Isle of Wight
Electric Cargo Bike Review

Phase 1&2 Report

Evaluating existing UK and European operators and analysing potential electric cargo bike use-cases

PEOPLE POWERED

www.people-powered.org.uk

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Prepared by People Powered CIC for Isle of Wight Council

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Cover images courtesy of Zedify, Escargo, Hereford Pedicabs & Cargo and Hermes.

Contents

Glossary of terms

Cargo Bike – A bicycle constructed or modified to carry cargo. In the context of this document the term is generally used to encompass tricycles and quadracycles as well.

Electric cargo bike – An electric-motor assisted cargo bike, which meets the UK requirements of an electrically assisted pedal cycle (EAPC).

First Mile - Collection of goods from an individual or business customer and the transportation of those goods on the first stage of their delivery journey, usually ending at a collection hub of some description for onward forwarding

Last Mile - Delivery of goods for the last stage of their delivery journey to the customer, be that an individual or a business. The “last mile” usually starts at some sort of depot or distribution node and ends at an individual address.

Point-to-point - Delivery of a single item/load from one place to another (often as a same-day courier service).

Multi-drop - Delivery of a batch of items to multiple locations (for example delivering bread from a bakery to several restaurants).

1. Introduction

1.1. An aspiration to see the introduction of electric cargo bike delivery services was included as part of the Isle of Wight Council's successful Access Fund bid to the Department for Transport in 2016. Funding from the Access Fund has been earmarked to "pump prime" the introduction of such an operation on the Isle of Wight in 2019-20. The electric cargo bike project is part of a wider 'Cycle Service Delivery' approach which also includes a project exploring how cycles can facilitate journeys made by organisations providing domiciliary care.[1]

1.2. It is the intention of the Isle of Wight Council to tender in the spring of 2019 for an operator of an electric cargo bike delivery service but prior to doing so the Council wishes to assess the market conditions for such a service on the Island and to learn lessons from operations elsewhere in the UK and continental Europe. It is this work that is being undertaken by People Powered CIC in this report.

1.3. Broadly speaking the outputs of the commission are as follows:

1.4. **Phase 1:** undertake a general evaluation of existing electric cargo bike operations in the UK and Europe. Select a minimum of 10 operations. Identify key characteristics and ingredients of success and the lessons learned from those operations.

1.5. **Phase 2**: identify a range of potential electric cargo bike "use-cases". Provide a summary of the strategic, commercial and economic case for each use-case, and also undertake a SWOT analysis of each use-case. Create a matrix scoring system and rank the use-cases according to criteria based on their strategic, economic and commercial potential. In consultation with key stakeholders, agree a preferred use-case to take forward into Phase 3.

1.6. **Phase 3**: develop a business case for the preferred use-case identified in Phase 2, setting out a robust justification and expected commercial benefit for the electric cargo bike operation on the Isle of Wight. This business case will inform the procurement of an operator in 2019-20.

1.7. Through the Access Fund budget, the Isle of Wight Council will make available up to £30,000 to support the establishment of an electric cargo bike operation. The business case should be constructed on the basis that this funding will be utilized in full during 2019-20 and that the electric cargo bike operation should be able to operate free of subsidy by the end of March 2020.

[1] Access Fund bid document - https://www.iow.gov.uk/azservices/documents/1190-Access-Fund-Application-Form.pdf

2. Background

2.1. The practice of bike-based delivery has existed since the invention of the bicycle itself. In the UK the "butcher's bike" is an iconic image of the bike delivery of yesteryear, along with the postman plying his trade on his red machine.

2.2. In some countries these practices have continued to a greater or lesser extent through the late 20th century, but in the UK the rise of van deliveries, enabled by low costs and driven by the demands of scale, largely confined the bike delivery culture to the document-carrying cycle couriers of London.

2.3. Since the early 2000s this trend has seen a reversal and momentum is now gathering as cycle logistics companies exploit the opportunities afforded to their mode by rising congestion, more stringent air quality regulations, restrictive parking and pedestrianisation policies and a more general concern for the environment among some consumer groups.

2.4. These factors are set against a backdrop of a dramatic rise in online purchasing and increasing consumer expectations for convenience and immediacy, which have generated a surge in demand for delivery services.

2.5. A further catalyst for change has been significant developments in cargo-carrying bicycle technology, with an increasingly varied, and often sophisticated, array of cargo bikes now available. Improvements in electrical assistance technology and battery capacities has also made cargo bikes viable in terrains, and over distances, that would have been difficult before. Where the right conditions and levels of demand prevail, cargo bikes are now able to compete favourably with vans.

2.6. Indeed, research has suggested 51% of all motorised trips associated with the transport of goods could be shifted to bicycles or cargo bikes, two-thirds of this relates to private transport (e.g. personal shopping) while a third relates to commercial transport. [2]

2.7. In the UK, over 20 cargo bike delivery companies now ply their trade, and many more operations exist throughout continental Europe. The British government has recognised the contribution cargo bikes can make to reducing congestion and pollution, recently announcing a £2m fund to stimulate the purchase of cargo bikes for commercial use[3].

[2] CycleLogistics - Moving Europe Forward! Wrighton S., Reiter K. (2016) *Transportation Research Procedia*, 12 , pp. 950-958.

[3] https://www.gov.uk/government/news/funding-boost-for-green-last-mile-delivery-bikes

Phase 1

3. Methodology

3.1. A review of relevant academic papers and reports was undertaken.

3.2. Desk-based research of existing cargo bike operators in the UK and continental Europe was conducted. As well as general searches of the internet, this relied substantially on the database of members listed on the European Cycle Logistics Federation website.

3.3. A list of some thirty operators was drawn up. Based on what could be gleaned from their websites and supporting research, companies were included if they possessed some or all of the following characteristics:

- they had been in operation for a number of years
- had grown and developed, indicating a successful operation
- served markets that were not being served by other operators
- ran business models that were distinct from other operators
- operated in lower density geographies that bore similarities to the Isle of Wight
- ran an operation with aspects that appeared to be transferable to the Isle of Wight

3.4. Key characteristics of each operation were identified, where possible, from information available on their websites. An online survey was constructed and sent to a total of 22 operators, some of whom run delivery operations in numerous locations within their country, selected as the most relevant to this study. This included a strong focus on UK operations, where the legislative framework, operating environment and infrastructure provision is broadly similar to the Isle of Wight. European operators were selected that appeared to offer specific additional insight rather than being randomly selected from the many operators we found.

3.5. Contact was made with the UK Cycle Logistics Federation, who provided further advice about the sector and access to their own database of members for the purposes of sending the online survey. Operators in the UK who fell outside the UKCLF list, and European operators, were contacted directly and sent the survey. The deadline for completion of the survey was tight, with operators given a total of 4 days to complete it from the day it was sent. A total of 11 responses to the survey were received.

3.6. Some operators expressed a lack of willingness to participate in the survey, either because they didn't wish to share what they consider to be commercially sensitive information or because they had been inundated with similar enquiries. However, in some cases further discussion did persuade them to assist us.

3.7. In the case of some operators, information received from their responses to the survey was supplemented with face-to-face or telephone interviews. This was only done in a few cases, being limited by the time and budget constraints of the commission as well as the availability of operators to respond to our questions.

3.8. Table 1 shows which operators were sent the survey and which responded to it.

Operator name	Responded to survey?	UKCLF member?	Country	Location(s)
Bikespace Cargo	No	No	UK	Plymouth
Boxbikedelivery	Yes	Yes	UK	Stevenage
Cycle4U	No	Yes	UK	Birmingham
E-Cargobikes	No	No	UK	Streatham, London
Escargo Delivery	Yes	Yes	UK	Exeter
Hereford Pedicabs and Cargo	No	Yes	UK	Hereford
Kiezkaufhaus	No	No	Germany	Wiesbaden
Last Mile Leeds	No	Yes	UK	Leeds and Manchester
Mark's Bread	No	No	UK	Bristol and Bath
Movebybike	Yes	No	Sweden	Malmo, Lund, Stockholm, Umea, Uppsala, Gothenburg
My Eco Couriers	No	No	UK	Brighton
Oxwash	Yes	No	UK	Oxford
Pedal and Post	Yes	Yes	UK	Oxford
Pedal Me	Yes	Yes	UK	London (central)
Three Bags Full	No	No	UK	Bath
Velocity Couriers	Yes	No	UK	Canterbury
Velopost	No	No	UK	Bristol and Bath
ViaVelo	Yes	No	Belgium	Deinze
Wagl	No	Yes	UK	Manchester
Wego Couriers	No	Yes	UK	Nottingham
Zed Waltham Forest	Yes	Yes	UK	Waltham Forest
Zedify	Yes	Yes	UK	Norwich, City of London, Glasgow, Edinburgh, Cambridge and Brighton.

