DECENTRAL VERSATILE BUILDING DATA SPACES

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Building Data Spaces – a digital twin profiting the operation, renovation and energy controlling of buildings.

PROBLEMS ENERGY EFFICIENCY OF BUILDINGS

LACKING INFORMATION

For every step in the energy consulting and renovation planning the process starts from scratch acquiring information, since it is not stored in digital form.

UNKNOWN EFFECTS SUBSIDIES

When discarding XML after energy performance certification, the details of renovations are not known and this also conceals the effects of incentives.

PLANNING EFFORT

Lacking building-element data increases the planning effort. Pre-planning cannot be automated, is more expensive and must be funded.

INDIVIDUAL SOLUTIONS INCREASES PRICE

Without the ability to bundle renovation and production of materials the renovation becomes more expensive.

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Ease Energy Consulting

The stored data contains most information to be able to simulate the building with a TRY data set evaluating renovation measures. This can be iterated if energy price or subsidy scheme change.

Monitor subsidy effectiveness

Up to date building data may be correlated with incentives to see which ones were most successful. Subsidy schemes might also be aligned to the demand.

Allow Regional Energy Planning

The RC-Models of the buildings can be used to model consumption in networks

Trigger Projects

After storing the result of an energy consulting action, the building owner might be notified if the renovation has become more economic. PV and Heat Pump can be dimensioned with one mouse click.

Allow Forecasting

The digital building twin allows forecasting of the energy demand, optimizing usage of renewable energy.

