




ISTITUTO SUPERIORE MARIO BOELLA

PROJECT EXPERIENCES IN PIEDMONT: SMART BUILDINGS AT PRIVATE AND PUBLIC LEVEL THROUGH THE INTERNET OF THINGS

OCOVA
ALPMEDNET
forum GAP 2014

ISMB
Istituto Superiore Mario Boella

September 2014

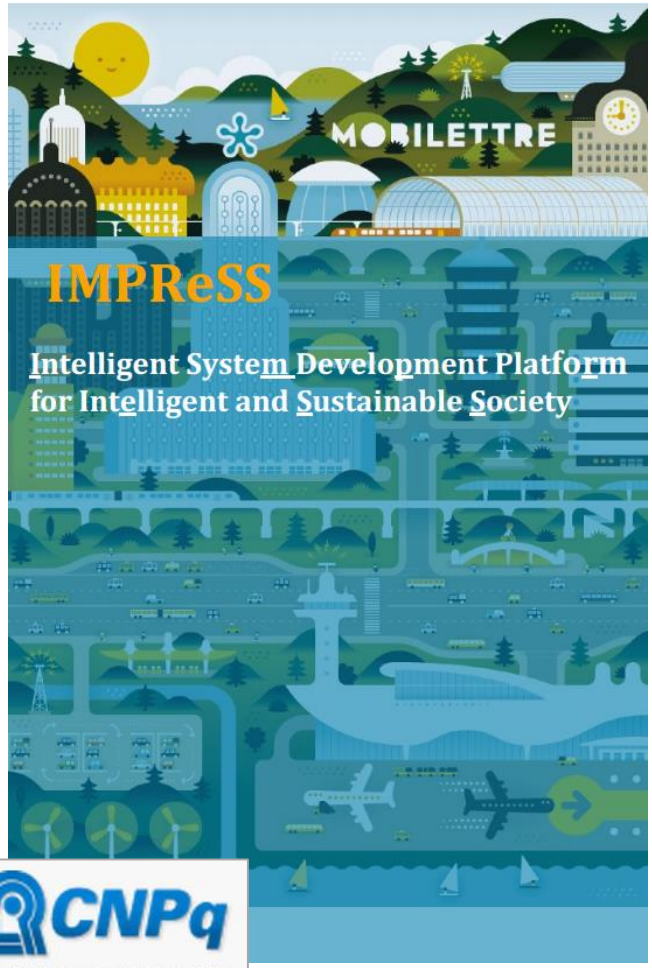
Paolo Brizzi

THE IMPRESS PROJECT

IMPRESS

Intelligent System Development Platform for Intelligent and Sustainable Society

EU-Brazil cooperative research project



Fundings:

- The project is partly funded by the European Commission under the 7th Framework Programme in the area of EU-Brazil Research and Development cooperation under Grant Agreement no. 614100
- The Brazilian funding is provided by CNPq Conselho Nacional de Desenvolvimento Científico e Tecnológico

