15 key terms redefining urban mobility today

— by Anna González & Sergio García i Rodríguez

In the dystopian Los Angeles of Blade Runner (1982), flying cars replace those that glide along the ground. Amid luminous skyscrapers and neon fog, the air is the medium through which people travel, and the police patrol the city, parking on rooftops and leaving streets and plazas behind like fossilized memories of a bygone era. Although that city was inspired by the year 2019—now in the past—, **when we imagine urban mobility innovations, we tend to think of strange, whimsical, even frivolous ideas** that transport us through an environment stripped of habitability and human character.

However, today's cities and how we move through them haven't morphed into the hyperbole Philip K. Dick envisioned in the book that inspired the film. Even so, t**echnology is evolving faster than ever**, with urban societies and mobility keeping pace. **Urban mobility is advancing rapidly, adapting to the myriad challenges contemporary cities face**—from decarbonization to urban inequities—driven by innovation, sustainability, and the compounded needs of all urban stakeholders.

In this context, **how can we navigate the jargon of terms and technologies generated by such rapid disruption in urban mobility?** Inspired by our attention to global trends that are constantly reshaping cities, we have prepared a glossary of **15 terms that are undeniably shaping the present and future of how we move through urban environments.**

This is not intended to provide academically rigorous definitions but rather to serve as **a guide for anyone interested in understanding how cities and mobility interact with each other.**

1 | Multimodal mobility

Leaving home, walking just 25 meters, then hopping on a public bike for a 400-meter ride to the tram stop, traveling four stations by tram, and finally taking the cable car to reach that favorite park high up in the city. Today, **getting around in cities often means using multiple modes of transport—or at least having various options to move from one place to another.** This is exactly what multimodal mobility is all about: combining different transportation modes—whether public or private, active or not—such as walking, cycling, driving, public transit, and ridesharing—into a single, seamless journey.

2 | Mobility as a Service (MaaS)

In this era of multimodal mobility, where seamless connectivity and smartphones are the norm, **urban transport can no longer rely on multiple tickets and payment methods for each mode needed** to travel from point A to point B. **Mobility as a Service (MaaS) addresses this fragmentation by integrating various transportation options into a single, user-friendly platform.** With a MaaS app or system, users can plan, book, and pay for services like public transit, ride-sharing, car rentals, bikes, scooters,

and taxis—all from one interface, often using a subscription or pay-as-you-go model. MaaS not only enhances **convenience** but also promotes sustainability by optimizing travel routes and reducing CO_2 emissions.

3 | Mobility on Demand (MoD)

From both the user's and provider's perspectives, nothing offers greater **efficiency** than Mobility on Demand (MoD): a transportation model where **users can access and pay for services as needed, instead of relying on fixed schedules or routes.** Leveraging technology—typically through mobile apps—MoD provides **flexible, real-time access to various transportation options, from private car-sharing to on-demand taxis.** Cities like **Seoul, Dubai or Edmonton** are integrating MoD into their public transport systems with **Bus-on-Demand solutions**, optimizing resources and travel while enhancing user comfort, particularly in remote urban areas or places with irregular transportation patterns.

4 | Shared Mobility

The transformations taking place in urban mobility across our cities cannot be understood without discussing the phenomenon of shared mobility, **a global market that is expected to grow by 12.5% annually through 2028 (Research and Markets, 2024).** The core concept behind this mobility model is as clear as its name: sharing. Shared mobility systems enable users to s**hare vehicles (carsharing, bike-sharing, scooter-sharing)** or trips (ride-sharing) through a variety of both private and public options. Beyond sharing mobility options, this system also means sharing the costs of the vehicles themselves—**reducing the need for personal vehicle ownership**—as well as decreasing the space they occupy on the streets and the congestion associated with them, while optimizing the energy used for transportation within the city.

5 | Ride-Pooling & Peer-to-peer ride-sharing

Maximizing route efficiency is the goal of ride-pooling and peer-to-peer (P2P) ride-sharing, two shared mobility models where **users planning similar routes share both the journey and the vehicle.** The main difference between the two is that in ride-pooling, the driver is also a passenger on the same trip, while in P2P ride-sharing, the driver acts as a service provider, charging passengers for the ride. Both models help reduce the number of vehicles on the road by allowing passengers with similar routes to share rides, which in turn reduces congestion and emissions, making cities more efficient.

