CATAPULT
Connected Places

FREIGHT INNOVATION FUND CHALLENGES YEAR 3

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INTRODUCTION & BACKGROUND

THE BACKGROUND

Project Briefing

The £7m Freight Innovation Fund will develop a future pipeline of solutions to meet the freight sector's emerging needs.

It will take a cross-modal view of the end-to-end freight journey, deploying solutions in real world environments.

Delivered by Connected Places Catapult, the UK's innovation accelerator for cities, transport and place leadership, the Freight Innovation Fund will identify and trial new products and services coming to market in the freight sector.

It will convene and support innovating organisations across the sector and ultimately support the whole market to grow to match the ambitions of both DfT and the whole UK economy.

THE STRATEGIC DIRECTION: PROJECT GUIDELINES

FIF Year 3 Briefing

Inter-modality must be at the core of all proposed challenges for year 2

Scalable offerings at TRL level 5+, potentially applicable across the nation

Future of Freight Plan

5 Vision Statements

- **Cost efficient**
- **Reliable**
- **Resilient**
- **Environmentally sustainable**
- **Valued by society**

4 National Objectives

- **Levelling up**
- **Strengthening the Union**
- **Supply chain resilience**
- **Increasing our global impact**

https://www.gov.uk/government/publications/future-of-freight-plan

YEAR 3 BRIEFING

Cross-Sector Innovation and Collaboration

- Exploring large-scale sustainability, net zero and inter-modality in freight means leading the sector towards a broadly collaborative approach between organisations and operators
- The promotion of the adoption of cross-sector innovations and technologies from other industries can promote positive change and help reach carbon emissions reduction goals

RESEARCH & METHODOLOGY

OUR APPROACH: RESEARCH & ENGAGEMENT

Design research methodology and stakeholder engagement

FIF Year 1&2 research and feedback review as well as analysis of findings, learnings and insights.

Desk research to find relevant information and data to support findings and challenge areas

Internal interviews with our Ecosystem Directors and freight experts

External interviews with industry experts and stakeholders from maritime, air, road, rail freight and the logistics sector

Industry workshop with 16 members of the FIF Cluster to validate challenges and map environmental, social and economic aspects

Co-Design sessions with our potential partners to ensure the challenges also suit their needs and goals.

CHALLENGES YEAR 3

1. Optimisation of Journeys
2. Net Zero & Data
3. Inland Waterways
4. Open Challenge

OPTIMISATION OF JOURNEYS

1

“Innovations and technologies that enable freight organisations to optimise and maximise the use of existing journeys by empowering cross-sector partnership and collaboration”

1 OPTIMISATION OF JOURNEYS

"Innovations and technologies that enable freight organisations to optimise and maximise the use of existing journeys by empowering cross-sector partnership and collaboration"

Description:

As 50-75% of containers travel back empty to their original countries and HGVs complete 30% of their runnings with no freight, one of the industry's biggest challenges regards the utilisation of unutilised space in existing journeys.

Maximising the utilisation of this space would result in a significant reduction of delivery vehicles across all transport modes, therefore a great reduction of carbon emissions, traffic and congestion.

Moreover, this would not only result in a reduction of logistics costs and maximum efficiency, but it would also provide the basis for an improved and advanced collaboration across the wider sectors and various organisations through a better use and sharing of data and journeys.

Examples:

SaaS Solutions
To enable data sharing and collaboration across the sector

Route Optimisation and Planning Softwares
To maximise the use of existing journeys

Forecasting Tools and AI
To predetermine demand & supply and better understand journeys, destinations and space available. Data analysis and calculation of optimal routes and journey

Data Sharing Platforms
To enable and empower collaboration across the sector and sharing of journeys, vehicles and available space

Operational Innovations
New physical and operational solutions for loading and unloading empty containers

Systemic Innovation
Systemic approaches and collaborative solutions to maximise freight space across organisations and operators

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NET ZERO & DATA

2

“Advanced solutions that lead the way towards net zero, enable accurate and consistent carbon calculations, and encourage multi-stakeholder freight climate action”

2 NET ZERO & DATA

"Advanced solutions that lead the way towards net zero, enable accurate and consistent carbon calculations, and encourage multi-stakeholder freight climate action"

Description:

Achieving Net Zero is the biggest driver of change among freight organisations. In order to achieve this goal, not only the sector needs to scale the implementation of various technologies such as electric vehicles, charging infrastructure and planet-centric solutions, but it also needs to deeply understand its carbon footprint.

