

# ADEPT

Association of Directors of  
Environment, Economy, Planning & Transport

Future Highways  
Research Group



Decision Equipped.

# proving



# Thinking Big

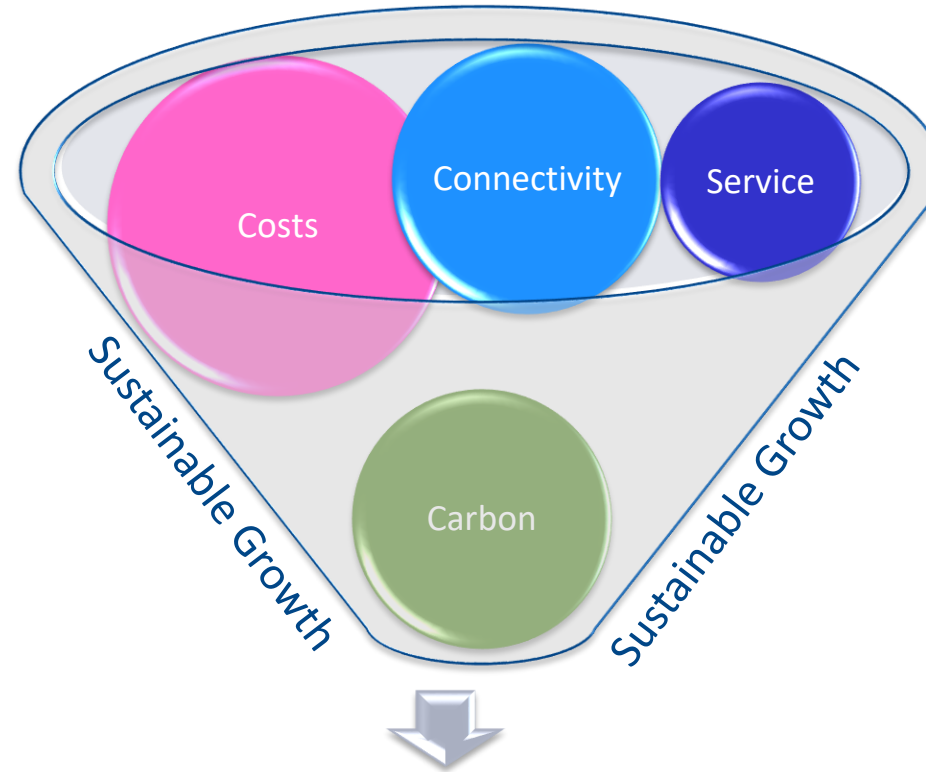
## Exploring New Relationships & Asset Uses: Benefits & Risks

