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Urban logistics hubs: what are London's needs?

By Nicolas Bosetti, Claire Harding and Jimin Oh



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Acknowledgements

We would like to thank our interviewees for contributing their time and insights to this project. We would also like to thank the project team at UCL, especially Peter Jones (Professor of Transport and Sustainable Development, Department of Civil, Environmental & Geomatic Engineering), and colleagues at British Land for their time, insights and comments on the research.

We would like to thank British Land for commissioning this work. Nevertheless, the research is editorially independent of our interviewees and of British Land, who do not necessarily agree or support our conclusions. The views expressed in this research are solely those of the authors, and all errors and omissions remain our own.

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Glossary

Some of the terms in this report can be used in different ways – this is how we define them for the purposes of this research:

- *Cross-docking:* the practice of transferring goods from one transport mode to another.
- *Delivery operator:* businesses involved in making deliveries this includes retailers and service providers (like dry cleaners) that make their own deliveries, and third party logistics operators, which act as intermediaries between seller and consumer
- Drop density: number of people or businesses receiving deliveries in an area
- *Inner city:* defined for ease in this report as London Transport zones 1 and 2, as this is where drop density is highest, and where land for logistics is most scarce, though of course other parts of London will be facing similar challenges and opportunities
- Last mile: last segment of a delivery journey
- Logistics hub: space used by delivery businesses to receive, sort and dispatch goods, or transfer them from one mode of transport to another. This report focuses on smaller hubs (sometimes called urban logistics hubs or microhubs) in the inner city, rather than larger distribution warehouses.
- *Micromobility:* small vehicles such as bikes, scooters, cargo bikes, trikes and pedivans (both pedal and electric)
- *Walkers:* people making deliveries on foot, for example wheeling deliveries

Why this research?

Deliveries have been booming across London, giving new consumer experiences and convenience to many, but also creating well-known and major impacts on congestion, road danger, air pollution and carbon emissions. Making deliveries on micromobility vehicles would solve, or at least significantly mitigate these issues. But to be able to switch away from vans to lower range, lower load vehicles, logistics operators need enough space for delivery hubs near their consumers. This is difficult, especially in inner and central London, where land available for logistics is most scarce. This research looks at what kinds of logistics spaces are needed in the inner city, the benefits and challenges that come with creating more of them, and how policymakers can help provide the necessary infrastructure that will make deliveries more sustainable.

How we created this research

The findings and conclusions of this research are based on 10 semi-structured interviews with freight and logistics experts in the private sector and in London government (this includes local authorities, the Greater London Authority, Transport for London and the Port of London Authority). The research also builds on a review of the literature and policy on logistics hubs, and our previous reports on deliveries, and the future of industrial land.

Chapter 1: Logistics hubs in London today – types, demand and requirements

Types of urban logistics hubs

There are several reasons why logistics operators need hubs within the city. This is not always obvious to people outside the sector. This section looks at the different types of logistics hubs within London and what role they play.

Mode transfer

Unlike smaller cities and towns, deliveries to London business and residents cannot always be fulfilled from distribution centres located at the city's fringe – this is because London's fringe is far away from the centre, and because lorries and vans are not suited to urban environments: they tend to struggle in smaller streets, they are delayed by traffic and don't mix well at all with other road users, posing danger to pedestrians, cyclists and motorcyclists. In recent years, many logistics operators have realised that delivering to consumers using smaller vehicles is desirable and often necessary – and these have been made a lot more efficient by electrification and improvements and London's network of cycleways. But to use micromobility vehicles, logistics operators have told us that they need hubs close to the city centre to transfer them from lorries to smaller vehicles or sometimes to be delivered on foot – this mode transfer is also known as cross-docking.

