



**NATIONAL
DIGITAL TWIN
PROGRAMME**



HM Government

National Digital Twin Programme

OpenTwin International Ideathon 2026

11 June 2026



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Programme Director
National Digital Twin Programme

National Digital Twin Programme (NDTP)

Developing and testing solutions that will:

Enable trusted, secure and resilient information sharing and better information management – in other words, ensuring the right information is available at the right time to the right people, and that the quality of the information is understood

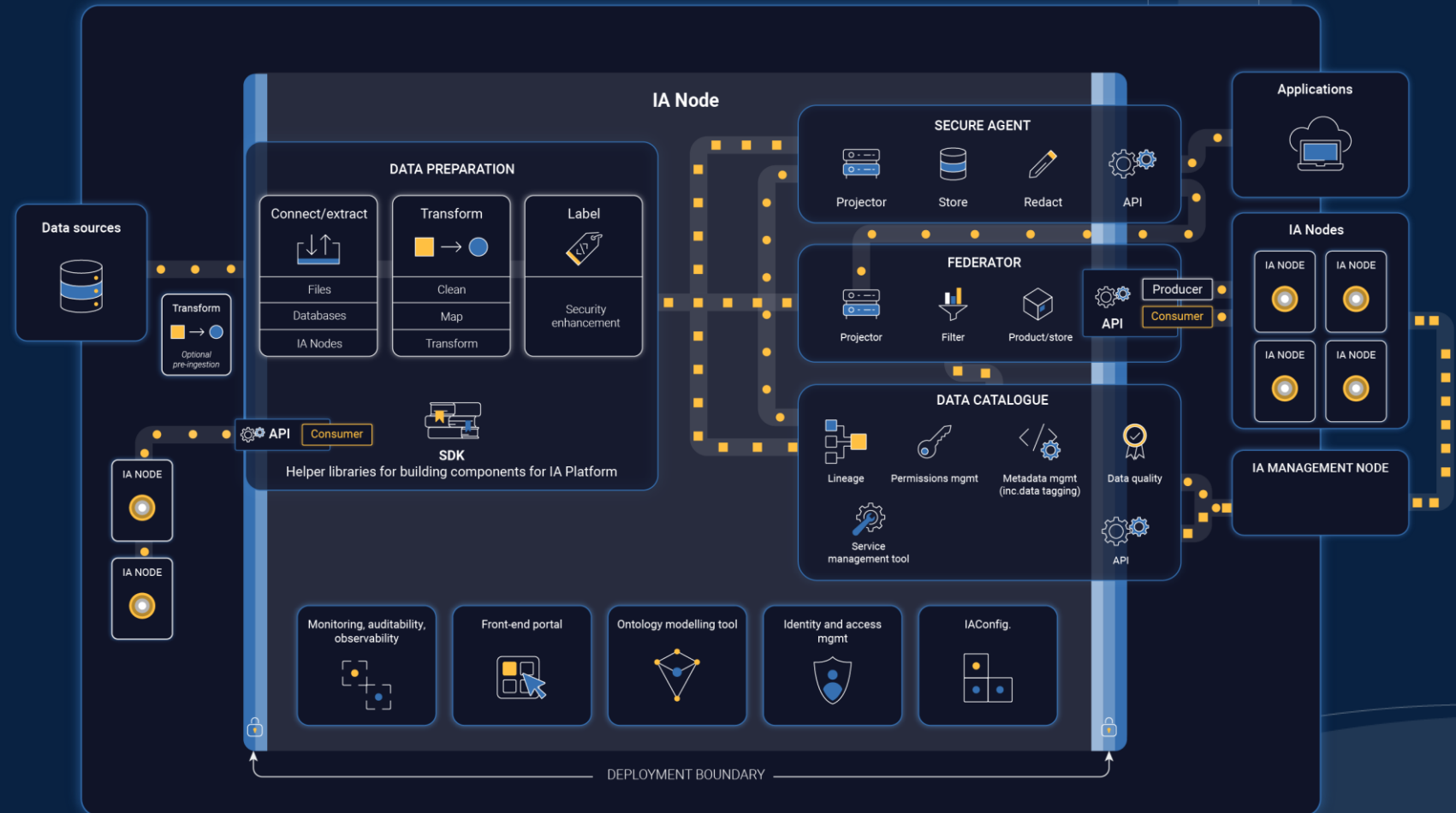
Enable users to visualise and engage with the information in a way that meets their needs and supports decision-making and the delivery of better outcomes.

Significant progress on...

The development of the Integration Architecture

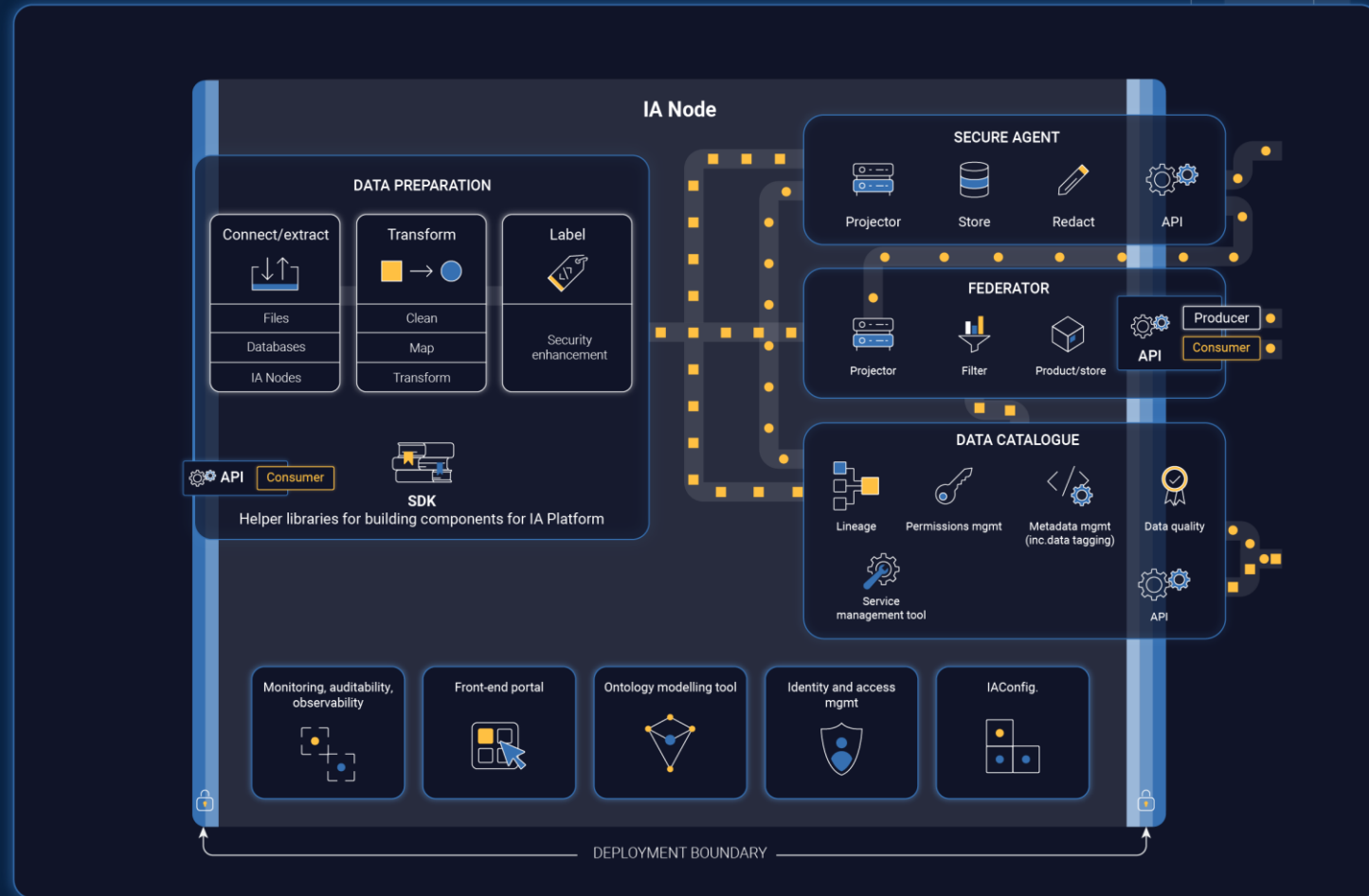
Key features:

