



Response to the consultation

“The last mile – a call for evidence”

September 2018

from

The Bicycle Association of Great Britain

The **Bicycle Association of Great Britain (BA)** is the national body representing the cycling industry in the UK. BA member companies cover all main sectors of the industry: manufacturers, distributors, retailers, services. Many members supply e-bikes and e-cargo bikes. www.bicycleassociation.org.uk

with the generous assistance of:

- **The UK Cycle Logistics Federation (UKCLF)**
The UKCLF represents many of the current operators of cargo bike businesses in the UK, and we are grateful for their close collaboration in developing this response. The UKCLF is a national association of the European Cycle Logistics Federation. www.ukclf.org
- **The European Cycle Logistics Federation (ECLF)**
The ECLF promotes cargo bike use at a European level, and also stages regular international conferences at which academic research in the cargo bike field is presented, providing valuable research resources for this response. www.eclf.bike
- **The European Cyclists Federation (ECF)**
The ECF are active in developing policy at European level to develop the cargo bike sector, and also provided helpful pointers to relevant academic research, and contacts with researchers. www.ecf.com
- **EU-funded projects CycleLogistics, Pro E-bike and CityChangerCargoBike**
These projects provided many useful research findings, and the project lead, Dr Susanne Wrighton, was also extremely helpful as we researched this document.
- **And numerous operators, bloggers and individuals active in cycle logistics.**

Contents

1	Delivering for Britain on e-cargo bikes	3
1.1	E-cargo bikes are a strategic enabler	3
1.2	Commissioned research.....	4
1.3	Recommendations summary	5
1.3.1	Cargo Bike Demonstration Cities	5
1.3.2	‘Wider context’ central Government actions	8
2	Opening remarks.....	10
2.1	The big vision	10
2.2	Market solutions	11
2.3	The scale of the opportunity.....	14
3	E-cargo bike barriers – and solutions.....	17
3.1	Barriers for micro-depots.....	17
3.2	Barriers for SMEs, tradespeople etc.	19
3.3	Cost & availability barriers.....	20
3.4	Infrastructure barriers to efficient cargobike use.....	20
4	Delivering our recommendations	22
4.1	Cargo Bike Demonstration Cities	22
4.2	Delivery partners.....	23
5	The consultation questions.....	24
6	Appendix 1 – summary of the Germany federal heavy cargo bike subsidy scheme	45
6.1	Current German scheme.....	45
6.2	Proposed UK implementation.....	47

1 Delivering for Britain on e-cargo bikes

1.1 E-cargo bikes are a strategic enabler

Among the “Grand Challenges” in the UK’s Industrial Strategy are **clean growth** and the **future of mobility**. E-cargo bikes are uniquely placed to help meet these challenges.

Their application can support the evolution of our cities into efficient, liveable, low carbon and high-tech hosts for smart business growth, while also providing flexible, accessible mobility for goods and people of all ages. And unlike many other solutions which require further costly development or infrastructure to be practical, **e-cargo bikes are available immediately** to deliver fast progress at low cost towards the Government’s “Road to Zero” strategy.

They have the additional benefit, for last mile delivery purposes, of being **small enough to bypass (and not cause) congestion**, and to be far more flexible than larger vehicles for drop-off parking. They are even able to be pushed by a rider on foot in pedestrian areas, and are resilient to extreme weather, fuel shortages and more.

Barriers to wider deployment include lack of awareness and research to prove their potential and justify investment; initial cost of e-cargo bikes, especially for new SME start-ups; the economic framework whereby many externalities of higher-impact modes are not borne by operators; market distortions from subsidy of other vehicle types e.g. electric vans; and other issues including cycle lane and road design, pavement parking and lack of a current ‘ecosystem’ of support, training and expertise.

CASE STUDY: DHL and the Cubicycle



DHL is just one of the logistics companies embracing e-cargo bikes, experimenting with new models of containerisation and smart technologies. In the Netherlands, as of 2015, 10% of the fleet of DHL Express had been replaced by cargo bikes and e-cargo bikes, and approximately 60% of inner city journeys for the company were by bike.

Companies using last mile cycle-logistics in the UK include APC (York), TNT (Cambridge) and several more.

We see roles for **central Government, local authorities, and the private sector** in addressing these barriers, and have made a number of recommendations for actions.

Key to these is an **ambitious proposal for Cargo Bike Demonstration Cities**, where wide-ranging proactive initiatives and trials will help prove the capacity of e-cargo bikes to make a real difference in UK conditions.

These actions have the potential to **multiply use of cargo bikes in the UK** significantly, also fuelling demand and production capacity for **UK-designed and produced high tech e-cargo bikes, trikes and quads**, for which a growing **export market** is also developing.

1.2 Commissioned research

This response will aim to demonstrate the potential of e-cargo bikes for last mile goods delivery (although we also note that **the potential for e-cargo bikes in private use** to substitute cars for the school run or shopping trips is also very significant, and ultimately probably on an even larger scale).

Despite the full collaboration of existing operators through the UK Cycle Logistics Federation, data and research relevant to the question of the potential scale of cargo bike use in the UK is limited.

For this reason the Bicycle Association has commissioned transport consultancy **Transport for Quality of Life** to provide additional, more quantitative analysis of the potential for cargo e-bike use, and as previously advised to the DfT, the results of this work will be available in early October.

CASE STUDY: Deliveroo



Deliveroo, the disruptive restaurant-food delivery enterprise, is currently trialling the Tern GSD cargo bike. Potential advantages include faster e-assisted deliveries, riders better able to take on long shifts, weight carried by bike not rider, and safety benefits from better acceleration to riding speed.

www.tern.com

www.deliveroo.co.uk

1.3 Recommendations summary

We suggest an ambitious **Cargo Bike Demonstration Cities programme**. Within this the separate elements could also be considered for separate implementation if funding constraints make this more appropriate. See Section 4 of this document for notes about how we suggest these recommendations may be **effectively delivered**.

1.3.1 Cargo Bike Demonstration Cities

Support a **multi-year Cargo Bike Demonstration Cities programme** to investigate how e-cargo bike use can support the implementation of Clean Air Zones, in cities such as Leeds, London and Birmingham where CAZ plans are well advanced. Trials should investigate (over three or five years) the potential of e-cargo bikes and micro-consolidation centres to displace truck and van journeys. **We envisage funding in the region of £5-10m might be required to make a significant impact in 2 or 3 cities over 5 years.**

This programme may include the following elements:

- a. **Oversight, monitoring and analysis** of outcomes.
- b. **Funding a micro-depot trial in a major city**
- c. **A programme of active e-cargo bike promotion and demonstration**, to:
 1. Raise awareness among potential service users and start-up operators – perhaps through a programme of demos & displays at trade shows, open events and media campaigns.
 2. Identify e-cargo bike application opportunities

CASE STUDY: KoMoDo, Berlin



Since June 2018, five major parcel delivery companies in Germany have been participating in a year-long micro-depot trial in Berlin. Hermes, DHL, DPD, UPS and GLS all drop truck loads at a depot in the city's Mauerpark constructed of shipping containers. Cargo bike operators then pick up the loads, using the containers as a secure base, and deliver individual parcels to the 800,000 residents who live within a 5 km radius.

The project is supported by funding of around 400,000 Euro from the Federal Environment Ministry's Climate Protection Initiative, while the depot and containers were provided by the City of Berlin.

Photo: Ralf Rühmeier/City of Berlin

3. Reach out to potential users of e-cargo bike services
 4. Offer cargo bike loans, advice on implementation, and 'real life' demonstrations of cargo bike capabilities to replace motorised journeys
 5. Monitor and analyse performance of new operations, and feed back best practice to the wider cargo bike community.
- d. To follow up the outreach and build momentum, a programme of **e-cargo bike purchase subsidies**, modelled on the German national heavy duty cargo bike programme but adapted to suit the UK market, for example to include more two wheel e-cargo designs. See Appendix A for details of the German scheme and proposed modifications. Interest free loans to business could also be considered.
- e. A funded programme of support for mayoral or local authorities to **procure – either directly or by invitation to tender - their own transport needs using e-cargo bikes for their own deliveries** such as inter-office post and parcels, **plus for many services** such as street cleaning, parks maintenance, posting and removal of planning notices, and more.
- f. A funded programme of support for mayoral or local authorities to **make relatively minor adjustments to street layout** or infrastructure to facilitate the use of e-cargo bikes on key routes.
- g. Support **events for key stakeholders** (cycle industry and suppliers, local SMEs, cycle logistics operators, logistics companies, local authorities, postal services, city managers) to share knowledge around e-cargo bike use and last mile deliveries. As a real statement of intent, a city should be chosen to

CASE STUDY: Zedify



“Zedify are a network of zero emission delivery operators with depots in London, Cambridge, Brighton, Norwich, Waltham Forest and Glasgow.