Table 1 – Surveyed operators

4. Existing operators - survey results

4.1. Based on survey responses and other information sources, 10 operators were analysed in detail (treating Zedify as one operator, though in fact responses were received from three local businesses using the Zedify brand). The level of information given for each operator varies, based on the amount of information each was willing to provide.

4.2. Table 2 shows a summary of key data for the 10 operators. More detailed information for each is provided in appendix 1.

Name	Location	Operating hours M-F	Operating hours Sat	Operating area	Cargo bikes/trikes	Electric cargo bikes/trikes	Bike & Trailer	Daily deliveries per bike	App	No of FT riders	No of PT riders	Operating since	Associated business	Government funding
Box Bike	Stevenage, UK	0900-1700	-	SG1 postcode		4		50	No	2		2014		Yes
Escargo	Exeter, UK	0830-1100	0830-1100	4 square miles		1		10	No		2	2017		Yes
Hereford Pedicabs & cargo	Hereford, UK	0830-1730	-	3km radius	7	1		60	No	1	6	2007	Yes	
Movebybike	Various, Sweden	0800-2200	0800-2200	10 km radius	5	20	2		No	5	20	2012	Yes	Yes
Oxwash	Oxford, UK	0800-1800	-	5 mile radius		7		30-40	No	6	2	2017		
Pedal and post	Oxford, UK	0700-1700	-	3-5 mile radius	9	1	1	100	No	8	0	2014	Yes	
Pedal Me	London, UK	0600-1900	0600-1500	10 mile radius		12	2	30-40	Yes	14	2	2017		
Velocity	Canterbury, UK	1200-1800	Occasional	3-5 km radius		1	4	12	No	1	1	2008		
Viavelo	Deinzer, Belgium	1000-1800	-	7.5 km radius	5	2	2	100	No	1	3	2015		
Zedify	Various, UK	0830-1700	-	3-4 mile radius	11	37		20-150	No	10	43	2005	Yes	Yes

Table 2 – Operator key data

5. Existing operators - additional findings

Delivery charges

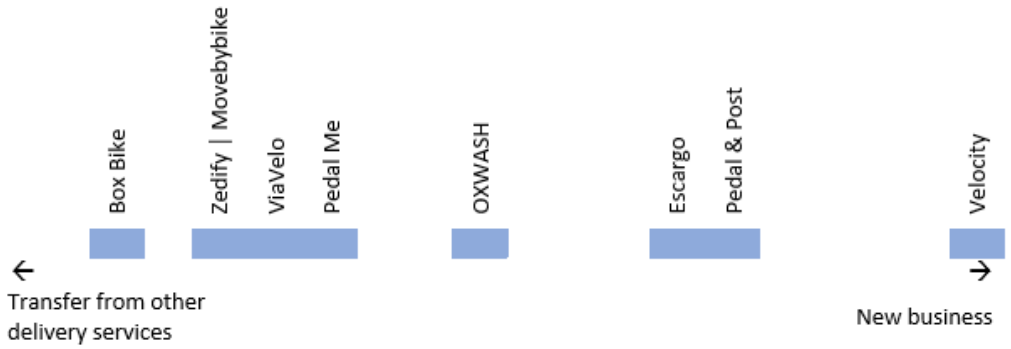
5.1. Cargo bike operators have a wide range of charges and charging structures. Charging often depends on the nature of the work, for example point to point work is often charged at a fixed price based on size, weight and mileage, last mile deliveries on a price per delivery offered by the contracting courier and ad hoc work on an hourly or mileage rate. Typical charges are in the region of:

- Last mile - £1-2 per drop.
- Hourly - £18-25
- Same day - Typical around £2 fixed charge and £1-2 per mile

5.2. Operators also reported a range of break-even points. These ranged from 10 to 50 deliveries per bike per day, averaging around 30, though this clearly depends on the type and value of the deliveries being undertaken and length of the operating day.

Transfer vs new business

5.3. Survey respondents rated the split of their custom that came from transfer from existing deliveries vs. new business (i.e. the cargo bike service created a new delivery market). A score of 0 equates to all their business coming from other delivery services; a score of 100 equates to all new business. The average score was 45. The chart below shows the spread of responses (9 responses to this question were received). These results suggest winning business from existing delivery services is important, but a significant amount of new delivery business is being created by cargo bike delivery companies.



5.4. Courier branding and exclusivity issues

5.5. Some national/international couriers have strict branding requirements for sub-contracted delivery services and expect companies that receive contracts from them to brand their vehicles and the staff that make deliveries. They also require their parcels to be delivered entirely independently of any other companies' deliveries, avoiding so-called "cross contamination" where parcels from more than one national carrier are lumped in together for the last mile. For cargo bike operators, these stipulations have the following effects:

- it prevents consolidation of parcels from a range of national carriers into single delivery runs and therefore reduces scope for efficiencies
- it necessitates the winning of large contracts that can sustain the use of dedicated, branded bikes and riders, making it harder for cargo bike operators to enter the market in the first place by winning small amounts of work and then growing from a low base.

5.6. This did not appear to be a particular issue for the businesses we received information from, possibly because they were partnered with companies with less stringent branding and exclusivity terms. The likes of Yodel and Hermes are examples of companies that seem to seem to fall into this category.

5.7. What is not known is how many opportunities for cargo bike delivery are stifled by these conditions.

Employment status of riders

5.8. Most operators employ all, or the majority, of their riders. Some use self-employed riders in addition to an employed workforce. Some highlighted this as an important part of their approach and have specifically pursued market sectors where a stable workforce - and the beneficial customer service culture this can engender - is more important than the flexibility afforded by "gig economy" operations.

Market Sectors

5.9. Some operators highlighted specific customer types or market sectors. These responses took a variety of forms. A cumulative list is shown below.

NHS	Pharmacies
Veg box companies	Coffee wholesalers
National carriers	Bakeries
Print companies	Legal
Florist	Off licence
Restaurants	Suppliers to restaurants
Furniture shops	Council Libraries
Local government general services	Lunch suppliers
Financial services	Schools/colleges
Royal mail collections	DX drop off/pick up
Grocery deliveries	Postal service
Collecting second-hand goods	Catering
Parcel deliveries	Recycling collections

6. Trends, opportunities and challenges

Trends

6.1. Last mile delivery is seen by almost all of the surveyed operators as a major growth market. Only those very small, lifestyle operators surveyed did not identify last mile as a growth area, and that may well be because it is a deliberate decision not to enter that market. There is a recognition in the sector that adopting the kind of technological innovation of the large national/international carriers is the way forward and will enable them to compete with conventional delivery services.

6.2. High population-density and congested streets are both cited as factors which create positive conditions for cycle logistics. The importance of cycle infrastructure was a recurring theme as well. Good cycle tracks, filtered permeability (roads allowing cycles to use them as through routes but not motor vehicles) and motor-traffic-free streets or town centres were all highlighted as being vital aspects in ensuring cargo bikes have a competitive advantage over diesel vans. Some operators also highlighted the value of bans on large vehicles, emission controls in central areas and restrictive parking/loading policies for motor vehicles.

6.3. For most operators a genuine passion for the concept is a key driving force. The cargo bike market is often seen as more than simply a business opportunity. Entrepreneurial, environmentally-minded leadership may be a crucial factor in success.

Opportunities

6.4. Being part of a wider, often cycling-related, business such as cycle hire or recycling helps some operators. This can help improve overall business scale, sharing overheads costs, back office staff etc and provides a secure financial platform for the early development of the delivery business.

6.5. Grant funding has helped others set up, possibly on a larger scale than without that funding, enabling them to reach a viable scale faster.

