

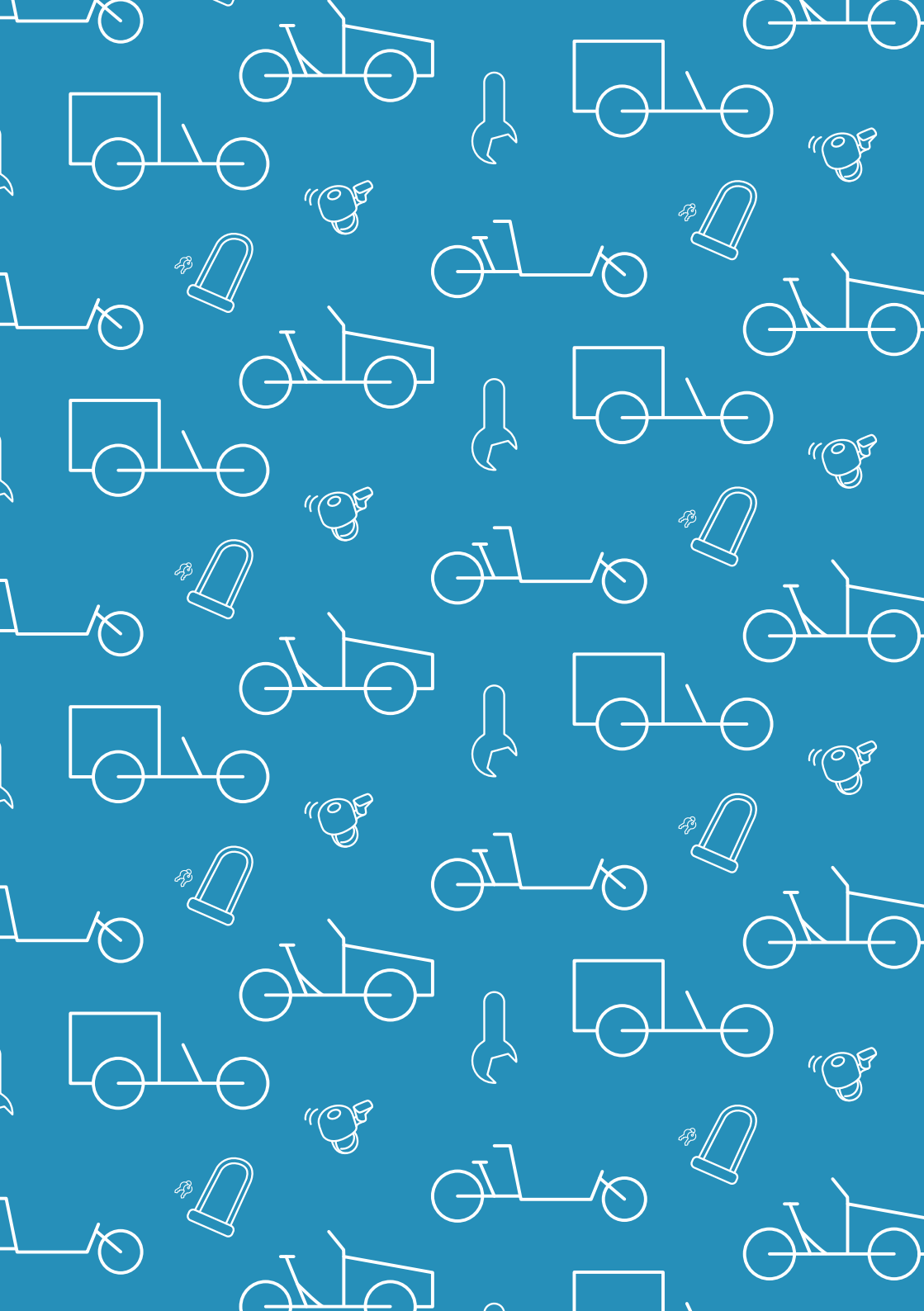


# Stakeholder's Guide

Expanding the reach of cargo bikes in Europe



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## **Stakeholder's Guide - Expanding the reach of cargo bikes in Europe**

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CycleLogistics - CityChangerCargoBike  
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## About Us

