



Granlund is a company engaged in the improvement of energy efficiency – both by supporting consultancy and software. Granlund is the largest company in all their businesses in Finland. They are one of the software developing partners in the ISES project. Together with the TU Dresden they are the authors of this newsletter.

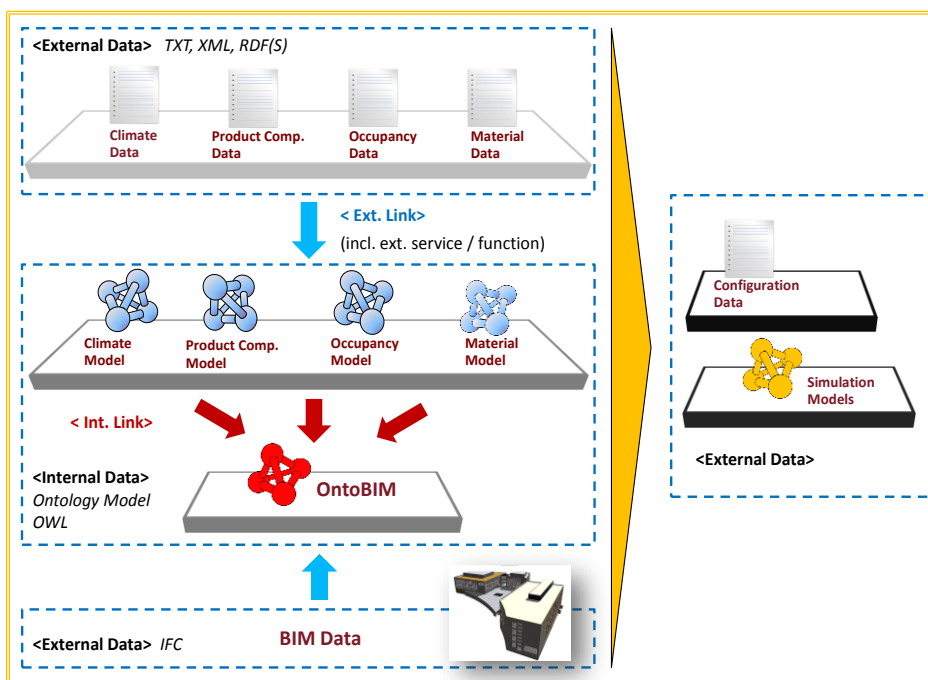
ISES is STREP project # 288819 funded by the EU under the 7th Framework Programme. The **objective** of the project is to develop ICT building blocks to integrate, complement and empower existing tools for design and operation management to a Virtual Energy Laboratory that will allow simulation, assessment and optimisation of the energy efficiency of built facilities and facility components in variations of real life scenarios before their realisation, acknowledging the stochastic nature of the involved information resources.

In this issue, we present the ISES platform ontology binding together the multiple distributed resources required for the efficient functioning of the ISES Virtual Energy Lab and the concepts regarding sensitivity analysis, visualisation and design decision making after multiple simulations have been run in parallel on a cloud environment.

Platform Ontology of the ISES Virtual Energy Lab

The goal of the ISES platform ontology is to bind together in a consistent system multiple information resources represented in multiple different information models and formats that are all needed to ensure efficient functioning of the ISE Virtual Energy Lab (VEL). As such, in the generalized VEL workflow starting with a CAD-BIM model and proceeding through pre-processing, simulation generation, parallel simulation runs for different design alternatives and/or stochastic parameters, post-processing and finally decision making leading to an updated and improved design BIM, the ontology fulfils the following purposes:

- (1) Providing an energy-enhanced eeBIM framework via intelligent links to external non-BIM data
- (2) Validating of the eeBIM framework for its use in energy simulations/analyses
- (3) Appropriate filtering of the BIM data on semantic level to support user input and decision-making
- (4) Intelligent selection and configuration of the appropriate energy solver
- (5) Variant comparison and decision support via intelligent eeBIM-related queries.