6.6. Some operators have been successful in relatively small towns and cities. Velocity Couriers in Canterbury serve a population of around 55,000, Hereford pedicabs and cargo serve a population of around 57,000, Boxbike in Stevenage appears to serve a population of around 40,000 for their core service and Viavelo serves the rural town of Deinze with a population of just over 30,000.

6.7. Local markets where significant parts of the population show concern for the environment, be it air quality, noise pollution or carbon dioxide emission, lend themselves to supporting cargo bike companies.

6.8. A role for local authorities in providing a depot or consolidation facility was highlighted by some operators as being a key ingredient to kick start an operation.

6.9. The “local factor” is another key issue. Local products sold by independent retailers and delivered by a local delivery firm have a strong attraction. Operators cite the need to have a strong local identity and high customer service standards - often acting as an extension of the businesses they deliver for.

6.10. Several operators have developed some form of replicable model of operation, with a view to expanding to other locations. Growth potential in any one geographical area will always have limits, so this can allow scale of operations to build by spreading geographically.

Challenges

6.11. Cargo bike delivery services are subject to very strong downward price pressures. Competition from conventional van deliveries and the more casual “lifestyle driver” sector (where private cars are used for deliveries on a “piece work” arrangement) mean exceptional standards of service, keen pricing and the creation of a USP are essential for cargo bike success.

6.12. For some types of delivery, margins are too tight or operations too difficult to work well with cargo bikes. Apart from the obvious question of large volumes of bulky products, local post services, DX and beer deliveries were all cited as examples that had been tried by cargo bikes but proved too challenging.

6.13. There are some indications that point-to-point work may be difficult to sustain as a significant part of a cargo bike business model, particularly outside of the largest cities. Growing operators appear to favour deliveries they can consolidate, maximising the number of deliveries per hour and minimising idle time and dead mileage.

Phase 2

7. Evaluating potential on the Isle of Wight

7.1. The focus of phase 2 of this study has been to work up a series of "use-cases" and evaluate how viable they might be in an Isle of Wight context and what contribution each use-case could make to various objectives.

7.2. To assist in the process of making an assessment about use-case viability, it was necessary to undertake some market engagement activity.

7.3. Where possible, key local businesses were contacted and meetings/phone conversations were sought where we could fully explain the objective of the study, gauge businesses' responses to the concept of electric cargo bike deliveries and gain an understanding of how electric cargo bikes might provide a solution to businesses' needs.

7.4. This approach had some success and some valuable insights were gained, in particular from meetings with local courier companies who provided useful information about national/international delivery operations and the last mile element of those on the IOW.

7.5. For those organisations that we were unable to speak with directly, and as a means of reaching a larger number of businesses than could be reasonably contacted by phone or in person, a survey was developed. Its purpose was to gain:

- some basic understanding of levels of interest in the concept of electric cargo bike deliveries
- a feel for any untapped demand for a delivery service that could be unlocked by the kind of flexible service electric cargo bikes might be able to offer
- an understanding of whether electric cargo bikes services located solely within a single town (e.g. Newport) was of interest to businesses or whether only an Island-wide service would be deemed suitable
- an understanding of existing volumes of deliveries carried out locally and the patterns and distribution of those deliveries across the Island's towns

7.6. The survey was delivered online. In addition to the survey, we produced an electronic and printed A4 flyer explaining the feasibility study, illustrating cargo bikes operations from elsewhere in the UK and Europe and including a link to the survey. Using this collateral, we sought to reach Island businesses with the survey in the following way:

- emailed it to all local business associations
- included it in the Chamber of Commerce and Visit IOW (local tourist board) e-newsletters
- publicised it on Facebook and Twitter, including via paid advertising
- direct cold calling to over 50 targeted businesses, followed by an email to relevant decision makers
- door to door delivery of the flyer to targeted businesses in Newport and Cowes
- a press release referencing the study that was picked up by various media outlets
- attendance at the workplace sustainable transport event at Quay Arts on 15th November 2018
- attendance and distribution of flyers at the Digital Disrupt event held in Cowes on November 15th 2018
- presentation on the study at the CycleWight (local cycle advocacy group) AGM

- distribution of flyers at the Newport Business Breakfast networking event on 6th December 2018

7.7. No incentive was offered to survey respondents as this was likely to artificially skew responses towards people seeking the incentive as opposed to being genuinely interested in providing their view on the new delivery concept.

7.8. To date we have received 17 survey responses. While a relatively low number, only those with an active interest in the project are likely to have responded, so a large response rate was not anticipated.

7.9. While encouraging businesses to complete the survey, a common response was that they would only ever consider using such a new delivery service once they knew the exact costs and service levels so that they could compare that with the costs of delivering by van. In the absence of those precise figures, their willingness to engage further with the study waned.

7.10. Other responses that precluded people from engaging further with the survey were that some of their deliveries required larger vehicles or that they needed to deliver Island-wide and couldn't see cargo bikes being part of that mix of delivery service. Businesses were reluctant to consider substantial changes to their existing processes and business model based on a theoretical offering.

7.11. These responses have been combined with information gained from direct conversations with businesses and feedback we have received at events we have attended to facilitate assessment of the various use-cases.

7.12. Based on findings from phase one of the report and the consultation with local businesses described above, a series of 10 use-cases have been compiled and analysed. Each represents a different model for the introduction of electric cargo bike deliveries on the Island, be that in the form of a standalone delivery service, the incorporation of electric cargo bikes into existing businesses and even the establishment of a new business that includes electric cargo bike deliveries as a key element.

7.13. The use-cases have each been evaluated against a series of criteria designed to assess their strategic and economic value to the Island and their commercial viability.

7.14. Their strategic value means their ability to contribute to the IWC's strategic objectives in the field of transport and environment: broadly speaking, to stimulate local economic vitality and improve the quality of the local environment through reductions in pollution. This assessment is shown in the matrix on page 26. A brief description of each use-case is set out in the following pages, along with an analysis of key strengths, weaknesses, opportunities and threats associated with that particular operating model.

7.15. It is important to note that the list of use-cases is not exhaustive and that most could be modified or cross-fertilised to produce a slightly different operating model. In practice any effort to introduce electric cargo bike deliveries will involve the operator seeking out a range of customers and offering a variety of services in order to ensure commercial success. As such, any successful operation may involve a mixture of use-cases.

7.16. The carriage of people has not been considered as a use-case as the study relates to movement of cargo. However, this could form a supplementary activity, either using the same vehicles or using dedicated pedicabs. This would require Hackney Carriage licensing, but there is provision for pedicabs within Isle of Wight Council licensing rules.

8. Analysis of use-cases

Use-cases

1. Courier incorporates cargo bikes into their vehicle fleet to make last mile deliveries

An existing courier would replace one or more vans with electric cargo bikes to carry out existing last mile deliveries.

Strengths	**Weaknesses**
-stability of established operator -no need to find customers - existing high-volume market -cheaper running costs offer a competitive advantage -improved PR / CSR -replacement of significant number of diesel van trips	-electric cargo bike operations may be a fringe activity -limited ability to generate growth (only able to respond to growth in national carriers) -limited number of areas likely to have a dense enough population and be close enough to distribution centre. -specialist skills required to maintain bikes are lacking
Opportunities	**Threats**
-possibility to expand into other geographical areas -being an early adopter of zero carbon delivery means well positioned to take advantage of future policy changes	-loss of one or more contracts could make electric cargo bikes unviable

2. Subcontracted last-mile

Similar to use-case (1), however in this case an independent electric cargo bike operator would be subcontracted to provide the last-mile delivery element of a national delivery service

Strengths	**Weaknesses**
-specialisation would enable operator to become expert in electric cargo bikes: maintenance, selection of bike types, staff training, software etc	-requirement to deliver as a branded service for some national carriers means extra costs because of: a) branding of bikes/uniforms and b) inefficient cargo utilisation to avoid cross contamination of parcels -if working for multiple national carriers, multiple handsets required making deliveries cumbersome -ability to win contracts when last mile is currently dominated by a single Island operator -tight margins owing to the need to provide value for money compared with existing last mile service from which work would be won
Opportunities	**Threats**
-flexibility to seek new customers and spread business risk -scope for generating extra income through advertising on side of bikes	-risk of contract being lost. -downward cost pressure on parcel delivery market.

