TEAM DEFENCE INFORMATION
www.teamdefence.info

Team Defence SME Showcase

25th January 2024

12:00-13:15

Arke Ltd

Arke Ltd
TDI
25th Jan 2024

Arke Ltd

Who are Arke

- Based in Wiltshire, around 60 employees
- Background in helping the Ministry of Defence with evidence based decision making and cost modelling.
- Expanded our capability to include sustainability and specifically carbon-based analysis.
- Deepened our modelling capability to include systems dynamics.

Arke Ltd

Why are we talking to you?

- Bring out the awareness of our newer capabilities
- Look for potential collaborators on future projects – specifically where we can collaborate and learn from each other in the sustainability and modelling spaces
- Share some LfE we have from work we've done
- Share challenges we have come across and understand whether others have had the same/how they have been overcome

Arke Ltd

Net Zero

DE&S Net Zero

- Reviewing 17 DM sites to understand how they can introduce Natural Capital Assets, Energy Saving Measures and Supporting Infrastructure
- Work will review whole life cost
- Work will review whole life carbon

Carbon Flow

- Whole life cost / whole life carbon tool which we are progressively developing, which focuses on equipment rather than infrastructure.
- Includes a particular module around the carbon cost of shipbuilding, looking at various materials and techniques as well as the impact of overheads.

Arke Ltd

Successes and Opportunities

Successes

- Comprehensive tool to predict the Whole Life Carbon of Products
- Understand the trade-offs in the space a lot better now
- Multi-company team
- New and Novel Area

Opportunities

- Influence key stakeholders in understanding the importance of sustainability and net zero
- Comprehensive decision-making system trade offs
- New and Novel Area

Arke Ltd

Systems Dynamics

- Project – Still Frame Images
  - Futures Lab
  - High level assessment of different architectures & tech to enable still frame images to for Naval C2, in relation to NSN
  - Used a causal map to understand problem space, build consensus between stakeholders and situate interventions within the system
  - Output: Form a set of prioritised recommendations for future C2 network interventions
    - E.g is sending lots of images to the bridge better?

- Capability
  - Enables decision making based on the reality of how real-world systems behave
  - Feedback loops and time delays drive non-obvious behaviours in real world systems
  - System Dynamics allows us to provide a way to articulate, quantify and model these systems – using causal maps and stock and flow simulations to identify bottlenecks and drivers within the system
  - Traditional Examples of SD include: Logistics and Supply Chain problems

Arke Ltd

Successes and Opportunities

- Successes
  - Clear picture of non-obvious problems in a way that is accessible to all
  - SD has been used to successfully model supply chain network and C2 systems
  - SCALE is a highly reuseable and use-friendly logistics model with proven track record
- Opportunities
  - Having Subject Matter Experts in each specific areas to create a rich picture of the problem space
  - Data for populating and validating models

Arke Ltd

Any Questions?

Innovation & Design Engineering

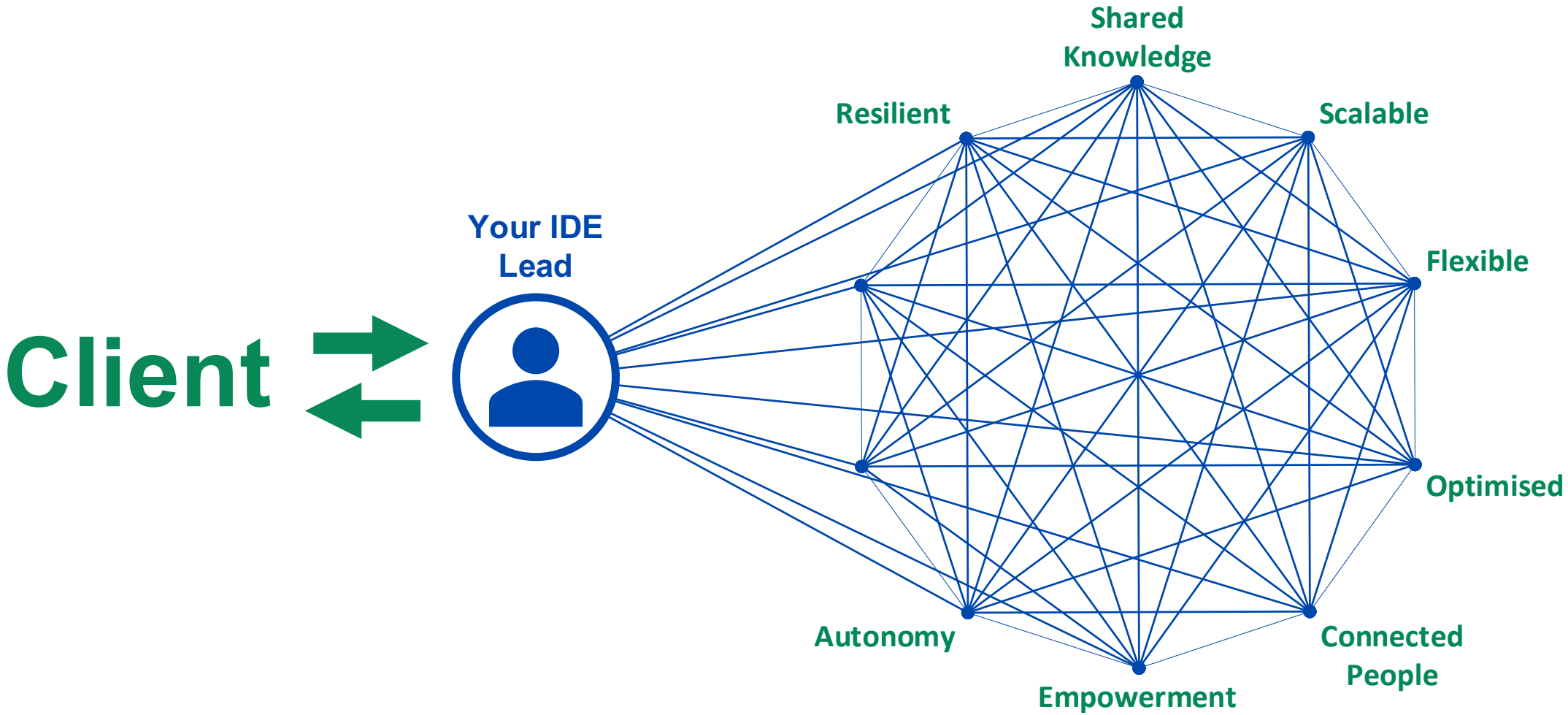
Ian.Hobson@ide-systems.com

Our Mission

OUR MISSION IS TO EMPOWER CLIENTS IN TRANSITIONING TO A WORK PACKAGE DELIVERY MODEL

OUR VISION IS TO RELEASE THE POWER OF THE UK ENGINEERING SKILLS POOL TO REALISE OUR CLIENTS' NEEDS

How we work


Shared Knowledge
Resilient
Scalable
Your IDE Lead
Client
Flexible
Optimised
Autonomy
Connected People
Empowerment

Why IDE?

Capability

- Our team brings knowledge, skills and experience acquired across a myriad of domains, platforms, and systems.
- As suitably qualified & experienced personnel (SQEP), the IDE team are expert practitioners in Systems Thinking, Systems Engineering and Systems Safety Engineering.
- Additionally, the IDE team have particular expertise in Engineering Management, including Systems Engineering, and Engineering Planning.

Systems Thinking

- Provision of expertise in multi-methodolgical Systems Thinking approaches for problem structuring
- Application of Systems Thinking approaches in design modes to provide problem dissolution

Systems Engineering

- Provision of expertise across the Systems Lifecycle from concept through to disposal
- Focus on model-based approaches
- Integration leadership with discipline design teams to ensure adoption in the wider organisation

Systems Safety Engineering

- We provide expert practitioners who have first-hand experience of recognised safety-related standards. These include but are not limited to:
  - MIL-STD-882E, Department of Defense (DoD) Standard Practice System Safety;
  - UK MoD Defence Standard (Def Stan) 00-056 Safety Management Requirements for Defence Systems;
  - IEC 61508:2010, Functional safety of electrical/electronic/programmable electronic safety-related systems;
  - ISO 26262:2011 Road vehicles - Functional safety.

IOTICS

EMBRACING COMPLEXITY

EXPLORING, LEVERAGING AND EXCHANGING DATA, KNOWLEDGE AND SYSTEMS, WITH CONFIDENCE.

TEAM DEFENCE INFORMATION SHOWCASE JAN 24

Ali Nicholl, Founding Team
ali.nicholl@iotics.com

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IOTICS

COOPERATION ≠ COLLABORATION

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‘I NEED YOU TO BREAK OUT OF TRADITIONAL DOMAIN SILOS AND WORK IN PARTNERSHIP TO DELIVER INTEGRATED SOLUTIONS ACROSS THE SUPPLIER BASE.’

