



oPEN Lab

Leading the transition to Positive Energy Neighbourhoods

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Decarbonisation of the building stock in the EU and Russia - 20 January 2022



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oPEN Lab
TARTU PAMPLONA GENK
LEADING THE TRANSITION
TO POSITIVE ENERGY
NEIGHBOURHOODS

The building stock decarbonisation challenge

>95% of existing residential buildings need a deep energy renovation by 2050

40 to 50% of Belgian households can finance climate & comfort renovations

- Optimal renovation roadmap, industrialised approach & social support
- Servitisation, non-energy benefits & investment perspective

Climate neutral EU by 2050

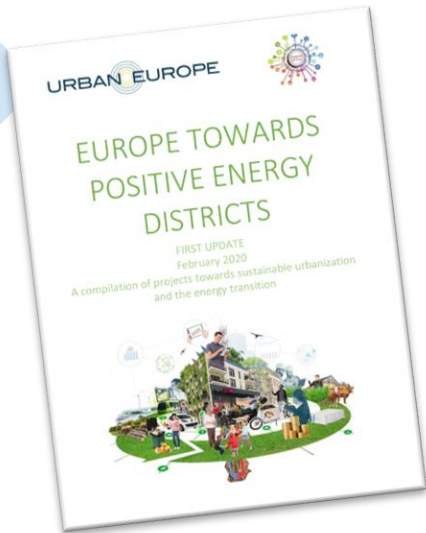
- Cross-sectorial energy system integration



Driving transformational change through a community approach

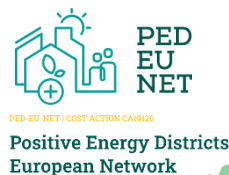
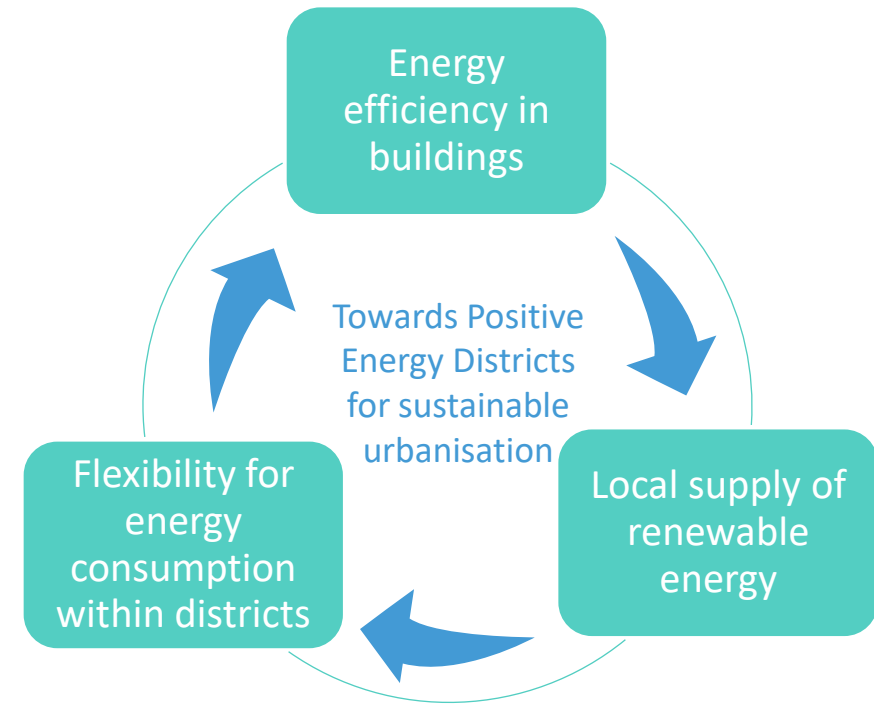


Europe towards Positive Energy Districts



Positive Energy Districts are **energy-efficient** and **energy-flexible** urban areas or groups of connected buildings which produce net zero greenhouse gas emissions and actively manage an **annual local or regional surplus production of renewable energy**

