



2050

Heat Roadmap Europe
A low-carbon heating and cooling strategy

Strategic governance Aligning district energy and building energy renovation

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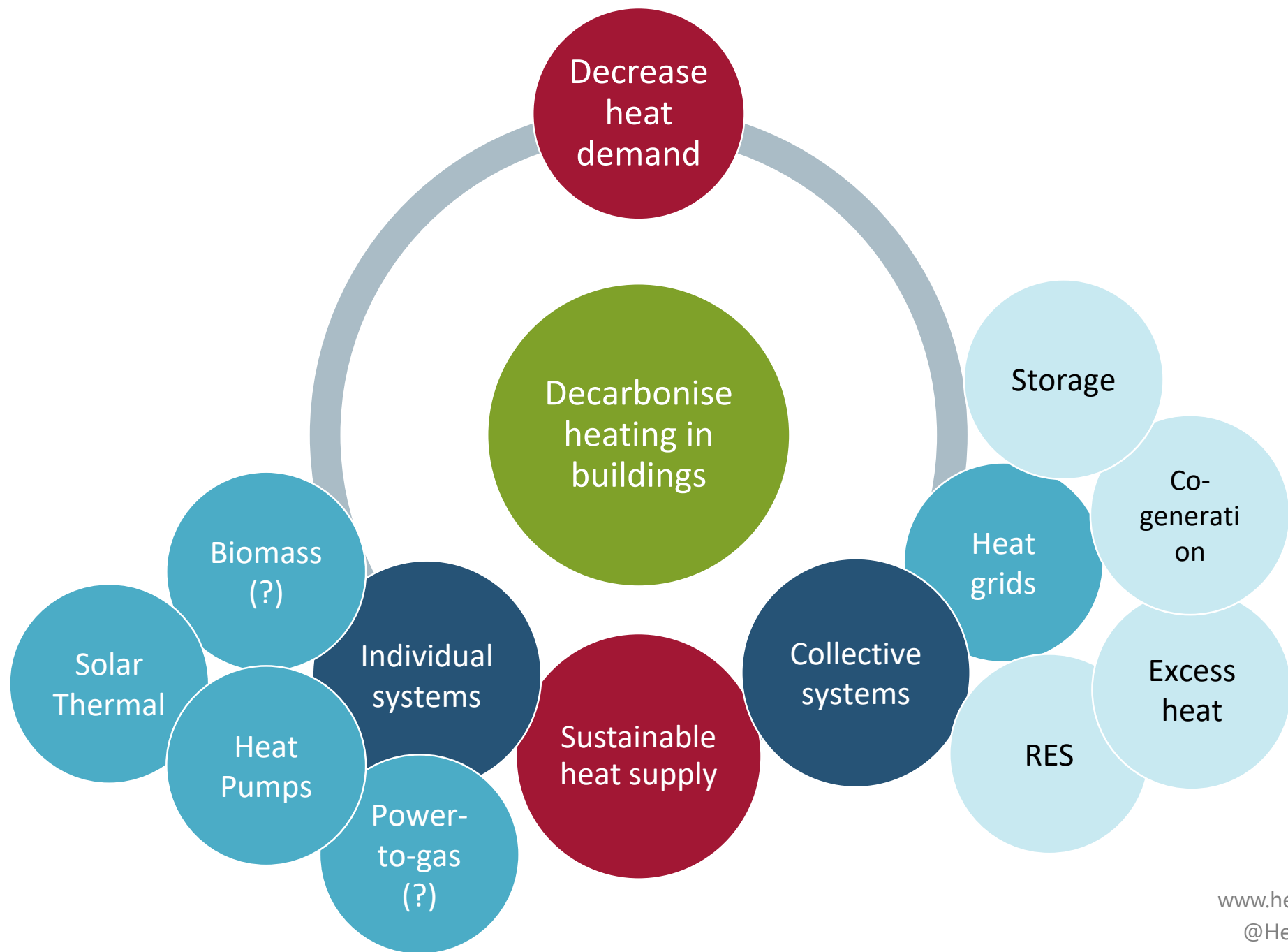
www.heatroadmap.eu
@HeatRoadmapEU