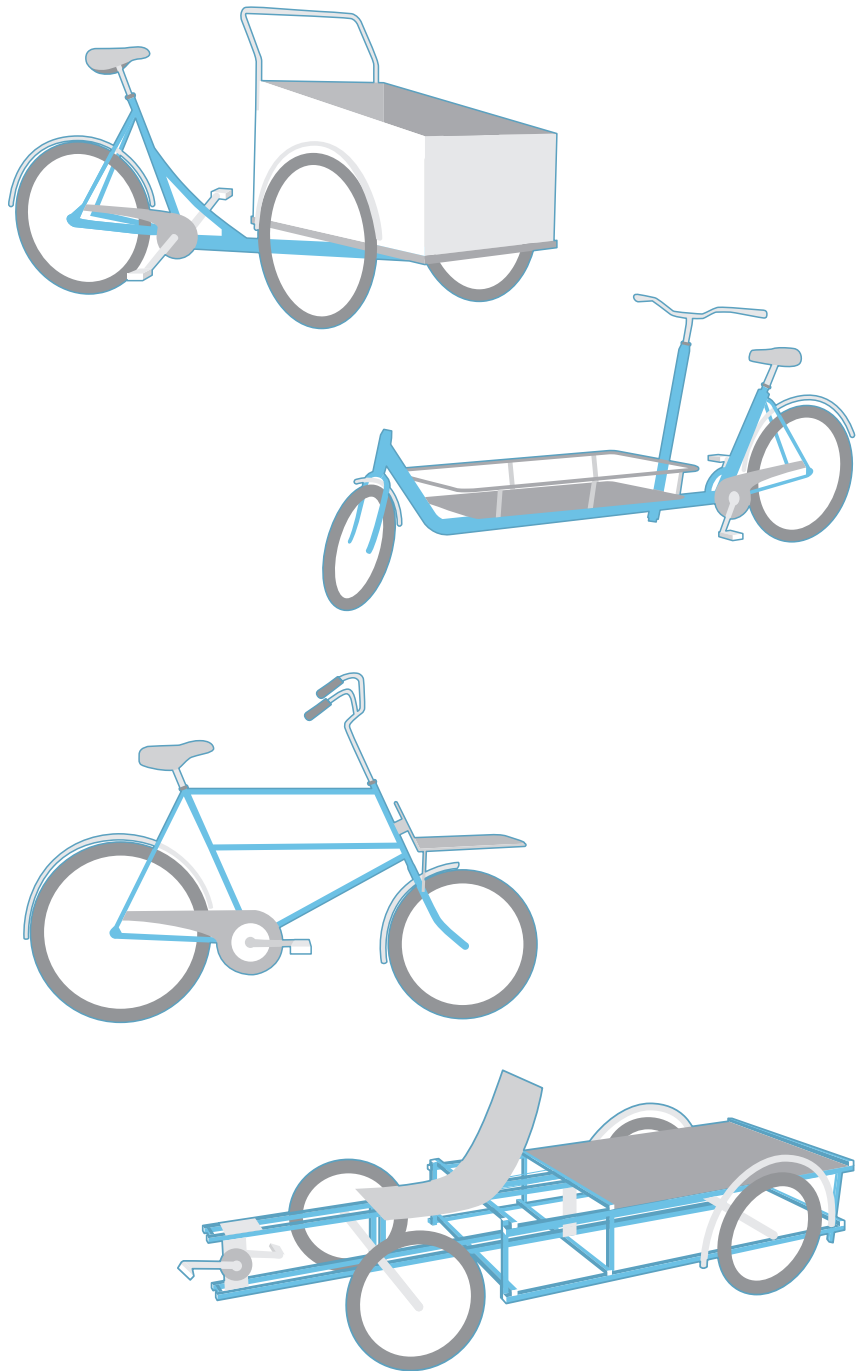
City Changer Cargo Bike (CCCB) builds on the limitless potential of cargo bikes, promoting their usage among public, private, and commercial users. Through support of the Horizon2020 programme, CCCB brings together a team of 20 partners from Norway to Greece, the United Kingdom to Bulgaria. Learning from best practice across Europe, the initiative has raised awareness and supported the uptake of cargo bikes and cargo bike projects. In doing so the initiative has fostered exciting developments that, among other things, offer more sustainable logistics operations, improve public spaces, engage citizens, and reduce traffic congestion.

# Executive Summary

Cycle logistics and the use of cargo bikes in general is expanding rapidly throughout the EU and beyond. Over the last four years, the CCCB consortium has gathered evidence from a wide variety of stakeholders, allowing us to compile the most crucial elements that motivate cargo bike uptake.

