



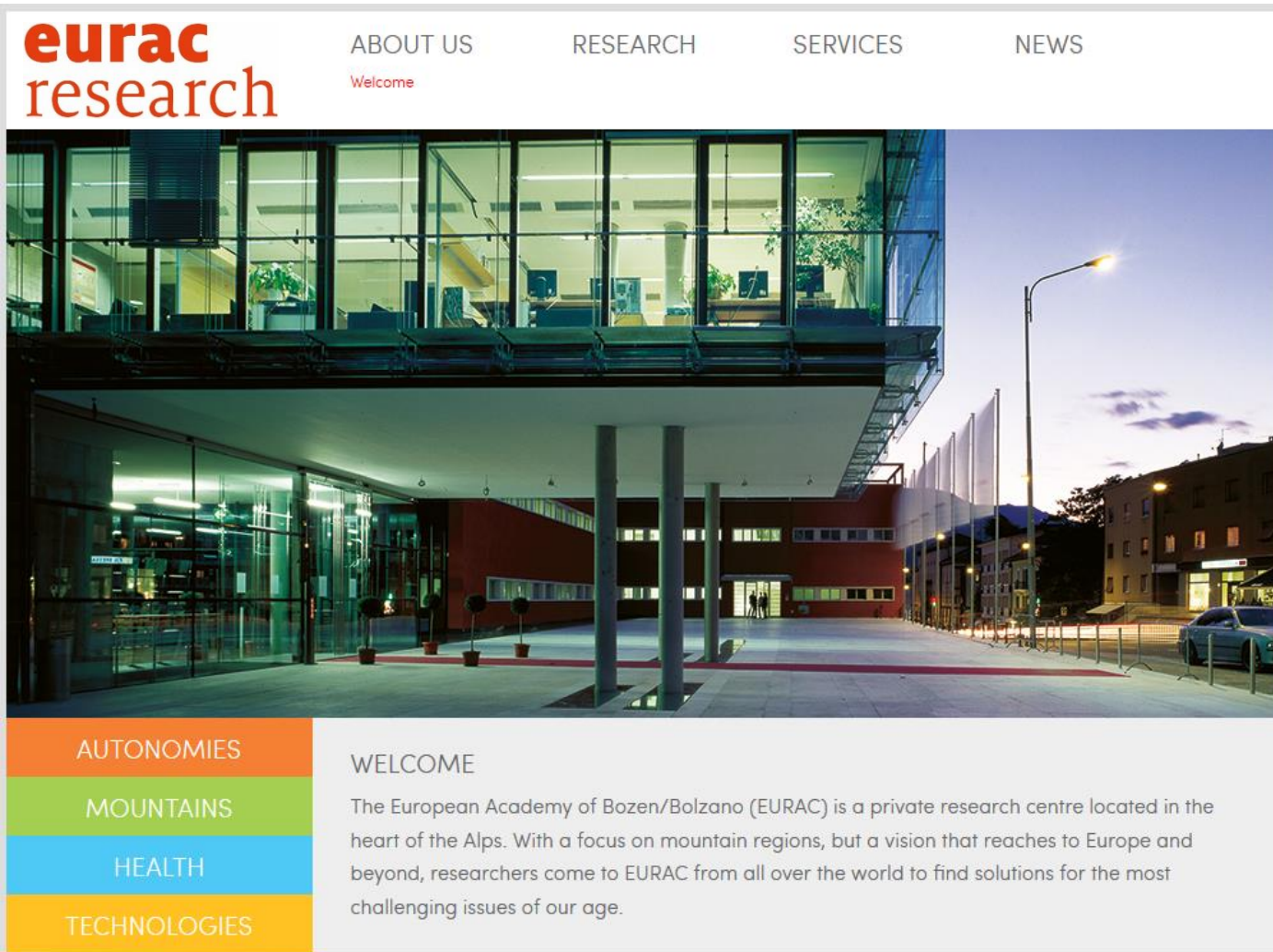
Cross collaboration workshop “GAP” – morning session
June 27th 11:00 – 12:30



European Energy Efficient building district Database

Ph.D. Marta Avantaggiato
Institute for Renewable Energy
EURAC Research

eurac
research



- is an establishment for applied research and further education
- was founded in 1992 as a private non-profit organization
- has almost 400 collaborators shared in 4 thematic areas

Institute for Renewable Energy

Marta Avantaggiato



SUSTAINABLE HEATING AND COOLING SYSTEMS

Hybrid and efficient heating and cooling system for buildings, industry and sustainable districts



PHOTOVOLTAIC ENERGY SYSTEMS

Solar resources analysis, performance and reliability of PV module and systems and their integration into building and products



ENERGY EFFICIENT BUILDINGS

Energy efficient solutions for climate-based and user-center buildings



URBAN AND REGIONAL ENERGY SYSTEM

Regional renewable energy resources analysis and sustainable urban energy planning



ENERGY RETROFIT OF HISTORIC BUILDINGS

Energy performance of historic buildings and compatible energy retrofit solutions



Education in Energy Engineering Post Doc

- Indoor Environmental quality
- Ventilation in Buildings

Project Philosophy

What do we know from buildings?