Zedify was founded in 2018 by Rob King of Outspoken Delivery (founded 2005) and Sam Keam of Recharge Cargo. We partnered with ISO accredited technology company Skotkonung to ensure all our deliveries are fully tracked and our clients can login and book deliveries as well as see real time PODs. Our staff are Bikeability trained and paid the real living wage. They love their job and ensure your deliveries are a positive representation of your brand.”

www.zedify.com

host a Conference of the European Cycle Logistics Federation (the principal EU forum for academic research and best practice sharing on cargo bikes).

- h. Ensure that business purchases of e-cargo bikes are explicitly eligible for **enhanced capital allowance** i.e. so that the entire cost of their purchase can be set against profits in the year of purchase.
- i. Develop or support the development of **cycle logistics rider training** qualifications.
- j. Although it stretches a little the definition of 'last mile delivery', consider including in any Demonstration Cities programme incentives to encourage **substitution of car trips for the school run and shopping** through measures to support uptake of privately owned/operated e-cargo bikes for child transport and shopping.
- k. The Demonstration Cities programme managers should consider joining, or collaborating closely with, **the EU-funded CityChangerCargoBike programme**¹. The aims of this programme align closely with what might hope to be achieved in a Demonstration Cities programme, and knowledge transfer from cargo cycle logistics experience in the wider EU would be valuable. The CCCB programme is due to start on the 1st September 2018.

¹ https://cordis.europa.eu/project/rcn/215999_en.html

CASE STUDY: Oxford



“At present Pedal & Post delivers about 10-25% of Yodel’s parcels, about 200 a day, small to medium, into Oxford by 2 wheeled cargo bikes. We are working on larger e-assist cargo trikes to deliver the larger items and deliver 100% of parcels the last mile. We begin testing this October. This would replace 11 vehicles in total used in the last mile of Yodel’s operation at present. There are 10-14 other major national parcel carriers that serve Oxford city centre, each sending 5-10+ vans each. Hermes, TNT, DHL, DX, Amazon, APC, DPD, Whistl, Royal Mail, Parcelforce, UPS, Fedex to name a few. These companies operate cycle logistics operations in Europe and other countries so are open to the idea but there is a lack of uptake in the UK. There is scope to replace all 11 companies mentioned and scope to remove 50-100 vans and their subsequent miles and movements in the city of Oxford.”

www.pedalandpost.co.uk

1.3.2 'Wider context' central Government actions

These actions are needed to deliver lasting change, to support the "Road to Zero" and liveable cities, promoting e-cargo bike use as a natural consequence:

1. Over time, ensure that external costs (emissions, noise, road space, hazard presented to other road users and pedestrians) of all modes of transport are increasingly reflected by policy measures, so that the market for transport solutions is transparent and choice of mode is **properly incentivised**.

This could be achieved through measures including Clean Air Zones (CAZ), congestion charging, time restrictions on HGV movements, restrictions on diesel vehicles, parking/loading space restrictions, etc.

When these costs are borne by the operator, rather than by society as a whole and the environment, e-cargo bikes will be seen as an increasingly vital element of delivering city logistics with maximum efficiency.

In line with many companies and organisations in the logistics sector², we would suggest that a consistent approach to clean air zones and other measures across UK cities would be beneficial, to allow solutions to be developed with wide applicability and economies of scale, and to ensure a level playing field for operators across the country.

² See for example www.fleetnews.co.uk/fleet-management/fleets-urge-local-authorities-for-clean-air-zone-consistency

CASE STUDY: York



Greenlink York use a mix of cargo bikes to deliver over 100 packages per day for courier chains, mainly into York's pedestrianised city centre. In addition, they deliver local newspapers to street vendors, documents between the various local authority offices in the city, as well as providing an on-call service for local businesses who need urgent deliveries in the city (including graphics, legal documents, even barrels of beer...). They have now been operating every working day for almost 20 years, in all weathers including floods and snow.

www.green-link.co.uk

2. When revising the “Government Buying Standards for transport” procurement guidelines³ for 2018, ensure that LEVs such as e-cargo bikes are **specifically cited** as an option.
3. Develop guidelines for **city planning** which require micro-depots and e-cargo bike friendly infrastructure to be built in to any new developments, and considered in major development transport plans.
4. Support and implement the key “asks” of the **Cycling and Walking Alliance** (made up of all of the main cycling and walking organisations in the UK) to enable more people to cycle more often. The resulting improvements to the road environment will also enable efficient applications of e-cargo bikes. Specifically:
 - **SPEED**: Implement and enforce 20 mph zones for most roads in built up areas
 - **SPACE**: Adopt and ensure consistent application of existing ‘best-in-class’ infrastructure design standards. High quality cycle lanes of adequate width suitable for peak commuter cyclist flows will also be also suitable for e-cargo bike use.
 - **PRIORITY**: Prohibit pavement parking to create safer and more accessible streets.
 - **CULTURE**: Provide cycle training for all children during their primary and secondary school years and embed a culture of walking and cycling throughout the school curriculum.

³ <https://www.gov.uk/government/publications/sustainable-procurement-the-gbs-for-transport-vehicles/government-buying-standards-for-transport-2017>

2 Opening remarks

2.1 *The big vision*

We believe that cargo bikes and micro-vehicles have the potential, if supported by sustained investment in a changed city environment, and combined with other LEVs, public transport and facilitation of active travel, significantly to remove the need for van-size and larger vehicles to enter residential and dense urban areas, except perhaps for exceptional circumstances such as major construction projects.

Such a reconfiguration of the transport environment would address issues of congestion, air quality and vehicle noise pollution, and reduce the subjective feeling of danger from road traffic which would otherwise be imposed on people in these areas by delivery vehicles. Active travel for shorter journeys would become a more attractive option for personal mobility. City centre pedestrianisation would be enabled to an extent more widespread than is currently possible.

The necessary flows of goods would be guaranteed by a model of micro-depots for local distribution supplied principally from the motorway and trunk road network – or increasingly, where possible, by rail, and – in certain towns and cities – by waterborne transport. “On demand” cargo bike or micro vehicle services would address remaining vehicle-based journeys. Remaining heavy goods vehicle movements could be restricted to non-busy times, and electrified as quickly as possible to reduce noise and emissions impacts.

This is of course a longer-term prospect, but one which is completely in line with the growing awareness of the need for ‘liveable cities’, and an appetite for visionary, forward-thinking solutions for a new generation. And **measures can be taken now** to work towards this end-point.

Already, the pressing need to address poor air quality and growing vehicle emissions are leading to road closures, clean air zones and even combustion engine bans across the UK and Europe. Our competitor countries are developing zero emission alternatives fast: the UK cannot be left behind.

So there is a clear requirement to build up a modernised last mile capability that includes e-cargo bikes, micro vehicles and the supporting infrastructure to deliver all of the goods and many of the services that are part of a flourishing economy in the 21st century.

If the Government can clearly indicate, in their response to this Call for Evidence, a clear statement of intent for policy support for this type of vision, **our UK e-bike and e-cargo bike suppliers will have even greater confidence as they develop innovative new technologies** for the future of cycle logistics. With demand growing swiftly across Europe, there will also be excellent **export opportunities** for UK-produced cargo bikes.

2.2 Market solutions

Having set out a vision of how e-cargo bike deployment can help deliver sustainable, thriving liveable cities, we do not believe that it is effective for Government to micro-manage this transition. Rather, we see the role of Government as three-fold:

1. To undertake substantial trials, in the form of multi-year **Cargo Bike Demonstration Cities** to intensively research the potential of larger-scale e-cargo bike and micro-depot use.
2. To **foster the currently small, start-up UK cargo bike industry** with active interventions to encourage cargo bike and micro vehicle operators to set up and serve 'low hanging fruit' applications in urban areas, helping to develop the sector and build capacity;

CASE STUDY: Greenwich



Traditional butcher Drings in Greenwich, London, is currently undertaking a six-month trial in collaboration with the Royal Borough of Greenwich, Sustrans London and Imperial College. Four of his butchers have been trained up to ride a cargo bike to make local deliveries, instead of using the Drings van. Imperial College will monitor emissions implications.

