05 – Conclusions

Piergiorgio Cipriano
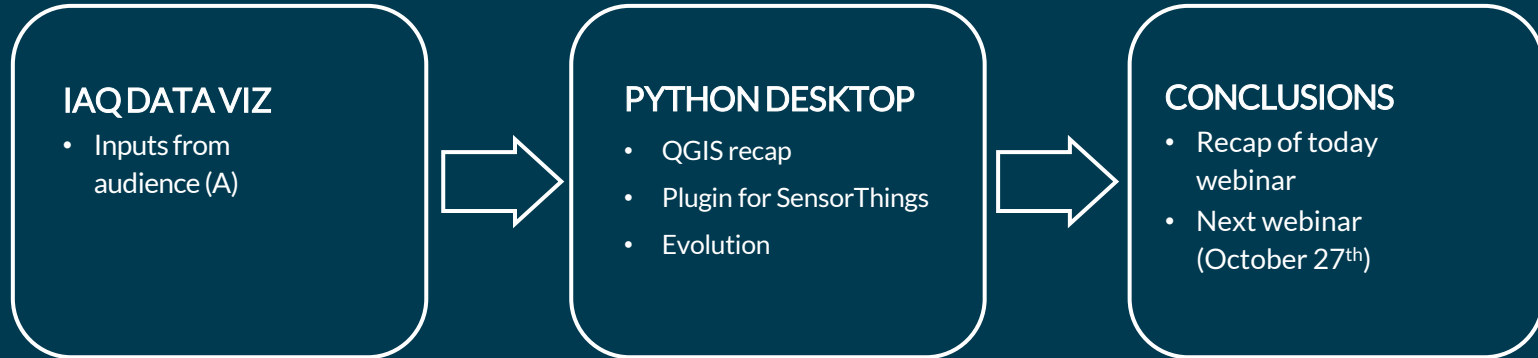
Recap of today – part 1

EDIAQI

INTRODUCTION
- Recap
- Data visualization
- Web examples on AQ

JAVASCRIPT WEB
- Intro
- JS libraries for SensorThings endpoints

IAQ DATA VIZ
- Data storytelling
- Inputs from audience (Q)

Today recap – part 2

EDIAQI

IAQ DATA VIZ
- Inputs from audience (A)

PYTHON DESKTOP
- QGIS recap
- Plugin for SensorThings
- Evolution

CONCLUSIONS
- Recap of today webinar
- Next webinar (October 27th)

Next session (final) will be focused on data models for "buildings" properties

Friday, October 27th 2023

INSPIRE KNOWLEDGE BASE

Infrastructure for spatial information in Europe

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Implement

Guide for implementers
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❯ Network Services
❯ Data and Service Sharing
❯ Spatial Data Services
❯ INSPIRE Coordination Maintenance and Implementation

Data Specifications > Themes > Buildings

Buildings - Annex 3

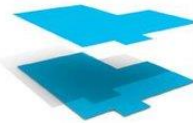INSPIRE Data Specification on Buildings – Technical Guidelines

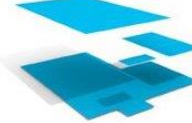Read/Compare Technical Guidelines

https://inspire.ec.europa.eu/Themes/126/2892

CityGML

Home / Standards / CityGML

CityGML

Overview

The CityGML standard defines a conceptual model and the representation, storage and exchange of virtual 3D the integration of urban geodata for a variety of applied and Urban Digital Twins, including urban and landscape Information Modeling (BIM); mobile telecommunication 3D cadastre; tourism; vehicle & pedestrian navigation; driving assistance; facility management, and; energy simulations.