This guide provides an overview of how the European cargo bike market is developing, outlines recommendations for different stakeholder groups and details the key components of a sustainable cargo bike eco-system.





## What is a Cargo Bike?

Cargo bikes are bicycles that have been specifically designed to carry cargo, be it heavy or light, big or small. Cargo bikes take many forms, ranging from the traditional short john, to the three-wheel cargo-trike models, to custom built four-wheel frames with electric pedal assist motors for specific commercial needs. While cargo bikes have been in use for more than a century, recent design and battery innovations have made contemporary models much more efficient and accessible.

Load capacity and prices of these bikes vary greatly as well, with lighter bikes priced at €1000-€2000 managing a load up to 80 kg, and heavier bikes ranging anywhere from €2000-€12000 with a capacity of moving up to 350 kg. These bikes have the potential to tackle the environmental, logistical, traffic and social issues facing many European cities, all while providing a new perception of mobility, transport and quality of life.

## Why Cargo Bikes?

The inherent ease, affordability, and accessibility of cargo bikes make them an increasingly popular choice for families, SMEs, not-for-profits, and international logistics companies across Europe. But cargo bikes represent more than an efficient urban logistics and mobility solution, they are triggering a new bicycle culture, fostering social enterprise concepts, engaging citizens, and transforming public spaces.



# European Cargo Bike Market



# Cargo Bike Trends and Growth in Europe

Cargo bike sales in the EU are growing at around **60% per year**. That gives the cycling industry in Europe confidence that the sector could grow from 2019 sales of around 100,000 cargo bikes per year to as much as **2 million by 2030**. Some of the most expensive bikes in the world are having the fastest growth rate, as electrically assisted cargo bikes for industrial use can cost from €3,000 to €15,000 each. We expect this market will have two distinct segments, cargo bikes for commercial use and family cargo bikes.

## Commercial Cargo Bikes

A key market is cargo bikes for commercial use, with an ever-growing range of uses including deliveries, service technicians, food service and pedal taxis. In this sector the trends are driven by a systemic problem within urban goods transportation, the constant rise in the use of light commercial vehicles, despite every effort by cities and regulators to reduce congestion and transport emissions. Between 2012 and 2019 light van sales in the EU grew from 1.4 million to 2 million unit sales per year. Many factors were involved including e-commerce, but also increased use of outsourced services to support business. Even worse, 94% of these vans were diesel powered, with very little penetration of electrification. Research carried out by the City Changer Cargo Bike Project shows that up to **50% of urban delivery** and service trips could be replaced by cargo bikes, as city leaders are reducing access to cities and putting heavy controls on polluting vehicles. Studies show that e-cargo bikes deliver **60% faster than vans** in urban centres, averaging not

only higher speeds, but also greater capacity to make deliveries averaging 10 drops per hour compared to 6 for vans. The 2021 report by Possible found that **cargo bikes cut emissions by 90%** compared to diesel vans and by a third when compared to electric vans.

We estimate that commercial cargo bikes will grow to between **500,000 and 1 million** units sold per year, depending on the policies implemented by European cities and governments. A near total ban on vehicle access to 400 strategic cities is inconceivable in regions like North America, but in Europe, cities like Paris and Brussels are taking the lead with large controlled zones in their city cores. Building an ecosystem similar to that of the van sector is a priority for the cargo bike industry. Leasing and financing schemes need to be established and implemented for small and medium sized businesses, greater cargo bike customisation for different applications needs to be developed, and improved security and efficiency when loading and unloading cargo are all areas that could make cargo bikes even more fit for purpose for tradespeople and delivery drivers.

## Family Cargo Bikes

Family cargo bikes became established in Europe for car-free families or single car households in Denmark and the Netherlands, currently peaking in **Copenhagen where 24% of families have a cargo bike** and can be seen on every street during the school run.

The arrival of electrical assistance has made family use much more attractive in countries without such strong cycling traditions. Electric assist cargo bikes are expected to be around 5% of the EU e-bike market, which itself is on track to reach around 17million e-bikes per year. The speed of take-up can be seen in France where this new market grew by **1,000% between 2019 and 2020**.



# Cargo Bike Market Data

Thanks to the latest CCCB Manufacturers and Operators surveys, for the first time ever, we can assess scale and impact of cycle logistics. This multibillion-euro segment of the cycling market has been making a breakthrough in the cycling industry, making a significant contribution to the overall growth of the cycling sector.