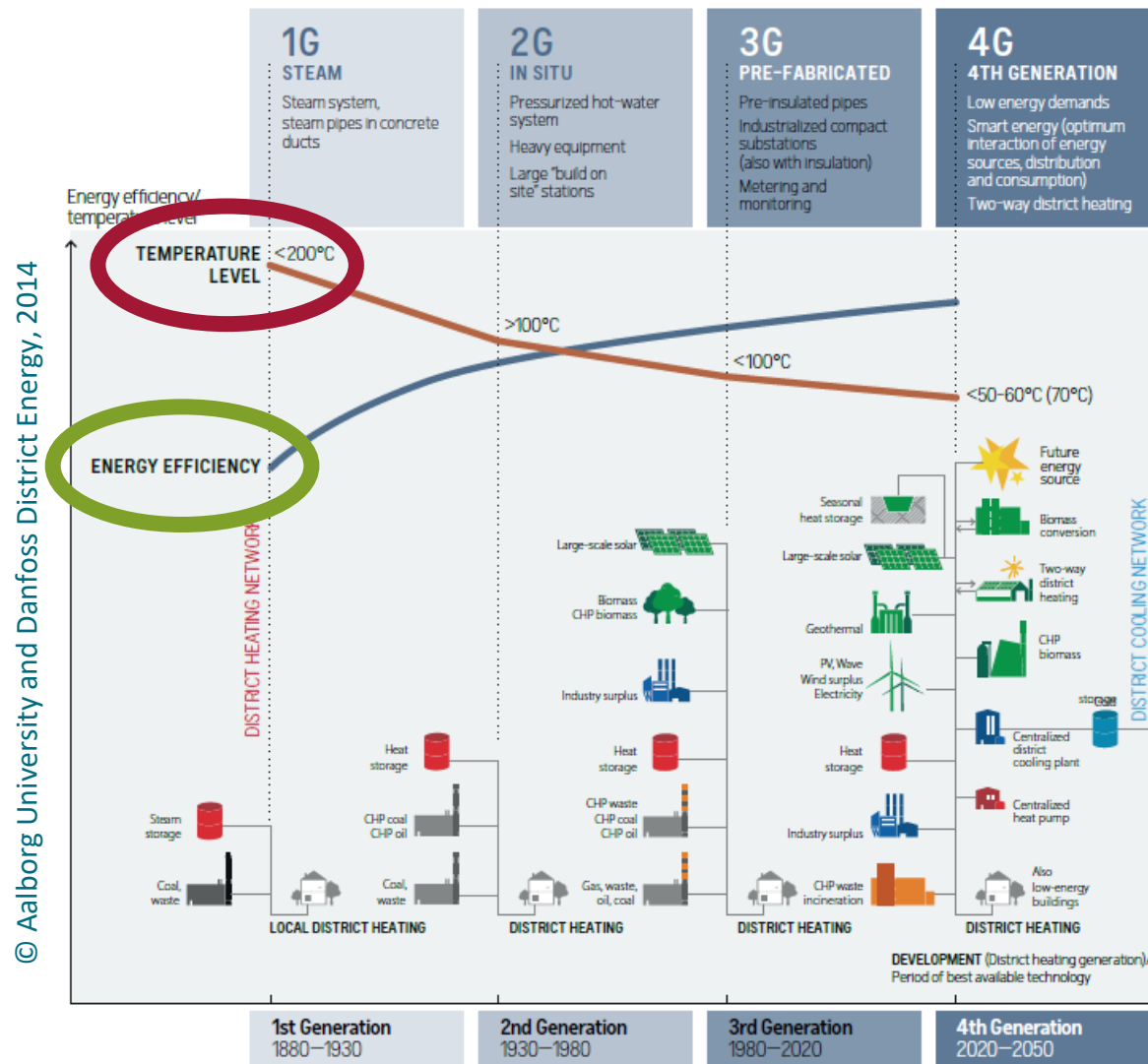
90% of our time is spent indoors

97% OF EU BUILDINGS IS NOT FUTURE PROOF





4G District Heating as a game changer



New installation approach

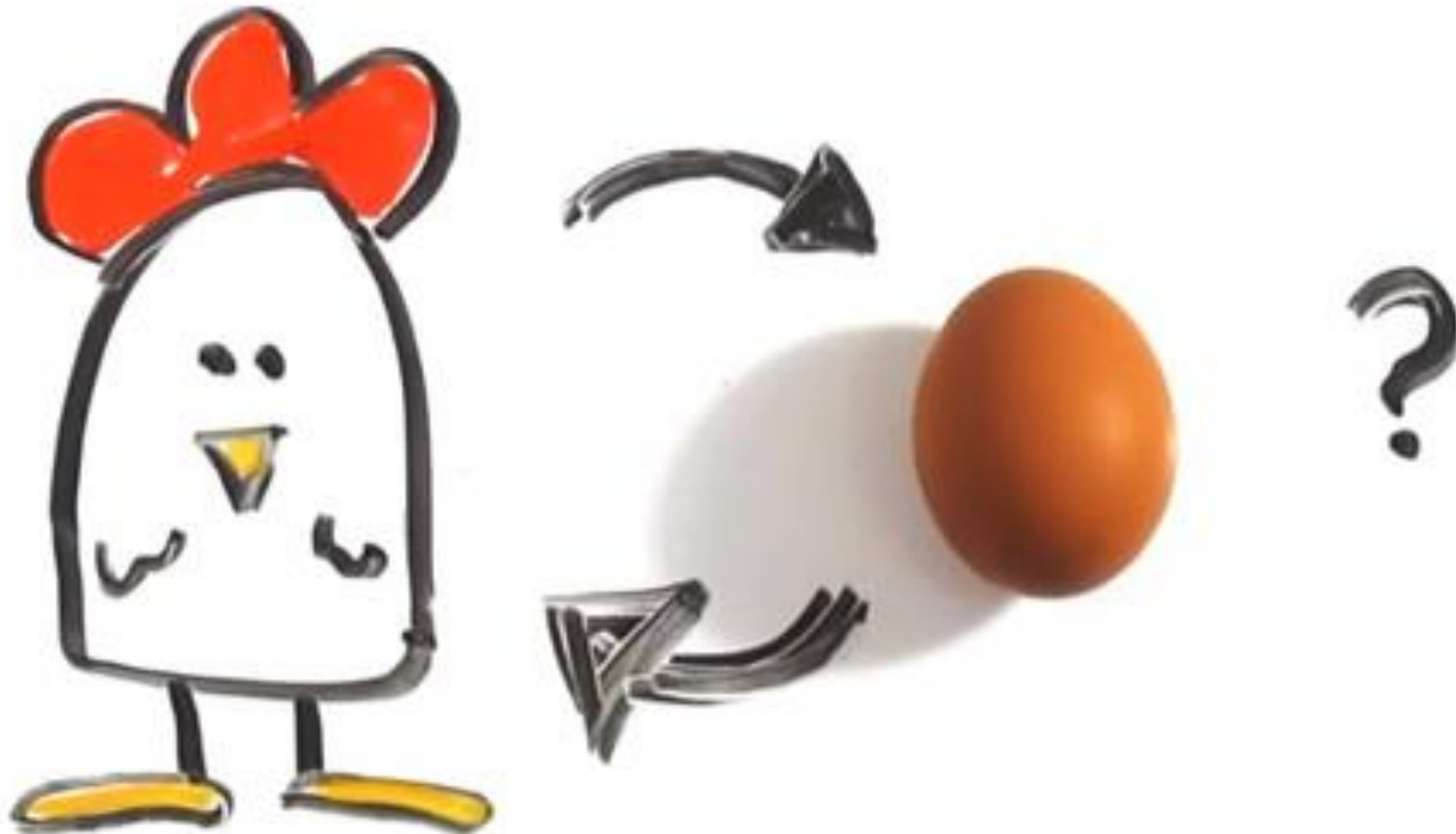
Technology market mature in 2020

Low heat demand in buildings

Consumers can become suppliers

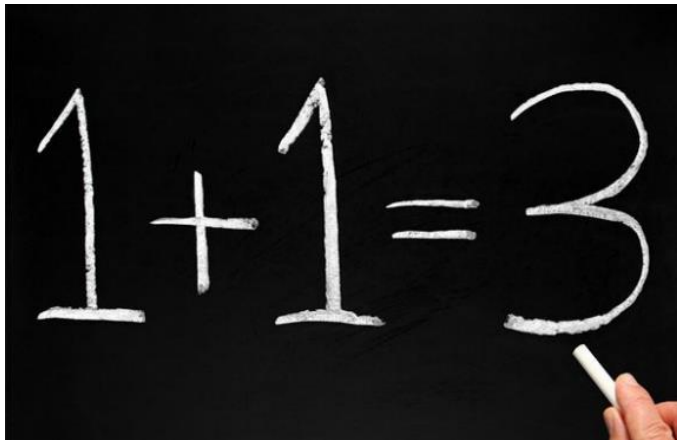


Efficiency in buildings vs district heating



Improvement of EE in buildings & DES are rarely considered in tandem

- Supply-side versus demand-side split in terms of responsibility in local and national administration
- Centralised vs decentralised ownership
- Nature of the investment case