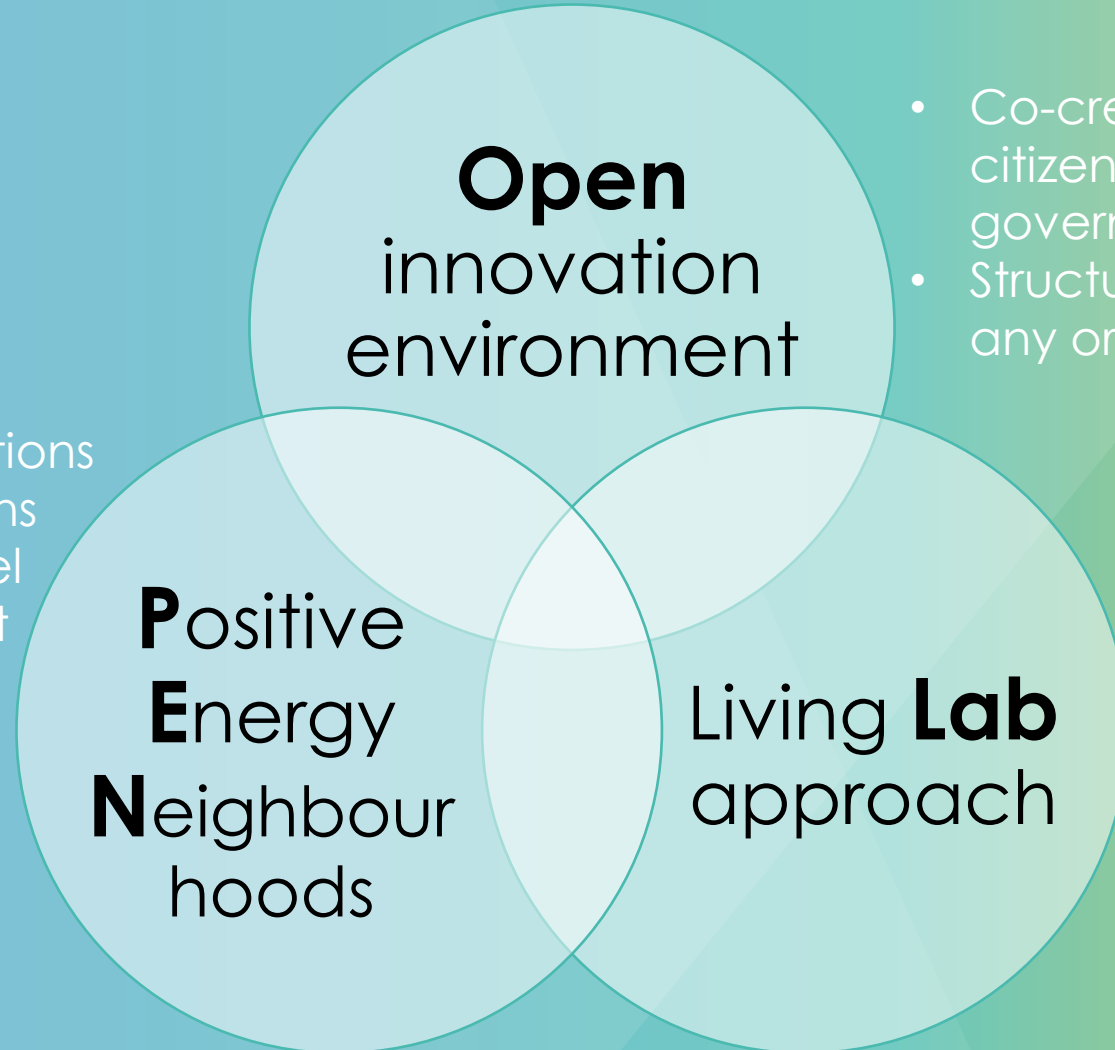
The EU Strategic Energy Technology Plan



What does **oPEN Lab** stand for?



