URBAN MOBILITY

EUCAR PERSPECTIVE ON URBAN MOBILITY

Europe's urban areas[1] are home to 70% of the EU population[2] and generate up to 85% of Europe's GDP[3]. Thus, they play a central role in the future development of the EU, and the framework programme Horizon Europe needs to address the challenges that cities are facing. That is why one of the "Missions"[4] in Horizon Europe is dedicated to *Climate-Neutral and Smart Cities*[5]. This "Cities Mission" aims at forming 100 climate-neutral and smart cities by 2030, ensuring that these cities act as innovation hubs to enable all European cities to follow by 2050. Co-designing smart systems and services for user-centred shared zero-emission mobility of people and goods in urban areas are key innovation areas for EUCAR and its members.

This document aims to constructively contribute to a dialogue on how to increase the quality of life in cities by improving mobility and making the cities cleaner, more silent, safer and eventually fossil-free. The ambition of the "Cities Mission" serves as a suitable starting point for the discussion as well as the ERTRAC vision[6] stating that *"People and goods can reach their destinations in cities in a way that is healthy, safe, affordable, reliable and comfortable"*.

[1] For the sake of simplicity, urban areas are called "cities" in this document
[2] Eurostat
[3] http://ec.europa.eu/regional_policy/en/policy/themes/urban-development/
[4] https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe_en
[5] https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe/climate-neutral-and-smart-cities_en
[6] ERTRAC, "Future Road Transport 2050" document

POINT OF DEPARTURE

EUCAR is convinced that quality of life is complemented and enhanced by the quality of mobility. We use our expertise in mobility to help create sustainable cities of the future. We think that the effort and focus are needed for several insights and aspects, including:

- **One single stakeholder cannot solve the challenges alone**
  A holistic approach and multi-stakeholder collaboration are essential
- **Cities have different challenges**
  Cities come in various forms and sizes. A toolbox and platform for tailored solutions are required
- **User and citizen focus**
  One solution does not fit all, address the multiple needs that exist
- **Vehicles and mobility solutions cannot be designed for single cities**
  Develop flexible and scalable solutions. Take advantage of economy of scale and preserve the integrity of the internal market
- **European competitiveness**
  New solutions should be developed, tested and deployed in Europe while keeping their export potential in mind

The automotive industry is one of the most important growth engines for economic welfare in Europe. The strength of industry should be used to address the mobility challenges we are facing in European cities. Novel and advanced versions of the passenger car and the commercial vehicle will contribute to integrated public transport solutions as well as improvements to the transport system at large. This will contribute tremendously to societal, environmental, and economic welfare, job creation and growth of Europe. Superior solutions can be exported globally and thus position Europe as a world leader in innovation, production and services.

Quality of mobility will require new partnerships, new ways of thinking and new technologies. We are, however, not starting from scratch. On the contrary, EUCAR is already working on key enablers for future urban mobility such as:

- Vehicle electrification
- Vehicle automation
- Mobility services
- Mobility solutions based on energy from renewable sources
- Digital connectivity and big data
- Integration of materials from sustainable resources (green solutions for a circular economy)

Some of the building blocks required, already exist in various stages of development or can be developed in a reasonable timeframe. What is needed now, to move towards "Climate-Neutral and Smart Cities" is development, testing and large-scale implementation of these new solutions. The way forward relies on close stakeholder collaboration and the integration of solutions from various technological and scientific domains. To realize all this, we developed the European Urban Mobility Labs.

EUROPEAN URBAN MOBILITY LABS

European Urban Mobility Labs is about mobility-related demonstrators, pilots and pre-deployment activities under the umbrella of the Horizon Europe's "Cities Mission"). The goal is scalable, affordable and efficient urban mobility solutions that are based on the precise needs of users, cities and communities. In brief, mobility providers, cities and other relevant stakeholders will work together. Cities will be more than "customers" of project results; they will be invited to become active project partners.

The European Urban Mobility Labs will...