Hubs are also essential for deliveries that come into the city by train or ship, and need transferring to micromobility vehicles. Although very few logistics operators currently use rail and the River Thames, the Port of London Authority, Network Rail and Transport for London have strategies in place to grow this number, and have told us that one of the main barriers to achieving this is finding space for hubs near piers, wharves and stations.²

According to one logistics operator, deliveries to consumers are usually small in size and leave the hub soon after they arrive, while deliveries to businesses may require to be stored and consolidated – in which case the hub plays a hybrid function (see consolidation hubs below).

Ultrafast delivery

Logistics operators also told us they also vying for spaces "as close as possible to people's chimneys" to be able to offer same-day or instant deliveries, usually for high value items, hot food or fresh produce. To offer this service, retailers need goods to be stored (or in the case of hot food, prepared) as near as possible to customers - many people know about dark stores or dark kitchens, but parcel companies also need them. Instant deliveries are usually made on micromobility vehicles or motorbikes to avoid traffic, while we were told by one logistics operator that their same-day parcel deliveries are currently fulfilled by van, this is because same-day deliveries are usually available for fewer parcels, some delivery vehicles will make fewer drops and there will be more distance in between them. Some logistics operators have invested in Thames Clipper vessels for their ultrafast operations as it offers better reliability than road deliveries - doing this requires hubs that also do mode transfer. One example of this is DHL's riverboat operated by Thames Clipper Logistics - express deliveries bound for central London are moved from trucks to vessels in Wandsworth, they travel on the Thames until Bankside pier where they are dispatched on cargo bikes.³

Consolidation

As their name suggests, these hubs allow deliveries from different suppliers to be consolidated into fewer loads that are larger in size. There are many types of consolidation – logistics operators consolidate their own deliveries for one area (they usually do this at the city's fringe rather than in the inner city).

Increasingly, large institutions or groups of businesses consolidate the deliveries they would receive from different retailers into an off-site hub, before sending them on as a single consignment – examples of this happening in London include Guy's and St Thomas's Hospital, 22 Bishopsgate and the Crown Estate. Doing this achieves huge reductions in vehicle movements within urban areas.⁴

Consolidation usually happens before deliveries reach the inner city – it is far better for this to take place at a larger distribution centre with reliable lorry access and where goods can be stored, and this also reduces lorry movements within the city.

Large logistics operators tend to run hubs that specialise in one of the types above, while smaller operators have few hubs and will use these for storage, consolidation and mode transfer. For example, one cargo bike delivery specialist currently operates their London deliveries from a single hub, which is used for both cross-docking and consolidation.

How demand for urban logistics hubs is changing

Logistics operators and sector experts told us that demand for urban logistics hubs has never been higher, and that this was strongest for mode transfer hubs and in London Transport zones 1 and 2, where land supply is most constrained and drop densities highest. They expect demand for mode transfer hubs to continue and intensify after large logistics operators have made public commitments to become net zero carbon, while continuing to compete on delivery speed and reliability. Research by the University of Westminster⁵ found that delivering by cargo bike can be significantly quicker in London's traffic, and cheaper to acquire and maintain any have far fewer negative externalities like pollution than delivery vans. Micromobility vehicles tend to be more cost effective if they cover shorter distances, as they can do more shifts and spend less time empty – so logistics operators are looking to set up a dense network of hubs. That said, higher rents can tilt the balance in favour of vans, which don't need an inner city mode transfer hub. As one operator put it:

"[Using bikes] I now need to pay for a truck and a hub, which I didn't have to before [using vans]. So the efficiency of the bikes needs to offset the cost of the hub and the cost of the truck. So they have to be that much better than vans to make it stand up. If the cost of the hub keeps going up and up and up, the bikes are never going to meet that efficiency - it's a game of pence."

Logistics operator

For some this intermediate step of using vans can be eliminated. But this may be contingent on bringing large vehicles into dense urban space where direct transfer to micromobility vehicles can be carried out.

Several of our interviewees also stressed that land availability has reduced in the last few years as they compete with hot food and instant groceries delivery businesses for inner city logistics spaces. However, there are signs that growth in the instant delivery sector is slowing as it is not yet clear whether consumer demand for these will be able to sustain the costs of their operations, especially as high inflation eats into disposable incomes.