High levels of energy demand savings on the building side through renovation

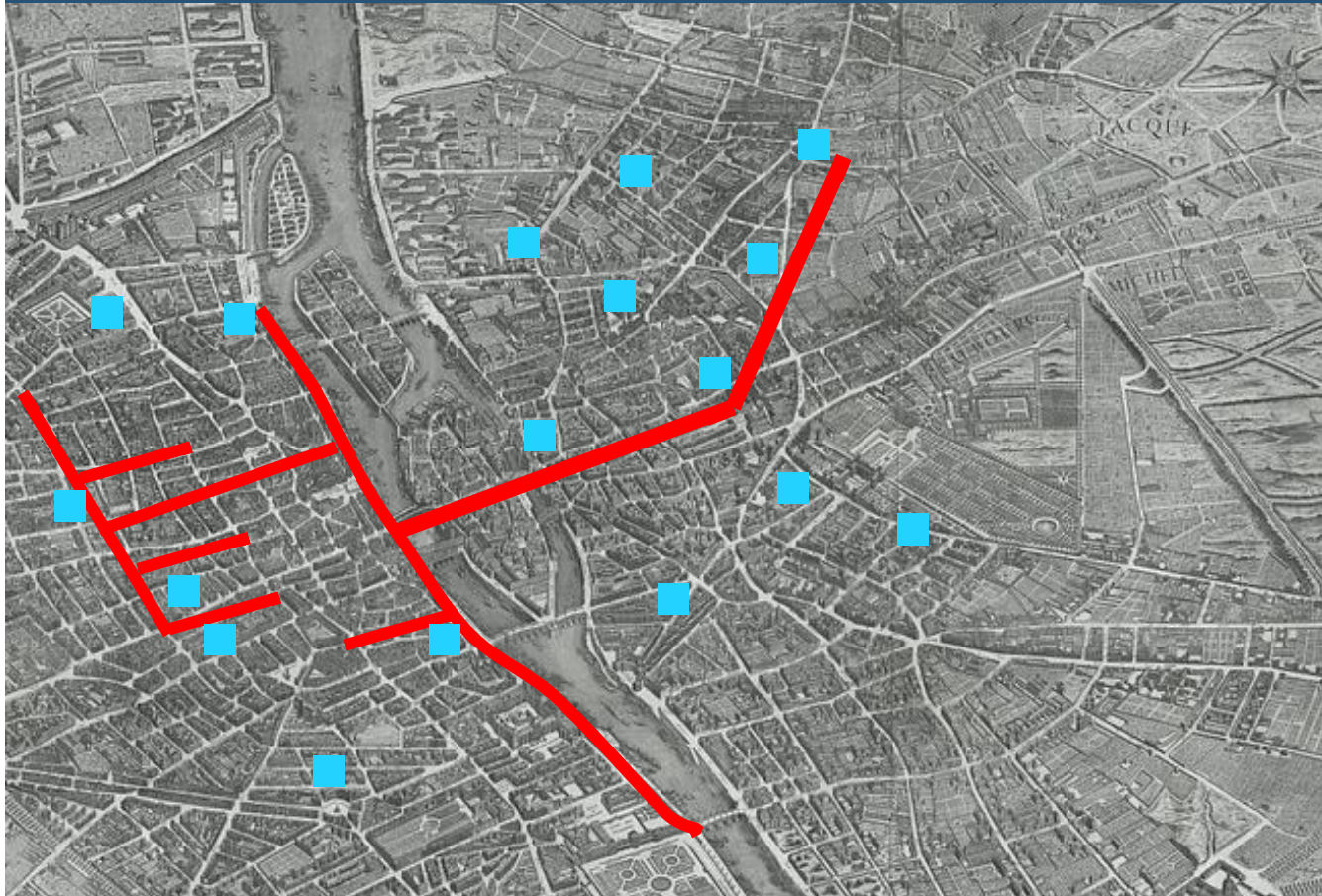


More cost-effective sustainable supply options for the remaining energy demand



From fragmented to extended district approach

Fragmented approach

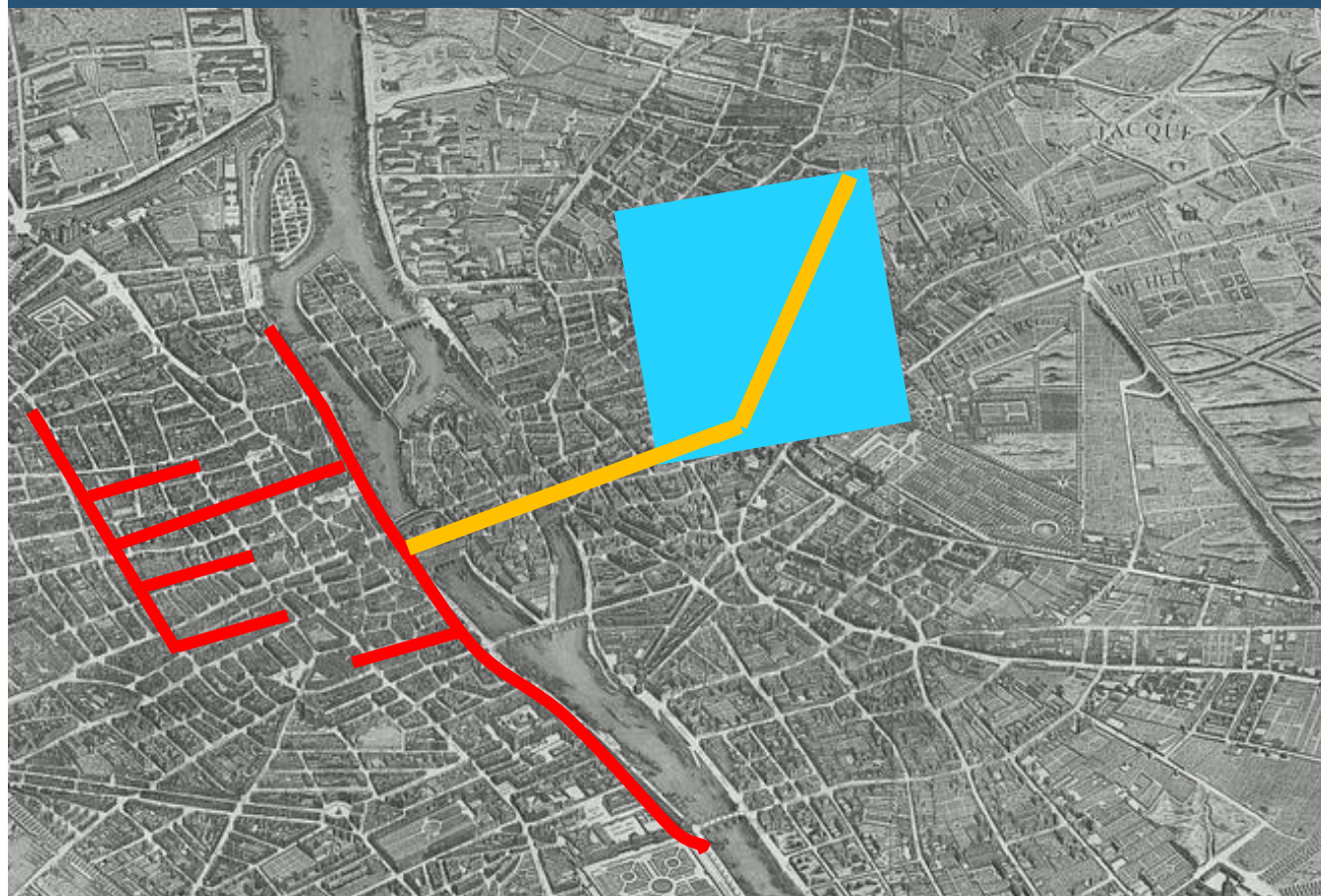





-  DH Network
-  Renovation project



