



**CRP CONVERSATIONS**  
**CLEAN AIR FREIGHT:**  
**PRIORITISING**  
**SUSTAINABLE LOGISTICS**



# Agenda

- 4pm – Ross Phillips, Sustainable Transport Manager, Introduction to Cross River Partnership
- 4:10pm – Ben Knowles, Founder of The Future Vehicles Company
- 4:20pm – Ed Cox, Business Support Manager, Infinium Logistics
- 4:30pm – Fiona Coull, Programme Manager, Cross River Partnership
- 4:40pm – Roundtable discussion/Q&A



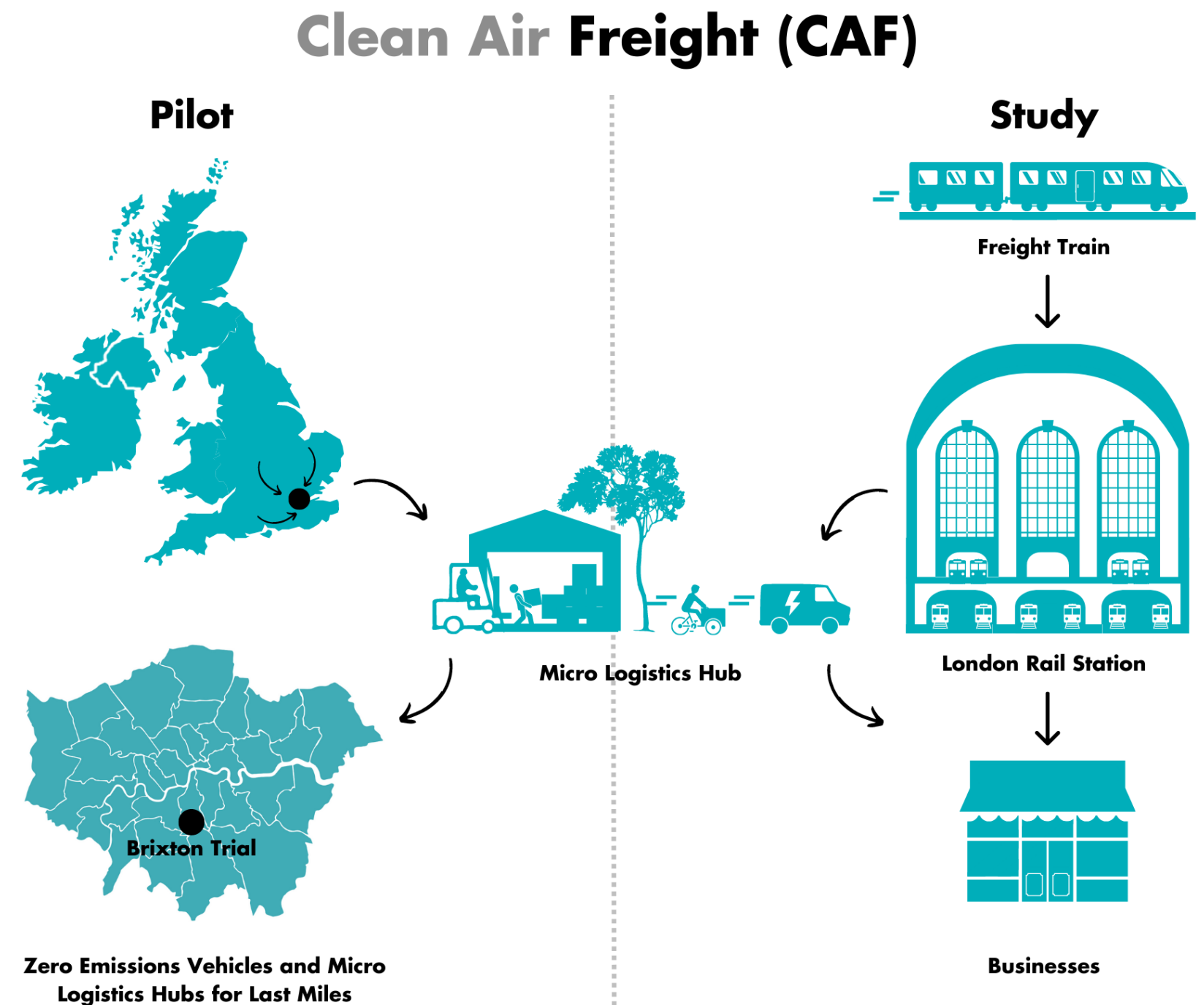


# Freight Transport & Air Pollution

Freight vehicles make up 15% of London's total vehicle miles but emit one quarter of London's overall transport carbon emissions

In London, 9,400 premature deaths are attributed to poor air quality and a cost of between £1.4 and £3.7 billion a year to the health service.

With continued changes to shopping behaviour that have been exacerbated by the pandemic, the number of parcels delivered in London is expected to double by 2030.