1. Ingest and connect
2. Transform and map
3. Secure and label
4. Catalogue and audit
5. **Expose/ share**



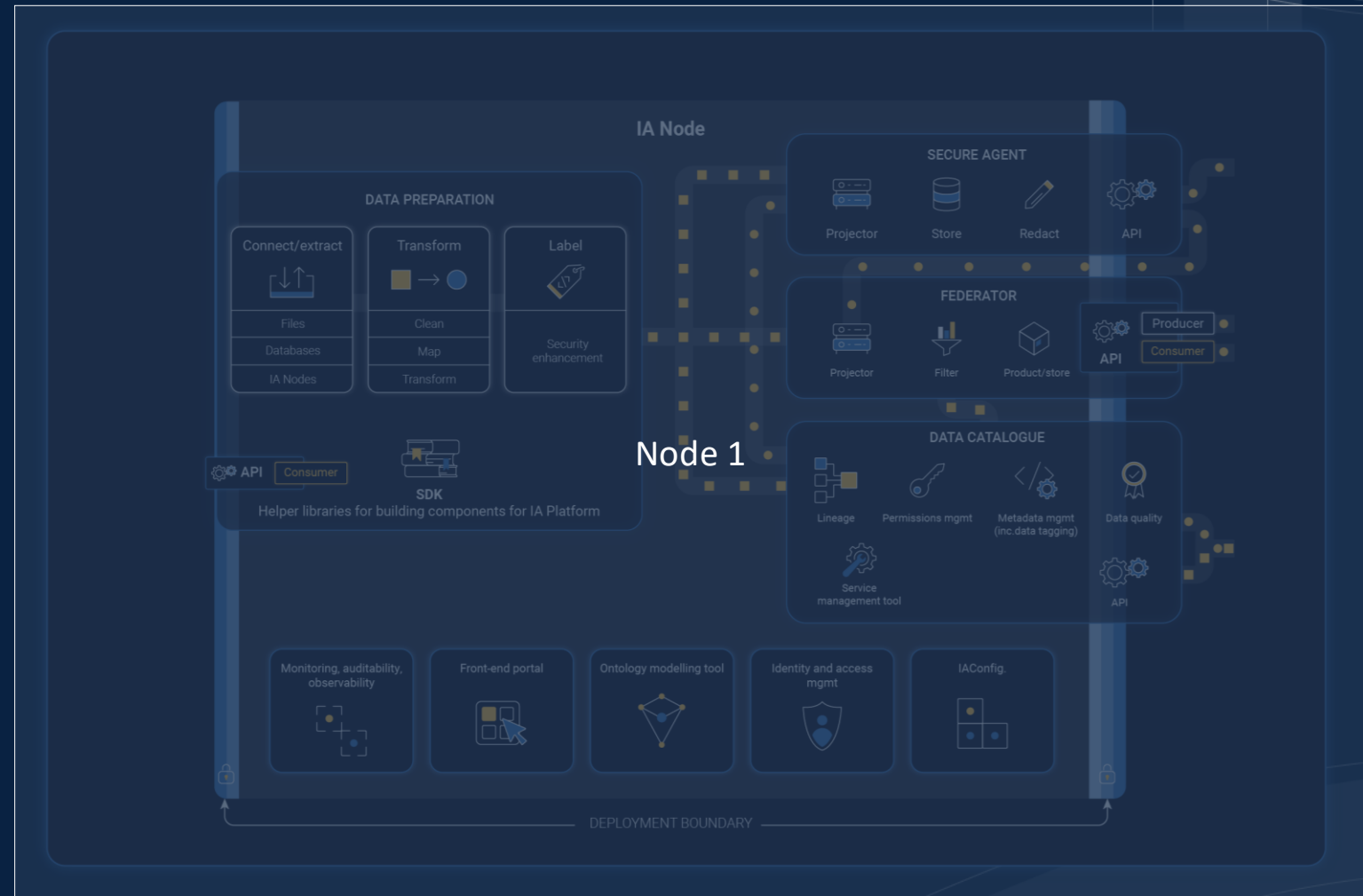
Significant progress on...

The development of the Integration Architecture



Significant progress on...

Connecting different IA nodes to each other



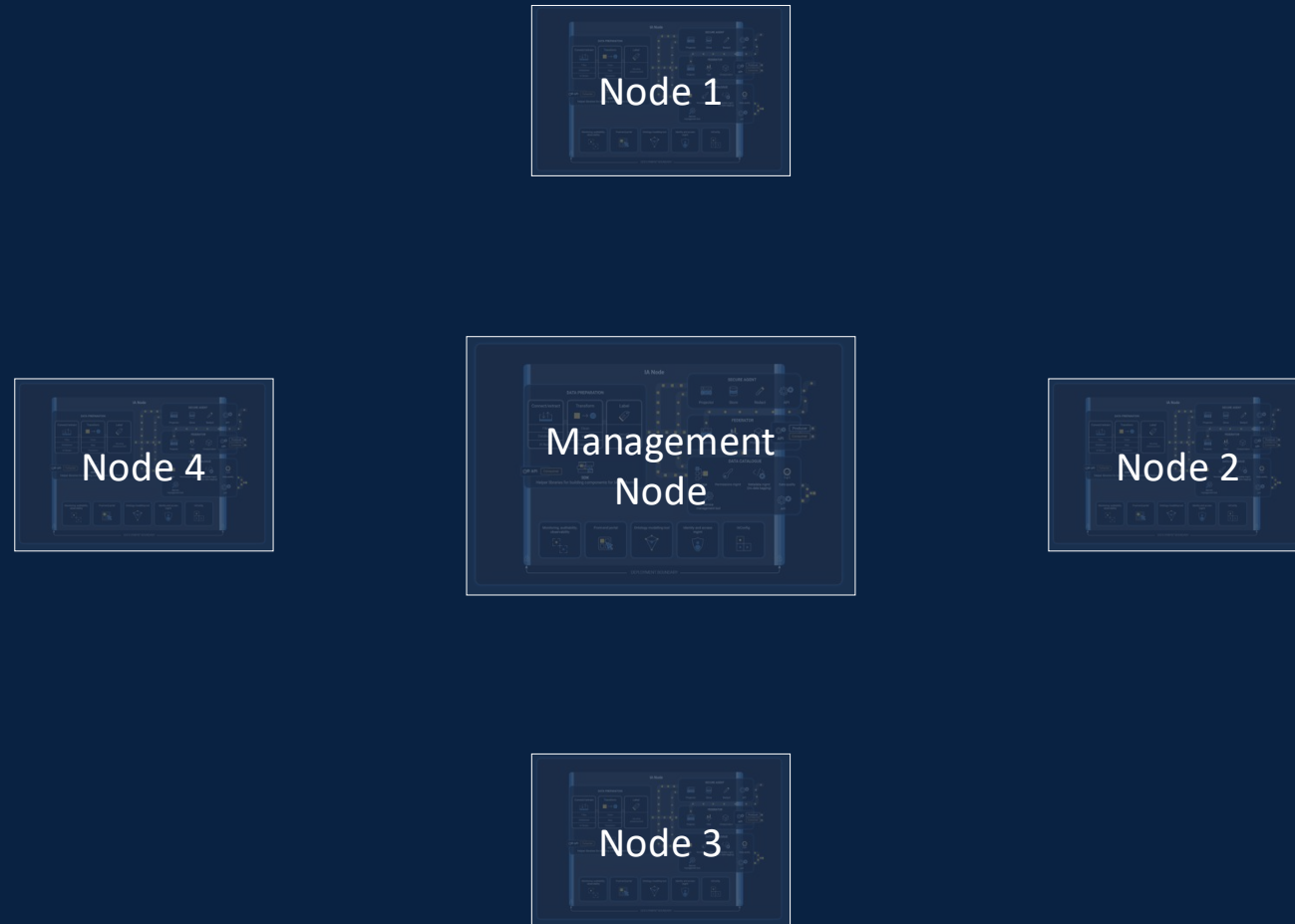
Significant progress on...

Connecting different IA nodes to each other



Significant progress on...

Connecting different IA nodes to each other

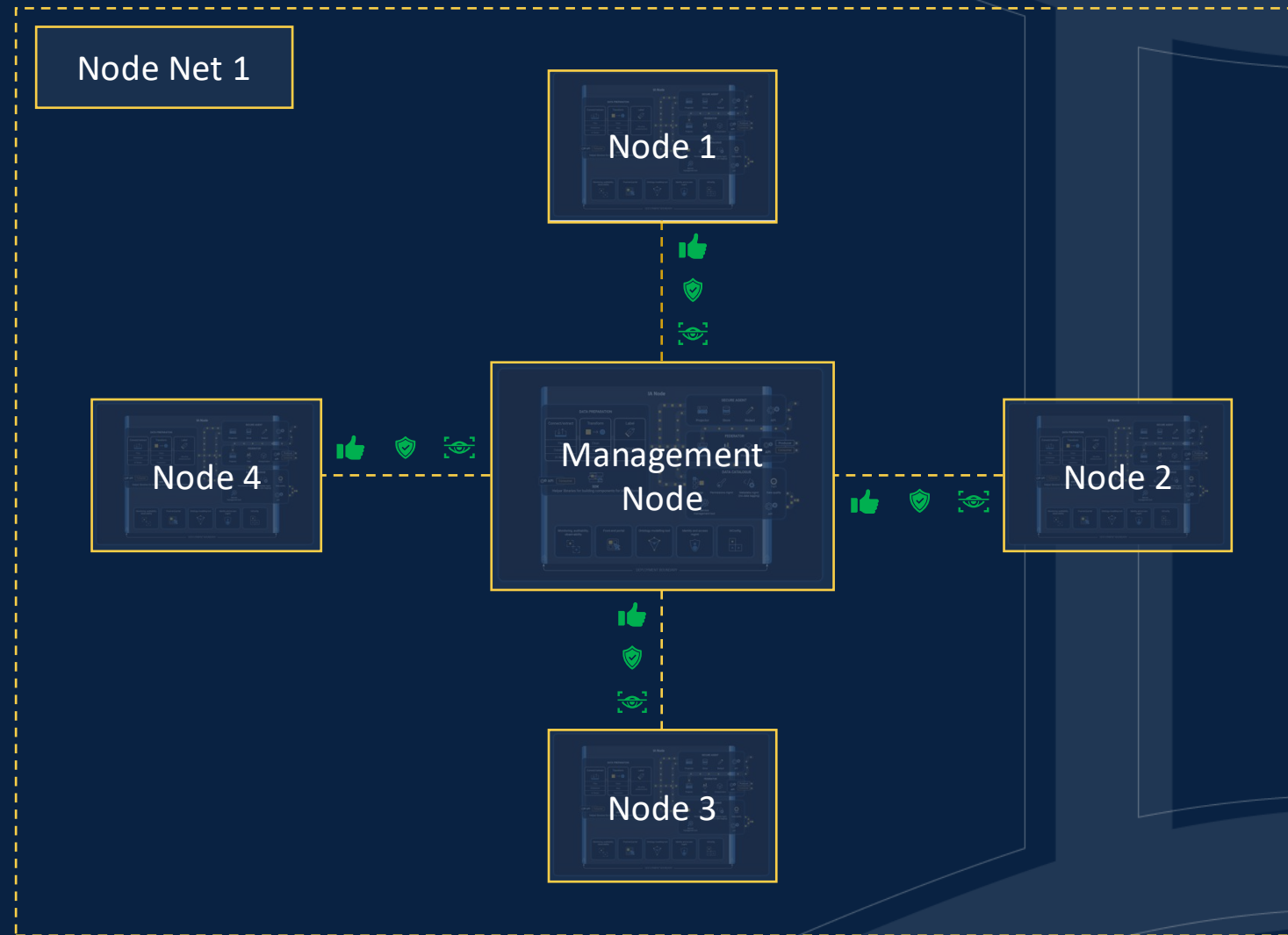


Significant progress on...

