

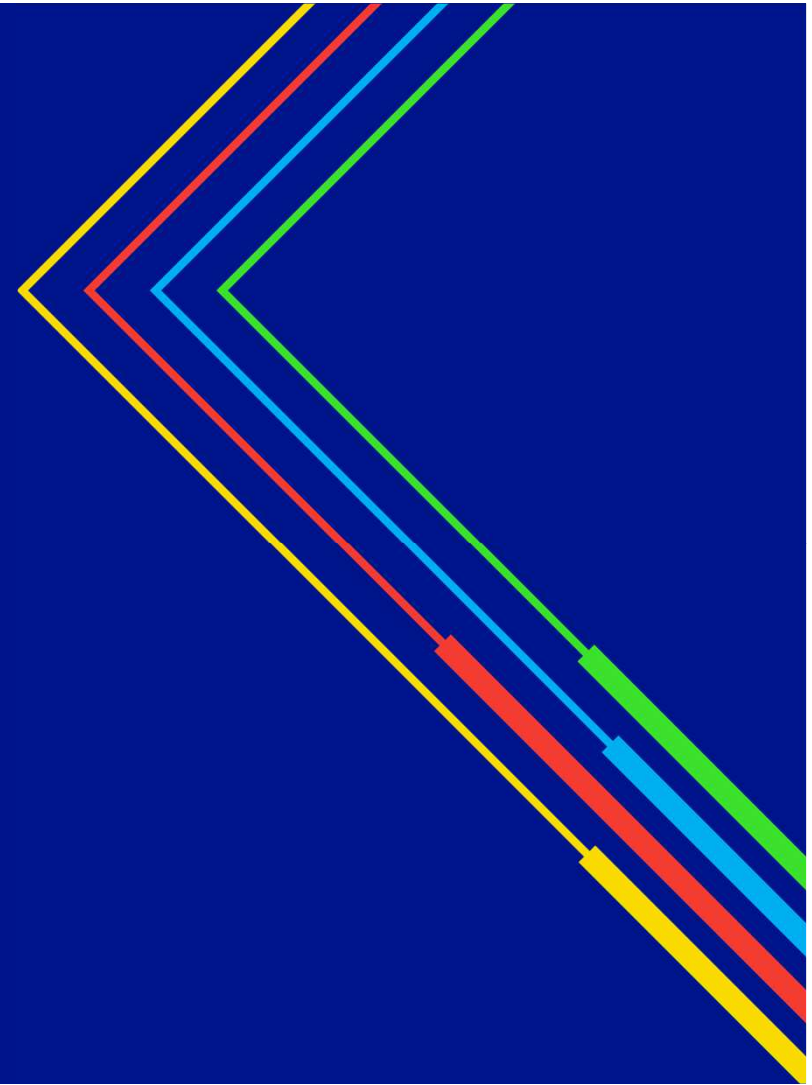
**Electricity
Distribution**

PRIDE SIF Project

Discovery Phase

**Show & Tell Session
20th June 2023**

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Agenda

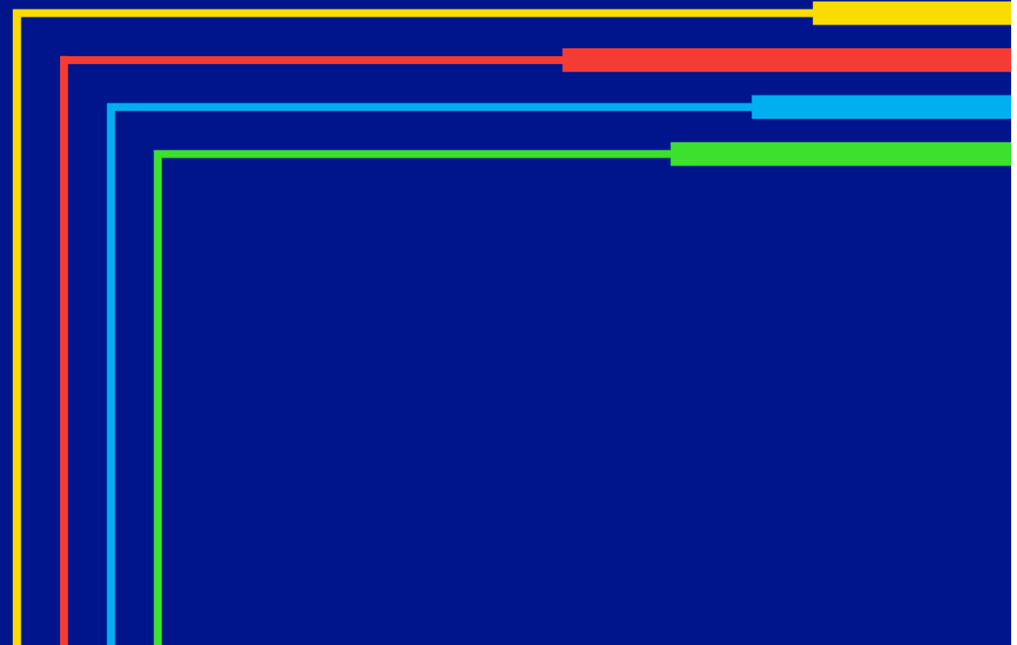
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| 02 | Problem Statement |
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| 04 | Looking Ahead |
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01

