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How to enable e-cargo bike delivery on the path to zero emission freight

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As cities push to grow walking and cycling, electric cycles (e-bikes) have gained widespread popularity due to their accessibility and convenience. With this growth, electric cargo (e-cargo) bikes have also emerged as a viable, sustainable alternative to traditional goods movement within cities and could replace delivery trucks and vans for a significant number of journeys. For example, an average 51% of urban deliveries in Europe could be shifted to cycle or cargo bike delivery.¹

There are many advantages to e-cargo bikes. Their electrical assistance opens up greater potential than traditional cargo bikes in cities with hilly or difficult terrain, as well as employment opportunities for more people. Cargo bikes can easily access areas in cities with dense centres. At times, such bikes can outpace delivery trucks and cars, making e-cargo bikes the more efficient option. As the environmentally responsible freight option, they can also access areas with vehicle restrictions such as low-emission zones, while delivering air quality improvements that contribute to healthier streets.²

This article outlines steps that cities can take to make e-cargo bikes more widely used and accessible as part of a sustainable urban freight system.

Develop a cyclelogistics strategy aligned with the city's wider strategic freight goals



Urban freight is expected to grow by 80% by 2030, driving up emissions, traffic congestion, noise pollution and road accidents. Strategies to minimise the impacts of urban freight create a healthier, cleaner freight system. Read how to decarbonise freight in your city [here](#).

The strategy should provide a clear vision and regulatory framework to help guide businesses towards adopting cargo bikes. **Sao Paulo's Municipal Cycling Policy** and **London's Cargo Bike Action Plan** offer good examples. A comprehensive e-cargo bike strategy for a city should include goals, targets and implementation plans that cover:

- **Operational efficiency and commercial viability:** The strategy should aim to switch as many vehicle deliveries to cargo bikes as possible, while increasing speed, reliability and efficiency of delivery. Cargo bike solutions should be commercially sustainable over time and be able to adapt, grow and meet delivery needs to replace vehicle deliveries as demand grows.
- **Environmental impact:** As a zero-emission solution for freight, the e-cargo bike strategy should be integrated with cities' wider climate and air pollution strategies and related sectoral plans. They should be prioritised in scheme designs that impact traffic, for example.
- **Social impact:** As assisted e-cargo bikes demand less physical effort from bikers, they can make the cyclelogistics labour force more diverse and expand access to these [jobs](#). The strategy should aim to maximise this potential, making cargo bike infrastructure and utilisation physically accessible, available and easy to use. It should also aim to ensure fair pay, benefits and [worker protections for cargo bike workers within the context of the gig economy](#).



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Identify, convene and support key stakeholders and partners

Support and forge partnerships with local businesses, logistics providers and delivery companies to build interest in e-cargo deliveries, to support the development of feasible frameworks for e-cargo bike operations and enable business uptake. This is a key role for the city in facilitating a transition to e-cargo bike delivery. Joint initiatives can include shared infrastructure, consolidated delivery hubs and data sharing to optimise logistics and maximise efficiency. City Changer Cargo Bike (CCCB), an European Union (EU) project to promote cargo bikes in cities, offers [guidance on working with stakeholders to expand the reach of cargo bikes](#). Consider working with:

- **City departments:** Key departments are those for freight and goods movement, and for active travel and transport planning, which will need to collaborate to ensure that cycle infrastructure can adequately accommodate cargo bikes. It is also important to include urban planning and transport teams addressing low-emission areas or other vehicle restrictions, and city-business engagement teams.
- **Private-sector stakeholders:** Engage local retailers and businesses to assess their delivery needs, potential challenges and willingness to adopt e-cargo bike solutions. This will help to identify and encourage businesses that could be early adopters, as well as to identify support needs for sustainable logistics and feasible business models for scaled deployment.



Consider running workshops, seminars and educational campaigns, and set up new – or use existing – communication channels with businesses (through business improvement districts, guilds, businesses associations, etc.) to communicate the benefits of using e-cargo bikes for deliveries, such as improved efficiency and cost savings. Develop guidance to help companies transition to e-cargo bike delivery.