3. Delivery / collection as part of a specialist service provision

In this case the electric cargo bike service is an integral part of another service being offered to consumers and/or businesses. Electric cargo bikes collect items from consumers/businesses, the items are processed in some way and then returned to the customer. This sort of operation is most likely to work well where services are required regularly and coherent delivery and collection rounds can be organised, such as a laundry service. It may also be a viable model for collection, repair and return of electrical items such as laptops and mobile phones.

Strengths	**Weaknesses**
-creates/extends a market by providing a new service with delivery/collection. -added income stream from service means lower reliance on delivery charge income. -low start up investment compared to using van(s) -electric cargo bike offers an immediate USP to the service	-requires a large enough market in an area which can be served by electric cargo bikes. Inability to cover large areas means market is constrained
Opportunities	**Threats**
-increased role for delivery and collection services and labour-saving services suggests a growth area -value-driven approach to use of electric cargo bikes for deliveries means business owner is likely to show high levels of commitment to the venture	-competition from other providers covering a larger area using convention van deliveries

4. Mobile trade-person or retailer

Many service-providers operate on a mobile basis, using a van or car to move them and their equipment between clients. For those operating within a suitable, defined area it may be possible to switch to using an electric cargo bike instead. Various services may be suited to this use-case, for example window cleaner, painter, masseur, hairdresser, cleaner, gardener, handyperson. It may also prove relevant to businesses and public bodies that have an in-house role (such as a maintenance person). This use-case could also apply to mobile retail services, such as coffee or ice cream vending.

Strengths	**Weaknesses**
-significant potential to reduce costs. -ability to service areas with poor parking facilities	-trade-person may arrive at jobs wet -area of operation will be limited by vehicle range -may be difficult to arrange jobs in a way that minimises travel distance
Opportunities	**Threats**
-gives business a USP and good publicity. -could provide an opportunity for an individual who can't drive	-risk of theft of/from electric cargo bike

5. Point to point courier

Providing direct courier services to deliver packages and larger items, generally on a one-off basis from one local location to another. This would typically be on a same-day or faster basis within a defined area; It could be B2B, B2C or C2C.

Strengths	**Weaknesses**
-simple operating model -could replace car trips with residents and small businesses gaining access to a local collection and delivery service	-lack of a sizeable local market for same day and urgent deliveries -inability to manage demand and schedule workload, impinging on ability to meet deadlines and customer expectations -many potential customers will find it easier to deliver items using their own car
Opportunities	**Threats**
-scope to develop a “first mile” service of parcel collection from domestic or commercial premises for delivery to post office or depots -high visibility service may attract contract work to supplement one off deliveries -scope for generating extra income through advertising on side of bikes -could create new delivery and collection markets, replacing individual car trips to move items from one location to another	-vulnerable to fluctuations in demand without ongoing contract work -existing same day couriers likely to compete very hard for existing business due to limited market -viability of the model is undermined by ability of local businesses and individuals to draw on staff and family/friends to assist with deliveries.

6. Use of cargo bike by a single business to make their own deliveries

Provision of an internally-run delivery service for a single business delivering to other businesses or to consumers. Examples are delivering car parts to local garages or delivering flowers. The business would manage the delivery service themselves, and electric cargo bikes may operate alongside other vehicles, unless the business had a relatively small delivery area.

Strengths	**Weaknesses**
-business retains full control of the delivery service. -electric cargo bikes can be branded to support the business. -positive PR / CSR for the company	-in the case of firms with an existing van or vans, displacing only part of a van's workload does not offer a sufficiently compelling business case to enable the acquisition of an electric cargo bike.
Opportunities	**Threats**
-may provide some businesses with the opportunity to launch a new delivery service, assisted by the lower capital outlay and ongoing costs of an electric cargo bike compared with a van.	-growth of company and expansion of delivery area may make delivery by electric cargo bike more problematic and may lead to work transferring back to vans

7. Delivery for multiple business

An independent electric cargo bike operator is contracted to deliver for multiple different local businesses.

Strengths	**Weaknesses**
-low cost delivery option for businesses -economies of scale, with trips currently made in multiple different businesses vans consolidated into a single electric cargo bike	limited ability to manage demand and schedule workload, impinging on ability to meet deadlines and customer expectations -lack of profile and branding for businesses using the service -problem of how to manage delivery paperwork on behalf of multiple businesses
Opportunities	**Threats**
-scope for generating extra income through advertising on side of bikes -creation of new delivery markets for businesses too small to deliver independently	-ability to keep step with delivery demands if customers' businesses grow and deliveries need to be made beyond the range of an electric cargo bike

8. Mixed delivery service with consolidation hub

A dedicated electric cargo bike delivery service offering a range of different delivery services, likely to include last-mile parcel delivery, deliveries for multiple businesses and point to point deliveries. This is a common model for existing operators in the UK and Europe.

Strengths	**Weaknesses**
-mixture of delivery types likely to reduce bike/rider down-time -resilience to loss of contracts due to diversity of markets served -ability to sort goods and organise them for most efficient onward delivery -ability to serve a wider geographical area by using the hub as a van drop off point	- premises costs - increased insurance costs (storage of goods)
Opportunities	**Threats**
-potential to offer additional services that require premises, e.g. collection of recycling from commercial properties -scope for generating extra income through advertising on side of bikes	- risk of theft of goods being stored

9. Electric cargo bike deliveries as part of a multi-stranded business

In order to achieve economies of scale on back office functions, premises etc. electric cargo bike deliveries could be offered alongside other services, such as storage and warehousing or cycle hire. For the purposes of this report, it is assumed that this use-case involves the provision of a mixed delivery service similar to (8) though in practice most of the other use-cases could be provided alongside another business activity.

Strengths	**Weaknesses**
-lower overheads costs borne by electric cargo bike operation -electric cargo bike operation may not need to be full-time	-electric cargo bike operation could become peripheral to other business activities and be inadequately developed -may be difficult to add to an existing, established business without compromises
Opportunities	**Threats**
-potential for multi-skilled staff to deal with delivery peaks -ability to build on new services/businesses as a route to growth	

10. Zero-emission* Island delivery service with consolidation hub

This case would use a mix of electric cargo bikes and electric vans to provide a mixed delivery service (as in use-case 8) Island wide. Electric cargo bikes would be used wherever practical, supplemented by electric vans to extend the coverage area.

* Zero-emission refers to tailpipe emissions.

Strengths	**Weaknesses**
-zero emission service provides a clear USP. -inclusion of electric van enables larger goods to be handled and wider area to be served -offers the chance to transport good directly from ferry terminals -high profile for the Isle of Wight	-high start up and running costs -high cost of fleet expansion if business grows (tiny second-hand electric van market)
Opportunities	**Threats**
-provide delivery options for businesses with a “green” focus -as technology advances opportunities to scale up with larger vehicles	-as more businesses switch to electric vans USP becomes weaker -high profile means failure would reflect poorly on the Island

Explanation of criteria employed to evaluate each use-case

8.1. Below is a list and explanation of 11 criteria that have been used to assess the value of each use-case to the Isle of Wight.

8.2. Among the criteria, there is a strong emphasis on commercial viability. Put simply, this is because unless the introduction of cargo bike deliveries, in whatever form, is commercially sustainable in the long term, then any additional economic or strategic benefits that accrue from such operations will not be realised.

8.3. In terms of strategic transport and environmental gains, the key criteria are those relating to motor vehicle and cycling trips. Together these represent a sort of short hand for reduced congestion, CO2 emissions and noise pollution, improved air quality and health outcomes. Though criteria have not been weighted in any way, scoring highly on these metrics is imperative for any use-case to stand a chance of being taken forward.

Motor vehicle trips saved

Anticipated number of vehicle trips saved (through switching from motor vehicle delivery to electric cargo bike delivery).

Cycling trips created

Anticipated number of new cycling trips created (total new cycling trips likely to be made).

Direct job creation

Expected creation of new jobs within the delivery business. This does not include indirect job-creation through stimulating the local economy.

Wider local economic benefit

Scale of the likely wider economic benefit, for example through helping local businesses expand their markets by offering delivery. This does not include the economic benefit of the electric cargo bike delivery service or business which it is part of.

