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SUNSHINE

ICTPSP
ICT POLICY SUPPORT PROGRAMME

Programme co-funded by the EUROPEAN UNION

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"Smart UrbaN Services for Higher eNergy Efficiency"

Umberto Di Staso, Fondazione Graphitech

GeoWorldForum + INSPIRE CONFERENCE 2015, Lisbon

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Presentation

- Project overview, scope and objectives
- SUNSHINE Scenario 1 - Automatic large scale assessment of building energy behavior
- Application of CityGML Energy ADE in the Sunshine project (Scenario 1)
- Video

Consortium

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SINERGIS

GraphiTech

Epsilon GROUP

C3L

Informatica Trentina SpA

GISt

Trentino Network

ESADE Business School

meteogrid

HEP ESCO d.o.o.

GEOSYS

Smart **U**rba**N** **S**ervices for **HI**gher e**N**ergy **E**fficiency"

- EU Project founded under the CIP/PSP 2007-2013 programme
- Duration 36 months
- Total budget ~ 5.000.000 €
- 14 Partners (8 EU MS)
- 8 Pilots
- 3 Application Scenarios

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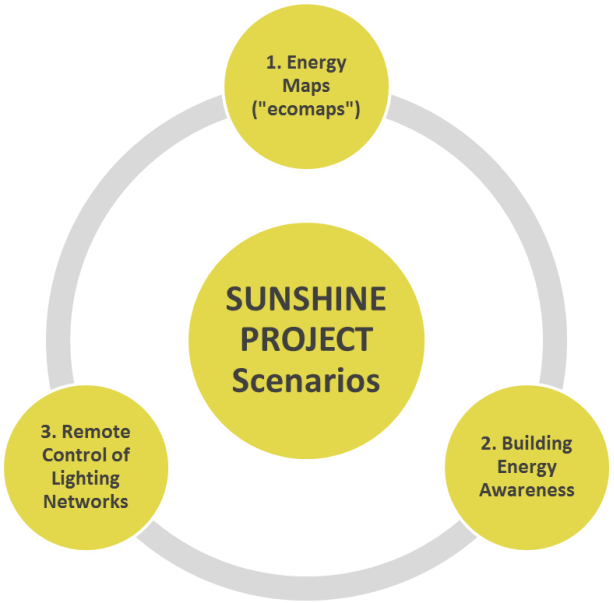
Smart UrbaN Services for HIgher eNergy Efficiency"

- Innovative digital services, interoperable with existing spatial data infrastructures, supporting improved energy efficiency at the urban and building level.
- **Smart service platform** accessible from both a web-based client and an App for smartphones and tablets, for:

1. **Automatic large scale assessment of building energy behavior,**
2. **Optimization of energy consumption at building level (heating/cooling systems)**
3. **Interoperable control of public illumination systems based on AMR.**