The Management Node

The Management Node:

1. Facilitates onboarding of Nodes
2. Handles trust and identity
3. Establishes a Node Net



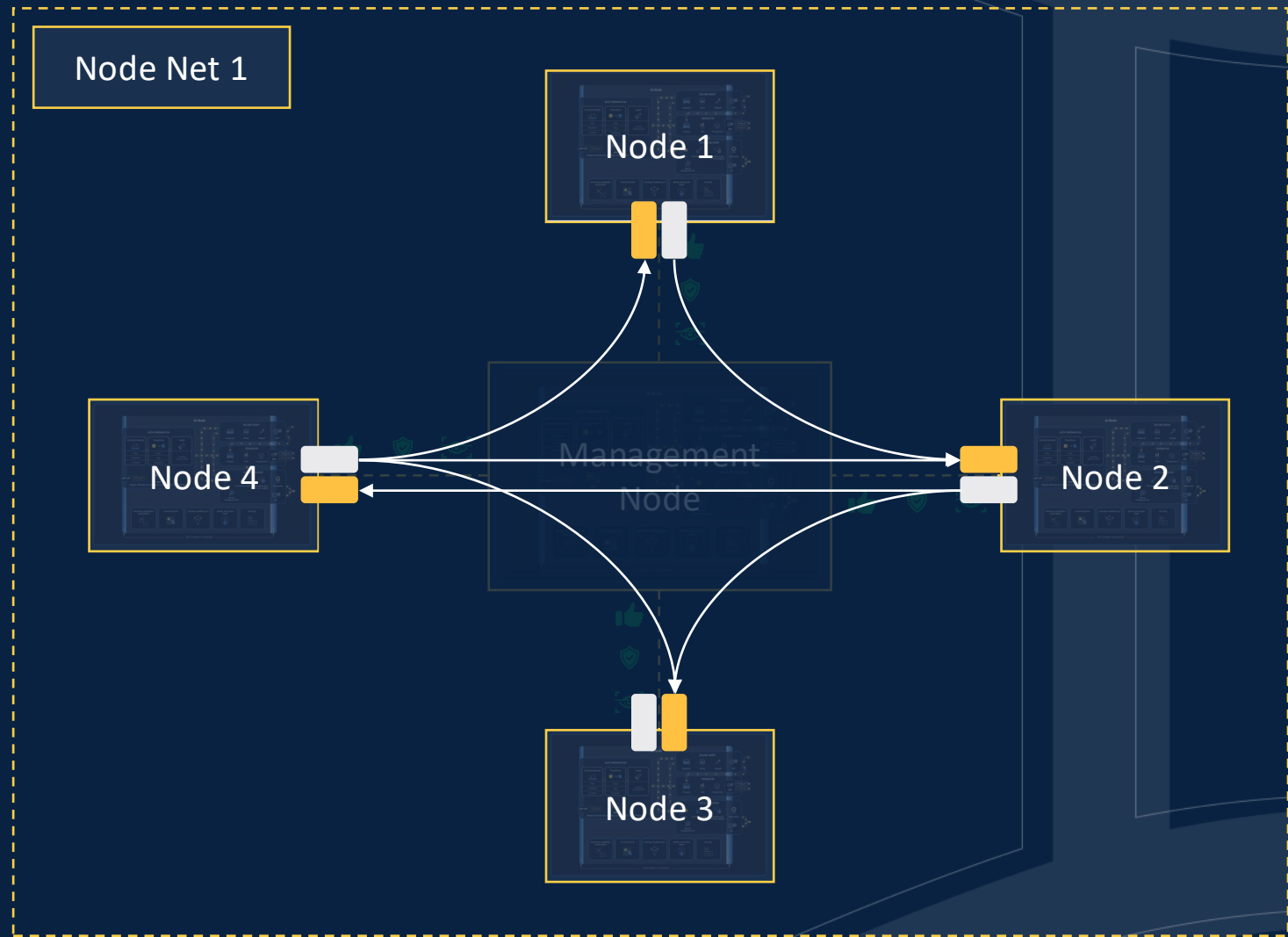
Significant progress on...

The Federator

Send
Receive

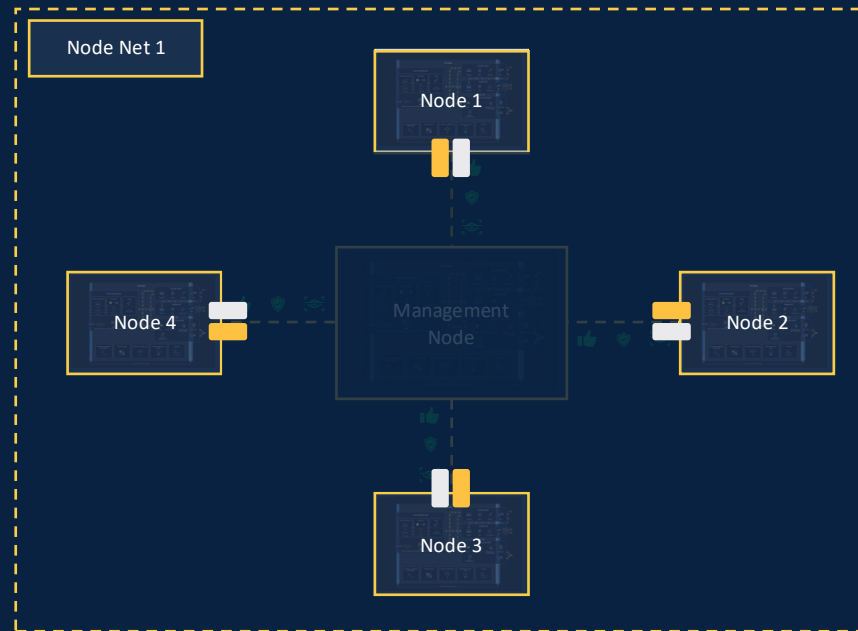
The Federator:

1. Has multiple send/receive points for redundancy
2. Obtains configurations dynamically
3. Controls what data is shared with filters and security labels



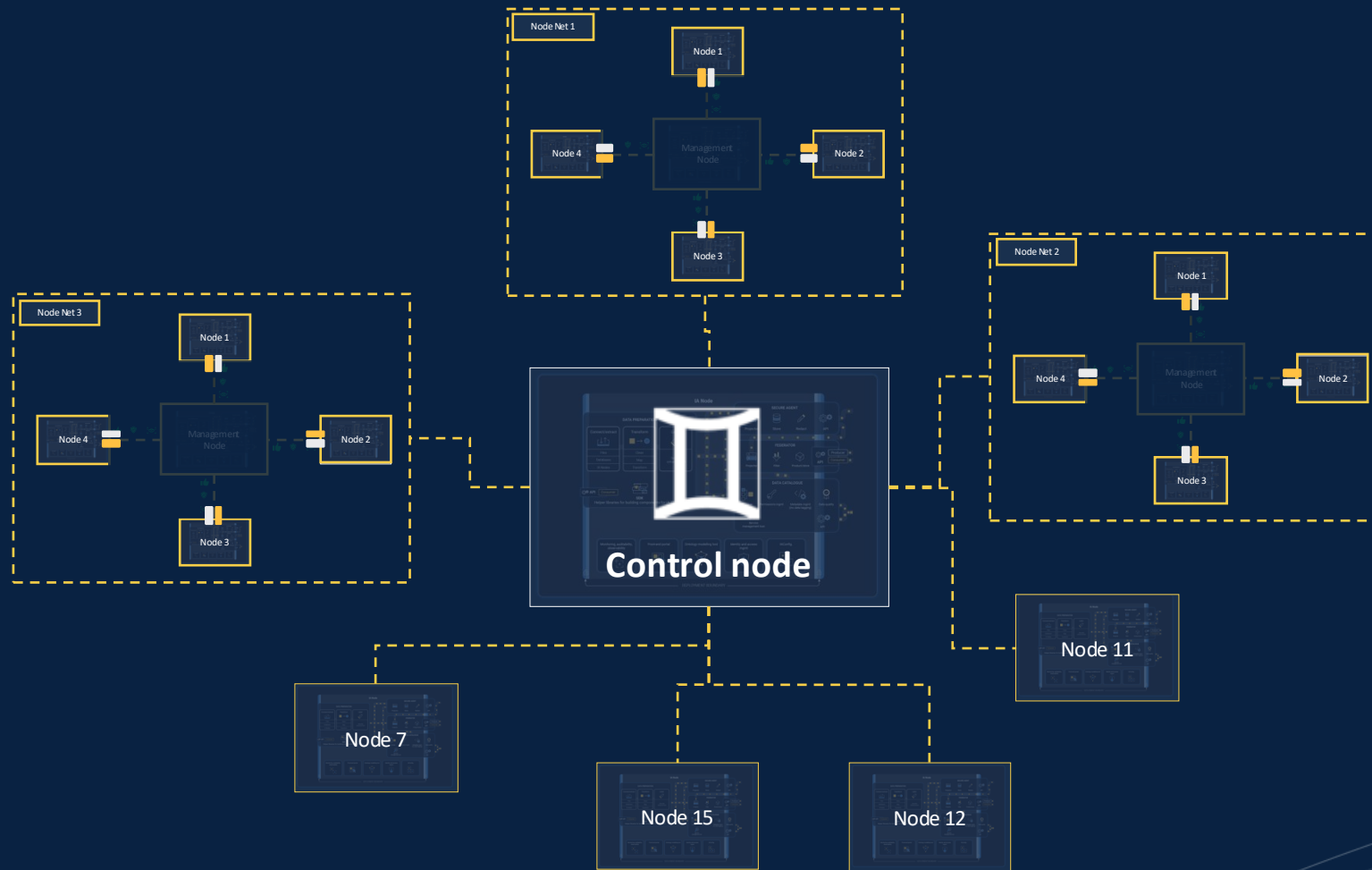
Significant progress on...