General Sir Jim Hockenhull, Strategic Command
Speaking to industry DSEI 2023

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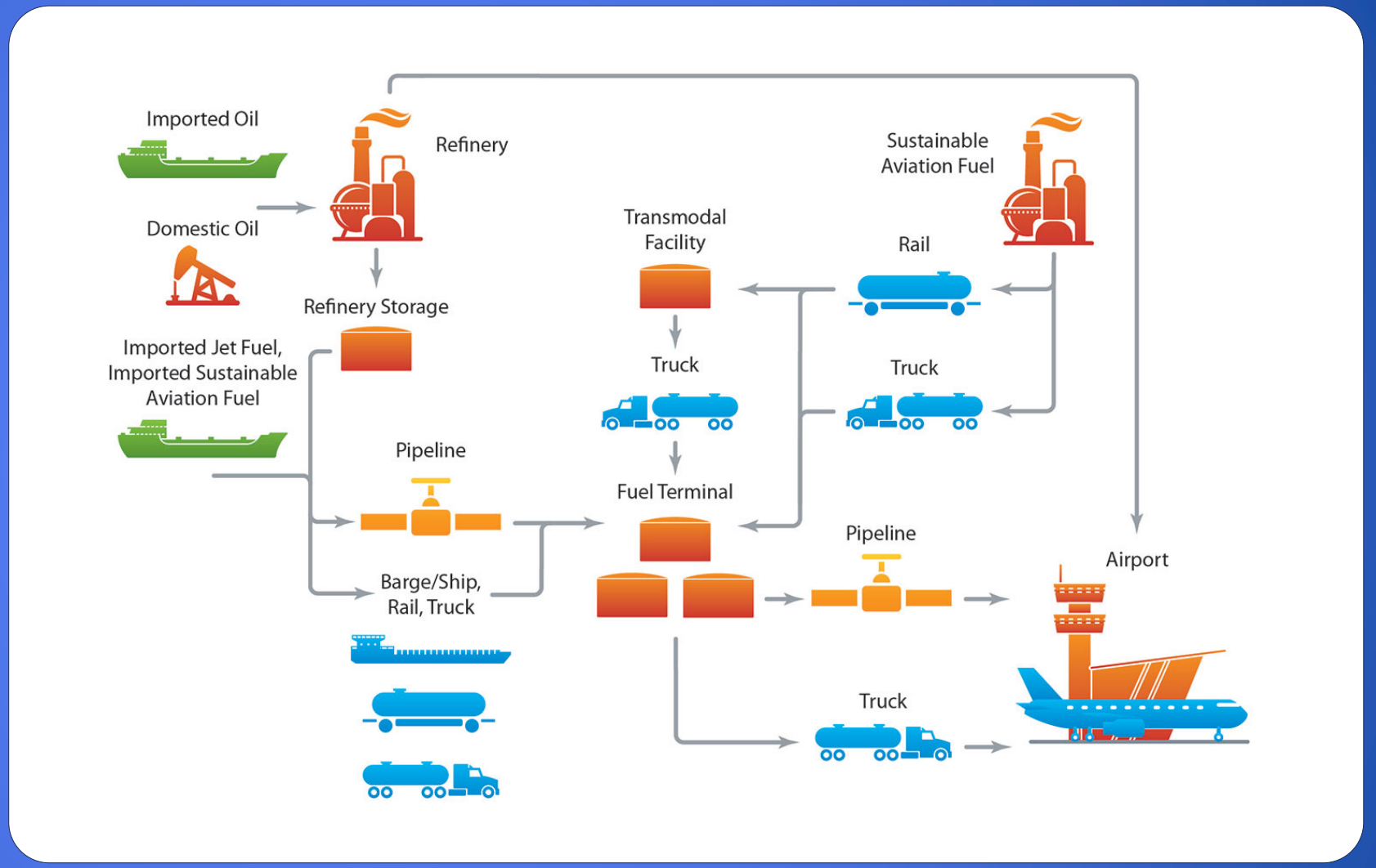
- Oil Production
- Refineries
- Production Facilities
- Pipeline & Substations
- Storage (Domestic)
- Storage (International)
- Harbour
- Shipping
- Trans-modal Logistics
- Operation



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‘ONE OF THE BIGGEST CHALLENGES FOR THE DEFENCE INDUSTRY IS HOW DO YOU ACTUALLY SHARE DATA INTELLECTUAL PROPERTY WITH SOMEBODY THAT IS SIMULTANEOUSLY YOUR PARTNER AND YOUR COMPETITOR.’

Louise Donaghey, Services Programmes Director, Rolls-Royce

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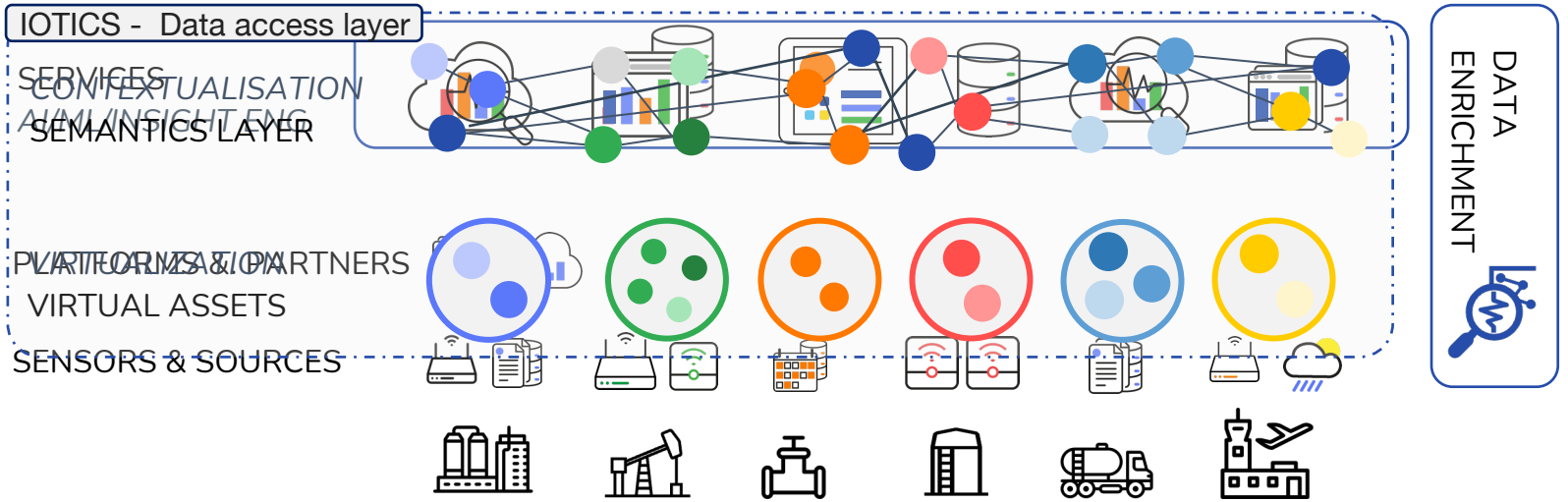

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Virtualise assets, data and systems while ensuring access, governance and sharing are federated.

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Virtualisation
Within the data access layer streaming information can be surfaced from multiple sources without exposing the underlying systems, data stores, or sources

Data access layer

Each users has a single-entry point to access their version of data ecosystem

Each organisation/data governor has their own IOTICSpace. Data remains stored in their own environments.

Management Twins

Sensor Twins

Dashboard Twin

Analysis Twin

Fine Grained Security – data is controlled by owner with allow lists and filtering of data.

Self-determination
Data consumers and owners determine what, how, when and with whom they share information

Data Enrichment
data can be further enhanced through users' analysis and AI/ML tools

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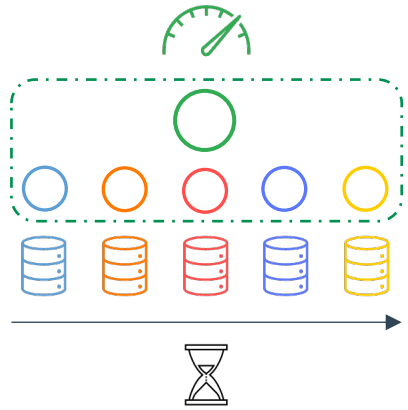
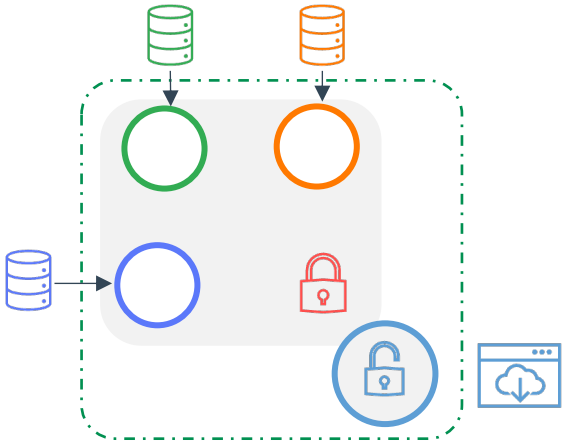
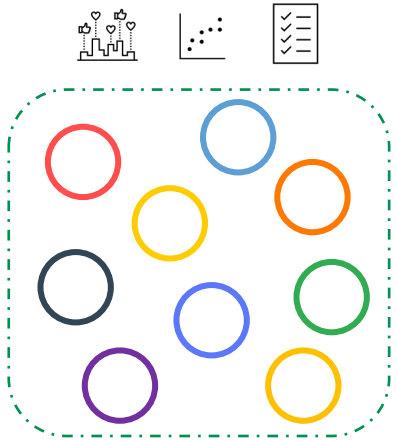
ADOPTION PATTERNS