Start: 1th September 2013

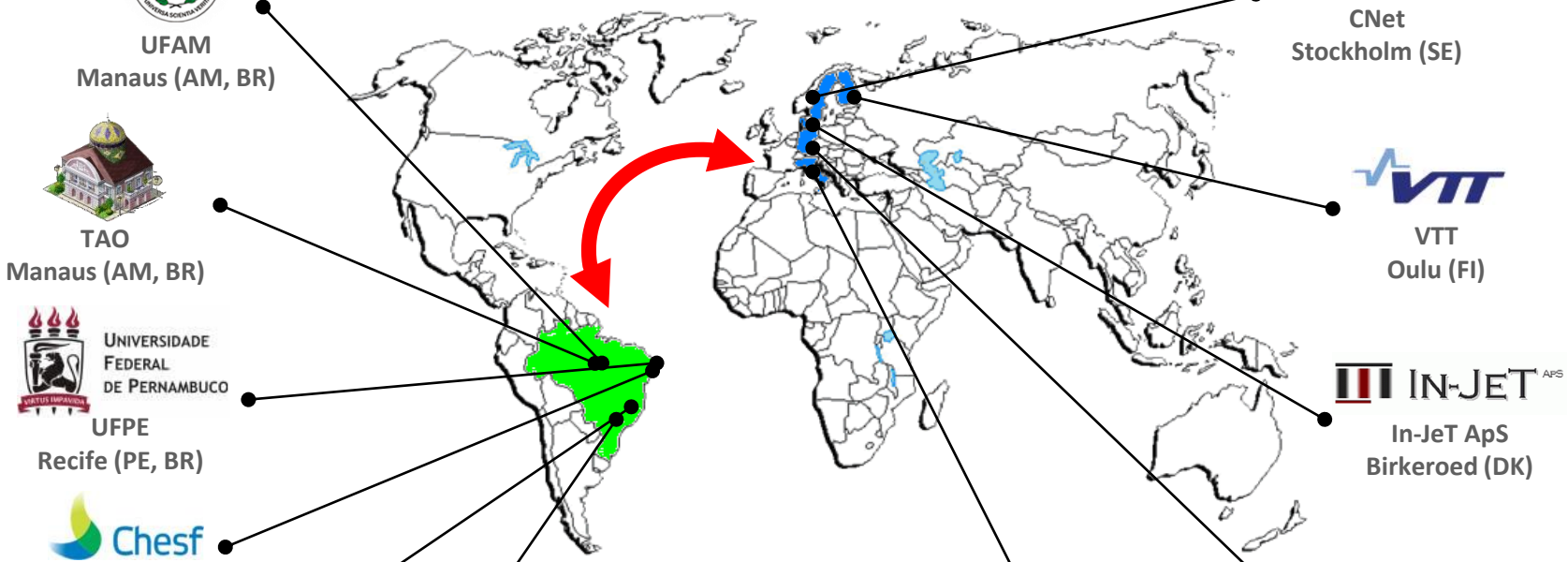
Duration: 30-months

CNPq
Conselho Nacional de Desenvolvimento Científico e Tecnológico

Programme co-funded by the EUROPEAN UNION

IMPRESS

consortium



UFAM
Manaus (AM, BR)

TAO
Manaus (AM, BR)

UFPE
Recife (PE, BR)

Chesf
Recife
PE, BR

ENGETRON Ltd.
Belo Horizonte (MG, BR)

UFABC
Santo André,
(SP, BR)

CNet
Stockholm (SE)

VTT
Oulu (FI)

In-JeT ApS
Birkeroed (DK)

ISMB
Torino (IT)

Fraunhofer FIT
St. Augustin (DE)

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IMPRESS

Aim of the project

*Significantly **reduces** the **complexity** and **cost of developing** intelligent systems for supporting smart societies and enables system developers and integrators to **co-create** and **experiment** with **new smart services** and the **Internet of Things**.*

- ***Management of Mixed Critical Applications***
  - ***Multiple application managing the same systems***
- ***Dynamic environment deployment***
  - ***No need of having to know the environment details in advance***
- ***Model driven development***
  - ***Support for non-expert developers with self- and community-guided development tools that help them co-creating the necessary modules for smart applications***

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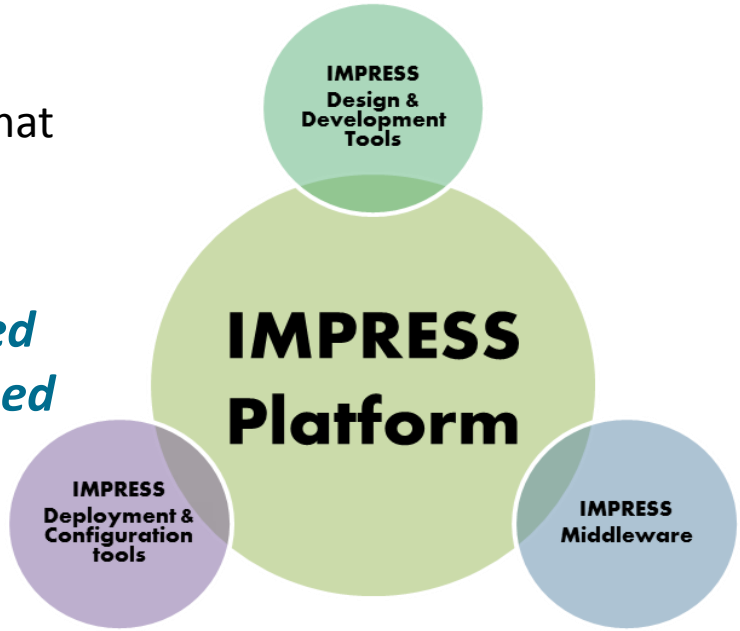
IMPRESS
Scientific Objectives