Deploying Node Nets (N2)



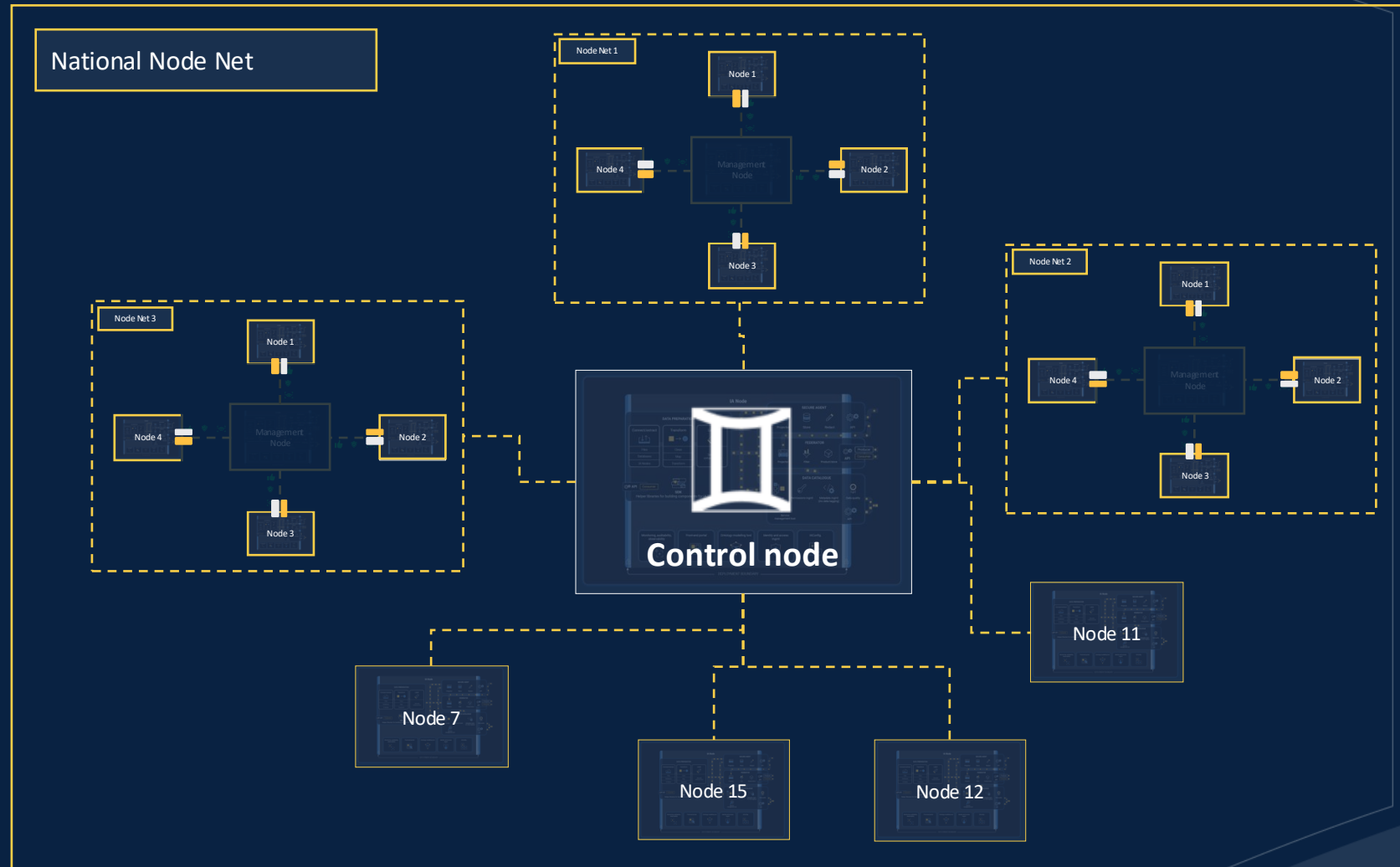
Vision for the future

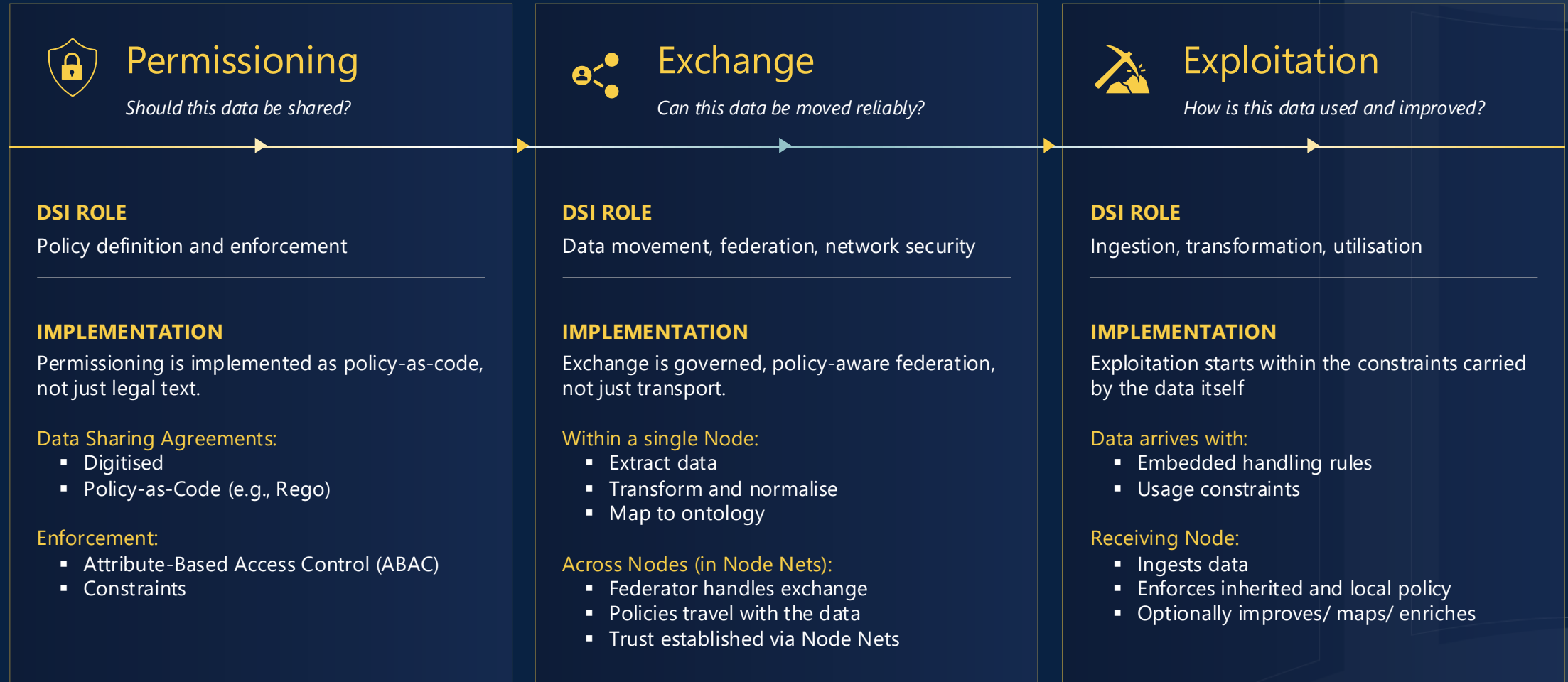
The Control Node and National Node Net (N3)



The National Node Net

...the trusted data-sharing infrastructure that underpins the UK's National Digital Twin

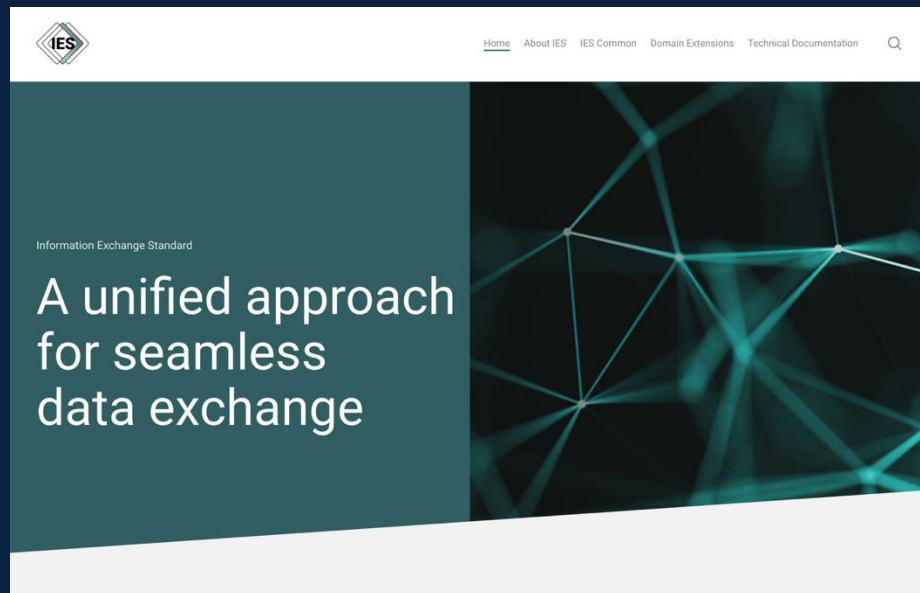




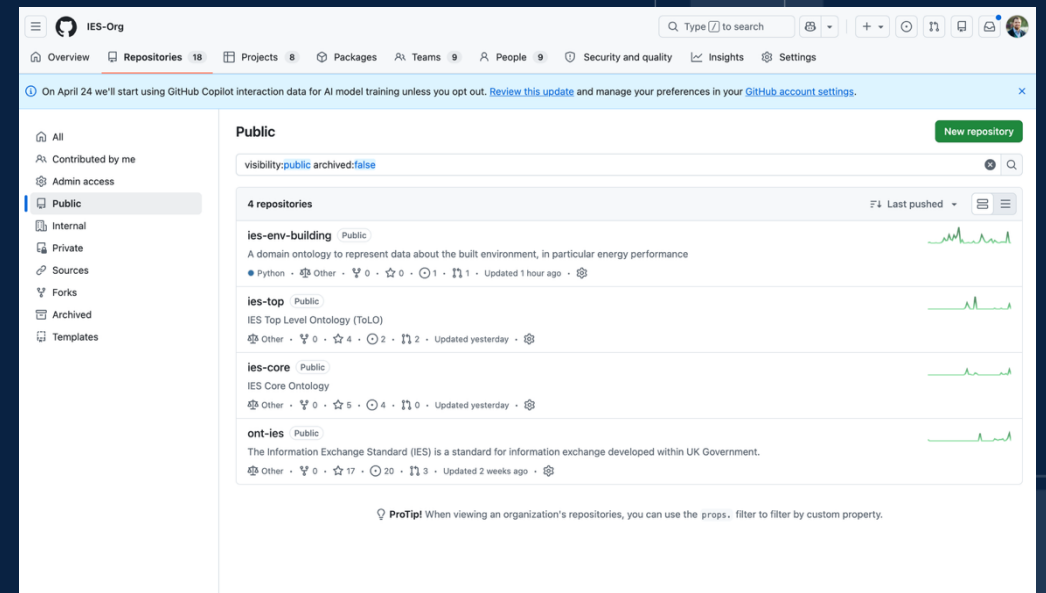
The Information Exchange Standard (IES)



<https://informationexchangestandard.org/>



<https://github.com/IES-Org>



Demonstrators – environments where the Nodes and IES are exercised together



Demonstrators

Co-evolving through use

- The Demonstrators consume the standard, but they also shape it.