Even so, one logistics operator stressed that despite very strong demand for inner city logistics spaces and a steep increase in rents, there is still "a total lack of supply" and that "they currently cannot find enough space" for their cross-docking operations to be able to serve central and most of inner London.

What spaces are logistics operators looking for?

We asked logistics operators about what criteria they look for when setting up an inner-city logistics hub. There were strong commonalities in their requirements, this was true across operators and different types of hubs.

Lorry access

Lorry access for incoming deliveries is essential, this includes access roads and a minimum of 3 metre clearance. For this reason car parks are generally not suitable, unless lorries can be unloaded from the street. But doing this is often difficult in inner city environments: sites are small and may not have a loading bay nearby, and even if they do, unloading can generate conflicts with other kerb and pavement uses. One operator mentioned that being able to receive deliveries on articulated lorries is desirable but not essential. Securing lorry access can be especially difficult when establishing rail-road and river-road hubs, as piers and stations are already passenger transport hubs.

Storage space

Mode transfer hubs can be small if deliveries don't need to be stored or repacked on site – logistics operators will only need space to store bikes and charge batteries, and to fix them (though this can take also place offsite). Larger operators can pre-organise loads at an earlier depot, so no unpacking and repacking needs to take place at the hub - this saves space in expensive urban locations.

"You really don't need very big spaces to make quite a big impact, because we're not storing anything other than the bikes, we're not sourcing anything, so we don't need space for splitting all the packages out of their bags. All the sorting happens at the delivery station. So the packages arrive sorted into the hub. And you just scan the bags and you put them on the bike."

Logistics operator

This changes for smaller operators that need storage space for sorting and consolidation, or those that use automated processes for these activities – they will need more space and have more specific requirements linked to the technology they are using.

Staff amenities

Logistics hubs are in operation for most of the day and this makes the provision of a staff rest area especially important. These need to have good lighting and air quality, bathrooms and step-free access.

Catchment area

Logistics operators seek locations with a high density of drops near the hub. This increases the cost-effectiveness of cargo bike and walking deliveries, as delivery workers spend less time returning to the hub with empty vehicles, or in between drops. Denser areas are also more likely to be more congested – making van deliveries less practical.

Micromobility infrastructure

Within the hub, any access ramps shouldn't have gradients that are too steep for cargo bikes. Beyond the site, the quality of micromobility infrastructure increases rider safety, and makes micromobility vehicles more effective than vans.

Beyond the site, operators have told us that London's micromobility infrastructure generally meets their minimum requirements, especially when compared to other cities and towns, though there are gaps in East London due to the lack of River crossings:

"We have competitive advantage pretty much everywhere, except in East London around the river where there are crossings that are preferentially available to motor vehicles and not available to bikes."

Logistics operator

Another logistics operator stressed that some older cycle routes are not suitable for their operations, either because cycle lanes are only provided on pavements, or because they are simply too narrow:

"Infrastructure needs to be designed to the most recent standards, to suit cargo bikes"

Logistics operator

Self-contained spaces

Logistics operators are also looking to keep their activities to be segregated from the public to avoid noise issues - this is especially important in urban areas as this allows for longer operating hours

Policymakers told us that they had evidence from their soft market testing that operators are not looking to share spaces with one another, despite severe shortages in availability. They report that this is for security reasons, to avoid mistakes when goods are handled, or any other person to interfere with their deliveries. Sharing operating systems could solve this issue but logistics operators told us as part of a previous project that this is unlikely to happen without policy intervention as it would take time and effort to merge systems across operators, while the rewards would be relatively limited and distant.