# Introducing SSE Enterprise

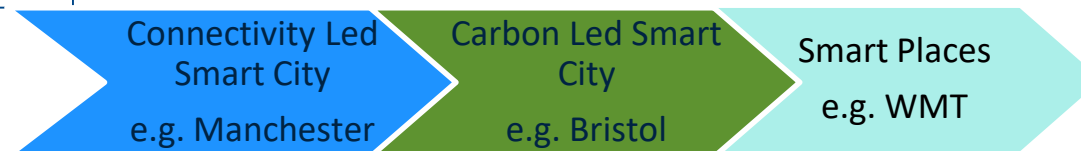


# Real World Experience

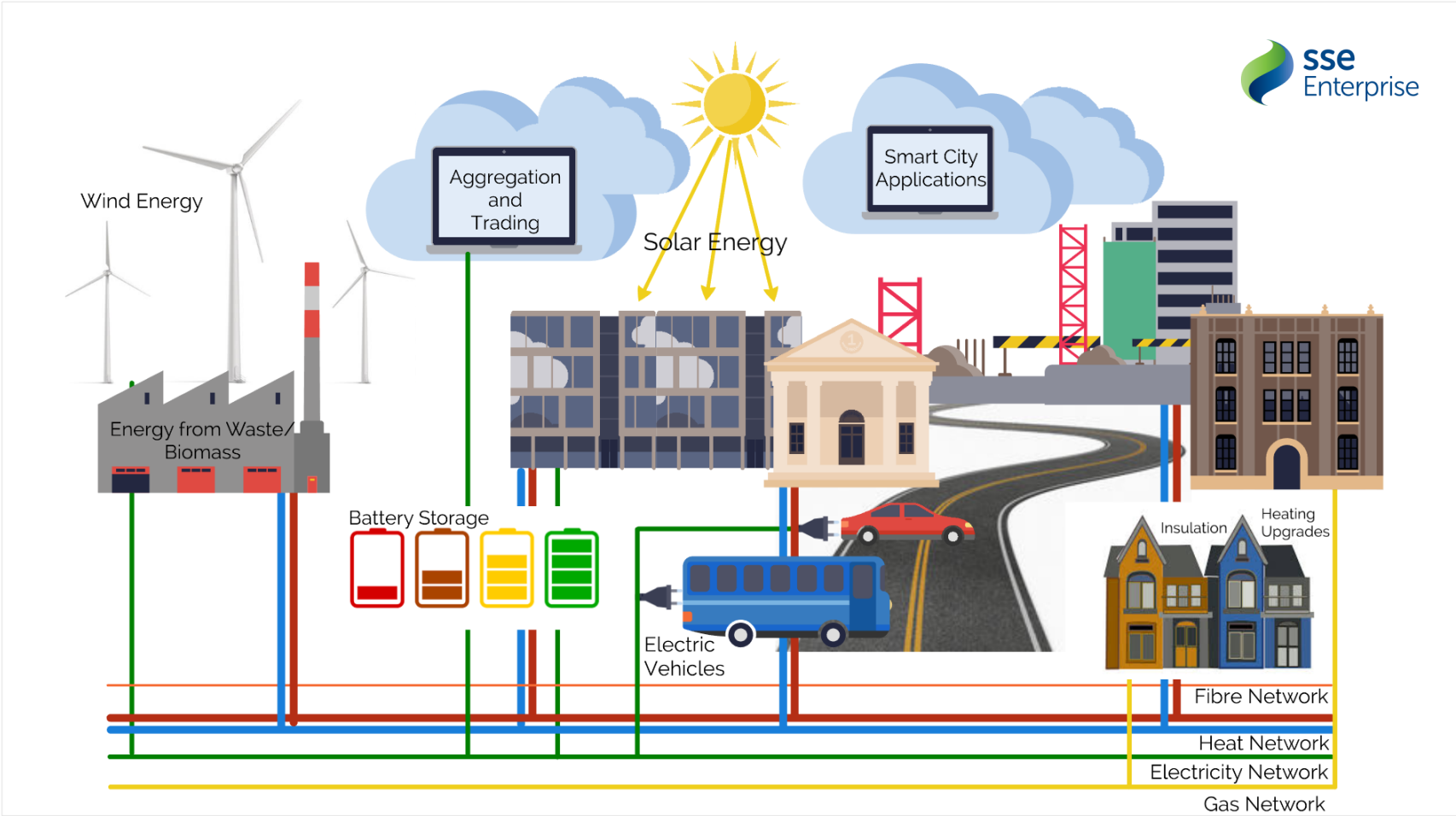
<p><b>Technology Changes</b></p> <ul style="list-style-type: none"> <li>• Smart Grid, local balancing, DNO to DSO</li> <li>• EV and autonomous vehicles</li> <li>• Open access</li> <li>• Emerging NB IoT and 5G</li> <li>• Advanced sensor technology</li> <li>• Cloud and edge</li> <li>• ML &amp; AI</li> </ul>
<p><b>Social</b></p> <ul style="list-style-type: none"> <li>• Air quality issue awareness</li> <li>• Growing EV acceptance</li> <li>• Exponential information appetite</li> <li>• Desire much faster information access</li> <li>• Growing and aging population</li> <li>• Fuel poverty</li> <li>• Seeking better VFM</li> <li>• More/better/Joined up services</li> <li>• Ease and safety of movement</li> </ul>



<p><b>Political/Regulatory Changes</b></p> <ul style="list-style-type: none"> <li>• Carbon reduction</li> <li>• No new build gas boilers (2025)</li> <li>• Low emission zones</li> <li>• Diesel/petrol car bans</li> <li>• Drive for EV infrastructure</li> <li>• Drive for ubiquitous high bandwidth</li> </ul>
<p><b>Economic Changes</b></p> <ul style="list-style-type: none"> <li>• Increasing cost of social care</li> <li>• Rising energy and carbon costs</li> <li>• Local Authority funding cuts</li> <li>• Cost reduction in technologies: LEDs, sensors, EV cars, etc</li> <li>• Consumers have less disposable income</li> </ul>



