FAME Live Talk: Deploying Automated Mobility to Complement Public Transport in European Cities

Clarisse de Cerjat, Project Coordinator

Agenda

- Welcome and Introduction
- Speaker Presentations
- Audience Q&A

Preparing cities for CCAM

- **What is FAME (Framework for coordination of Automated Mobility in Europe)?**
  - The **Framework for Automated Mobility in Europe** supports:
    - The European Commission and CCAM Partnership's commitment to a **long-term coordination framework** for R&I, testing, and evaluation.
    - **Stakeholder engagement** across Europe and internationally to align and develop methodologies, testing frameworks, and a robust Knowledge Base.
- **Key discussion points today:**
  - Role of automated mobility in sustainable urban transport.
  - Strategies and challenges in implementing CCAM technologies.
  - Synergies between public authorities and operators to drive CCAM forward.
- For more information: Connected Automated Driving

EURO CITIES

Speakers

Helmut Augustin, Head of the Coordination Unit for Digitization, City of Vienna

Clementine Barbier, Head of Autonomous Mobility, Keolis

Vienna's Position on Automated Mobility

Our positions, principles & priorities

City of Vienna

- Download Vienna's Position on Automated Mobility, german: https://www.digital.wienbibliothek.at/urn/urn:nbn:at:AT-WBR-1386777

- Download Vienna's Position on Automated Mobility, english: https://www.digital.wienbibliothek.at/urn/urn:nbn:at:AT-WBR-1550098

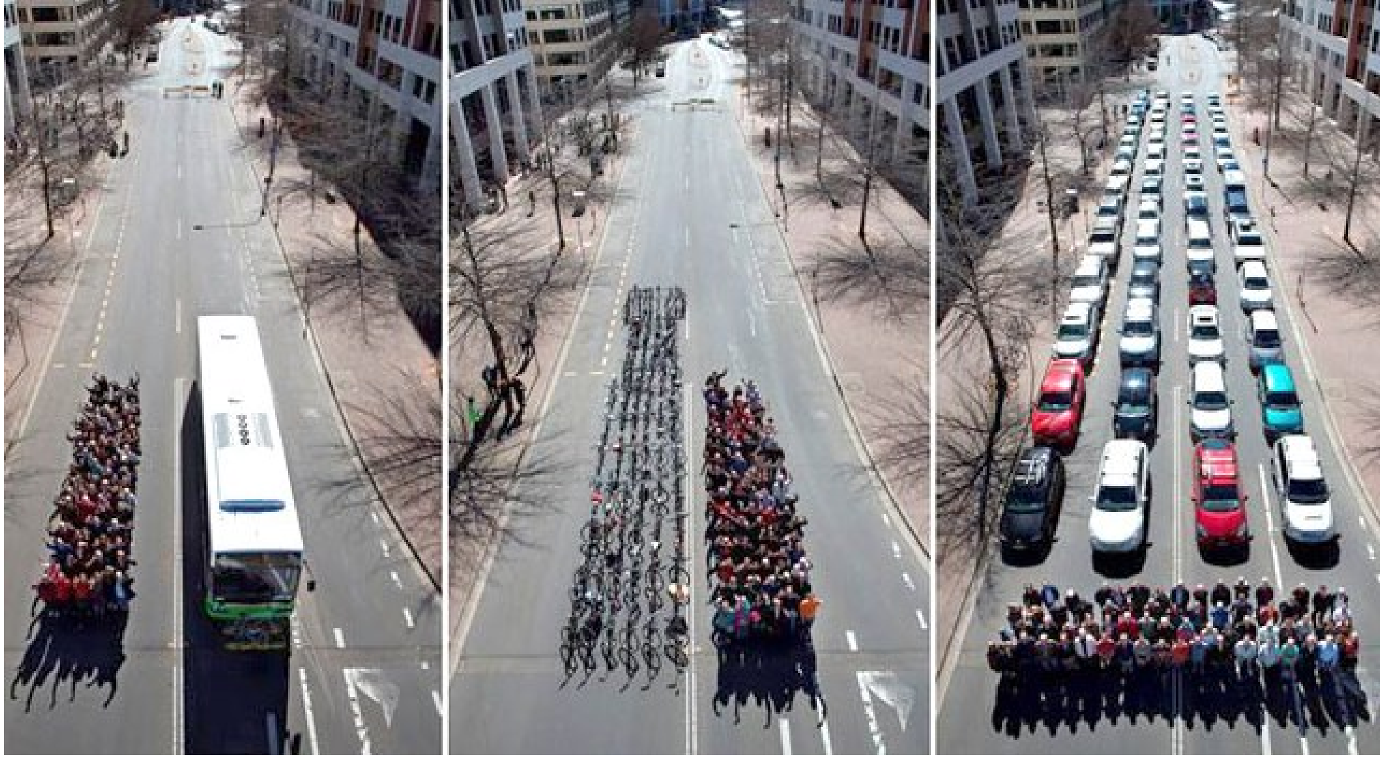
Contents

Autonomous Vehicles adapt to the needs of the city and its inhabitants, not the other way round.

