The pioneers of zero-emission logistics in European cities

CleanCities

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Executive summary

Urban logistics is crucial to the functioning of European cities, yet the way **it's currently organised is often unsustainable due to the widespread use of polluting vans and trucks.** Although these vehicles make up a small percentage of road traffic, they have an outsized impact on greenhouse gas emissions and air pollution.

To tackle these issues, **many European cities and companies have emerged as pioneers in the shift towards zero-emission urban logistics.** This report provides an overview of these trailblazers, drawing on a literature review, a database of zero-emission zones, and 20 expert interviews.

Key findings include:

- **35 cities** have outlined plans to introduce zero-emission zones by the 2030s, with eight cities already forming local alliances with businesses and civil society to speed up the transition.
- **At least 182 companies** across various sizes and sectors have joined alliances to transition to zero-emission urban logistics in the cities studied. A detailed list of these companies and their objectives is included in the annex.
- **110 European cities** have committed to international initiatives to decarbonise urban transport, such as the C40 Cities' "Green and Healthy Streets Accelerator" or the EU's "Mission for 100 Climate-Neutral Cities by 2030."

The research identifies four distinct approaches that have been used to coordinate these initiatives, offering models for other cities and companies to follow. These range from "Soloists" (companies independently pursuing decarbonization), "Singers" (cities leading the deployment of zero-emission zones), "Bands" (alliances between cities, companies and civil society), and "Orchestras" (national frameworks). Ultimately, all approaches should lead to the establishment of zero-emission zones given climate and air quality legislation in Europe.

Clean Cities applauds the pioneering efforts of cities and companies and urges further action to accelerate the adoption of clean urban logistics:

- **Cities** should develop and communicate phased strategies for zero-emission zones by the 2030s, foster local alliances, and provide targeted financial support and sufficient electric vehicle charging infrastructure.
- **Companies** should create action plans for zero-emission urban logistics, invest in electric cargo bikes, vans, and trucks, and share progress and lessons learned with cities and other businesses.
- **Civil society** should actively facilitate zero-emission alliances, participate in consultations, and promote knowledge-sharing among various stakeholders within and beyond their cities.
- **The EU** should support cities and companies, especially by adopting new legislation requiring all new vans in large fleets to go fully zero-emission by 2030 at the latest.

Zero-Emission Pioneers

110

European cities have signed up to international commitments to decarbonise urban transport

8

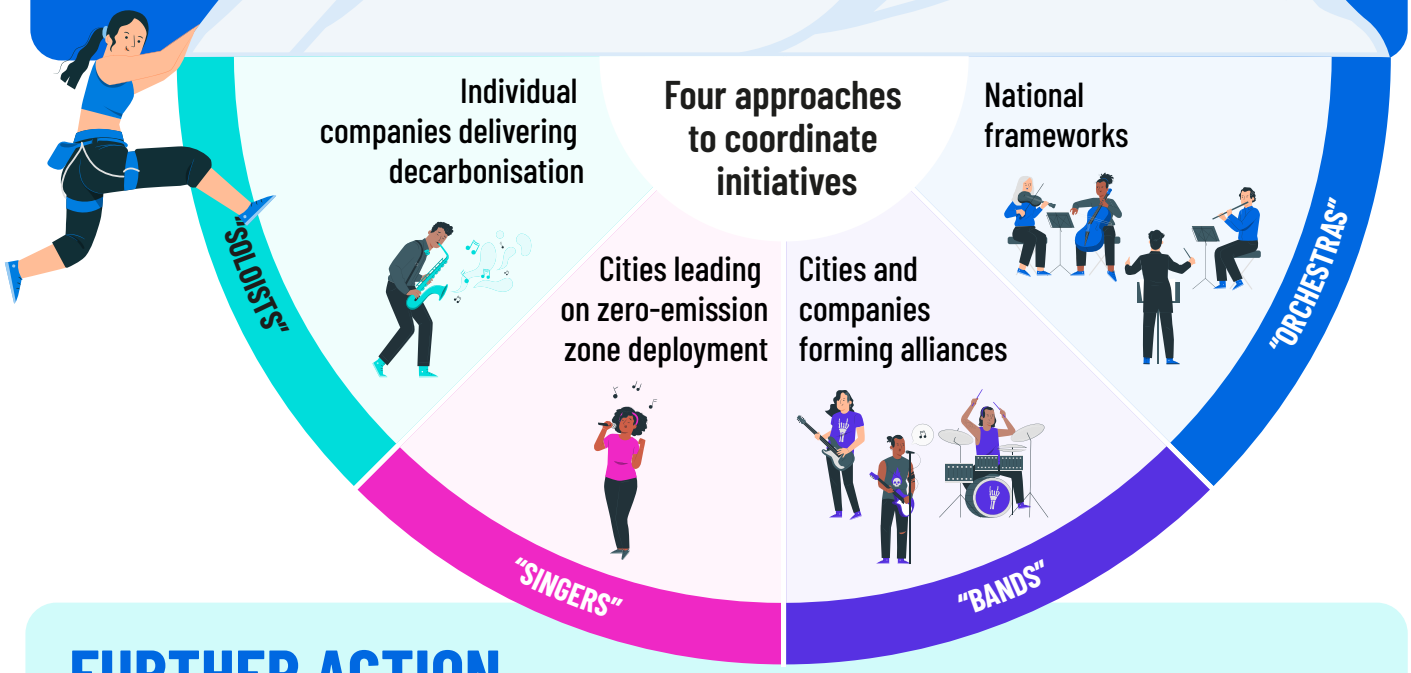
Cities have already concluded local alliances with industry and civil society to accelerate the transition to zero-emission urban logistics

35

European cities have adopted plans to introduce zero-emission zones by the 2030s

182

At least 182 companies have joined alliances for zero-emission urban logistics in the cities analysed for this research



FURTHER ACTION

Cities should adopt and communicate phased strategies for zero-emission zones by the 2030s, coordinate local alliances and provide targeted financial support as well as sufficient electric vehicle charging infrastructure.

Companies should adopt zero-emission urban logistics action plans, invest in electric cargobikes, vans and trucks, and share progress and lessons learned with cities and other companies.

Civil society should play an active role by contributing to consultations and supporting knowledge sharing within and beyond the city.