Scenario 1: Energy maps

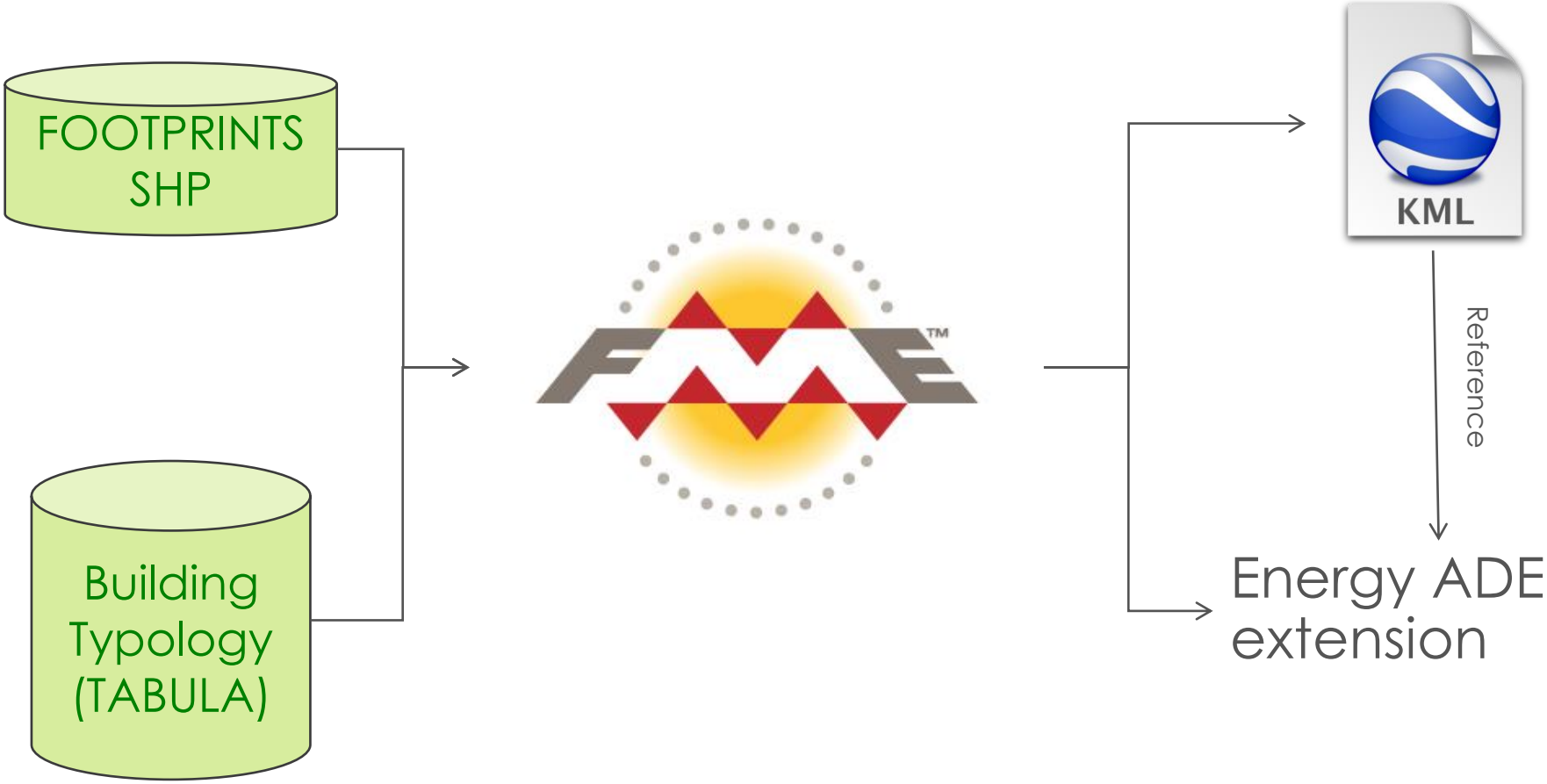
- Assesses energy behaviors of buildings from integration of existing geographic information (e.g. cadastral data and topographic data) in order to perform large-scale energy assessments, creating **energy maps** ("ecomaps") and **energy pre-certification** of buildings.
- Energy maps ("eco-maps", "energy density maps") are an innovative and particularly useful tool for a large array of specialists, public workers, researchers and industry, who can use them for example in:
  - **Analyzing the possibilities for large scale urban renewal,** especially in what concerns the development or extension of district heating networks and the creation of energy strategies for hard-to-tackle or deprived urban areas;
  - **Prioritizing city-wide investments and assisting decisions** on development area locations based on provided information on the state of the art energy-wise as well as nearby energy opportunities for developers.

Application of CityGML Energy ADE in the Sunshine project

Energy ADE in the Sunshine project

- The Energy ADE is currently involved in the Scenario 1 (Energy Maps) of the SUNSHINE project.
- Our automatic ETL procedure, starting from data from different sources, is able to produce large-scale energy maps.
- The final output consists in the so-called Energy Map, where each building is described following the attributes of the Energy ADE.