From fragmented to extended district approach

District approach - initial

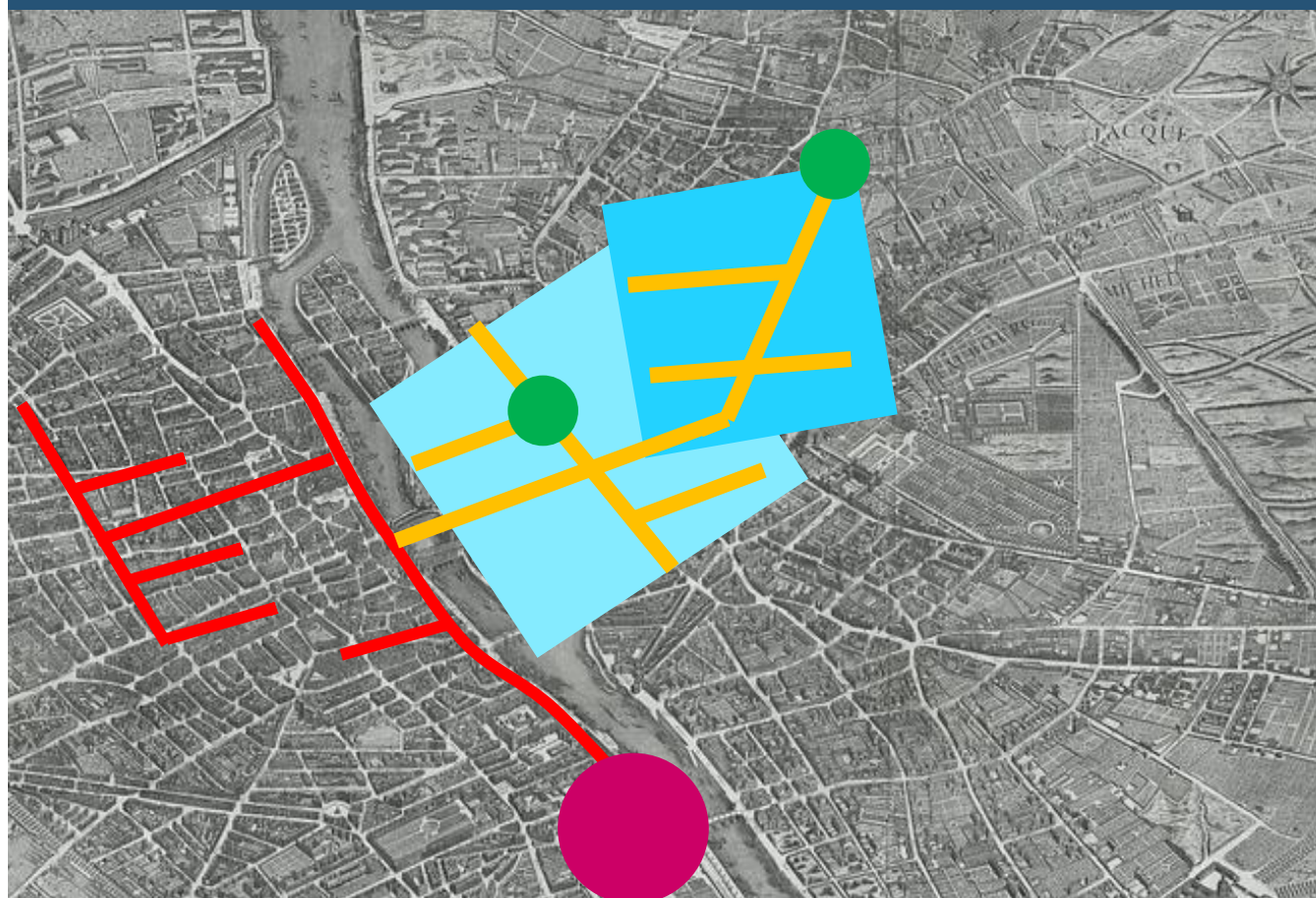


-  DH Network
-  DH Network - Upgraded
-  Renovation project



From fragmented to extended district approach

District approach - extended



- RES plants
- Available excess heat
- DH Network
- DH Network - Upgraded
- Renovation project