# Clean Air Freight

## Rail Freight Feasibility

On track for sustainable logistics: Integrating Rail Freight into London's deliveries

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Delivering London's Future Together



Client: Cross River Partnership  
Our ref: 24288601  
March 2023 – Full Report

Supported by  
Impact on Urban Health

**steer**

## Brixton Hub

### Inbound Deliveries (Supplier → Brixton)

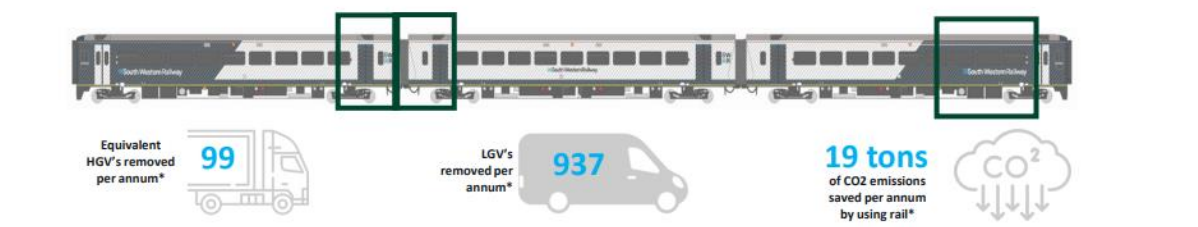


### Outbound Deliveries (Brixton → Business Customer)



## Parcels as Passengers

Parcels are loaded onto designated areas on existing Southwestern railway passenger services into Waterloo



## Dedicated Freight Multiple Unit

Parcels are loaded onto roll cages or ULD's and moved on and off a converted passenger train for freight only









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# Brixton Micro Logistics Hub: 10 Project Learnings

■ LAND

■ ENGAGEMENT

■ OPERATIONS

■ FUTURE TESTBEDS











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# Brixton Micro Logistics Hub: 10 Project Learnings

## 3. PRIORITISE LAND FOR SUSTINABLE LOGISTICS





LAND





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# Brixton Micro Logistics Hub: 10 Project Learnings

## 9. CONNECTING LARGE WITH LOCAL





OPERATIONS

# **Ben Knowles**

Founder, The Future Vehicles Company







FUTURE VEHICLES

# CARGO BIKE COMMERCIAL LOGISTICS TAKEOVER: WHAT'S THE HOLD UP?

Ben Knowles - [ben@futurevehicles.co](mailto:ben@futurevehicles.co)