- Provide room for the development, test, implementation and scale-up of efficient urban mobility solutions
- Foster technology development accompanied by policy-making for holistic, human-centred solutions
- Enable multi-stakeholder dialogues and common planning
- Take full advantage of virtual comparative tests of alternative systemic solutions
- Provide access to expertise in running large and complex projects (this is a key competence of the automotive industry)
- Interact with European platforms for harmonization and standardization
- Link to national and regional initiatives
- Offer an ecosystem for "cross-fertilization" by the mixing of ideas, perspectives, solutions and stakeholders
- Address physical and digital infrastructural measures

The underlying thinking behind the European Urban Mobility Labs is illustrated in FIGURE 1.

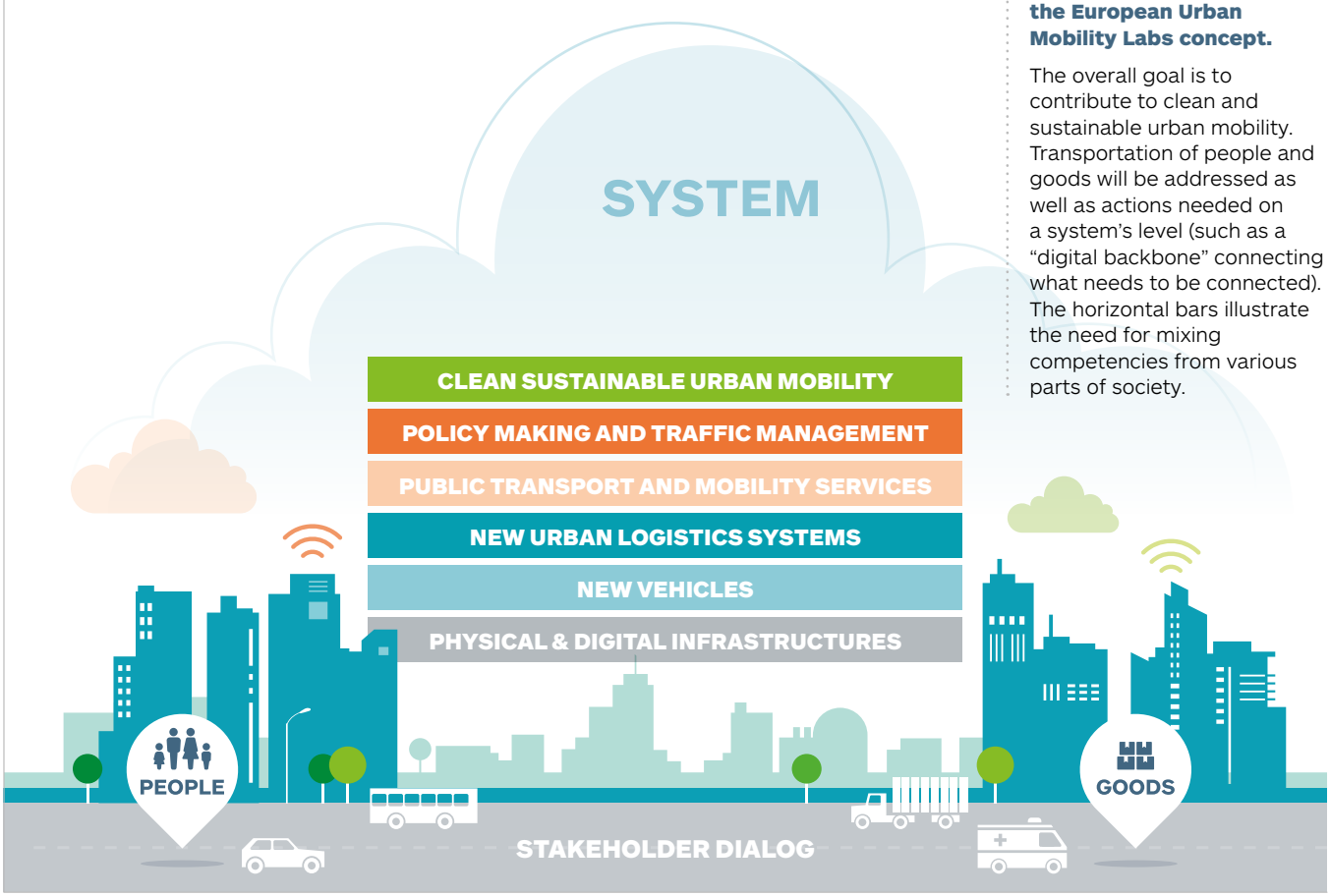

FIGURE 1
Conceptual outline of the European Urban Mobility Labs concept.

