GeoBIM

EuroSDR GeoBIM project

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Coordinator: TU Delft, The Netherlands
EuroSDR:
- not-for-profit organisation
- linking National Mapping and Cadastral Agencies with Research Institutes and Universities in Europe
- applied research in geospatial domain.

Commissions:
- Commission 1: Data Acquisition
- Commission 2: Modelling and Processing
- Commission 3: Updating and Integration
- Commission 4: Information Usage
- Commission 5: Business Models and Operation
- Commission 6: Knowledge Transfer

Partners:
http://www.eurosdr.net
Challenges:

- some BIM applications need outdoor spatial information that is not included in BIM, and some GIS applications need detailed information of building sites;
- the two systems are different from various aspects

INTEGRATION

The concept of „GeoBIM“:

- GeoBIM: an integrated system to bring very rich detailed BIM models and geodatabases together;
  - Aim: to avoid modelling the same data and increase the efficiency of both systems.
  - Motivation: Interesting for many applications.

https://3d.bk.tudelft.nl/projects/eurosdr-geobim
Project activities

1st phase (November 2017–May 2018): The inventory of the GeoBIM state-of-play in the participating countries (questionnaire).

2nd phase (June 2018–November 2019): The definition of a workflow and of the specific requirements of the data for managing GeoBIM information within two specific use cases:

*Use case 1: Workflow from global design to building permission issuing;*

*Use case 2: Life-cycle support in asset-management.*
Current status, awareness and activities relating to GeoBIM

- Most countries see added value of linking Geo-BIM
- None has an integrated GeoBIM approach beyond projects, building sites

Relevant standards

- (Open) standards available for both geo (InfraGML, CityGML) and BIM (IFC) which „could be“ a basis for integrating geo and BIM - in practice these standards are not used to integrate data from both domains.
- „Geo“ and „BIM“ have similarities, but also many differences:
  - Levels of details, graphical elements and topology, coordinate systems;
  - Geo-world is government-based with an intrinsic need to share data for the public good;
**GeoBIM challenges**

- How can our data be better utilized?
- Lack of knowledge/expertise on Geo-BIM;
- Different software
- Lack of standards, guidelines etc.
- Manny application opportunities

“A lack of knowledge (both of issues and potential benefits) is seen as the main challenge to better align BIM and Geo processes.” (GeoBIM Report)

EuroSDR GeoBIM Project Phase 1 Report, 2018
To address knowledge gap, 2 use cases with common challenges:

- **Building permit process:**
  - Conceptual design; checking BIM design against 3D city model & planning rules;
  - Update city model (geo) with BIM model;
  - Gain in efficiency & transparency;

- **Support in asset management** (utilities, campus, roads ...).

What are the process steps?
What Geo and BIM data is needed in each step?
How can common BIM software access such geo data and v.v.?
GeoBIM Benchmarking

- **GeoBIM benchmark**: reference study on software support for open standards of city and building models

- **AIM**: Investigation of the available technical solutions to support the open standards IFC (by buildingSMART) and CityGML (by OGC).

- **TASKS**:
  - What is the support for IFC within BIM (and other) software?
  - What options for geo-referencing BIM data are available?
  - What is the support for CityGML within GIS (and other) tools?
  - What options for conversion (IFC↔CityGML) are available?

Francesca Noardo, TU Delft
https://3d.bk.tudelft.nl/projects/geobim-benchmark/
The most interesting outcomes will be:

- Reference list of tools and best practices on the use of open standards (OS) in a sample of commonly used software and conversion procedures.

- Identification of bottlenecks in the current status of open standard, encouraging further development.

- Outline of the present implementation state of spatial OS and feedback about the OS data models to the standardisation entities (OGC and BuildingSmart).

https://3d.bk.tudelft.nl/projects/geobim-benchmark/
Action plan of the Ministry of Economic Development and Technology RS, 2018 (2018-2022)

- **Phase 1: Promotion, guidelines, standardization (2015-2018):**
  - first projects (also within the Slovenian Association of BIM, http://sibim.si)
  - BIM guidelines issued by the Chamber of engineers (2018)
  - Geospatial data acquisition guidelines issued by the Chamber of engineers (2018)

- **Phase 2: Pilot projects, implementation of eCONSTRUCTION (2019-2021)**

- **Phase 3: Required use of BIM for public projects (2022-)**

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Ministry of Economic Development and Technology RS, 2018
“GeoBIM relevant” activities in SI

- **Project E-space (e-prostor):**
  - *Spatial information system for spatial planning and development (ePLAN, eCONSTRUCTION, GEOSPATIAL DATA BASE)*
  - *Real property information system renewal*
  - ...
- **Research projects (3D cadastre, indoor/outdoor navigation ...)

[Diagram]

http://www.projekt.e-prostor.gov.si
THANK YOU FOR YOUR ATTENTION!

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ISO TC 211 Seminar, June 5, 2019, Maribor, Slovenia.