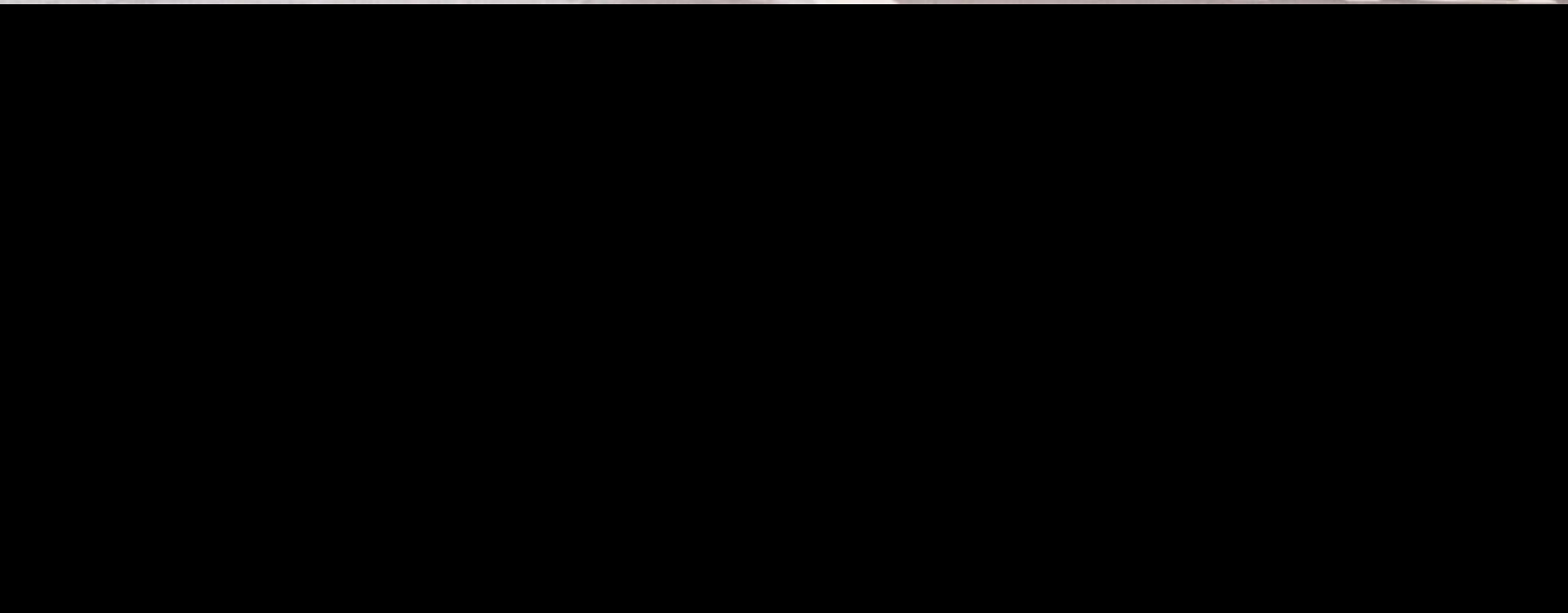


 **INFINIUM  
LOGISTICS**

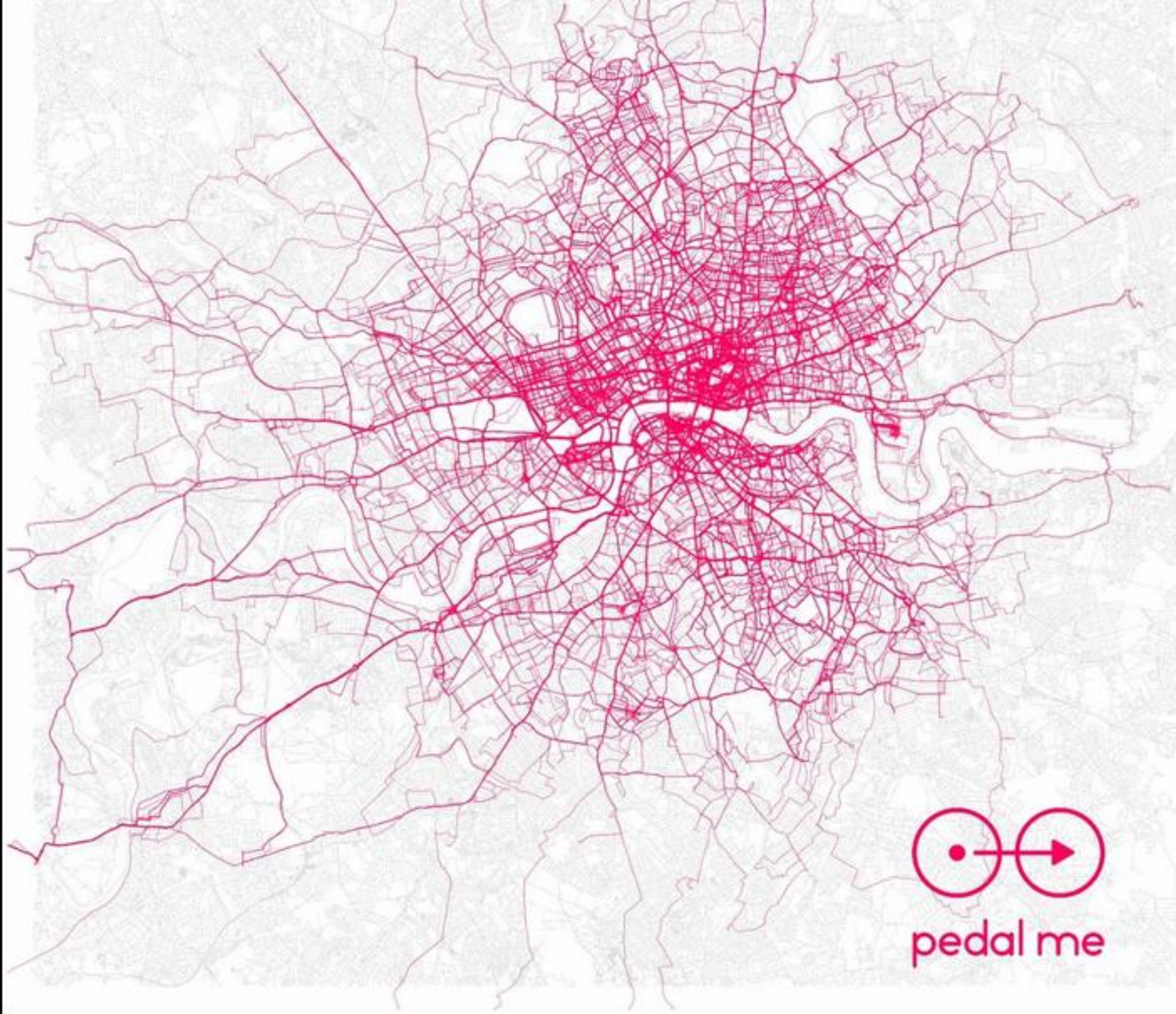
  
**FUTURE VEHICLES**

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FUTURE VEHICLES

 **INFINIUM  
LOGISTICS**



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## The Big Problems More Cargo Bike Deliveries Can Fix:

- Transport is our biggest single CO2 emitting sector, and is likely to remain so while the majority of movements are made by heavy motor vehicles (electrically powered or otherwise)
- Motor based logistics is associated with heavy usage of tax and responsibility-evading usage of gig economy working practices, with costs to society at large
- Motor vehicles inherently inefficient because of use of space => Self-suffocating through congestion unless price-braked by appropriate taxation
- Workplace caused deaths in the UK - majority occur on the roads ~500 deaths / year; about double all other workplace deaths\*\*
- Growing storm of public push-back on companies that are continuing to contribute to climate change whilst selling based on sustainability values - Green washing (e.g. using “Zero Emission Vehicles” which are clearly not zero emission\*)

\*<https://uk-air.defra.gov.uk/research/ageg/zero-emission-vehicles>

\*\*[https://www.drivingforbetterbusiness.com/wp-content/uploads/2020/12/final\\_report\\_ward\\_christie\\_walton\\_dec\\_2020.pdf](https://www.drivingforbetterbusiness.com/wp-content/uploads/2020/12/final_report_ward_christie_walton_dec_2020.pdf)