The Royal Borough of Greenwich financed the pilot scheme through the Mayor of London's Air Quality Fund and it is one of a number of cleaner air initiatives in Royal Greenwich's Low Emissions Neighbourhood.

<https://www.sustrans.org.uk/our-services/case-studies/london-butcher-chooses-e-bike-power>

Photo: Sustrans London

3. To set a UK-wide economic framework for urban transport which fully (over time) **internalises the costs of emissions, noise, congestion and road danger**. As the costs of using large vehicles with high emissions in urban areas are imposed directly on the operators, instead of on society as a whole and on the environment, transport operators across all sectors will respond dynamically, shifting to fewer, time-limited movements of large HGVs, and with final mile delivery increasingly through cargo bikes and micro vehicles.

With low or zero emissions and very low impact on congestion and near-zero emissions, these low-impact vehicles will become increasingly attractive to operators needing to minimise external costs for the last mile.

The same framework will incentivise SMEs and other non-cargo businesses to switch ever more of their transport needs to e-cargo bike or other low impact modes.

CASE STUDY: Hereford



Hereford PediCargo collect business waste for recycling on a weekly or ad hoc basis. They use cargo trikes to gather the city's paper, cardboard and plastic and then shred, compact and sent it for recycling, adding up to a total, they say, of 1000s of tons a year saved from landfill.

Among the other services they provide are last mile delivery and first mile collection for logistics chains, local post and same day deliveries.

www.herefordpedicabs.com

CASE STUDY: Eskuta



Eskuta (www.eskuta.com) is a Bicycle Association member company providing e-cargo bikes which are styled to resemble petrol scooters or mopeds. They are however fully legally compliant with the EAPC (e-bike) regulations (riders must pedal to gain electric assist) so they can be ridden essentially as bicycles. As of mid 2018, these machines retail at around £1440 inc. VAT.

Last year Eskuta supplied over 500 of these bikes, almost entirely to restaurants for delivery of food to customers. They are the sole e-bike supplier to a major pizza chain (Dominos), and also have a partnership agreement with “Just Eat”, an app-based ordering platform for takeaway food.

In the restaurants where they are used, Eskuta’s customers typically replace about half of their two-wheeled delivery fleet with the Eskuta e-cargo bikes. These are used for deliveries in around a 3 mile radius from the shop or kitchen. Deliveries up to 5 miles away are handled by mopeds, and for further afield cars are used (anecdotally, often without proper business insurance...)

Some customers in smaller towns **have entirely replaced their petrol moped delivery fleets with e-bikes**. In some quiet towns, restaurants trying to make deliveries have faced a ban on late night noise pollution, essentially ruling out mopeds.

As well as the silence, there are major benefits to operators to using e-cargo bikes where they can.

- There is a very significant direct cost saving, both for purchase/lease and maintenance, which is carried out through partnerships with local bike shops and by mobile cycle mechanics in the “Cycle Tech” network.
- There is a major fuel saving
- There is a major saving on insurance
- E-cargo bikes can be stored overnight inside restaurant premises, unlike petrol mopeds
- Recruitment is far easier and open to many more in the jobs market: delivery riders do not need CBT. They must only be over 16 and undergo in-house training. One customer reported advertising for CBT-qualified riders and receiving 2 applications; they received 80 when advertising e-cargo bike rider vacancies.

The scale of the opportunity is illustrated by the numbers of restaurants involved. There are around 1,000 Dominos stores in the UK, and in the region of 30,000 Just Eat partners. Eskuta estimates that at least 50% of these are likely targets for e-cargo bike uptake, with multiple bikes per branch.

Just Eat also has international ambitions: there is potential to export Eskuta bikes to the vast numbers of restaurants in the EU and North America, the Middle East and Africa...

2.3 The scale of the opportunity

Currently, the scale of e-cargo bike deployment for last mile purposes in the UK is small, consisting mainly of innovative micro-businesses along with some larger companies operating trials.

Looking at the opportunity from the other end, the scale of HGV and van traffic currently entering cities for goods delivery is significant – estimates vary, but as a national average 10% of all vehicles and 15% of all traffic miles are thought to be vans. This puts an upper limit on the level of cargo bike penetration, unless more structural aspects of the transport system are addressed (e.g. through widespread implementation of pedestrianised zones).

In the shorter term, we can identify several applications where, with modest incentives, e-cargo bikes can already make a significant difference. At present, these tasks may be served with e-cargo bikes in just a handful of our cities. But they can, and should, be rolled out. These areas include:

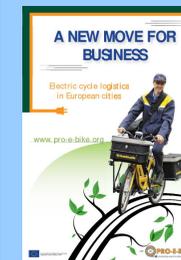
- “Last mile” for logistics chains, with or without micro depots.
- Internal deliveries between local authority buildings or locations. Personnel movements around local territories
e.g. housing officers, maintenance staff, carers, coin collections from car parks, etc.
- Food delivery (restaurant to consumer, lunches to business, supermarket online shopping). *See the Eskuta case study (page 13) for an example of how around half of the whole UK fleet of noisy, high-emissions mopeds and motor scooters used for restaurant deliveries can be replaced by e-cargo bikes.*

THE EU RESEARCH BASE

The EU has supported several multi-million Euro programmes of research into cargo bike potential and promotion:



City Logistics: Light and Electric – published Sept. 2018 by Amsterdam University of Applied Sciences. Report after a two-year research project on light electric vehicles including e-cargo bikes. **Key finding: that LEFVs could replace 10-15% of delivery vehicle movements.**
<http://www.citylogistics.info>



Pro E-Bike: a new move for business – published 2016. Report after e-bikes, e- cargo bikes and e-scooters were tested in 40 companies in 7 EU countries. **Key outcome: nine recommendations for successful implementation.**
<http://www.pro-e-bike.org/>



CycleLogistics (2011-2014) and CycleLogistics Ahead (2014-2017) – Major two phase EU programme to raise awareness about and increase use of cargo bikes. Developed practical guidance for cargo bike start-ups. **Key finding: that up to 77% of private shopping trips, up to 50% of service trips and up to 25% of delivery trips, could be completed by cargo bikes.**
<http://cyclelogistics.eu/>

- Trades: window cleaner, plumber, decorator, electrician, gardener, pet groomers, mobile hairdressers, care workers, peripatetic music teachers.
Typical tools/materials payloads are easily 'in scope' for e-cargo bikes; they will be a real cost-saving option instead of or alongside vans for those needing to serve a limited geographical territory. Or, use a van to edge of town, where you're met by an e-cargo bike you've summoned by app, to take you and your tools to streets where no vans are allowed.
- Local B2C deliveries: butchers, bakers, florists
Volume and weights, and usual delivery distances, are easily in scope for e-cargo bikes and (per the Eskuta example) savings for operators (and in emissions, noise, etc) can be considerable.
- Local B2B deliveries not already in general parcel traffic: food, autoparts, parts for tradespeople, prescription medicines
Need a part on a job? Call the plumbing or electrical supplier, and an e-bike drops it off with you in minutes, instead of a there-and-back drive in a van... and many auto parts chains also have vans making journeys easily done by bike.
- Household waste recycling; business recycling e.g. toner cartridges etc.
In the pedestrianised city centre of York, all household waste kerbside recycling is handled by cargo trikes and electric vehicles operated by the St Nicks environmental charity, based just outside the pedestrianised zone. There is no obvious reason that this can't be replicated UK-wide to displace waste collection truck trips in every pedestrianised and historic centre.
- On-demand transport of people (rickshaw taxi service).
Although usually seen as a 'nightlife' option, passenger carrying e-cargo bikes can also serve as on-demand, low-impact personal transport for car-free zones. New designs are safer and more attractive than ever.