Urban regeneration

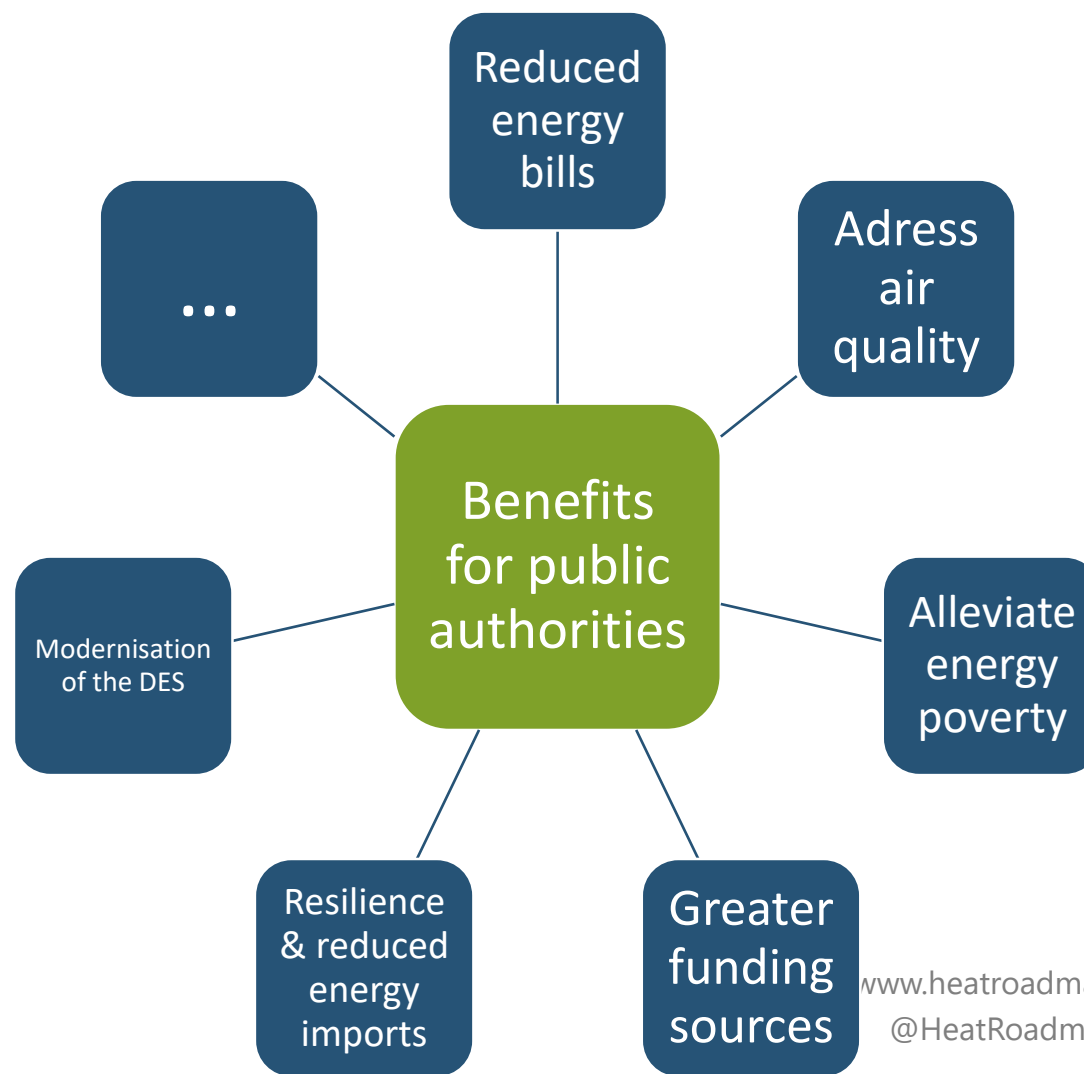
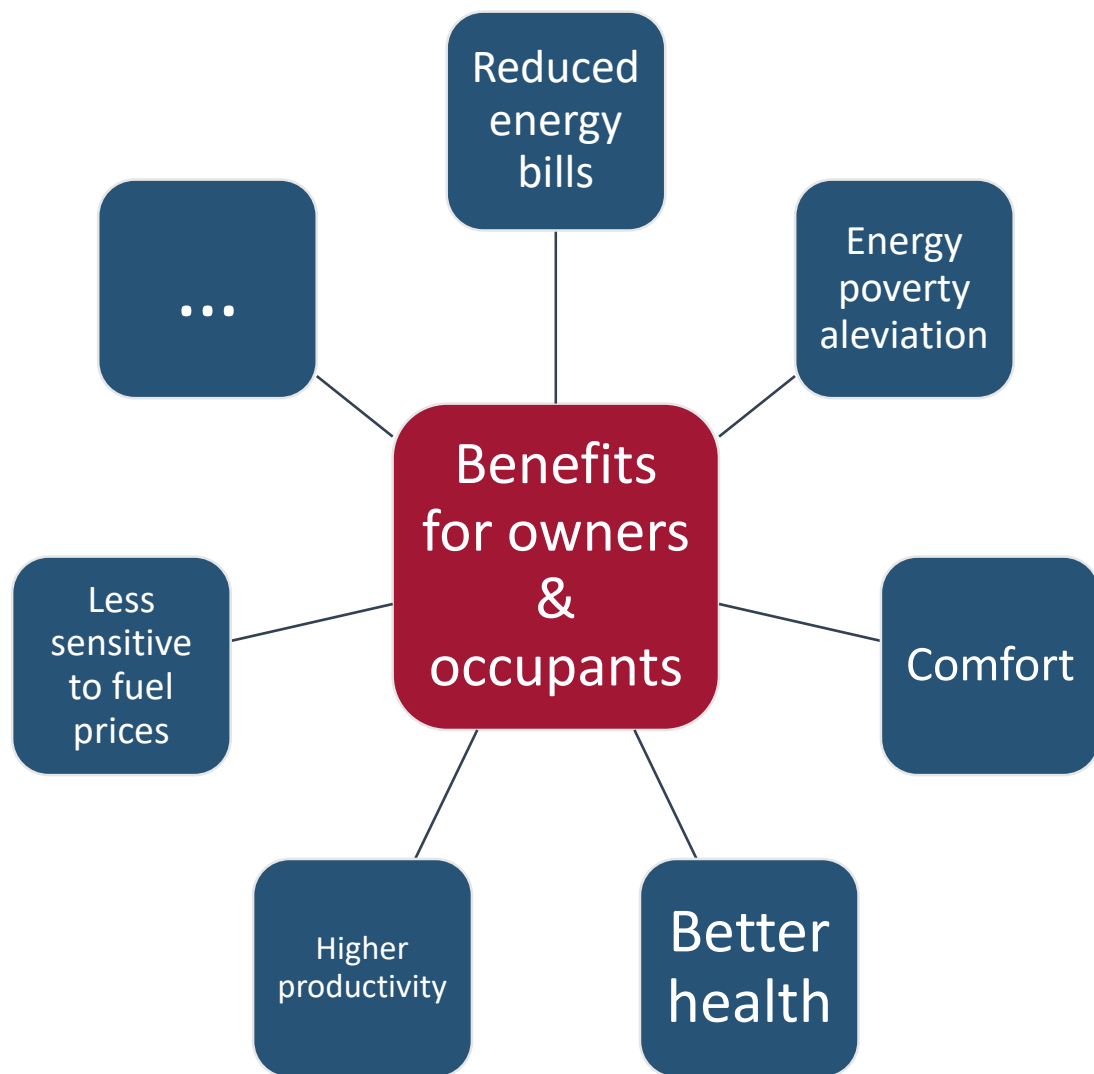
A three phased masterplan offers Albertslund (DK) a fresh start



- Highly insulated, retrofitted buildings and low-temperature district heating system
- Broad coalition of partners: municipality, utility companies, housing associations, heat suppliers, industrial partners, academic partners and the Danish Energy Agency
- Empowerment and active involvement of the residents
- Big scale renovation but individualised approach - all buildings look the same from the outside but very different from the inside
- Long-term planning: implementation of the Masterplan Albertslund for 18 years



A synergetic approach brings multiple benefits...



