CATAPULT Digital

Logistics Living Lab

Get set for the future. **Now**

MADE SMARTER INNOVATION

DIGITAL SUPPLY CHAIN HUB

Our mission

To reduce waste, carbon emissions and inefficiency in logistics through better collaboration and coordination, reducing wasted capacity, increasing truck and route utilisation, taking empty miles and traffic off the roads.

What's the problem?

Problem: Logistics operators face increasing pressure to be more productive and efficient, whilst demonstrating a commitment towards carbon neutrality.

These organisations are doing their best to be as efficient as possible within their reach:

- Employing better systems to manage operations, driver schedules, and intelligent route planning. e.g. Digihaul, Transporean, Pallet Networks etc
- Attempting to **reduce inefficiencies**, **minimising empty running**, and considering **outsourcing options** to optimise inventory management
- Making investments in their vehicle fleets and adoption of alternative fuels.

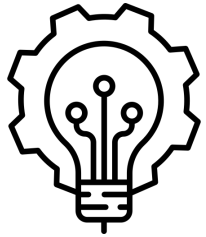
Unfortunately, there is a limit to what a single organisation can do within their sphere of control.

Technology allows for greater capacity from less resources, however, **this takes time.**

Collaboration unlocks existing but hidden network capacity, to be leveraged **now**.

Barriers to Collaboration

Collaboration across organisations is key to unlocking the full potential of collective resources and capabilities, creating further value in doing so.

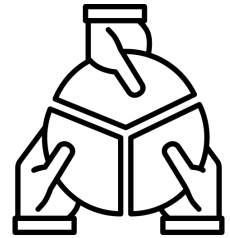


Technical Barriers

- Security
- Operational ability to experiment
- Fragmented Legacy Systems
- Lack of Common Language
- Manual Data Maintenance

Behavioral and Organisational Barriers

- Territoriality
- Resistance to Change
- Incentives Misalignment



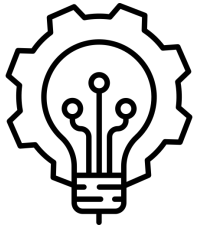
Market Barriers

- Skills Deficit
- Market structure
- Margins and anchoring strategy
- Communication & Trust
- Opportunism

Enablers of collaboration

Communication & Trust

- **Communication and trust:** Effective communication and trust are essential for any successful collaboration.
- **Shared goals & Benefits:** This could include goals such as reducing costs, increasing efficiency, improving carbon footprint or enhancing customer satisfaction.



Technology and Interoperability

- **Information sharing:** Sharing *already available* information seamlessly.
- **Interoperability & Standardised processes:** Streamline communication and collaboration between logistics partners.
- **Effective Testing:** Ability to test and experiment in operational settings, de-risking innovation.

Organisational Synergy & Leadership

- **Culture:** All logistics partners need to be committed to working together and sharing information.
- **Leadership:** A clear vision for the collaboration and a commitment to resolving challenges is critical.
- **Mutuality:** A willingness to share risks and benefits in order to collaborate effectively incl. sharing the costs of investments or the risks associated with new initiatives.