IRIS



NOVA



VISTA



LISA



SALUS

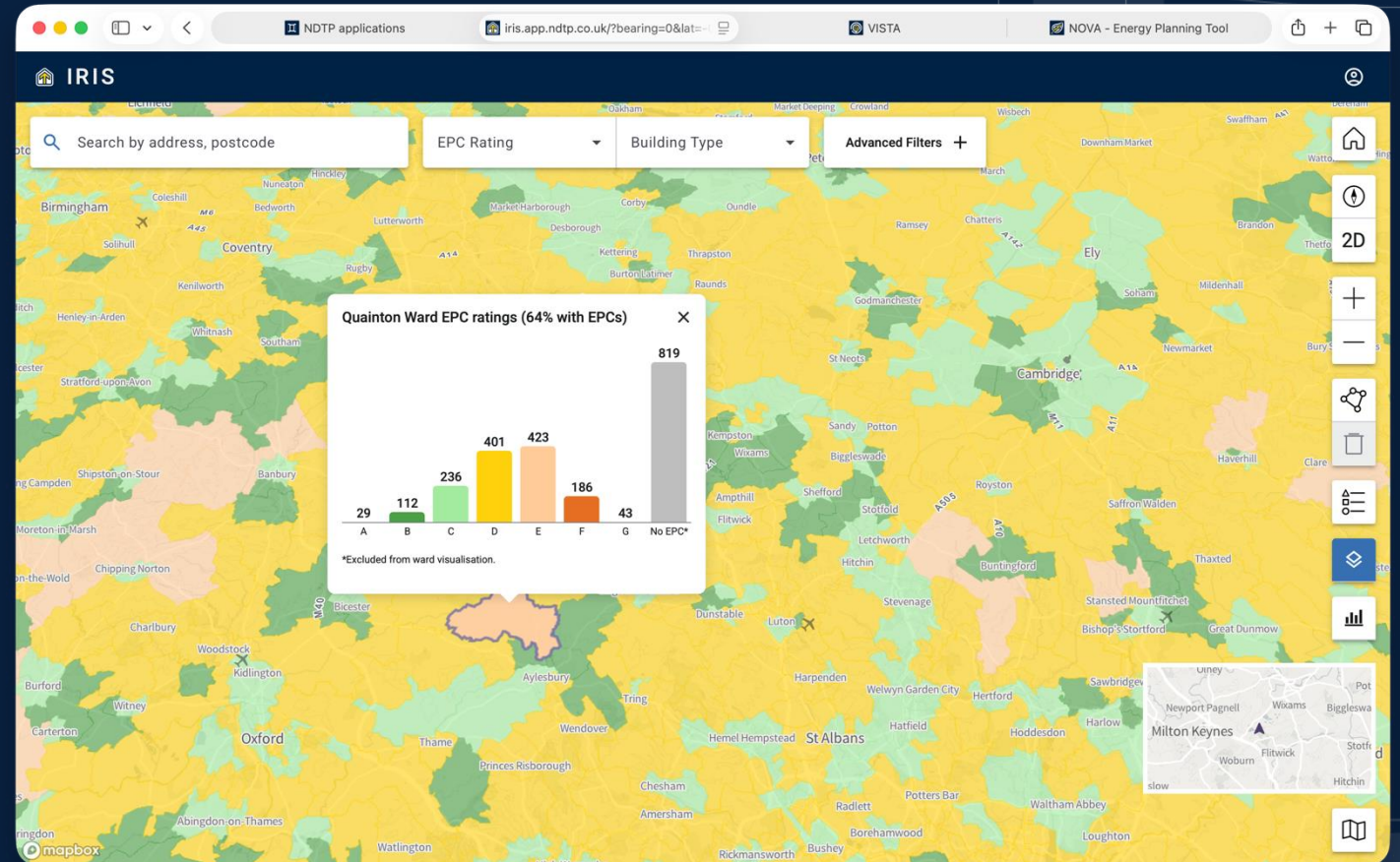
IRIS – an operational intelligence platform for Warm Homes



Demonstrators

Co-evolving through use

- Access aggregated insights to understand regional variations in housing performance
- Understand environmental, and socio-economic data to build a national picture of housing conditions



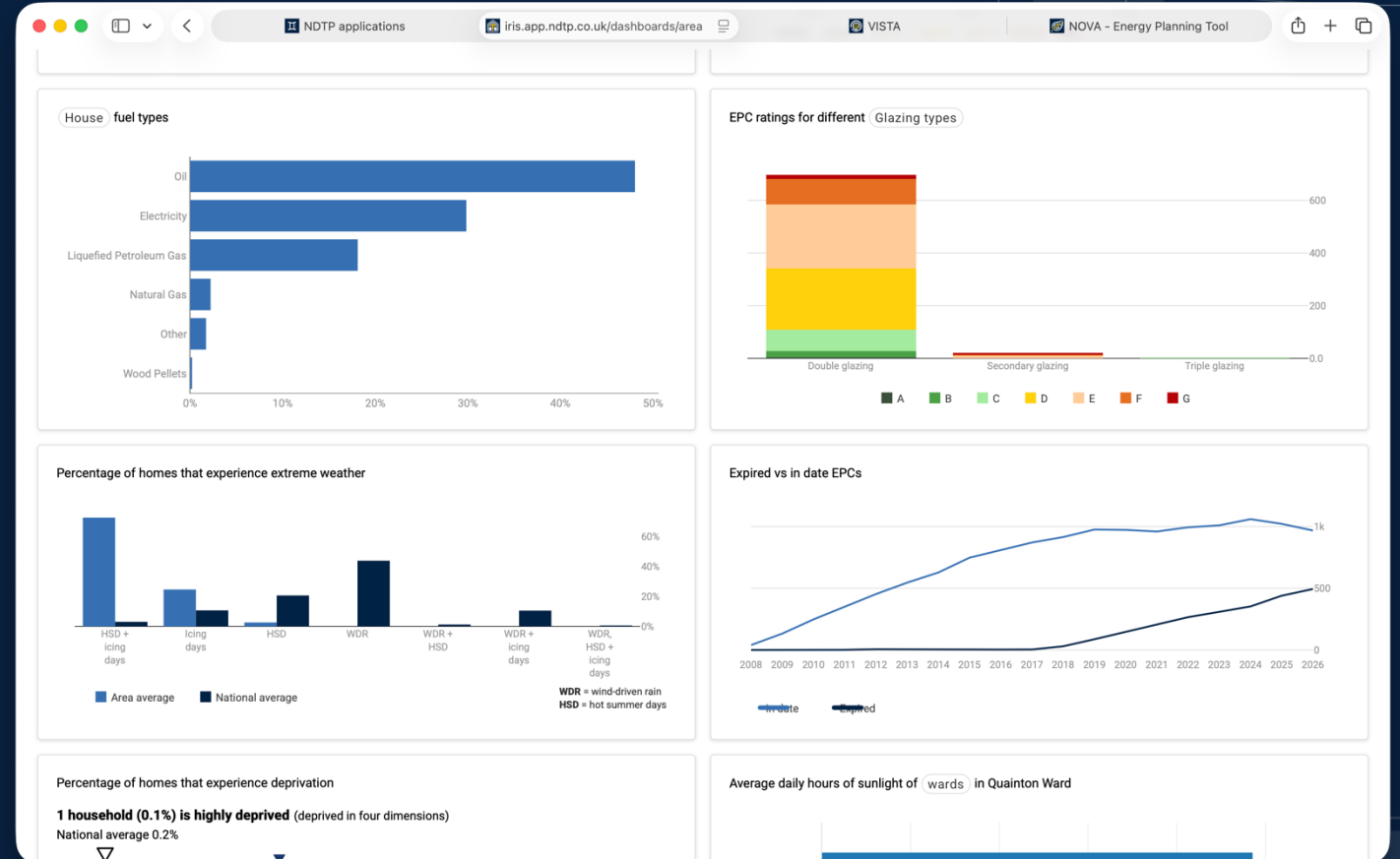
IRIS – an operational intelligence platform for Warm Homes



Demonstrators

Co-evolving through use

- Explore detailed housing and energy performance metrics through interactive business intelligence views
- Generate targeted insights from selected locations to enable data-driven decisions