CITYCHANGERCARGOBIKE



The approx 4m Euro **CityChangerCargoBike** (CCCB) programme, part of the Horizon 2020 initiative and successor to the **CycleLogistics** projects described above, aims from Sept 2018 to “increase and accelerate take-up” of cycle logistics via cargo and e-cargo bikes. “CCCB will take the very best cargo bike implementation examples, contexts and expertise in Europe and profit and learn from them in order to transfer these on a large scale and in the best way possible to new cities and contexts - in CCCB's forerunner cities, in the follower cities and beyond.”

In the UK, Cambridgeshire County Council (a ‘pioneer city’) and the European Cycle Logistics Federation (a project partner, administratively based in Hyde, Manchester) are current participants. CCCB is co-ordinated by an Austrian organisation.

https://cordis.europa.eu/project/rcn/215999_en.html

In many of these sectors, there are examples, trials and case studies which suggest the potential for considerable expansion, as you will see throughout this report.

We would also re-iterate that the scope of cargo bikes is not limited to last mile goods delivery for logistics chains. Indeed, although their projections may be optimistic for UK conditions, CycleLogistics found that Europe-wide major contributions can also be made in service journeys and personal shopping journeys:



25%
of deliveries
(goods transport,
Postal Services, etc.)



50%
of service trips (street
cleaning, plumber,
carpenter, etc.)



77%
of all shopping trips
(supermarkets, etc.)



In addition, child-carrying for 'school run' journeys is currently the main market for cargo bikes in the UK. Any cargo bikes used for the school run take cars off the road at the critical congestion peak periods.

CASE STUDY: Les Boites à Vélo



Based in Nantes, France, the “Les Boites à Vélo” is a collective of cargo bike entrepreneurs who provide each other mutual support, encouragement, and help promote cargo bike use. Their members include electricians, plumbers, painters, mobile cycle repairers, sewing machine repairers, food vendors and delivery services, organic waste collection, mobile yoga and massage, mobile computer assistance, mobile hairdressing, an event signage and staging company plus of course several delivery and last mile type services, all using cargo and e-cargo bikes.

Between them, these enterprises demonstrate a wide scope of applications across the services, food and delivery sectors.

This collaborative model has since been repeated in Grenoble and Paris.

www.lesboitesavelo.com

3 E-cargo bike barriers – and solutions

Although there are a number of UK operators now in several UK cities, most are still small or micro businesses, often with employee counts in single figures. Examples such as the operators in York, Manchester and Cambridge, who have all been in business for many years, show that these businesses can be sustainable, but only perhaps within the niches they have identified and often with their 'last mile' activity complemented by also undertaking other bike-related work, such as cycle training services, bike events, bike repairs, cargo bike sales and hire, etc.

3.1 Barriers for micro-depots

Micro-depots or consolidation hubs require premises accessible by truck (for supply from the originating depot) and within 3-5km of the dense delivery area to be served by e-cargo bikes. Land tends to be in high demand and premises expensive at this distance from city centres. Shipping containers can be used to improvise on what might be otherwise disused or unusable land, but in general it may be hard for a single operator or logistics chain to afford the rental overheads.

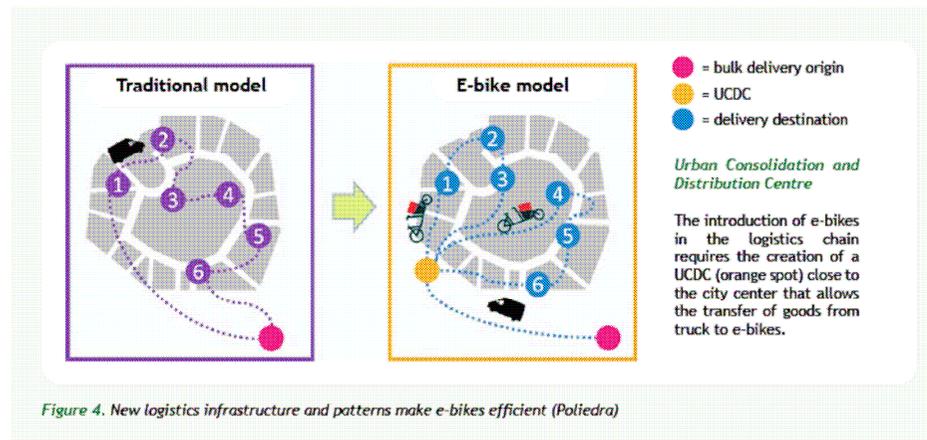
There is a powerful case⁴ for consolidation depots (certainly at the pilot stage) to be provided and managed by cities, for use by a number of logistics chains and last-mile service providers, the so-called "Open Terminals" concept.

Finally, efficient use of micro-depots depends on the logistics operators embracing the concept and making 'upstream' investments in modifying their IT systems, working practices

⁴ Well explained at: <http://velove.se/next-step-in-city-logistics-open-terminals/>

etc. to implement the concept. Every effort should be made to ensure ‘buy in’ from all key stakeholders.

How this barrier should be addressed: Initially, by UK trials conducted as part of the “Cargo Bike Demonstration Cities” programme (see Recommendations), with space for micro-depots or ‘open terminals’ provided by the host cities. For roll-out, by implementing a micro-depot infrastructure UK-wide over time through city planning processes (short, medium and long term).



Urban Consolidation and Distribution Centre concept, from Pro E-Bike report, page 15

3.2 Barriers for SMEs, tradespeople etc.

There are a number of barriers for SMEs, traders and businesses in general who currently use vans for transport, and perhaps might be able to substitute e-cargo bikes. These include:

- It's a risk: they know vans work, but for e-cargo bikes there will usually not be a wide group of peers using them successfully to provide reassurance. This means...
- At first, it'll typically be an addition not a substitution. Traders will want to keep their van capacity until they are sure the alternative will be effective and save money. So it can be seen as an additional cost up front.
- Inertia and peer pressure: it takes a certain boldness to be an early adopter.
- Uncertainty: the economics of e-cargo bikes depend (as described earlier) on the cost structure for transport, and how externalities e.g. emission costs are passed back to the operator. If these are seen as uncertain or liable to change, a stable need for an e-cargo bike may not be apparent.
- Info: there is currently no obvious source of advice, guidance and encouragement for any SME contemplating cargo bike use.
- Training: training for cargo bike riders is offered by some providers already, but there is no cargo-bike specific national syllabus, accreditation or qualification.

How this barrier should be addressed: By active outreach, with awareness raising initiatives, plus advisors with loan bikes to go to SME and tradespeople, identify opportunities, offer demonstrations and guide full implementation of e-cargo bike services. Plus, develop a cargo bike rider training qualification.

CASE STUDY: Quicab & Armadillo

This stylish two-seater taxi module has been developed by Quicab for the Armadillo e-cargo quadricycle, with production due to start later this year. The Armadillo is also used by DHL for their 'last mile' deliveries, where they know it as the 'Cubicycle'.

An Armadillo e-cargo bike alone costs approaching 10,000 Euro. It is clear that purchase cost is a significant barrier for SMEs investigating the use of high-capacity modern e-cargo bikes such as this.



www.quicab.se

www.velove.se/armadillo

3.3 Cost & availability barriers

The purchase cost of commercially applicable electric cargo bikes is substantial in comparison to 'normal' electric bikes intended for consumer use. Not only are the technical demands on these machines very much greater, but they are also produced in far smaller numbers, so few makers can take advantage of economies of scale.

Furthermore, all of the current cargo bike suppliers, in the UK and across Europe, are investing heavily in research and development. Cargo bike design is very far from being a mature market, and there are still opportunities for innovators, in the UK and elsewhere, to enter the market with increasingly sophisticated designs.

Two wheeled e-cargo bikes are typically more affordable than three or four wheelers, but of course their capacity, both in weight and volume, is lower. The table, right, provides some general indications of the types and capacities available, and typical costs.

How this barrier should be addressed: by a direct subsidy for business purchases, to level the playing field with e-vans (subsidised by OLEV) as our future logistics systems take shape. Another possibility, perhaps less attractive to users, might be an interest free loan of the type now offered in Scotland⁵.

3.4 Infrastructure barriers to efficient cargobike use

In dense cities, cycle facilities are often sub-optimal in capacity and width, and cycle traffic may need to navigate flexibly past stationary traffic. For this reason two-wheeled cargo bikes are often employed.

