CATAPULT
Connected Places

Freight Innovation Fund Challenges – Accelerator 2026/27

Contents

The background

The 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 and logistics 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 and logistics sector.

- It will convene and support innovating organisations across the freight and logistics sector and ultimately support the whole market to grow to match the ambitions of both Department for Transport (DfT) and the UK economy.

The strategic guidelines

Year 5 briefing

- Inter-modality must be at the core of all proposed challenges for year 5
- Scalable offerings at TRL level 5+, potentially applicable across the nation

5 vision statements

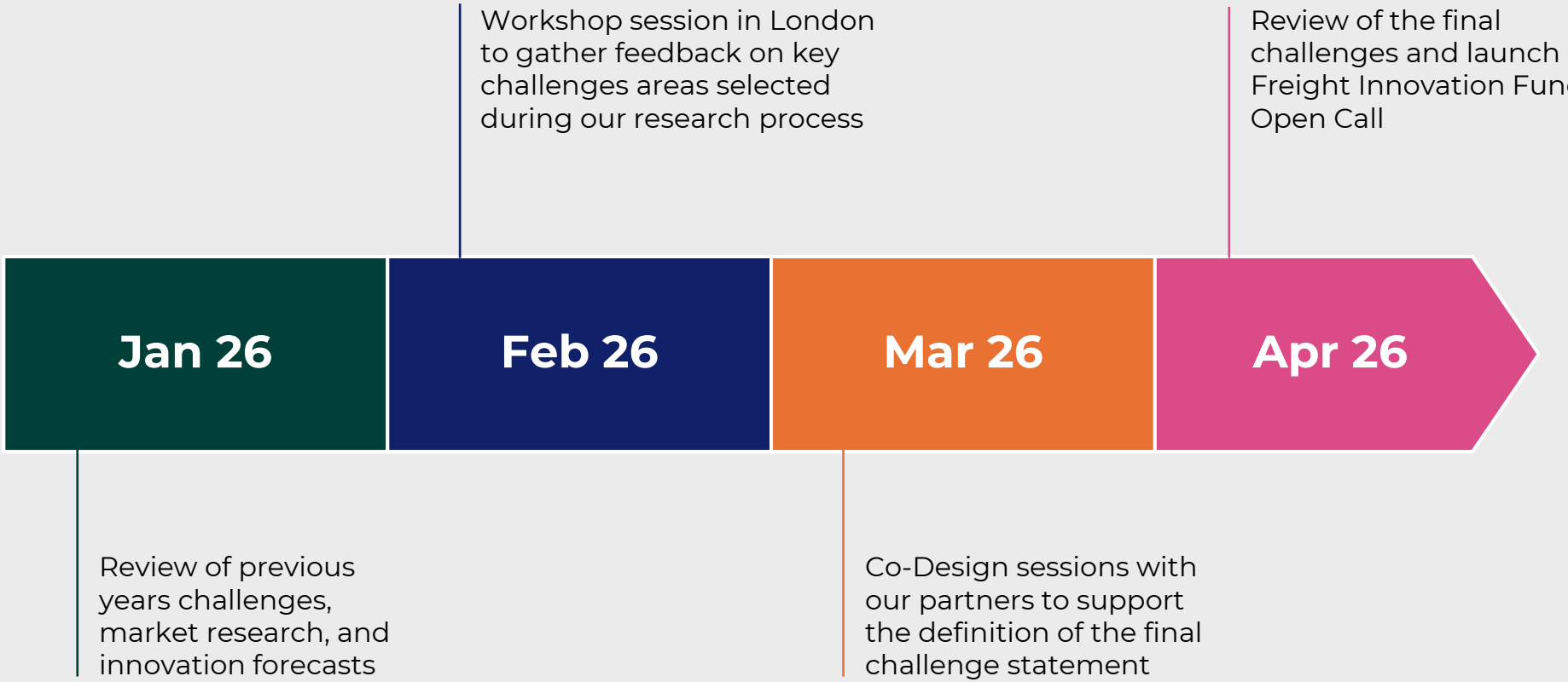
- Cost efficient
- Reliable
- Resilient
- Environmentally sustainable
- Valued by society

DfT strategic priorities

- Grow the economy by enhancing transport network, on time and budget
- Improve transport user's experience, ensuring that the network is safe, reliable and inclusive.
- Reduce environmental impacts by tackling climate change and improving air quality by decarbonising transport

Methodology

Research approach



5 year challenges

1

Renewable Energy Supply

2

Autonomy in Freight & Logistics

3

Supply Chain Resilience

4

Open Challenge

CHALLENGE 01.

RENEWABLE ENERGY SUPPLY

> Innovative ways to decarbonise and stabilise the energy supply of freight areas, such as depot and ports, effectively and affordably

CHALLENGE 01.

RENEWABLE ENERGY SUPPLY

Description

As fleets electrify, freight spaces such as ports, depot areas and terminals are becoming energy hubs. Charging HGVs, running automated systems and technology, powering electric vehicles and more dramatically increases electricity demand, often beyond local grid capacity.