The IMPRESS project aims at solving the complexity of system development by providing a holistic approach that includes an

- ***Integrated Development Environment (IDE)***
- ***Service-Oriented Middleware to support Mixed Criticality Applications on Resource-Constrained Platforms.***
  - **REST service through the LinkSmart Middleware**
- ***Creating efficient Deployment Tools for Internet of Things applications.***



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IMPRESS

Evaluation and Application Development
Teatro Amazonas (Manaus - BRA)

- An attractive showcase for reducing energy usage and CO2 footprint
- Increase world awareness
- Allows no significant retrofitting and construction works.
- Test bed for wireless sensors and actuators

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IMPRESS

Evaluation and Application Development
The UFPE Campus (Recife - BRA)

- Centralized energy management system targeting a reduction up to 10-15%.
- Allows a more complex scenario micro-grid and energy storage concept.
- Different critical applications accessing the energy sources.

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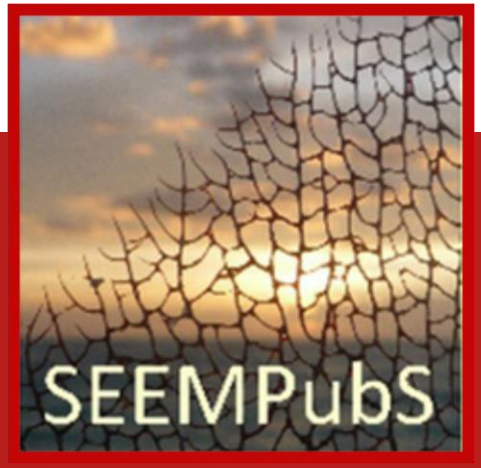
THE SEEMPUBS PROJECT

SEEMPubS



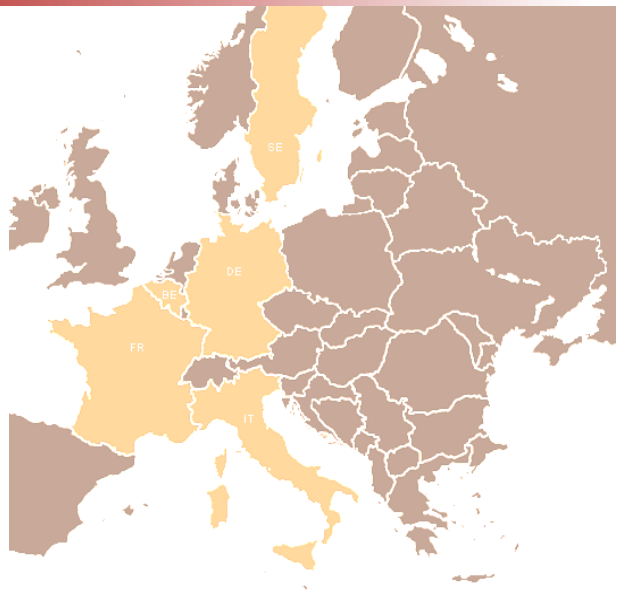
Funding: FP7 ICT-2010-10.2 ICT for energy-efficient buildings and spaces of public use

