



# EDYCE -Energy flexible DYnamic building Certification

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## AGENDA

- Consortium and other sister projects
- Motivation for EDYCE
- Objectives and key results
- Concept
- Assessment levels
- Conclusion and lessons learned so far

## EDYCE Consortium

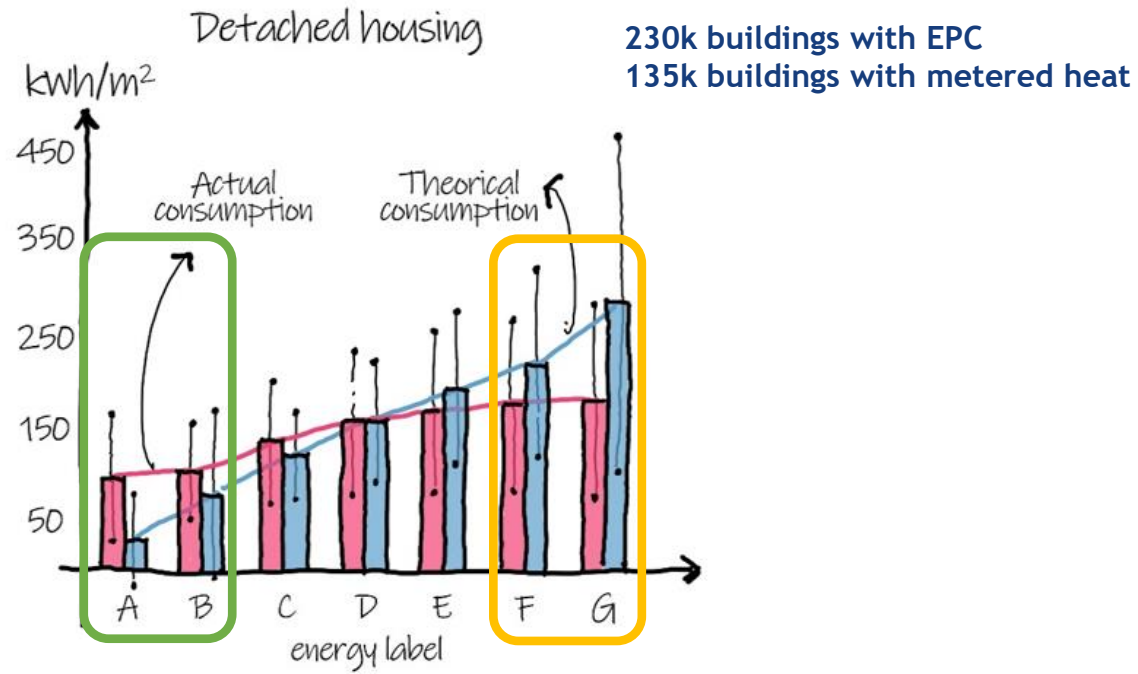
10 stakeholders, 4 countries



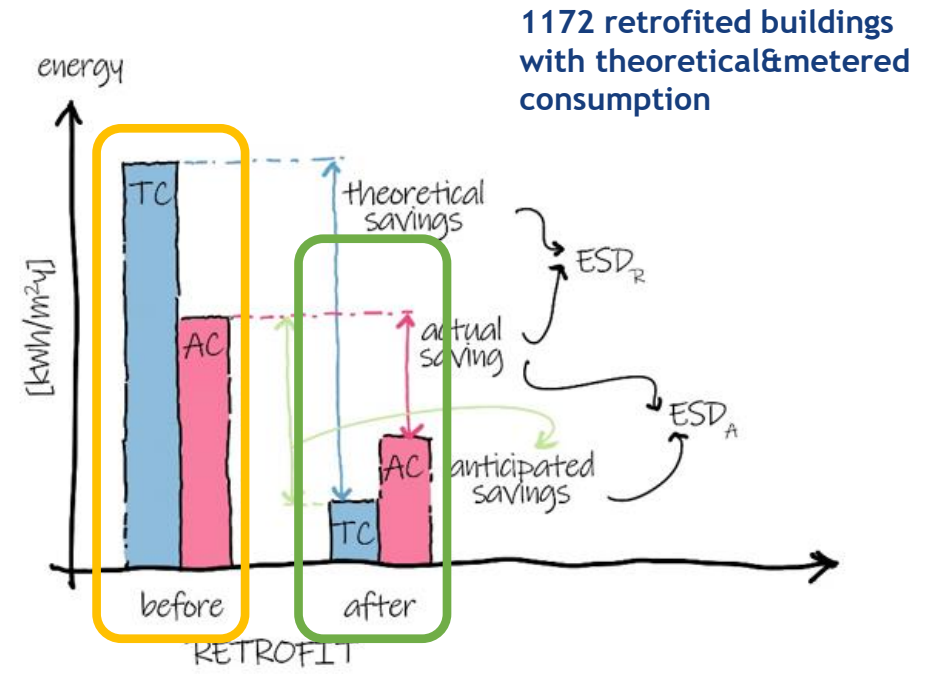
## EPC sister projects

1st gen 2019	2nd gen 2020	3rd gen 2021

## Motivation



Gram-Hanssan and Hansen, 2016



Cozza et al., 2020



## Objectives

- To deliver a **methodology for dynamic certification** of buildings based on openly available resources and tools.
- To develop **integration framework**
- Provide the user with **accurate and clear feedback**, increasing the user's awareness of building operation; user must obtain the information in a clear and concise way, **at the right time to make the interventions** (tenants, owners, the authorities).
- The savings will be achieved through optimizing building performance in a dynamic way, exploiting to the **free running potential** of the building and **informing the user** so the correct interventions can be made.
- **Methodology application in demonstration buildings**

