



# ***Unseen, Unplanned, Unsustainable: Why the future of freight is a critical Climate and Equity challenge***

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What if I told you that the most  
urgent sustainability and equity  
challenge in transport today...

isn't passengers

**it's freight?**

# Surprised?

- Freight doesn't often make headlines.
- It doesn't vote.
- It doesn't complain when the bus is late.

And yet, freight is everywhere - **all around us, all the time** - quietly shaping how our cities function and how our lives unfold.

# The freight blind spot



## VOICES

Deliveroo is not a British success story – it's a national tragedy



## NEWS ANALYSIS

Should we be prepared to pay more for gig-economy services?

Food delivery apps to tighten checks to stop illegal workers



Source: Unsplash

# The freight blind spot

## The risk HGVs pose to cyclists

HGVs (i.e. goods vehicles over 3.5 tonnes) pose a disproportionate risk to both pedestrians and cyclists. On average each year between 2012 and 2016, they:

- Accounted for only around 3.6% of non-motorway motor traffic mileage on British roads, but were involved in 17.5% of cyclist fatalities;
- Were involved in almost 14% of pedestrian fatalities;
- Accounted for around 2% of urban and 5% of rural motor traffic, but were involved in almost a quarter of cyclist urban fatalities and just over 12% of cyclist rural fatalities.

Cyclist fatalities involving HGVs (GB roads) 2012-2016									
Year	Urban			Rural			All areas		
	Killed by HGV	Killed by all vehicles	% Killed by HGV	Killed by HGV	Killed by all vehicles	% Killed by HGV	Killed by HGV	Killed by all vehicles	% Killed by HGV
2012	12	54	22.2	11	64	17.2	23	118	19.5
2013	12	46	26.1	6	63	9.5	18	109	16.5
2014	12	51	23.5	8	62	12.9	20	113	17.7
2015	12	49	24.5	6	51	11.8	18	100	18.0
2016	10	43	23.3	6	59	10.2	16	102	15.7
<b>Annual average</b>	<b>12</b>	<b>49</b>	<b>23.9</b>	<b>7</b>	<b>60</b>	<b>12.4</b>	<b>19</b>	<b>108</b>	<b>17.5</b>

## Pedestrian hit by truck in Glasgow city centre

© 16 March 2018



Mayor to introduce rating system that will ban vehicles with the worst driver visibility from capital's roads by 2020



📍 Sadiq Khan said 'bold action' was needed to improve safety for cyclists. Photograph: Robin Weaser/The Guardian

Tens of thousands of lorries with poor visibility will be banned from



# The freight blind spot



Source: [How HGVs are destroying Britain's villages](#) – the Telegraph



the narrow streets of Mullion (Image: Debbie Cheesman-Knaggs)



Source: [Lorry driver wedges 13-ton HGV in narrow alley after blindly following satnav](#) | Daily Mail Online

These are not marginal issues.

These are symptoms of a system  
**we all depend on, but rarely see.**

# The problem: a system out of sight and control

- **Unseen**

Freight has little visibility in public transport discourse.

- **Unplanned**

Urban freight systems have grown organically, shaped by market forces, not public strategy.

- **Unsustainable**

Carbon-intensive, congested, and increasingly inequitable.

If freight were visible, it could become a pillar of climate action, social inclusion, and urban resilience.

But right now, it remains a system out of sight, and out of control.

We're not just failing to manage this system.

**We're barely even acknowledging it.**

# Why it matters: Climate and Equity on the line

Domestic greenhouse gas emissions from road transport  
(Official Statistics, 2022)