# The Specific Solution - for Commerce:

e-Cargo bikes or e-bikes plus trailers and appropriately trained staff



- For commercial use in cities - Pedal Me Method found to be 60% more efficient / 60% more deliveries per hour for multi-drop deliveries\*
- Significant marketing potential / powerful message of companies living values
- Worst case: 7 Tons CO2 emissions / 250,000km vs 22 tons EV equivalent; 64 tons diesel equivalent
- Mainly employee based / better working conditions
- Zero known deaths from eCargo bike operations



## ➤ SO - WHERE ARE WE:

- In London - we've gone from some 20-30 cargo bikes involved in deliveries in 2017 to some 500-odd today
- Uptake from some larger retailers - Amazon etc
- Plenty of cargo bike companies have sprung up but then failed or failed to achieve traction - honourable mentions to Zedify, Pedal and Post, Hereford Pedicargo for staying the course
- Plenty of retailers doing direct deliveries have tried e-cargo bikes and not been able to make them work
- Rough estimate for London: Achieving ~£15 million of the £4.5 billion market available to cargo bikes ~0.3% of potential

# ➤ WHY AREN'T WE ACHIEVING MORE?:

## Early Market Challenges:

- Marketing / advertising potential not being realised
- Training structures / lack of understanding of the need for training
- Cargobike-specific tech (routing / maintenance / performance management / optimisation)
- Lack of scale / network effects
- Lack of investment

## Competitive Framework:

- Slow changes to urban context - Clean Air Zones; LTNs; Cycle tracks
- Electric motors / "Zero Emission" narrative / Deployment of government capital / subsidies into EVs
- Gig economy - effective tax breaks to gig economy operators - disproportionately likely to be motor operators
- V little innovation funding compared with the potential
- Cost of inner city hubs

## Reputational/Cultural:

- Lack of market/customer understanding
- Lack of government understanding of potential - case not made => Competitive Framework

## Vehicles

- Vehicle maintenance
- Vehicle maintenance cost
- Vehicles / potential from physics
- Vehicle Theft



# ➤ Analysis methodology - NB much more work needed to make robust:

Early Market Challenges:	Priority Ranking / Potential Effect Size	Priority Ranking Commentary	Root cause	What can be done	Who's doing it
Marketing / advertising potential not being realised		<b>Significant earnings potential - likely 20+% more earnings/bike</b>	Lack of framework / market; lack of realisation; lack of scale	Data capture/evidence value;	Maybe Zedify
				Create marketplace to monetise advertising space on cargo bikes	Maybe Zedify
				Grow cargo bike logistics	All players
Training structures / lack of understanding of the need for training / lack of trained workforce to draw from (CF motor logistics)		<b>Significant reputational, reduced bike maintenance and efficiency implications.</b>	Lack of understanding	Create standardised structures; raise awareness of skill of riders	?Zedify / Pedal Me / Pedi-carg Bikeworks
Cargobike-specific tech - Routing / optimisation		<b>Significant efficiency gains possible - likely 50%+ more earnings/efficiency per bike</b>	Lack of market scale; lack of understanding of potential	Create specific Tools; Innovation funding; Subsidies to grow scale	Delivery Mates / Papaya / Kal Collective
Cargobike-specific tech - Maintenance / Performance management		<b>Significant efficiency gains possible ~20%+ more earnings / efficiency for at-scale ops</b>			
Lack of scale / network effects		<b>Significant efficiency gains possible - likely 50%+ more earnings / bike with right tech and bike capacity. Scale brings scale / communicates effectiveness more powerfully than any PR campaign ever could.</b>	Lack of scale from: understanding, investment	Subsidies to grow scale / changes to competitive framework	CRP - subsidy through cargo hubs; Cargo bike operators, & Smarter Travel working at City
Lack of investment - £billions+ needed, well targeted to tackle all innovation challenges		<b>Drives efficiency gains from scale/network effects; helps resolve many other issues here by growing ecosystem</b>	Lack of understanding; "zero emission" misinformation. Electric cars are seen as solution	Research/studies; apply for subsidies / grants; PR	Fettle, Zedify, MP Smarter Travel, Cross River Partnership

## ➤ High level findings:

- Huge efficiencies to come with the right investment deployed appropriately, potentially aggregating to more than 100% more output/revenue per cargo bike hour compared to today's operating systems (see next slide)
- Significant reductions in cost to cargo bike operations possible with right vehicles, component choice
- Significant space for charities, entrepreneurs, investors, academics and existing companies to contribute to solving problems in this sector
- Many issues seem to stem from lack of public/governmental understanding - research has a big part to play