Project Start: 1 September 2010

Project Duration: 3 years

Consortium

University	Politecnico di Torino	Italy
	Katholieke Universiteit Leuven	Belgium
	Universitè Claude Bernard Lyon 1	France
Research Center	Centro Ricerche Fiat	Italy
	Fraunhofer FIT	Germany
	Istituto Superiore Mario Boella	Italy
Industry and SME	ST Microelectronics	Italy
	CNet Svenska AB	Sweden
	Sinovia SA	France
	EniServizi	Italy



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GOALS

- SEEMPubS addresses energy and CO2 footprint reduction in existing public buildings and spaces without significant constructions works, by an intelligent ICT-based service-based monitoring and management of energy consumption.
- Develop an integrated electronic system and interoperable web-based software solution for real-time energy performance monitoring and control of lighting, HVAC services through wireless sensor networks in existing/historical buildings and public open spaces.
- Significantly raise people's awareness for energy efficiency in public spaces.

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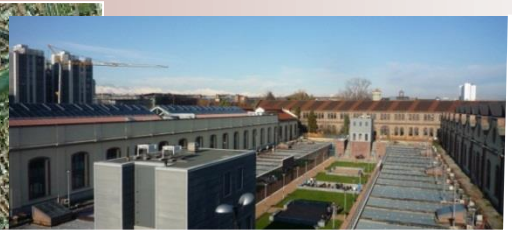
SEEMPubS

TEST BED

Modern Buildings

Politecnico di Torino

Chosen as demonstrator because of its reproducibility.



Historical Building

Valentino Castle

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SEEMPubS

The project in 4 steps

Building Information Model

Key words:

Survey – Interoperability

Building Energy Management Systems

Key words:

HVAC and lighting control strategies – Occupancy proxy

Building Automation System

Key words:

Middleware – Wireless Sensor Network – Rule Engine

VIRTUAL/AUGMENTED REALITY

Key words:

Data visualization – Awareness

Programme co-funded by the EUROPEAN UNION

THE DIMMER PROJECT

DIMMER

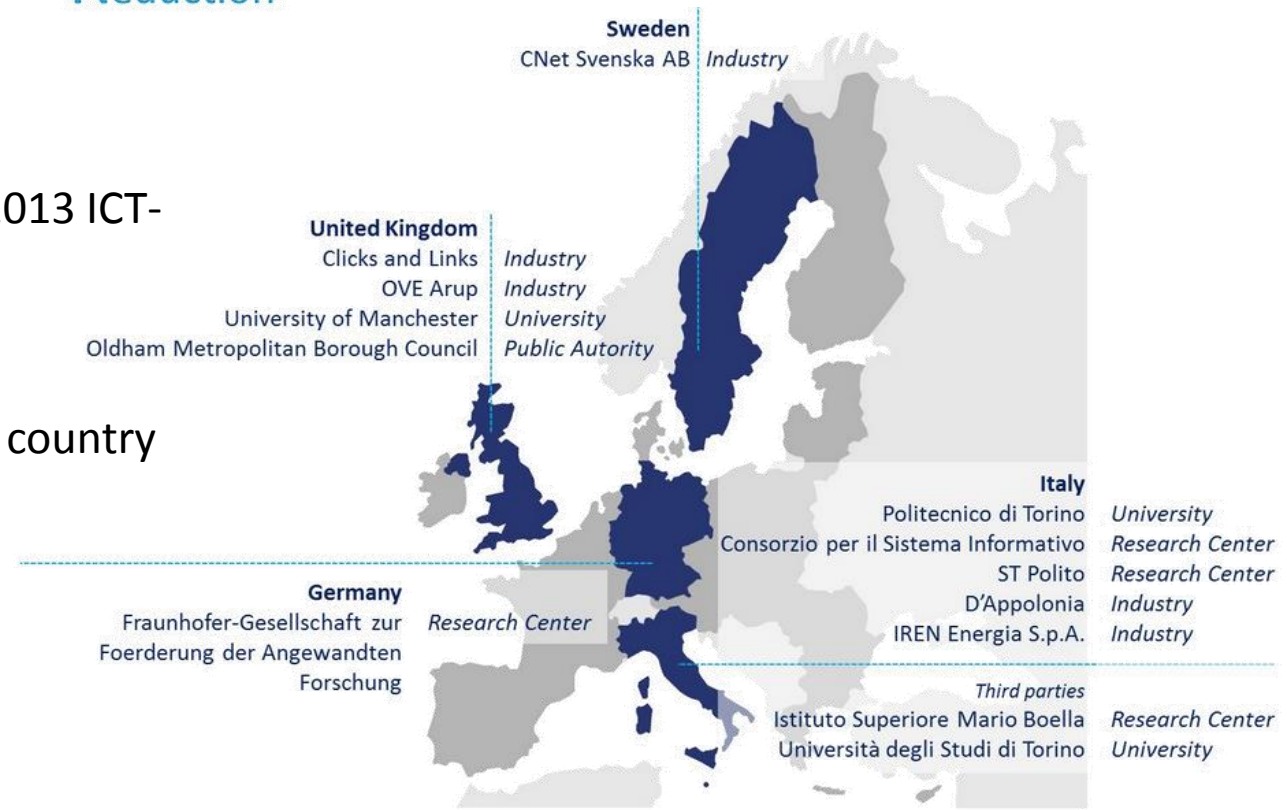
District Information Modelling Management and for Energy Reduction