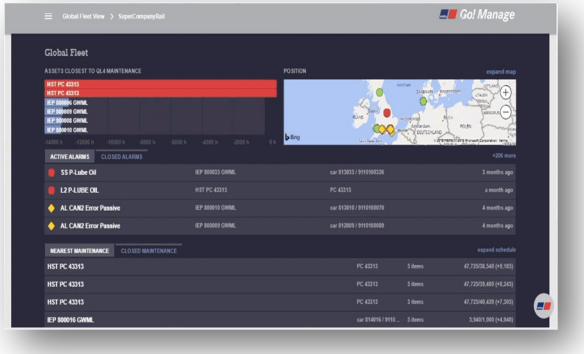
DIGITAL THREAD

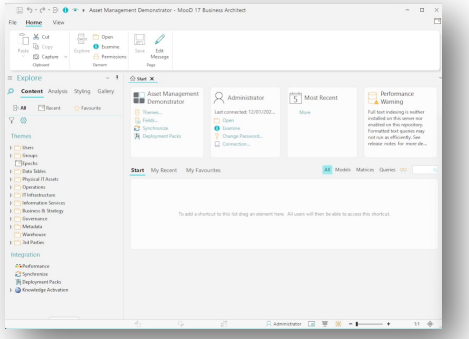


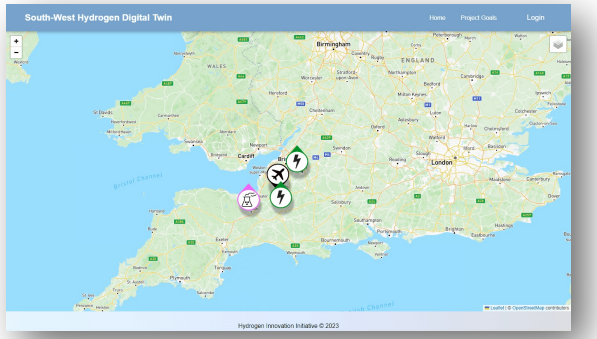
MIXED TRUST



ECOSYSTEM OS







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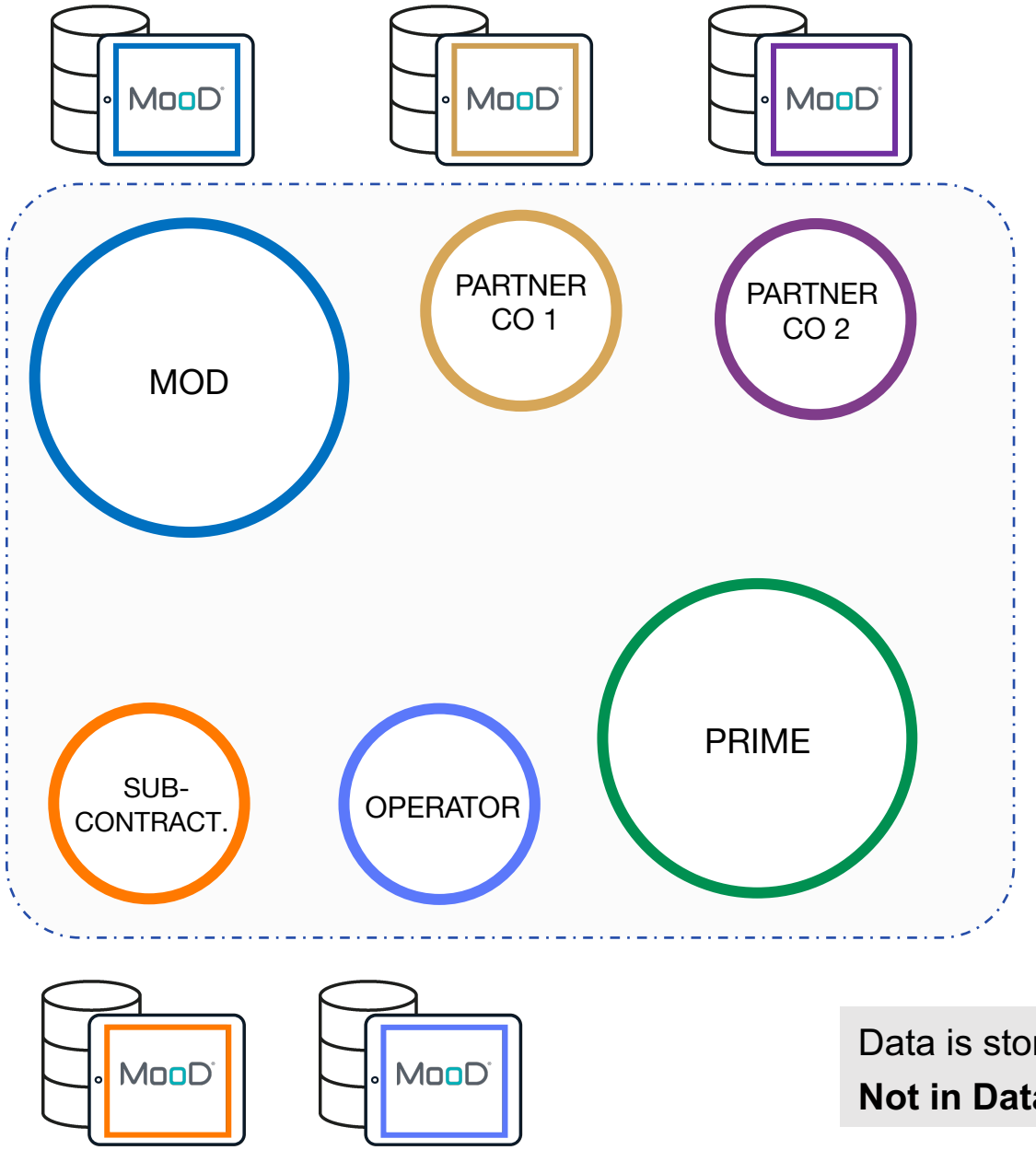
FEDERATING INSTANCES

CACI

MooD® software



IOTICS Network hosted on Neutral Ground Server – i.e. Certified Cloud Environment

Data is stored on own environment.
Not in Data Access Layer

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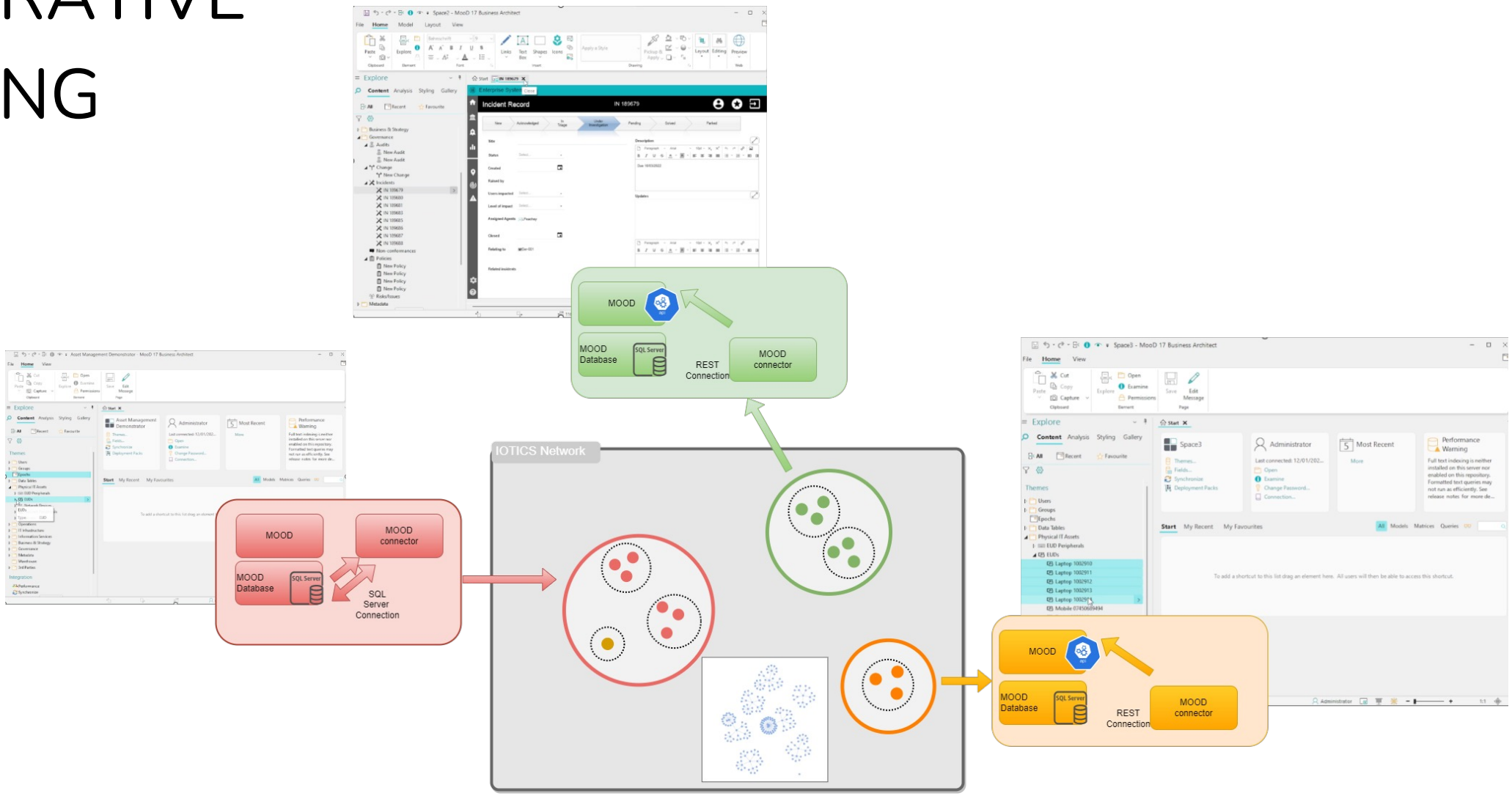
COOPERATIVE WORKING