# >> The biggest hits:

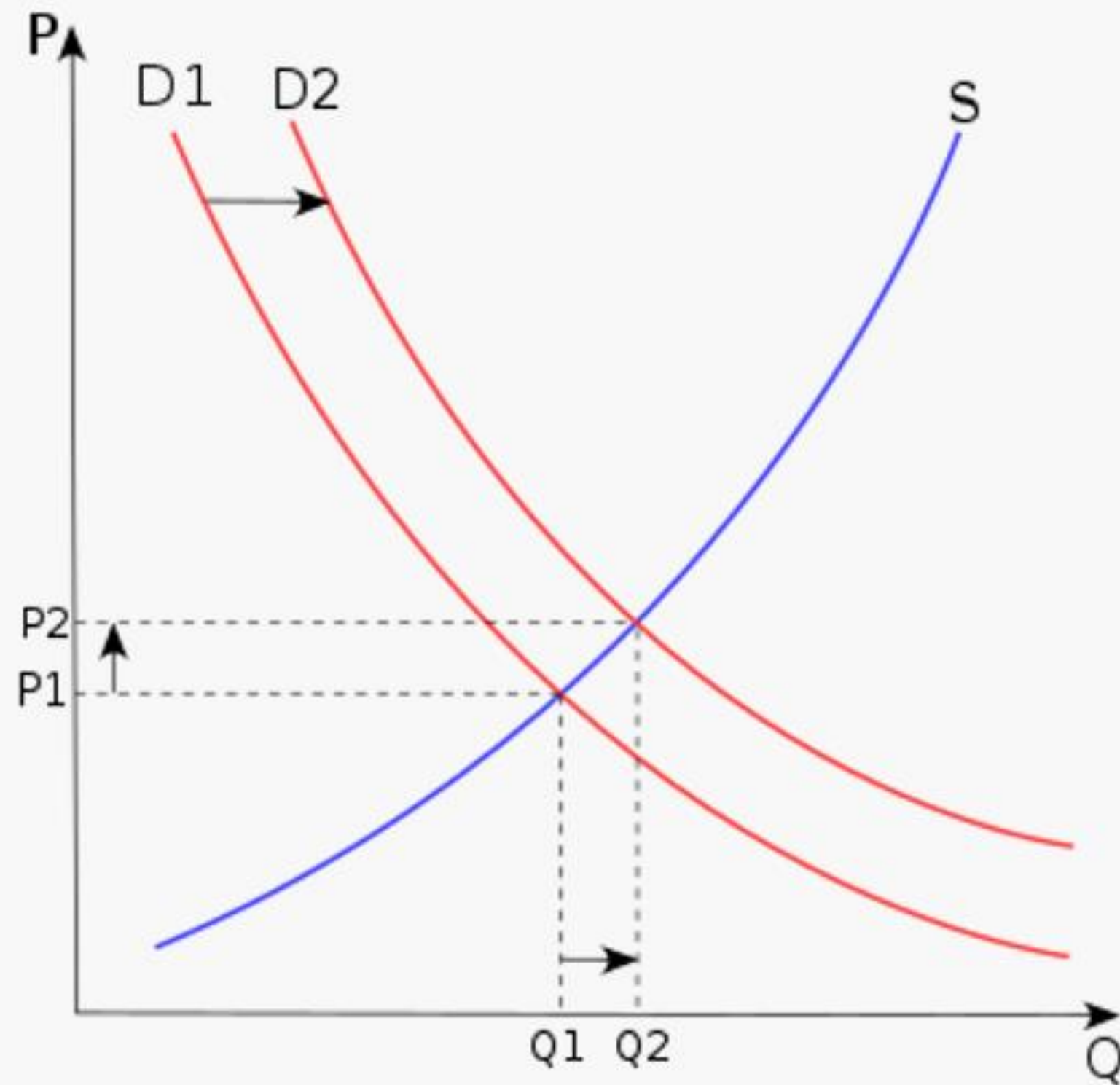
➤ 6 Tier 1 Challenges/Opportunities identified - each one on their own could >20% increase in utility / reduction in costs e.g:

- Better optimisation / load balancing / routing
- Better maintenance management / performance management
- Lack of market / customer understanding of potential

➤ 10 Tier 2 Challenges/Opportunities - each one could result in >10% increase in utility / reduction in costs relative to competition:

- Lack of progress on street network - LTNs etc
- Gig economy - use in motor logistics assisting tax dodging amongst competitors
- Misleading Electric Motors “Zero Emission” narrative
- Vehicle / opportunities from physics increase range / speed / reduce load time

➤ **Key underlying challenge is chronic under-funding of innovation/under-investment of sector. Much more funding needed - likely £billions to achieve full potential**





# ➤ HOW DO WE FLIP THE SCRIPT - ASKS - ALL CARGO BIKE HANDS ON DECK:

- Please help me further overall analysis / nick methodology / contribute (email me!)
- CARGO BIKES NEED MORE INVESTMENT - LOTS MORE - do you know someone?
- Zero emissions narrative – consider avoiding referring to cargo bikes as “Zero Emission”. Consider politely correcting anyone using “Zero Emission” jargon. Can the cargo bike sector work together to bring cases against EV operators?
- CARGO BIKES NEED PR - know a journalist? Mention the idea of them doing a story! Again - message me or the Bicycle Association (Andrew Brown)
- Much more research needed in this sector to beef out evidence case
- **Significant opportunities from collaboration to solve some of these big problems collectively**