- **E-commerce platforms:** These play a significant role in driving demand for urban deliveries. Work with them to understand the volume, frequency and nature of deliveries being made in their jurisdiction to better align the e-cargo bike strategy with their requirements, and support them in integrating cargo bikes into their delivery networks.
- **Business improvement districts and industry associations representing collective interests of businesses and stakeholders:** Working with these organisations allows cities to reach a broader audience, gather input from diverse perspectives and foster collaboration among stakeholders. These associations can provide valuable insights, expertise and support in implementing an e-cargo bike strategy at local level.
- **E-cargo bike manufacturers and bike-share companies:** These can provide valuable insights and recommendations based on their operational experience, helping cities design regulatory frameworks that facilitate the integration of cargo bikes into the urban transportation system. Collaborative advocacy can also promote favourable policies and regulations that support the growth and sustainability of cargo bike initiatives.
- **Delivery and logistics companies:** These are the primary users of cargo bikes for last-mile delivery operations, and it is crucial to understand their specific needs, challenges and requirements. Involve them in the strategy design process to develop solutions that align with their business models and operational realities.
- **E-cargo bike drivers:** Understanding freight workers' experience and perceptions of cycle delivery are key to successful cyclelogistics policies.
- **Universities:** University campuses can offer a good testing space for e-cargo bike pilots, while tapping into university knowledge to conduct studies, collect data and evaluate the effectiveness of pilots, providing evidence-based recommendations for future strategies.

Set up test drives, information sessions and incentives to connect e-cargo bike suppliers, delivery companies and businesses, and make cargo bike purchasing more accessible. Information sessions can inform businesses about the benefits, features and practical aspects of cargo bikes, for example. Consider running events that offer special rates, discounts and offers to incentivise trials. For example, the Zero Emissions Network (ZEN) project in the **London** borough of Hackney initiated a Cargo Bike Trial, providing local businesses with the opportunity to test cargo bikes for their delivery and logistics needs. Businesses participating in the trial reported positive experiences, including increased efficiency, cost savings and

Conduct a pilot to test and phase in e-cargo bike deployment

Initiate pilot programmes and demonstration projects in collaboration with delivery companies and other partners to showcase the feasibility and benefits of e-cargo bikes. These initiatives allow for real-world testing, data collection and evaluation of the performance, cost-effectiveness and environmental impact of e-cargo bikes. For example, Milan coordinated a pilot project to test cargo bikes and microhubs as a means of reducing climate and air pollution and traffic congestion. An [analysis of Milan's pilot](#) found that, in comparison with vans, using cargo bikes for last-mile logistics resulted in a 23% decrease in delivery times and a 40% decrease in running costs.

To identify areas where the city might conduct a cargo bike pilot, consider:

- **Geography.** Identify suitable areas and delivery routes where e-cargo bikes can be most easily deployed, taking into account distance, terrain, infrastructure and existing delivery patterns.
- **Employment, retail density and any existing zero-emission freight workers.** Consider the local customer base that generates demand for deliveries, and areas with a presence of organisations and business support groups that support sustainable deliveries. For example, Business Improvement Districts (BIDs) are likely to have stronger cargo bike support. Identify types of local goods deliveries that are best suited to cargo bikes and businesses that could switch operations beyond deliveries to cargo bikes. If your city already has some informal bike-based freight, which may be marginalised for social and/or territorial reasons, pilots may focus on these communities and the commercially active areas in which they are operating.
- **Microhub potential.** Identify areas with a high number of suitable, available locations that could provide space for storage, such as public car parks, cycle hubs and stations.
- **Supportive policies and infrastructure that create cycle permeability and a cycle-friendly environment.** Identify areas with vehicle access restrictions and favourable cycle access, such as low-traffic neighbourhoods or zero-emission areas, which will improve the relative delivery speed and reliability of cycle freight compared with van deliveries. Other supportive cycle infrastructure, such as segregated cycleways, cycle parking space and e-bike charging facilities, and a high cycle mode share will also support a pilot. The pilot should monitor cargo bike routes across the city to identify cargo usage patterns and project future growth.
- **Appropriate e-cargo bike models.** Test different e-cargo bike models in real-world conditions and monitor their performance, gathering feedback from riders and operators to evaluate their suitability for the city's specific requirements. [This study evaluated the performance of two models of e-cargo bike in Praia Grande](#), Brazil based on workers' experiences with the cycles. City Changer Cargo Bike (CCCB) also offers [guidance on innovation in cargo bikes](#), such as [solar-powered e-cargo bikes](#).