- Integrated energy solutions
- Aggregated renovations on neighbourhood level
- Cluster analysis for most optimal pathways

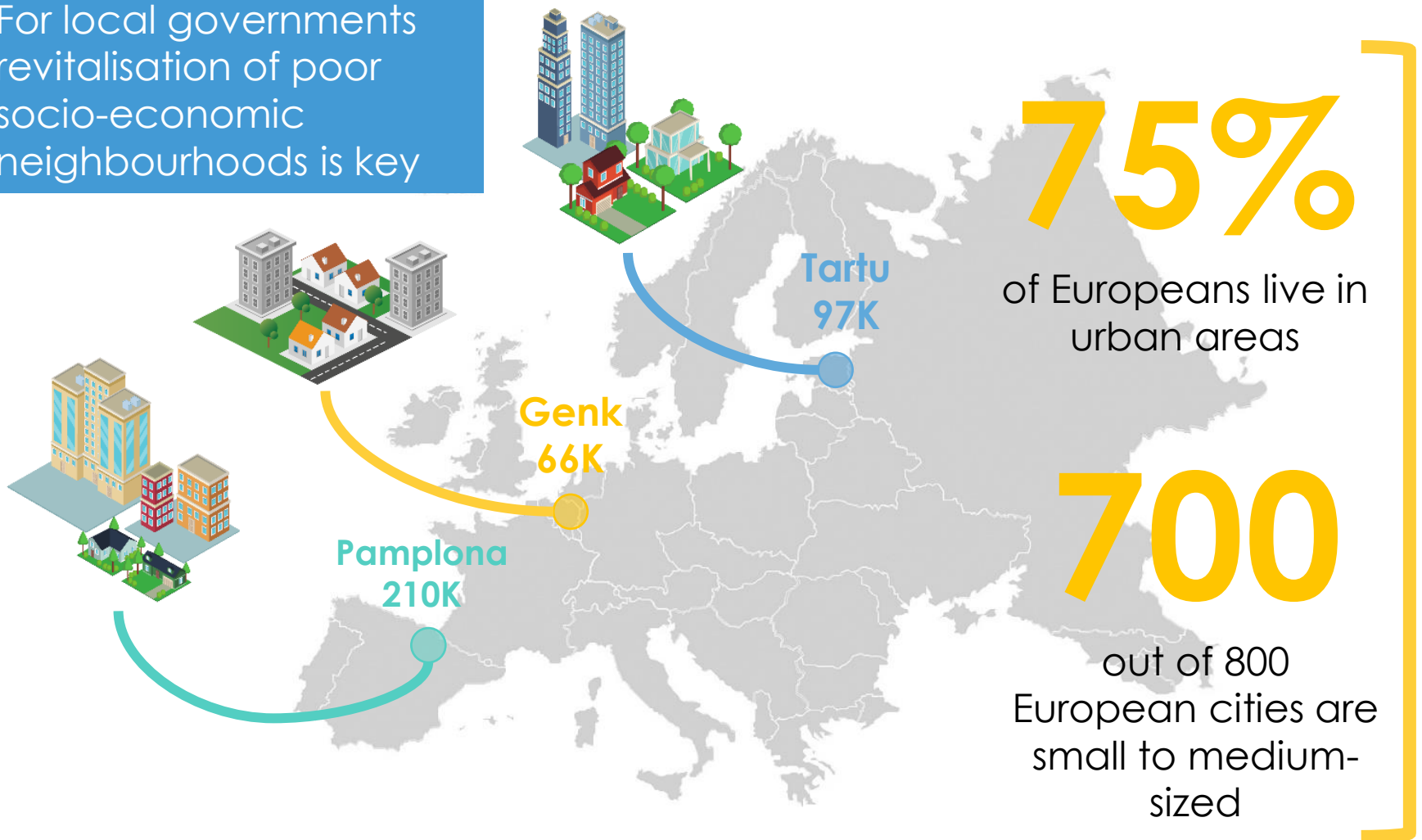


- Co-creation among companies, citizens, research organisations & governments
- Structural changes beyond what any organization could do alone