# A Smart Cities & Places Vision



Management

Visibility

Connectivity

Assets

Infrastructure

## The Vision

- Integrated city services
- Multi-modal / joined up transport
- Multi-channel direct service access
- Energy shopping and optimisation
- Smart enablement & control of assets
- Service intelligence and automation
- More frequently, readily, easily informed citizen

## The Reality

- Standalone Fibre roll out
- Standalone L1D procurement
- Breaking down silos
- Vision for EV the top, which needs...
- Standardising energy of the financial
- Benefits of smart city thinking



# SSE's Approach to Smart Cities

SSEE's strength and focus is on the following asset classes



Lighting



EVs



Comms



Energy



Buildings

Using 'As a Service' propositions that provide cities with solutions they need at a cost they can afford

## Features

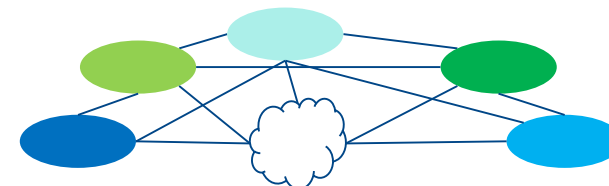
- Detailed domain knowledge
- Understand and invest in risk
- Transition Client Capex to Opex

## Components

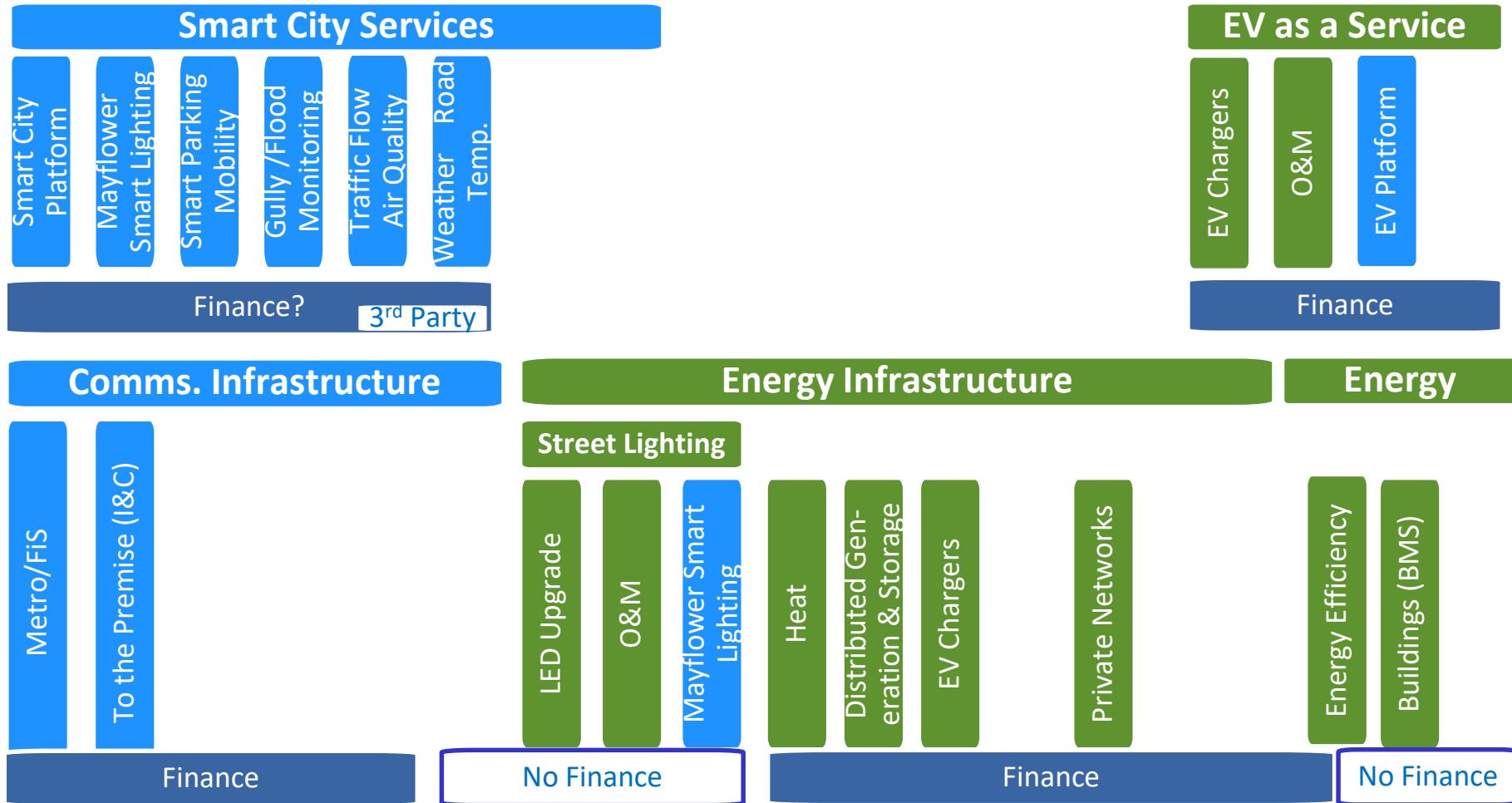
- Services
- Platforms & Communications
- Assets
- Infrastructure

