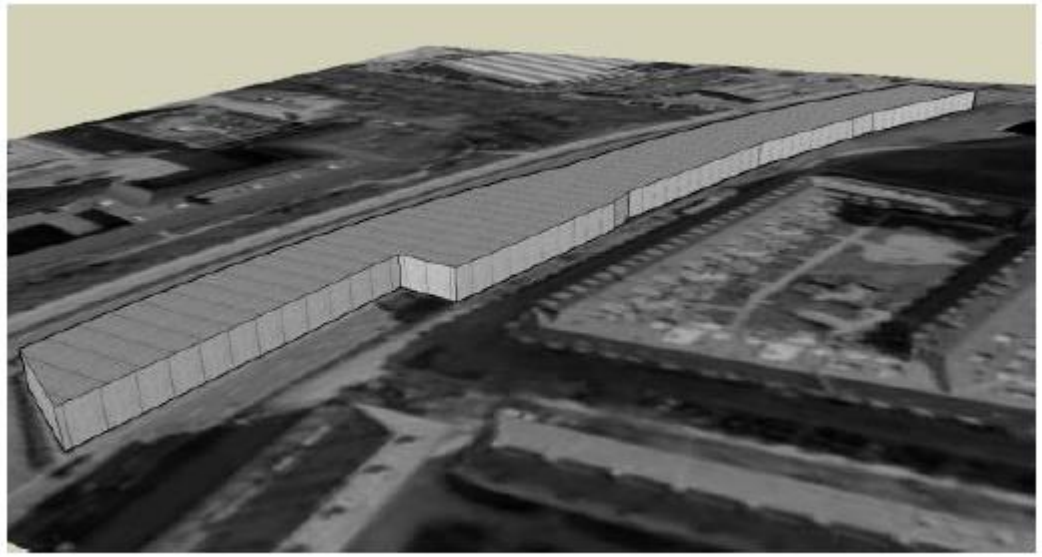


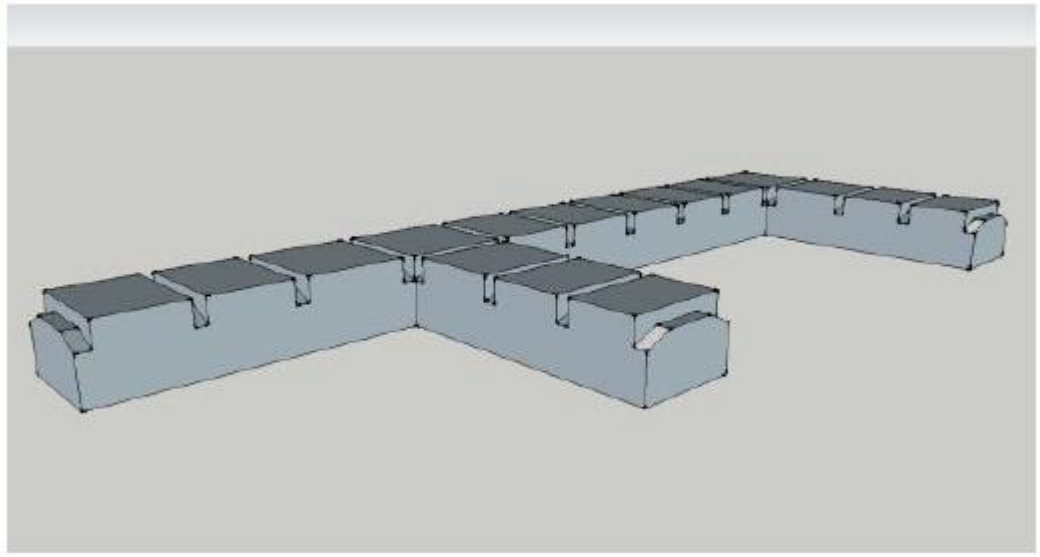
Source: Prof. Dr. Volker Coors, www.coors-online.de

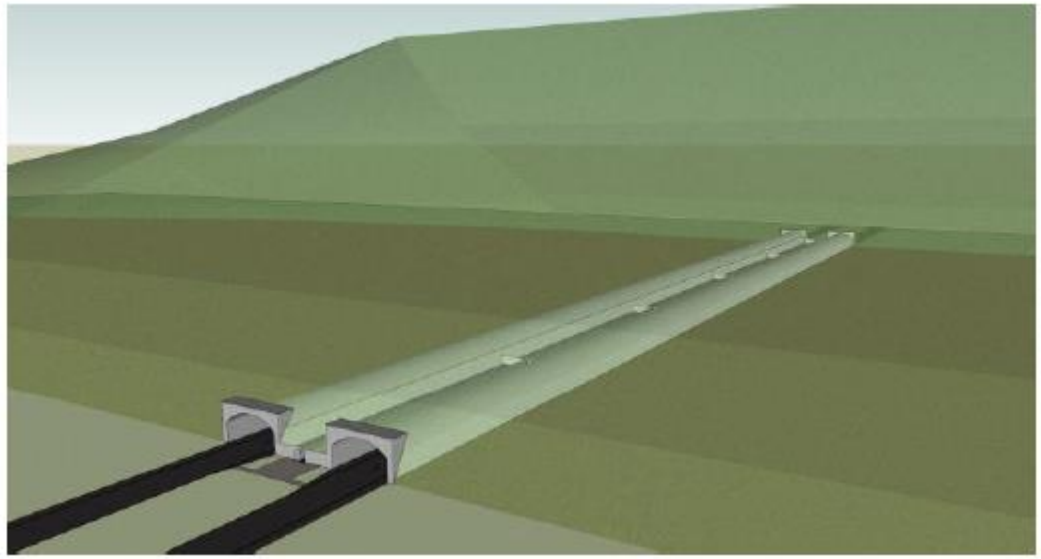
Examples for Bridges in LODs 1-4

Models source: Google 3D Warehouse

Examples for Tunnels in LODs 1-4







CityGML

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