The overall goal is to contribute to clean and sustainable urban mobility. Transportation of people and goods will be addressed as well as actions needed on a system's level (such as a "digital backbone" connecting what needs to be connected). The horizontal bars illustrate the need for mixing competencies from various parts of society.

POTENTIAL ELEMENTS OF A SUSTAINABLE SOLUTION

To initiate the European Urban Mobility Labs, it will be necessary for stakeholders to meet, listen, identify needs, analyse the situation and agree on common actions. Such stakeholder dialogues could include topics like carbon-neutral and clean cities, quality of life, affordable mobility for all, reduced need for parking and road space, as well as how to contribute to a cleaner, safer and resource-efficient environment. The discussion also needs to include how to maintain Europe's leading position in mobility, how to create jobs and how to strengthen the competitiveness of European industry in an era of disruption.

The idea of the "Cities Mission" will bundle the transformative energy from cities towards carbon-neutrality and climate resilience by 2030. EUCAR and its members can contribute and play an important role in this transformation with mobility innovations for:

PEOPLE

- Products and services for emission-free driving in urban centres
- Next generation of car-sharing and ride-hailing services
- Autonomous electric robotaxis (on-demand mobility)
- Collective transportation brought closer to the people via silent emission-free buses enabling new opportunities for city planning
- Shared commuter shuttle services
- Integrated last-mile mobility solutions

GOODS

- Novel logistics solutions including e.g., mobile consolidation centres, data-driven logistics and efficient and silent night-time distribution (reduces day-time congestion)
- Safe, modular and flexible autonomous driving trains (convoys) of trucks (and buses)
- Low-speed fully automated vehicles for urban hub-to-hub applications (goods transport to and from cities and logistics terminals)
- Automated solutions preventing accidents and increased visibility in dark hours by providing infrastructure-based object detection
- Automated docking to charging infrastructures, parking and loading bay automation
- Urban last-mile solutions using dedicated trucks or electric vans with range assurance

SYSTEMS

- Integrated cloud platform connecting all users e.g., people, vehicles, infrastructure, and logistics partners ("transportation mobility clouds")
- Digital charging solutions (integrated with vehicles and providing easy access to public charge points)
- Charging control system for the stabilization of the power grid for solar power and wind power
- Low-cost inductive (contactless) charging for electric vehicles
- Multimodal mobility and transportation concepts
- Alternative fuel solutions (such as hydrogen and biofuels)

NEXT STEPS

EUCAR welcomes an open dialogue on innovating urban mobility within Horizon Europe and the "Cities Mission". European Urban Mobility Labs can serve as examples for creating *"the first one hundred carbon-neutral cities by 2030"*. In addition, European Urban Mobility Labs complement other initiatives such as the Knowledge & Innovation Community (KIC) on Urban Mobility supported by the EIT[7].

EUCAR is prepared to act as a hub and coordination body supporting the development of user-centric future vehicles and urban mobility services through the European Urban Mobility Labs. Please contact the EUCAR Office for more information.

[7] https://eit.europa.eu/collaborate/2018-call-for-proposals

ABOUT EUCAR

EUCAR (European Council for Automotive R&D, www.eucar.be) is the association for collaborative research and innovation of the major automobile manufacturers in Europe. These manufacturers contribute to sustainable mobility and a competitive European industry, investing more than €62bn per year in research and development. The industry's investments are leveraged by the collaborative work performed with the support of the European Framework Programmes, currently Horizon Europe. The EUCAR Council comprises the heads of research and advanced development of the member companies

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