Commercialising smart city delivery across silos

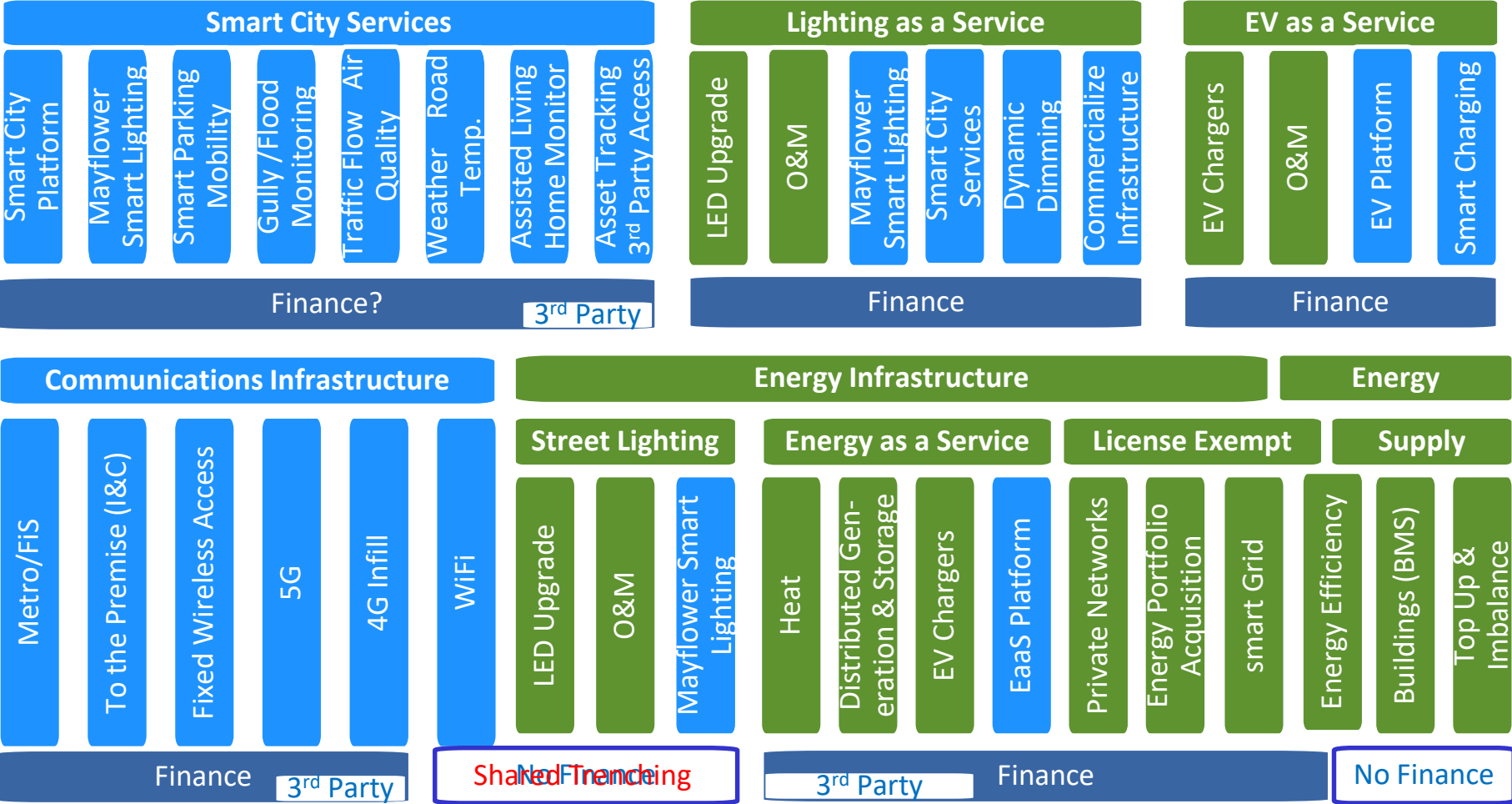
Joined up thinking to deliver smart city benefits