Introductions

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Project Team

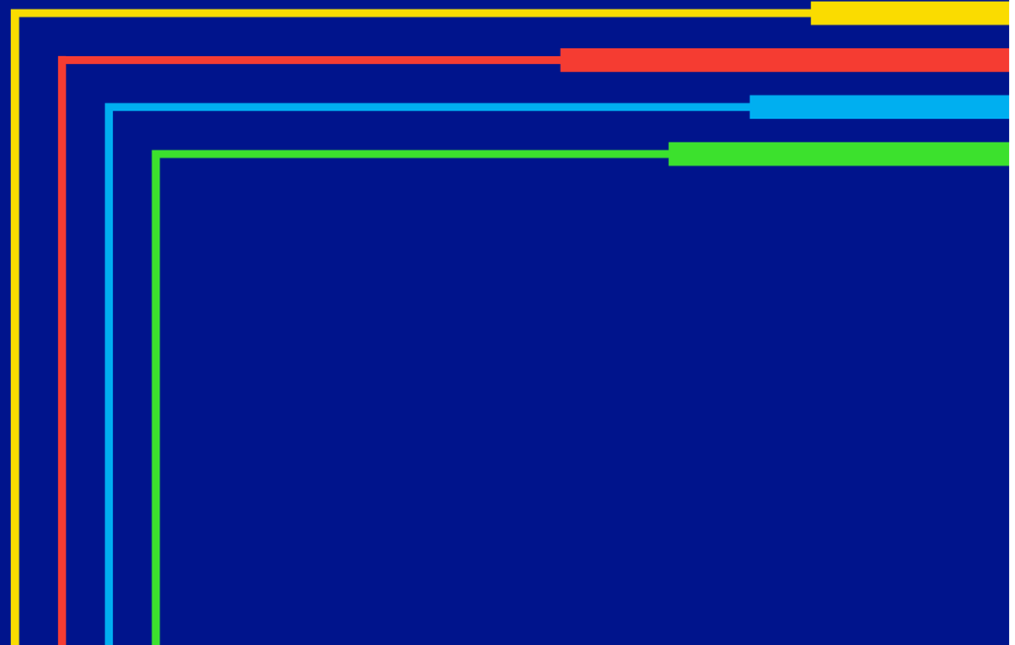
National Grid Electricity Distribution	Jenny Woodruff
National Grid Electricity System Operator	Stuart Fowler
West Midlands Combined Authority	Cheryl Hiles, Kate Ashworth, Eleanor Pitcher
Advanced Infrastructure Technologies Limited	Christopher Jackson
Smart Grid Consultants	David Penfold

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Problem Statement

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Problem Statement

Deployment of low carbon technologies at scale is only achieved if uncertainty is lowered from current levels. Uncertainty around infrastructure needs, opportunities and improvements is hampering investment and the pace of progress. **PRIDE** explored how using a digital twin to visualise and model changes to electricity, heat, gas, transport, digital and water infrastructure, can make interdependencies, market opportunities and business cases more visible, therefore ensuring the investment decisions enabling decarbonisation of major loads are efficient and optimised. PRIDE developed the Local Area Energy Planning use case identified in the **VirtualES**.

The **Discovery Phase** has considered three areas, the Use Cases that could be developed, the data that can be used and the likely future organisational structures.

In the **Alpha Phase** we will specify, deliver and test upgrades to the digital platform while specifying and preparing for the organisational trial that will use the improved digital platform.