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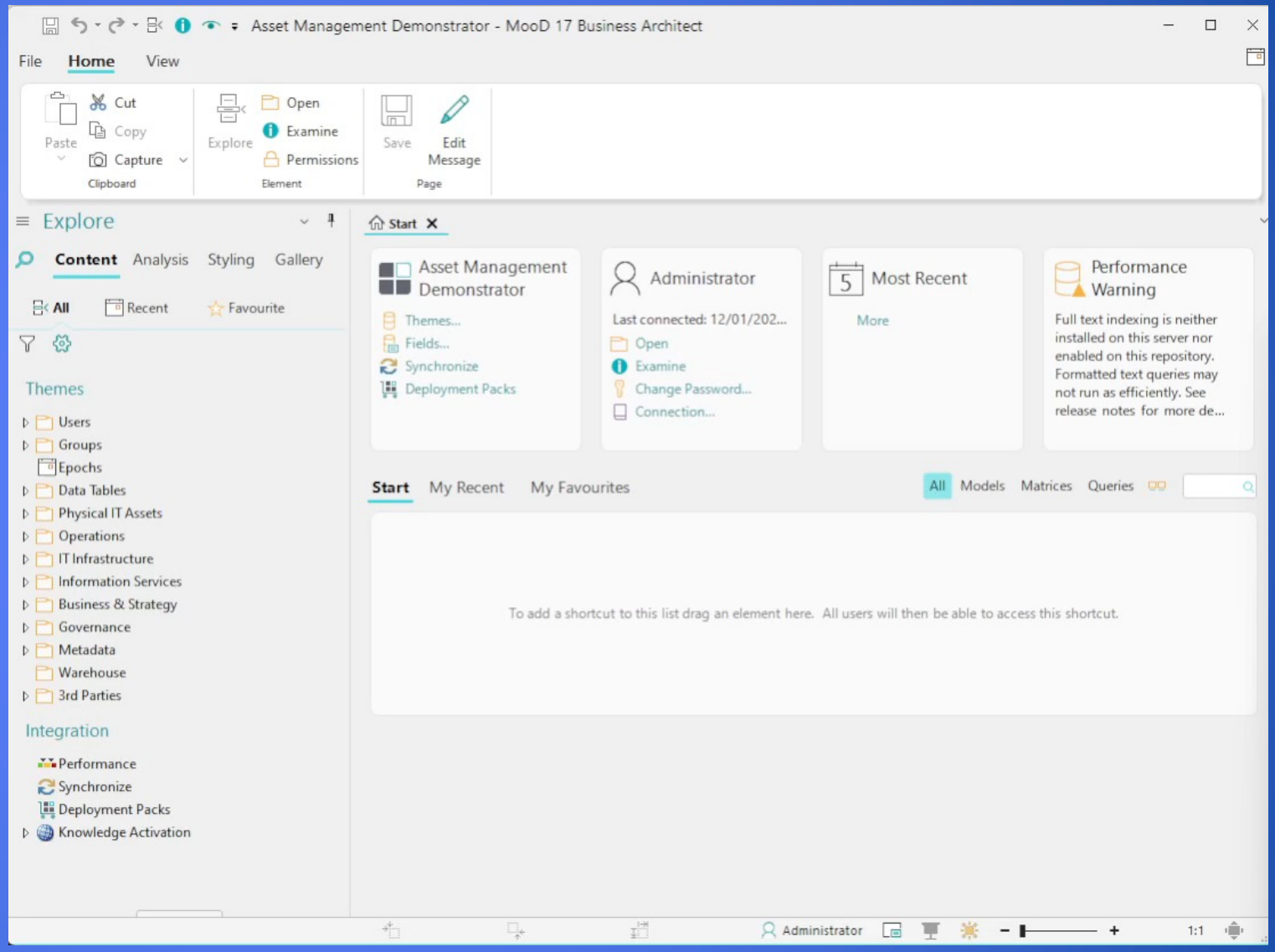
COOPERATIVE WORKING



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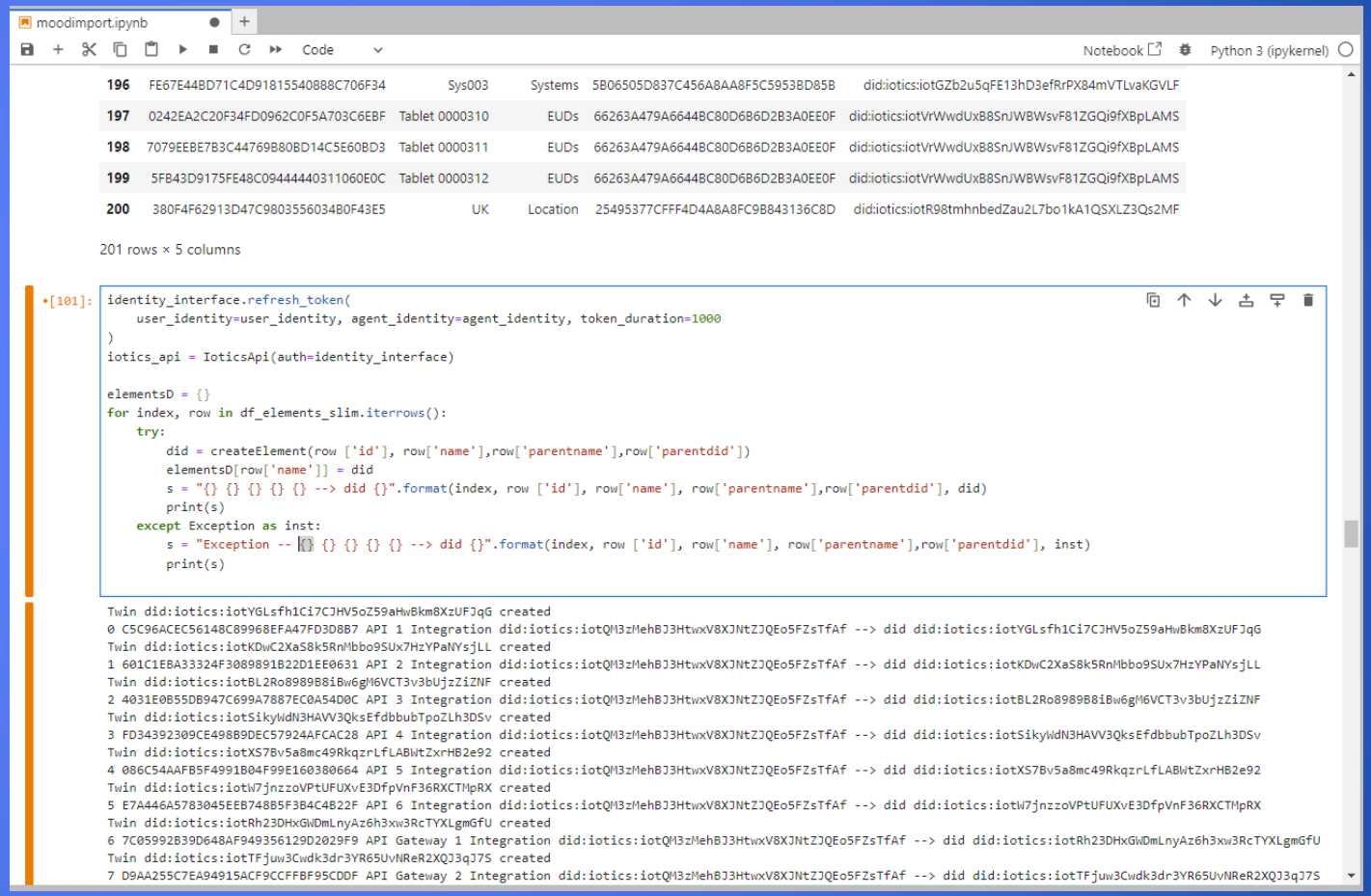
LIGHTWEIGHT CONNECTOR



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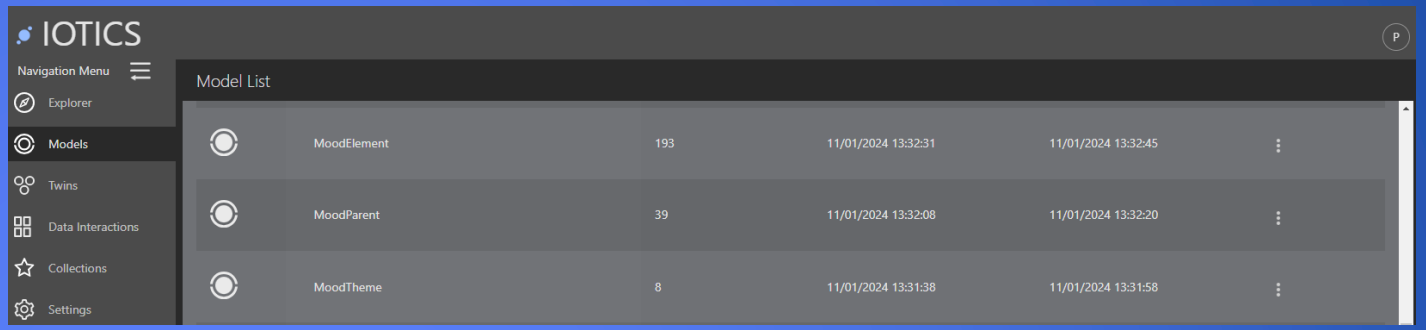
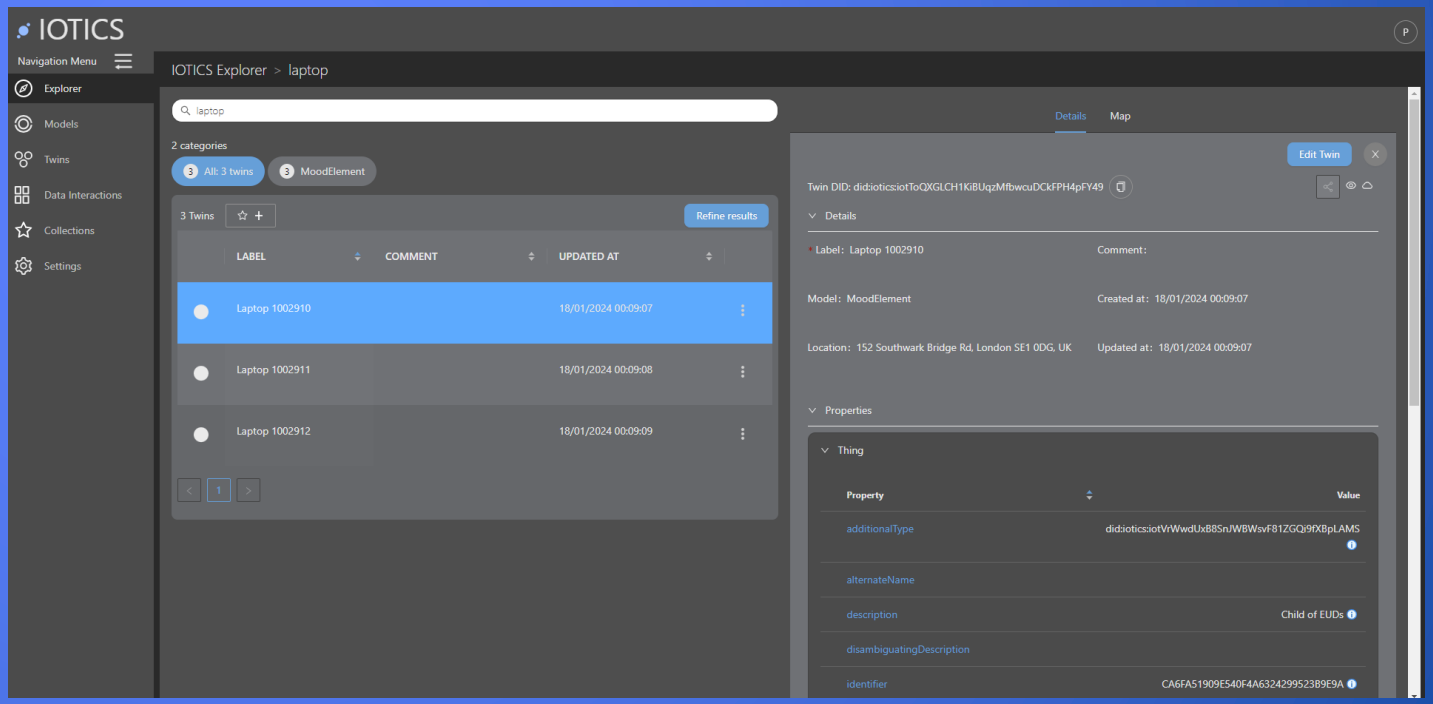
MBSE & IOTICSPACE