Logistics landscape

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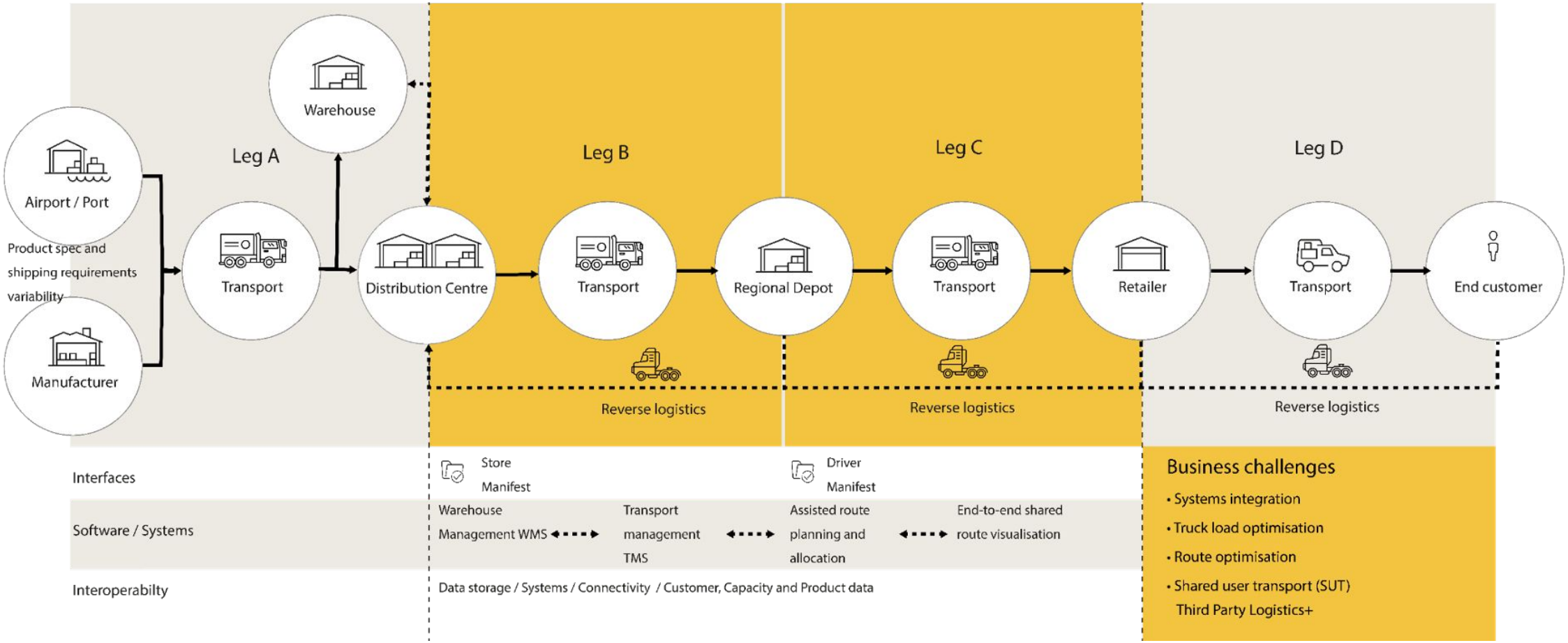

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The L3 Solution

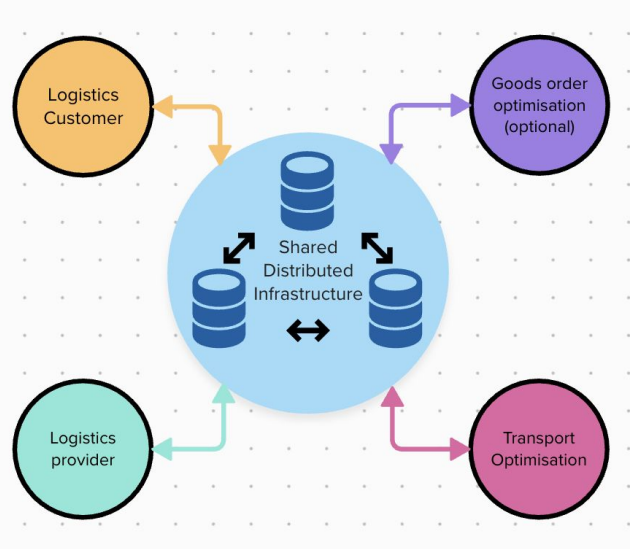
L3 Flagship Project - Logistics Living Lab

Objective: To improve efficiency, vehicle utilisation, and reduce carbon emissions within logistics, through collaboration, using advanced digital technology

Why? - Logistics operators face increasing pressure to be more productive and efficient, whilst demonstrating a commitment towards carbon neutrality.

What? - A **secure shared digital infrastructure** enabling road logistics collaboration, matching spare capacity with demand utilising **already available data** and synchronising real world cross-organisation business flows.

How? - The digital solution will be applied to an established logistics supply chain to prove value driven collaboration works**.**



Visualising L3

Shared digital infrastructure for common logistics operations, ensuring **order optimisation, order and capacity matching, transport optimisation**, and **data flows** for each participant.