In the **Beta Phase** we will deliver an organizational trial that will test and validate organisation and governance structure for local area energy planning.

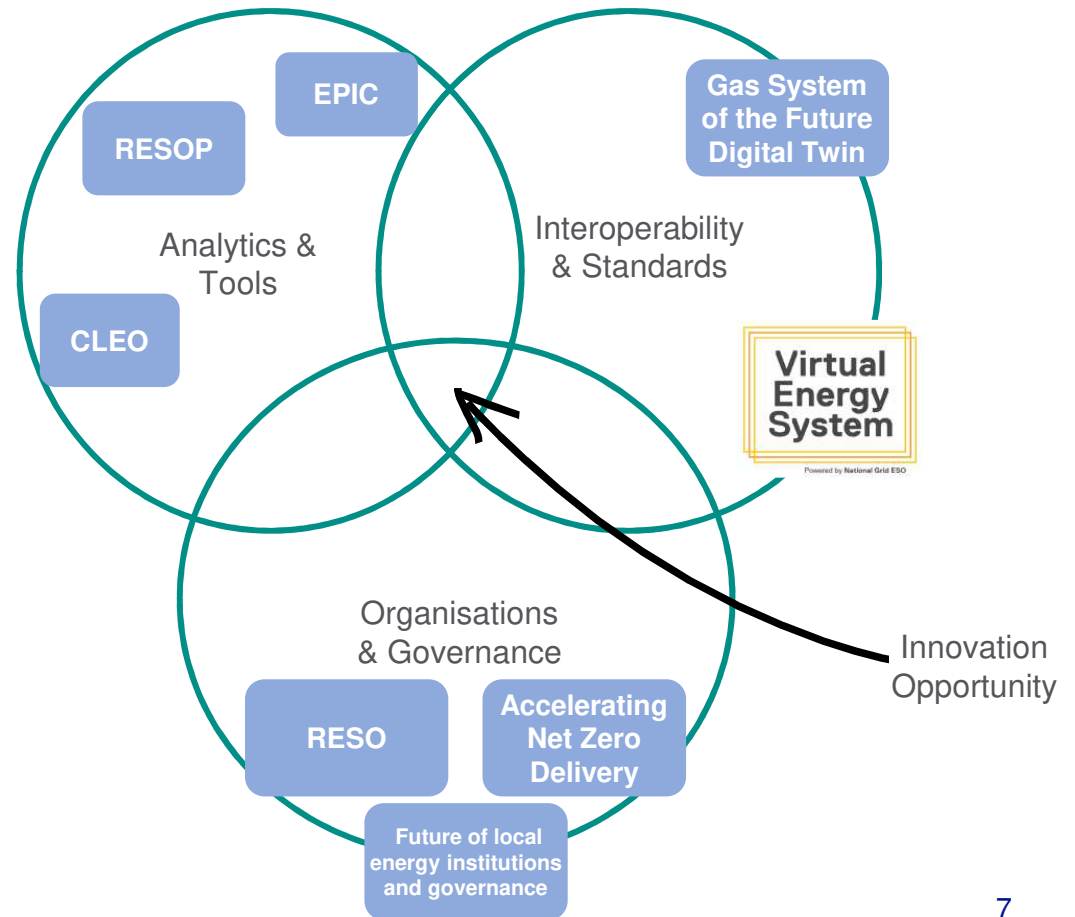
Project Overview

We explored the alignment between ESO Virtual Energy System and other projects and mapped and innovation landscape identifying three board areas of analytics & tools, digital twins, and organisations & governance.

PRIDE aligns with VirtualESO use case no. 24 Planning of local LCT implementation.

PRIDE also aligns with Gas System Future Digital Twin use case Helen (LAEPs).

Neither of the two projects aim to explore the organizational aspects or to fully deploy tools to address the common use case.