# Improving physics of vehicles example - Halo Bike Concept

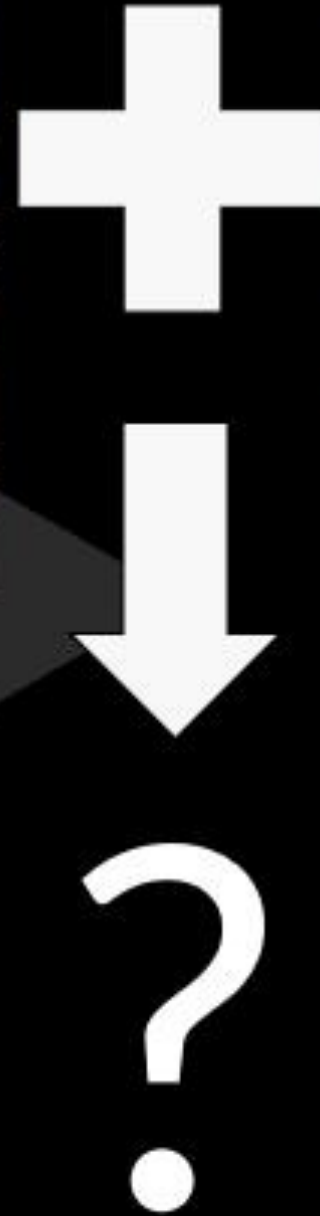
## Urban Arrow XL (Adapted):

Carrying capacity: 100kg rider + 150kg cargo

Effort to overcome drag at 25kph / city speed: 270W

Battery range (500 Wh): 30km

Max speed: 32kph



## Velomobile:

Carrying capacity: 80kg human / minimal cargo

Effort to overcome drag at 25kph / city speed: 30W

Max speed: 100kph+

## Halo Bike:

Carrying capacity: 100kg rider + 220kg load (e.g. 3x ave adults)

Effort to overcome drag at 25kph / fast outer city/country speed: 130-180W

Battery range (500Wh): 50-65km

Max speed: 40-50 kph



## Summary:

- Cargo bike commercial logistics significantly more efficient in urban contexts and can deliver widespread social benefits
- We're at a tiny fraction of potential for sector
- Opportunities for innovations and investment to improve efficiency abound - possible that 100% more revenue/staff hour reachable
- Significant opportunities for more collaborative working (some already happening)



**Ed Cox**

Business Support Manager, Hyperlocal, Infinium Logistics







Ed Cox, Infinium Logistics  
How to unlock spaces for  
micro logistics across London



# Why do we need to unlock spaces for micro logistics across London?

- ❑ The need to reduce **carbon emissions** and other transport related pollutants including **Nitrogen Oxides**, in urban centres to create healthier cities, improve air quality and ease congestion
- ❑ Over **16%** of the UK's **4.61 million light goods vehicles** are used within the **collection and delivery** sector. London alone accounts for **5%** of this sector, accounting for **36,880** registered vehicles
- ❑ The average diesel van emits **241g CO2 per km** – Some of our clients are replacing ICE vehicles with cargo bikes at rate of **1:1** (120 packages per day)



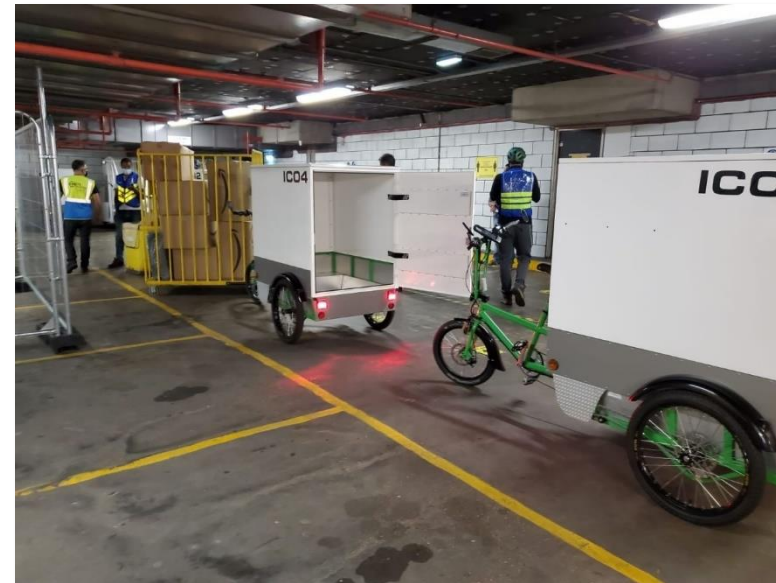


# What is a micro logistics Hyperlocal Hub?

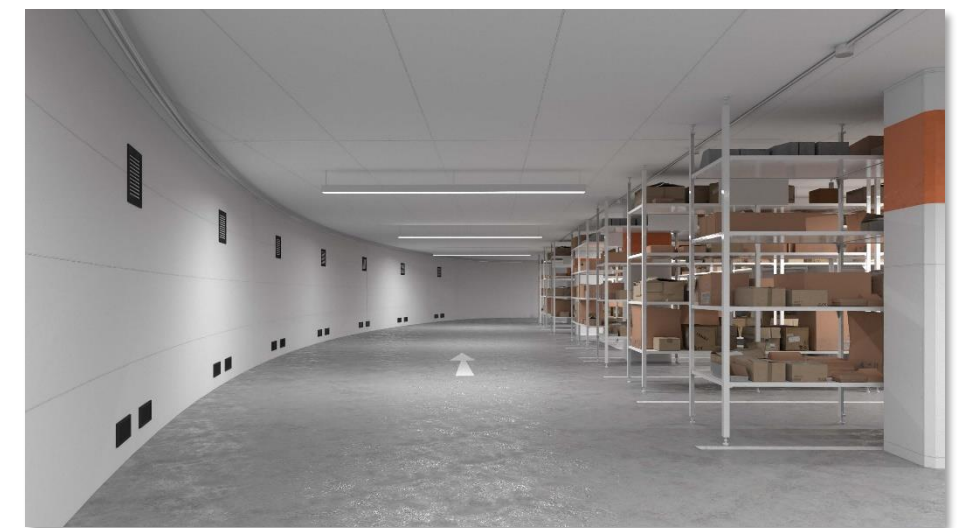
Zero Emission Vehicles  
Park and Charge