# Siloed Procurement

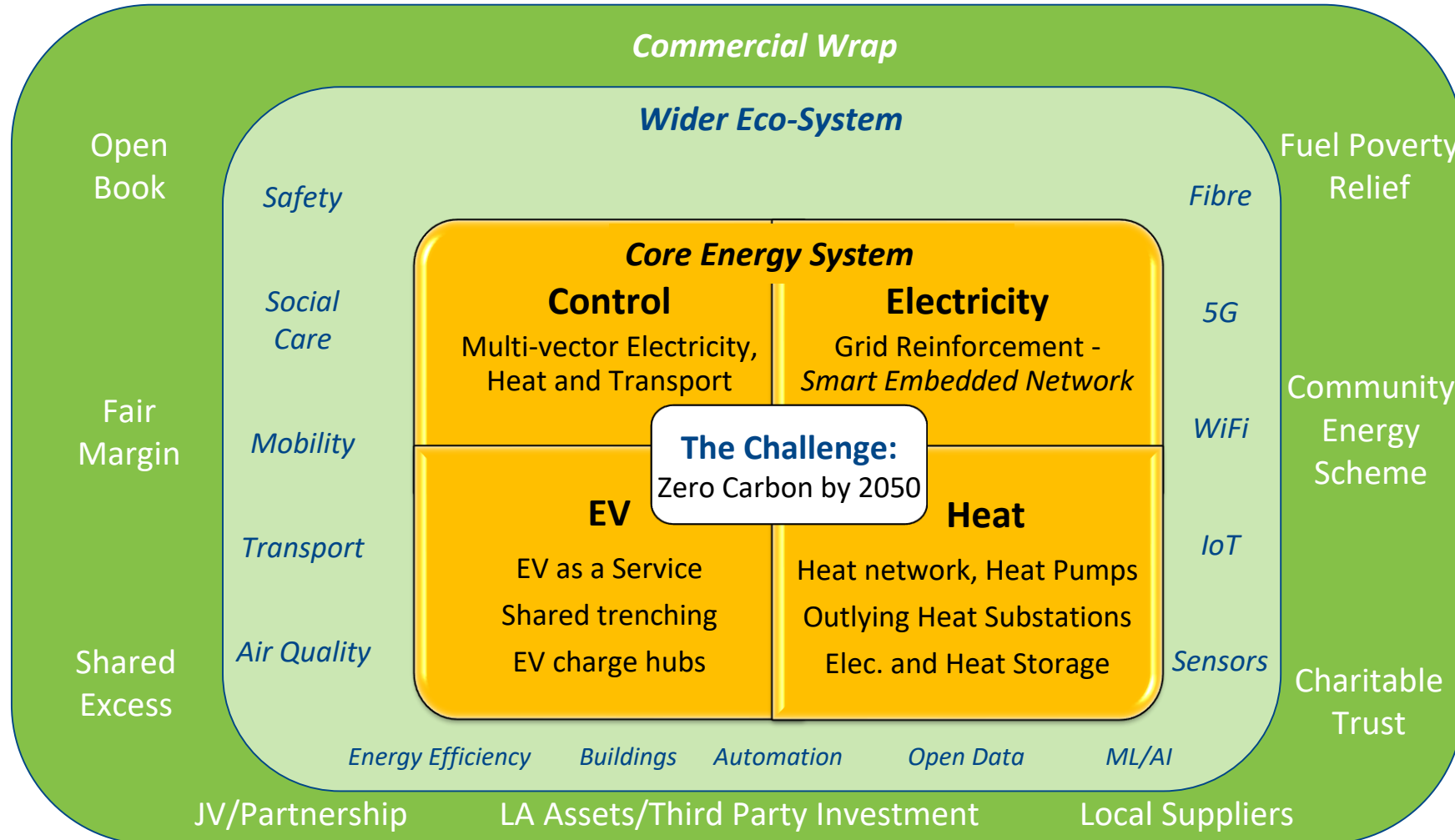


# Joined-Up Thinking

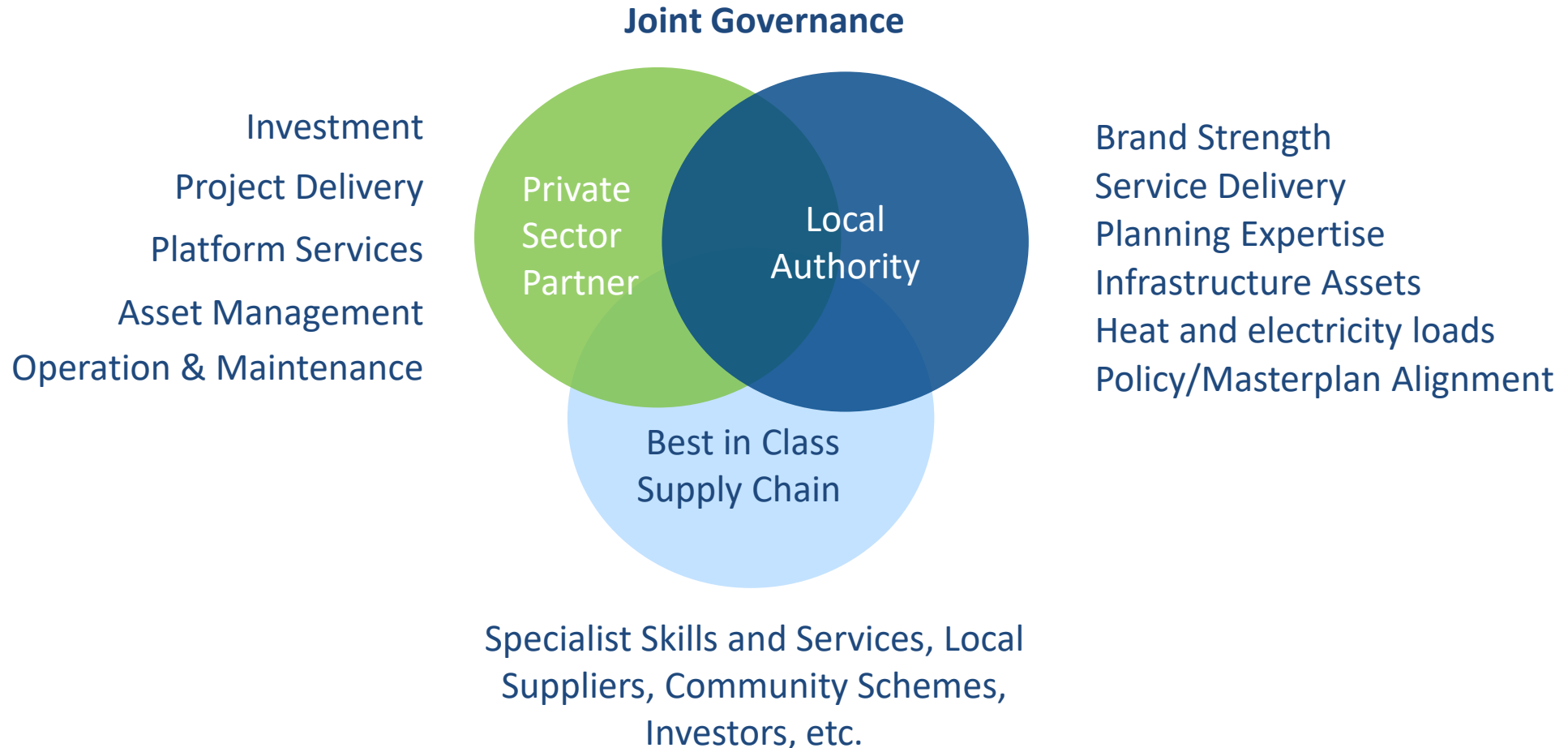




# Bringing It Together...



# Delivering Big: Value Exchange



# Challenges

- **Including everything... not bits.**
  - Energy, EV, heat, facilities.
- **Historical local authority procurement models.**
  - Encourage siloed thinking and impede strategic change.
- **Designing and implementing equitable “Value Exchange” schemes.**
  - Accepting the principles of mutuality.
- **True partnership working.**
  - Creating a cost, risk, reward tradespace.