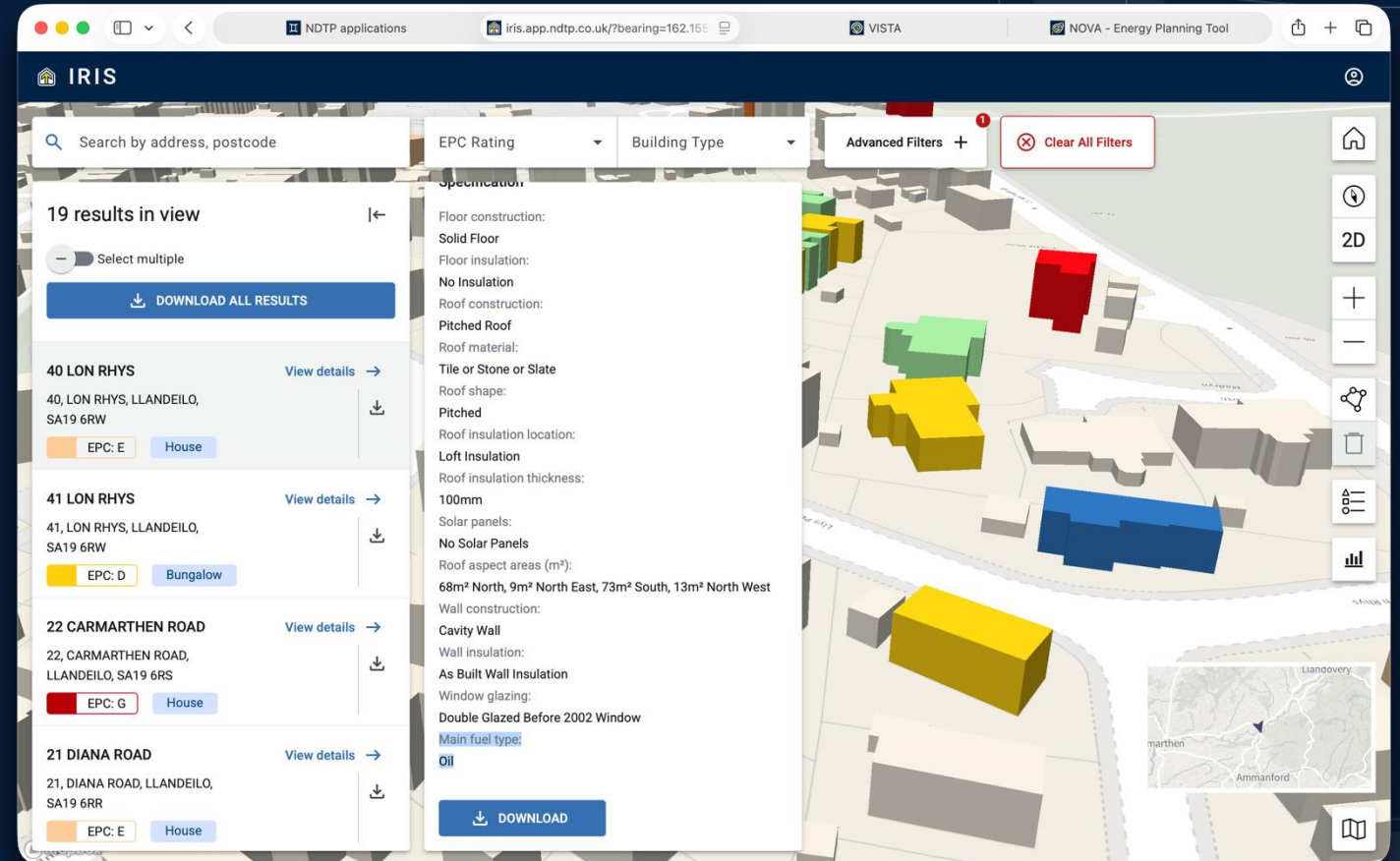
IRIS – an operational intelligence platform for Warm Homes



Demonstrators

Co-evolving through use

- Property-level intelligence to identify vulnerabilities, risks and opportunities for targeted interventions
- Identify households most exposed to energy, environmental and economic risk



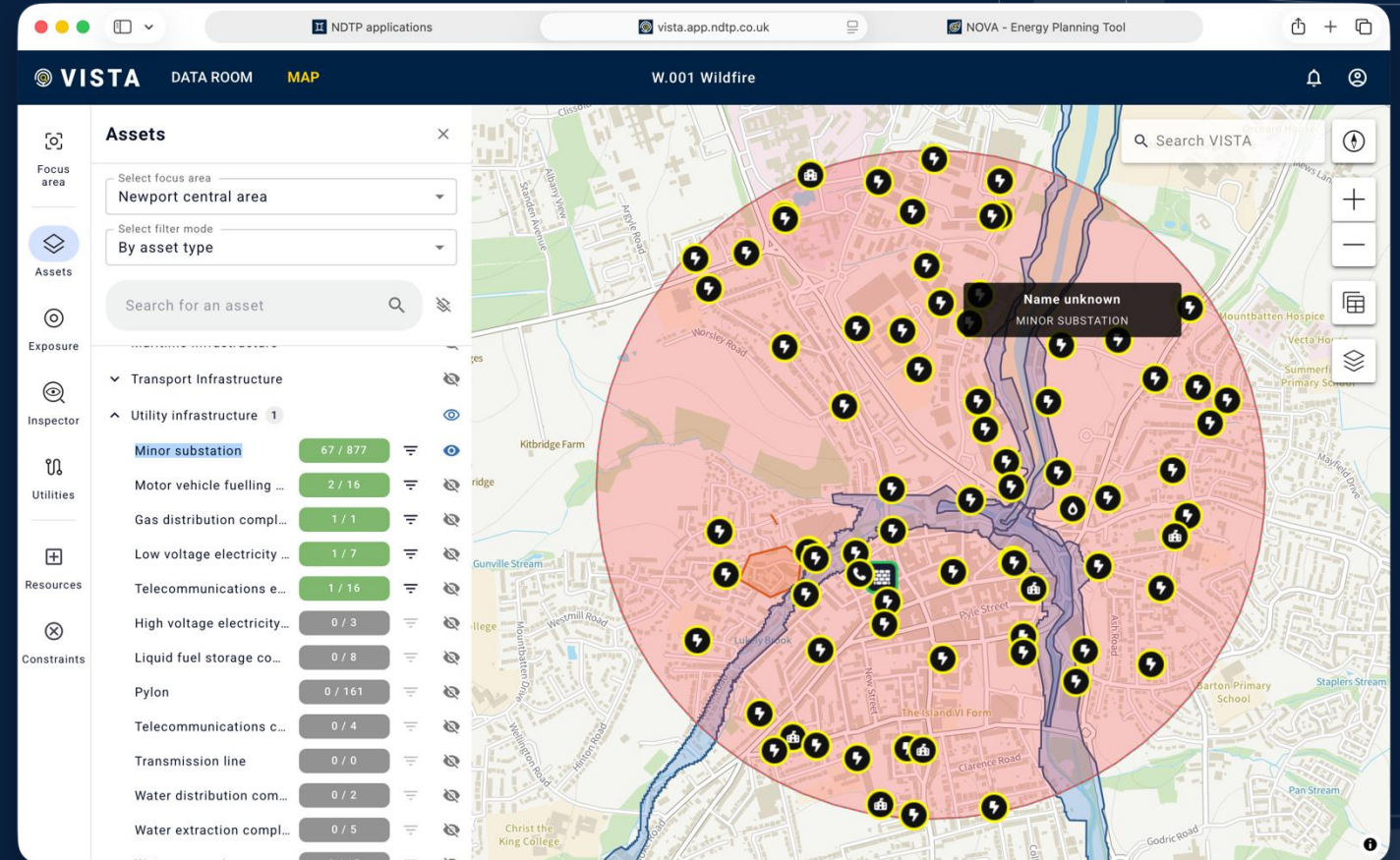
IRIS – an operational intelligence platform for Warm Homes



Demonstrators

Co-evolving through use

- Identify critical infrastructure within a selected area to support place-based analysis
- Filter and visualise infrastructure networks to understand asset concentrations and risks in areas of operational interest



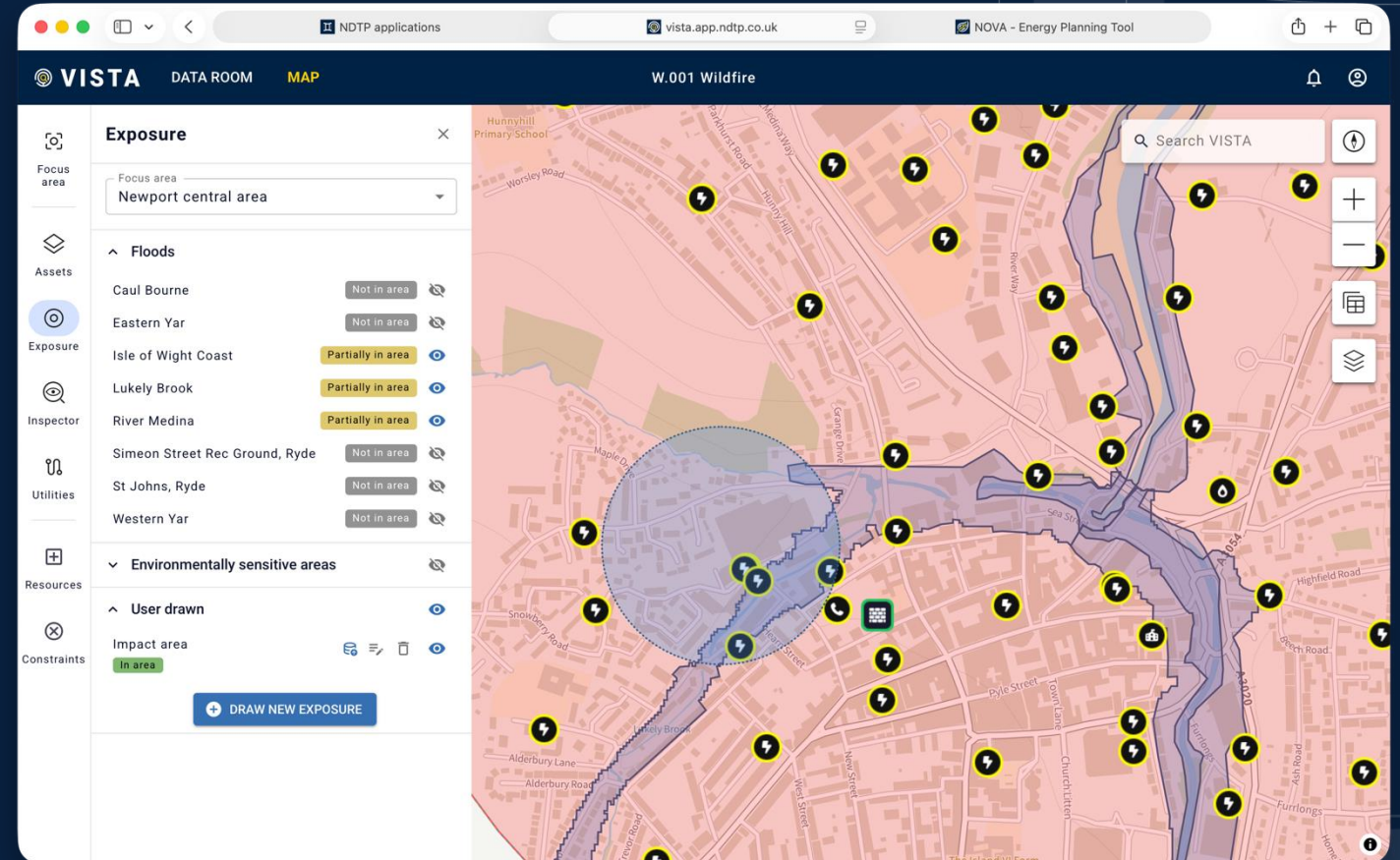
IRIS – an operational intelligence platform for Warm Homes