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FEDERATED KNOWLEDGE GRAPH

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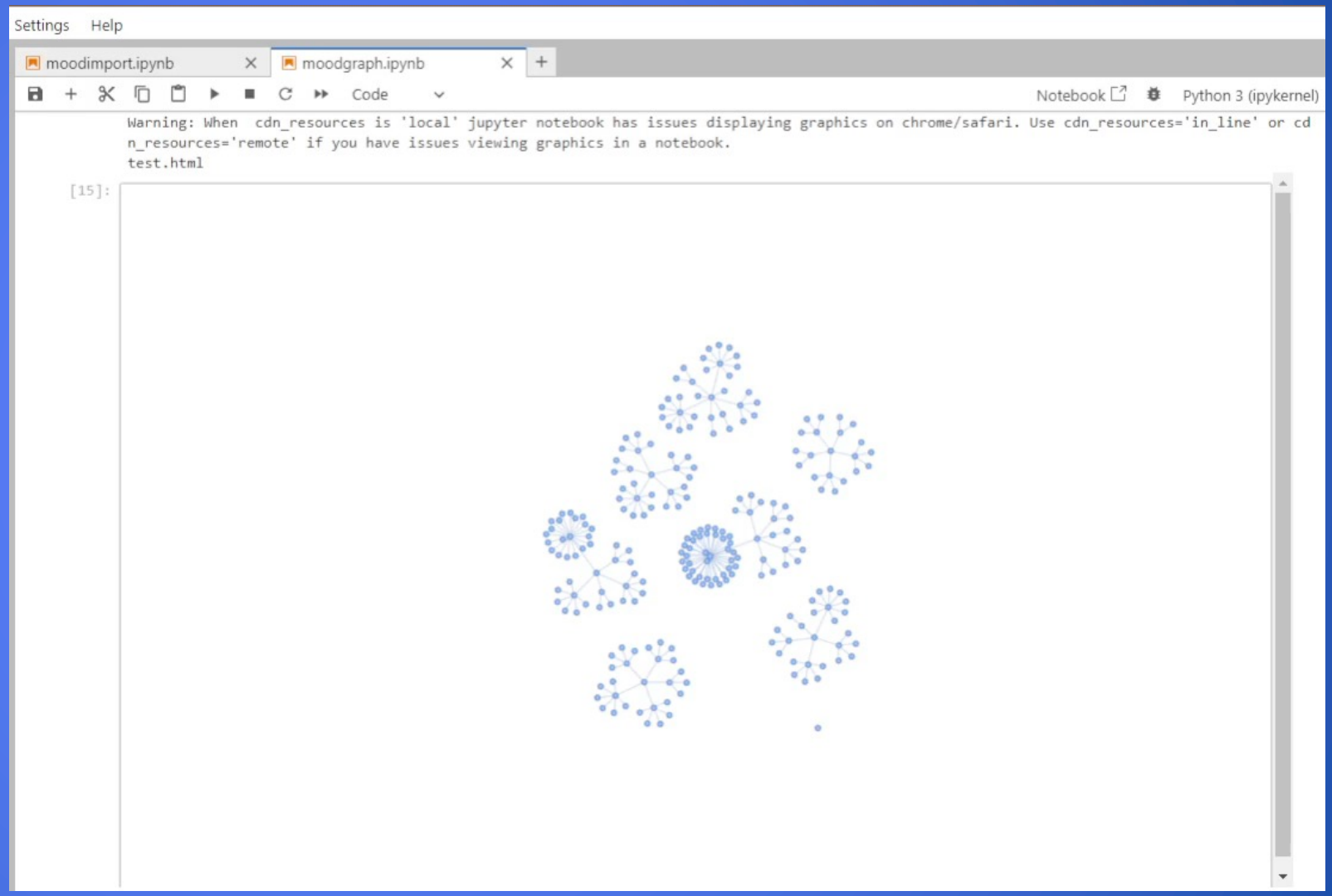

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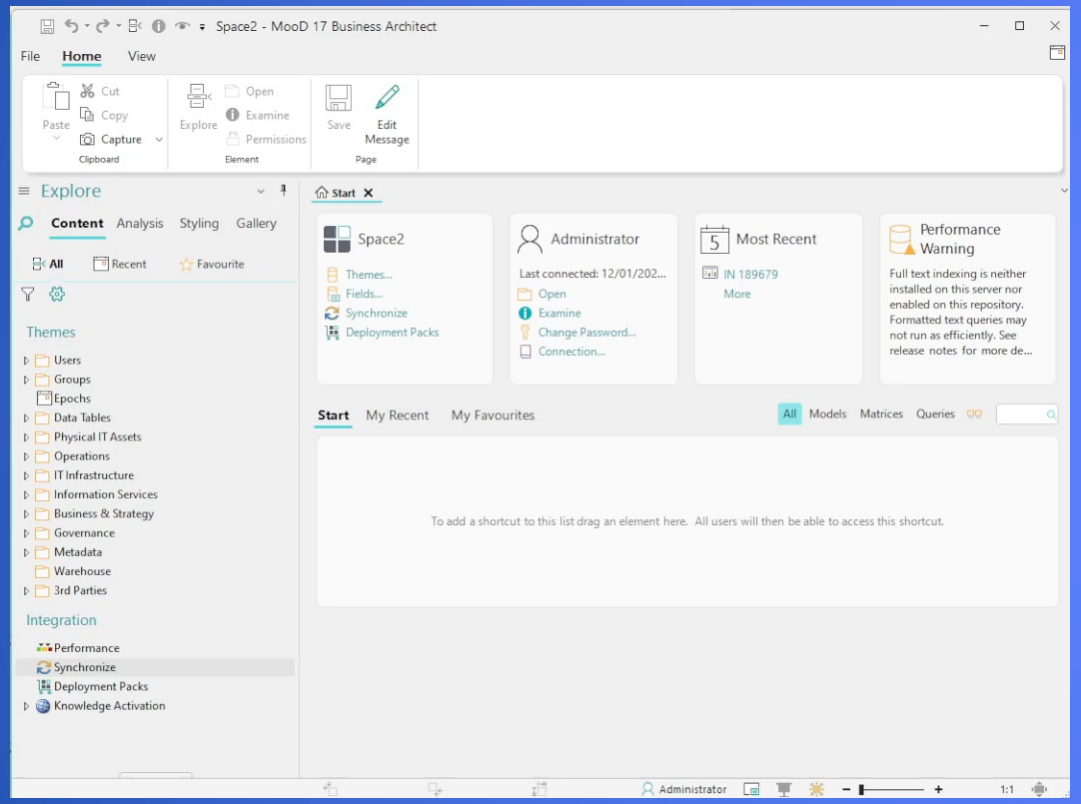
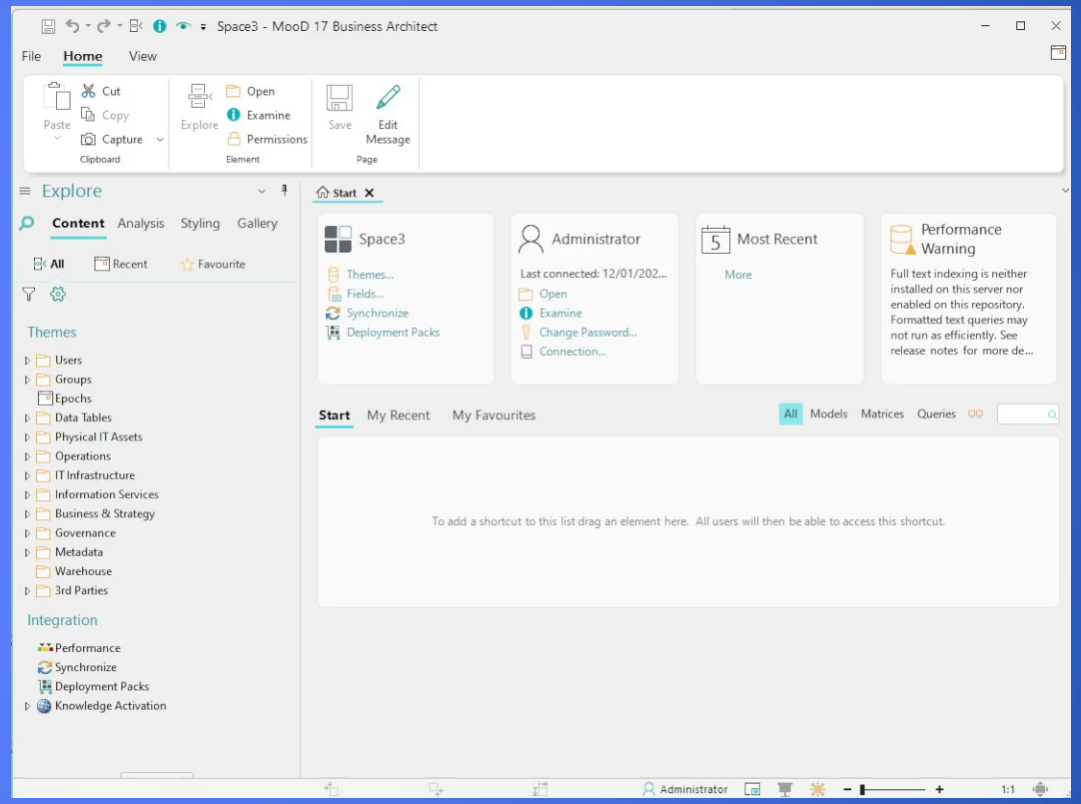
FEDERATING INSTANCES