Cost-effectiveness

Logistics operators told us that their cross-docking operations can fit different types of premises as running these doesn't require much infrastructure – as long as the above criteria are met. They also told us that affordability is currently limiting their ability to set up new cross-docking operations – but they are willing to pay higher rents for sites where drop densities are higher, where access rules are flexible, and if they can set up a network of hubs:

"[Our willingness to pay] depends on how many bikes you can get into it (hub), depends on how many can I get through it, and then you've got a natural limit of the distance which you can cover as a radius from the hub. Because then, you're not getting too far from the hub for when you have to go back and fill up again. So you need like a network of them to give you the coverage which you require."

Logistics operator

Chapter 2: The benefits and disbenefits of logistics hubs

Benefits

Inner city logistics hubs come with a range of benefits:

• Environmental benefits: Inner city cross-docking operations have clear environmental benefits – especially in terms of air pollution and traffic reduction, which are key policy objectives for the city. These hubs also contribute to decarbonising deliveries – though most operators are moving to electrify their vehicle fleet, which reduces the relative benefits of micromobility for reducing operational carbon emissions (assuming renewable energy generation and continued successful decarbonisation of the UK energy mix), though not necessarily in whole lifecycle carbon terms. The benefits of cross-docking hubs were well known to the policymakers we spoke to.

"[Hubs] are going absolutely central for decarbonising. And it's not just decarbonising. It's [about] the broader sustainability agenda. Decarbonising is our environmental sustainability piece, but there's also a social sustainability piece around congestion, etc"

Logistics operator

"The closer you get to the market, the more you can use EVs and cargo bikes. Ideally you want smaller hubs, closer to markets, serviced by larger hubs" London authority

"One cargo bike equates to one van [in terms of the load it can carry]". "They [cargo bikes] can deliver the same, if not more packages if the densities are right, than a van"

Logistics operator

But not all operators are convinced.

"We don't need microhubs to decarbonise. Over the next 5 years, we're going to see a huge transition to EVs."

Logistics operator

Generally though, logistics providers felt that the benefits of micromobility vehicles for deliveries, were underestimated outside the sector – especially the ability for cargo bikes to replace vans, if cross-docking hubs are available.

• *Employment benefits:* in other cities, logistics operators also point to the benefits of hubs in terms of accessible and inclusive employment opportunities (e.g. no need for driving licence), though this argument is perhaps less strong in the inner city given the high employment densities there.

• Competitive advantage and faster deliveries: Hubs have other benefits for delivery businesses – giving them competitive advantage to reach residents and offer ultrafast deliveries. Our interviews didn't focus on these, but rather concentrated on their social and sustainability benefits.

Disbenefits

We also asked our interviewees about the disbenefits of inner-city logistics hubs. The main challenges mentioned to us (aside from cost, which is covered in the previous chapter), were the noise impacts of delivery operations on residents, the lack of consideration from delivery businesses of the impacts of their operations on pavements, and the detrimental impact of hubs on high street vitality. Perceptions of instant or same-day deliveries were generally more negative than of "standard" deliveries – one policymaker felt companies are creating a need for ultrafast deliveries that didn't exist previously, and that they are at best dismissive of the impact of their operations on other people.

"Rightly or wrongly [residents] don't want 24-hour operations in their neighbourhoods. Even bike deliveries can be unpopular because [residents] don't want people hanging out on bikes on pavements. At peak hour, you can get 20 to 30 bikes clogging the footway. Honing on the practicalities is something few people are thinking about"

London authority

Perceptions of logistics hubs

The parcel delivery companies we spoke to felt that opposition to proposed inner city hubs was due to negative perceptions of their activities, rather than actual nuisance. They told us they faced opposition when setting up new hubs, rather than in existing ones, and this was evidence they can be good neighbours.

"It's just perceptions. Perception of logistics, even if you stress that it's going to take all the vans out of your area, replace them with bikes to make them cleaner and greener (...) people have an idea of what it would be like to live next to a logistics operation. They don't understand how light touch our operating model is. It's just one or two [motor] vehicle movements in a day, and they're in and out. And then it's all bikes."