Potential to create/expand a market

Likely potential to create a new delivery market or to expand an existing one.

Identified existing patterns of deliveries that could be met with electric cargo bikes

Extent to which existing delivery rounds and routes have the potential to be operated by electric cargo bikes (suitable geography, density of stops etc.)

Ease of setup

Comparative ease of setting up an operation in this use-case, including establishing premises, acquiring equipment, back office functions.

Potential for commercial viability post public subsidy

An estimate of the likelihood of the use continuing on a purely commercial basis after initial public financial support ends.

Scale of electric cargo bike operation

A measure of the overall size of the operation in terms of number of electric cargo bikes in regular use.

Diversity of market sectors/range of businesses applicable to

A measure of resilience, how many different market sectors is the business likely to service, or in the case of use of an electric cargo bike as part of an existing business, how many business types might conceivably adopt the use of electric cargo bikes in this way.

Overheads costs associated with operating model

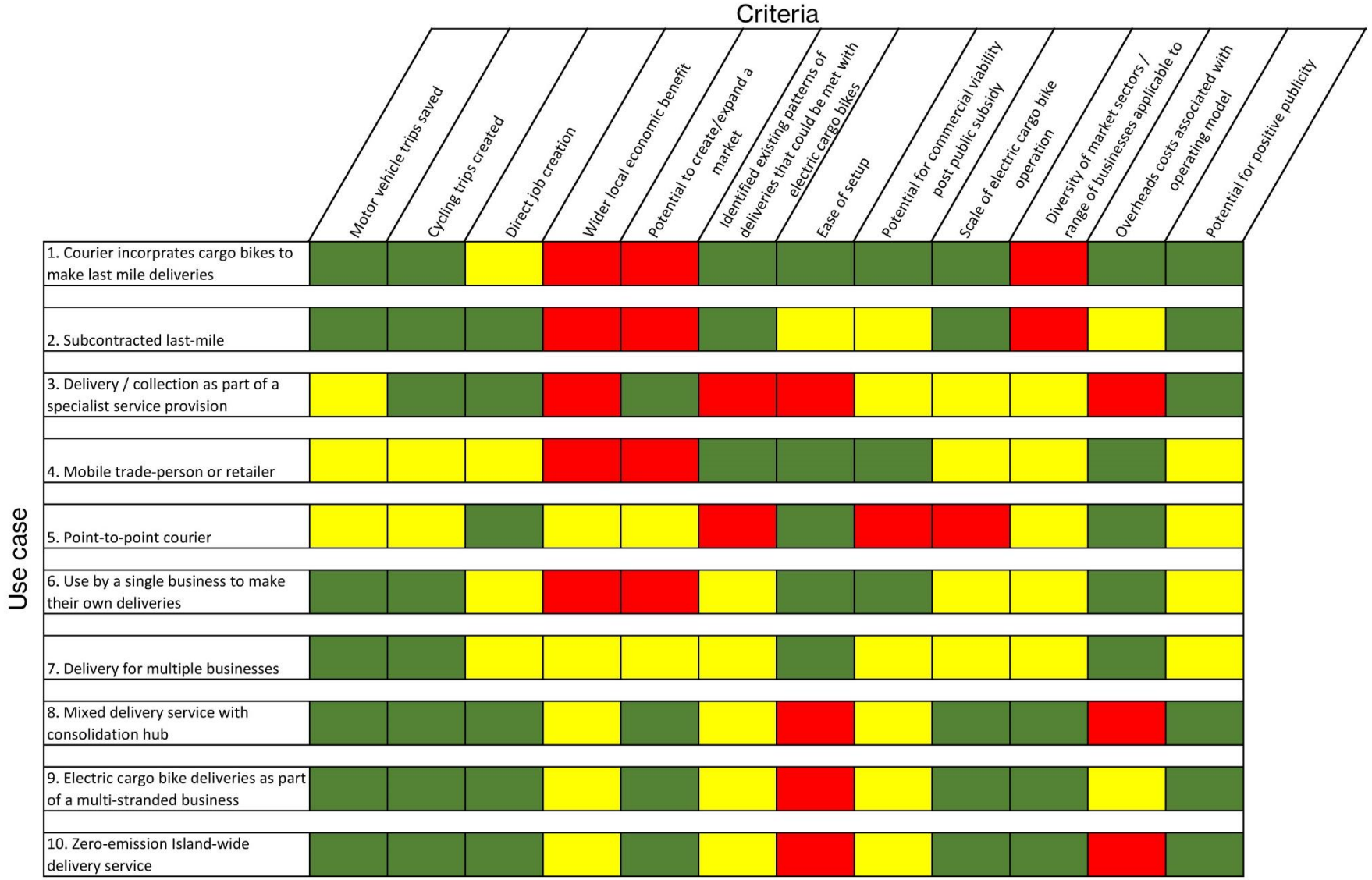
Is the operation likely to incur high overheads costs? (for example, requiring new premises, high levels of support staff etc.)

Potential for positive publicity

Is the operation likely to generate positive publicity for the operator and the Isle of Wight as a whole?

Assessment matrix

Each use-case has been scored for each rating criterion and colour coded to allow basic comparisons to be made. Each item is rated as good (green), moderate (yellow) or poor (red).



9. Summary of the strategic, economic and commercial case

9.1. The Isle of Wight Council intends to make up to £30,000 available to support the establishment of an electric cargo bike operation in the financial year 19/20. This section examines each use-case in the context of the strategic, economic and commercial case for the council supporting the specific model.

1. Courier incorporates cargo bikes into their vehicle fleet to make last mile deliveries

This use-case would offer a clear opportunity to move an identified large number of deliveries from vans to electric cargo bikes. There is a clear path to delivery and key costs could be fairly readily calculated by a prospective operator. Any contribution to wider economic and social benefit would appear to be limited. This use-case may be deliverable without local authority funding support for actual operations, with support focused on enabling an effective transition. Risk is likely to be relatively low due to the existing operation this use-case would form part of. The range of potential operators is exceptionally low, with only one operator likely to have the necessary scale of operations to make this use-case work.

2. Subcontracted last-mile

This use-case would offer a clear opportunity to move an identified large number of deliveries from vans to electric cargo bikes. There is a clear path to delivery and key costs and income could be fairly readily calculated by a prospective operator working with an engaged existing courier. Any contribution to wider economic and social benefit would appear to be limited. While similar to use-case (1), risk is likely to be higher due to increased costs and reliance on securing appropriate sub-contracts. There would be a significant dependency on national carriers, or their existing Island subcontractor being prepared to sub-contract work to the cargo bike operator. Local authority support is likely to be used to support initial establishment costs while an operator develops their systems and expertise. With additional overheads costs over (1) it would appear the likelihood of reaching commerciality without expanding into other markets is low. An operation of this type may be of interest to existing mainland operators or an entrepreneurial start-up, but future commerciality concerns may limit interest.

3. Delivery / collection as part of a specialist service provision

This use-case would provide limited reduction in existing motorised delivery trips, with the majority of trips being new delivery/collection work. It is dependent on the success of the linked service, not just the electric cargo bike delivery and collection element and is highly reliant on a large enough market for the service being found within an appropriate operating area. It could stimulate new economic activity if successful, with new services on offer. Local authority funding support is likely to support initial operations as the market for the service becomes established. There is a fairly high risk of failure without further work to identify the scale of the market for any proposed service. Research to date has only found one business providing this sort of operation on the UK mainland; they may be interested in extending their service, but any other potential is likely to come from more speculative offering. Markets for any service are, as yet, unknown.

4. Mobile trade-person

This appears to offer lower potential than most use-cases for transferring large numbers of trips, due to the intrinsically longer stops required to provide on-site services. However, it could provide wider benefit in terms of opening up to non-drivers trades that traditional rely on being able to drive. Local authority funding is more likely to be required for training and support rather than subsidising initial operations which would appear likely to be able to operate on a fully commercial basis. Support could be provided for multiple trade-people, with a range of different trades potentially being viable targets for conversion to electric cargo bikes. Risk is likely to be low, with a switch for known journeys to a different mode and readily identifiable costs. One organisation on the Isle of Wight has already expressed interest in this model.