## Key results

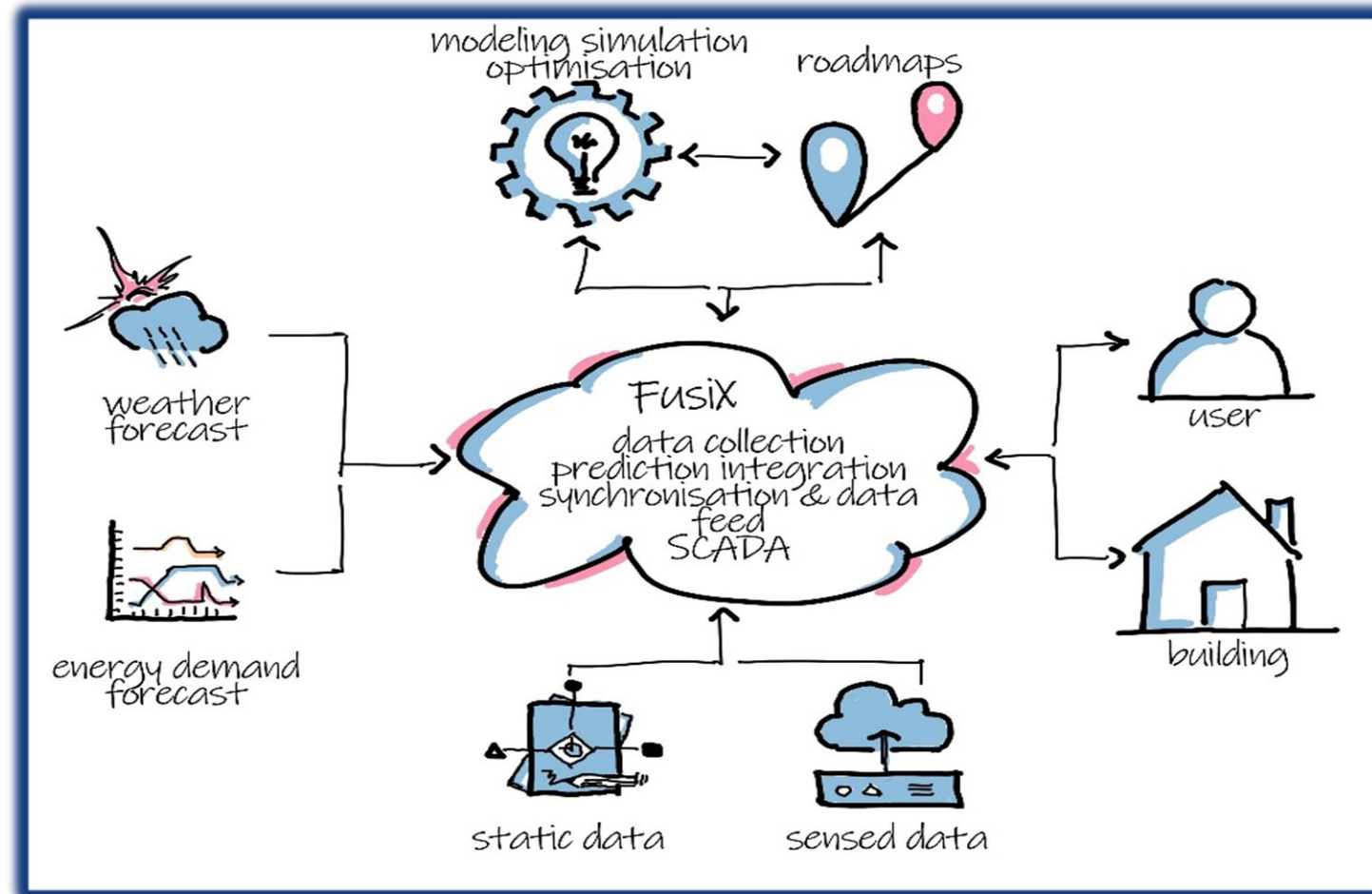
Dynamic modelling  
Feasible monitoring

Middle ware with bridging agents  
Information model, repository

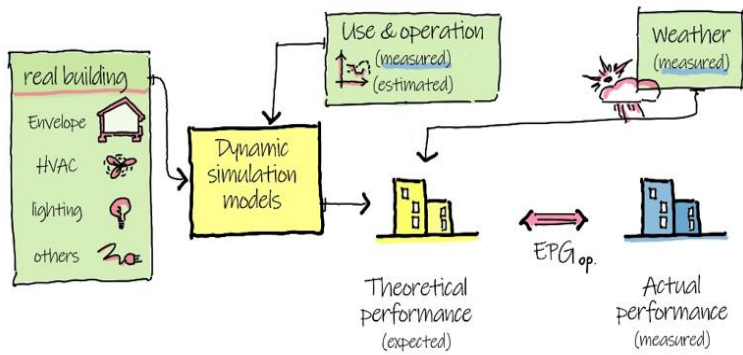
EDYCE protocol for end users (KPI)  
Renovation and operational roadmaps

Reduction of performance gap  
Operational savings  
Free running

Illustration of methodology using different  
real case buildings



# Assessment – Asset towards Operational



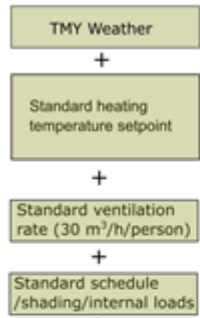
Assessment types for EPC according to (EN ISO 52000-1)

Type of assessment	EPC/DEPC	Short name	Sub-type	Building	Climate	Loads	Comment
Asset	EPC	EPC	Design	Design	Standard	Standard	EPC-label
	DEPC	DEPC – AS	As-built	Actual	Standard	Standard	Asset rating Standard
	DEPC	DEPC – AA	As-built	Actual	Actual	Adapted	Asset rating Actual
Operational	DEPC	DEPC – O	Actual	Actual	Actual	Actual	Reference for PG evaluation