**Freight: about 1/3 of total domestic GHG emissions from road transport**

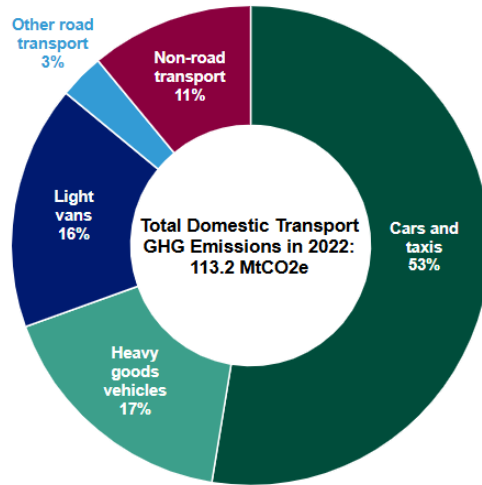
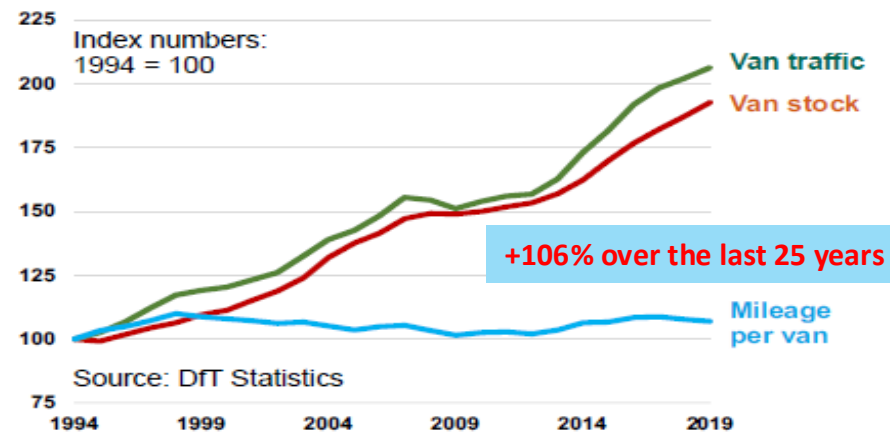


Table 1: Domestic and international greenhouse gas emissions (MtCO<sub>2</sub>e) for the United Kingdom by transport mode, 1990, 2021, and 2022 (ENV0201)

Transport type	1990	2022	after 32 years:
<b>Total transport (domestic and international)</b>	<b>152.9</b>	<b>148</b>	<b>-4.9</b>
<b>Total domestic transport</b>	<b>129.3</b>	<b>113.2</b>	<b>-16.1</b>
Cars and taxis	72	59.6	-12.4
HGVs	21.3	19.1	-2.2
Light vans	11.5	18.6	7.1
Buses and coaches	5.3	2.6	-2.7
Motorcycles and mopeds	0.7	0.5	-0.2
Rail	2	1.5	-0.5
Domestic aviation	1.5	1.1	-0.4
Domestic shipping	8.5	5.3	-3.2
Other non-road transport	6.6	4.5	-2.1
International aviation	15.5	28.5	13
International shipping	8.1	6.3	-1.8

Trend of Van Stock and Van Traffic, Great Britain 1994-2019

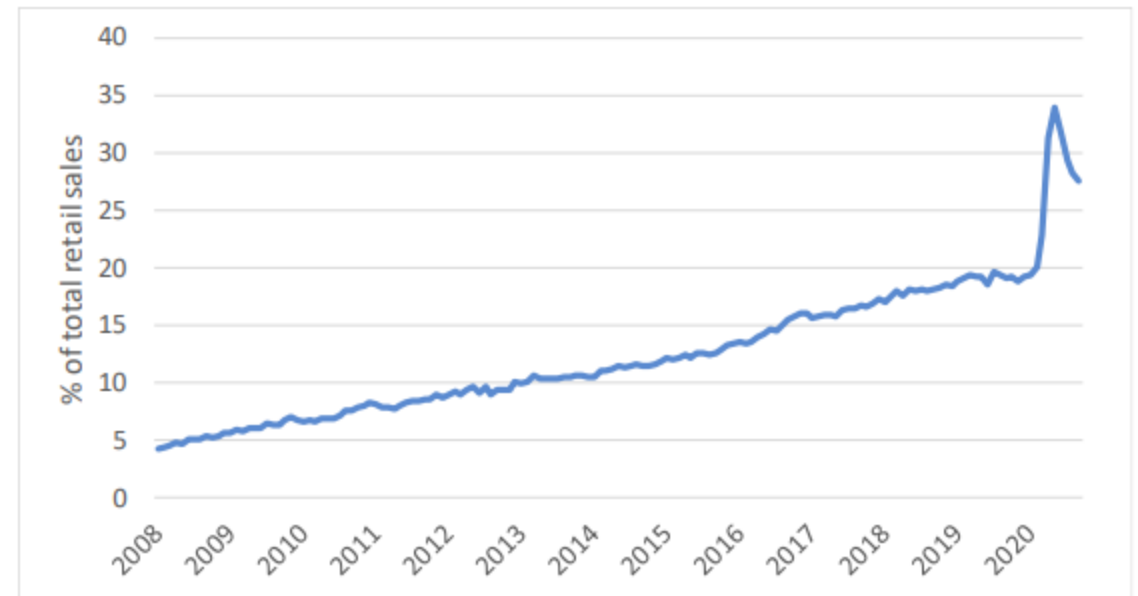


**Last-mile deliveries** - the very final leg of the supply chain and include the delivery of goods (or a parcel) that come from the final sorting office or fulfilment centre (e.g., local warehouse) to the customer (e.g., retailer or end-consumer in case of online shopping/home deliveries).