5. Point to point courier

Analysis of existing operators suggests this model is unlikely to reach commerciality in an Isle of Wight context, except possibly as a "lifestyle business" for an individual prepared to put in significant time for limited income. Potential scale for a service is likely to be limited as there would appear to be low demand for point-to-point courier services. A rudimentary service could be provided at relatively low cost and with minimal overheads costs, but this approach would not lend itself to future growth. The scope of likely interest to operate a service is low, and the risk of failure when local authority funding support ends is considered to be high.

6. Use of cargo bike by a single business to make their own deliveries

Supporting this use-case would entail providing support for one or more businesses currently delivering, or intending to start delivering, their own products. It would support existing businesses and could lead to a significant number of trips being transferred from vans to electric cargo bikes. Each business supported is likely to have limited potential to expand the scale of their own operations, but greater scale could be achieved through a knock-on effect of other businesses seeing the viability of switching to electric cargo bike delivery. Additional social and economic benefits are likely to be limited. Local authority funding is more likely to be required for training and support rather than subsidising initial operations which would appear likely to be able to operate on a fully commercial basis; one exception to this is if a business was intending starting a new delivery service rather than replacing an existing van-based one, this may require operational funding support as the delivery market establishes. Risk is expected to be low where an existing delivery service exists but higher where a new service is provided. One Isle of Wight business has already expressed interest in this use-case and there would appear to be a number of others who may be able to adopt this model.

7. Delivery for multiple businesses

Opportunity for growth and generation of delivery opportunities for a broad range of businesses would be created by this use-case, providing a potential broad economic benefit. However, it may be difficult winning business from companies who are currently operating their own in-house delivery service where there is likely to be reluctance to lose control and the advertising benefits of their own vehicles. This could undermine the commercial viability of this option, though Local authority funding support in the first year of operation could help mitigate potential slow-growth. Operating costs of in-house delivery services are likely to be partially concealed within the overall cost of the business, whereas outsourcing will clearly identify the full-cost, including the overheads costs of the delivery operator. Risk is likely to be fairly high for these reasons. An operation of this type may be of interest to existing mainland operators or an entrepreneurial start-up, but interest is likely to be low unless a

range of potential client businesses can be established that would allow a swift transition to fully commercial operation. Local authority support is likely to be required for initial operations.

8. Mixed delivery service with consolidation hub

Use-cases 8, 9 and 10 are similar, providing a comprehensive independent electric cargo bike delivery service with elements of various other use-cases incorporated. This gives significant opportunities to grow existing markets and develop new ones, potentially providing delivery options to a range of businesses, substituting a large number of van drips for cycle trips and creating new employment opportunities. This is a common use-case around the UK and Europe. Success relies on winning/generating sufficient business, particularly from key markets such as last-mile delivery. This option requires a reasonable degree of scale from the outset to be sustainable. Local authority support would almost certainly need to fund initial operations while the operation grows its customer base. Existing operators may be interested in moving into the Isle of Wight market, or a tie-in with a multi-business operation using common branding may be possible. Alternatively, a local entrepreneur or existing business may be interested in this model. Overall the benefits of this use-case (or the related use-cases 9 and 10) if successful are likely to be more significant than any other use-case. However, with greater potential reward comes greater risk and the chances of failure of this model are substantially higher than many of the other options available.

9. Electric cargo bike deliveries as part of a multi-stranded business

Similar to use-case 8, delivery of this model alongside an existing business may reduce overheads cost and overall risk, allowing the delivery business to grow more incrementally. Success would be dependent on the "host" business and the level of commitment to the new business. Local authority support is likely to be needed for initial operational support even with lower overheads cost and the ability to start at a smaller scale than use-case 8. Suitable existing businesses seem to be limited.

10. Zero-emission* Island delivery service with consolidation hub

Similar to use-case 8, however the addition of electric vans would increase the type of deliveries and geography the operation could cover. It would also significantly increase start-up costs and complexity of the operation. Local authority funding would almost certainly need to support initial operations. If successful, this use-case could provide a high-profile zero-emissions service and create significant positive publicity for the Isle of Wight, create new job opportunities and allow the growth of creative new delivery markets. Businesses who may consider switching to electric cargo bikes but require additional capacity for some deliveries may find this option enables them to choose to outsource delivery.

10. Discussion of use-case analysis

10.1. The lack of an obvious “winning” use-case suggests a number of things:

- That local conditions on the IOW present a challenge for the establishment of any sort of electric cargo bike operation. Any attempt to do so will require astute business acumen and high levels of commitment.
- Given that there are a number of use-cases that demonstrate some potential for success, as opposed to a single use-case that stands out as having most potential, it may be advisable for any public funding support to be spread across a number of projects rather than a single one.
- That if public funding is to be provided, careful consideration is given to the precise objectives of that funding and that use-cases chosen for support score highly on those criteria.

10.2. In general, no weighting has been given to any particular criteria in the matrix. That said, scoring “red” under the heading of “Potential for commercial viability post-public funding” should exclude any use-cases from being considered for support. This applies to the “Point to point” use-case. Though in Phase One we identified cargo bike operations that do function successfully using this model, they were often small, marginal operations and we have concluded that market conditions on the IOW are unlikely to sustain such operations.

10.3. Electric cargo bike operations that are attached to existing businesses score highest when it comes to long term viability. In use-cases number 1, 4 and 6, incorporating electric cargo bike delivery/transport into an existing business is a way of tapping into a ready-made and understood market and minimising risk of failure. This model usually involves substituting current vehicle trips for bike trips.

10.4. Other scenarios which envisage electric cargo bike deliveries running alongside a new business venture, self-storage for example, may in time benefit from the spreading of risk. However, the establishment of a new business, and the risk associated with that in the short term, mean they do not score particularly highly on commercial viability.

10.5. During our study of other UK cargo bike operations in phase one, there was some evidence that the existence of cargo bike delivery services provided new opportunities for some businesses to offer a delivery option to customers and in doing so, local economic activity was stimulated. In our analysis of use-cases here, we have been unable to conclude with any certainty that any use-case would provide wider economic benefits. Only full knowledge of the costs of running a delivery service, prices to the customer and any other service efficiencies of electric cargo bike deliveries would enable us to draw a conclusion on this question. This level of detailed information did not fall within the scope of this study.

10.6. Many of the use-cases that score highly on key criteria such as motor trips saved and cycle trips created are those that involve more complex set up, larger overheads and a more uncertain commercial future. As with any business, bigger risk may produce bigger reward, but the flip side could be complete failure of the business and failure to achieve any strategic or economic gains for the Island.

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Appendix 1 – Analysis of existing operators

Key to cycle symbols on operator pages[4]

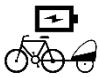
Cargo Bike

Cargo Trike

Bike + trailer

Electric cargo bike

Electric cargo trike



Electric bike and trailer

[4] Image credits: The Noun Project; bicycle trailer by Jule Steffen & Matthias Schmidt, centre pivot trike and Long John by Eric Poscher, charge by Arthur Shlain

Box Bike Delivery, Stevenage

Operating hours	Mon-Fri 0900-1700, Sat (last mile only)
Operating area	SG1 postcode area
Number of cycles (cargo bike, cargo trike, bike and trailer plus electric assist variants)	 4
Daily deliveries per bike	50
App	No
FT riders	2
PT riders	0
Operating since	2014

Description

Bike box principally operates last mile delivery services for Yodel, alongside Royal Mail collections, DX delivery/collection and home delivery of medicines. Reliability is seen as key to their service.

Challenging areas of operation

Becoming a local post operator. Veg box deliveries.

Key cargo bike growth areas identified

Last-mile/e-commerce, pharmacies, Royal Mail business collections

Local factors contributing to success

The existence of a 44km segregated cycle infrastructure network.

Most important measures for a local authority to encourage cycle logistics

To engage them in developing policies and helping reduce carbon emissions/pollution.

Escargo Delivery, Exeter

Operating hours	08.30-11.00 Mon-Sat
Operating area	Around 4 square miles
Number of cycles (cargo bike, cargo trike, bike and trailer plus electric assist variants)	 1
Daily deliveries per bike	10
App	No
FT riders	0
PT riders	2
Operating since	2017

Description

Deliveries for local shops, main client is a local bakery and Escargo deliver bread for them to outlets around the town. They are filling a gap in the market for a local delivery, targeting the “slow food” market and deliveries in congested areas of the town. Currently delivery volumes cover marginal costs, but major overheads are supported by parent company.

