

Electromobility and urban logistics

TRENDS FROM MARKET, POLICY, RESEARCH AND TECHNOLOGY

The transition towards decarbonised last-mile logistics has become increasingly evident in the previous year through new developments in the market, policies, and scientific research on logistics. We see large **businesses** investing in electrifying their fleet, and smaller companies receiving support to do the same. This is often sparked by the formulation of (inter)national targets and **policy** measures, aiming for zero-emission transport. To keep up with ambitious goals, new technologies are being created. Additionally, **research** on trends such as the adoption of electric vehicles and the spatial development of logistics facilities provides insights into current challenges and future perspectives. Similarly, our recent [article](#) set out factors that stimulate the uptake of compact electric vehicles.

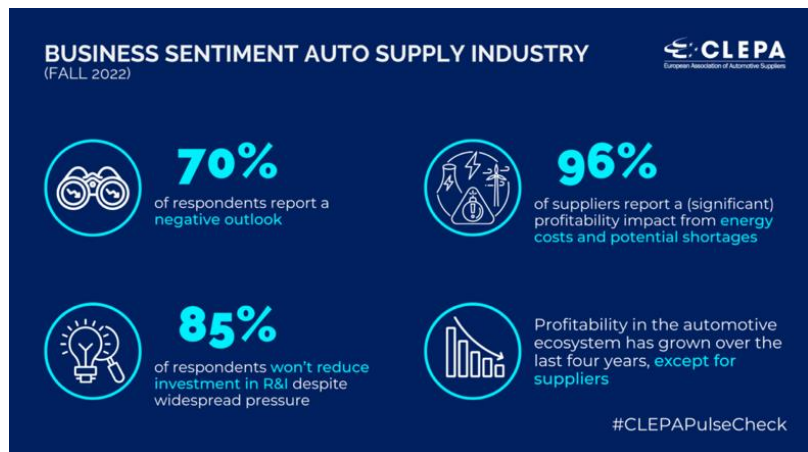


URBANIZED aims to contribute to the decarbonisation of urban logistics by designing a modular, compact electric delivery vehicle. To illustrate the context in which these types of vehicles are deployed, this report highlights several recent publications on market developments, policies, and research and technology regarding logistics in and beyond Europe.

Market

AUTOMOTIVE SUPPLIERS UNDER MOUNTING PRESSURE DUE TO HIGH ENERGY COSTS AND POTENTIAL SHORTAGES

CLEPA, the European Association of Automotive Suppliers has recently performed a pulse check with their members. The outcome shows a clear picture that automotive suppliers are facing difficult times, with dropping profits due to high energy and freight costs, as well as supply chain shortages. Nonetheless, it shows that the large majority continue to invest unrelentingly in R&I to face the green and digital transformation. [Read more](#)



AMAZON TO INVEST 1 BILLION EURO IN LOGISTIC HUBS, ELECTRIC VANS AND TRUCKS

Amazon announced their 1 billion dollar [investment plan](#) in hubs, electric vans and trucks. Of these funds, almost 300 million euros will be allocated to the [UK market](#). Noticeably, the delivery giant is trying to spearhead long-haul electric trucks with its purchasing power. It is still debated whether long-haul diesel trucks should be replaced by electric or fuel cells trucks, with the biggest truck manufacturers ([Daimler & Volvo](#)) opting for a dual-track strategy. [Read more](#)

LARGE FINANCIAL IMPULSE FOR ELECTRIC TUK-TUKS IN INDIAN CITY LOGISTICS



Three Wheels United (TWU) is collaborating with ZynGO, a frontrunner in India's low-carbon logistics industry for e-commerce, to boost the uptake of electric vehicles for last mile deliveries. While global fintech company TWU offers financial incentives in the form of loans, ZynGO provides benefits such as assistance with vehicle maintenance and access to charging infrastructure. The partnership intends to have more than 2500 electric delivery vehicles operating in Delhi NCR, Bengaluru, Chennai, and Hyderabad before the end of 2023. This is a

promising development considering the extent of logistics transport-related emissions, which is particularly high in India's largest cities. [Read more](#)