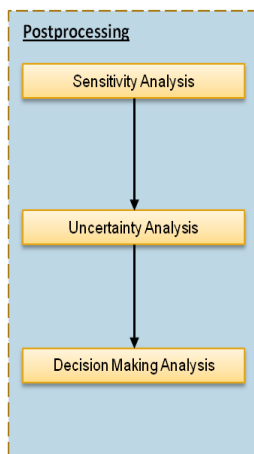


The ISES ontology is being developed on the basis of RDF and OWL and is thereby fully web service compliant.

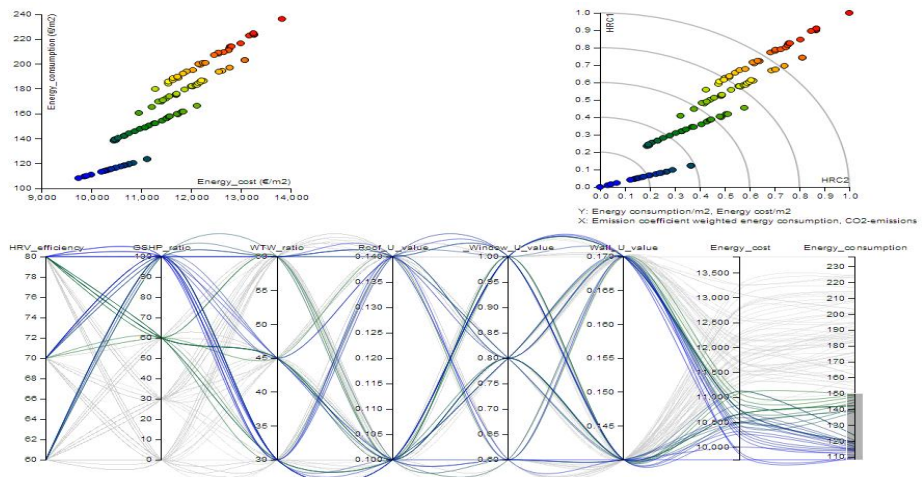
It features functional blocks describing on high level internal (control) data, BIM and external data, process / workflow data as well as respective functions and rules for their processing and for the links to the actual involved resources.

Sensitivity analysis, visualizations and decision making

One of the major ISES challenges is to support decision making by much more simulation results than is possible today. This requires new solutions both for simulation technology and visualization methods. Here we concentrate on the latter challenge. In the ISES post-processing phase a sensitivity analysis will be performed to identify the most important parameters affecting the building performance. The idea is to test different design alternatives and optimization measures based on these fewer but most important parameters. The sensitivity analysis will be performed in the early design phase, where there is the biggest potential to affect and improve the overall energy efficiency.



Post-processing steps



Visualization of multiple parameter analysis of energy efficiency

Advanced visualizations of the sensitivity analysis results are very important for the decision making process. In ISES we are evaluating different alternatives to present the results in a way that could easily demonstrate the relationships between the different parameters and provide fast and reliable insight of the energy performance to the end users.

ISES CONSORTIUM

The ISES Consortium comprises four industry partners, two research organisations and two universities.

- TECHNISCHE UNIVERSITÄT DRESDEN, Germany (Coordinator)
- GRANLUND, Finland
- UNIVERZA V LJUBLJANI, Slovenia
- NYSKOPUNARMIDSTOD ISLANDS, Iceland
- SOFISTIK HELLAS, Greece
- NATIONAL OBSERVATORY OF ATHENS, Greece
- LEONHARDT ANDRÄ UND PARTNER BERATENDE INGENIEURE, Germany
- TRIMO INZENIRING IN PROIZVODNJA MONTAZNIH OBJEKTOV, Slovenia



Helsinki was the location for the Seventh ISES Meeting on 13-14.06.2013. After the intensive first day meeting, the ISES team members enjoyed dinner in a villa-type restaurant built in 1900, located on the small island of Valkosaari.

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