This year, two surveys were been conducted, one directed at manufacturers and another towards operators. Combining the results of the two allows us for the first time to project cargo bike impact for Europe as a whole.

Survey participants are expecting to sell nearly 100.000 cargo bikes in 2022. Looking at the figures given by national industry associations and other sources, that suggests the survey is covering about 20% of the European cargo bike market.

If these trends in our survey apply to the whole industry, we might estimate that there will be around **400.000-500.000 cargo bikes sold this year in Europe**, of which the proportion of cargo bikes used for commercial traffic corresponds to around 1/5 th . This would mean about 230.000 commercial cargo bikes have gone into the streets in the last three years.

## And what is the impact of these bikes?

Looking at the Fleet Operators Survey, in a typical fleet, the average bike travels around **6500 km a year**. Companies additionally reported using an average **0,7 employee** to operate each cargo bike.

Looking at the commercial bikes that were sold according to survey results, these generate a market of **€400 M in revenue, the employment of 28.000 people, a total travel distance of 250M km, and 50.000 tons of CO2 saved per year**. If we project that to the whole of Europe, we can estimate that the existing fleet of commercial cargo bikes is generating around **€2.5 bn in revenue, 170.000 employees, 1.5 bn of km travelled, and saving 302.000 tons of CO2 per year**.

It is important to highlight that the jobs created by cargo bikes are mainly created by SMEs. This means that these jobs are local, carried out in the cities where the companies are working. The same is true for indirect jobs (i.e. maintenance, services and support).

On top of establishing itself as an important generator of local jobs, the cargo bike market often provides work to people without a driving license. **At the current rate of growth, we could easily see this is becoming the largest sector of cycling related employment.**

According to the Operators survey, 3 years ago, only one company was selling more than 5000 bikes. Now, 6 companies reported hitting this number. The evidence suggests people are scaling up extremely fast: investments are going into the sector and there is potential for new entrance.

Cargo bikes are a key segment of the cycling market, and the potential is far from being fully exploited! This is a major economic opportunity for Europe. The rapid growth of new jobs, new investments and revenue suggests that new players will soon join the sector to make it even bigger and more relevant.

# Investment in Cargo Bikes and Cycle Logistics

Cycle logistics is growing rapidly, driven by significant investment from multiple sources. Here is the evidence.

## Zedify [UK]

Green Angel Syndicate (GAS), which specialises in financing firms that tackle climate change, first invested in UK cycle logistics operator Zedify in 2020. In January 2022, it came back for more, leading a £1.2m funding round. The cash injection means one of the UK's leading independent cycle logistics operators can continue its expansion. Zedify has now fanned out from its Cambridge base to 11 locations, following the opening of their Plymouth depot. With its own back office and tech platform up and running, Zedify is inviting budding operators to become franchisees.

Over the next 4 years, Zedify aims to expand to over 45 hubs, becoming the leading sustainable delivery network for cities by developing further partnerships with local and national brands.

Since 2020, Zedify has delivered over 800,000 parcels, saving over 550 tonnes of CO<sub>2</sub>. It has increased operational capacity in London, expanded its central team, opened in Bristol, and been crowned 'Urban Delivery Operator of the Year' at the Motor Transport Awards.

## Automotive Industry and Cargo Bikes

[DE, NL, FR, IT, PT, UK]

Elsewhere, large automotive industry corporations are increasingly involved in cargo bikes. These include Bosch (e-bike motors, control systems, batteries and chargers), Michelin (with its Tweel airless tyre and wheel product, still under test in the USA), Volkswagen Audi Group (20% stake in Netherland's PON Group, the maker of Urban Arrow cargo bikes), and Renault Mobilize (currently analysing in which segment of micro-mobility it should invest, but showing considerable interest in cargo bikes). Lamborghini racing car front impact deformation technology is being deployed on the carbon fibre lightweight quadricycle now in production at Italian market entrant Sustainable Urban Mobility Solutions, lead by experienced cargo bike designer and innovator Diego Brunelli.

There is evidence that cycling manufacture is returning to Europe and this includes cargo bikes. In the UK, there is newcomer EAV with its 2Cubed quadricycle. In Portugal, Ciclo Fapril has been making cargo bike frames for over two years, and is part of a growing Agueda 'bicycle valley' just south of Porto. At the same time, the cargo bike industry is maturing. For instance, Carla Cargo trailer frames used to be hand-built. They are now being made by robots in a factory in southern Germany, less than 5 miles from Carla Cargo's Freiberg HQ and assembly plant.