Funding: FP7-SMARTCITIES-2013 ICT-2013.6.4

Project Start: 1 October 2013

Project Duration: 3 years

Consortium: 14 companies/4 country



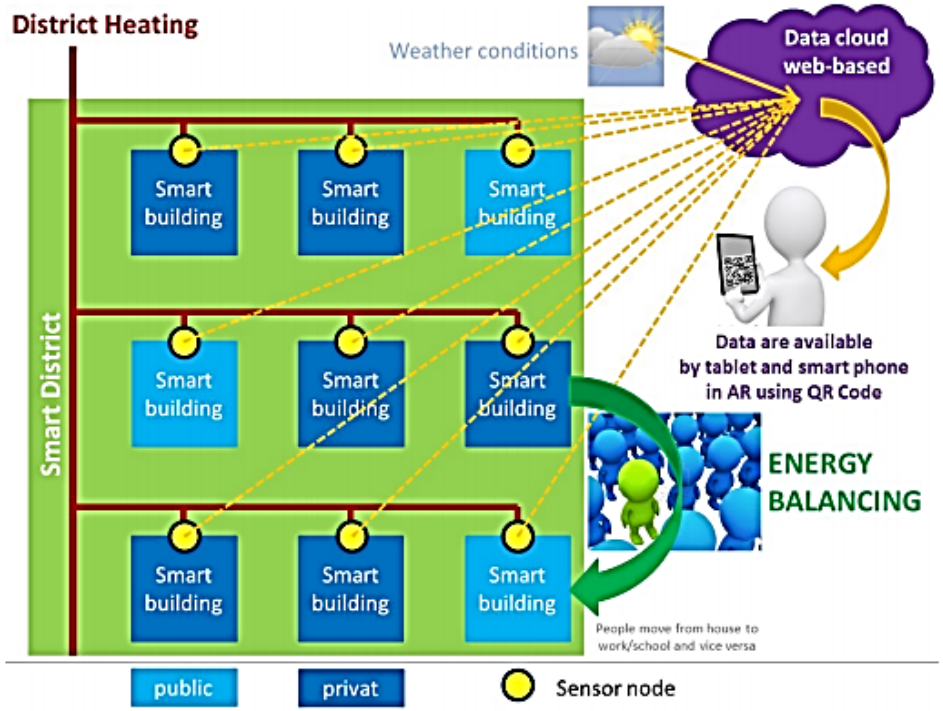
Programme co-funded by the EUROPEAN UNION

DIMMER

GOALS

In the DIMMER project a **web-service oriented**, open platform with capabilities of **real-time district level data processing and visualization** will be developed. Thanks to the web-service interface, applications can be developed exploiting such an **interface to monitor and control energy consumption and production from renewable sources.**

For **public buildings** like schools or university campuses, application can be develop to visualize in real-time energy utilization leading to a considerable **educative impact**.