ETL Workflow for Energy Maps Estimation



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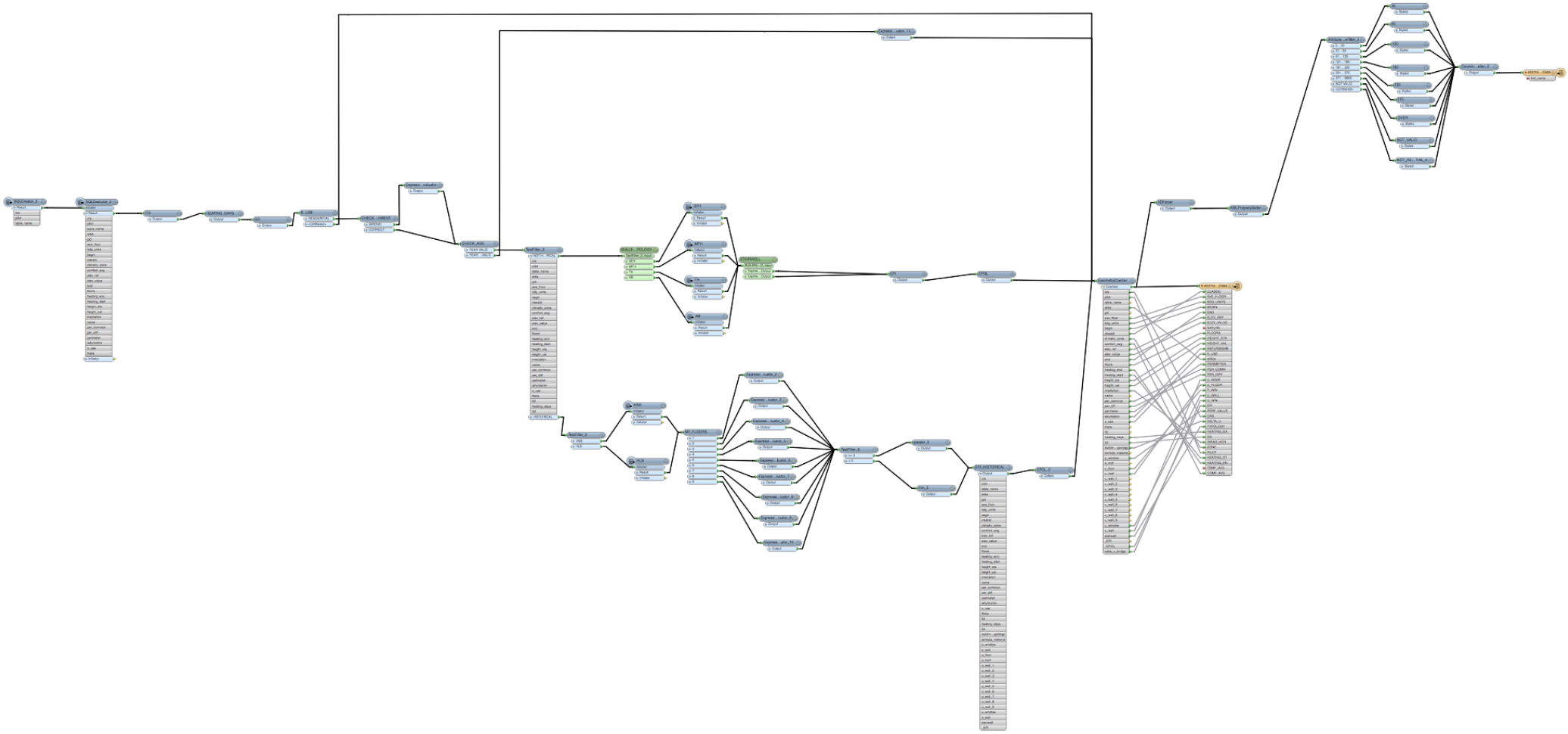
ETL Workflow for Energy Maps Estimation