Collaborative logistics ecosystem

Supplier Orders

Data

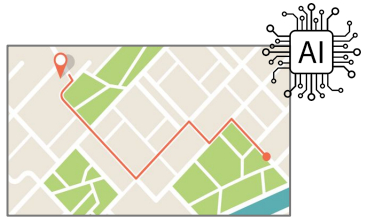
Capacity Availability

Data

Governance decisions for collaboration

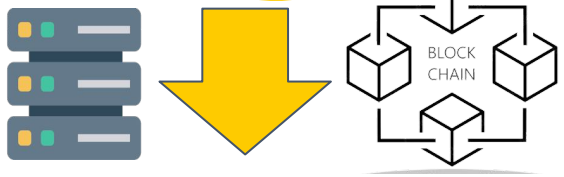
Shared Infrastructure Enables

Order Optimisation

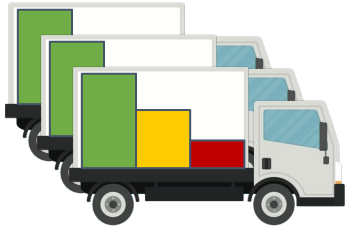


Transport Optimisation

Order & Capacity Matching

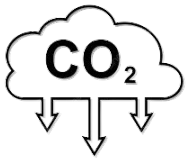


Shared Blockchain Infrastructure



Less Empty Running

Data



Reduced CO2 emissions

Data

Cost Analysis & Savings

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Partners

Led by Digital Catapult

A.F. Blakemore
Fuuse
Incept
Microsoft
Pairpoint
Parity

a.f. blakemore & son ltd

Industrial client partner:
Retail & Logistics partner

CATAPULT Digital

Consortium Lead Partner &
Shared Infrastructure developer

incept
INCEPTION CONSULTING LTD

Order Optimisation Technology Provider

Fuuse

Algorithmic Transport Optimisation and
Matchmaking technology provider

Microsoft

Cloud platform provider and
tech support

PAIRPOINT

Trusted IoT platform
technology Provider

parity

Blockchain technology provider

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Logistics Living Lab Scope

Discover

Logistics users and companies

Challenge definition

Logistics Living Lab partners

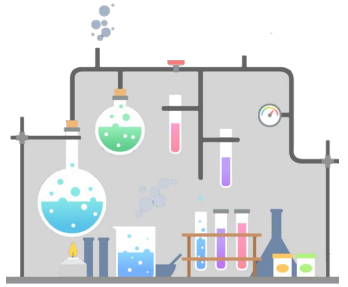
User-centric **discovery** and **design** phase to draw out most opportune **challenge(s)** for development

Develop

- **Business** — Business case development, governance model evolution
- **Social** — Developing real-world demonstration scenarios, marketing strategy
- **Environ.** — Modelling impacts on congestion, emissions, working practices
- **Technical** — Modular multi-owner solution for order matching, asset tracking, route planning

Agile product development to address specific **challenges** identified during **discovery**, led by Digital Catapult and including work from other partners

Demonstrate



Structured experiments with end-users

Analysis and public reporting

Proving the value of shared digital infrastructure to address the **challenges** facing UK logistics

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Targeted benefits

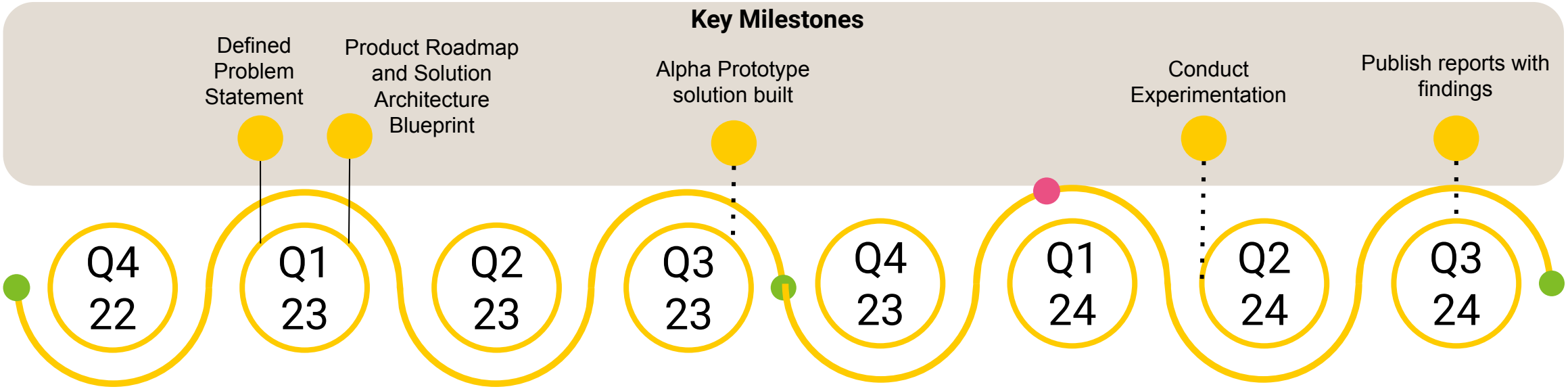
Increased truckfill utilisation through reduced empty running