## Accell Group [NL]

In January 2022, KKR, a well-known US-based private equity investor, had its offer to buy Dutch company Accell Group for €1.56 billion (£1.3 billion) accepted by the Accell board. Accell is a significant player in the cycling industry, owning the Babboe and Raleigh brands, making cargo bikes for both family and business use. KKR and its consortium partners want to take the company private with a view to expanding rapidly.

The April 2022 VeloBerlin event, which saw 15,000 through Templehof's doors in just two days, had dozens of cargo bikes on display and for tryout. Babboe was there in force, testing the waters with its prototype 'heavy load' cargo trike. Regarding its other models, after further investment, Babboe is adopting a new stronger frame construction technique.

## Public funds help drive demand

Support for those individuals, companies and organisations that want to start using cargo bikes is coming from all levels of government throughout the EU and in the UK. This has been well documented by CCCB Project Partner ECF in their grants and incentives online tracker:

<https://www.ecf.com/resources/financial-incentives>



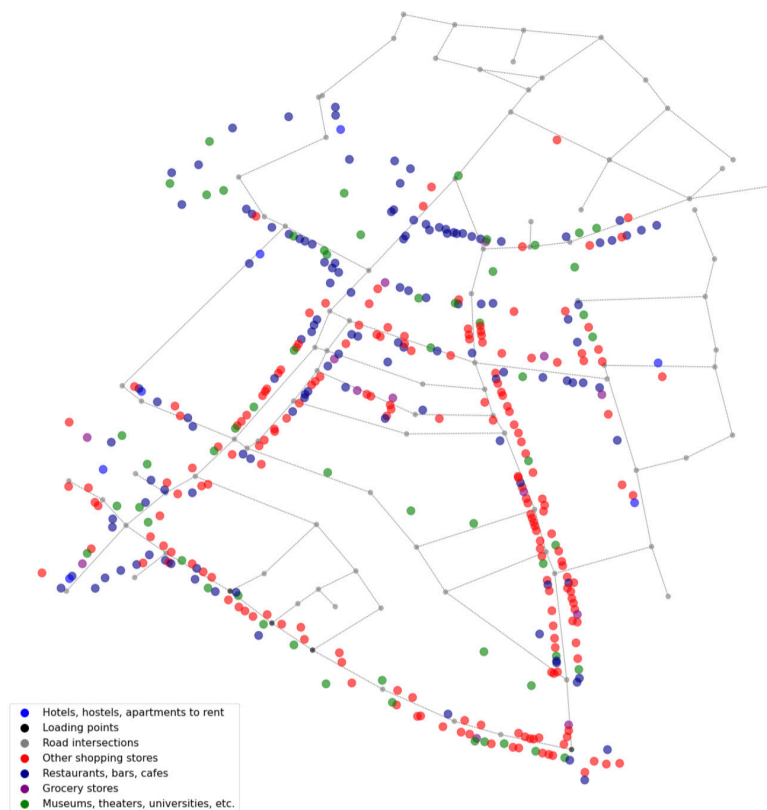
# Cargo Bike Contributions to Improved Air Quality in Cities

CCCB Project Partner Cracow University of Technology in Poland, under the direction of Professor Vitalii Naumov, has undertaken analysis of data supplied by CCCB Partner Cities who have been deploying cargo bikes in specified areas within their boundaries. Simulations have been made to demonstrate air quality improvements due to cargo bikes replacing ICE cars or vans.

CCCB Project Partner City	Pollution reduction		
	CO2 [kg/year]	SO2 [g/year]	Pb [g/year]
Kraków	6690	134	1.41
Vitoria-Gasteiz	1649	33	0.35
San Sebastian	2537	51	0.53
Dubrovnik	1537	31	0.32
Lisbon	369	7	0.08
Mechelen	2969	59	0.62
Rimini	3034	61	0.64

## Model for Estimating Emissions

Below is an example of the simulation results, showing the location of clients and the road network of the central district of Mechelen.



# Lessons for Stakeholder Groups



These recommendations are based on extensive research and evidence collected by the City Changer Cargo Bike Project since September 2018. This has been documented in reports, webinars and other communications by the Project and its partner cities. We expect the result to be thousands of new skilled jobs in the cycling industries of Europe over the coming decade, helping to build the green economy of the future.