List of abbreviations

BEV	Battery electric vehicle
CCC	Clean Cities Campaign
CO_2	Carbon dioxide
EU	European Union
EV	Electric vehicle
GHG	Greenhouse gases
HDV	Heavy-Duty Vehicle
ICE	Internal Combustion Engine
LEZ	Low-Emission Zone
LDV	Light-Duty Vehicle
NOx	Nitrogen oxides (nitric oxide (NO) and nitrogen dioxide (NO_2))
PM2.5	Fine particulate matter with a diameter of 2.5 µm or less
SME	Small and Medium Enterprises
WHO	World Health Organization
ZEA	Zero-Emission Alliance
ZECL	Rotterdam's Zero-Emission Covenant for Logistics
ZEZ	Zero-Emission Zone
ZEZ-F	Zero-Emission Zone for Freight

1. Introduction

Urban logistics is essential to the functioning of European cities, facilitating the movement of goods and services within and beyond city borders for consumers, businesses, and authorities. **However, the way it is currently organised is often unsustainable due to the widespread use of fossil-fueled vans and trucks.** These vehicles contribute to climate change, emit health harming pollutants, occupy limited public space, cause traffic accidents, and generate noise pollution.

Recognising these challenges, many European cities and companies have taken proactive steps to develop innovative solutions for the sector. These pioneers are leading the way in transforming urban logistics and serve as models for other regions in Europe and beyond.

This report highlights these trailblazers of zero-emission urban logistics in Europe, showcasing examples from both the private and public sectors. The findings are based on a comprehensive literature review, analysis of a specialised database on zero-emission zones, and 20 expert interviews with leading cities and companies.

The report is organised as follows:

- Chapter 2 outlines the evidence for the urgent need to transition to zero-emission urban logistics, underscoring public demand for action.
- Chapter 3 provides an overview of leading pioneers in both the private and public sectors, including an overview of zero-emission zones and an analysis of the top companies in the field.
- Chapter 4 details four different approaches used by these frontrunners, offering guidance for others to identify strategies suitable for their specific contexts. The report concludes with practical recommendations for both the public and private sectors.

2. Cleaning up urban logistics: the need for action and pioneering initiatives

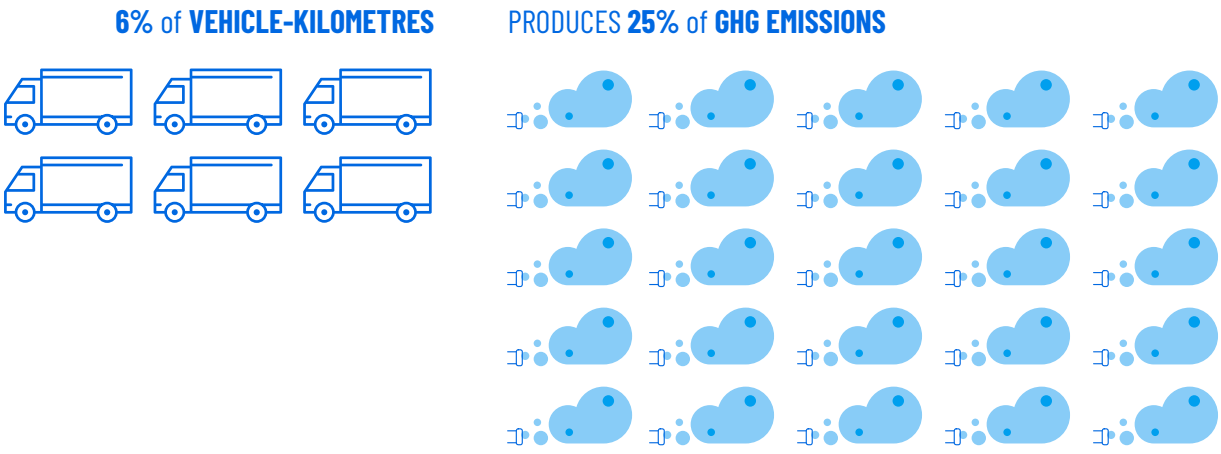
Cleaning up road freight transport is a crucial challenge in Europe. Despite vans and trucks only representing a small share of all road vehicles, they have an outsized impact on air pollution and the climate: **In 2021, vans and heavy duty vehicles**[i] **accounted for only 13% of all vehicles on EU roads but caused 51% of nitrogen oxide (NOx) emissions and 40% of greenhouse gas emissions from road transport in the Union.**[1–3]

This outsized impact can also be observed in cities: while **around 6%** of all urban vehicle-kilometres travelled involved goods transport, a Clean Cities study of five major European cities estimated that urban logistics is responsible for an **average of 25% of GHG emissions** from road transport in these cities.[4,5] Official data confirms this finding: In Brussels, for example, freight transport represents only 17% of traffic, but it is responsible for 41% of nitrogen oxide (NOx) emissions.[6]

Local action will be needed to roll out zero-emission vans and trucks

The EU has therefore set targets for the sales of zero-emission vans and trucks. In 2023, it agreed to end sales of new diesel and petrol vans by 2035.[7] According to this new law, CO_2 emissions from new vans must decrease by 50% by 2030 and by 100% by 2035.[7] For trucks, manufacturers will need to cut the average emissions of new vehicles by 43% by 2030, 64% by 2035, and 90% by 2040.[8]

However, due to several shortcomings, it is estimated that **current European regulations will only reduce emissions from heavy-duty vehicles by about two-thirds by 2050**, compared to 1990 levels.[8] Local action is therefore needed to accelerate the uptake of clean vehicles and to enhance logistics efficiency.



i Heavy duty vehicles includes both trucks and buses.

Growth in urban logistics fleets and traffic requires urgent action

Over time, emissions from urban logistics have been increasing both in absolute and relative terms. **In many major European cities, van fleets and traffic have surged in recent years, outpacing growth in passenger cars, overall traffic, and population.** Between 2016 and 2023, the light-duty vehicle (LDV) fleet grew by 10% in the Brussels region and by 28% in Berlin.[9,10] The number of vehicle-kilometres travelled by vans in cities has also risen substantially. In Île-de-France, the capital region of France, commercially operated light-duty vehicles covered 15% more kilometres in 2022 than in 2011.[11,12] If no measures are taken, traffic linked to **urban logistics will likely continue growing**.[13] This could negate CO_2 reductions and air quality improvements achieved by decarbonising urban passenger transport.

City dwellers demand action on urban logistics

Cities and companies are not the only ones recognising the need to clean up urban logistics, citizens are also aware. Representative polling commissioned by Clean Cities in Paris[14] and London[ii] has revealed the following:

- **High levels of awareness among citizens:** 68% of Parisians think that deliveries have a negative impact on their city, and 46% of Londoners believe that goods and delivery vehicles have a negative impact on the roads where they live.
- **Authorities should do more**: 78% of Parisians think the city should step up efforts to manage deliveries, and 59% of Londoners think their local councils should do more.
- **Companies should also do more:** 70% of Parisians support the creation of a zero-emission zone in which only electric vehicles and cargo bikes will be allowed to deliver; 60% of Londoners consider that businesses fail both their employees and customers if they do not act now to combat climate change.