Quantifying the impact of better indoor environment

People-centric offices = healthier and more productive employees



7-12%



3-6%



3-6%



3-4%



2-3%



Quantifying the impact of better indoor environment

HEALTHCARE BUILDINGS ACCOUNT FOR 7% OF THE TOTAL FLOOR AREA OF THE EU'S NON-RESIDENTIAL BUILDING STOCK



PATIENTS' LENGTH OF STAY CAN BE REDUCED BY 11%



MEDICATION COSTS ARE REDUCED BY UP TO 21%



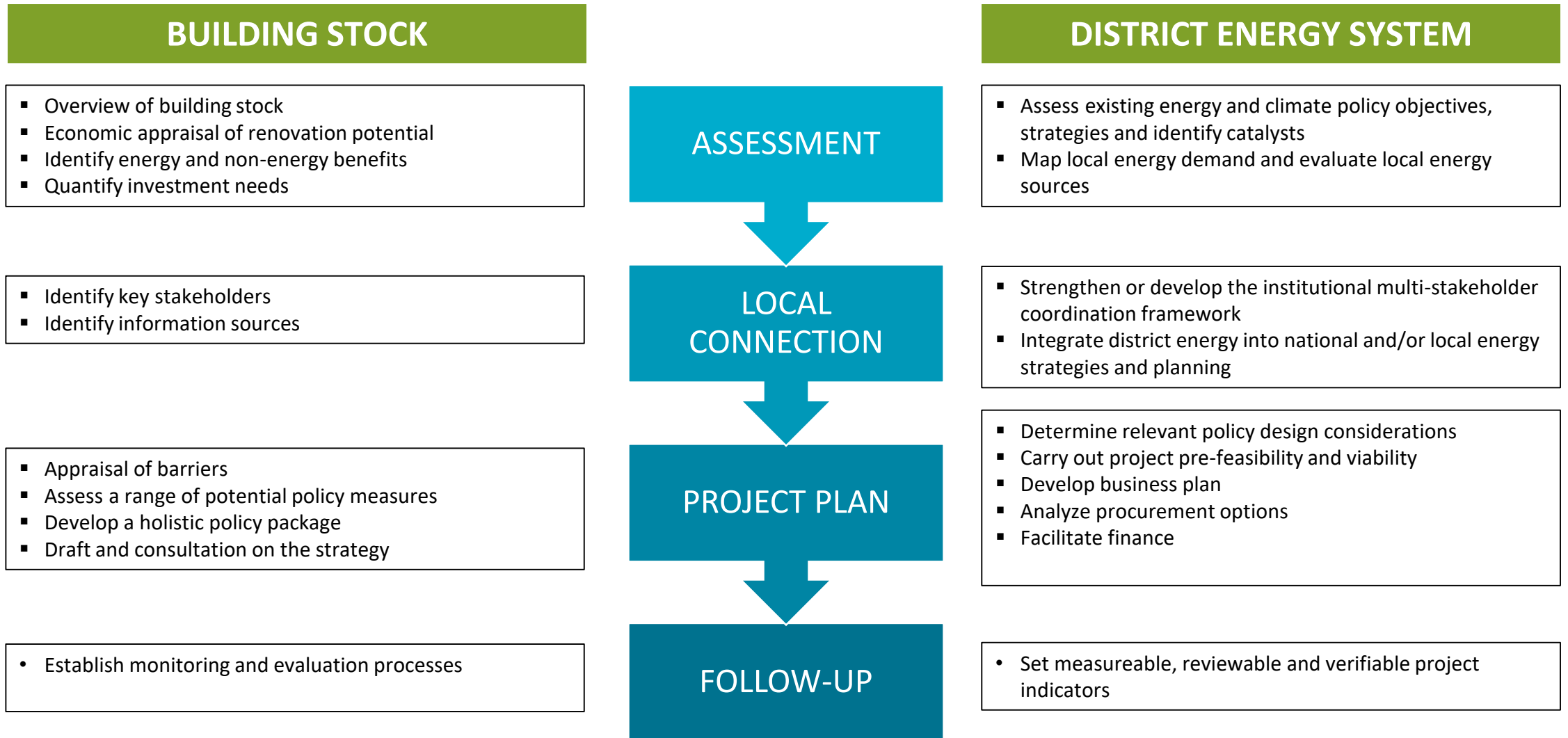
MORTALITY IN ONE CHILDREN'S HOSPITAL WAS REDUCED BY UP TO 19%



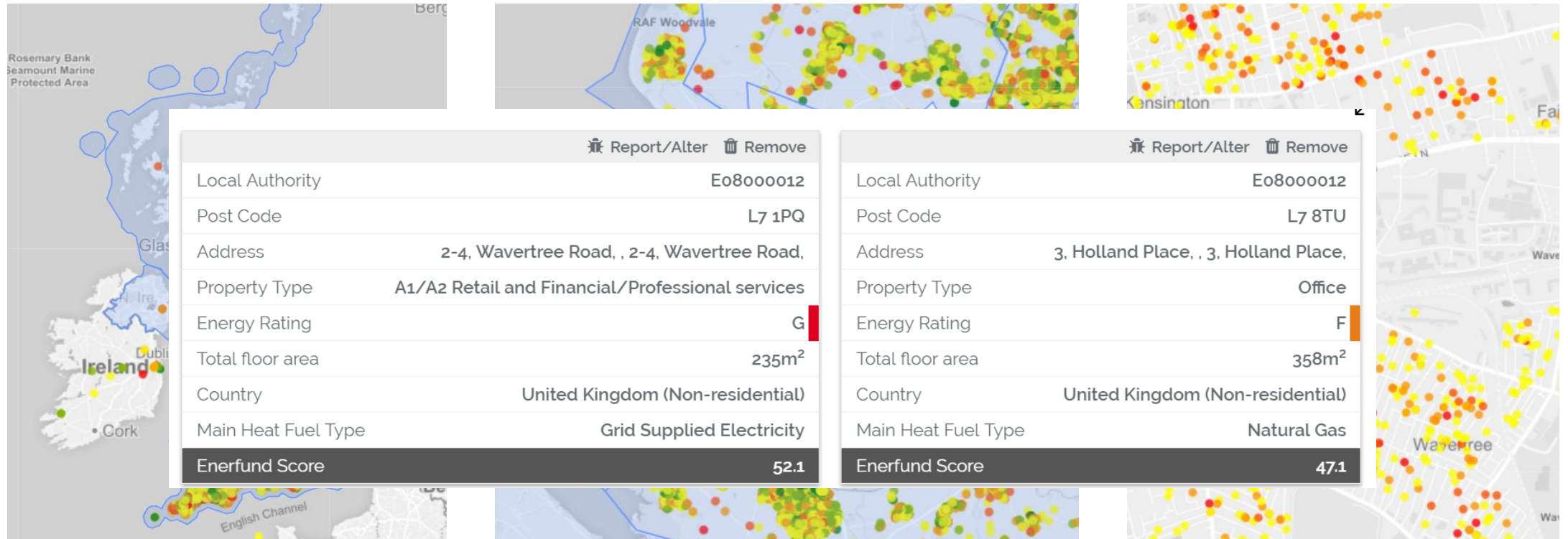
EMPLOYEE TURNOVER IS REDUCED BY UP TO 20%