...and what can we learn?

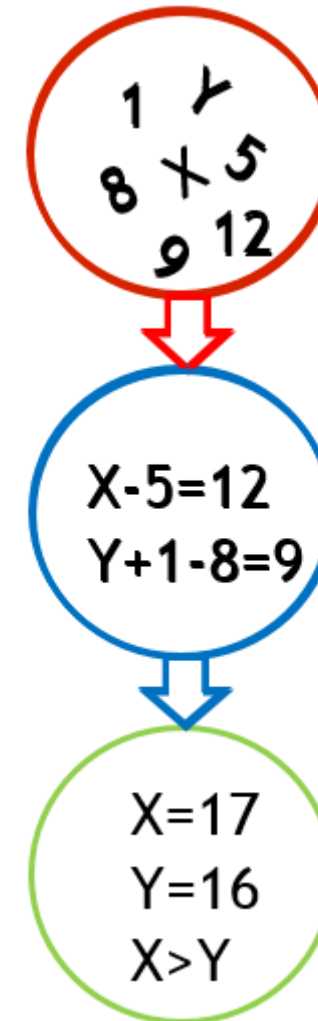


Project Goal

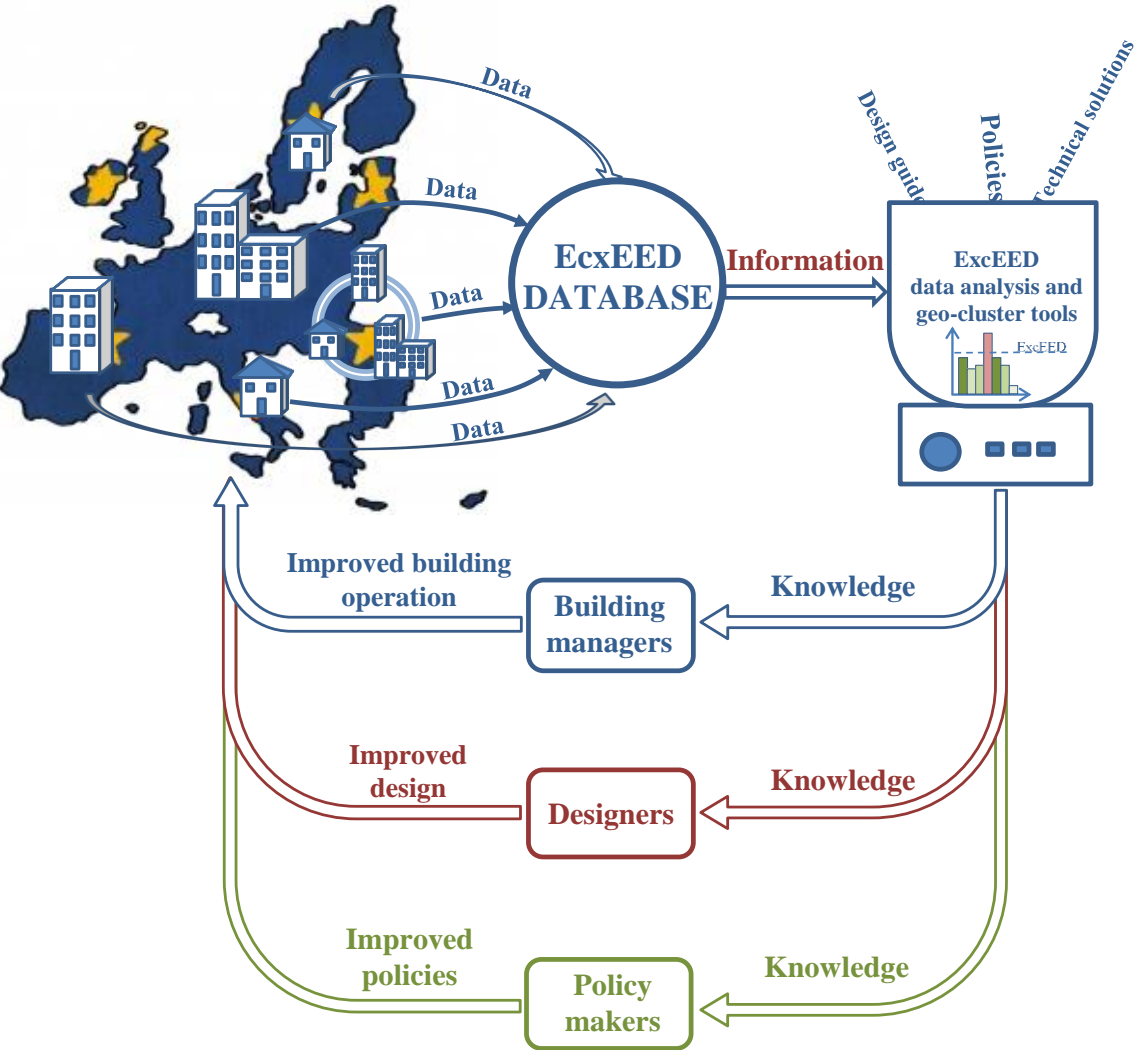
ExcEED has the overall objective to create a **European self-sustainable and dynamic database** for measured and qualitative data on beyond the state of the art buildings.