Digital tools for Local Area Energy Planning



Optioneering & Zoning



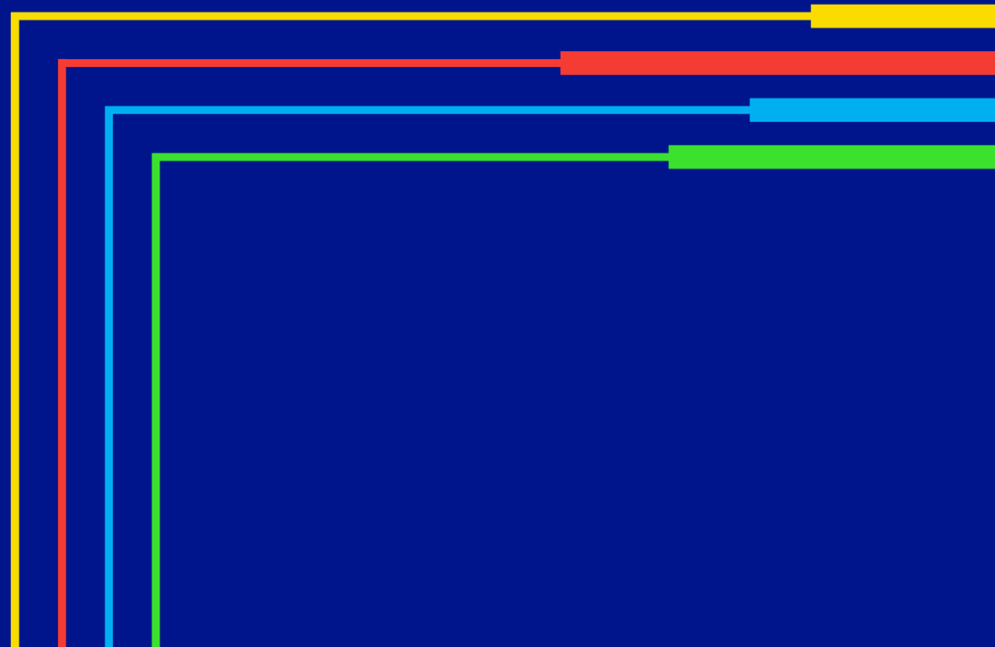
Heat pump siting user story

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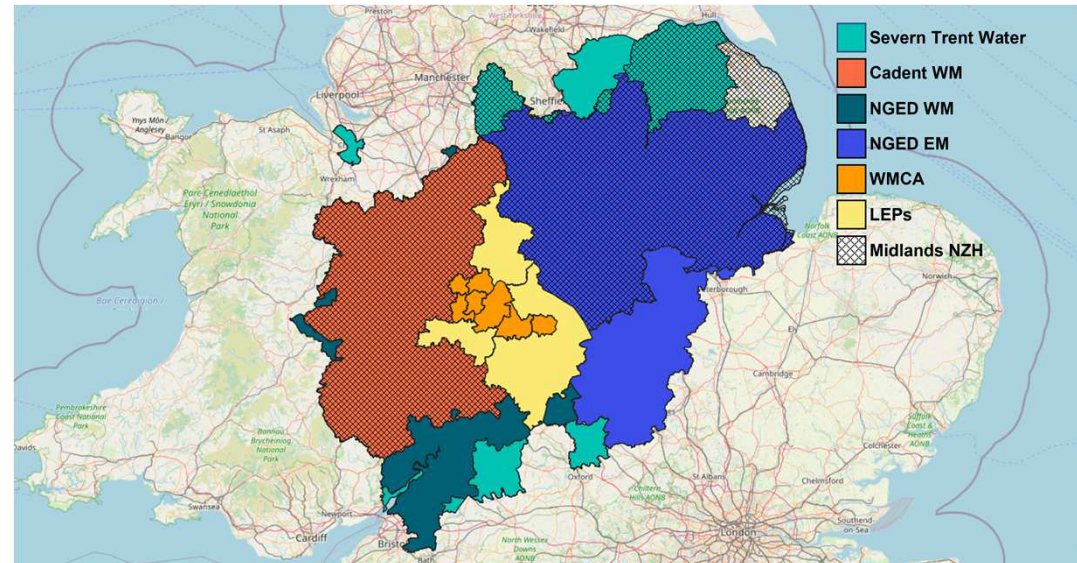
Retrospective Review

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WP2 – Organisational Options