⁵ <http://www.energysavingtrust.org.uk/scotland/grants-loans/ebike-business-loan>

TYPES OF E-CARGOBIKE



Lightweight: Two-wheelers with generally 'normal' bike layout, but with extra carrying capacity at front, rear or both. Examples: Tern GSD, Bicicpace, Yuba, many post office bikes. Cost for models capable of commercial use: approx £2000-£4000



Medium: Two wheelers with large load beds front or back. Examples: Bullitt, Urban Arrow, 8 Freight, MCS Truck. Cost for models capable of commercial use: approx £3000-£5000



Heavy: Usually tricycles, with large load beds usually behind the rider. Examples: Cycles Maximus, Icen Cargo, Radkutsche, Armadillo. All for commercial use, cost approx £5000-£10,000

However, three or four wheeled e-cargo bikes offer substantially greater capacity and hence efficiency – fewer journeys back to the depot being required to re-supply. But in most cases these vehicles are wider, and may be blocked by too-narrow cycle lanes, unfortunately placed bollards, or even the lack of a suitable dropped kerb.

Often, the modifications to street infrastructure to remove these obstacles will be minor.

In other cases, more widespread re-modelling may be needed. Ideally, of course, national mandatory minimum design standards for cycle lanes would ensure consistent width and usability for all cycles including e-cargo bikes, as well as cycles for disabled riders and for carrying children.

How this barrier should be addressed: Through funded support for local authorities to make minor infrastructure changes to unlock their cities' full cargo bike potential.



Cycle paths too narrow in Oxford. Photo: Pedal & Post.

CASE STUDY: York



“St Nicks has provided an eco-friendly kerbside recycling scheme for York since 2001. We currently collect recyclable materials from more than 2,500 households and businesses in the city centre. Our unique, low carbon emission service uses an electric vehicle and load bearing tricycles to collect and sort recycling at the kerbside. This enables us to collect high quality recyclable materials and make the recycling process as efficient as possible. The household collection service is funded through a service agreement with the City of York Council.”

<https://stnicks.org.uk/make-a-difference/our-recycling-service/>

4 Delivering our recommendations

4.1 *Cargo Bike Demonstration Cities*

In our recommendations, we suggested that this programme may include the following key elements:

- a. **Oversight, monitoring and analysis** of outcomes.
- b. **A micro-depot trial** in a major city.
- c. A programme of **active e-cargo bike promotion and demonstration**
- d. A programme of **cargo bike purchase subsidies**
- e. A programme of support for mayoral or local authorities to **procure their own transport needs using e-cargo bikes**
- f. A programme of support for mayoral or local authorities to **make relatively minor adjustments to street layout**.
- g. **Events for key stakeholders** and support to host a **Conference of the European Cycle Logistics Federation**.
- h. Develop or support the development of **cycle logistics rider training** qualifications.

Clearly a programme of this magnitude will need to be carefully developed and managed, and teams with relevant expertise brought in to manage the different aspects. **The Bicycle Association is ready to co-ordinate this work** together with partner organisations, companies and academics.

4.2 *Delivery partners*

The Bicycle Association is uniquely placed to co-ordinate delivery of this programme

- Representing the UK industry, our member companies are well placed to **deliver high tech cargo bikes** to support this programme – and to export UK cargo bike innovations to Europe and beyond.
- The Bicycle Association’s key staff, **Phillip Darnton** and **Steve Garidis**, were central to the previous successful delivery of the Cycling Demonstration Cities programme for Cycling England. The BA is **a safe pair of hands**.
- The Bicycle Association’s **Peter Eland** has been involved in the cargo bike sector for over 20 years, and has extensive expertise and contacts in the field.
- The BA works closely with transport consultancy **Transport for Quality of Life** who would be well placed to undertake monitoring and data analysis aspects.
- We work closely with the **UK Cycle Logistics Federation**, who represent many of the UK operators, and its Director, **Richard Armstrong**, who also heads the European Cycle Logistics Federation.
- Together, the Bicycle Association and UK Cycle Logistics Federation can assemble **a team of experienced e-cargo bike ambassadors** drawn from operators across the UK. This team would be uniquely qualified to actively drive UK e-cargo bike adoption.

5 The consultation questions

1. What is the potential scale of the opportunity here? How big a role could e-cargo bikes, micro-vehicles and e-vans play in reducing congestion and pollution in our towns and cities?

Estimates of the potential of e-cargo bikes and other light electric vehicles to displace van and HGV traffic vary, with the most recent research⁶ suggesting that 10-15% of delivery journeys could be replaced. However other research⁷ suggests that in addition, up to 50% of 'service' journeys (tradespeople, carers, maintenance, etc.) and 77% of private shopping trips could also be displaced.

Note: The Bicycle Association has commissioned transport consultancy *Transport for Quality of Life* to provide additional, more quantitative and UK-specific analysis of the potential for cargo e-bike use, and as previously advised to the DfT, the results of this work will be available in early October.

The extent to which these numbers are realisable depends to a large extent on how the city environment adapts to encourage active travel modes, and to the extent that external costs of emissions, noise, road space use, parking and road danger are internalised to provide proper market incentives for clean, compact and healthy transport.

⁶ City Logistics: Light and Electric – published Sept. 2018 by Amsterdam University of Applied Sciences

⁷ CycleLogistics Final Publishable Report, 2017 www.cyclelogistics.eu

In the medium/longer term, market operators will adapt dynamically to operational pricing changes and naturally increase their use of the most efficient modes in urban areas – LEVs including e-cargo bikes.

In the shorter term, we can identify several niches where, with modest incentives, e-cargo bikes can already make a significant difference for the **transport of goods** and the **delivery of services**. At present, these niches may be served with e-cargo bikes in just a handful of our cities. But they can, and should, be rolled out. These areas include:

- **“Last mile”** for logistics chains, with or without micro depots.
- **Internal deliveries** between local authority buildings or locations. Personnel movements around local territories
e.g. housing officers, maintenance staff, carers, coin collections from car parks, etc.
- **Food delivery** (restaurant to consumer, lunches to business, supermarket online shopping). *See the Eskuta case study (page 13) for an example of how around half of the whole UK fleet of noisy, high-emissions mopeds and motor scooters used for restaurant deliveries can be replaced by e-cargo bikes.*
- **Trades:** window cleaner, plumber, decorator, electrician, gardener, pet groomers, mobile hairdressers, care workers, peripatetic music teachers.
Typical tools/materials payloads are easily ‘in scope’ for e-cargo bikes; they will be a real cost-saving option instead of or alongside vans for those needing to serve a limited geographical territory. Or, use a van to edge of town, where you’re met by an e-cargo bike you’ve summoned by app, to take you and your tools to streets where no vans are allowed.
- **Local B2C deliveries:** butchers, bakers, florists
Volume and weights, and usual delivery distances, are easily in scope for e-cargo

bikes and (per the Eskuta example) savings for operators (and in emissions, noise, etc) can be considerable.

- **Local B2B deliveries** not already in general parcel traffic: food, autoparts, parts for tradespeople, prescription medicines
Need a part on a job? Call the plumbing or electrical supplier, and an e-bike drops it off with you in minutes, instead of a there-and-back drive in a van... and many auto parts chains also have vans making journeys easily done by bike.
- **Household waste recycling; business recycling** e.g. toner cartridges etc.
In the pedestrianised city centre of York, all household waste kerbside recycling is handled by cargo trikes and electric vehicles operated by the St Nicks environmental charity, based just outside the pedestrianised zone. There is no obvious reason that this can't be replicated UK-wide to displace waste collection truck trips in every pedestrianised and historic centre.
- **On-demand transport of people** (taxi service).
Although usually seen as a 'nightlife' option, passenger carrying e-cargo bikes can also serve as on-demand, low-impact personal transport for car-free zones. New designs are safer and more attractive than ever.

Also, we note that there is potentially very significant scope (CycleLogistics estimates up to 77%) for cargo bikes to replace cars for **private shopping trips**. There is anecdotal evidence from UK e-cargo and cargo bike suppliers that sales to private users considerably exceed sales for business use. Another popular application in private use is to replace a second car for **the school run**: taking away emissions and congestion at peak periods and usually in critical air quality areas around schools.