Demonstrators

Co-evolving through use

- Assess how hazards and emerging events affect infrastructure assets and their potential vulnerabilities
- Identify assets at risk and potential cascading impacts by combining live and historic exposure data



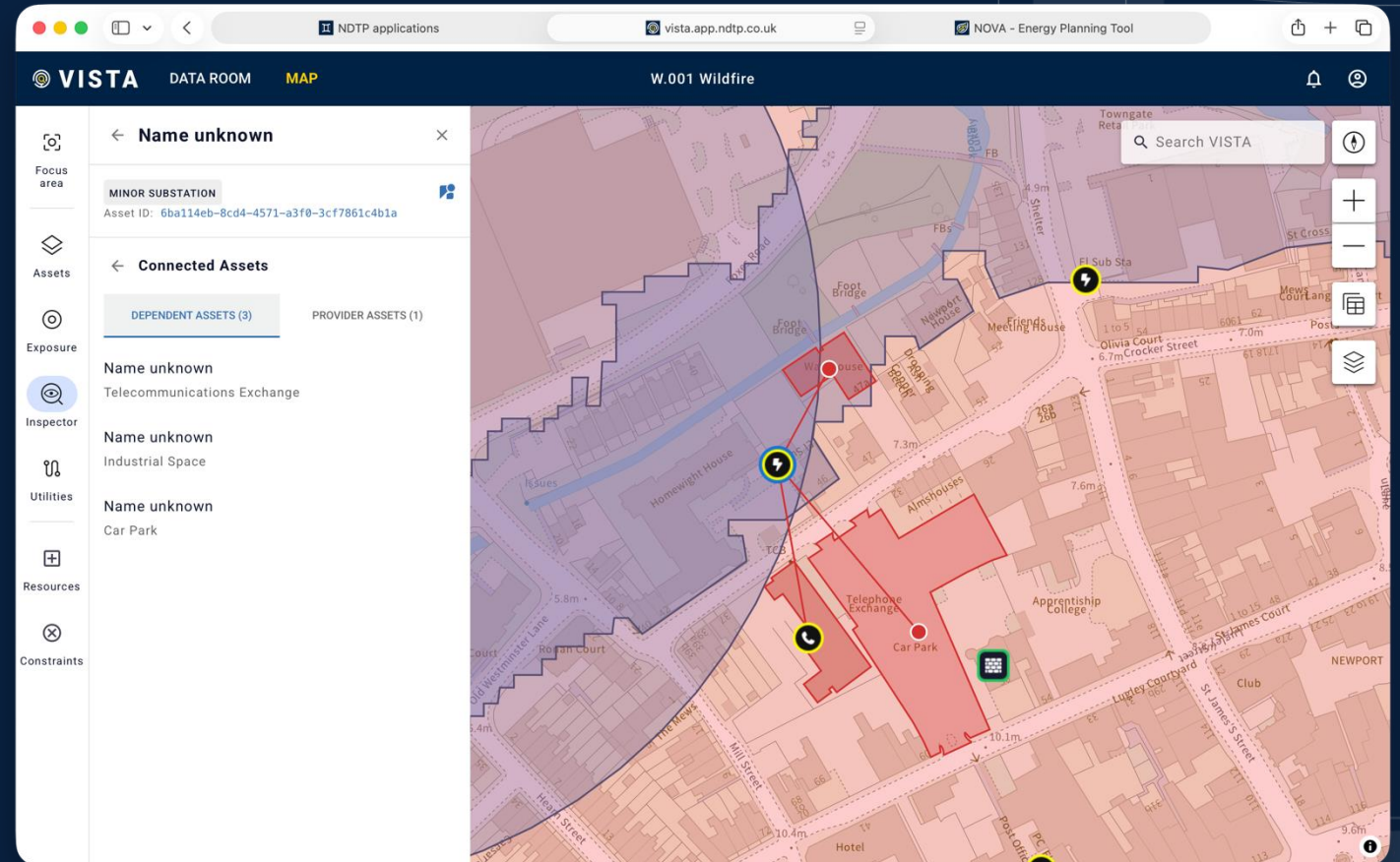
IRIS – an operational intelligence platform for Warm Homes



Demonstrators

Co-evolving through use

- Investigate infrastructure interdependencies to support resilience and contingency planning
- Explore connected infrastructure to prioritise resilience measures



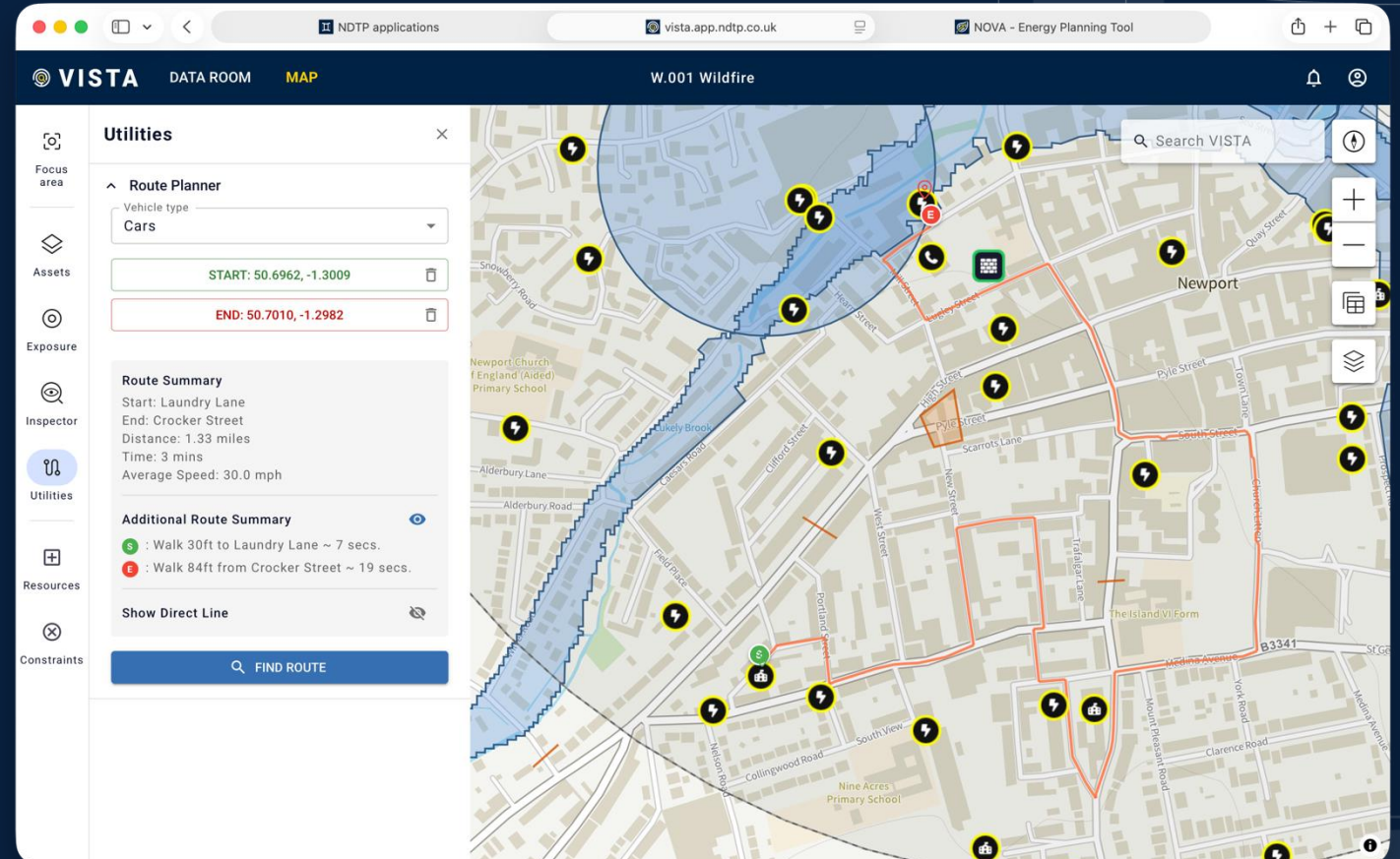
IRIS – an operational intelligence platform for Warm Homes



Demonstrators

Co-evolving through use

- Optimise route planning using real-time constraints, asset intelligence and operational context (e.g., vehicle capability)
- Support coordinated response through shared situational awareness



