Session 3: **Integration and demonstration of technologies for EeB**

Area 6: Optimised design methodologies for integration in the neighbourhood energy system

Projects: **STREAMER, HOLISTEEC, EE-EMBEDDED, DESIGN4ENERGY**

Co-ordinators: **Rizal Sebastian, Elisabetta Delponte, Raimar Scherer, He Xiugang**

PPP Impact Workshop
24-25 March and 1-2 April 2014

Research and innovation

S/T goals of the supported area

- **Improvements in buildings design and control to facilitate ee decision-making before the construction and in the context of the district**
    - Improve reliability and interoperability of tools for construction sector
    - Ensure their interoperability with other adjacent energy systems and with information systems used during the building life-cycle
- **Providing actors with holistic methods and tools to support the optimised design of integrated energy-efficient buildings**
    - Latest advances in modelling and optimisation techniques
    - Building Information Model, including dynamic data integration
- **Focused on design at the building scale, taking into account the adjacent district energy systems**
    - Validation actions on a technical level (apply the tools on real projects), and on a societal level (with the building occupants)

Expected impact of the supported area

- Optimised energy & CO2 design and operation of buildings in the district context
- Better balanced of multi-physics like: thermal, energy, comfort, air quality & flow, wind, acoustics, lightning, etc.
- Enabling stakeholders to take validated and quantified choices as early as possible
- Quantified performance objectives, e.g. KPIs in compliance with regulation and user-oriented expectations and constraints
- Proper management of interactions between different design domains
- Continuity of information flows during the life of a building from design to maintenance, from various domains and scales

European Commission

Project highlight

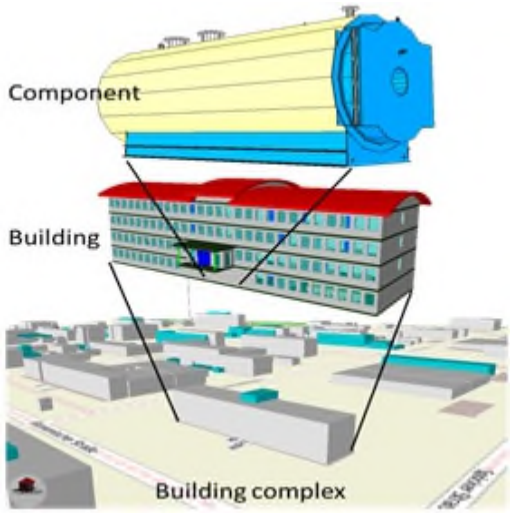
STREAMER

Semantics-driven design
for energy-efficient buildings
integrated in healthcare districts

Streamer
European research on energy-efficient healthcare districts

Focus:

- Geo and Building Information Modelling
- Optimization of building design of new and existing healthcare facilities in 3 areas:
  -- MEP/HVAC systems
  -- Building envelop and spatial layout
  -- Energy grid in hospital campus and surrounding areas



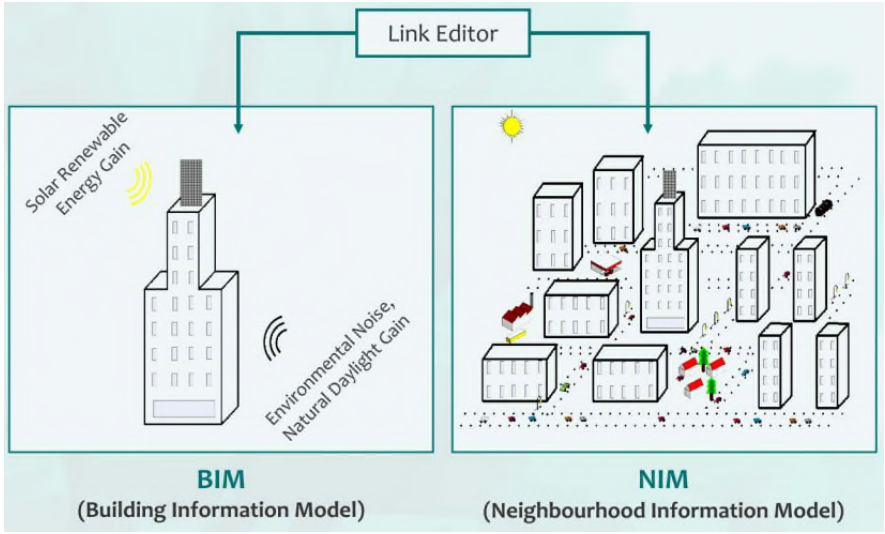
Project highlight

HOLISTEEC

Holistic and optimized
life-cycle integrated support
for EeB design and construction

Focus:

HOLISTEEC software platform will account for all physical phenomena at the building level while also taking into account External neighborhood level influences.