Energy Performance Index is estimated through the EN ISO 13790 directive

85% accuracy against real energy certificates

Example Energy Map for Ferrara pilot city

http://sunshine.graphitech-projects.com/

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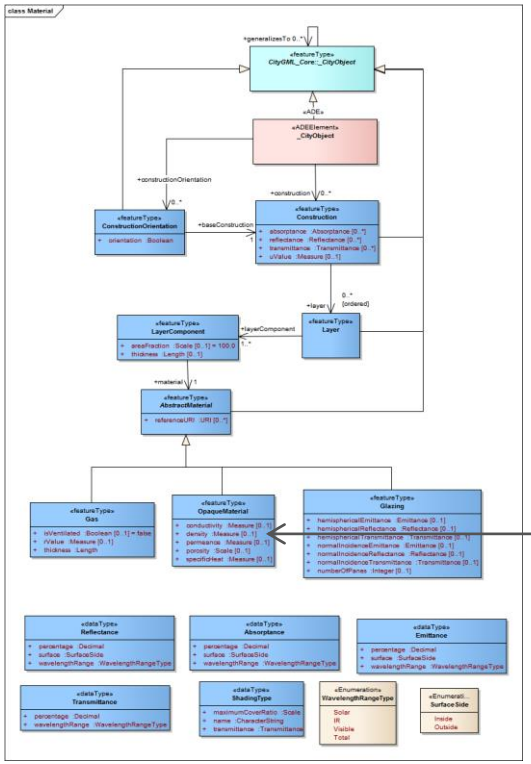