# The UK has the **third-largest e-commerce market globally**, following China and the US

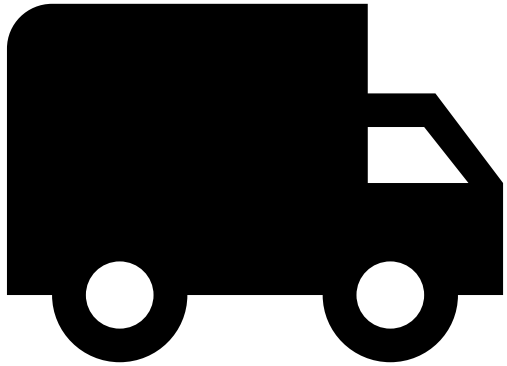
- ~ **60 million eCommerce users** in the UK - expected to increase to **1 million** by 2025.
- **63%** of UK adults in 2024 still **prefer to do their food shop online** rather than in store.
- People in the **South-West** have the **biggest preference for online shopping**, with 1 in 5 make **all** of their purchases online.

Figure 9.2: Online sales as a percentage of total retail sales in the UK (Jan 2008 -Dec 2020)



Note: Seasonally adjusted monthly data.  
Source: Office for National Statistics, 2021a.

# What about deliveries? **Some numbers...**



- **46.4% of UK consumers shop online because of home delivery**
- **40% of e-shoppers choose home deliveries because of **FREE** delivery.**
- **75% value retailer's consideration for the environment – and **sustainability** in its actions, products, and services – being **the reason they would choose to shop with them.****

## **However...**

- **54% regularly return products**, and 32% sometimes do — nearly **9 in 10 shoppers experience returns.**
- **50% consider **same-day delivery** important** - a substantial portion of UK shoppers believe that if an order is placed before 4:43 PM, it should be delivered the next day.



**Houston, we have a problem!**



# Where we are going wrong (and why)

## Fragmented governance: no one "owns" the freight system.

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Decarbonising last-mile deliveries: When the national strategy fails to meet local needs and expectations<sup>☆</sup>

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ARTICLE INFO

Keywords:  
Last-mile deliveries  
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Back-casting  
Local authorities  
Transport policy  
Transport planning

ABSTRACT

This paper explores views and perceptions of 35 local authorities towards potential solutions to decarbonise last-mile deliveries in England and presents their perspectives towards potential challenges and drivers to their implementation. The methodological approach is based on co-design and participatory methods to enable local authorities with different knowledge and expertise to produce, through back-casting, a series of specific actions that can support the implementation of effective measures to decarbonise last-mile deliveries. Results were presented to and stress-tested with 25 councillors, to understand to what extent sustainable transport policies for last-mile deliveries meet political will. Findings show that behaviour change, and collaborative schemes have the potential to have a stronger impact than new and clean technologies in reducing carbon emissions from last-mile deliveries, even though their implementation would be more difficult and less politically appealing. The paper also considers how different levels of governance can contribute to enable the decarbonisation pathway and reveals that lack of power, capacity and capabilities on local freight would be a major challenge for local governments. The paper recommends prioritise stakeholder collaboration, clarifying governance roles, integrating freight into political agendas, adopting systems thinking for planning, and fostering end-consumer behaviour change to accelerate the transition to net-zero last-mile deliveries.

- Transport planning **focus on mobility of people** vs mobility of goods.
- **National government provides targets**, but unclear guidance or regulatory support.
- **Local authorities lack powers**, capacity/capabilities for freight planning.
- Freight is **seen as “someone else’s problem”** – no one fully owns it.
- Lack of national and local **DATA** on freight movements.

**Start with the problem.**

We can't jump into solutions without understanding the problem.