AMSTERDAM XXL LOGISTICS CITY HUB OPENING EARLY 2023

With a surface of 125.000 m² dedicated to storage and distribution of goods, CTPark Amsterdam City will open in early 2023 as the largest logistics hub in the Netherlands. It is located near the North Sea Canal, close to the city centre and directly connected to the highways. Companies can rent space for their operations starting from 2500 m² in the multistorey building. The hub offers the possibility for logistics stakeholders to consolidate goods – possibly bundling with multiple companies – and transfer them from large ships and trucks to



smaller zero-emission vehicles for the last miles. The logistics facility generates its own energy with a total of 16.000 solar panels and 10 wind turbines placed on the roof. With an additional restaurant, rooftop garden, and the two top floors reserved for offices, the CTPark Amsterdam City aims to become a lively and pleasant working environment. [Read more](#)

RETROFITTING THREE-WHEEL MOTORBIKES INTO LIGHT ELECTRIC VEHICLES

Revive Earth Limited, owned by Chukwuemeka Eze has been nominated for the Africa Prize for Engineering Innovation. Their team has developed a toolkit for converting 3-wheel motorbikes with Internal Combustion Engines into a Light Electric Vehicle that runs on li-ion batteries. To retrofit the motorbikes, they study different engines, adjust their gears, replace parts of the engine with an

electric motor, fix it to the chassis and repaint the vehicle. As global fuel prices surge, this company has set out to deliver affordable and sustainable transport. [Read more](#)

Policy

THE URBANIZED PROJECT ENCOURAGES NEW EXPERT GROUP ON URBAN MOBILITY

To implement the 2021 smart mobility framework a new expert group has started its work. The URBANIZED project encourages this group to follow URBANIZED's project results. Like the smart mobility framework, URBANIZED aims to ensure that the existing sustainable urban logistics plans (SULPs) are better embedded in the SUMP framework and further developed and implemented across the EU. We aim to deliver this objective through collaboration with different urban logistics projects, stakeholder solicitation and by assessing the impact of the URBANIZED vehicle on cities.

[Read more](#)

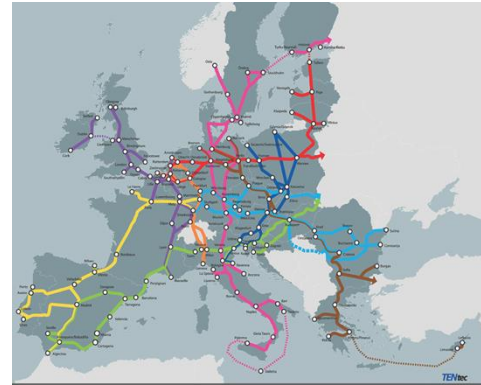
EU TARGET: ALL NEW CARS AND VANS TO BE ZERO-EMISSION FROM 2035



In July 2021, the European Commission proposed to revise the Regulation (EU) 2019/631, aiming for zero-emission road mobility by 2035. The target for 2035 is set at a 100% reduction of emissions from new passenger cars and light electric vehicles, as compared to 2021. As an intermediate target, this reduction should be 55% and 50% for cars and vans, respectively. The target indicates that although conventional vehicles with combustion engines can still be used after 2035, new cars and vans entering the market from that year on [must be zero-emission](#). The target is needed in order to reach the goal of CO2 neutrality of all cars by 2050. This revision with new goals was recently backed by the [European Parliament](#), on June 8th, 2022. Find out what the EU target means for practice in the article linked below. [Read more](#)

EUROPEAN PARLIAMENT CALLS FOR A CAR-RECHARGING STATION EVERY 60 KM

For the past two years, Brussels has been busy revising the 'Directive on Deployment of Alternative Fuels Infrastructure'. In the most recent legislative activity, the European Parliament accepted their position on the interinstitutional negotiations. This means the European Parliament (EP) will be negotiating with the Member States on the final form of the revised Directive. According to the EP, Member States should have ensured an EV charging pool every 60 km along the TEN-t road network by 2026. Interestingly, the EP is also asking for a hydrogen refuelling station along main EU roads every 100 km by 2028. [Read more](#)