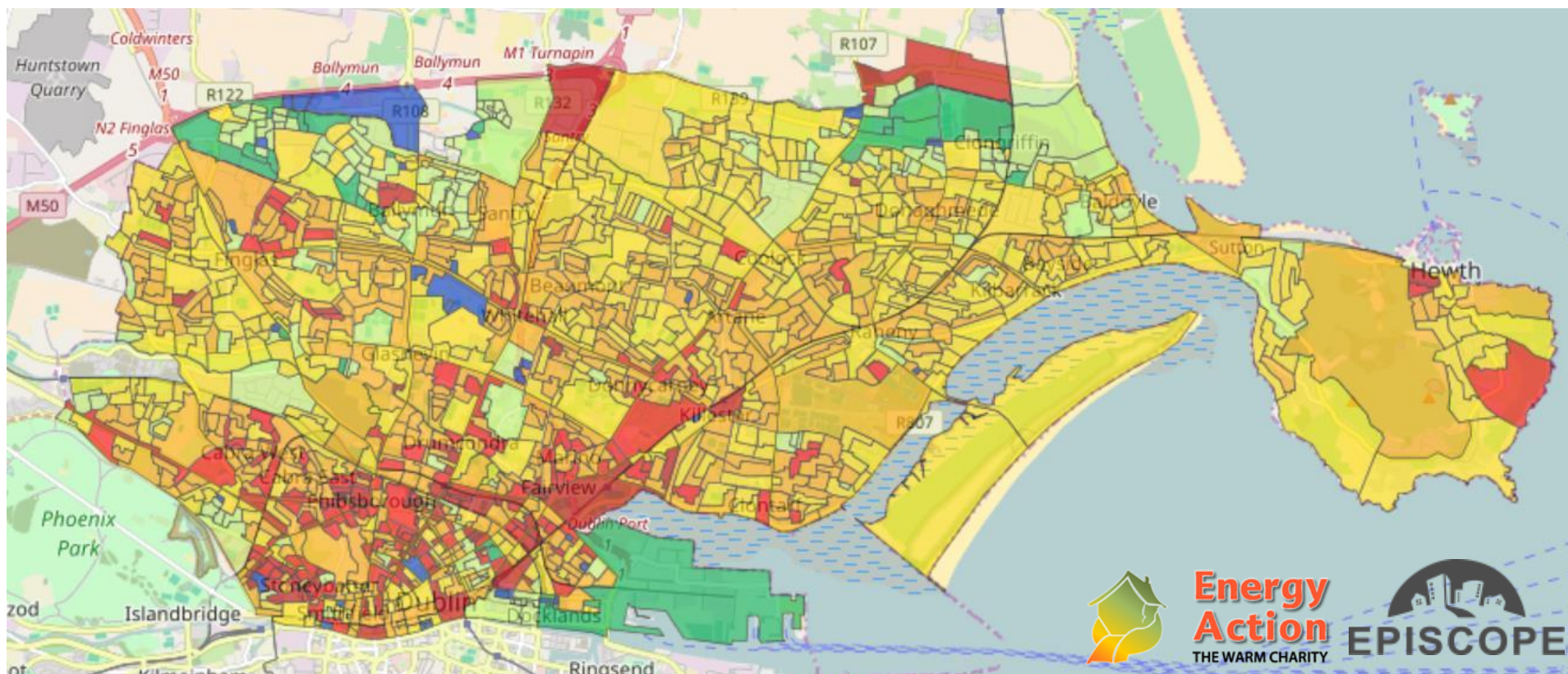
Align building and DES strategies on governance level



A proper database on buildings performance allows for optimal policy planning and implementation



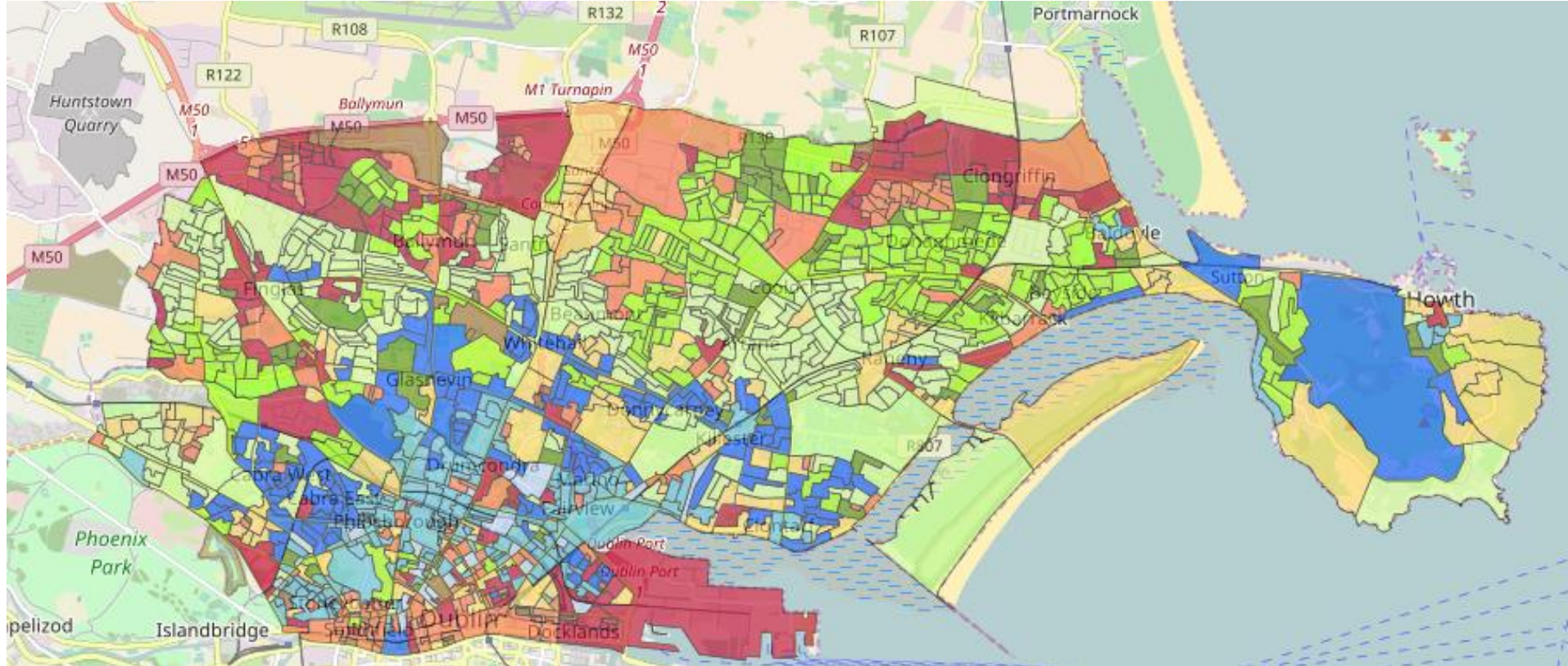
Example of dynamic data-use Dublin, Ireland



Mapping **energy performance bands**, building age, U-values, heating systems, energy poverty...