The pioneers are already implementing solutions

Numerous cities and companies understand the need to tackle the negative impact of urban logistics and are **already working on solutions to transform them.** Many cities are beginning to implement zero-emission zones for freight (ZEZ-F), designated areas where only zero-emission vans and trucks are permitted for deliveries and freight transport (see details below). These zones serve as framework policies that incentivise the logistics sector to transition to cleaner solutions. Companies are increasingly using battery electric vehicles (BEVs) for logistics, and are taking measures to reduce the number of trips or to shift operations to smaller electric vehicles such as cargo bikes, and have committed not only to electrifying their fleets but also to increasing the efficiency of their processes. In several cities, so-called “Green Deals for Logistics” have been concluded between the public and the private sector to set clear agendas and responsibilities for the transition to zero-emission logistics..

These actions have the potential to significantly reduce the environmental impact of urban logistics. For example, Amsterdam had estimated that its zero-emission zone would reduce NOx emissions from vans by 97% and CO_2 emissions by 95% by 2028[15] [iii] For medium and heavy trucks, these measures are expected to reduce both NOx and CO_2 emissions by 95% by 2030.[15]

ii Representative polling by Yonder on behalf of Clean Cities. Field work between 31st May and 4th June 2024. Sample size of 4,000 UK adults, of which 552 from London. Details available upon request.

iii Amsterdam will start its ZEZ-F with a smaller area than previously planned, which will likely reduce the impact of the policy by 2028.

3. The solutions for efficient and emission-free urban logistics

The solutions to clean up urban logistics are widely known and available today, and are being rolled out at scale in many cities (see Chapter 4 for details). Generally speaking, the following strategies exist:

1. Managing demand and avoid unnecessary trips: First, the strong growth of freight transport over the past decades means that measures to proactively manage demand in cities are indispensable.[16] The volume of road freight transport (tonne-kilometres) has grown by 21% between 2012 and 2023 in the EU27. Measures to address this trend in cities include avoiding unnecessary shipments (e.g. deliveries of goods that are locally available, or e-commerce orders delivered within hours) by making sure that market prices reflect societal and environmental costs. Urban planning also plays a central role, e.g. by providing local access to essential goods and services. Additionally, increasing the success rates of first-time deliveries are among the priority measures taken by companies, e.g. by using pick-up points. Failed first-time deliveries often result in re-delivery attempts, which add to the number of trips and increased pollution levels. Furthermore, optimising routes and consolidating shipments can help reduce the number of trips by vans and trucks. The establishment of (micro) hubs can play a central role in this regard.

2. Shifting to smaller, more efficient vehicles: Electric cargo bikes and light electric vehicles (e.g. small electric distribution vehicles or electric cargo mopeds) are often viable alternatives to vans and, in certain cases, trucks. They have been growing in popularity over the last decade as they not only consume far less energy and emit no greenhouse gases, but also require less urban space and can save costs (see below).

3. Electrifying vans and trucks: Vans and trucks will still be needed for urban logistics and they should become fully electric. This will curb greenhouse gas emissions, as life-cycle-analyses have shown reductions of 67% for light trucks, 71% for heavy trucks and 68% for vans in 2030.[25] Other important benefits include cleaner air, reductions in noise as well as cost savings for businesses and cities alike.

Zooming in on electric cargo bikes

Electric cargo bikes are able to carry between 50 to 250 kg, and are used not only for delivering goods and parcels, but also by service providers, technicians and trades. Their small size makes them fit to navigate congested streets and use direct routes that are not accessible to vans and trucks. Real-world data shows that cargo bikes often take less time, travel less kilometres and cost less than vans for the same deliveries.[17,18] At the same time, they outperform both diesel and electric vans in terms of carbon emissions and air pollution and reduce urban congestion and space use. [17–19] Cargo bikes are most viable in dense urban areas and less so for greater distances in more sparsely populated areas.[20–22] However, their deployment requires certain changes to the conventional delivery process, such as the creation of micro-hubs closer to the customers. Studies have estimated that cargo bikes could be used for around 10-30% of delivery and service trips in cities.[21,23,24]

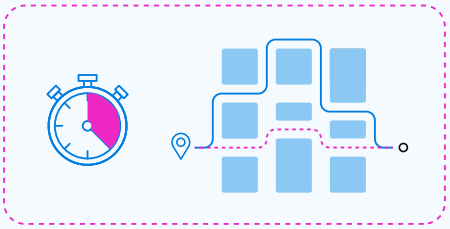
It is important to bear in mind that each segment of urban logistics—including express and parcel deliveries, fresh produce, general cargo, waste management, facility services, and construction—has distinct conditions and requirements for optimal performance. The relevance of the available options varies depending on these factors. The City of Rotterdam has identified nine categories for these solutions (see graph below).

Resources to explore available solutions in more detail

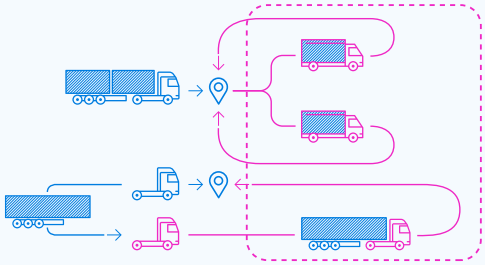
- A free short online course on sustainable urban logistics by EIT Urban Mobility
- The EU topic guide on "Sustainable Urban Logistics Planning"
- Implementation Guide "Zero-Emission Zones: Don't wait to start with freight!"
- Knowledge platform from the "Alliance for Logistics Innovation through Collaboration in Europe" (ALICE)

A quick overview of the solutions for efficient and emission-free urban logistics

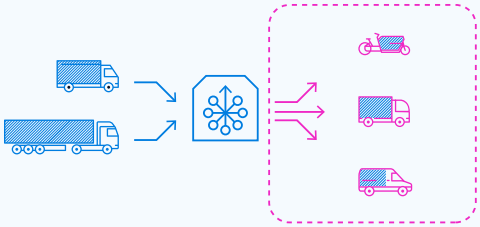
1 More efficient routes by coordinating delivery times and smart planning



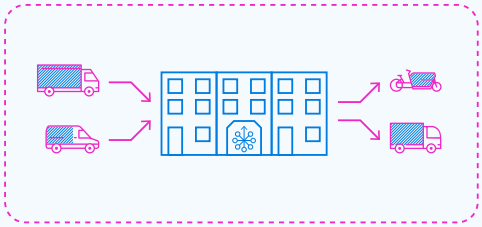
2 Decoupling point at the edge of the ZECL zone (swap body or tractor swap)