Logistics operator

"There's not much conflict as our operations are rather quiet. (...) The main issue we've had was because residents got used to, when the site was empty, parking their cars on our premises. And that generated some conflict because we need access to our site."

Logistics operator

Both policymakers and logistics providers have told us that where neighbourliness issues arise, it tends to be because the spaces were not designed for logistics use, and do not offer adequate segregation from other activities in terms of vehicle access, parking or noise proofing. We expand on this in the solutions chapter.

"These spaces [for hubs] are so hard to come by. You take what you can get."

Logistics operator

"We are shoehorning these operations in spaces which they are not designed for, but if you can have bespoke sites built in as part of these new developments, that will really enable a big transition."

London authority



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Chapter 3: Perceived problems and solutions

Land supply: perceptions of the issue

The policymakers we spoke to were well aware of lack of land available for logistics hubs. They explained that they have to balance the need for these hubs with other land use priorities – from new housing to ensuring high streets continue to thrive. Some were concerned that giving more space over to logistics hubs might drive demand for ultrafast deliveries, and then further increase the need for local hubs at the expense of local retail. At the same time, they were committed to the Mayor's and boroughs' net zero targets, and keen to ensure that land use policy doesn't prevent progress towards these.

Some policymakers were generally more supportive of local hubs than larger distribution warehouses, as they felt London's land supply pressures were so severe that more of the latter should be built outside the M25. They were also more supportive of hubs that reduce the amount of traffic on roads (especially vans and motorbikes) than those facilitating ultrafast deliveries. But developing policies that would support micromobility deliveries is difficult, as delivery businesses don't always share information about their operations.

"The net zero commitment by the Mayor is going to influence a lot of the policies we put in. We should strengthen policy to support microhubs (...) that is something we'd like to see."

London authority

"Consolidation centres are a far more effective use of land supply that is very tight than some of the very big box logistics. London doesn't need acres of [large scale] warehousing but it will need small spaces that are neighbourhood-focused"

London authority

"The problem is: the industry doesn't share information with us - we don't know what's being moved, when it's being moved, so the result of that is that we're flying blind in terms of policy development."

London authority

Protecting existing sites

There was general agreement across interviewees that existing industrial and logistics spaces should be strongly protected, and that there are some opportunities to convert underused car parks or retail units into logistics spaces. That said, one local authority told us these opportunities were often impossible to realise, as sites didn't meet operational requirements.

"If it is relatively small scale, is there an opportunity to consider consolidation near town centres or on the high street? Or to use car parks or old department stores?"

London authority

"We have an ambition in our transport strategy to have several new hubs up and running by 2025, I think actually, that's going to prove impossible to me. (...) We really struggle to find sites, because although we've got a lot of spare capacity in our car parks, they're not actually that suitable because they don't have the headroom (for trucks) to get in there."

London authority

New developments

Land supply in the inner city is so limited that all our interviewees told us that new hubs should be provided in new developments to address the current shortage. Doing this would have the added benefit of creating purpose-built hubs with adequate access, parking provision and separation and noise-proofing from other activities taking place in the same or adjoining buildings.

There was agreement across several policymakers and one logistics operator that boroughs could be compelled to provide hubs in new developments in the London Plan. One logistics provider felt that Transport for London should also push boroughs in that direction when commenting on planning applications. But policymakers generally felt clearer design requirements are needed for developments that mix delivery hubs with other uses. Two of them were concerned that building hubs in new developments could also create issues of neighbourliness. It is also common for developers and landlords to be specialised – in residential, commercial or logistics buildings – and they need to demonstrate that they understand how different activities can work together.

"TfL and the GLA need to stimulate developers to do this [provide new hubs] through the planning system. This operation is revenue generating for developers - from my perspective this is going to be a massive cash cow for the developer" **Logistics operator**

"One way that could be done is more forceful requirement for including these spaces in new developments, there would need a lot of work for how these design requirements would be."