2. What would the environmental, economic and congestion benefits be? What impact would it have on jobs?

We hope to be able to present further qualitative details to this question via **the Transport for Quality of Life report** which the Bicycle Association has commissioned, due early October.

3. What other barriers need to be considered? Can these be overcome without Government support or intervention?

We believe the main barriers are:

- For logistics companies
 - **Micro-depots:** cost of obtaining premises in suitable locations for trials. Need for multiple operators to cooperate to obtain economies of scale. As in Berlin's KoMoDo trial (cost: 400,000 Euro for a one year project) , government support is needed to **prove the concept in demonstration cities.**
- For SMEs and potential start-ups:
 - **No access to loan bikes and expertise** to prove the possibility of using cargo bikes. Solution: "Cargo Bike Ambassadors" to proactively reach out with loan bikes, as well as offering advice to potential new service buyers or operators.

- **The cost of purchase.** Government could provide a purchase subsidy (or perhaps interest free loans) to businesses and other organisations to offset the purchase cost – see below.
 - **Problems with the road infrastructure.** Government could enforce restrictions on pavement parking and obstruction of cycle lanes. Government could also offer ringfenced funding to local authorities for minor road infrastructure changes to facilitate cargo bike use e.g. bollard removal or relocation, drop kerbs etc. in response to operator requests.
- For local authorities:
 - **Little procurement support or guidance.** Government could seek out and attempt to spread best practice in rolling out cargo bike services procurement, and also provide a funded programme to support cargo bike adoption for delivery of services to and for councils and other public bodies.

4. What can we learn from the experiences of other countries in this area?

There are three key European reports available which reflect intensive work at EU level over the last 7 years. A new programme, CityChangerCargoBike, funded with 4m Euro as part of the Horizon 2020 initiative, has also just started to 'kick start' cargo bike uptake.

- **City Logistics: Light and Electric** – published Sept. 2018 by Amsterdam University of Applied Sciences. Report after a two-year research project on light electric vehicles including e-cargo bikes. **Key finding: that LEFVs could replace 10-15% of delivery vehicle movements.** <http://www.citylogistics.info>
- **Pro E-Bike: a new move for business** – published 2016. Report after e-bikes, e-cargo bikes and e- scooters were tested in 40 companies in 7 EU countries. **Key outcome: nine recommendations for successful implementation.** <http://www.pro-e-bike.org/>
- **CycleLogistics (2011-2014) and CycleLogistics Ahead (2014-2017)** – Major two phase EU programme to raise awareness about and increase use of cargo bikes. Developed practical guidance for cargo bike start-ups. **Key finding: that up to 77% of private shopping trips, up to 50% of service trips and up to 25% of delivery trips, could be completed by cargo bikes.** <http://cyclelogistics.eu/>

Across Europe there are now also a large number of cargo bike subsidy schemes. A full list of those available in German on the [cargobike.jetzt](http://www.cargobike.jetzt/kaufpraemien/) blog⁸ while we are also aware of additional schemes in Paris, France⁹; Oslo, Norway¹⁰ and Sweden¹¹. We propose using the German federal scheme as a model for a UK subsidy programme (see Appendix A)

⁸ <https://www.cargobike.jetzt/kaufpraemien/>

⁹ <https://cyclingindustry.news/paris-to-subsidise-electric-and-cargo-bike-purchases-by-up-to-e600/>

5. What are the opportunities for e-cargobikes for delivery organisations, manufacturers and retailers; for companies which maintain and service bicycles and for other, e.g. training, organisations?

For delivery organisations: opportunity to lower costs and make more efficient deliveries in crowded cities. Fewer trips for vans into traffic-jammed cities means more efficiency elsewhere in the network. Fewer difficulties with parking, fines, complaints. Better delivery on time as cargo bikes less susceptible to congestion. Much easier to meet time-limited (before 9AM, 11AM etc.) delivery slots when congestion is worst – use bikes instead.

For manufacturers: UK suppliers are currently mostly serving the family market when it comes to cargo bikes, but capacity can be scaled up quickly as soon as demand is demonstrated. The UK has two relatively small-scale manufacturers of cargo bikes, Cycles Maximus and Icenii Cycles, but it is expected new entrants to the market will appear as the market scales up. There will also be opportunities for UK cargo bike makers to export to the fast-growing mainland European market.

For retailers: deliveries may be more punctual with cargo bikes handling the last mile, and the retail and parking environment will be less disturbed by delivery vehicles. Many retailers supplying locally may also be able to replace their van with a cargo bike.

For servicing and maintenance companies: At their current state of development cargo bikes require quite intensive maintenance, so cycle technician jobs will certainly be created as cycle logistics expand. For fleet users there will be opportunities for SME or start-up servicing companies to provide maintenance services to larger operators.

¹⁰ https://www.citylab.com/transportation/2017/01/oslo-norway-city-grant-for-electric-cargo-bikes/515100/?utm_source=SFTwitter

¹¹ <https://electricbikereport.com/electric-bike-grant-gets-great-response-from-swedish-public/>

For training organisations: we recommend the Government support development of a national cargo bike rider qualification; clearly there would be opportunities to deliver courses.

For consumers/recipients: Shorter time slots should be possible as cargo bike timings are more predictable (less affected by local congestion) and no local truck noise, emissions or obstruction during delivery.

For other road users: Fewer delivery vans on the road meaning reduced congestion for all.

For local residents: Quieter streets, better air quality, no delivery van parking issues.

For delivery employees: Healthy exercise, reduced stress.

6. Further to Q3 (page 11), what form of financial support, if any, is required to make e-cargobikes commercially viable, or to increase speed of uptake? Should this take the form of e.g. positive incentives or tax relief?

We propose a programme of support consisting of the following main elements, perhaps targeted at Demonstration Cities where concern for air quality is severe:

- a. **Oversight, monitoring and analysis** of programme outcomes.
- b. **Funding of a micro-depot trial** analogous to the Berlin KoMoDo study, in one of the UK's major cities.
- c. **A programme of active e-cargo bike promotion and demonstration**, to:
 1. Raise awareness

2. Identify e-cargo bike application opportunities
 3. Reach out to potential users of e-cargo bike services
 4. Offer cargo bike loans, advice on implementation, and 'real life' demonstrations of cargo bike capabilities to replace motorised journeys
 5. 'Hand off' of operations to local operators who would purchase, maintain and operate the e-cargo bike services.
- d. A programme of **e-cargo bike purchase subsidies**, modelled on the German national heavy duty cargo bike programme but adapted to suit the UK market, for example to include more two wheel e-cargo designs. See Appendix A for details of the German scheme and our proposed modifications.
- e. A funded programme of support for mayoral or local authorities to **procure – either directly or by invitation to tender - their own transport needs using e-cargo bikes for their own deliveries** such as inter-office post and parcels, **plus for many services** such as street cleaning, parks maintenance, posting and removal of planning notices, and more.
- f. A funded programme of support for mayoral or local authorities to **make relatively minor adjustments to street layout** or infrastructure to facilitate the use of e-cargo bikes on key routes.
- g. Support **events for key stakeholders** (cycle industry and suppliers, local SMEs, cycle logistics operators, logistics companies, local authorities, postal services, city managers) to share knowledge around e-cargo bike use and last mile deliveries. As a real statement of intent, a city should be chosen to **host a**

Conference of the European Cycle Logistics Federation (the principal EU forum for academic research and best practice sharing on cargo bikes).

- h. Ensure that business purchases of e-cargo bikes are explicitly eligible for **enhanced capital allowance** i.e. so that the entire cost of their purchase can be set against profits in the year of purchase.
- i. Develop or support the development of **cycle logistics rider training** qualifications.
- j. Although it stretches a little the definition of 'last mile delivery', consider including in any Demonstration Cities programme incentives to encourage **substitution of car trips for the school run and shopping** through measures to support uptake of privately owned/operated e-cargo bikes for child transport and shopping.

The Demonstration Cities programme managers should consider joining, or collaborating closely with, **the EU-funded CityChangerCargoBike programme**¹². The aims of this programme align closely with what might hope to be achieved in a Demonstration Cities programme, and knowledge transfer from cargo cycle logistics experience in the wider EU would be valuable. The CCCB programme is due to start on the 1st September 2018.