BARCELONA INTRODUCES TAX ON LARGE E-COMMERCE DELIVERY COMPANIES

If the measure is accepted early next year, Barcelona will start from March 2023 onwards with taxing companies that deliver e-commerce products within the city. The so-called "Amazon tax" will only affect companies with an annual revenue of over €1 million. This means that 26 companies in Barcelona, including Amazon, will need to pay a fee of [one percent](#) of their annual gross income. By introducing this tax, councillor Jordi Martí hopes to reduce congestion and pollution caused by urban delivery vehicles, as well as support small and more local retailers. The measure will exclude collection points and business to business deliveries. [Read more](#)

Research & technology

RIGHT-SIZING OF POWERTRAIN COMPONENTS



In the URBANIZED project, an optimisation framework has been proposed to determine the optimal sizing of e-motor and battery for a 48V e-drivetrain utilised in urban vehicles. A forward-facing and scalable simulation model in Matlab/Simulink has been developed to evaluate virtually vehicle performances such as battery energy consumption and drivetrain cost, which are the considered objective functions to be minimised. In this simulation, a mission profile generation (MPG) tool has been developed to create the vehicle driving cycles used typically in two use-cases (UCs) for the urban vehicles. UC1 is the HoReCa and on-demand emergency services and UC2 is the

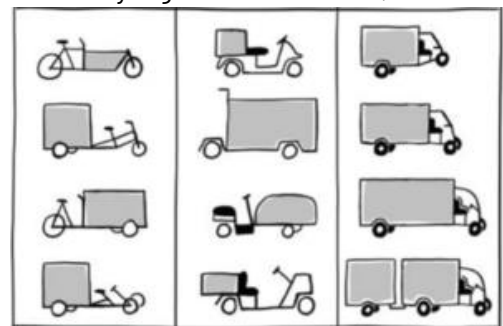
last-mile delivery of retail, courier, and post. In this pre-sizing design phase, two of the most challenging driving cycles (maximum speed 70km/h) have been selected for vehicle simulation and optimisation. [Read more](#)

REVIEW ON INTEGRATED ON-BOARD CHARGER-TRACTION SYSTEMS: V2G TOPOLOGIES, CONTROL APPROACHES, STANDARDS AND POWER DENSITY STATE-OF-THE-ART FOR ELECTRIC VEHICLE

Advances in vehicle charging technology are needed to sustain the current electrification of transport. Fast charging, Vehicle-to-Grid, charger performance and lifetime are challenges that are currently pressing to truly enable logistics and private mobility in the electrification of their transport. This paper by Shahid Jaman reviews the current State-of-the-Art in On-Board Charger-Traction Systems. In line with the research attention for integration and down-scaling of power electronics, the paper shows several possible integration approaches for On-Board chargers with other power electronic modules. [Read more](#)

EXPLAINING THE GROWTH IN LIGHT ELECTRIC FREIGHT VEHICLES

“What are the success and failure factors of the introduction of light electric freight vehicles (LEFVs) in city logistics and what are the future perspectives on LEFVs in city logistics?” Van Duin, Ploos van Amstel, and Quak (2022) answer this question in their recently published book chapter, bringing in various examples from the urban logistics industry. The chapter uses a Technical Innovation System (TIS) framework to evaluate the systemic change towards the use of LEFVs for urban logistics, examining all actors, institutions, infrastructures, and interactions involved. With an additional SWOT analysis, the authors discuss the future perspectives of LEFVs, touching upon factors such as hub development, safety standards, and market formation. [Read more](#)



THE PROMISING DEVELOPMENT OF PROXIMITY LOGISTICS



The academic paper by Rai et al. (2022) explores the trends that influence *proximity logistics*, a phenomenon that opposes logistics sprawl. Proximity logistics refers to the development of logistics facilities (e.g., fast delivery hubs, sortation centres, pick up locations) in dense and mixed-use urban areas, offering great potential for smaller

transport distances and, thus, less emissions. Rai et al. dive into five case studies from across the world: New York City, Paris, Seoul, Shanghai, and Tokyo. They discuss the similarities and differences between the cases, ranging from the degree of government intervention to the emergence of multi-use logistics facilities. [Read more](#)