- User-oriented innovation models
- Innovation processes in real-life communities

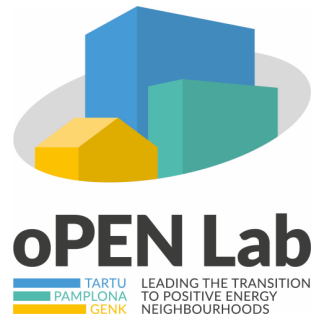
Revitalisation of urban areas in Genk (BE), Pamplona (ES) and Tartu (EE) and beyond towards PEN

For local governments revitalisation of poor socio-economic neighbourhoods is key



1. Achieve PEN within existing urban contexts
2. Identify replicable & commercially viable solution packages
3. Cross-sectorial integration & accelerating service innovation

3 open innovation living labs, 3 different settings

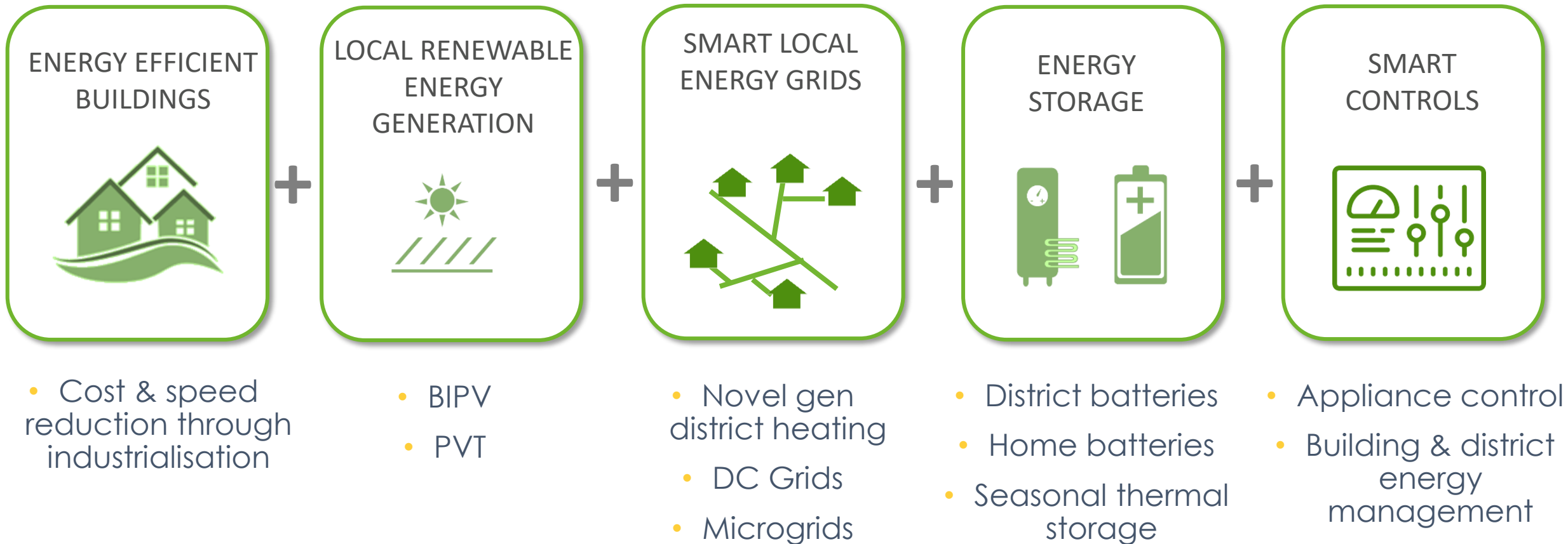


Tartu (EE): renovation of 3 apartment buildings to PEN

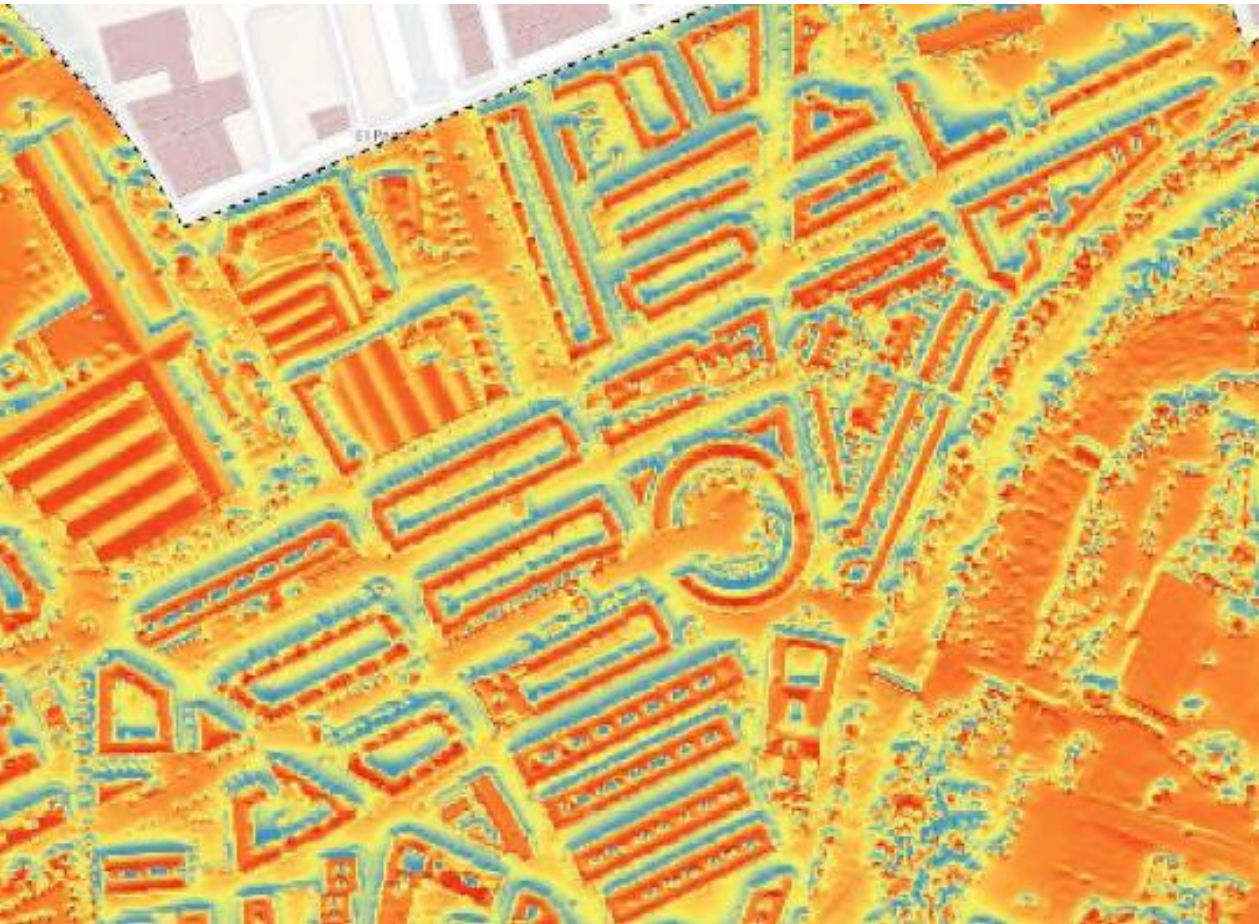
Genk (BE): single family housing neighbourhood linked to a sandbox area