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Transition municipal vehicles to e-cargo bikes where possible

Shift city deliveries to e-cargo bikes where possible and use procurement policy to support further cargo bike uptake. By including sustainability criteria in their procurement processes, such as favouring vendors with e-cargo bike delivery capabilities, cities can incentivise businesses to invest in and adopt e-cargo bike solutions.

Identify other municipal sectors beyond cargo (freight) that could be adapted to cargo bike uses.

Cargo bikes provide a practical means to transport equipment, signage and supplies for city events, festivals and community outreach activities, enabling low-impact event logistics while creating a visible symbol of sustainable practices. Cargo bikes can also be used in park and green space management to transport tools and supplies between sites, for example.

The City of Toronto is switching to cargo bikes for its operations and service delivery needs, with more than 450 types of bicycle and cargo bicycle already forming part of the city's fleet. These vehicles are being used for a wide range of activities, from park maintenance, community outreach and engagement, by-law enforcement and policing to cycling and pedestrian projects.

This transition is part of the implementation of the city's TransformTO net zero 2040 strategy, of which micromobility is an important component. The strategy establishes a commitment to increasing access to low-



Ensure cycle infrastructure accommodates cargo bikes

An appropriate, safe and efficient network for e-cargo bike operations will encourage uptake among delivery companies and enhance accessibility. Most importantly, cities should:

Ensure adequate and suitable capacity for cargo bikes in the design of cycling schemes. E-cargo bikes are typically larger and heavier than regular bicycles. Cities should ensure that cycle infrastructure, such as bike lanes, paths and parking facilities, are designed to accommodate the larger dimensions and weight of e-cargo bikes. Wider bike lanes, reinforced surfaces and stronger parking racks may be necessary to support them. Wider turns and shallow gradients will also help to facilitate their movement.

Design routes that cater to the specific needs of e-cargo bikes. Ensure that cycle infrastructure is connected to destinations such as commercial areas, delivery zones and residential neighbourhoods.

Provide dedicated loading and unloading zones for cargo bikes. Consider incorporating designated curb spaces or loading zones specifically designed for e-cargo bikes. These areas should provide sufficient space for manoeuvring and ample clearance for accessing cargo compartments. For example, **Seattle's** Commercial E-Cargo Bike Program is examining new permitting structures and loading/parking infrastructure at the curb.³

Explore opportunities to support last-mile cargo bike operations and micro-hubs, particularly through the provision of parking and storage facilities. Consider ways to provide secure, weather-protected parking options that accommodate the larger size and weight of e-cargo bikes. This may include designated parking spaces, covered bike shelters or indoor storage facilities, such as underused car parks (as in **London**, **Madrid** and **Toronto**). Berlin has provided shipping containers as space to operate the **KoMoDo project** microhub. Cities can also offer financial incentives to business or landowners to use centrally located land for consolidation hubs (such as favourable business tax rates or rents, or expedited planning permission). Strategically located micro-hubs are also important for convenient charging locations, helping to prolong e-cargo battery life and optimise distances travelled.

Consider ways to provide rest stops and other socially supportive infrastructure. Cities like **Montréal** have proven that cargo bikes can still operate effectively in harsh winter weather conditions, making them a viable delivery option year round. However – especially in harsh conditions – cities should work with delivery companies to integrate supportive infrastructure into operations to enable this, such as toilet facilities, food and rest stops. **São Paulo's** Municipal Cycling Policy stipulates that cyclelogistics companies must provide their cyclists with a minimum structure that involves drinking fountains, bathrooms, an area for bicycle chargers, free-of-charge cell phones and lockers. Entrega Amiga in

Curitiba and the iFood Pedal programme throughout Brazil offer good examples.