The challenge is how to decarbonise and stabilise energy supply in those areas without creating bottlenecks or excessive infrastructure costs. Reliance on grid upgrades alone will be too slow and expensive.

This matters because depot energy readiness is now a limiting factor in fleet transition. Without resilient, affordable low-carbon power, decarbonisation ambitions stall.

On the other hand, we also find larger modern facilities, such as ports, producing renewable energy that cannot be stored and needs using. How do we supply this surplus to local communities to increase the use of green energy in the UK?

The opportunity is to reposition freight areas from passive energy consumers to active energy assets and so stabilising local grids, reducing operational cost volatility, and accelerating fleet decarbonisation in a commercially viable way.

Examples

- Integrated on-site energy systems
- Rooftop solar with battery storage
- Smart charging optimisation software
- Vehicle-to-grid pilots
- Hydrogen micro-generation
- Energy management platforms
- Depot-level microgrids
- Battery and energy storage for depot, ports, and terminals

Out of scope:

- Solutions looking to have an impact on the national grid. Only local-level impact is welcomed

CHALLENGE 02:

AUTONOMY IN FREIGHT & GISTICS

> Next generation of autonomous technologies that can support decarbonisation, safety and efficiency for the inter-modal freight sector and its logistics

CHALLENGE 02.

AUTONOMY IN FREIGHT & GISTICS

Description

Autonomy in freight & logistics extends beyond self-driving trucks. It includes autonomous yard operations, robotic warehousing, AI-driven routing, automated inspection drones and intelligent decision-support systems.

The challenge is integrating autonomous technologies safely and effectively within complex, high-risk, multi-actor environments. Interoperability, regulation, cybersecurity and workforce integration remain barriers.

This matters because autonomy has the potential to improve safety, reduce emissions, increase asset utilisation and address labour shortages. But adoption must demonstrate reliability and real-world value.

The objective is not full automation, but demonstrable operational autonomy, showing how intelligent systems can improve human capability and safety in the working environment, reduce environmental impact and increase freight system performance in measurable ways.

Examples

- Autonomous yard shuttles in controlled environments
- Scheduling systems that dynamically optimise routes
- Robotic pallet handling
- Drone asset inspection
- Autonomous management systems
- Pre-gating systems for smoother automated access to facilities
- Connected yards
- Advanced learning for up-skilling

CHALLENGE 03.

SUPPLY CHAIN RESILIENCE

> Solutions that might support the industry shift towards innovation-enabled resilience-driven, adaptive freight and logistics systems

CHALLENGE 03.

SUPPLY CHAIN RESILIENCE

Description

UK freight and logistics networks are increasingly exposed to a wide range of disruptions, from extreme weather and infrastructure failure to geopolitical tensions, trade restrictions and global supply shocks. Events such as congestion, unpredictable weather, conflicts, pandemics and material shortages have highlighted how tightly coupled and fragile supply chains can be.

The core challenge is moving towards resilience-driven systems. Many supply chains remain optimised for cost and speed, relying on just-in-time delivery, limited inventory buffers and highly centralised routing. While efficient, these models lack flexibility and visibility when disruptions occur, especially when those are becoming harder to predict.

This matters because supply chain instability directly impacts business continuity, cost volatility and national economic resilience. For logistics operators, the ability to anticipate, absorb and adapt to disruption is becoming a critical competitive advantage, and not just an operational consideration.

The opportunity is to demonstrate that resilience can be designed and delivered through innovation. This might be achieved by enabling freight and logistics systems that are not only efficient, but adaptive, transparent and robust in the face of continuous uncertainty.

Examples

- Predictive risk platforms
- Real-time weather-integrated routing systems
- Digital twins simulating disruption scenarios
- Decentralised micro-warehousing models
- Sensor networks monitoring asset stress
- Resilience scoring tools for supply chains
- Data sharing and cross-partner collaboration
- Real-time environmental and operational data
- real-time supply chain visibility tools
- Dynamic routing and modal-shift technologies

CHALLENGE 04.

OPEN CHALLENGE

> Solutions that might support the industry shift towards innovation-enabled resilience-driven, adaptive freight and logistics systems

CHALLENGE 04.

OPEN CHALLENGE

Description

This is targeted to all those small and medium-sized enterprises (SMEs) and technologies that do not respond to challenges 1-3, but who believe that their innovations can contribute to a sustainable, regenerative, improved, smoother and safer freight and logistics sector.

The programme's goal is to provide solutions to the industry and our partners that can help tackle not only their specific goals, but that also improve the impact they have on nature, biodiversity, employees' wellbeing, health and safety and sector efficiency.

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 future challenges and trials. **Please only apply to the open challenge areas listed in the example section.**

Examples

- Decarbonising systems & solutions
- Planet-centred innovation and design
- Carbon accounting platform
- Software as a Service (SaaS) solutions
- Retrofitting innovations
- Net zero and next generation of technologies upskilling
- New health and safety upgrades

Out of scope:

- Technologies, innovations, and solutions that respond to the earlier challenges – make sure your offering matches the challenge you are applying for

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Thank you

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