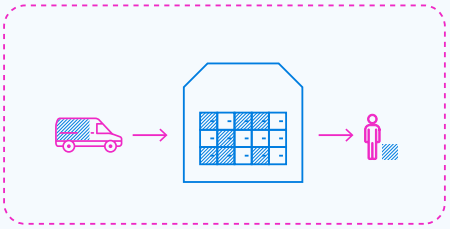
3 Bundling outside the ZECL zone (urban consolidation centre, distribution centre or within a partnership)



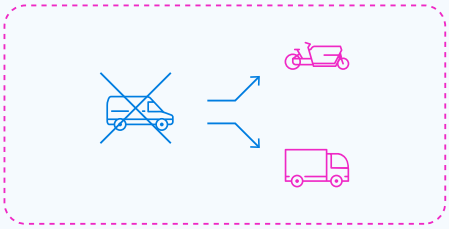
4 Micro hub inside the ZECL zone



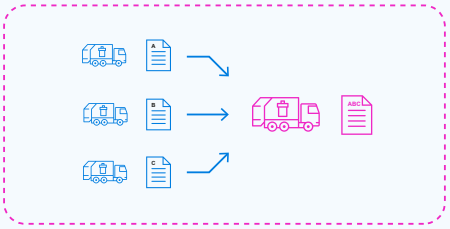
5 Bundling by delivering to pick-up points



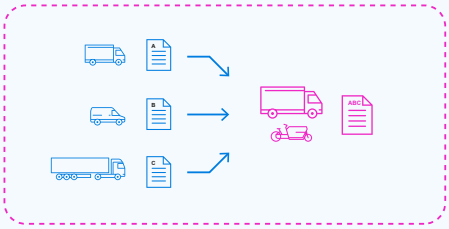
6 Shift to smaller vehicles (LEVVs and cargo bikes)



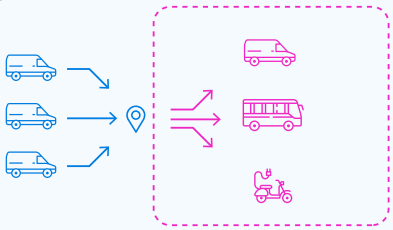
7 Bundled waste collection



8 Enforcing bundling through procurement



9 Shifting personnel from private vehicles to public transport, bicycle, carpooling or P+R



LEGEND

- ZECL zone
- Person
- Box truck / Lorry
- Cargo bicycle
- Lorry with 2 containers
- LEVV
- Tractor-Semi-trailer / Heavy-duty lorry
- Electric shared mobility
- Waste collection vehicle
- Delivery van
- Public Transport

Source: Rotterdam's Covenant ZECL: Together towards zero, 2020. Link

4. The pioneers of zero-emission urban logistics in Europe

The solutions for zero-emission urban logistics are not only well known, but there is also a large and growing number of cities and companies that are implementing them on a large scale. Clean Cities has mapped the most significant initiatives. This mapping was conducted using a comprehensive literature review, Europe's leading database of low- and zero-emission zones26, as well as insights gained from 20 semi-structured interviews with experts in public authorities and industry (see list in Annex A).

This has allowed Clean Cities to identify **leading examples of zero-emission urban logistics in Europe**. However, it is important to note that this overview is not exhaustive and the situation is rapidly evolving. As the landscape of urban logistics continues to evolve, Clean Cities will be monitoring the new developments.

The pioneer cities

41 European cities

Have adopted plans to introduce zero-emission zones by 2030, or signed ' green deals' or alliances with businesses on zero-emission urban logistics.

35 cities

Have explicit plans to create a zero-emission zone (ZEZ) by the 2030s.

- Amsterdam and Rotterdam will start implementing zero-emission zones for freight (ZEZ-F) by 1 January 2025, as a part of their zero-emission urban transport goal by the 2030s. Another 31 Dutch cities will also implement ZEZ-F, following the National Implementation Agenda for Urban Logistics signed in 2021.[27]
- Stockholm will start a near-zero-emission zone, allowing electric, gas (Euro 6) and certain hybrid vehicles by 31 December 2024, in a pilot zone of 20 hectares in the City Centre.[28]
- Oxford has piloted a charge-based zero-emission zone since February 2022 and plans to expand it to most of the entire city centre from 2026.
- Brussels has a ZEZ for all vehicles, except heavy-duty vehicles as of 2035 included in their LEZ agenda.[26,29]

At least 8 cities

Have formed alliances with the private sector to transition to zero-emission urban logistics

- The Belgian cities of Antwerp, Ghent, Leuven and Mechelen, signed a regional "Green Deal" for Sustainable Urban Logistics for the Flanders Region in April 2019.[30]
- In Lisbon, more than 120 leading companies signed a "Corporate Mobility Pact", committing to take diverse actions to promote clean, shared and active mobility.[31]
- In the Netherlands, some cities have adopted zero-emission alliances to complement their ZEZ policies. For instance, the City of Rotterdam adopted a "Covenant Zero-Emission City Logistics: Together towards zero" in December 2020.[32] A National covenant, in which the private sector committed to decarbonise its fleet, was signed in 2019.
- In April 2023, the Brussels Capital region adopted its Green Deal for Urban Logistics.[6]
- In June 2024, the Chamber of Commerce of Vienna started its 'Zero-Emission' Transport project, a voluntary covenant signed with representatives from the private sector.[33]

110 European cities

Have shown their intention to design zero-emission policies for urban logistics by joining international pacts or missions

16 cities

Committed to adopting a major zero-emission zone in their cities by 2030 by signing the "Green and Healthy Streets Accelerator" from C40 Cities.[34]

- Only three of them, Amsterdam, Rotterdam and Oxford, have designed their ZEZs and have started or will start implementing them by the end of 2024.
- Oslo wants to introduce a ZEZ as soon as the legal basis is in place from the national authorities.[36]
- Copenhagen is designing its ZEZ policy, pending a National framework on zero-emission zones which is set to be adopted by the end of 2024.
- 11 Cities have not published official information indicating their policies' start date, including Barcelona, Berlin, Birmingham, Greater Manchester, Heidelberg, Liverpool, London, Milan, Oslo, Paris, Rome and Warsaw.