# EU-officials and National Politicians can:

1. Ramp up efforts to decarbonize the transport system.
2. Invest in their local cycling industry.
3. Promote the drafting of Sustainable Urban Mobility Plans (SUMPs) and Sustainable Urban Logistics Plans (SULPs) that promote the use of cargo bikes in urban and peri-urban environments.
4. Promote training and education programmes (via Erasmus or national training schemes) for cargo bike mechanics and cycle logistics riders.
5. Offer subsidies and tax incentives at the national level to encourage individuals and businesses to purchase, lease or rent cargo bikes.
6. Update building regulations to accommodate cycle and parking access for bikes, such as cargo bikes, that require more space and are heavier.
7. Promote safe road systems to protect vulnerable road users protected from fast moving vehicles.
8. Promote a policy of intermodality for freight, whereby rail and inland waterways can play an important role in delivering goods to city centres for last-mile delivery by cargo bike.
9. Roll-out and ramp up smart cycling initiatives.

## Case Study

Cambridgeshire County Council in partnership with the City of Cambridge received support from a national fund, facilitating the procurement of 30 e-cargo bikes. Of these, one became this Book Bike.



# Municipalities Can:

1. Provide suitable infrastructure for safe and accessible cargo bike parking; develop a connected cycling network with sufficient width for cargo bikes; and clear signage (e.g. cycling contra-flow on one-way streets).
2. Impose restrictions and enforce them, including city-wide speed limits of 30 km/h, air-quality based emission regulations, weight-based restrictions, loading zones, and timed loading and unloading periods.
3. Educate, inform, and raise awareness.
4. Provide incentives and kick-start funding for private and commercial users.
5. Support companies that use cargo bikes by providing rider training schemes, loan bikes to help firms test the concept, and on-street parking spaces.
6. Lead by example, by ensuring their procurement processes encourage service suppliers to use cycle logistics instead of vans, and within their own municipal fleet.
7. Invest in city-wide cargo bike sharing and rental schemes, for both domestic and business users.
8. Update urban planning regulations to permit inner city consolidation centres and microhubs for deliveries by cargo bike.
9. Work together with all logistics providers to find and support cargo bike-based last mile delivery solutions.



## Case Study

A quarter of all families in Copenhagen own a cargo bike! The city arrived in this admirable position by developing a connected network of safe cycling infrastructure.

## The Media can:

1. Focus on the dynamic and positive impact cargo bikes have on local communities, health systems, mental wellbeing, personal finances, the quality of urban life, and national energy security, among others.
2. Raise awareness of the accessibility and affordability of cargo in comparison to cars or light commercial vans, enabling individuals or businesses to carry out the same tasks, but more efficiently.
3. Promote the economics of cycling, illustrating and building awareness that would promote cycling and the use of cargo bikes to replace cars, especially second cars in the household.
4. Promote the flourishing cargo bike industry and the success that this segment of the bike industry has achieved in such a short period of time.
5. Analyse the bike repair and service industry, and the severe shortage of skilled mechanics to work on these bikes.
6. Highlight the accessibility of cargo bikes as a means of transport for the elderly or disabled.
7. Report the perceptions of danger that prevent people from cycling and contrast this with coverage of people's appreciation of suitable cargo bike on-road and off-road infrastructure. This will help raise awareness of the need to reallocate road space away from motorised traffic and bolster politicians and decision-makers' confidence that there are practical solutions available to tackle congestion, poor air quality and decarbonise transport.

The New York Times

## A Bicycle Built for Transporting Cargo Takes Off

Cargo bikes — which can carry everything from passengers to produce — are increasingly being used in place of greenhouse gas-emitting cars, trucks and vans.

Give this article



Jesús Pegueros Briseño, coordinator at Bicitekas, the local partner of the Safer Cycling Advocate Program, rides in the streets of Mexico City. The cargo bikes are being used by small businesses as part of a trial run by that program. Alicia Vera for The New York Times

## Case Study

“A Bicycle Built for Transporting Cargo Takes Off”- New York Times sheds a light on the limitless potential of cargo bikes, spotlighting the City Changer Cargo Bike Project as a major player in encouraging cargo bike uptake.