Decrease CO_2 emissions

Enhance B2B connectivity and coordination

New, adaptive business models

Project roadmap



Discovery + Solution Design

- Gather Data and baseline understanding of the problem space within our consortium context (representative of the wider logistics sector).
- Completed Discovery and **clear outline of Problem statement and project scope.**

- Technical design of solution around problem statement.
- **Creation of Product Roadmap and solution development plan.**

Solution Development

- Defined Mapping of Data Flows across technology capability and specific functionalities.
- Deployment of Infrastructure.
- Development of APIs for cross platform data sharing.

Experimental Design, Ecosystem Governance, & Business Model Evaluation

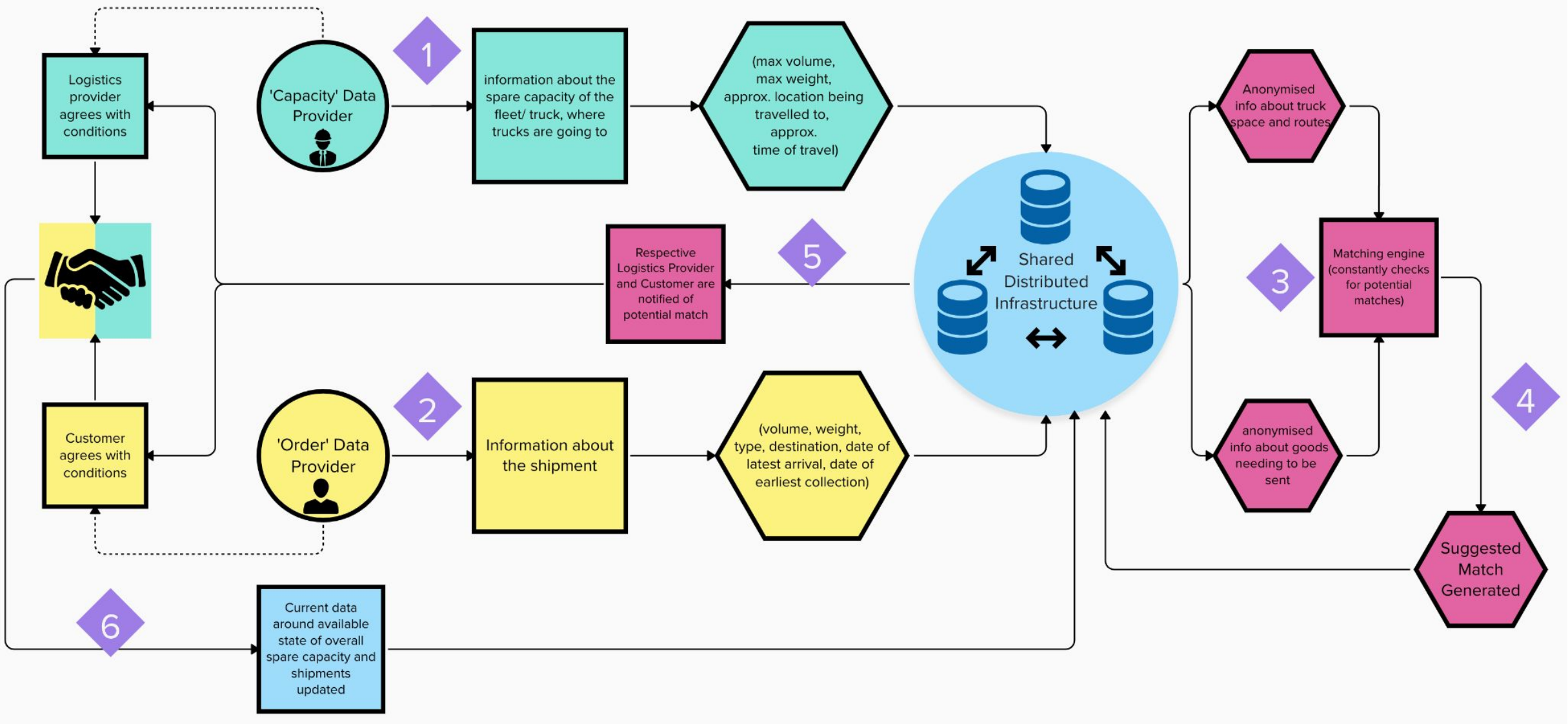
- Definition and mapping of a set of experiments and preparations using the prototype solution.
- Exploration of appropriate **business** (inc. legal) **& operating models** for the logistics sector.
- Exploration of context compatible governance models for **Shared multi-owner digital Infrastructure management**