Pamplona (ES): combining tertiary building with social housing

Key challenge 1: integrating novel technologies in a PEN setting

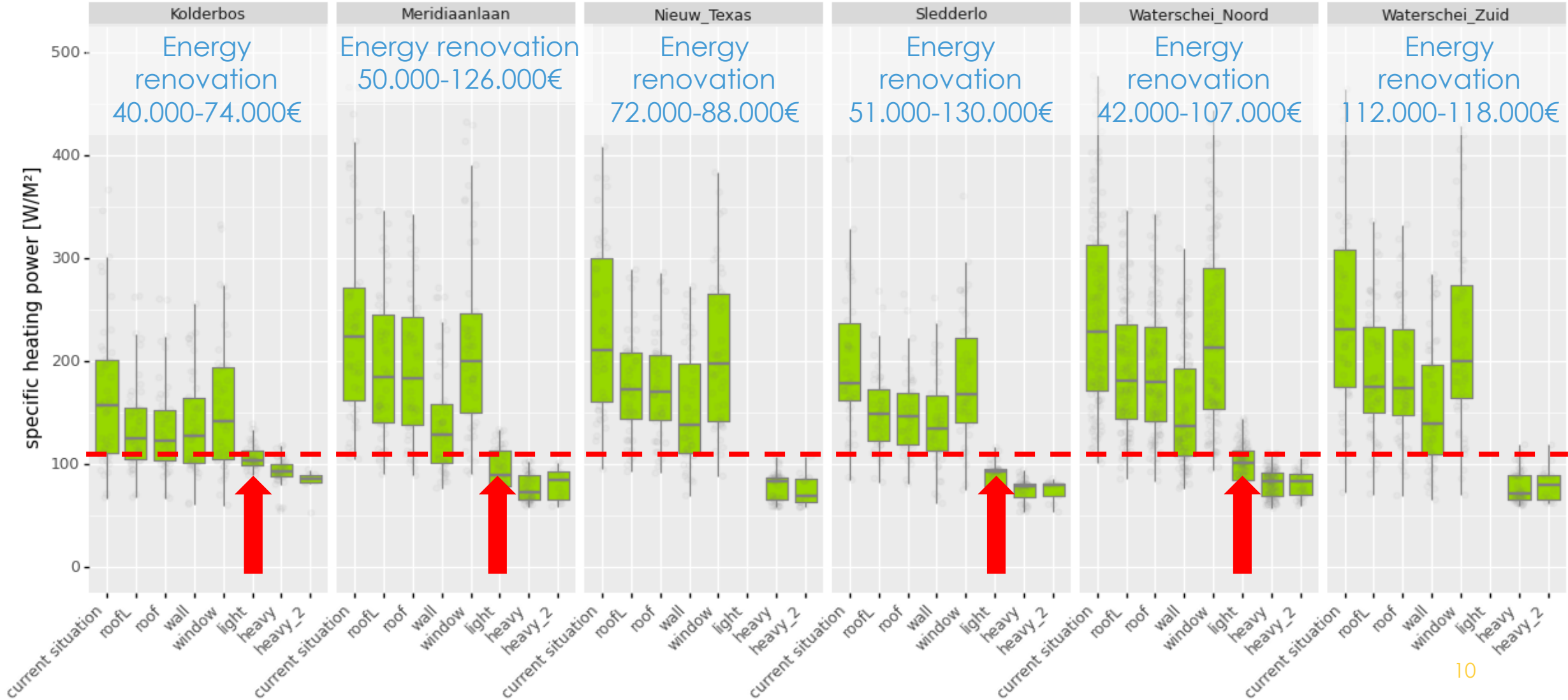


Key challenge 2: accelerate PEN developments in **EXISTING** neighbourhoods



- Life cycle impact retrofit vs new
- Business models for split ownership
- Data collection current state
- Control of legacy equipment
- Phasing over time

Renovation costs & heating power



key challenge 3: engagement of the neighbourhood's community

How to approach the residents?

- Participatory approach beyond raising citizens awareness
- Engaging all actors from the quadruple helix
- Shaping organisational models for PENs



“Talent wins games, but teamwork and intelligence win championships.”