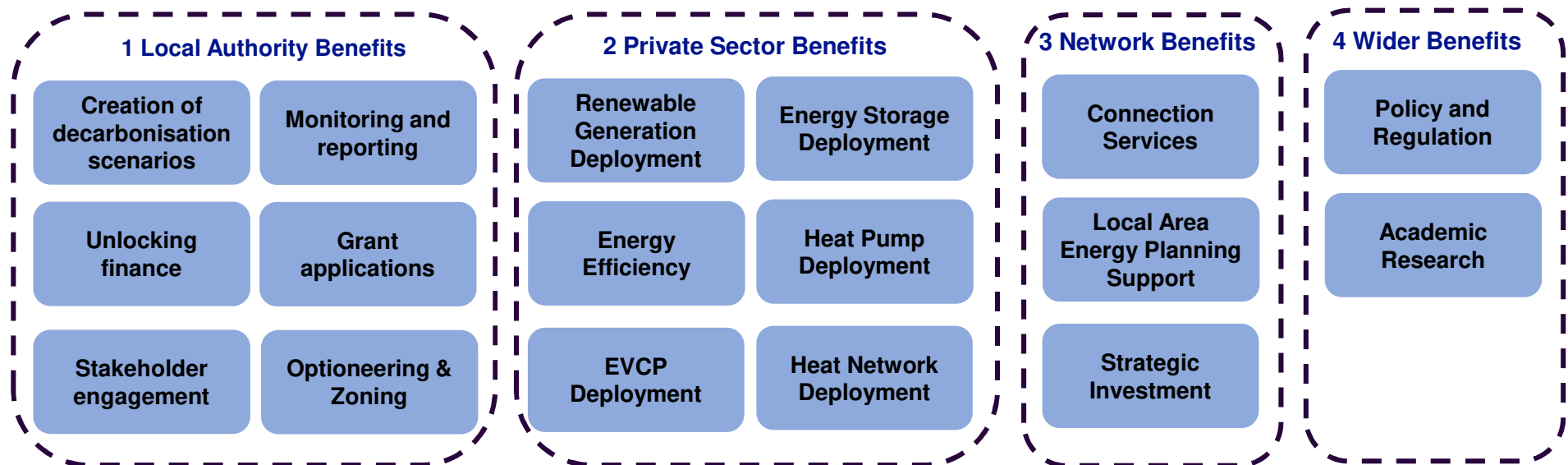
- Spatial mapping of the organisation boundaries within the WMCA show a fragmented and overlapping structure in which the periphery of the region suffers from fragmented coverage of supporting organisations
- Electricity, gas and water providers service territories that are intersected by multiple Tier 1 and Tier 2 local authorities. Supporting organisations such as Net Zero Hubs and Local Enterprise Partnership do not overlap comprehensively with network operators
- The table shows that 1 in 3 local authorities are served by at least 2 network operators



	Locally authorities wholly within the area of service	Partially within the area of service
National Grid Electricity Distribution (EM and WM)	62	28
Cadent Gas Networks (WM)	29	8
Severn Trent Water	64	12