112 cities

Joined the EU "100 Climate-Neutral and Smart Cities" Mission, aiming to become climate-neutral by 2030.[35]iv

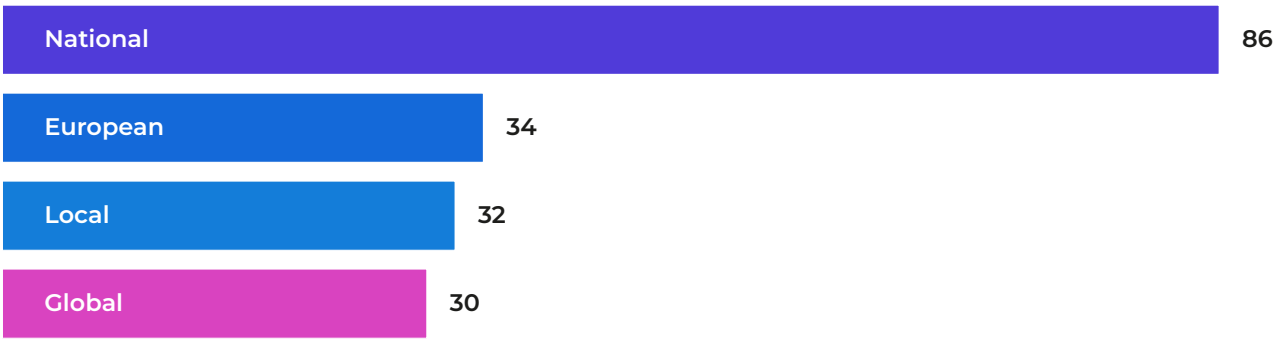
- The 112 cities must deliver 'Climate Contracts' outlining their plans to achieve climate neutrality by 2030.
- 10 Cities from this group, Antwerp, Brussels, Leuven, Stockholm, Amsterdam, The Hague, Eindhoven, Groningen and Utrecht, have already adopted zero-emission policies to decarbonise urban transport.
- The list includes cities from every EU member state, plus 12 cities - such as Reykjavík, Sarajevo, Oslo and Istanbul - from countries associated with the Horizon Europe program.

Seven of these cities participate in both the C40 Commitment and the EU Mission: Barcelona, Copenhagen, Milan, Paris, Rome, Oslo, and Warsaw.

The pioneer companies

At least **182 companies have joined alliances for clean urban logistics in the cities of Rotterdam, Lisbon, Vienna and in the Belgian cities of Brussels, Antwerp, Ghent, Leuven and Mechelen**. All these alliances are open for more signatories, and hence the number is expected to increase.

Companies that have joined alliances by scale

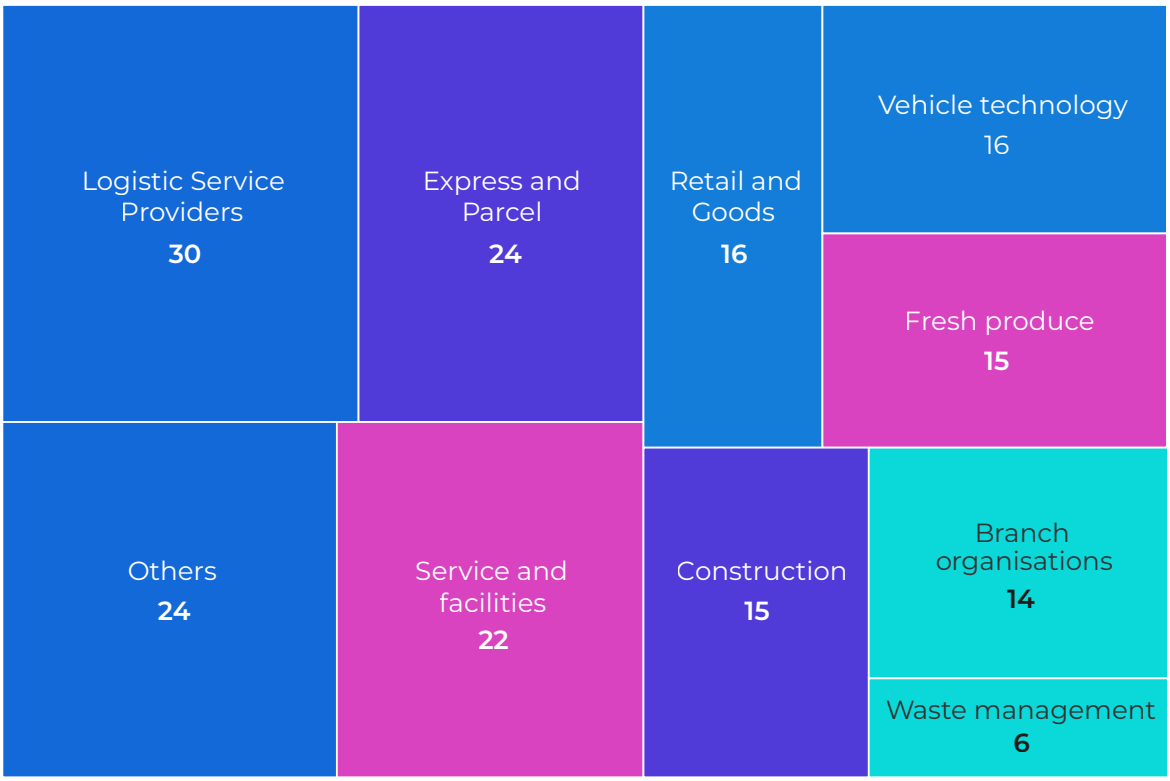


iv For this EU initiative, climate-neutral by 2030 is defined as a 80% reduction in greenhouse gas emissions. Remaining emissions can be offset but need to be mitigated by 2050.