Parcel Sorting  
Final Mile Delivery



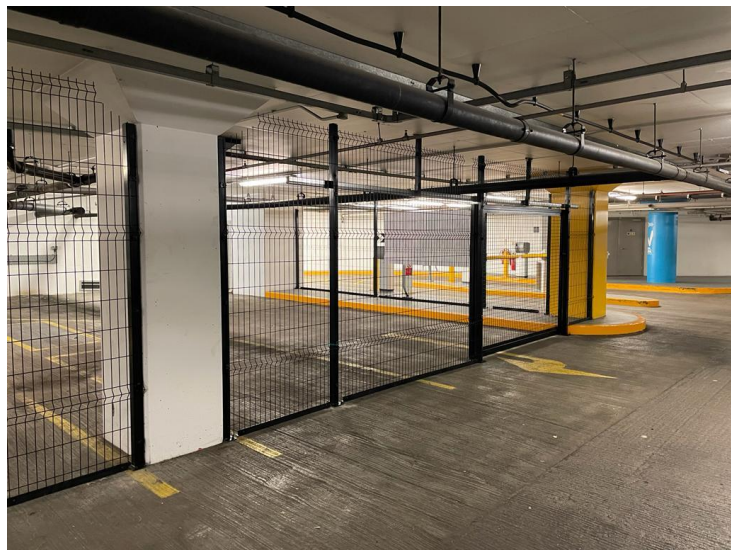
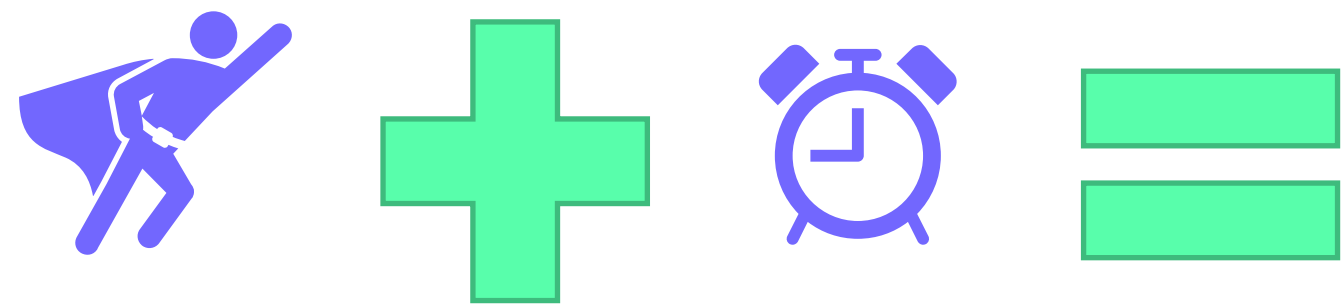
Fulfilment – Sameday Pick Pack  
and Despatch





# What's involved in creating a hub?

The Sum.....