 English



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Develop supportive policies to encourage private-sector uptake

Cities should review and update their regulations and policies to accommodate the unique requirements of e-cargo bikes. This may involve revisiting parking regulations, zoning restrictions and delivery time windows to align with the operational needs of e-cargo bikes. Clear guidelines and standards will provide certainty and confidence to delivery companies considering the transition to e-cargo bikes.

Streamline permitting processes for charging infrastructure installation. Simplify paperwork and requirements, where possible, and consider offering online submission options to enhance convenience and efficiency. Establish expedited review and approval procedures specifically for e-cargo bike charging infrastructure. Prioritise the processing of these applications to ensure quicker turnaround times and minimise delays.

Develop clear and comprehensive fire safety guidance for e-cargo bike battery charging. Use clear and concise language, supplemented with visual aids and diagrams where necessary, to ensure easy

understanding by e-cargo bike operators, charging facility operators and relevant stakeholders. Consider using public-private partnerships to leverage expertise and resources in the installation and maintenance of charging infrastructure. Engage with private-sector stakeholders, including e-cargo bike operators, charging equipment providers and energy companies, to share best practices, streamline processes and expedite the deployment of charging infrastructure.

Provide incentives to switch to e-cargo bike freight. Financial incentives, such as grants, subsidies or tax credits, for businesses that transition to e-cargo bike freight can help offset the costs of purchasing or retrofitting e-cargo bikes and related equipment.

Offer discounted e-cargo bike rental rates for small businesses via city bikeshare schemes, ‘lending libraries’ or other mechanisms. By offering discounted e-cargo bike rental rates, cities can encourage small businesses to adopt sustainable delivery methods and experience the benefits of e-cargo bikes without the burden of high upfront costs. For example, the Oslo City Bikes programme includes e-cargo bikes available for rental, offering discounted rates to small businesses. **Seattle** aims to pilot a small-medium-sized business e-cargo bike lending library, where businesses could rent e-cargo bikes for delivery.⁴

Develop a safety standard for cargo bikes that adopts best practice, publishing guidance for both riders and operators. Offer guidance on interacting with existing cycling infrastructure, such as bike lanes, paths and intersections, and clarify applicable traffic laws and regulations that apply specifically to cargo bikes. Highlight any additional considerations or exceptions for cargo bike operators, such as allowed parking zones, right-of-way rules or restrictions in certain areas. Emphasise the importance of using appropriate safety gear and protective equipment, maintenance and inspections, and consider implementing training programmes or licensing requirements for cargo bike riders.



Photo credit: Ben Kerckx via Pixabay

Create an environment where e-cargo bike driving and delivery jobs are accessible, affordable and welcoming for people from all walks of life

It is essential to foster inclusivity and involve diverse communities, address specific barriers and tailor initiatives to meet their unique needs, ultimately promoting more equitable and inclusive freight and transportation systems.

Identify barriers and gender stereotypes that limit women from working in the bicycle logistics sector and strengthen gender policies through the definition of inclusion objectives, such as emphasising women's participation, especially in city procurement processes.⁵ Ensure diverse representation and participation in cycling advisory committees, task forces and other initiatives. Encourage individuals from underrepresented communities to have a voice in shaping e-cargo bike policies, infrastructure development and community initiatives. In **Bogotá**, the development phase of the BiciCarga cycle logistics pilot incorporated indicators to identify gender barriers to driving cargo bicycles.

Communicate to drivers that e-cargo bikes can improve and optimise their work. Address any driver perception that e-cargo bikes offer a lesser employment status than other vehicles and highlight surveys from pilots that indicate that e-cargo bike drivers feel favourably about operating e-bikes.⁶

Develop partnerships with civil society organisations for training cyclists on cycle mechanics, English, relevant rules and regulations, and cycle operation and safety, such as the online course provided by local NGO Aromeiazero in São Paulo.

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