The **advanced tools and KPIs** associated to the database will allow the **analysis of actual energy performance and environmental quality** at the level of single building, geo-cluster of buildings, and European new or renovated building stock.

The analysis will result in knowledge to inform **single building managers, designers, and European policy makers**.



Project Method



- Building/District
- Statistical Analysis Tool
- Indoor Environmental quality tool

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ExCEED by numbers

- Start date : 1 September 2016
- Duration: 33 months
- Funding € 749,633.75
- CSA: Coordination and Support Action
- 5 partners
- 6 thematic work packages
- 31 Tasks, 28 deliverables and 10 milestones
- 93 person months (almost 3 people working full time)
- 1 case study

**eurac
research**

Coordinator. Data management, development of KPIs, geo-cluster tool, and basis of the IEQ survey



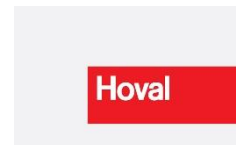
Developer of the database and majority of the associated tools.



Communication. Knowledge on European building stock and policies.



Using their experience as consultancy company to make “the first read of the database”, and provide KPIs for renewable energy production.



Hoval Italian head quarter will be the demo-case. Knowledge on KPIs for heating production



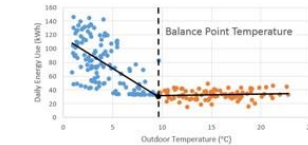
Key Objectives

- To orchestrate seamless integration of heterogeneous data to create the European energy efficient buildings database and platform
- To deliver information which provides immediate value to the user
- To realize an indoor environmental quality survey
- To determine performance benchmarks
- To set up a return of experience process