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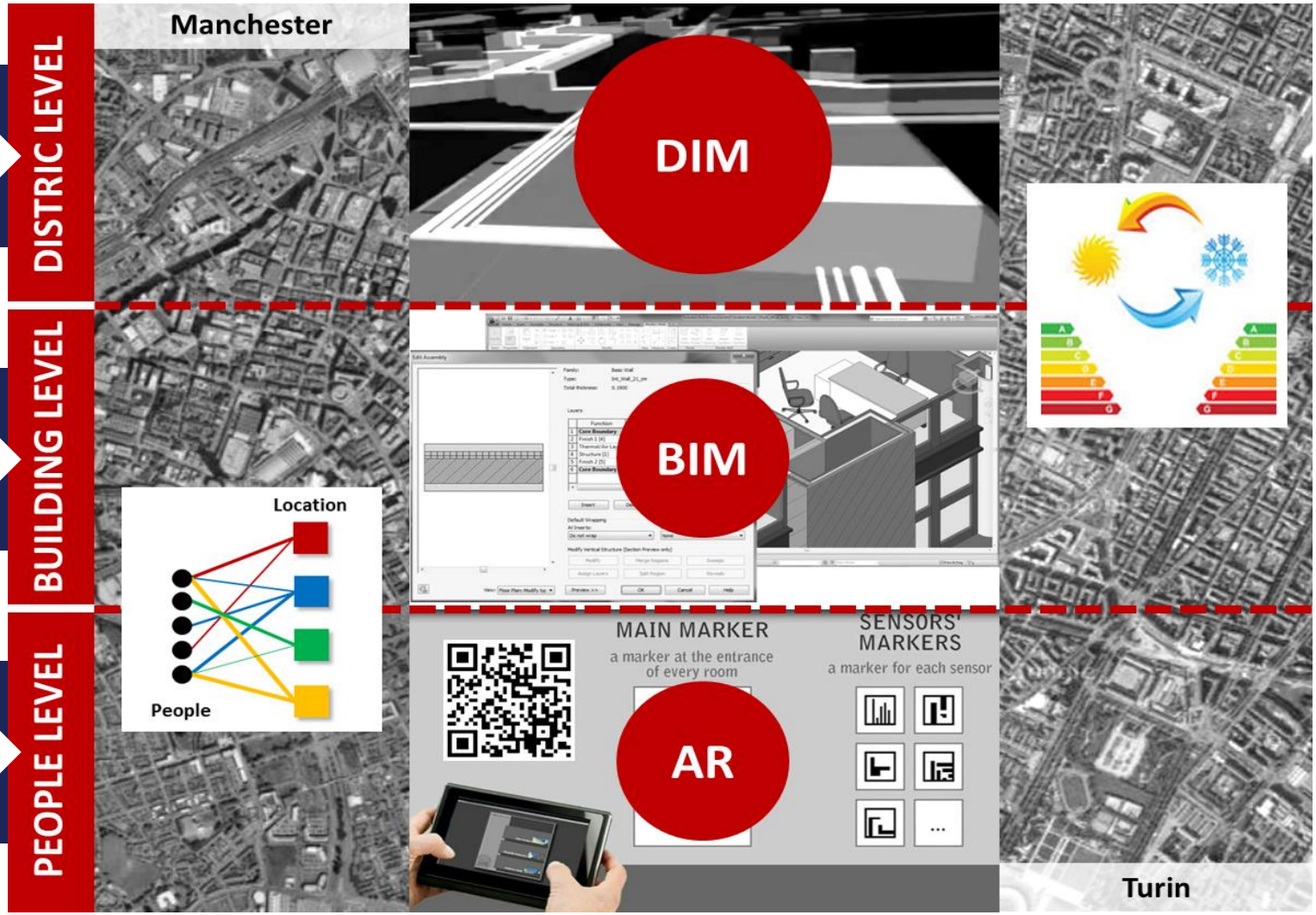
DIMMER