Lifecycle assessment is complex and different methodologies for carbon accounting make the calculation of the true emissions difficult. Scope 1&2 emissions are frequently assessed, but scope 3 is not, although it often also represents the majority of emissions. On a larger scale, for a freight organisation scope 3 is often times another partner's scope 2. It has probably been calculated, but not shared.

Through cross-sector collaboration, data sharing and new technologies, achieving a true analysis of freight carbon footprint and its great reduction are the first key steps towards a sustainable planet.

Examples:

Data Sharing Platform
Innovations to enable clients and partners to collaborate towards shared net zero and carbon footprint goals

AI and Sensors
New advanced technologies to capture carbon emissions more accurately, on demand or in real time

SaaS Platform
Software as a Service carbon accounting platforms to enable data-based actions and accurate carbon reporting

New Carbon Accounting Methods
New innovative methods to calculate carbon emissions to shift away from

E-Mobility
New sustainable micro-mobility and e-mobility technologies

Carbon as a Currency
How can we use carbon as a currency to allow partners to pay their journeys according to their carbon emissions?

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INLAND WATERWAYS

3

“Unlocking the potential of river and canal freight through the systemic improvement of inland waterway logistics, vessels and infrastructure to decarbonise urban deliveries”

3 INLAND WATERWAYS

"Unlocking the potential of river and canal freight through the systemic improvement of inland waterway logistics, vessels and infrastructure to decarbonise urban deliveries"

Description:

As waterborne freight has the lowest carbon emissions per kilometre and unit transported compared to all other transport modes, it is set to be the next growing trend in the upcoming years.

Operating canals in the UK means facing old infrastructure challenges, a lack of wharfs in urban areas, the need to avoid environmental impact on wildlife as well as the need to develop solutions for efficient loading and unloading of freight along canals and on water.

At the same time, growing this sector has the potential to substantially reduce carbon emissions, help meet net zero goals as well as lowering freight related traffic on roads.

To develop new planet-centric waterways logistics, the sector needs systemic change and new technologies to support the sustainable development of canal freight across the country.

Examples:

Planet-Centred Design
New systemic solutions to develop the sector with no further impact on wildlife and the environment

Tidal Waterways
New methods and technologies that overcome difficulties in loading and unloading of barges and boats during low tide

Utilising Water Space
New technologies and innovative infrastructure to allow the use of water space instead of land for the loading and unloading of canal freight

Pop Up Hubs
Pop up depot spaces and loading and unloading machinery to create movable hubs along canals

Electric Boats, Charging Infrastructure and Autonomous Vehicles
New innovations and technology to increase the number of boats on canals as well as their speed and efficiency

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OPEN CHALLENGE

4

“Innovations that aim at decarbonising and improving the inter-modal connections between freight transport modes”

4 OPEN CHALLENGE

"Innovations that aim at decarbonising and improving the inter-modal connections between freight transport modes"

Description:

To conclude the Freight Innovation Fund programme, we want to launch an open challenge for all innovations.

This is targeted to all those SMEs who cannot apply because they do not respond to the other three challenges, but who believe that their innovations can contribute to a sustainable, regenerative and smoother intermodal connection between freight transport modes.

The open challenge will also allow us to better understand what innovations and new technologies are starting to appear on the market and potentially help us shape and structure other challenges and trials we might launch in the future.

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https://cp.catapult.org.uk/opportunity/freight-innovation-fund-accelerator-2024/

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