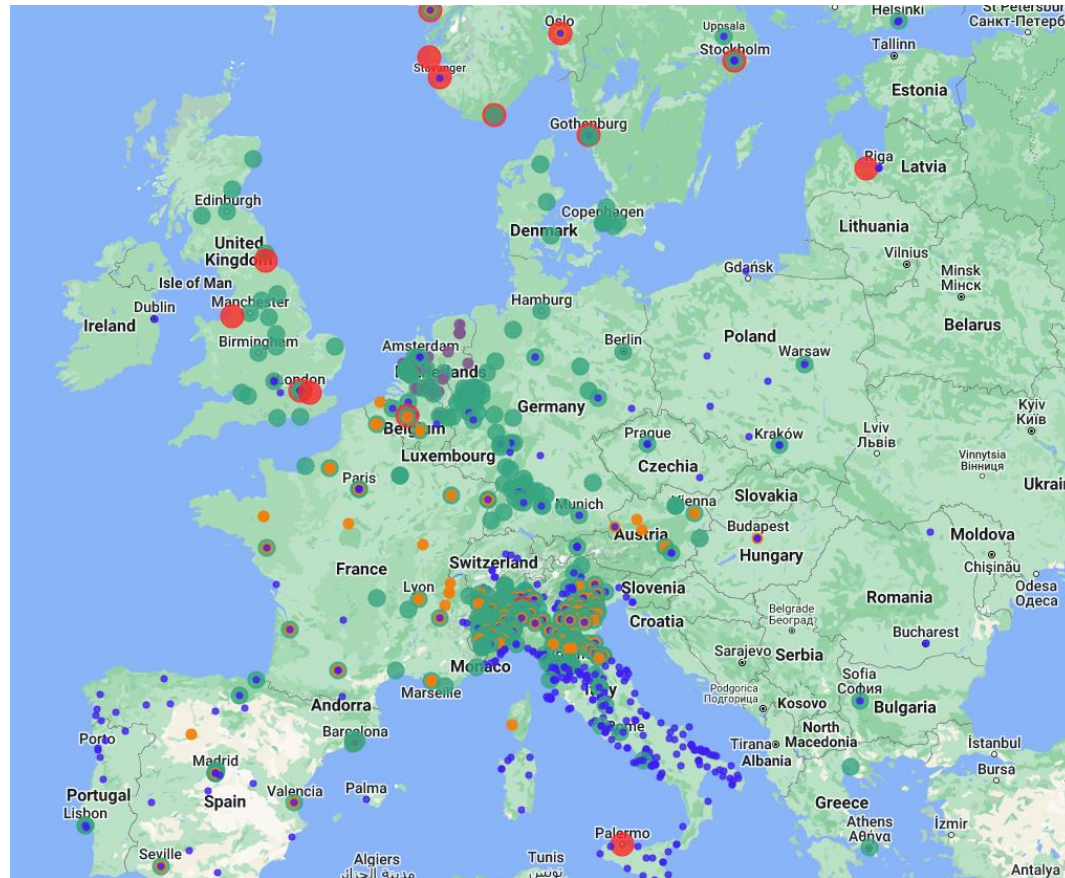
# Some key challenges

- Access to spaces
- Time it takes to bring forward some schemes
- Can be a complicated legal process
- Knowledge among landlords and legal professionals on hubs
- Creating a coherent network of hubs for cities like London



# Our future plans

- More hubs throughout the UK and Europe
    - Live in London, Manchester, Birmingham, Leeds, Dublin, Utrecht and Frankfurt
    - Planning for Amsterdam, Oslo, Copenhagen
- +++



Urban Access Regulations in Europe

- Use of new innovation e.g., Grid Smart City **Digital Kerbside Management**







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Thank you for listening



**Fiona Coull**

Programme Manager, Cross River Partnership





# CARGO BIKES & SMARTER, GREENER LOGISTICS

Fiona Coull, CRP Programme Manager

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April 2023





# The Opportunity

- In 2020, 450 million parcels were delivered in London, 80% of these were delivered by road.
- Parcel numbers are likely to double by 2030.
- Exacerbating current issues with pollution and congestion.
- Cargo bikes can address these problems.
- Not just a standalone delivery method.
- Opportunity for integration into other sustainable logistics solutions, particularly for the last mile.





# CRP's Cargo Bike Schemes

CRP have worked on several cargo bike schemes as part of our various projects. A few examples include:

The Wimbledon cargo bike scheme enabled local businesses to use a cargo bike courier for their deliveries for free!

There were 129 successful deliveries and 40kg of CO2 saved!

CRP helped Streatham BID to procure a cargo bike for their businesses to use for free.

The scheme helped save 90kg of CO2 and 173g of NOx. over a year,

CRP has supported our partners to implement the 'Our Bike' scheme in their areas.

This is a shared cargo bike that can be used by businesses, communities and residents.





# Clean Air Logistics for London

Clean Air Logistics for London (CALL) is a £1 million Defra-funded project led by Westminster City Council in collaboration with 10 project partners.

The project aims to move more freight into London via river rather than road, supported by zero emission delivery methods in Central London.



# The London Light Freight River Trial

- The London Light Freight River Trial utilised the river for freight during March. The trial served the next day delivery market & incorporated return deliveries improving sustainability & efficiency.
- Cargo Bikes and Electric vehicles were used to deliver goods from the piers to their final destinations in central London.
- Impacts of the trial included:
  - 3 vans were taken off London's roads (this had potential to increase to 8)
  - 561 deliveries were carried out by cargo bike covering 392km
  - Emissions savings of 92% NOx , 96% CO2 , and ~78% for PM10 and PM2.5





# CRP's Previous River Freight Trial

- Six-week pilot during July and August 2022
- Transported office and janitorial supplies by river once a week.
- Final mile delivered by cargo bike to businesses in the Northbank BID
- 6 river freight trips made
- 59 cargo bike miles travelled
- Congestion reduced
- 78% saving in NOx
- 88% saving in CO2.
- Improved efficiency – the boat often arrived early!







# Westminster Micro-Logistics Hub

- A logistics hub is a site that couriers use to receive, sort and send deliveries.
- On 17th April, CRP & Westminster City Council launched a six-month micro logistics hub trial in Pimlico.
- The hub is being managed by Infinium Logistics, and the deliveries will be carried out by Delivery Mates zero-emission couriers.
- The trial will use cargo bikes for the last mile, and it is estimated that these will deliver ~2,000 parcels a day.
- The hub will receive parcels from an electric delivery vehicle, and loading and unloading will take place within the car park to keep noise levels at minimum.
- Monitoring of impacts, including noise, vehicle miles reduced, and emissions savings will be calculated.
- Additionally, learnings from the trial will be shared.



# Roundtable Discussion





# Contact Information

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