# Research Explorations

Testing Concepts, Benefits, Costs & Risks

- **Suffolk**

- Smart City IoT – in hand with existing project.
- Solar to load (beyond highways, own or others).
- Solar to EV charge hub.

- **Oxfordshire**

- Solar to load/EV charge hub.
- EV integrated transport planning for early EV commercialisation.

- **Derbyshire**

- Smart lighting/IoT solutions.
- Solar to load.

- **Huddersfield**

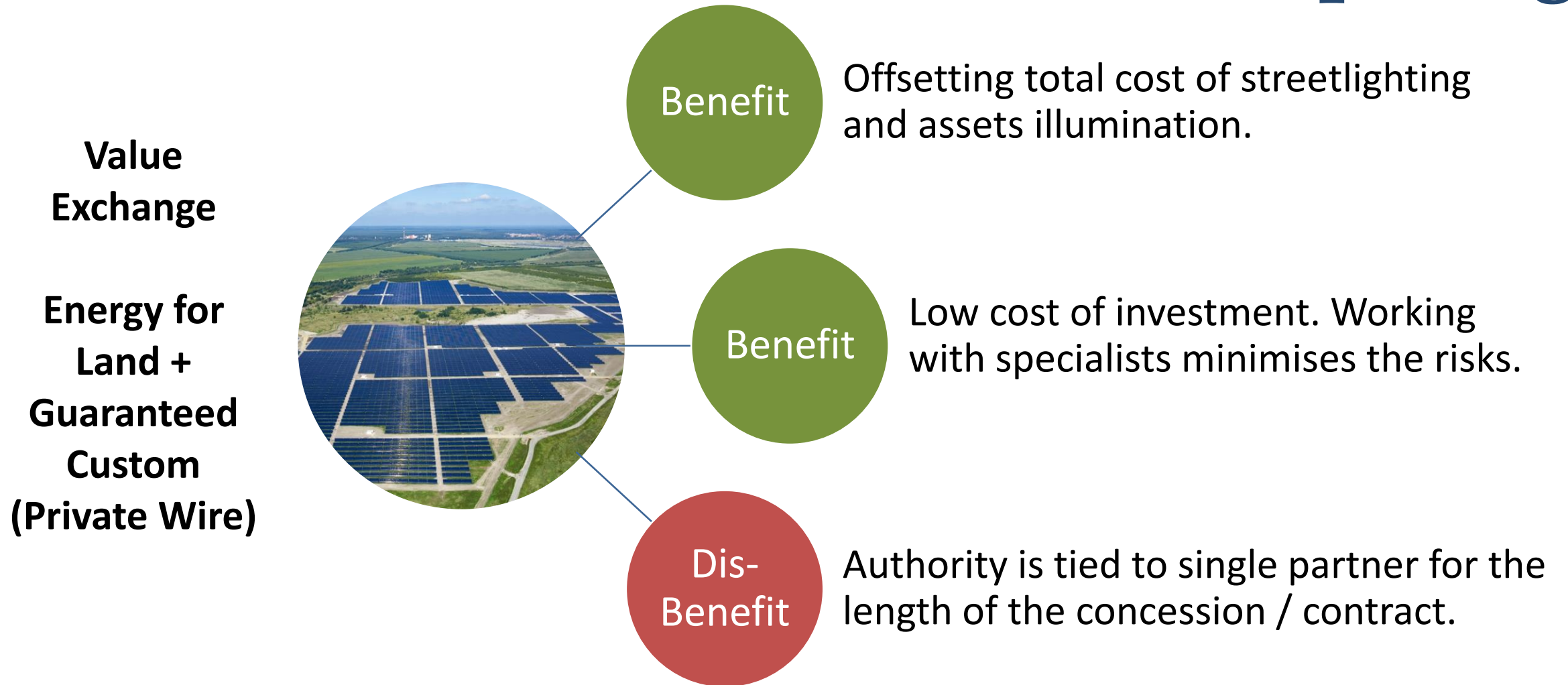
- Smart Energy / Heat Network System Around EfW.
- Solar to load.

- **Consistent Issues & Requirements**

- Significant opportunities being explored as part of the research exercise.

# Benefits & Dis-Benefits

Example



# Research Context