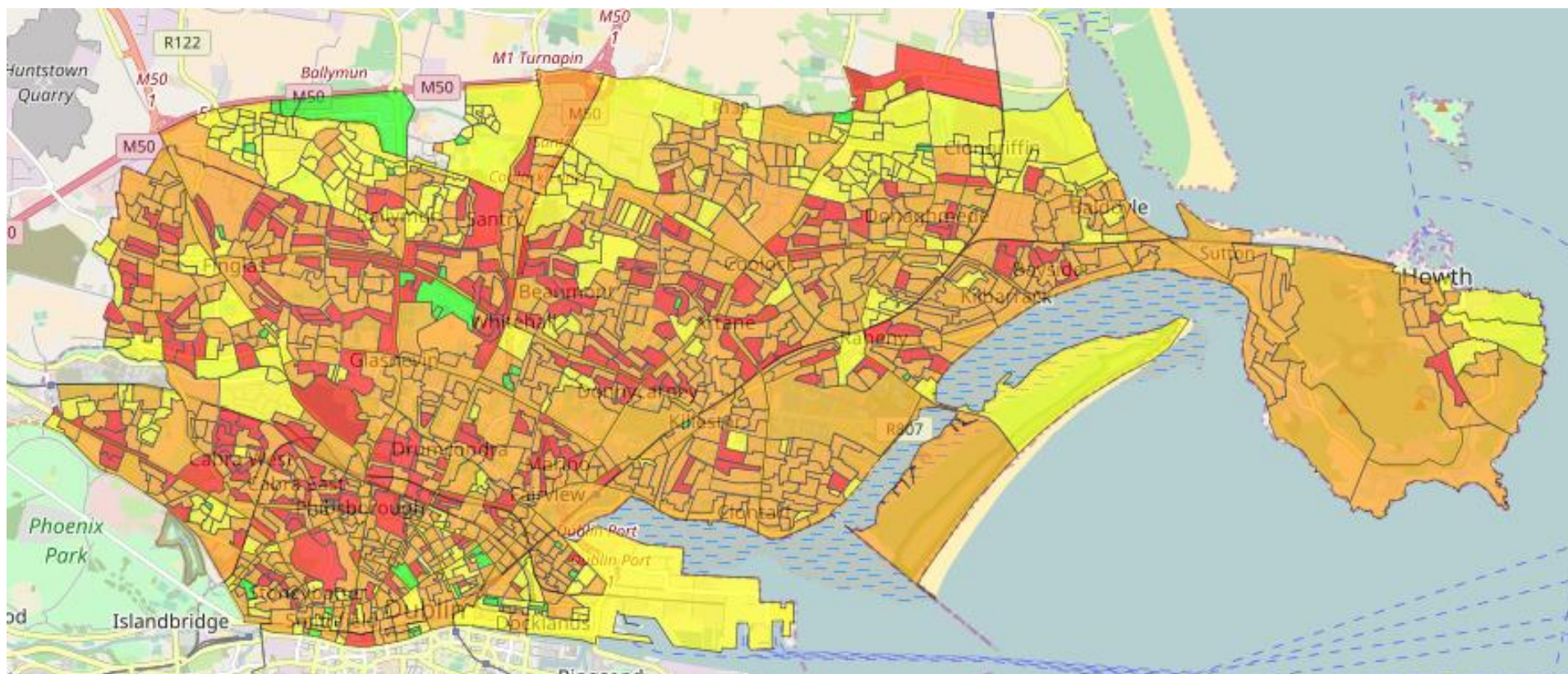
Example of dynamic data-use Dublin, Ireland



Mapping energy performance bands, **building age**, U-values, heating systems, energy poverty...



Example of dynamic data-use Dublin, Ireland

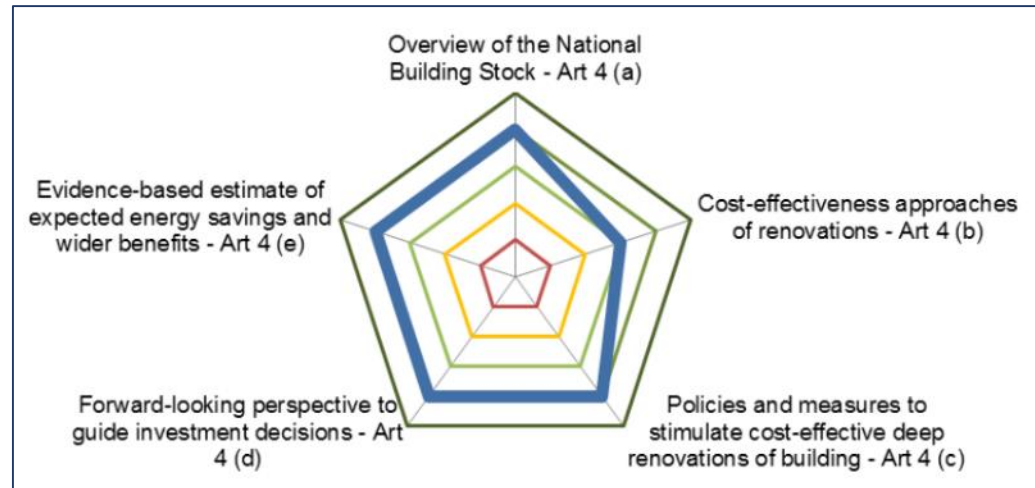
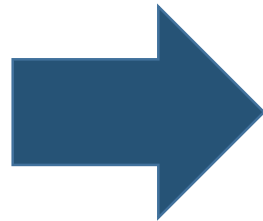


Mapping energy performance bands, building age, **U-values**, heating systems, energy poverty...

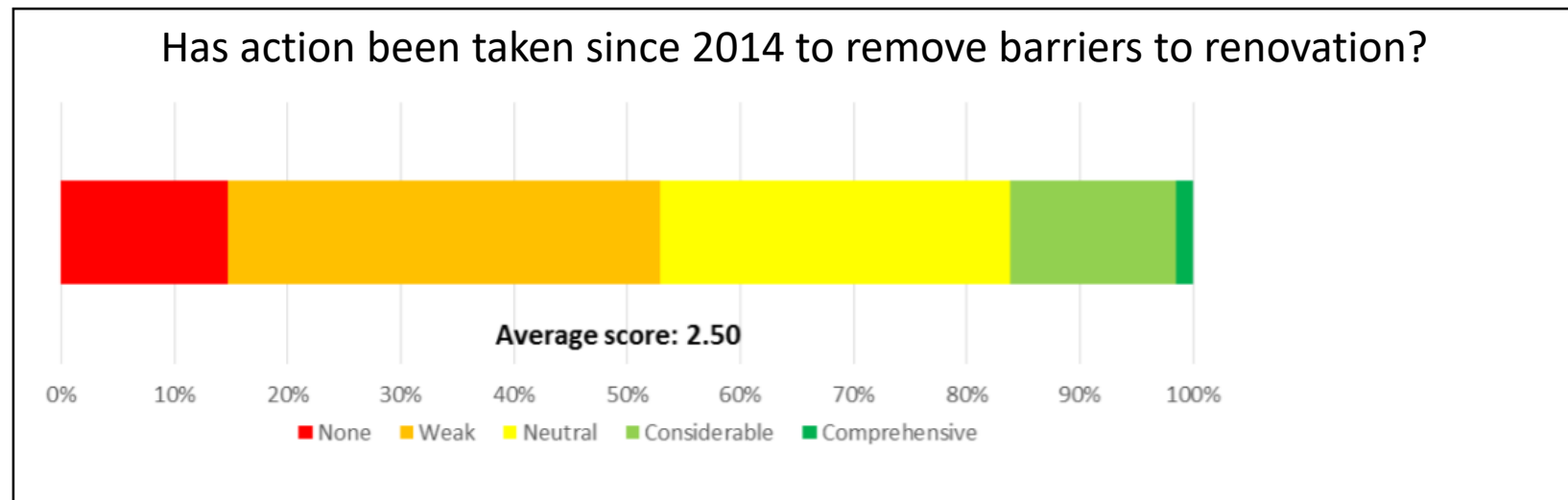
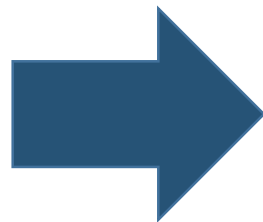
Reality check at implementation phase



PROMISE



REALITY



Thank you!



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