¹² https://cordis.europa.eu/project/rcn/215999_en.html

7. If financial incentives for businesses were introduced to increase the uptake of e-cargobikes a clear definition of e-cargobikes would be required, including load capacity and weight (under 250W; see Figure 2 as per EAPC Regulations). How could this operate in practice?

We suggest basing any subsidy element of a UK support programme on the federal German subsidy initiative, which contains quite precise definitions for payload and cargo volume, with some adaptations for the UK to encourage use of two-wheeled cargo bikes. See Appendix A of this response for full details.

8. As e-cargobikes are bicycles and do not need to be registered by the DVLA we would welcome your views regarding how purchases of e-bikes could be verified in order to qualify for financial support. How could this work in practice?

As in the German scheme, applications would need to be accompanied by brochures or links to manufacturer's specification which clearly shows the maximum permissible weights and volumes.

9. What legal changes – regulatory or deregulatory – would support the increased use of e-cargo bikes e.g. licensing, parking and insurance of bikes and riders? Should these be national or local? Would the current electrically assisted pedal cycle regulations be sufficient?

We consider that the current EAPC regulations are sufficient. While the limits on power do restrict the use of heavy e-cargo bikes in some hilly areas, we believe that raising the permissible power, or speed, of EAPCs would potentially call into question their current status of being treated, in the main, as bicycles in road traffic law. So we do not recommend any changes at this stage.

As it is, the current regulations are well understood, and act as a natural limit to the speed and acceleration available to e-cargo bikes. This means they continue to pose very low risk to other road users despite their increased mass when loaded.

It is important to note that it is the freedom of EAPCs from type approval, registration, driver qualification etc. which is key to their economic appeal and low cost for city logistics. Their status as “not motor vehicles” is also key to their greater flexibility kerbside during deliveries. Operators accept that limitations on power and speed are the quid pro quo for this status.

10. What emerging technologies can support the deployment of e-bikes e.g. batteries, regenerative energy storage, route mapping, electric trailers?

The cycle industry is innovating fast in e-cargo bikes. Designs are still evolving, in parallel with the ongoing development of electric bike drive systems. Technologies to watch include:

- **Connected/smart cycling** (which links geo-located riders to the internet and potentially with other road users and vehicles). Future e-bike systems are likely to build this functionality into the bike, where it is powered by the main battery. Currently, rider tracking for example often relies on the riders' smartphone, which may need frequent re-charging. The data gathered can be used, for example, to optimise delivery schedules, identify routes heavily used by cargo bike traffic, or to route riders away from air pollution hot-spots.
- **Regenerative energy storage** has not been widely applied on EAPCs: it is only easily implemented with 'direct drive' hub motors, a design which has become less popular recently on e-cargo bikes. With the more popular mid motor designs it is not usually practical. Range issues are more easily addressed by either carrying or swapping in a freshly charged battery. That said, there is perhaps scope for further research and perhaps an innovative design to capture energy that would otherwise be lost when braking or going downhill.
- **Universal (vendor independent) battery charging systems.** This is being actively worked on in the industry as part of the development of ISO 4210 Part 10. Interchangeable battery charging, with a single connector, would be especially helpful for operators with mixed fleets of vehicles all using different battery types. The Bicycle Association helps fund UK participation in this work at ISO. There are also ongoing efforts at EU level to standardise LEV charging.

11. If e-cargo bikes are to be widely taken up, what infrastructure changes would be required to change the way goods are currently distributed, which is at present often from large, out-of-town warehouses e.g. changes to roads, parking, loading zones, hubs, cycle lane design?

As our opening remarks make clear, if take-up of cargo bikes is to be seriously supported, widespread changes to logistics arrangements should be incentivised through making externalities currently neglected by market forces (emissions, space used, parking required, road danger to others) should be implemented over time. This will provide proper incentives for all users to choose compact, agile, clean and healthy e-cargo bikes where this is possible.

In the more immediate term, Government and local authorities should accelerate positive changes to the cycling environment for active travel. These include the key demands of the Cycling and Walking Alliance:

- **SPEED:** Implement and enforce 20 mph zones for most roads in built up areas
- **SPACE:** Adopt and ensure consistent application of existing ‘best-in-class’ infrastructure design standards.
- **PRIORITY:** Prohibit pavement parking to create safer and more accessible streets.
- **CULTURE:** Provide cycle training for all children during their primary and secondary school years and embed a culture of walking and cycling throughout the school curriculum.

These measures will provide a suitable working environment for e-cargo bikes, as well as encouraging cycling in general. With good, adequately wide and well detailed cycle routes, cargo bikes can bypass congestion. These routes will also encourage the use of e.g. child cycle trailers and adapted cycles for disabled people, as well as private cargo bike use.

Specifically with regard to logistics chains and the use of micro-depots for transshipment to e-cargo bikes for last mile delivery, the costs of premises in a suitable location can be a serious barrier to implementation – and it makes little sense for such depots to be used and funded by a single operator. Instead, they should be city-run or supported and open to all operators, so that load consolidation can occur to further boost supply chain efficiency.

Our “Demonstration Towns” proposal would be the perfect context to trial this system. If successful, the planning process could be used to ensure that future developments, and existing centres, are provided with suitable trans-shipment terminals.

12. E-cargo bikes, electric or solely pedal powered are larger/heavier than everyday bicycles. What level of training should riders have? Should riders be required to have e.g. additional training on efficient cycling and the safe use of bikes?

Commercial operators will, for general reputation, duty of care and liability reasons, need to ensure riders are properly trained. Many provide their own training in house, or use one of a few UK training providers offering courses in this area. Others rely on the existing Bikeability cycle training scheme (which is more general in scope for cycling on road, not cargo bike specific).

A number of stakeholders have stated that they would welcome a nationally-accredited training scheme and qualification for cargo bike riders, which as well as riding techniques

might cover legal issues around deliveries and logistics, customer-facing behaviour and more. It may be that **Government could support the development of such a qualification**. A recognised qualification for riders would be a useful reassurance for potential customers of cargo bike services, as well as a good way for operators to know that they have provided appropriate basic training.

However for EAPC cargo bikes, it would be disproportionate and counterproductive to make any such training mandatory. Requiring the equivalent of e.g. CBT training would remove one of the significant economic advantages of the EAPC– and reduce hiring flexibility. We know of no evidence of any significant issues arising from lack of cargo bike rider training.

13. Should common standards be introduced for e-cargo and cargo bike design e.g. the design and standards of panniers and containers, volume limits and the refrigeration standards for carrying perishable goods?

The Bicycle Association funds the work of an expert (Peter Eland) who participates in cycle standards development work at BSI, CEN and ISO. CEN committee TC333 is now working towards **developing a new European cargo bike structural and safety standard**. This should provide the industry with a set of tests by which they can prove the safety of their products, and be sure that bikes compliant with the standard can also be expected to be tough enough for commercial service. The performance of e.g. brakes will also be tested to be adequate under full rated load. This European standard will be based on upcoming French and German cargo bike standards, which have been under development for some time, and both of these are expected to be published in 2019.

There have been some moves towards **standardisation of cargobike containers**. Typically these are designed to also stack neatly onto standard-sized trucks, so that trans-shipment is

Containerisation



The Bicylift trailer allows full pallets to be lifted.



Armadillo and Radkutché can now both use the “city container”



The Urban Arrow ‘Tender’ can accommodate two pallets!

made easy. Loads can be sorted by route at the central logistics depot, then sent by truck to an edge of town consolidation centre.

There are however still several approaches being pursued, and it is probably premature for the UK Government to introduce any particular one as mandatory:

- Small “city containers” are used in the DHL trials of the Armadillo/Cubicycle e-cargo quad¹³ in Frankfurt and Utrecht. Recently, it was announced¹⁴ that the Musketeer e-cargo trike from Radkutsche in Germany is also compatible with this system. A Euro-pallet can fit within the container, and it is also ideally sized to hold four stacks of quarter-pallet trays, which are widely used in the food distribution industries.
- Solutions based on a standard Euro-pallet include the SliderBox XL Container from Urban Arrow¹⁵ (and a refrigerated version is also available) and there is also an ingenious trailer solution¹⁶ which allows an e-bike to tow the pallet itself.
- German company Rytle¹⁷ has developing a logistics system, consisting of a truck-mounted ‘HUB’ (which can also be offloaded as a mobile logistics hub). This can hold nine ‘BOX’ containers which their MOVR cargo trike can carry for local deliveries.