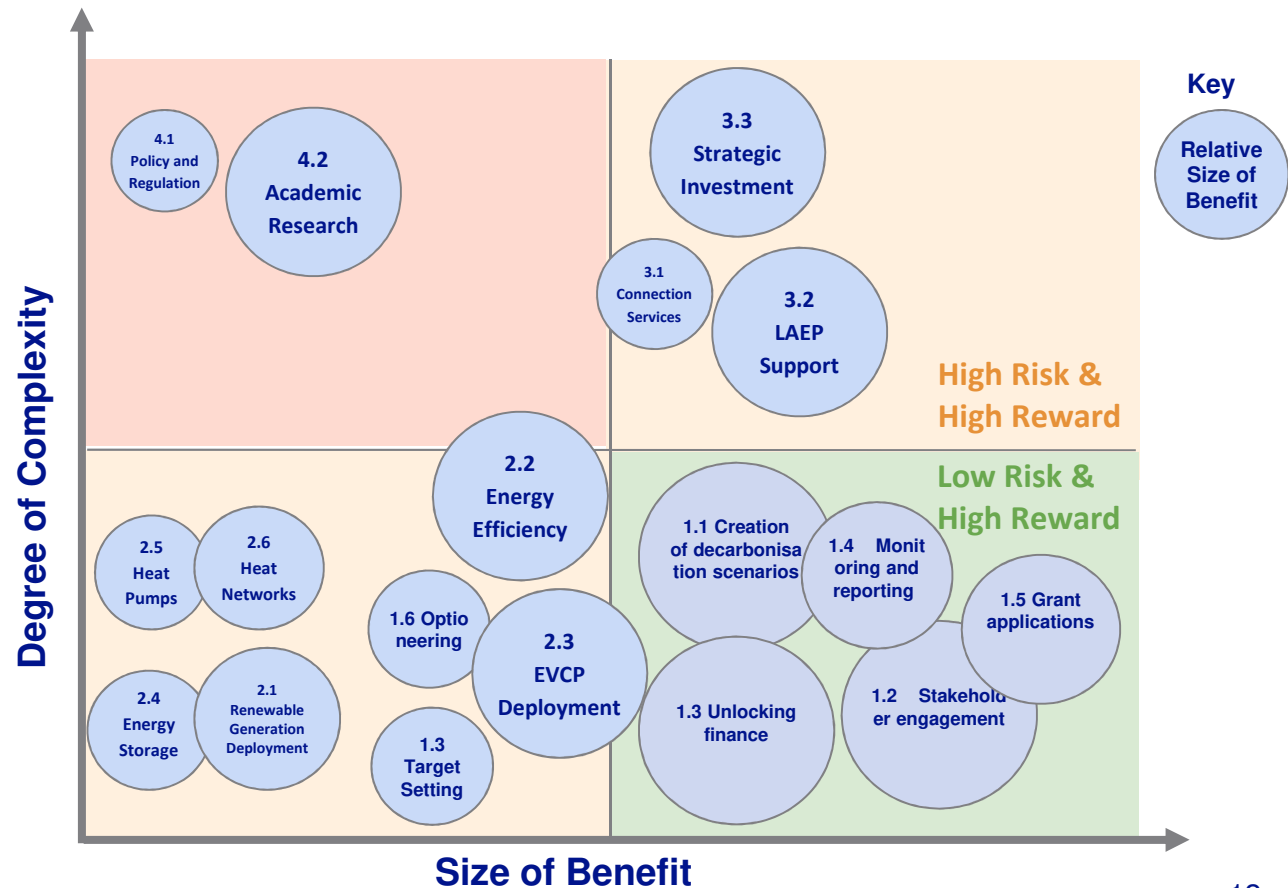
WP1 – Use Cases

17 use cases were identified in project PRIDE. These were clustered into four sets of benefits accruing to Local Governments, Customers, Energy Networks and the wider economy



WP1 – Use Cases

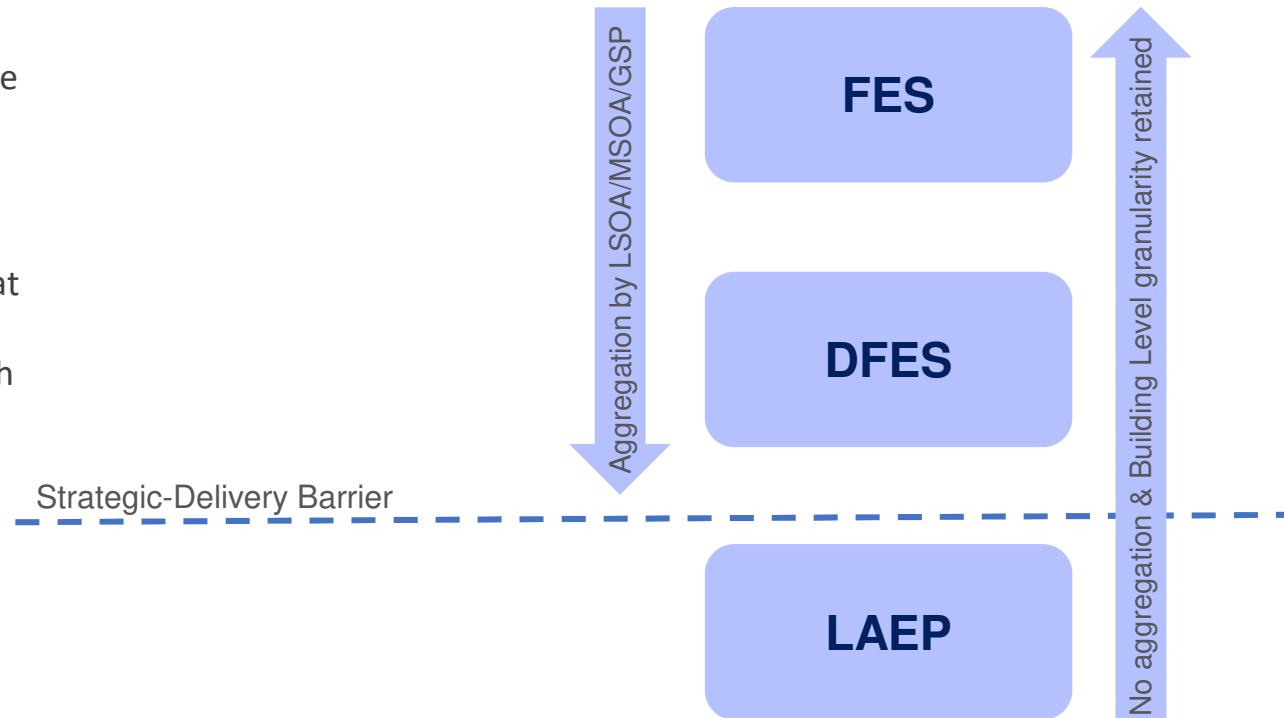
Mapping the use cases against benefit complexity allows us to identify priority use cases for development. We then prioritise with respect to cost to develop, impact and alignment with the competition aims.