London authority

For river (Thames) logistics hubs the main challenges were the lack of space on piers to accommodate both passenger traffic and deliveries. While there are some disused piers that offer an opportunity for redevelopment, and others could be expanded, building on the river is costly and heavily regulated, so there will need to be strong evidence that there is demand for more piers to accommodate deliveries.

Local authority collaboration

Even providing hubs in new developments might not be possible in some parts of the city centre, as the kinds of sites that come forward for redevelopment would not allow this. More collaboration across central London boroughs could help identify the most suitable opportunities. It

could also help prevent spaces currently used for warehousing from being lost to another use – indeed, smaller industrial and logistics sites like are less likely to be protected in planning policy than larger sites and sites in other uses, especially if they lie outside industrial estates. One local authority officer said this should be led by the GLA and TfL, and should recognise that logistics land is very unevenly distributed across London – with central areas experiencing the most severe shortages. Others shared this view – though some felt the steep increase in logistics land values relative to other uses would do much to incentivise developers to build new logistics hubs.

"We cannot require developers to provide lastmile hubs within new developments because new developments are in extremely constrained sites. (...) [Instead] we are looking to include lastmile hubs within new development sites that are happening at a master plan scale."

"Some kind of central London approach that maps the potential sites and strives to protect those would be very helpful. Recognizing that logistics land includes smaller sites that have the potential to be last mile hubs would be helpful" London authority

"It's very much kind of saying there's an opportunity here across central London and bits of inner London, to (apply different) means of doing lastmile, so let's really maximise the opportunity and make the most out of sites that are available for it." London authority

Micromobility legislation

London authority

All interviewees raised issues of land supply – but one logistics operator also mentioned that national legislation on micromobility vehicles could reduce their potential for deliveries. Currently, there aren't many policy requirements that cover cargo bikes, but one operator was concerned that clauses in upcoming legislation might limit the size of goods that can be carried by cargo bike. Their view was that government should be legislating around braking distance rather than load size – this is because it is rare to see overloading of cargo bikes, and typical cargo bike speeds "are lower than they are perceived to be".

"Most of our injuries [to workers] are caused off the bike. But the public perception is 'oh that looks a bit dangerous' because people don't understand the sector and understand what is and isn't safe for cargo bikes to do because the physics is very different."

Logistics operator

Street layout and lorry controls

Are inner city hubs essential to reduce London's reliance on vans for the last mile? One policymaker told us that reallocating on-street parking to loading bays would also encourage logistics operators to use more walkers for the last mile. They felt this would be a good option if deliveries companies cannot find space for logistics hubs in the inner city. Using parking bays would likely mean there are more lorries in the city centre, but they would be parked for most of the time. We were told that this last mile delivery method doesn't happen in London because of the London Lorry Control Scheme, which prevents larger vehicles from accessing the city at certain times, and the lack of loading bays. Micromobility vehicles will also need additional on-street loading and parking space, so they don't infringe on pavements or roadway when making deliveries.

"In New York City, Amazon take a big lorry and park in parking space and people on foot have trollies about the size of a fridge that can fit 20-30 parcels - I think that could be a good model in London instead of microhubs. Why is it a pay and display bay instead of delivery area? You can find a design solution that would be fine for that, including in conservation areas"

London authority

"As well as hubs, I suspect that there will be an increase in demand just for parking, for cargo bikes and those kinds of things."

London authority

Conclusion

Building more logistics hubs in inner London has the potential to reduce noise, carbon emissions and pollution from deliveries because they allow deliveries to be made by walking, bike and pedivan. This can also help companies to deliver a better service for their customers. Creating them is not straightforward, largely because there is so little land available, but there is scope to include them in major development schemes, and to better protect the ones which already exist.

Centre for London explored some the wider issues of near-to-home deliveries, including the use of hubs and click-and-collect options in our report on The Active Last Mile published in December 2022.



Handy Wicaksono, Unsplash

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Charity Number: 1151435

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