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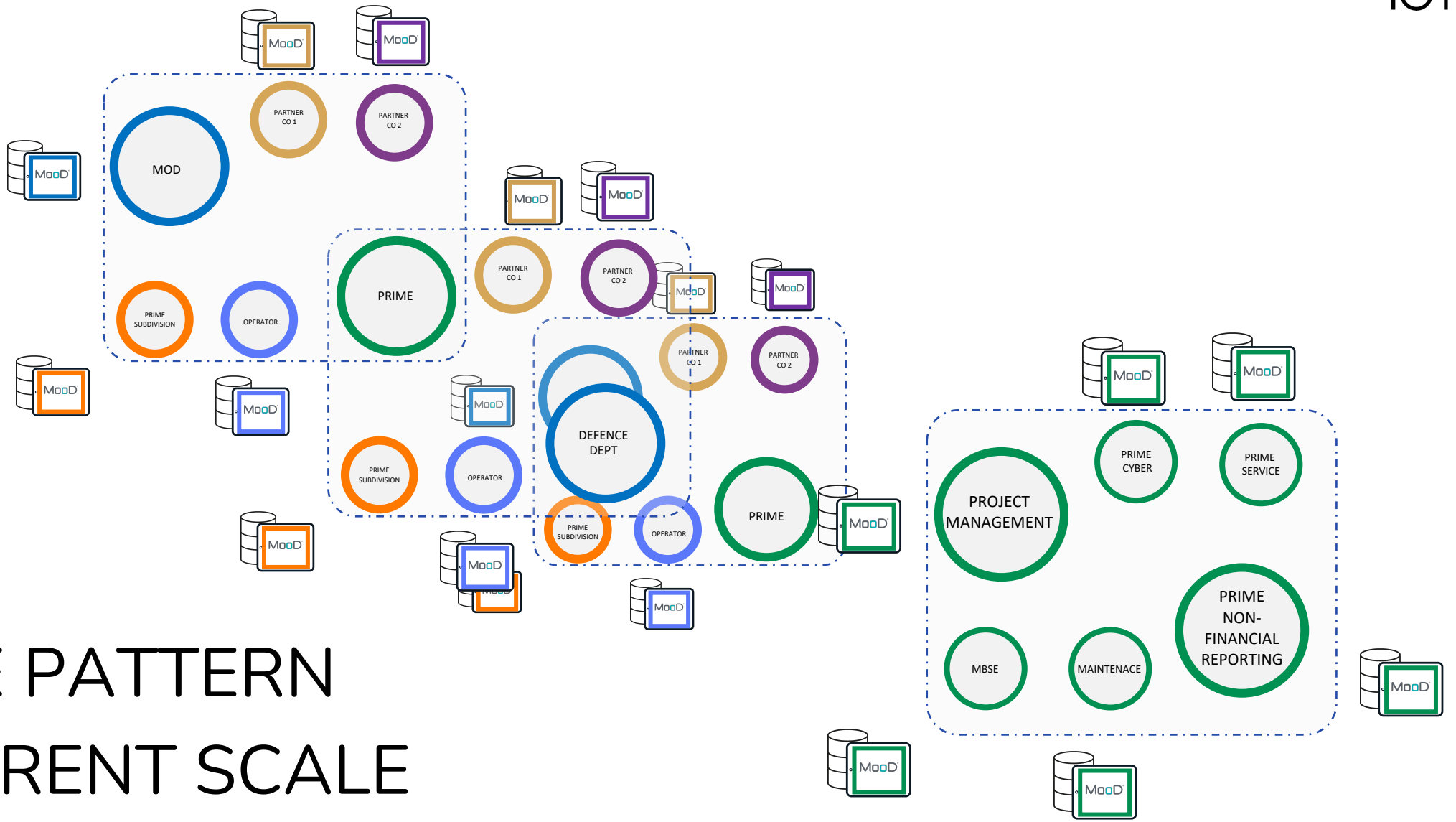

SAME PATTERN DIFFERENT SCALE

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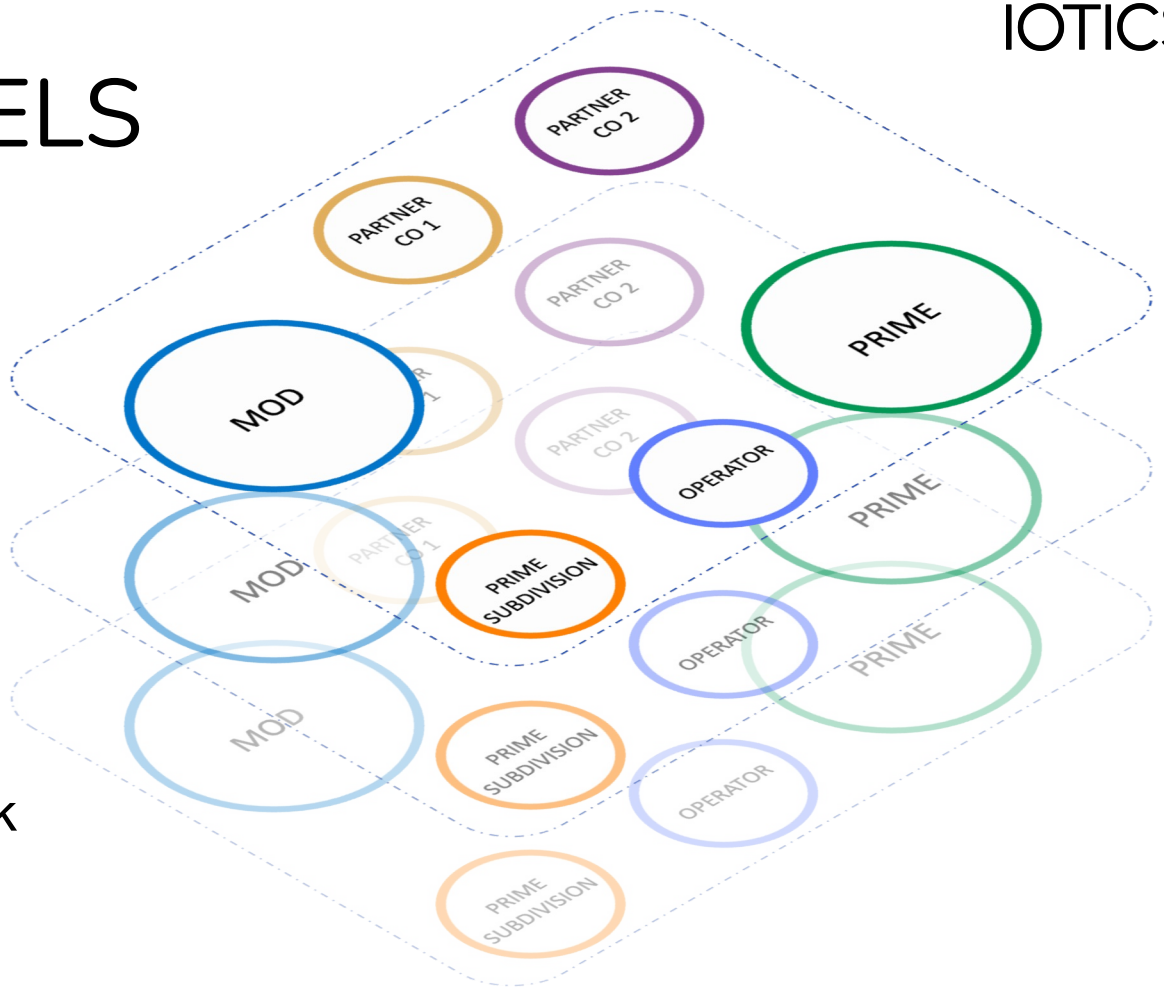
FEDERATION AT ALL LEVELS

Trusted access in low trust ecosystems
(yes if vs. no because)

- Data reporting/compliance
- Asset-centric supply chain
- Ecosystem infrastructure

Foster cooperation and innovation across network while maintaining data security and privacy.