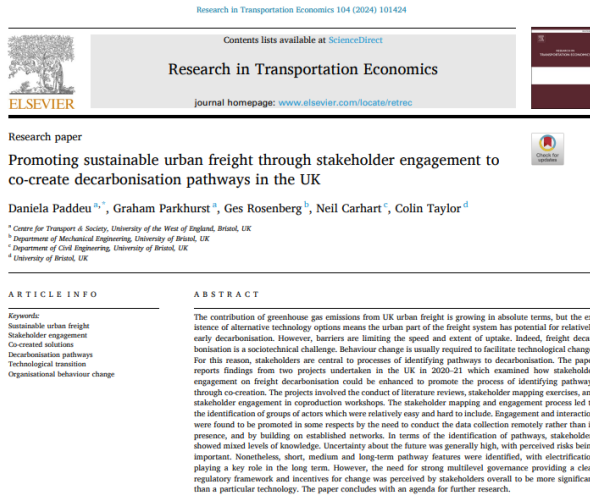
### 1. Introduction

Transport is well recognised as the major contributor to greenhouse gas emissions in the UK and globally (BEIS, 2022), with freight transport responsible for about one-third of those emissions (DfT, 2023). The environmental impacts of freight movements are most acute in urban areas due to the dense populations residing there. Air pollution generated by truck and van exhaust poses a direct threat to public health due to greater pollutant concentration and high population density (Marcucci, Gatta, and Le Pira, 2023). This also makes freight movement in urban areas a significant contributor to global warming; despite covering less than 1 % of global land

Paddeu, D. (2025). Decarbonising last-mile deliveries: When the national strategy fails to meet local needs and expectations. *Transportation Research Part A: Policy and Practice*, 195, 104435.

# Where we are going wrong (and why)

## Tech hype vs. system change: **Drones, EVs, AVs on headlines.**



- We're **ignoring systemic issues**: sprawl, poor consolidation, unjust labour conditions, lack of infrastructure.
- Swapping a diesel van for an electric one doesn't solve congestion, equity, or land-use conflicts. **It just electrifies the status quo.**

## Who can afford the transition?

**1. Introduction**

Freight transport is responsible for more than a third of UK transport greenhouse gas emissions (Department for Transport - DfT, 2023), and the contribution of last-mile deliveries is growing rapidly. Light goods vehicles (LGVs) (used for all purposes) are responsible for 15% of motorised vehicle miles in British urban areas, rising to 25% in the largest urban areas. LGVs are responsible for 30% of all oxides of nitrogen and particulate emissions from road transport (Cairns & Sloman, 2019), with quantities expected to significantly increase due to the intensive use of fossil fuels by the modes of transport involved – mainly road (Meyer, 2020). In addition, compared to personal mobility freight transport is already operationally relatively efficient, and there are structural constraints on change, such as sunk investments terminal infrastructure. In this context urban freight presents as having higher potential for early decarbonisation than the sector as a whole. Fourteen percent of urban transport emissions (globally) are from freight (ITF, 2019), with quantities expected to significantly increase due to

- Drone delivery governance is **fragmented and unprepared.**
- Policy must **balance innovation with public good**, addressing environmental, safety, and equity risks.

**Are drone deliveries solving real problems - or simply adding complexity, cost, and risk to an already under-pressure logistics system?**

### Policy Briefing

UWE  
Bristol

### Governing the skies: Priorities and policy pathways for the future of drone deliveries

#### Key messages

1. The governance of drone-based last-mile deliveries in the UK remains highly uncertain and underdeveloped, with key challenges in regulation, planning, safety, liability, and environmental impact. Without coordinated action, drones risk creating new problems rather than solving existing ones in the transport and logistics system.
2. Effective drone integration requires stronger collaboration between national and local government, industry, and the public. Gaps in planning regulation, public trust, and industry readiness must be addressed through targeted investment, clear role definitions, and inclusive governance frameworks that prioritise public benefit alongside commercial innovation.
3. Policy must proactively respond to environmental and social risks, including impacts on wildlife, noise, and equity of access. This means embedding safeguards in regulation and planning, supporting innovation through trials, and engaging communities.

#### About the research

##### Why drone delivery matters

Drone technology has gained significant momentum over the past decade, especially for its potential to transform last-mile deliveries. With the ability to reach remote, rural, or congested urban areas, drones could offer a more flexible and potentially lower-carbon alternative to traditional delivery methods. However, widespread implementation remains limited by technical constraints, regulatory uncertainty, and a lack of public trust.