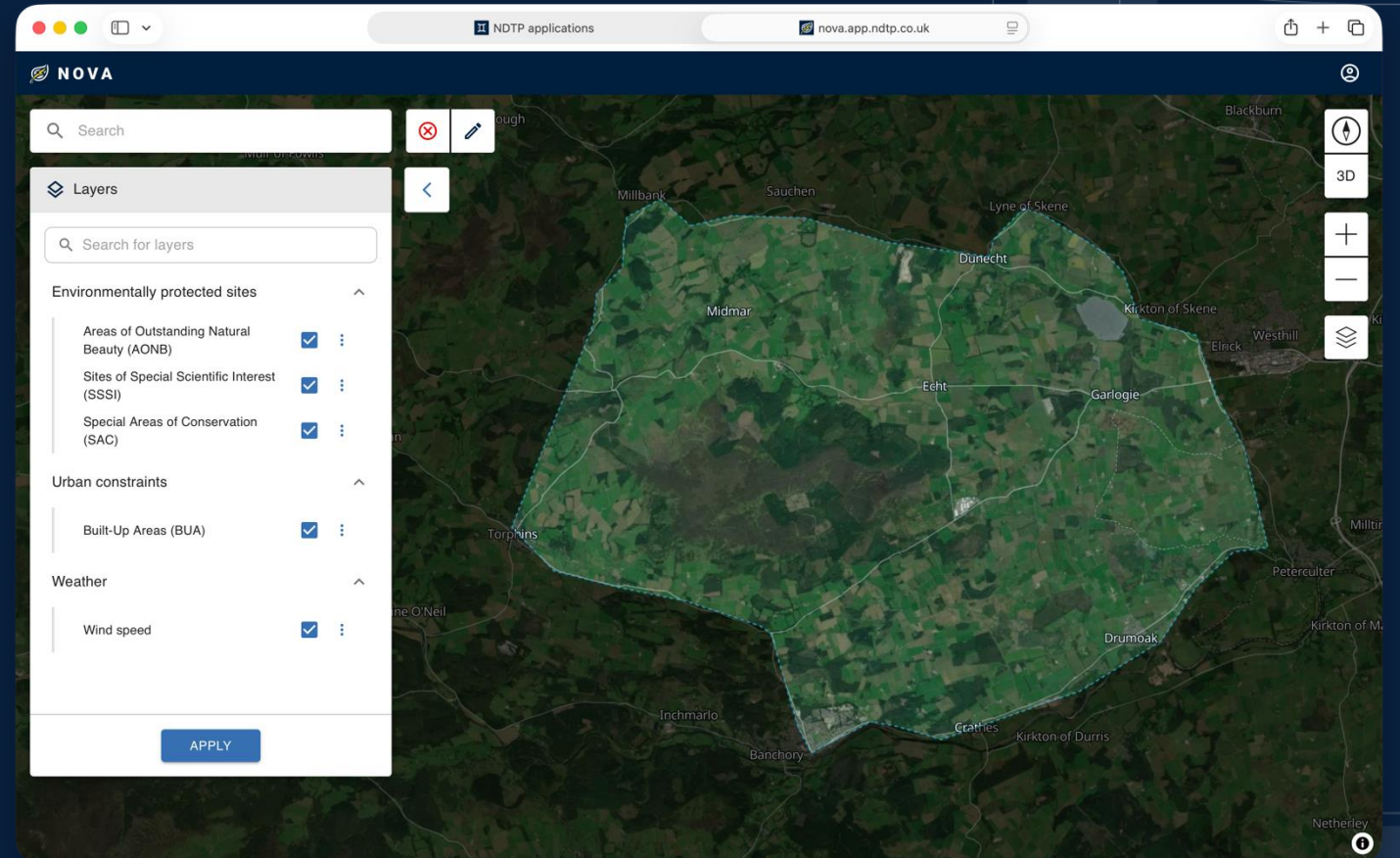
NOVA – spatial asset planning using simulation and suitability modelling



Demonstrators

Co-evolving through use

- Apply configurable environmental and infrastructure constraints to evaluate candidate sites
- Tailor suitability by enabling, disabling or adjusting location-specific constraints



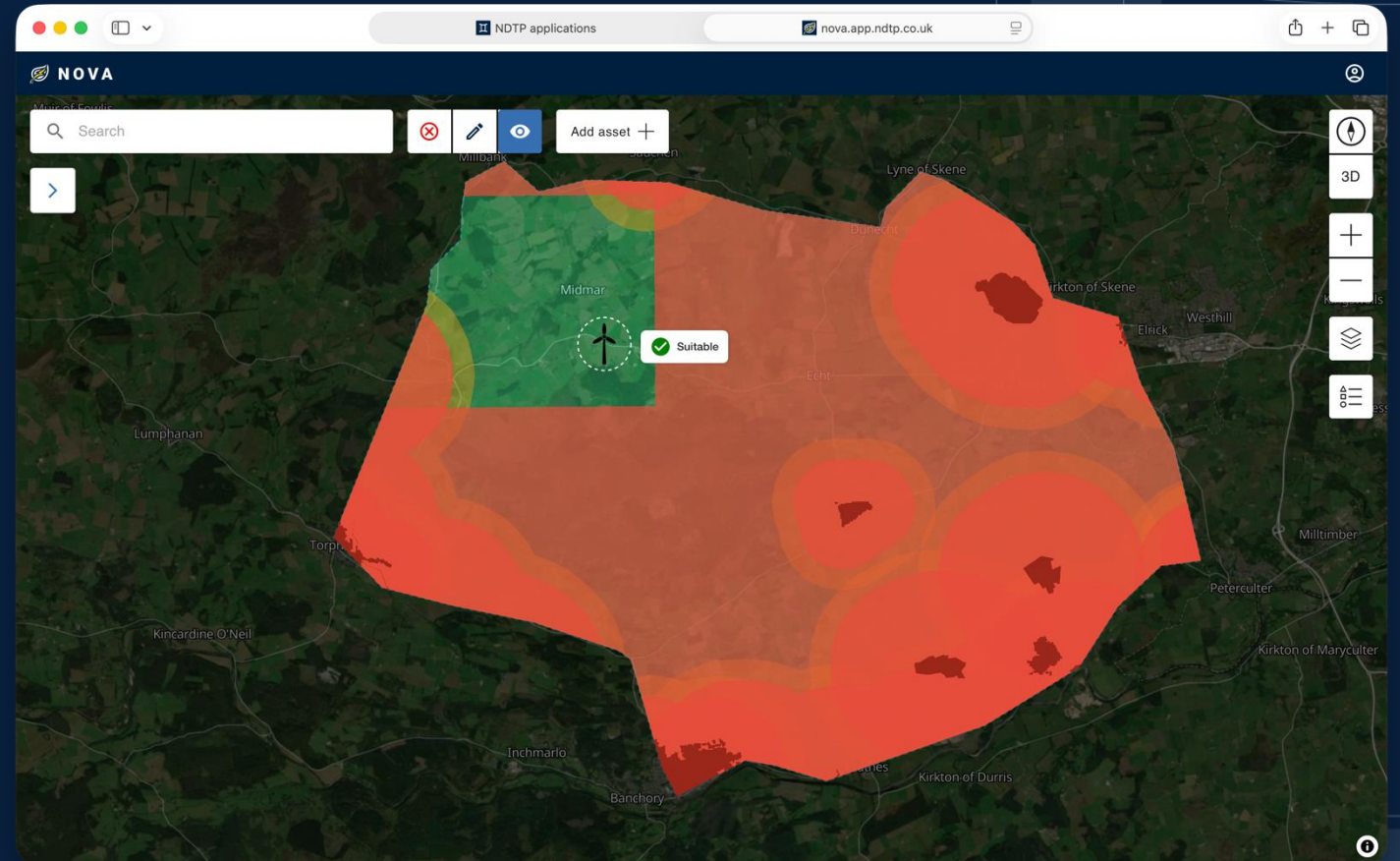
NOVA – spatial asset planning using simulation and suitability modelling



Demonstrators

Co-evolving through use

- Visualise site suitability and identify optimal locations for asset deployment



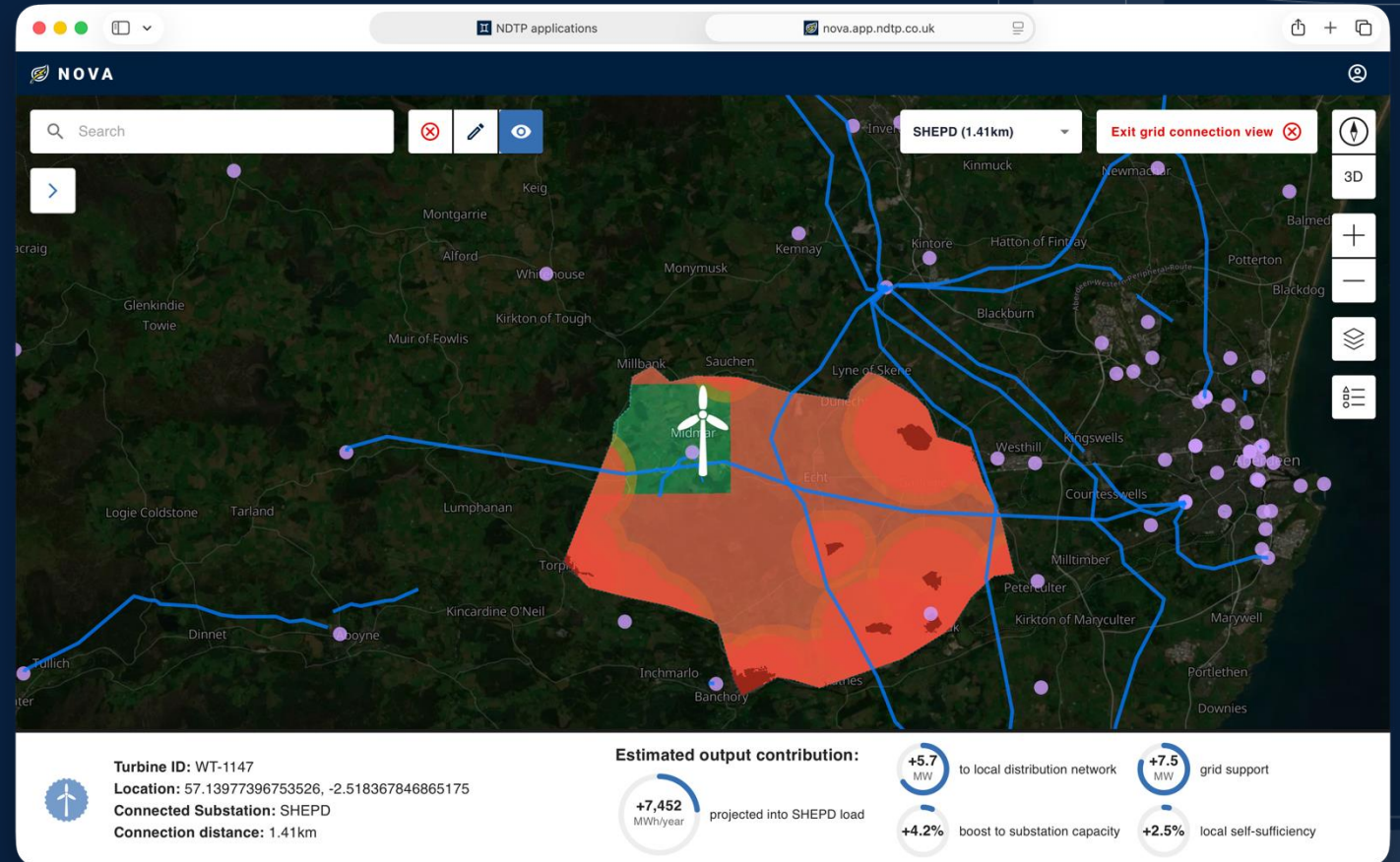
NOVA – spatial asset planning using simulation and suitability modelling



Demonstrators

Co-evolving through use

- Assess grid connectivity and identify optimal network connections points for deployed assets



Thank you

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