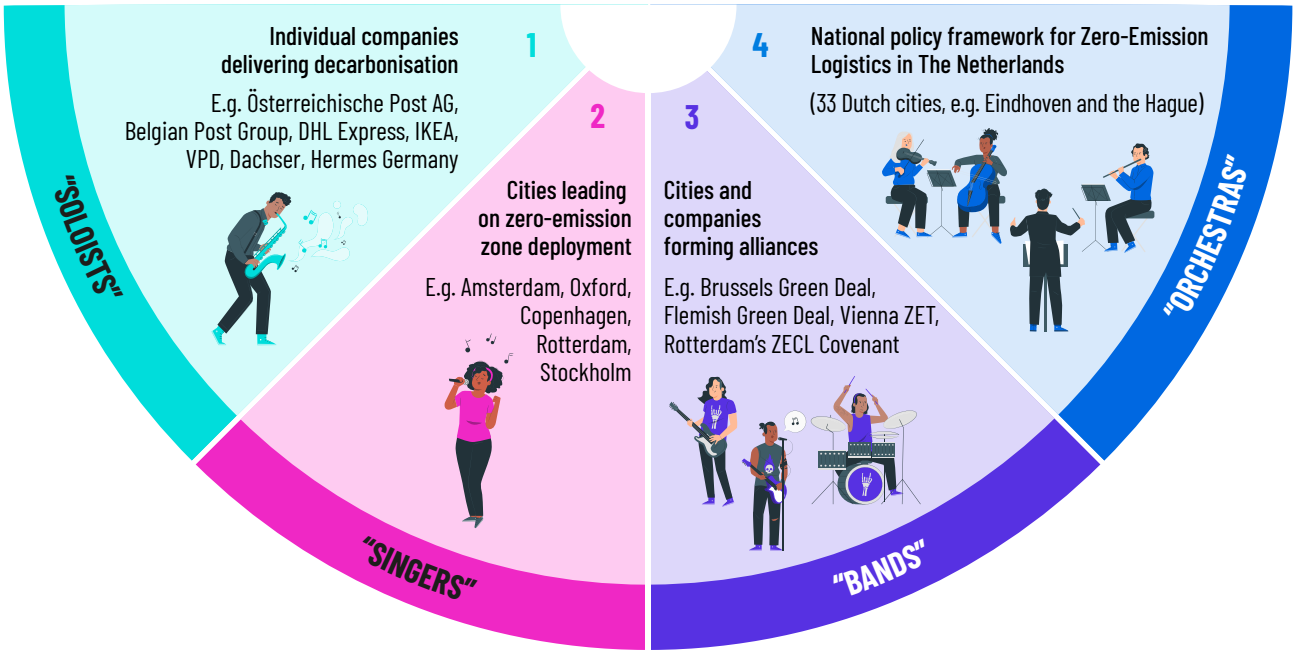
The signatory companies represent a diverse range of sectors, mirroring the economic landscape of each city, particularly its logistics sector. An analysis based on the categorisation used by the City of Rotterdam reveals that the majority of these companies are logistics service providers or involved in express and parcel deliveries, followed by businesses in services and facilities, fresh produce, construction, retail and goods, among others. The categories also include trade and branch organisations, vehicle manufacturers and shops, universities, consultancy firms and civil society organisations.

Companies working to transform urban logistics operate across various scales. Clean Cities have analysed the geographical scope of their operations and categorised them as local, national, European or global players (see graph below). While 47% of them are national in scope, including bpost (Belgium), Austrian Post (Österreichische Post AG) and PostNL (The Netherlands), 16% are global players, including major logistics companies like DHL Group, Dachser, DPD, GLS and UPS. Companies with a European focus make up 18% of the total, including DM, ABN Amro, Lidl and Lime. Local firms include restaurants, service and facilities providers, cooperatives, start-ups, and hospitals.

Companies that have joined alliances by sector



5. Four approaches to coordinate initiatives for zero-emission urban logistics



Music can be created in many different ways. In the same way, cities and companies can use different approaches to organise the transition to zero-emission logistics. Clean Cities has identified four fundamental approaches in examples analysed for this report (Amsterdam, Antwerp, Brussels, Copenhagen, Ghent, Leuven, Lisbon, Mechelen, Oxford, Rotterdam and Vienna).

These examples are summarised in the table below.

The approaches primarily differ in terms of who the main actors are and to what extent the initiatives are binding for the signatories. **According to Clean Cities, a binding policy should ultimately be adopted regardless of the chosen approach in order to meet climate and air quality goals and guarantee a level playing field for all companies.**

The soloists: individual companies delivering decarbonisation

Individual voluntary corporate commitments are a common approach among global companies. They often take action to achieve overarching corporate sustainability commitments or to respond to global initiatives, such as the United Nations Climate Change Conferences. These companies usually state that they want to be perceived as market leaders and inspire other initiatives, which can include calls for regulations such as zero-emission zones.

A detailed overview of the examples analysed by Clean Cities can be found in Annex C. Prominent examples include DHL Group, which aims to electrify 60% of its global fleet for last-mile deliveries by 2030. Ingka Group (one of the 12 franchises of the IKEA brand) has set the goal of becoming a circular business by 2030, which includes electrifying 100% of its fleet by 2025. IKEA's ambitious goal also extends to its subcontractors, which can catalyse electrification efforts among medium-sized logistic service providers.

In addition to global actors, numerous smaller companies have also undertaken similar initiatives. Austrian Post (Österreichische Post AG) plans to achieve zero-emission last-mile deliveries nationwide by 2030, having already reached this milestone in the cities of Graz, Innsbruck, and

Salzburg. In Belgium, bpost (Belgian Post Group) has committed to establishing so-called 'ecozones' in the country's 25 largest cities by 2025, and to reaching zero-emission last-mile delivery in the whole of Belgium by 2030. The company uses a dense network of pick-up and drop off points as well as electric cargo bikes and zero-emission vans to achieve these goals. Similarly, Belgian logistics company VPD is developing a network of hubs to bring last-mile deliveries as close as possible to customers, with 30% of their fleet already being emission-free. Numerous cargo-bike startups and new business models have also emerged (see Annex C for details).

Commitments by individual companies are particularly important in contexts where there are few existing examples of zero-emission urban logistics and no relevant regulations. As these commitments are usually not binding and often hard to monitor by external parties, Clean Cities welcomes these initiatives but considers that they will ultimately have to be replaced with or complemented by sector-wide initiatives or regulations.

The singers: cities leading on zero-emission zone deployment

Many cities in Europe began their journeys towards clean transport by adopting low-emission zones (LEZs), areas in which access for the most polluting vehicles is regulated.[26] More than 320 LEZs are currently in place, and more than 500 LEZs are set to be in force by 2025. LEZs can contribute to significant reductions in nitrogen dioxide (NO_2) concentrations of approximately 20% under various conditions. In some cases, such as central London, reductions can reach up to 46%.[37]

LEZs are, however, not enough to decarbonise urban transport and provide clean air, as modelling commissioned by Clean Cities has shown.[4] Cities should have a clear path towards zero-emission zones (ZEZs) by the 2030s to tackle the double challenges of air pollution and climate change.[38] In these zones, only active transport, (electric) cargo bikes and zero-emission motorised vehicles are permitted. Estimates show that ZEZs can reduce greenhouse gas emissions by more than 90%, and traffic-related nitrogen oxide (NOx) emissions by 95%.[4,39]

Generally, cities that plan to adopt **zero-emission zones typically start to roll-out the policy in the city centre and plan to expand them over time to cover the entire urban area**. ZEZs often include additional measures to enhance quality of life and provide financial assistance to individuals and businesses during the transition. Cities are usually in charge of monitoring and enforcing these policies, as well as considering and granting exemptions when necessary.