##### The evolving UK landscape

In the UK, drones are increasingly seen as part of a future transport ecosystem. The Department for Transport's Future of Flight Action Plan (2024) sets out an ambitious roadmap to enable regular drone deliveries by 2027. Trials by the Civil Aviation Authority (CAA) are already testing beyond visual line of sight (BVLOS) operations, a key step in unlocking commercial-scale drone activity. Despite growing interest and investment, significant governance challenges remain.

##### What our research does

Our research investigates the governance of drone-based last-mile deliveries in the UK. Through stakeholder engagement and Foresight methods, we assess how governance structures can better support innovation while ensuring drones provide social, environmental, and economic benefits. This research is part of the "Governance And Trust in Emerging Systems" project, is a collaboration between the University of Bath, University of Birmingham, and University of the West of England.



Image from Adobe Stock

# Where we are going wrong (and why)

It's a private sector concern: **businesses will sort it out.**



Decarbonising last-mile deliveries: When the national strategy fails to meet local needs and expectations<sup>☆</sup>

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- Freight shapes how people access food, medicine, clothes, books - **everything that makes daily life possible.**
- Access to goods is a **public interest.**

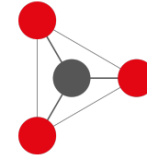
If we keep treating freight as someone else's problem, we'll **keep building cities that don't work for people** - and systems that work brilliantly for parcels, but badly for everyone else.

# A call to **rethink freight**

## What do we need?

- Mainstream freight in climate and transport policy.
- Design for access to goods, not just people's movement.
- Place-based solutions that reflect diverse urban, rural, and peri-urban needs.
- Integrated planning across transport, logistics, land use, and digital infrastructure.
- Inclusive engagement: bring in underrepresented voices - residents, small businesses, informal workers.

**Embed more *freight thinking* into policy and planning.**



## Triple Access Planning for Uncertain Futures – A Handbook for Practitioners

March 2024

A report prepared by the Triple Access Planning for Uncertain Futures project. This project is funded from the European Union's Horizon 2020 research and innovation programme under grant agreement No 875022 and as part of JPI Urban Europe's ERA-NET Urban Accessibility and Connectivity (ENUAC) initiative.

**HANDBOOK NAVIGATION BAR**

	Philosophy	Preparation and Analysis	Strategy Development	Measure Planning
Triple Access Perspective				
Uncertainty				
Access for Goods				
Organisational and Institutional Challenges				

**Access for Goods** **Philosophy**

In planning there is a tendency to focus on the movement of people rather than to also recognise the importance of the movement of goods. One can impact on the other with interdependencies affecting, and affected by, the Triple Access System. This section helps open minds to why goods movements matter to planning as well as to the agency and agendas of stakeholders on the supply and demand side.

**Why should you consider this and what's involved?**

*The growing importance of goods' movements*

Transport is widely recognised as a major contributor to greenhouse gas emissions globally, with approximately one third of the transport emissions attributed to freight transport<sup>58</sup>. The environmental impact of freight movements is particularly significant in urban areas due to their high population density, and the presence of buildings that exacerbates the concentration of air pollution from traffic, especially from truck and van exhausts. Exposure to traffic-derived air pollutants poses a direct threat to public health<sup>59</sup>.

The growth of online retailing and last-mile deliveries has reshaped and increased the complexity of urban transport systems, transferring the responsibility for delivering retail purchases from consumers to online retailers and carriers, leading to a shift in the use of vehicles for freight movement. Globally, freight movements contribute to about 14%<sup>60</sup> of urban transport emissions, and this figure is expected to rise due to increasing demand for goods and freight transport's reliance on fossil fuels.

<sup>58</sup> <https://www.gov.uk/government/statistical-data-sets/isqb04-freight#full-publication-update-history>

<sup>59</sup> McKinnon, A. (2023). Environmentally sustainable city logistics: minimising urban freight emissions. Handbook on City Logistics and Urban Freight: 463-482. [https://doi.org/10.4337/9781800370173\\_00036](https://doi.org/10.4337/9781800370173_00036)

<sup>60</sup> International Transport Forum (2019). Transport Outlook 2019. Paris: OECD. [https://doi.org/10.1787/tranp\\_outlook-en-2019-en](https://doi.org/10.1787/tranp_outlook-en-2019-en)

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# A quiet revolution

*Freight is silent, invisible, and overlooked, until it fails.*

If we want a **climate-just, inclusive future**, we can't afford to ignore the systems that move the things we depend on.

**It's time for a quiet revolution.**

**One that makes freight visible, planned, and sustainable.**

# Thank you!

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