# Universities and Other Research or Educational Institutions Can:

1. Collaborate with the European Cycle Logistics Federation on the creation of a shared curriculum for cargo bike riders, mechanics and cycle logistics managers.
2. Develop educational materials made available to children from nursery or kindergarten onwards (e.g. the illustrated book supplied to nurseries by the Municipality of Gdynia).
3. Conduct more research into cycle logistics, including the health, safety and wellbeing of cargo bike riders; the ergonomics of the cargo bikes and trailers and their adaptations; issues around manual handling of loads, inhalation of polluted air, vibration and crashes; more detailed understanding of how the different segments of the cargo bike and cycle logistics sector can contribute to the economy (by being zero emission, efficient, easy to maintain), to the circular economy (easy to recycle or reuse), and to transport decarbonisation (life cycle analysis of cargo bikes compared with other modes); and explore the issues surrounding parcel information sharing and the role of AI and Open Data to remove obstacles to more efficient last mile, only mile and first mile operations.

## PLANNING OF CARGO BIKE HUBS

A guide for municipalities and industry for the planning of transshipment hubs for new urban logistics concepts



### Case Study

This research from the University of Magdeburg details the steps that can be taken to develop cyclelogistics hubs, and what each stage of planning looks like. With the help of this research, CCCB has developed a guide to planning cyclelogistics hubs.

# The Wider Public Can:

1. Raise awareness of cargo bikes for use for personal (child) transport and private logistics trips (shopping and leisure).
2. Be a source of information. What types of cargo bikes are there for private use? Make sure to offer the possibility of try-outs to enable families to find a cargo bike that fits their lifestyle. Demonstrate personal health benefits, environmental and economic benefits for private users (e.g. the CCCB booklet, 20 good reasons to ride a cargo bike).
3. Educate others and develop prenatal classes and kindergartens with information and possibilities for trying out a cargo bike. Parents can be the best role models!
4. Demand public sharing and cargo bike rental schemes that allow safe child and baby transport.
5. Push local leaders for safe and secure cargo bike parking facilities provided throughout residential areas.
6. Demand that public transport be accessible for cargo bikes (e.g. possibility to transport cargo bikes on trains).
7. Support initiatives that provide financial or fiscal incentives for private users to acquire their first cargo bike.
8. Support the provision of online and shop-based home delivery offers, that consumer choice to be exercised in favour of zero emission deliveries by cargo bike.



## Case Study

In order to reach out beyond the partner cities, the City Changer Cargo Bike project looked for early cargo bike adopters in other cities. The project recruited 189 Local Heroes in 166 cities, creating a network of ambassadors for cargo bike use.

# Cargo bike eco-system toolbox

Various stakeholders, namely industry and finance actors, can support the creation of a cargo bike eco-system, enabling companies and organisations to adopt cycle logistics.