¹³ <http://velove.se/dhl-express-taking-the-next-step-in-city-logistics-containerisation/>

¹⁴ <http://www.rippi.bike/en/rippi-33-velove-and-radkutsche-towards-container-standardisation/>

¹⁵ <http://www.urbanarrow.com/en/cargo>

¹⁶ <http://www.fleximodal.fr/en/bicylift-en/>

¹⁷ <http://rytle.de/?lang=en>

14. Are there any other points you wish to raise?

Mobility is very much a strategic capability: the ability to keep goods, medicines and personnel moving in times of civil stress is paramount. In this connection we would like to raise the proven¹⁸ ability of cycle logistics companies to operate resiliently through:

- Extreme weather (snow, flood) – when vans struggle or get caught behind other stuck vehicles. Several UK cargo bike operators report being able to continue operations when floods or snow stopped, or severely delayed, motor vehicle-bound operators.
- Fuel strikes or shortages
- Earthquake, hurricane damage or similar making roads unusable to less versatile vehicles. Faced with obstacles, cargo bikes can easily re-route, using paths and tracks as well as roads, and if necessary they can be manhandled over obstacles¹⁹.

¹⁸ <https://disasterrelieftrials.com/>

¹⁹ <https://www.nbcnews.com/news/latino/after-mexico-earthquake-bike-brigade-delivers-much-needed-supplies-n804986>

15. [For e-cargobike operators] To assist DfT with evidence-gathering, how many e-cargobikes are there in your fleet, and what are the range of costs for their maintenance and upkeep?

For this question we would suggest DfT refer to the responses provided by our colleagues at the UK Cycle Logistics Federation.

16. Should measures to support micro vehicles and e-bikes over 250W be considered as part of this review?

Yes, but on the understanding that a clear distinction must always be made between EAPCs (which are treated legally as bicycles, in line with their limited power and speed) and higher power and/or speed machines.

One key difference between cargo bike EAPCs and the type approved classes of micro-vehicles is that EAPCs can bypass congestion by using cycle lanes (and if necessary, by dismounting and being pushed). They can also usually filter past stationary traffic. In contrast, type approved micro vehicles are legally only allowed to ride on the road (as are motorbikes and cars).

So unlike most non-EAPC micro vehicles, cargo bikes do not contribute significantly to congestion.

That said, we support the use of micro vehicles in general in preference to conventional vans and trucks, especially when speed limited, as they pose less perceived and actual danger to people using active travel models.

17. Is anything needed from government to encourage the use of pedal cycles and e-bikes to tow cargo trailers, or the use of electrically assisted trailers to enable carriage of higher payloads?

Within the EAPC limits and regulations there is nothing, to our knowledge to prevent the use of trailers. Current regulations do not limit trailer dimensions or weight. Lighting regulations for cycle trailers used at night are adequate.

For motorised trailers, it is our understanding that a coupled trailer and bike would be treated as a single vehicle for EAPC regulations purposes, so only a single motor with rating 250W would be permitted across trailer and towing bike. So motorised trailers are legitimate, provided that their motor is within the EAPC limits.

We have however heard from some operators that the use of trailers is perceived as a 'grey area' by some local authorities. It may be helpful for the DfT to publish clear guidance.

Other than including trailers in any promotion/subsidy scheme, we do not see any other immediate needs from government.

18. [For micro vehicle operators] To assist DfT with evidence-gathering, how many micro vehicles are there in your fleet, and what are the range of costs for their maintenance and upkeep?

For this question we would suggest DfT refer to the response provided by our colleagues at the UK Cycle Logistics Federation.

19. Are there any other points you wish to raise?

Please see our 'Opening Remarks' for further points about how e-cargo bike use may most effectively be promoted in the UK.

6 Appendix 1 – summary of the Germany federal heavy cargo bike subsidy scheme

6.1 Current German scheme

Full details are available in German²⁰. Following is a summary in English (BA translation and summarising) of the main scheme details:

Eligible to apply: Companies of all types (including self-employed traders), schools, universities, research institutes hospitals and their contractors, municipalities (cities, town and communes)

For: purchase of heavy duty e-cargo bikes and heavy duty electrified cargo trailers for cargo bike transport of goods.

- **Eligible for subsidy are:** heavy goods e-cargo bikes OR e-cargo trailers OR combinations of bikes/trailers with at least one part electrified. For both bikes and trailers: must have minimum 1 cubic metre capacity and minimum 150 kg payload (i.e. weight of cargo plus rider)
- **Not eligible:** cargo bikes for personal transport; bikes and trailers principally used for vending, purchase of bikes for use by third parties; retro-fitting of electric kits to existing cargo bikes; purchase of used bikes or trailers, or of new ones made up

²⁰

http://www.bafa.de/DE/Energie/Energieeffizienz/Kleinserien_Klimaschutzprodukte/Schwerlastenfahrraeder/schwerlastenfahrraeder_node.html

principally from used components; prototypes or one-offs, self-built machines, and for purchases entered into before the start of the scheme.

Legal basis: (EU) Nr. 1407/2013 applying Articles 107 and 108 to contracts under the EU 'de minimis' principle.

Amount of subsidy: 30% of the purchase price, but with a maximum 2500 Euros per bike, trailer or combination.

Notes re financing: any finance contract must be specifically for the unit to be subsidised, and payment due at the time of subsidy and purchase must be no less than the subsidy amount, else this will be reduced. For hire purchase models, ownership must be transferred within 5 years after purchase. Financing through leasing is not permitted, because there is no ownership transfer. A purchase option in the lease contract is not acceptable.

The de minimis rule means that subsidies under this scheme must not amount to more than 200,000 Euro (or 100,000 Euro for road transport sector companies) per company in the current and previous tax year.

Application: only available online. Following documents must be included:

- Completed application form *and*
- Proof of vehicle eligibility in the form of a product specification sheet which clearly shows the **transport volume and payload**.

Notes on **minimum transport volume:**

- For flat-bed cargo bikes, minimum transport volume can be calculated using a manufacturer-supplied figure for acceptable load height. Load area is the available

non-overhanging area and should be calculated to exclude attachment points. If specific cargo boxes exist for the bike, their volume should be used.

- For cargo bikes with transport boxes or load beds ahead of the rider (e.g. "Long-John" models) the acceptable maximum load height is taken as that of the handlebars.
- For cargo bikes or trailers with open transport beds or boxes positioned behind the rider, maximum acceptable load height shall be taken as the sum of the length and width of the available load bed area.

Payload is defined as:

Payload = permitted total gross vehicle weight – self-weight of the vehicle = cargo + rider
i.e. bike must be rated to carry a combined weight of rider and cargo of at least 150 kg.

6.2 Proposed UK implementation

- We recommend that **the weight limit be retained** (minimum 150 kg including the rider). This is achieved by almost all two-wheeled cargo bikes, as well as heavier-duty models such as trikes.
- However, we recommend a **reduction in the minimum capacity (cargo volume)** to 0.25 cubic metres (250 litres) for cargo bikes and 0.5 cubic metres for trailers, subject to further consultation with operators and suppliers. This would permit the inclusion of many two-wheeled cargo bikes popular for use in UK cities. The higher value for trailers ensures that the models subsidised are more heavy-duty commercial models.

- In other respects, for example the financial restrictions and application process, we see no issue with a UK scheme operating in a very similar fashion to the German example.
- The **amount of the subsidy** is a matter for government, but **to be effective it will need to be of similar magnitude to that of the German scheme** (30% up to max 2500 Euro), we suggest. The cost of e-cargo bikes is very similar in the UK and EU, and for heavy duty models can easily approach or exceeded 10,000 Euro (say £8000 or more).
- We suggest also that the Government consult with colleagues in Scotland who have launched a scheme²¹ via the Energy Saving Trust whereby e-cargo bike subsidies in the form of interest free loans are available, covering up to £6000 per cargo bike.
- We also recommend that as previously mentioned, any subsidy or loan scheme be combined with opportunities for businesses to try out e-cargo bikes at low cost, and to be guided in their use by 'experienced 'Ambassadors'.

²¹ <http://www.energysavingtrust.org.uk/scotland/grants-loans/ebike-business-loan>