KPMG

‘Every day, organizations deal with increasing amounts of data, originating from both inside and outside the organization. Due to centralized data ownership and data access, transparency and timeliness have become bottlenecks in many organizations.’

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THANK YOU

Ali Nicholl
ali.nicholl@iotics.com

www.iotics.com

Listen to the new episode of the IOTICS podcast here!

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SERVICEKEY

TD-Info SME Showcase

Jordan Houston – Product Manager

Thursday, 25 January 2024

innovate.control.evolve.

33 About ServiceKey

ServiceKey is founded on a vision of a future where businesses operate in a world of deep-rooted understanding of their customers' needs, a future where change is accepted as the norm and solutions adapt to meet ever changing demands as near to real time as possible, fully focused on sustainability and NetZero50.

Our Vision

To be the driving force behind next generation sustainable solutions.

Our Mission

By accelerating the way humanity understand, innovate and exploit opportunities.

SERVICEKEY

Crown Commercial Service Supplier

yocova PARTNER

CYBER ESSENTIALS CERTIFIED

JOSCAR

ARMED FORCES COVENANT

TEAM DEFENCE INFORMATION www.teamdefence.info

Microsoft for Startups Founders Hub SERVICEKEY ServiceKey is now part of Microsoft for Startups Founders Hub.

Microsoft Partner

AURORA ENGINEERING PARTNERSHIP QinetiQ | Atkins | BMT

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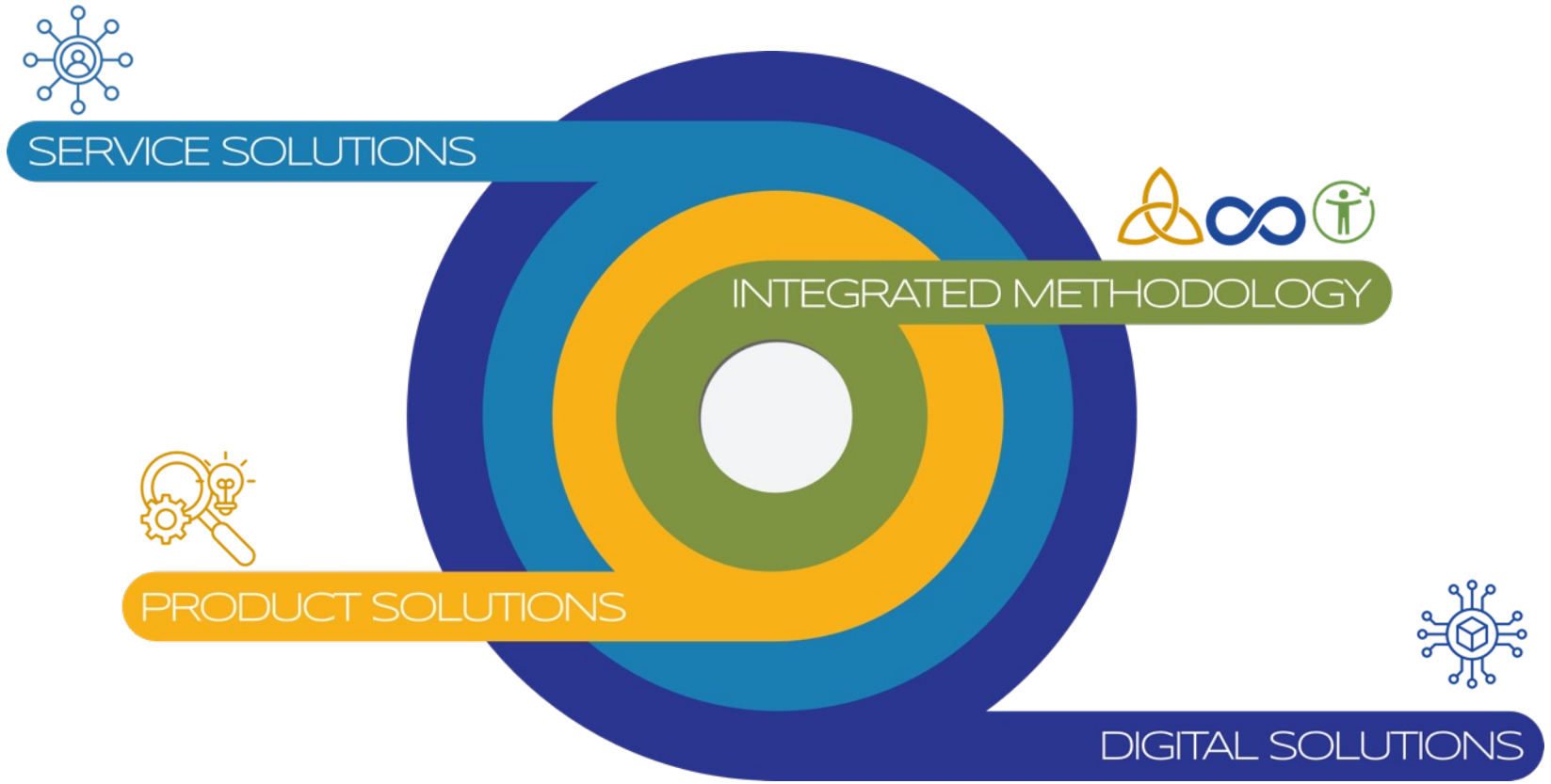
34 What we do

ServiceKey offers a comprehensive approach designed to support businesses at various stages of their lifecycle, from early innovation to continuous improvement and effective change management.

Built on the foundational principle of an information-led strategy, this methodology offers a structured approach emphasising not just ideation and implementation of innovative solutions, but also a focus on monitoring and ensuring desired Customer Outcomes.



SERVICEKEY

35 ServiceKey Integrated Methodologies

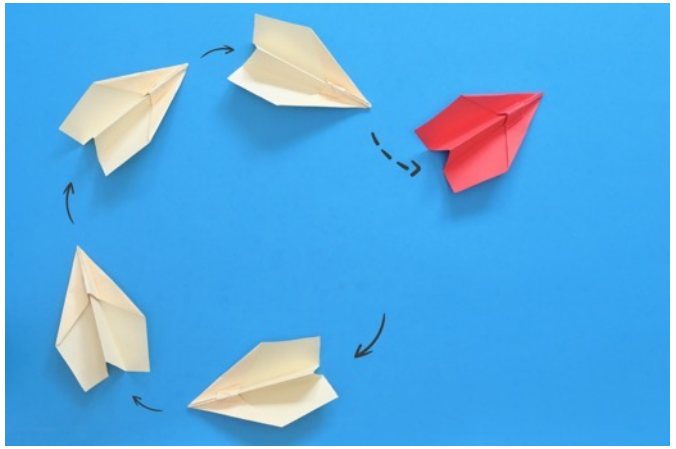
PERPETUAL INNOVATION™

We believe that innovation is key to success. Perpetual Innovation helps you to identify new and creative ways to improve your products, services, and operations, and leverage the latest technologies and trends to your advantage. We help you think outside the box, challenge assumptions, and explore new opportunities for growth and development.

OUTCOME™ BASED DESIGN

We understand that control is essential for the design and management of effective outcomes. Outcome Based Design provides the means to manage your resources, optimise your processes, and ensure compliance with regulations and standards, creating a perpetual environment for measurement and improvement allowing you to focus on fulfilling customer needs.

EMPOWERED™ DECISION MAKING



We recognise that evolution is an ongoing process, and that businesses must adapt and evolve to stay competitive and relevant. Using our objective data focussed approach our goal is to help you anticipate and respond to change, make effective and empowered decisions and to continuously improve and evolve your business for long-term success.

At ServiceKey we specialise in helping businesses and organisations innovate, control, and evolve.
Our aim is to provide you with the expertise and guidance you need to overcome challenges, achieve your goals, and stay ahead of the curve in today's dynamic and competitive marketplace.

innovate.control.evolve.

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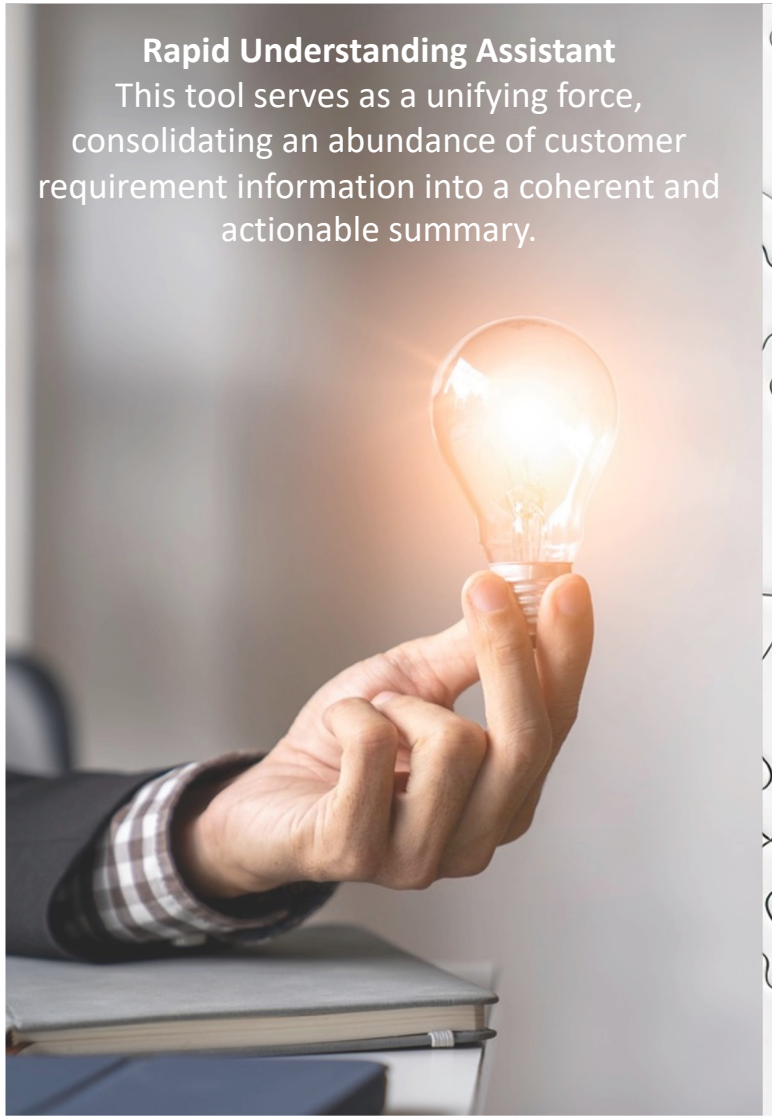
36 Products



Rapid Understanding Assistant
This tool serves as a unifying force, consolidating an abundance of customer requirement information into a coherent and actionable summary.