M. Jordan

33 project partners from 7 countries

12 companies

09 research organisations

05 innovation clusters or industry associations

04 public authorities

02 facilitators

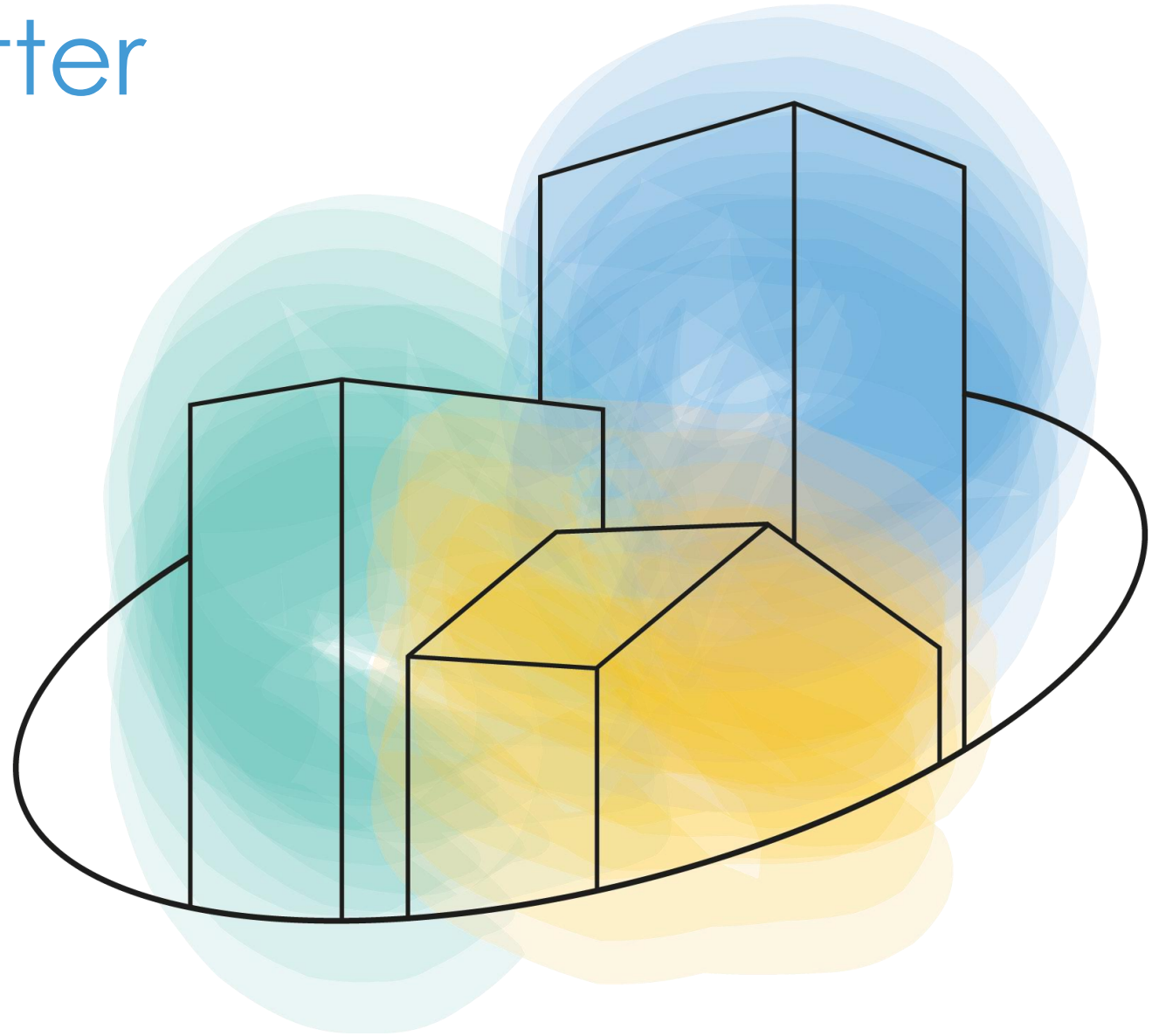