VALIDATION PHASE



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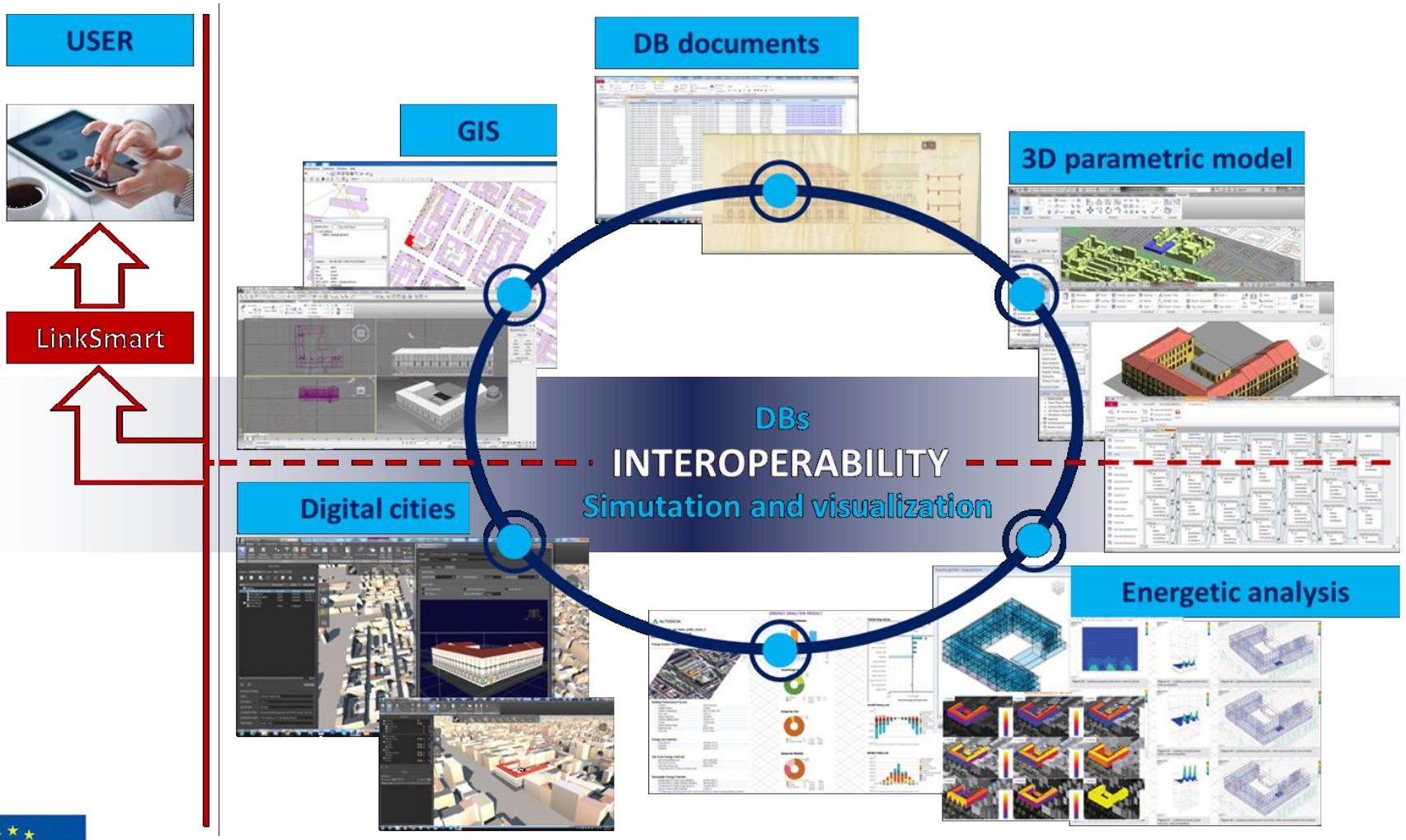
DIMMER



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