# Cargo Bike Ecosystem Toolbox

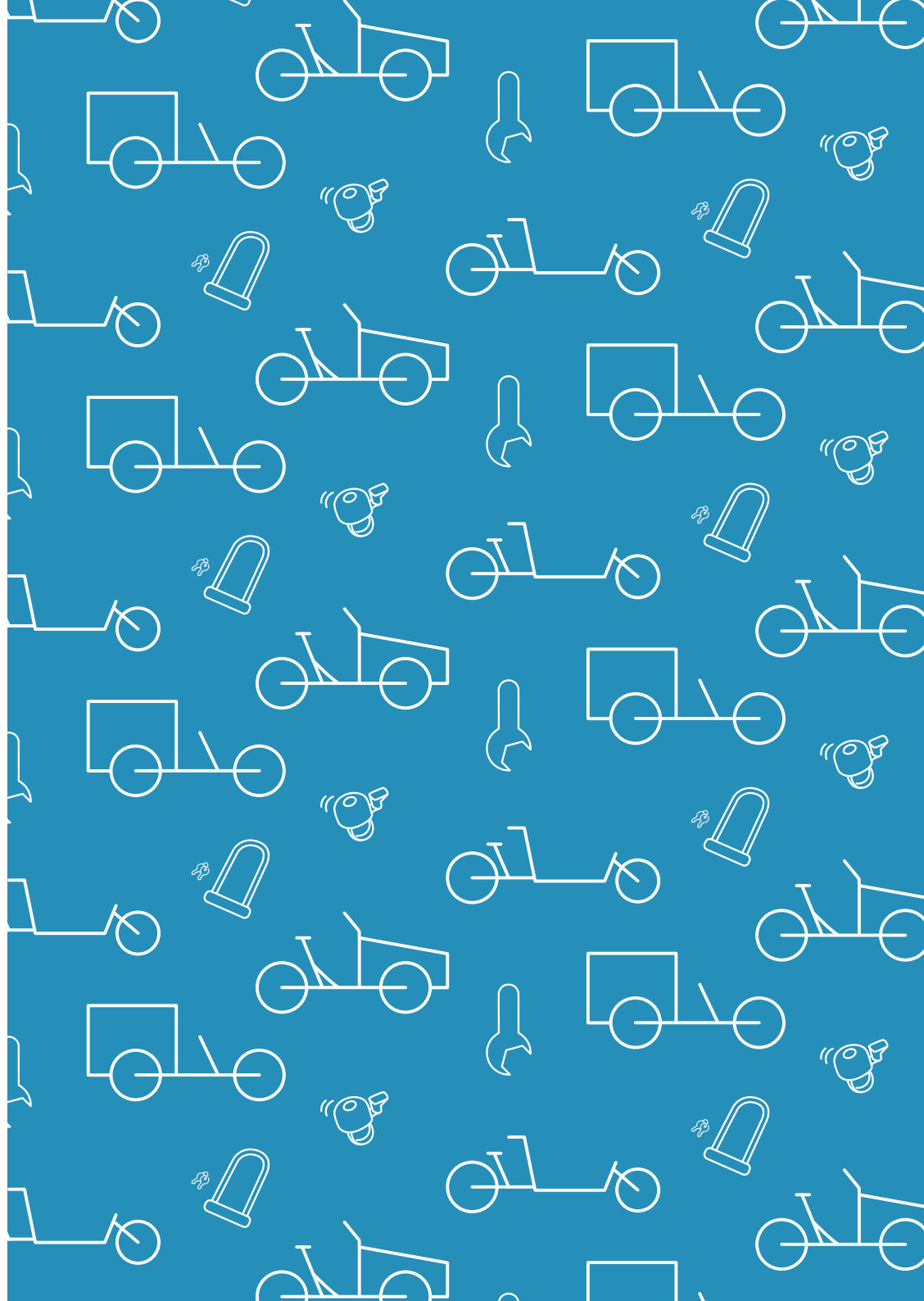
1. Different designs of cargo bike for different use cases:
  - Requiring design innovation and skilled engineering
  - Introducing new, light materials, such as carbon fibre
  - Designing out the need for constant cargo bike maintenance
2. Cargo bike security:
  - Anti-theft measures
  - Cargo boxes that slam shut, open with fob
  - Making casual vandalism as difficult as possible
3. Financing cargo bike acquisition by business or organization
  - Loan for outright purchase
  - Lease for long-term use
  - Shorter-term rental and spot hire
4. Delivery of the cargo bike to the customer:
  - Professional assembly with correct accessories
  - Final pre-delivery inspection to ensure quality control and commence warranty period
  - Delivery without damage, using reusable or recyclable packaging
5. After-sales: maintenance of customer relationship
  - Parts (availability and quality)
  - Skilled staff for maintenance and repairs
  - Warranty and OEM recalls to be efficiently managed
6. Insurance packages covering cargo bikes, goods in transit, and normal business cover.
7. Fuel:
  - Electric battery charging
  - Fire prevention and suppression systems
  - Battery swap systems and battery leasing
8. Training for jobs in the new green economy:
  - Riders (cycling skills, delivery competencies, customer care)
  - Mechanics
  - Managers (HR, fleet management, logistics and digital systems)
9. Full digital integration: smart mobility, e-commerce, data analysis at the service of efficient and zero emission deliveries
10. Second-hand cargo bike market: reuse, recycle, reengineer.
11. Regulatory environment to give confidence that rapid investment in commercial manufacturing and operation will be worthwhile:
  - CEN TC333 WG9 'Carrier Cycles' Industry Standards
  - EU agreement on appropriate regulations for cargo bikes
12. Cyclelogistics hubs, integrated into the existing logistics systems:
  - Containerisation
  - Open data networks (like GS1)
  - Single hand-held device or smartphone App for the rider
13. Planning zone amendments to suit cycle logistics operations
14. Cargo bike and cargo bike trailer adaptations to suit the work
15. Cargo bike infrastructure
16. Road space re-allocation for cargo bikes, not just bikes
17. Cargo bike parking: location, security, safety
18. Access all areas in every town and city
19. Municipal council support:
  - Planning
  - Procurement: use cargo bikes for municipal services
  - Mandatory Zero Emission delivery zones



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