Challenging areas of operation

They undertook a trial of last-mile delivery with DHL, who were supportive but had insufficient volume in Exeter to make the arrangement work. Last mile deliveries remain a target market.

Key cargo bike growth areas identified

Parcels are seen as a key growth area, and growth will also be fuelled by increasing restrictions on city centre delivery traffic.

Local factors contributing to success

Local enthusiasm for this kind of business has been a significant help.

Most important measures for a local authority to encourage cycle logistics

Improve infrastructure. Restrict city centre parcel delivery vans.

Hereford Pedicabs and Cargo, Hereford

Operating hours	Mon-Fri 0830-1730
Operating area	Hereford town (approx. 3km radius)
Number of cycles (cargo bike, cargo trike, bike and trailer plus electric assist variants)	 4 3 1
Daily deliveries per bike	60
App	No
FT riders	1
PT riders	6
Operating since	2007

Description

Hereford Pedicabs and Cargo operate a cargo bike delivery service, pedicab and waste recycling service. Hereford is a small city in a rural area, with a population of just over 55,000 people, just over twice the size of Newport. They offer same day delivery and collection (including a 2-hour urgent delivery service), multi-drop deliveries and first/last mile for national companies. They collect paper, cardboard and plastic for recycling, on a weekly or ad-hoc basis. They also offer inner-city advertising using their cargo bikes.

Challenging areas of operation

The hardest to break into are big national logistics chains, such as DHL; all too often the decision-making falls to localised managers who are preoccupied with that day's disasters rather than tomorrow's solutions. For Hereford Pedicabs and Cargo, geography is an issue, many major companies trucking in last mile deliveries may as well actually deliver the majority of it if they have low volumes rather than transfer to a third-party.

Key cargo bike growth areas identified

Independents utilising cargo bikes for their own deliveries.

Last mile consolidation hubs.

Local factors contributing to success

Hereford is relatively small, so it is easy to promote an idea to a lot of people quickly and geographically. It also has significant traffic problem and good cycle infrastructure, so cycle logistics holds a competitive advantage.

Most important measures for a local authority to encourage cycle logistics

Funding and providing cycling infrastructure.

Movebybike, Various towns and cities in Sweden

Operating hours	0800-2200 Mon-Sat
Operating area	10km radius
Number of cycles (cargo bike, cargo trike, bike and trailer plus electric assist variants)	 5 5 15 2
Daily deliveries per bike	-
App	No
FT riders	5
PT riders	20
Operating since	2012

Description

Started in Malmo, Movebybike now operates in 5 locations in Sweden, delivering groceries, post, parcels, furniture and second-hand goods. Most of the work is last-first mile and deliveries. The company received 30,000 EUR of start-up support in the first year. Facebook marketing and a clear visual presence on the streets has been a key part of their success.

Challenging areas of operation

None specified

Key cargo bike growth areas identified

E-commerce/home deliveries. They believe that trucks and vans cannot increase in city centres to meet the growing need due to congestion on street, pollution, noise, low efficiency and delivery quality.

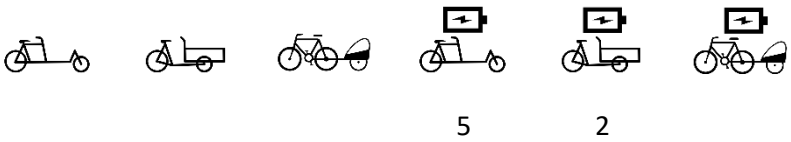
Local factors contributing to success

One-way streets (for motor vehicles), pedestrians streets, diesel ban.

Most important measures for a local authority to encourage cycle logistics

Limit heavy traffic.

Oxwash, Oxford

Operating hours	0800-1800 Mon-Fri
Operating area	5-mile radius
Number of cycles (cargo bike, cargo trike, bike and trailer plus electric assist variants)	
Daily deliveries per bike	30-40
App	No, but custom-built online ordering system
FT riders	6
PT riders	0
Operating since	2017

Description

Oxwash is a laundry and dry-cleaning service, using cargo bikes for all collections and deliveries. Customers include Airbnbs, individual consumers, cafes, restaurants, schools, hotels, offices, colleges, local government and hospitals. Cargo bikes are an integral part of Oxwash's offer, rather than an add-on, part of the company's aim to offer a truly sustainable service but also benefiting from greater efficiency of cargo bikes. They have built a "cookie cutter" business model to allow replication into other locations with plans to expand to 5 or 6 additional UK locations soon.

Challenging areas of operation

Oxwash operate a single service, no attempt has been made to tackle other markets.

Key cargo bike growth areas identified

They perceive growth in the cargo bike market to exist for last-mile deliveries in congested city centres as well as inter-town operations.

Local factors contributing to success

General interest in sustainability among people in Oxford, plus the council's dedication to introducing a zero-emission zone in Oxford in 2020.

Most important measures for a local authority to encourage cycle logistics

Support infrastructure, financial support and outreach to existing business networks.

Other information

Oxwash's founder grew up on the Isle of Wight and would be interested in bringing their service and solution to the Island.

Pedal and Post, Oxford

Operating hours	0700-1700 Mon-Fri
Operating area	3-mile radius around hub, extended to 5 miles for same day/multi-drop
Number of cycles (cargo bike, cargo trike, bike and trailer plus electric assist variants)	 9 2 1
Daily deliveries per bike	100
App	No, but have an online business portal
FT riders	8
PT riders	0
Operating since	2014

Description

Pedal and Post have 52 clients in Oxford, including the NHS trust, pharmacies, vegetable box companies and a coffee wholesaler. They also operate a sub-contract for Yodel providing "last mile" delivery, and provide a "first mile" service (collections and on forwarding for national and international deliveries). They operate 9 cargo bikes, 1 electric cargo bike and 2 bikes with trailers. They employ 8 full time riders. Operating hours are 0700-1700 Monday to Friday.

A key feature of Pedal and Post's business is that they operate their delivery service alongside a self-storage facility. The self-storage facility was used to subsidise initial losses from the cargo bike operation while it established.

The business has expanded by 100% year on year. The self-storage is fully occupied and the courier business is growing rapidly.

Challenging areas of operation

Being involved in national and international delivery services (via contracts with national carriers) has required the development by Pedal and Post of advanced IT systems. This has also enabled them to remain competitive as other carriers upgrade their systems.

Each national carrier has its own handset that needs to be used by riders. if consolidation takes place this can cause problems because so many different handsets have to be used during the same round of drops. Pedal and Post currently choose to allocate a specific bike for a specific national carrier (e.g. Yodel, Hermes etc).

Key cargo bike growth areas identified

They see same day and last mile growing sill as it follows online ordering and general market trends towards convenience, next day and same day become the normal delivery times and online ordering continues to grow.

Local factors contributing to success

Oxford is heavily congested, struggling with air pollution levels that exceed legal limits and very high rents. It has provided the ideal scenario for self-storage to thrive and is dense enough for a cargo bike operation to work very well.

Most important measures for a local authority to encourage cycle logistics

Oxford's zero emission zone will go a long way to helping; also, the introduction of a congestion charge. Cycle infrastructure suitable for cargo trikes (1.2m wide as a minimum) would help evade congestion and pedestrianised areas where cargo bikes can access but vehicles can't. A limiting factor for Pedal and Post's model is finding a suitable depot location, close enough to the city yet suitable for self-storage via shipping containers.

Other information

Pedal and Post have established systems to enable scaling up through replication, based on the model of establishing self-storage in an area and then launching a courier service once self-storage business has built up sufficiently.

Pedal Me, London

Operating hours	0600-1900 Mon-Fri and 0600-1500 Sat
Operating area	10 mile radius of Waterloo Bridge
Number of cycles (cargo bike, cargo trike, bike and trailer plus electric assist variants)	 12 2
Daily deliveries per bike	30-40
App	Yes, key part of operation
FT riders	14
PT riders	2
Operating since	2017

Description

Pedal Me is a combined delivery service and cycle taxi service, principally providing point-to point delivery. They are faster and cheaper than motor vehicle alternatives in the city environment. They are currently crowdfunding to enable expansion to 30+ bikes and to invest in additional technology to improve operating efficiency. They deliver from wholesale suppliers to restaurants, for reprographics companies and furniture shop, plus a range of ad hoc deliveries.