01 social housing company



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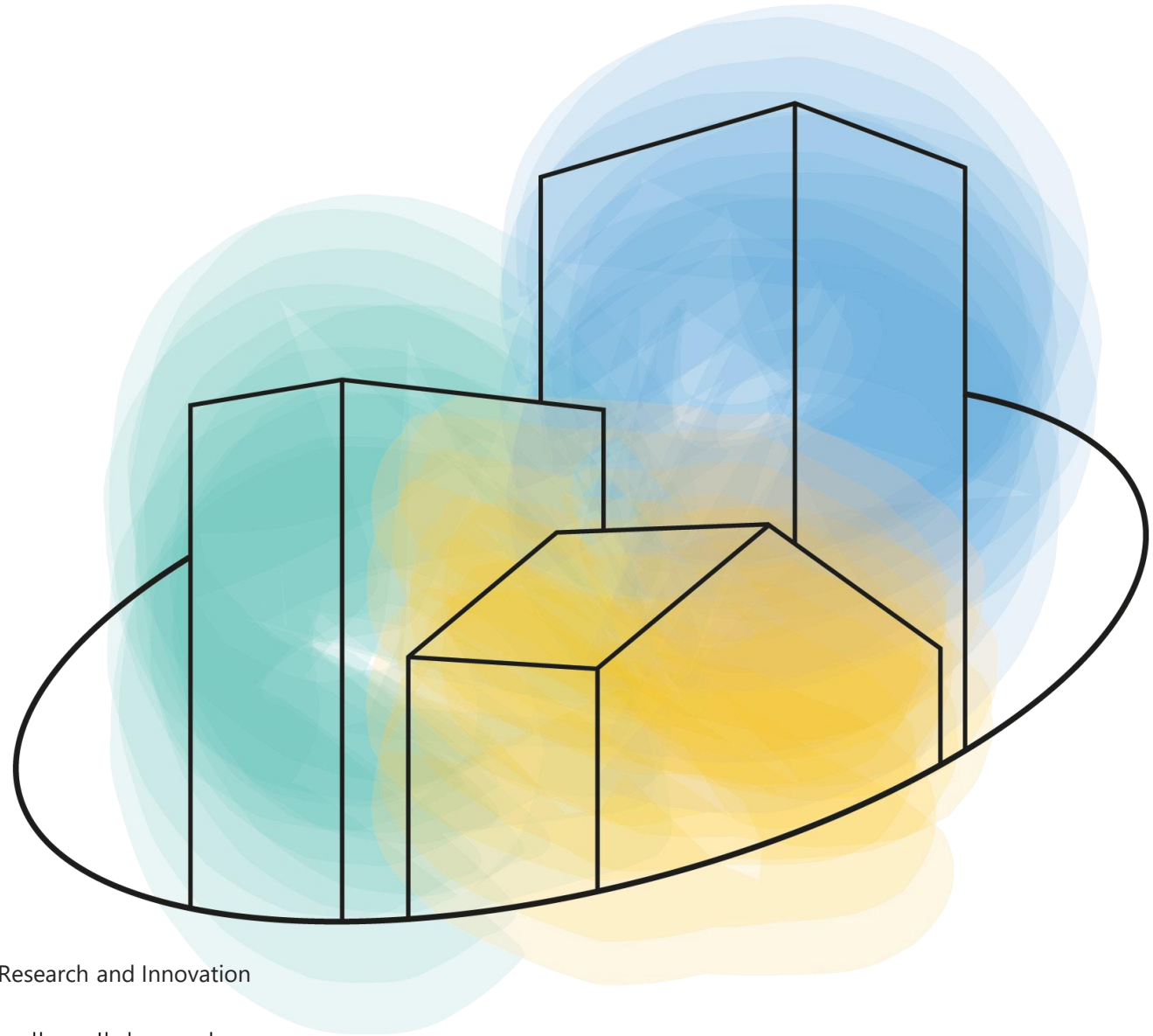
Thank you for your attention!

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