6 | E-hailing

For those who prefer not to share rides, the taxi remains a popular option for getting around the city. However, this mode of transport, which dates back to the early 17th century when horse-drawn carriages were used in London, is adapting to the future—just like the rest of us. **Whereas we once hailed a taxi by raising our hand on the street, today we request one through an app** before even leaving home, specifying the pickup location and time, and often entering the route in advance. This allows us to know the fare before finalizing the ride. This system, known as e-hailing, offers greater efficiency for both users and drivers, as well as increased transparency and safety during travel.

7 | Micromobility

At the opposite end of relying on multiple mass transit modes to get around the city is micromobility. This term refers to **small, lightweight vehicles designed for short-distance travel or personal commuting, often powered by electricity or human effort, such as bicycles, e-scooters, mopeds or electric motorbikes.** Since the last decade, shared micromobility has become an increasingly integral part of public transport systems and MaaS frameworks, both through **station-based and dockless systems.** The latter, which allows vehicles to be picked up and dropped off anywhere in the city, is experiencing unprecedented growth: according to NUMO, the New Urban Mobility alliance, **1,200 cities across 66 countries** now have this type of service operating on their streets. Advantages? Extreme flexibility for users and low carbon emissions. Disadvantages? A volatile, constantly evolving challenge from the perspectives of urban planning and street management.

8 | Low-emission Zone (LEZ)

With urban air pollution posing a growing public health threat, cities like Barcelona, London and Paris have introduced Low Emission Zones (LEZs) to curb harmful vehicle emissions. An LEZ is **a designated area where the most polluting vehicles -usually older diesel and gasoline models- face restrictions or fees to reduce harmful emissions**. By prioritizing cleaner air, these zones encourage **a shift toward low-emission and electric vehicles (EVs), while also promoting greater use of public transport and active travel options like walking and cycling.** These measures not only help improve air quality, lower greenhouse gas emissions and reduce respiratory ilnesses, but also enhance urban quality of life, making cities greener, more livable, and more attractive for residents and visitors alike.

9 | Traffic Calming

As cities strive to balance growing urban populations with sustainable mobility, traffic calming has become a vital tool for transforming busy streets into safer, more livable spaces. **It involves urban design strategies and measures aimed at reducing vehicle speeds, improving pedestrian safety, and creating more people-friendly environments.** Common approaches include measures like speed bumps, raised crosswalks, curb extensions, and narrower roads, all designed to slow traffic and encourage walking and cycling. A standout example is Barcelona's Superblocks (Superilles), which restrict car traffic in selected neighborhoods, creating vibrant pedestrian zones that promote healthier living, enhance safety, and improve air quality.

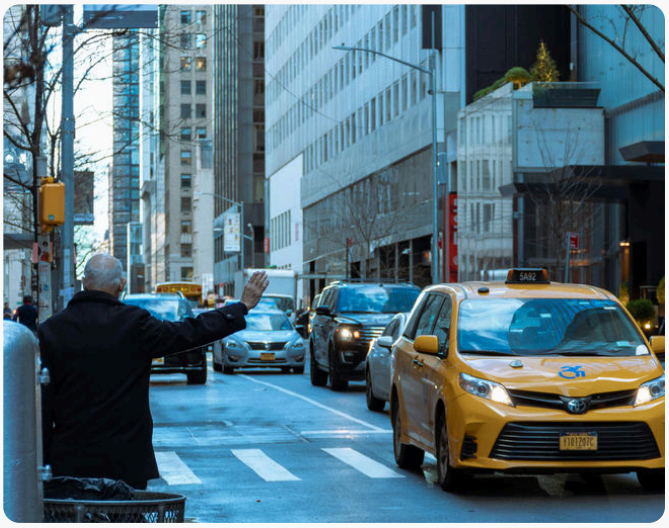
10 | Soft Mobility

As cities aim to prioritize safety, sustainability and healthier lifestyles, "soft mobility" emerges as a cornerstone of urban planning. Also called "active mobility", it includes **all ways of getting around under your own steam** (cycling, walking, or even roller-skating), and, in some contexts, it also refers to **all environmentally-friendly modes of transportation,** like electromobility or other forms of micromobility. These modes not only **reduce air pollution and carbon emissions but also ease traffic congestion and promote public health.** They play a crucial role in reducing emissions and **reclaiming space for pedestrians**, making urban areas more livable. Soft mobility can only thrive when policymakers create a suitable environment for it, such as **traffic calming zones,** so by investing in this type of measures, cities encourage residents to adopt softer, eco-friendly ways of moving through urban spaces.