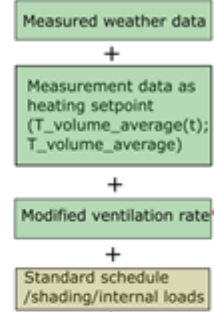
Elaborated from Borgstein et al., 2016

# Assessment – Asset towards Operational

## Step I



## Step II

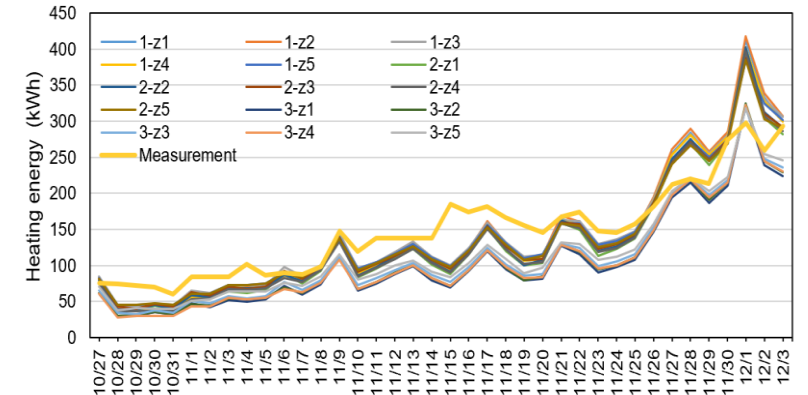
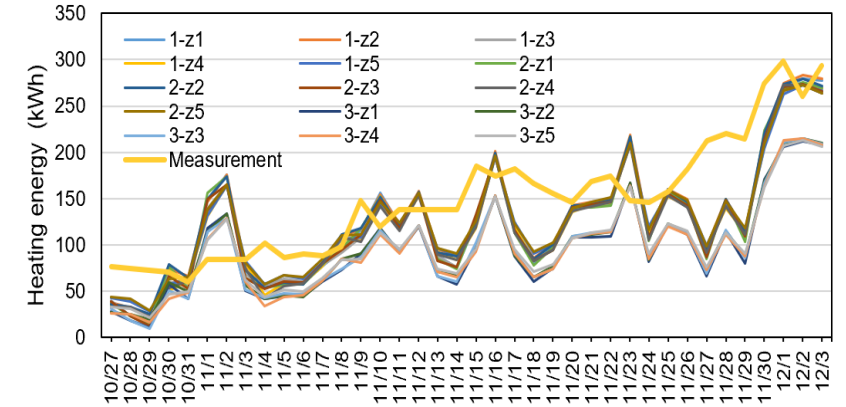


### Modelling with:

- Standard weather data
- Standard setpoints
- Standard schedules of use

### Modeling with:

- Real weather data
- Set points based on measurements
- Other "adapted conditions" can be integrated, upon information availability





## Assessment – programmed execution

1. **building model**  
IDF
2. **PREDYCE input file**  
JSON  
It contains both standard settings and standard modified/realistic (from WP2)
3. **monitored indoor data file**  
CSV
4. **(TMY) weather file**  
EPW
5. **monitored weather data file**  
CSV



Next → testing application output

**zip**

*dataframe of aggregated results*

CSV

*dataframe of timeseries results*

CSV

*plots*

PNG

	KPI 1	KPI 2	KPI 3	...
SIM 1				
SIM 2				
MONI-TORED				
Δ 1				
Δ 2				

For each KPI 5 columns are generated:

Date/Time	SIM 1	SIM 2	MONI-TORED	Δ 1	Δ 2

...

Not implemented, but doable  
→ At present FUSIX task

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### KPI families

Energy operation

Energy signature

Comfort & quality

Free running operation



## Conclusions and lessons learned

- All activities related to monitoring were more resource demanding than anticipated (informed consent from tenants, installation of sensors, prices, waiting time for hardware)
- Moving EPC from static tools to dynamic tools leads to disaggregated KPIs
- Simplification of models (zoning) seems more reliable for energy calculation than for comfort calculation.
- Use of smart meters (heat meters) can contribute to better understanding and building operation and assessment of heat use (domestic hot water / space heating)
- Scripting and programmed execution of dynamic models can facilitate process

## THANK YOU

<https://edyce.eu/>  
<https://twitter.com/Edyce3>  
<https://www.linkedin.com/company/e-dyce/>

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### Project partners:



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