https://www.ogc.org/standard/citygml/

The new Dynamizer module improves the usability of CityGML for different kinds of simulations as well as to facilitate the <mark>integration of devices from the Internet-of-Things</mark> (IoT) like sensors with 3D city models. (CityGML v 3.0)
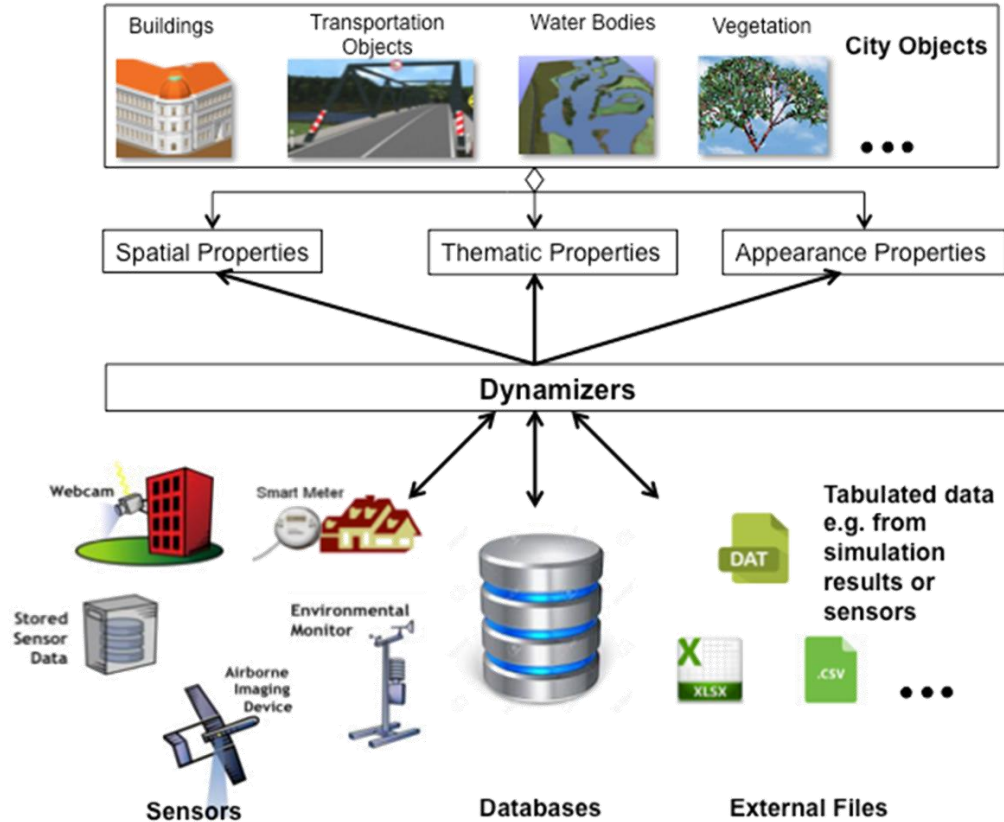
As shown in Figure 6, Dynamizers serve three main purposes.

1. Dynamizer is a data structure to represent dynamic values in different and generic ways. Such dynamic values may be given by (1) tabulation of time/value pairs using its *AtomicTimeseries* class, (2) patterns of time/value pairs based on statistical rules using its *CompositeTimeseries* class, and (3) retrieving observations directly from external sensor/IoT services using its *SensorConnection* class. The values can be obtained from sensor services such as the OGC Sensor Observation Service or OGC SensorThings API, simulation specific databases, and also external files such as CSV or Excel sheets.

2. Dynamizer delivers a method to enhance static city models by adding dynamic property values. A Dynamizer references a specific property (e.g., spatial, thematic or appearance properties) of a specific object within a 3D city model providing dynamic values overriding the static value of the referenced object attribute.

3. Dynamizer objects establish explicit links between sensor/observation data and the respective properties of city model objects that are measured by them. By making such explicit links with city object properties, the semantics of sensor data become implicitly defined by the city model.

Giorgio Agugiaro

Assistant Professor

Short Bio

- Since 2018/08: **Assistant professor (Tenure track)** @ Delft University of Technology, 3D Geoinformation group
- 2020/02 - 2020/03: **Visiting researcher** @ Ordnance Survey, Southampton, UK (VOLTA project)
- 2014/03 - 2018/07: **Researcher** @ Austrian Institute of Technology (AIT), Digital Resilient Cities and Regions research unit, Vienna, Austria
- 2010/05 - 2014/02: **Researcher** @ Fondazione Bruno Kessler (FBK), 3D Optical metrology research unit (3DOM), Trento, Italy
- 2013/03 - 2013/09: **Visiting researcher** @ Technische Universität München (TUM), Chair of Geoinformatics, Munich, Germany
- 2004/12 - 2010/03: **Research and teaching assistant** @ Università di Padova, Laboratory of Surveying and Geomatics (LRG), Padova, Italy
- 2006/01 - 2009/07: **PhD Student** @ University of Padova and Technische Universität Berlin (TUB), Institute of

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Any questions ?