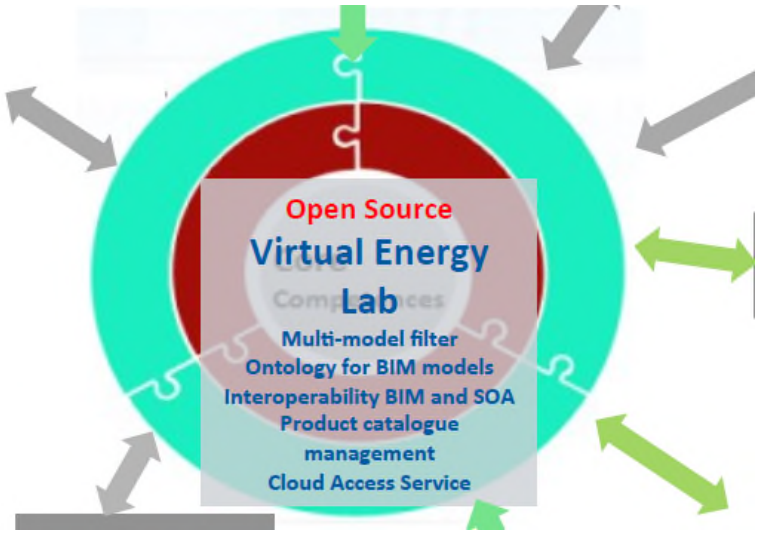
Project highlight

eeEMBEDDED

Collaborative holistic design laboratory and methodology for energy-efficient embedded buildings

Focus:

Open BIM-based holistic collaborative design and simulation platform, a holistic design methodology, an energy system information model, and an integrated information management framework



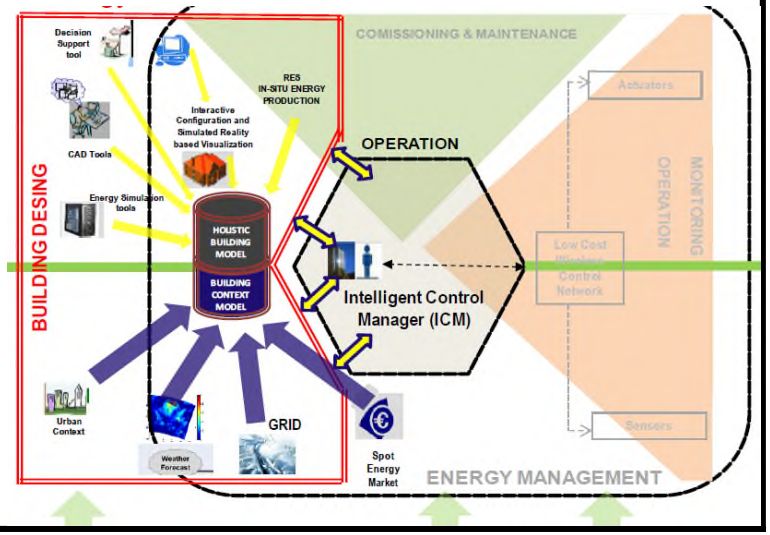
Project highlight

Design4Energy

Building life-cycle evolutionary design methodology able to create EeB flexibly connected with the neighborhood energy system

Focus:

Collaborative design platform for stakeholders to explore various design options and make qualified choices at early design stages giving due considerations to deterioration of building components and systems, neighbourhood energy systems and broader energy related parameters.



Technical cross-cutting issues

What technical cross-cutting issues among your projects should be taken into account to increase the overall impact?

- Common understanding of building design value-chain and objectives of the stakeholders
- Common understanding of end-users needs in areas of common interest
- Development of common vocabularies and terminology, as well as common set of Key Performance Indicators (KPIs)
- Linking holistic results in order to maximize the overall energy efficiency
- Interoperability of tools, models and information
- Development and exchange of tools, interoperability and modelling approaches among the different project, identification of complementary areas in order to avoid double development
- Sharing of common critical issues and working together in order to solve them

Non-technical cross-cutting issues

What non-technical cross-cutting issues among your projects should be taken into account to increase the overall impact?

- Effective training of the developed solutions for the stakeholder and designers
- Exchanging recommendations for developing dedicated guidelines for implemented best practices
- Adaptable and innovative business model for the developed solution taking account the involved stakeholders and the entire value-chain
- Clustering workshops for inter project collaboration as well as for industry interaction and sharing of other dissemination activities
- Clustering of review meetings with joint common technical progress presentations and project-specific management review
- Coordinated actions for standardization impacts

Synergies and benefits of clustering

What cluster activities have you undertaken in the last year?
- Several bilateral meetings among and with older EU projects since project start Oct. 13 - Common workshop is decided as part of the 5th eeBDM organized in the ECPPM 17- 19th Sept. 2014, Vienna
How have cluster activities added value to your projects?
- Understanding complementary research work between different projects - Use of available public deliverables from other projects - Widening the target group of dissemination activities
How can cluster activities help exploitation of results after the projects end?
- Clustering activities to improve dissemination and exploitation - Promoting results in countries/regions not covered by a single consortium - Bilateral and multilateral collaboration between new partners - Consolidating the needs for follow-up R&D in future projects - Avoid redundant effort, promote complementary development - Being faster from lessons learned