WP3 – Data Model Evaluation

We explored the alignment between the ESO FES modelling, the NGED DFES modelling and the LAEP+ modelling.

Interviews with modelling teams suggested that a common approach would be preferred that allows for top-down strategic planning to be interoperable with bottom-up project delivery

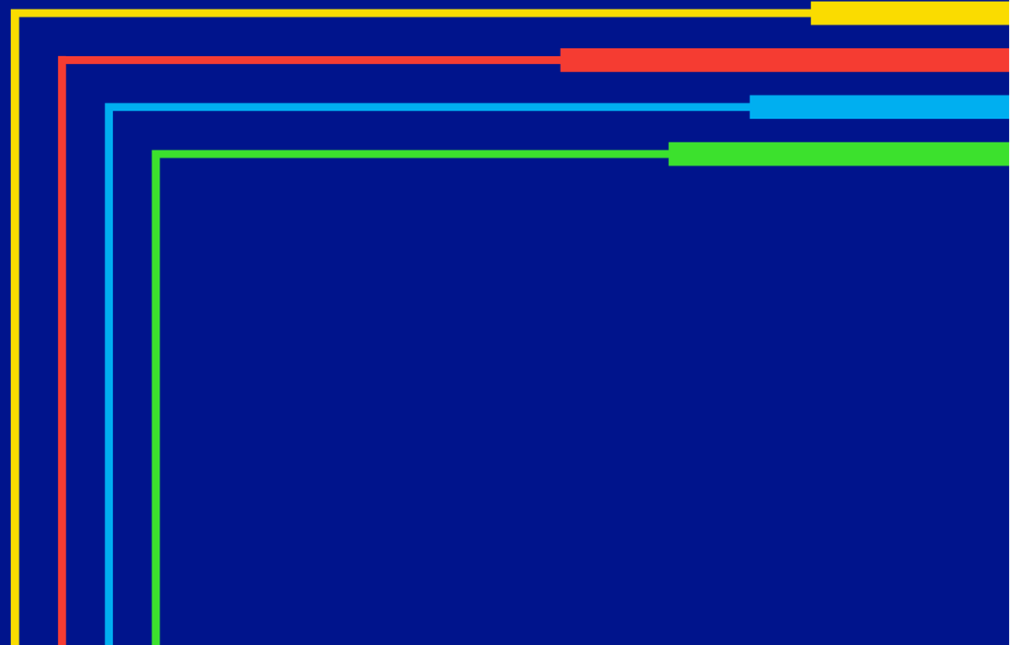


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Looking Ahead

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ESO View

“If local area planning is to change and include energy we need as an industry to think about how this will be delivered and as our business transitions to FSO and we adopt a broader range of responsibilities that are new it will be essential that we can understand what processes are needed to deliver the best outcomes for customers.

At the heart of this we will need to consider “place” and PRIDE offers us the opportunity to see how a plan could be created using new data streams and then reused across GB.”

Alpha Phase

Digital Platform Development

- Deep dive workshops for the selected development areas
 - Optioneering & Zoning
 - EVCP Deployment
 - Heat Pump Deployment
- What are the most impactful upgrades that can be made for each area
- Develop & Test upgrades
- User testing with Local Authority staff / other representative users
- Evaluate - suggestions for Beta phase minor amendments

Organisational Trial Development

For the selected organisational structure, create a detailed trial plan

- What are the interactions and processes and how can we test them?
- Who participates?
- Start and end dates
- Minimum test area requirements

Trial preparation activities – e.g..

- participant sign up and training
- data preparation

Intend to use Coventry as test area.
(Early data testing is encouraging)

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