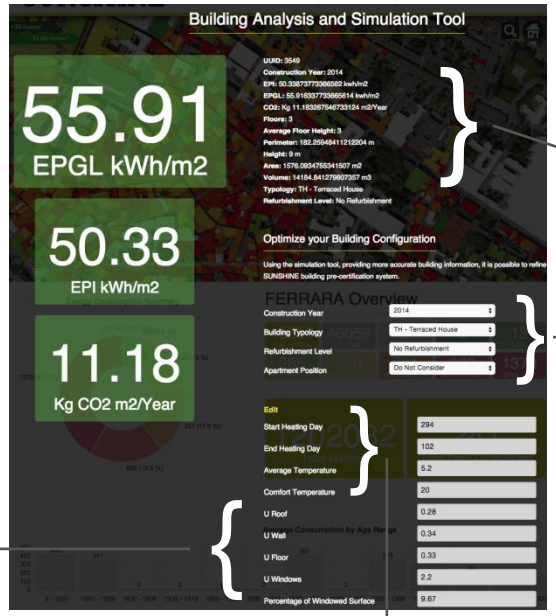

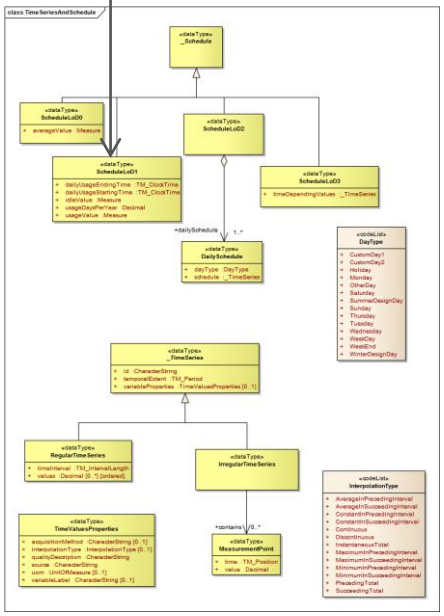

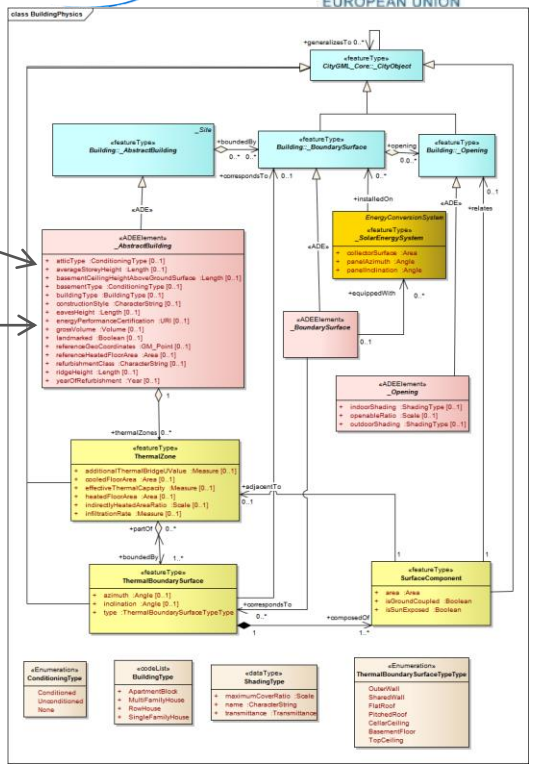

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    elev_value: 7
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    residential: true
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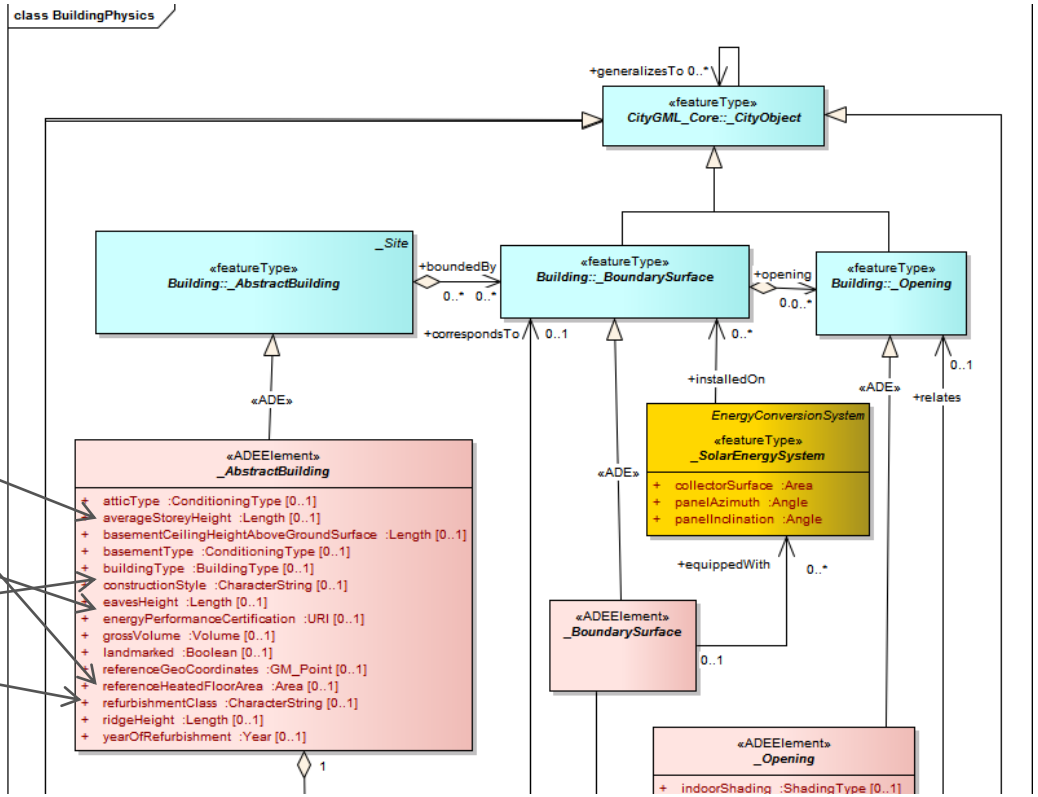

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Next steps

- Use the Energy ADE also in buildings involved in the Scenario 2 (Optimization of energy consumption at building level)
- Download Service (through deegree) able to serve CityGML+Energy ADE data

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WEBSITE: www.sunshineproject.eu

DEMO: http://sunshine.graphitech-projects.com

VIDEO SCENARIO 1: https://youtu.be/WzBieL4UeLY

VIDEO SCENARIO 2: https://youtu.be/6RdHXBZXX0M

VIDEO SCENARIO 3: https://youtu.be/gDriKfqBvyQ

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