Solution Concept Development Tool
This pivotal component empowers users to navigate the complexities of solution creation by swiftly generating multiple innovative ideas.

Communication Strategy Generator
By offering a structured framework, this tool guides users in articulating customer needs, thereby ensuring a comprehensive understanding of the target audience.

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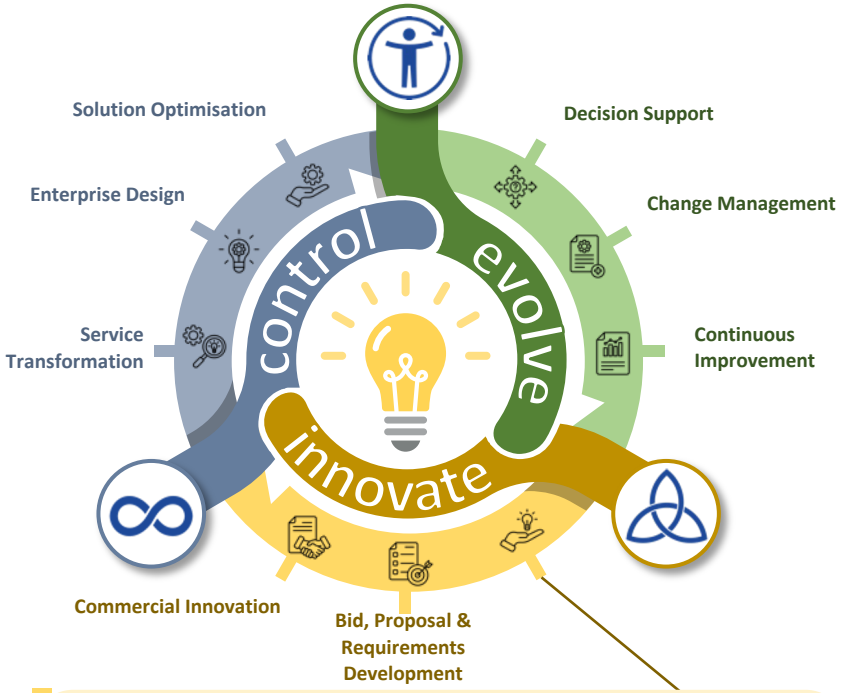
37 Services

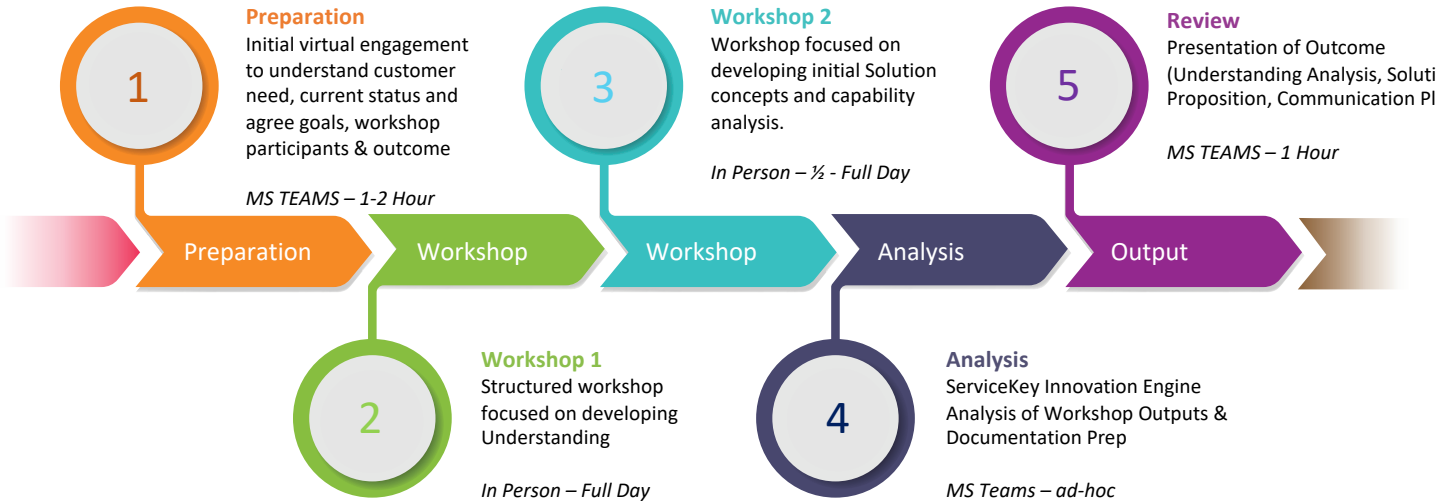


Concept Creation & Solution Design

Our team have experience developing solutions for some of the most complex defence projects. We can provide solution development guidance using our Perpetual Innovation including development of effective outcomes.

Perpetual Innovation® is designed to rapidly accelerate understanding to the point of solution creation, each step in the methodology is designed to mature both the understanding and the resulting solution, including communication methods. Each iteration of Perpetual Innovation® will provide a maturity assessment of the current position to inform future focus.

The ServiceKey Concept Creation & Solution Design service can be used as a precursor for any stage of solution design or transformation. In particular, it can provide the backbone for Bid & Proposal Development – facilitating early convergence of understanding, solution options and successful proposal documentation.



SERVICEKEY

ServiceKey Digital Service Partner

ServiceKey Digital Solutions Service is a fusion of top-tier expertise and cutting-edge technology. By forging strategic partnerships with leading digital providers such as AWS, Microsoft, and Adobe, ServiceKey has positioned itself as a conduit to digital excellence.

This enables businesses to not only access innovative digital tools but also tap into a reservoir of collective expertise that these giants bring to the table, ensuring that every digital transformation journey is both seamless and impactful.

Modern Work:

Microsoft 365

Google Cloud

Adobe

Collaboration & Cloud:

BAM BOOM! CLOUD

cisco

GoTo

Dropbox

aws

Business Apps:

Microsoft Azure

Microsoft Dynamics 365

LastPass

RSign

ZEBRA

KOFAX

Security:

Bitdefender

Acronis

Symantec Endpoint Protection

VERITAS

AvePoint

BitTitan

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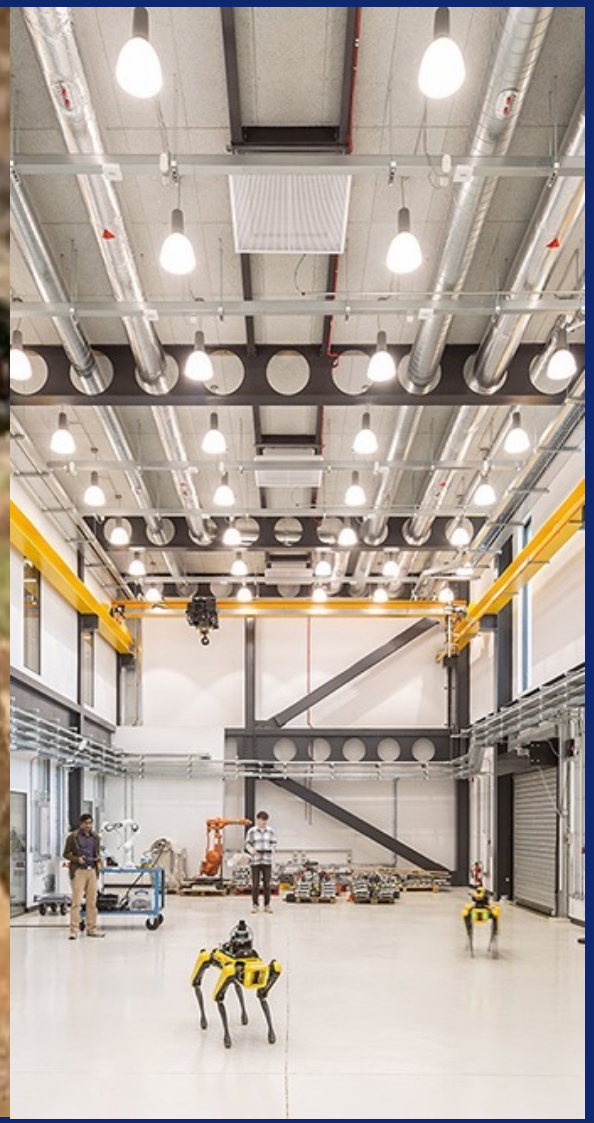
39 Current Customer Projects & Use Cases



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QUESTIONS?

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or contact us at hello@servicekey.uk
to find out more

SERVICEKEY

Find us at the DE&S Digital Engineering Conference
7th-8th February