One of the first cities in Europe to introduce a zero-emission zone was **Oxford**. Since February 2022, **the city has operated a pilot scheme of a zero-emission zone (ZEZ)** in nine city centre streets. This zone, only zero-emission vehicles can be used without paying a charge. Petrol and diesel vehicles (including hybrids) used during 7 a.m. and 7 p.m. incur a daily charge ranging from £2 to £10, based on emissions classes. Oxfordshire County Council plans to expand the ZEZ to cover almost all of the city centre streets from 2026 onwards. A public consultation and a cabinet decision are expected in 2025. The expanded ZEZ will continue the charged-based scheme to support the transition to zero-emission mobility, improve air quality and cut carbon emissions in the city.

In **The Netherlands, numerous cities and the government decided to introduce zero-emission zones for freight vehicles freight** (ZEZ-F) as an intermediate step between existing low-emission zones and future zero-emission zones covering all types of vehicles. The rationale behind that is that companies usually have more resources and expertise to tackle the challenges of the transition to emission-free logistics. Their work can provide valuable lessons for the other road transport users. Amsterdam, for instance, will introduce a ZEZ-F inside the S100 ring road as of 1 January 2025. From this date, all newly registered vans and trucks must be zero-emission to enter the zone. Previously registered vans meeting the Euro 5 emission class will be allowed into the zone until 1 January 2027, and those with an emission class 6 rating until 1 January 2028. The requirements for trucks are stricter: They must be Euro VI class or higher. Until 20230, special rules apply to box trucks that may not be older than five years, and tractor-trailers that must stay below the age of eight years. From 1 January 2030 onward, only zero-emission vans and trucks will be allowed in the zone.

The bands: cities and companies forming alliances

Urban logistics involves complex distribution networks overseen by diverse stakeholders, including transport operators and service providers. This complexity underscores the **importance of coordination** among logistics companies as well as with other businesses, civil society organisations, and authorities. This is why in several European cities, alliances among businesses, authorities and, sometimes, civil society organisations, have been formed.

In this approach, local governments often collaborate with the private sector to develop a **unified framework for zero-emission logistics**, **agreeing on specific commitments for each signatory**. These agreements establish an institutional framework for discussing the city's strategy and sharing insights into the diverse solutions that different businesses adopt in order to reduce their carbon footprint. Open to new members, these partnerships usually aim to encourage various stakeholders to pilot and implement emission-free solutions. They can prepare and facilitate the introduction of binding regulations, such as in the city of Rotterdam.

The most recent such alliance was signed in **Vienna**. 32 companies, encompassing companies from various sectors and of different sizes, have committed to the use of zero-emission vehicles in two central districts of the Austrian capital from summer 2024 onwards.[33] The goal is that 100% of journeys become CO_2-free. The Vienna University of Applied Sciences is in charge of evaluating the project.

In the **Belgian region of Flanders**, including the cities of Antwerp, Ghent, Leuven and Mechelen, a **"Green Deal"** was initiated in 2019, signed by 4 Flemish Ministers and 6 initiators, including civil society organisations such as Clean Cities' partner Bond Beter Leefmilieu. In total, 29 stakeholders initially signed up.[30] The alliance has since grown to include 49 participants, focusing their efforts on five categories: avoid, shift, change, connect, and support.

In **Lisbon**, the World Business Council for Sustainable Development (WBCSD) coordinated the adoption of a **"Corporate Mobility Pact"** by an initial group of 50 stakeholders, with an additional 70 organisations joining since its launch in October 2019.[31] A total of 21 out of the 120 companies have committed to specific actions linked to urban logistics, such as increasing the use of cargo bikes and acquiring electric vans and trucks.

In **Rotterdam**, a **"Zero-Emission Covenant for City Logistics"** (ZECL) was signed in 2019, following a previous "Green Deal" adopted in 2014.[32] The agreement provides a clear signal of support from the private sector to the implementation of the ZEZ. The ZECL also helps inform other companies about the options available to shift to clean logistics, and creates a space for knowledge exchange with peers, universities, branch associations and experts.

What does each actor typically contribute to local alliances?

Cities	▸ Coordinate and monitor the adoption and implementation of the alliance ▸ Adopt and communicate a clear strategy for zero-emission urban logistics ▸ Make sure the necessary infrastructure is provided, e.g. for electric vehicle charging ▸ Provide targeted support to companies (e.g. expert advice, financial support) ▸ Adopt and execute an action plan to shift the vehicles owned by the city to zero-emission vehicles
Companies	▸ Define measurable objectives for the shift to zero-emission solutions and vehicles ▸ Run pilots and accelerate the shift to zero-emission urban logistics ▸ Collect and publish data on their progress ▸ Share knowledge and report back
Civil Society	▸ Take part in consultation processes to help design policies and solutions ▸ Make available specific expertise, e.g. on technical implementation, co-creation processes, etc. ▸ Inform citizens and other civil society organisations about the need for zero-emission urban logistics

Source: Clean Cities analysis of the existing zero-emission alliances.

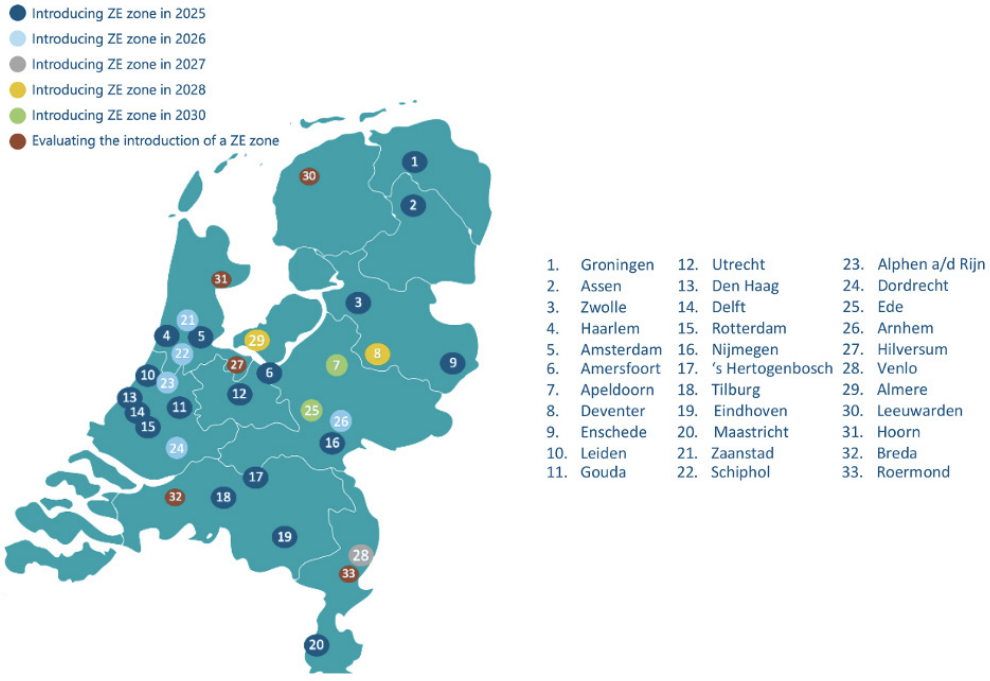
The orchestras: national frameworks

In Europe, cities can usually only adopt policies such as zero-emission zones if national frameworks grant them the necessary legal powers. In **Stockholm**, for instance, the new near-ZEZ in the city centre complies with the requirements for an 'environmental zone 3' as defined by **Swedish Law**. In **Denmark**, the national government is currently working on new legislation that would allow all Danish cities to adopt ZEZs under certain conditions. The new law is set to be adopted before the end of 2024.[40]