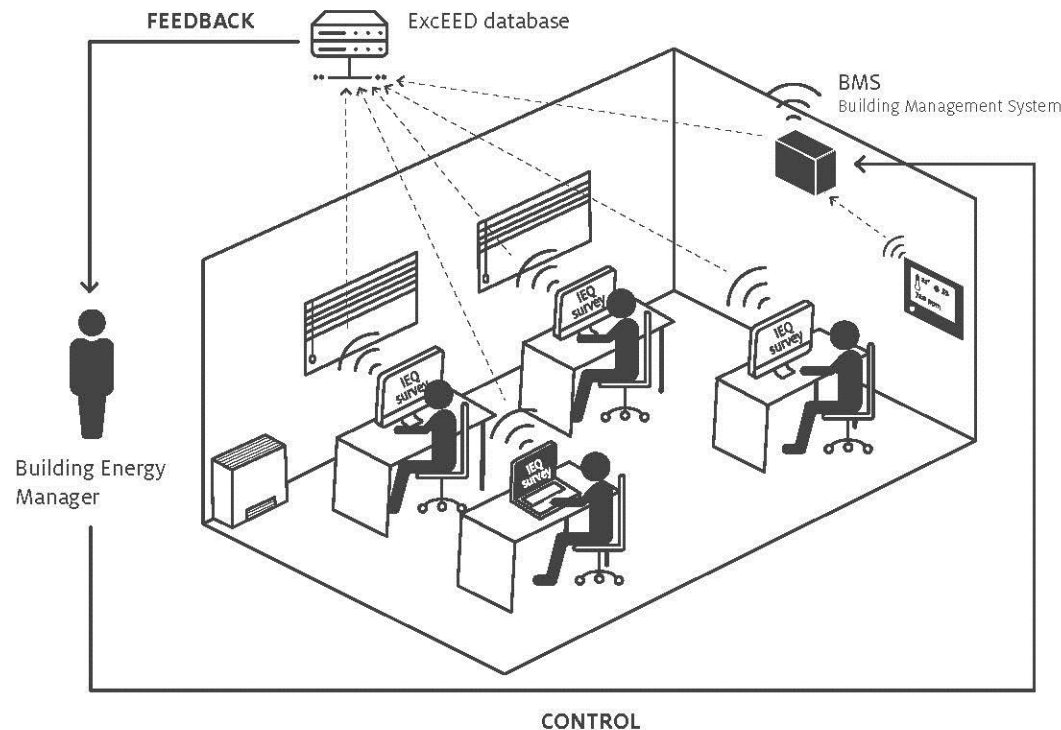
KPIs Excel tool

- Published in Zenodo Repository.
DOI: 10.5281/zenodo.851797
<https://doi.org/10.5281/zenodo.851797>
- Development of KPIs on-line tool, together with other projects (COST ACTION – TU1403, Adaptive façades network, IEA PVPS Task_15)

A B C D				BU	EK	BL	EM
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Indicator description				Degree of importance			
Indicator	Symbol	Component	Description	D. Antonucci	R. Baetens	A. Belleri	
Energy Signature		Energy system	Graph describing the correlation between the Heating/cooling consumption and the External Temperature. Use of indicator to understand the "well" behaviour of the system. 				
Cooling/Heating Peak Power		Energy system	Max peak of Cooling and Heating system	2	2	2	
Primary Energy for cooling/heating and Ventilation		Building		2		2	
Coefficient of Performance (COP) - Commercial Refrigeration System	COP _R	Refrigeration system	$COP_R = \frac{Q_{cool}}{E_{ref}}$ In which Q_{cool} represents the amount of cooling demand [kW] E_{ref} is the amount of power consumed [kW]	2		2	
				2	2	0	



IEQ survey- getting information from the most valuable sensor in buildings, *ITS OCCUPANTS*



CORE MODULES

- Module A: General information;
- Module B : Occupants' activity and control over the indoor environment;
- Module C: Indoor Environmental Quality questions
- Module D: Clothing information

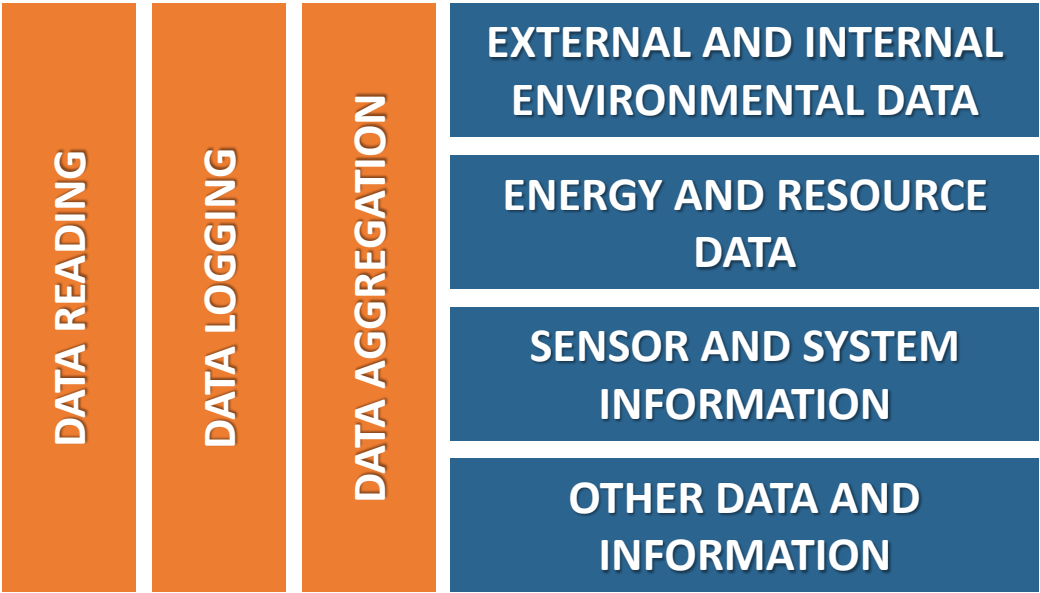
OPTIONAL MODULES

- Module E: Sick Building Syndrome
- Module F: Other useful information

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Case study –Hoval Headquarters





Thanks

Contact Person/ Coordinator

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Project website

<http://www.exceedproject.eu/>