PROJECT SETTING

- Project Focus

Public Buildings

Non-Residential Buildings

Private Homes

Involving Landlords

Aims

Enabling digital dividend by making use of building data

Prototyping data applications

Evaluating acceptance and effects

Provide guidance for adapting policies

Work plan

Analyse

Specify

Implement

Evaluate

Disseminate/Exploit

Project partners

Energy Agencies + Official Bodies

Software Companies

Building Owners

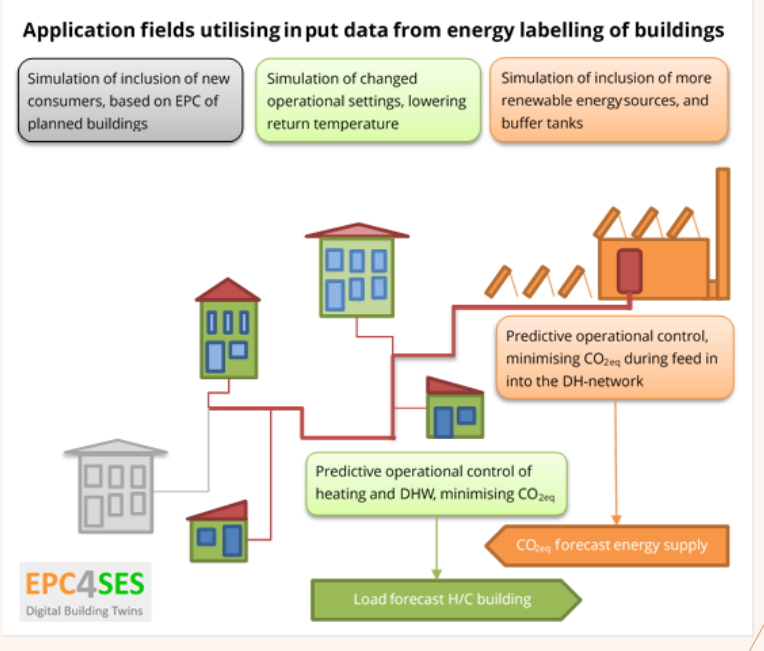
Policy experts

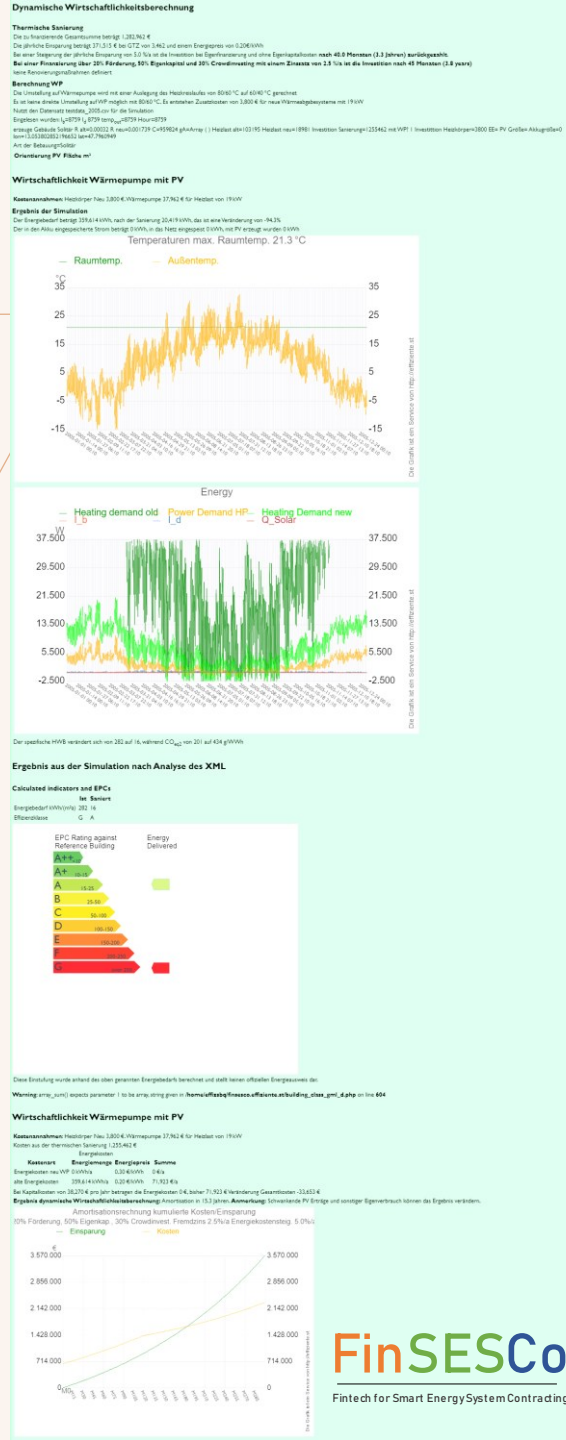
Dissemination experts

RESEARCH QUESTIONS

- What are the current and upcoming motivating topics to make use of Building data repositories?
- What are the core applications a data model should cover?
- What building data is available and what should be added to building data repositories?
- How persistent buildings data is and what should be the update cycle?
- How can behavioural data be merged for simulation, while providing privacy?
- What is the data storage methodology appreciated by building owners and how does it affect the system cost?
- What are the effects to be expected?

FOUNDATION





The ERANet project EPC4SES was investigating the use of data stemming from energy performance certification for setting up digitals twins and implementing model predictive control. The approach was tested with four pilots.

The EraNet project FinSESCo is targeting the use of data stemming from energy performance certification for energy consulting and setting up Energy (Saving) Contracting or Intracting, including measurement and verification.

The use cases were depicted in uc.smartenergy.nu

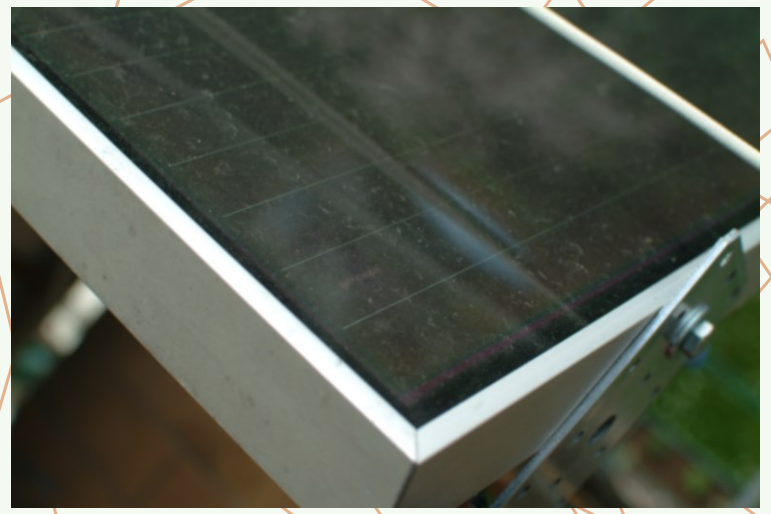
A building smart card was proposed as off-line data storage

FinSESCo
Fintech for Smart Energy System Contracting

ABOUT EFFIZIENTE.ST

G. Cebrat first dedicated himself to energy research in 1997 and has done so again since 2008 with his company effiziente.st. In particular, the use of renewable energy and increasing efficiency in the living environment have been trialled in several projects. A balcony power station has been in operation since around 2010. A background in mechanical engineering and many years of scientific work, also with the support of students, enable valid and usable research results. Many ideas for decarbonisation are ventilated as stromium.at for PV in window shutters, vollladen.at for ubiquitous charging, and myheatpump.eu for heat pumps in apartments of century old buildings.

DIY PV Balcony PV 2010



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