The Netherlands has taken steps at the national level to coordinate the introduction of zero-emission zones. The 2019 National Climate Agreement, signed by more than one hundred parties, set the goal of reducing GHG emissions by 49% by 2030 and by 95% by 2050.[27,41] The policy included the goal of setting up 30-40 medium-sized ZEZs for freight transport as of 2025 (see map below), aiming for a CO_2 reduction of 1Mt per year as of 2030 according to the initial estimate.[41] [v] In this multi-level governance approach, the Ministry of Infrastructure and Water Management handles cross-cutting aspects and provides standardisation and support to cities, for instance by setting minimum requirements and providing a national web portal for zero-emission zones. It has also updated national regulations to facilitate the creation of zero-emission zones.

The Dutch Ministry has launched a **centralised webpage** that provides comprehensive information about the zero-emission policy for all municipalities, serving as a **one-stop shop for requirements and exemptions**. Through this platform, drivers can enter their licence plates to access relevant regulations for their vehicles and find specific tools and information tailored for businesses and municipalities. This harmonised scheme simplifies the process for businesses to purchase clean vehicles, and provides a clear timeline across the country.

In the Dutch approach, **technical and financial support** is provided to the companies, especially small and medium-sized enterprises. For instance, logistics brokers provide **free advice to individual companies as well as local authorities**. The municipalities can independently take additional measures such as allocating subsidies and accelerating charging infrastructure roll-out.

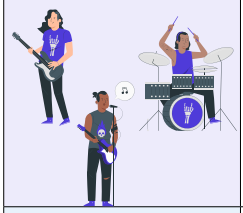


Source: Ministry of Infrastructure and Water Management of the Netherlands

v To date, 33 cities in The Netherlands have plans or are evaluating the introduction of a ZEZ in coming years. Updated information is available on the national zero-emission urban logistics official website.

How to choose the appropriate approach

Each approach has specific characteristics that should be taken into account when selecting one of them. These considerations are summarised in the following table.

Approach	When to choose this approach?	What should be considered by decision-makers?
Soloists: Individual companies leading the way 	▸ If the company has the resources and expertise to lead the way ▸ If the company wants to make rapid progress	▸ If companies are well-known in the city, they can inspire others ▸ Companies should communicate proactively to exhort others to join their efforts ▸ Monitoring relies on companies themselves
Singers: Cities leading on zero-emission zone deployment 	▸ If companies need a clear vision and timeline ▸ If investments from different sectors are required ▸ If SMEs need special support to manage the transition to zero-emission solutions	▸ Zero-emission zones require extensive preparation and consultation with all stakeholders ▸ A phased implementation of ZEZs has proven effective for frontrunner cities to learn at each step ▸ Changing the rules during the game (e.g. delaying the introduction of a new zone) usually harms those that have already invested ▸ ZEZ policies must include targeted complementary measures for certain companies, e.g. small and medium enterprises (SMEs)
Bands: Cities and companies forming alliances 	▸ If cities want to pave the way towards a zero-emission zone ▸ If the industry needs a community to share knowledge ▸ If the city wants to be sure of up-front buy-in to introduce zero-emission zones	▸ Every entity involved in the alliance should set goals that are specific, measurable, achievable, relevant, and time-bound ("SMART") ▸ Cities should coordinate and monitor the development of the alliance ▸ Participation of the key players of urban logistics is crucial to reach a critical mass ▸ Branch organisations can be of substantial importance in gathering support from the private sector
Orchestras: National frameworks 	▸ If there is a need to harmonise zero-emission policies across cities or regions ▸ If cities and regions require support to provide subsidies and incentives for businesses	▸ Support from national branch organisations has proven particularly valuable ▸ Regional approaches (such as the one in the Belgian Region of Flanders) can be an alternative if the national level does not have the necessary decision-making powers or political will to act.

Striking the first chord: roles & responsibilities

The analysis above has demonstrated that numerous cities and companies are already pioneering zero-emission logistics, setting an inspiring example for others to follow. It highlights that **there are various approaches available, which can be tailored to the specific local context**. Importantly, this underscores that there is no need to delay taking action; the groundwork has been laid, and the time to act is now.

While the challenges may vary from city to city, **it is possible to establish universally applicable roles and responsibilities** for both the public and private sectors in the transition to zero-emission urban logistics. Civil society organisations, such as the Clean Cities network, can also play a crucial role in helping to guide this process. Based on the research presented above, Clean Cities has identified the following priorities for each stakeholder (see table below).

Clean Cities applauds the pioneering efforts of cities and companies and urges further action to accelerate the adoption of clean urban logistics. At the same time, **a supportive and reliable policy framework is required at the European level**.

This not only includes i**mplementing the agreed 2035 phase-out date for the sales of new cars and vans powered by internal combustion engines in the EU**. Additional action will also be necessary, **adopting new legislation requiring all new vans in large fleets to go fully zero-emission by 2030 at the latest**.

If local, national and European measures are combined, the transition to zero-emission urban logistics and, ultimately, emission-free transport overall, will succeed and generate new opportunities for citizens and businesses. The pioneers showcased in this report have already demonstrated that the necessary solutions exist.

	Collaboration	**C**lear commitments	**C**harging infrastructure & vehicles
Cities (which can be assisted by regions and governments)	Coordinate the development of an ecosystem for zero-emission urban logistics	Adopt and communicate a clear strategy for zero-emission urban logistics and the calendar for the introduction of a zero-emission zone	Make sure the necessary public charging infrastructure is provided for electric vehicles Provide targeted support to companies to switch to zero-emission vehicles
Companies	Join alliances for zero-emission logistics Share knowledge (e.g. from pilots)	Adopt a strategy for zero-emission logistics and make specific, measurable commitments	Accelerate the shift to zero-emission vehicles Roll-out private charging infrastructure
Civil society	Join local alliances and communicate publicly on the work of these alliances	Advocate for transparent and, eventually, binding commitments Highlight the role of solutions beyond electric vans and trucks	Help develop local/ regional/national strategies, e.g. through

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