Challenging areas of operation

They have struggled with beer deliveries and as yet been unable to conquer this market. The small number of trailers needs to expand to provide quicker pickups for larger loads.

Key cargo bike growth areas identified

Pedal Me see the case for growth to be strong in cities, but in more hilly and rural environments believe more powerful e-assist is needed, and capturing sufficient market share may be difficult until conditions are created that make cycling a quicker option.

Local factors contributing to success

Cycle tracks provide a speed advantage, filtered permeability (roads allowing cycles to use them as through routes but not motor vehicles) provides a speed advantage, supportive local government encourages businesses to take up offer.

Most important measures for a local authority to encourage cycle logistics

Filter roads (exclude through motor traffic), build cycle tracks.

Velocity Couriers, Canterbury

Operating hours	1200-1800 Mon-Fri, Occasional Saturdays
Operating area	3km, sometimes extended to 5km
Number of cycles (cargo bike, cargo trike, bike and trailer plus electric assist variants)	 1 4
Daily deliveries per bike	12
App	No
FT riders	1
PT riders	1
Operating since	2008

Description

Velocity is a relatively small operation. Their current delivery per bike of 12 per day is sufficient to sustain the operation. They deliver organic vegetable boxes for a nearby farm to around 25 customers per week and lunches for a local sandwich bar (daily to a GP surgery). They offer a shopping service, mainly for the elderly who cannot get out and who don't have internet access. They also have an arrangement with one of the city centre supermarkets (Tesco metro) whereby people can do their shopping and then leave it for Velocity to deliver. The customer pays Velocity directly for this service. They offer delivery of various items, from parcels in panniers to large loads using a range of different trailers.

Almost 100% of Velocity's customers represent new delivery services as opposed to being transferred from traditional delivery services.

Challenging areas of operation

Attempted to win point to point, B2B work in the city but struggled. Companies already using vans seemed wedded to them, even when time and cost efficiencies were presented to them.

Key cargo bike growth areas identified

No clear growth areas identified

Local factors contributing to success

The only real advantage locally is the congestion in the city.

Most important measures for a local authority to encourage cycle logistics

Introduce a consolidation hub on the edge of town, from where bikes take the deliveries. Allow bikes in pedestrians areas.

Viavelo Fietskoerier, Deinzer, Belgium.

Operating hours	Mon-Fri 1000-1800
Operating area	7.5km radius
Number of cycles (cargo bike, cargo trike, bike and trailer plus electric assist variants)	 5 1 2 1
Daily deliveries per bike	100
App	Not yet
FT riders	1
PT riders	3
Operating since	2015

Description

Viavelo operate a mixed courier service, providing point to point deliveries, multidrop and last/first mile. They offer last-mile services for GLS, provide home delivery for a local farm cooperative. Deinze is a rural town with a population of just over 30,000 (i.e. about 20% larger than Newport). Approximately 70% of their business is last mile and 30% local deliveries.

Challenging areas of operation

None specified.

Key cargo bike growth areas identified

Last mile deliveries.

Local factors contributing to success

They highlighted the need to work local and help local business, working hard and selling the business as an independent one.

Most important measures for a local authority to encourage cycle logistics

No response.

Zedify, Multiple UK cities

Operating hours	0830-1700 M-F
Operating area	Generally a 3 mile radius. 4 in Norwich, 4/6 in Waltham Forest.
Number of cycles (cargo bike, cargo trike, bike and trailer plus electric assist variants)	 11 20 17
Daily deliveries per bike	20-150 depending on nature of work
App	No, but have a customer web portal and an app for riders
FT riders	10
PT riders	43
Operating since	2005

Description

Zedify is a group of businesses trading under a common brand across 7 locations in the UK and has been formed by a merger of Outspoken Delivery and Recharge Cargo. For the purposes of this report we have combined the response Zedify have provided for all members with individual responses from their Waltham Forest and Norwich operators.

The services offered varies dramatically between location but in general they are moving away from on demand point to point courier services and doing more consolidated multi-drop deliveries. In Norwich around 90% is last mile, 7% legal daily post and the remainder local point to point. Customers include all business types, including legal, printing, florists, off-license, food, pharmacies, libraries and government. The Cambridge operation has two sister companies, a bike shop and cycle training operator. Zed Waltham Forest received start-up grant funding of £150,000 over three years and was established in partnership with the borough council. They also operate an electric van alongside their cargo bike fleet. Local customers need an inexpensive same-day service and value the flexibility of a smaller company. For last-mile delivery reliability and cost are key.

Challenging areas of operation

On-demand, fast and urgent deliveries are difficult for a business that generally employs staff because competing with the gig-economy is too difficult in this area. DX deliveries have proved marginal. Breweries, takeaways and furniture deliveries were all tried but problematic.

Key cargo bike growth areas identified

Zedify see growth potential everywhere. Specific areas identified include local wholesalers, grocery home delivery including specialist retailers, last-mile for carriers struggling to recruit, consolidation with support of local authority or business organisations, opening multi depots in an area to increase operating radius.

Local factors contributing to success

Local policies that make it harder for traditional diesel vans to operate (restriction zones, charging etc.) and give cycle logistics a competitive edge. Dense city centres, parking policy, good cycle infrastructure.

Most important measures for a local authority to encourage cycle logistics

Provide a suitable depot, transfer regular work such as internal mail and next day UK to the cycle logistics operator, infrastructure, mini-Holland type projects.

Other information

Businesses such as electrical wholesalers may be easier to switch to last mile than parcel carriers. Finding businesses with a keen cyclist often helps.

Other operations

The 10 operators described in detail above are only a small part of a large and growing cycle logistics market in Europe. In addition to these 10 that replied to the survey, we have met, spoken to or sourced information on various other operators. Many of these offer a fairly similar business model, providing a mixture of last mile services for national couriers, local multi-drop deliveries and point to point courier services. Some offer slightly unusual services and we have highlighted several of these below.

Kiezkaufhaus

This business provides an online retail platform for 28 independent retailers in the German town of Wiesbaden. Offering both food and non-food items, they then provide same day delivery between 1600 and 2100 by cargo bike.

E-cargobikes.com

This company runs the grocery home delivery service being offered by Sainsbury's in Streatham, London. It started life as a pilot project part-funded by the Dept for Transport and it is clear the company is close to the Dept for Transport, having fed into recent policy decisions around cargo bikes.

The trial in Streatham found that 97% of orders could be fulfilled in a single electric cargo bike drop, delivery routes and journey times were shorter because of the ability to use dedicated cycling infrastructure and drops were achieved with shorter stop times because bikes could park at, or closer to, delivery locations.

E-cargobikes appear to be working closely with a number of national retailers to develop roll-outs of their services. When approached to feed into this study, they explained they were bound by strict non-disclosure agreements and were, anyway, reluctant to share information about their operations. They did volunteer the following:

- that during trials, they calculated that delivery of 1 tonne of groceries over an 8-hour shift consumed 13 megajoules of energy. This compares with approx. 3500 mega joules for equivalent deliveries by diesel van.
- average basket of groceries for customers was 45kg

Velopost

Print and mail company CFH docmail developed Velopost as a "Carbon-Free" licensed postal service in Bath and Bristol, using bikes for the majority of delivery work and an electric van for larger jobs.

Fietskoeriers.nl

This is a collaboration between 18 cycle logistics companies providing nationwide delivery across The Netherlands. They cover 30 cities by bike and use a partner to move packages between city hubs for national deliveries and to deliver to outlying areas Fietskoeriers.nl members cannot reach.

Mark's Bread

This Bristol baker uses a cargo bike to provide delivery services in-house, supplying bread to wholesale clients in the city. They have been delivering bread by bicycle for 10 years, originally on a Dutch bike then on a custom-built cargo bike as demand increased.

Three Bags Full

Launched in February 2017, this Bath-based service delivers food from local producers and even offer an "in fridge" service where you can provide them with a spare key and they will deliver direct to your

fridge when you are out. They have a strong emphasis on the personal, local touch. They deliver during the day and in two evening slots using electric cargo bikes.