- Findings and Outputs from Project Documented and to be published in public facing reports.

Project Close-out

- Public facing reports published.
- Administrative close-out.

Solution concept diagram



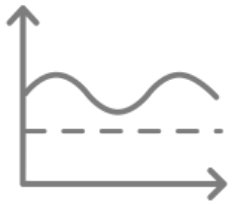
a.f. blakemore & son ltd

Case Study:
Transport Collaboration within the Blakemore Supply Chain

Establishing a baseline

Responsible parties: Incept

Make data and costs visible and measurable



- Blakemore operational data - understand the **baseline performance** of current operations
- Finding **areas of opportunity** - by sifting through the data we can identify and act on opportunities for load optimisation & backhaul.
- The collation of this data will help to create a baseline profile:
  - Highlighting opportunities based on **historic scheduling patterns**, understanding the current state of logistics operations: the costs associated with original logistics operations can be calculated such as CO2 emissions, fuel burned, cube miles (volume transported)

Deliverables:

- ***Measurement of baseline KPIs***
  - *Miles run*
  - *Empty running of the suppliers and blakemore fleets*
  - *Costings*
  - *Cube miles (volume moved)*
  - *CO2*

Transport optimisation

Responsible parties: Incept (data analysis), Fuuse (matchmaking), Digital Catapult (shared infrastructure)

Minimise empty miles, synchronise deliveries, and optimise volume moved (cubic meters).

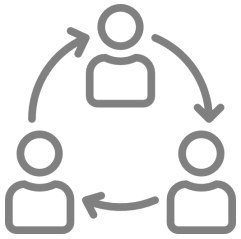
Through the data collected by Incept we are able to perform a cost analysis on the optimisation, comparing the savings from before to after.

- **Synchronised transportation routes** help to **minimise empty running miles** (e.g., synchronising orders to the same day, checks to be carried out ensuring trucks meet standards)
- **Optimised routes** going from various Blakemore DC locations will increase the **efficiency of fleets transporting goods** (measure using volume moved - cube miles).
- **Optimise** and **synchronise** based on empty running (backhaul opportunities) and delivery time windows. Routes that can utilise backhaul opportunities can add stops within similar regions (such as postcode area).
- **Result: Synchronising empty miles and optimising transport costs will optimise transportation costs and reduce carbon emissions.**

Deliverables:

- ***Experimentation of alternative routes using matchmaking capability.***
- **Analysis - *Measurement of optimised KPIs and comparison to baseline KPIs (Phase 1) inclusive of optimised orders.***

Outputs



Sharing of data sets to improve inventory levels and offer frequent deliveries.

Following initial experimentation there is a opportunity to expand on immediate learnings, by **giving initial collaborators the opportunity to further improve their performance** particularly on **inventory levels**.

Performance could be centered around specific conditions or targeted outcomes:

- Exploring whether suppliers that are geographically located near each other collaborate on shipping orders to a shared retailer?
- Exploring increased availability of stock from more frequent deliveries resulting in potential increased sales for retailers.
- Exploring consolidation of orders of a particular geographic region or geographical points of interest e.g. warehouses.
- Exploring the extent of utilising own fleet vs other other's fleet.
- With increased visibility of the network, L3 can help you **identify opportunities in real time**.

Supply chains **made smarter**, together.

Register to join the innovation ecosystem digitalsupplychainhub.uk

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