11 | Electric vehicles (EVs)

Did you know that **road transport accounts for the majority of greenhouse gas emissions in the EU**, largely from petrol and diesel vehicles? In this context, as cities push for cleaner air and reduced carbon emissions, it is no surprise that electric vehicles (EVs) are driving a major shift in urban mobility. Unlike conventional petrol or diesel cars, **EVs are powered by rechargeable batteries, don't have exhaust pipes and don't emit gasses when running.** This shift not only cuts down on pollution but also **reduces the overall carbon footprint of road transport**, which is a major contributor to greenhouse gas emissions. With advances in battery technology and expanding charging infrastructure, EVs are becoming more accessible, offering a sustainable and cost-effective alternative for urban commuters and fleets alike.

> **When we think about the future of urban mobility, we often imagine dystopian concepts. However, the reality is quite different: today's cities are experiencing mobility innovations that provide specific solutions to adapt to modern societal needs in real time.**



12 | V2X

In a connected urban ecosystem, V2X (**Vehicle-to-Everything**) communication is the backbone of smarter and safer travel. **This technology uses sensors, cameras and wireless connectivity to enable vehicles to share real-time information** with their drivers, other vehicles, pedestrians, and infrastructure like traffic lights. By facilitating the **exchange of information between a vehicle and its surroundings, V2X enhances road safety, reduces congestion, and optimizes energy use** through real-time alerts and adaptive responses. It also lays the groundwork for **autonomous vehicles** to function effectively within urban environments. As cities invest in smart infrastructure, V2X plays a vital role in shaping the future of seamless, efficient, and responsive mobility systems, paving the way for more sustainable and connected cities.

13 | Autonomous Mobility

The vision of **self-driving cars** and robotic taxis is steadily becoming a reality, transforming how we envision urban travel. **An autonomous car is a vehicle capable of sensing its environment and operating without human involvement.** This groundbreaking technology relies on **advanced sensors, artificial intelligence, real-time data processing and V2X technology** to navigate and make driving decisions. Although autonomous vehicles have the potential to revolutionize urban transportation by improving safety, reducing accidents, and optimizing traffic flow, challenges remain, including regulatory hurdles and the integration of autonomous systems into complex city environments. Hence, as cities adapt, discussions heat up around safety, ethics, and the impact of this technological leap on our everyday lives.

14 | Last Mile Delivery

In the age of e-commerce and instant gratification, **last-mile delivery tackles the challenge of transporting goods from a distribution hub to the customer's doorstep** –a critical yet often inefficient stage in logistics. **This phase is particularly significant as it's often the most complex and costly,** requiring navigation through congested urban areas while meeting customer demands for speed and convenience. To address these challenges sustainably, many cities are currently embracing **eco-friendly solutions** like electric vans, self-driving delivery robots, cargo bikes or advanced AI optimizations to enable carbon neutral e-commerce delivery. For example, **cities like Copenhagen, Amsterdam, and Stockholm are leading the way,** with initiatives such as cargo bike deliveries, bike-friendly infrastructure, and green logistics solutions that reduce emissions and enhance efficiency.

15 | Dynamic Pricing

In bustling urban environments where traffic congestion and peak-hour crowding are daily challenges, innovative solutions are essential to keep cities moving. Dynamic pricing has emerged as a powerful tool, **adjusting costs in real time based on demand.** This approach is widely applied in transportation services, including toll roads, ride-hailing platforms, and public parking. By incentivizing off-peak travel and optimizing resource allocation, **dynamic pricing helps distribute demand more evenly and alleviate gridlock**. While it promotes economic efficiency, it also raises concerns about equity, as cities work to balance affordability with effective traffic management.

→ About the authors

Anna Gonzàlez
Consultant
& Mobility Expert | Anteverti

Sergio García i Rodríguez
Head of Communication
& Senior Consultant | Anteverti
Executive Director | CitiesToBe

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