Space & Efficiency
Key Message

Space is scarce in cities.

It must be used as efficiently as possible.



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Space & Efficiency

Our positions in detail

- AV services **complement**, not compete **public transport**
- AV services (DRT) focus on **peripheral areas** and **tangential connections** between major routes of public transportation
- Incentives for **high degrees of occupation / ride sharing**
- Less need for permanent **parking**
- New potentials for **attractive public space** and **liveable streets**

Safety

Key Message

AVs must deal with conventional traffic participants.

AVs must be significantly safer than human drivers

Priority to intrinsic safety

Safety

Our positions in detail

- AV must not rely on public infrastructure to drive safely. This is their own responsibility.
- Autonomous vehicles must adapt to public spaces, not the other way around.
- Ability to manage partial system failures or inclement weather conditions.
- Safety in mixed traffic, especially pedestrians and cyclists
- A clear No to additional requirements for vulnerable road users (e.g. electronic safety devices)

Infrastructures

Key Message

AV adapt to public spaces, not the other way round.

AV deal with the existing traffic guidance facilities.

Infrastructures

Our positions in detail

- No additional, costly infrastructure in public space in order to compensate possible weaknesses of AV
- Potential issues have to be solved through technological developments regarding AV themselves
- International standardization not at the expense of those who maintain public roads.
- Public C-ITS equipment, mainly at traffic light locations
  - to provide an additional safety layer. However, public C-ITS equipment must never justify a lack of inherent safety of the AV itself.
  - to optimize traffic flow.
- Long-term parking directly at the travel destination in premium locations will become less important because AV will not have to park at the destination.
- No additional barriers in urban spaces due to AV.

Traffic Management

Key Message

Traffic Management is increasingly driven by algorithms and data. Targeted are more and more Navigation-Systems rather than human drivers.

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Traffic Management

Our positions in detail

- Traffic management is and remains a public task
  - routing is based on the optimum for the whole system
  - Urban traffic circulation plans must be displayed by private navigation services
- AV services complement, not compete public transport
- Data-based steering requires data, which has to be freely accessible to public authorities
- B2G services for accessing aggregated in-vehicle-generated-data
- Dynamic and comprehensive incentive systems to manage the traffic flow

Commercial Transport

Platooning is not an urban-friendly form of transportation.

Delivery robots must not congest sidewalks.

Commercial Transport

Our positions in detail

- Within urban areas, platooning only in public transport bus lines and DRT public transport services, coupling 1+1 vehicles with a maximum individual vehicle length of 13 meters.
- Sidewalks are used for non-motorized mobility.
- Automated deliveries:
  - may only use roadways and parking lanes
  - Sidewalks or footpaths may only be used for the shortest possible, very last segment between the nearest street and destination.
  - interface with the end customer: how does he receive his parcel? Delivery robots are not allowed to park or wait in public spaces.
- white label parcel box systems foster space efficiency and traffic reduction.

Take Away Messages

What Makes AV a Success for Cities?

Take Away Messages
What Makes AVs a Success for Cities?

AVs are neither good nor evil, it depends on the framework

- Carbon-free propulsion
- High occupancy = Ride Sharing
- Complement, not compete Public Transport
- km travelled do not increase

Public Tasks

- Regulatory Framework
- Traffic Management
- Liveable Streets

Thank you for your attention!

Helmut Augustin
Head of the Coordination Unit for Digitization

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City of Vienna

CCAM Live Talk
Deploying automated mobility to complement public transport in European cities

Clémentine BARBIER
Head of Autonomous Mobility

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20/01/2025

Keolis’ autonomous mobility key figures

Saint-Quentin-en-Yvelines

- March 2021 – June 2022
- 3 shuttles, 9 safety operators (+ remote management)
- 1,6 km line integrated in the regular network
- From train station to industrial sites
- 8 000 passenger, 30 000 km, 5 800 h

MACH2 Project

- Fleet of wheelchair-accessible, electric,
- L4 autonomous, 6-m minibuses
- Downtown Châteauroux (France)
- Part of the current public transit network operated by Keolis (in 2026)

Operating autonomous services since 2016 :

57 deployments
42 sites, 8 countries

218 000+
Passengers

178,000+
km produced

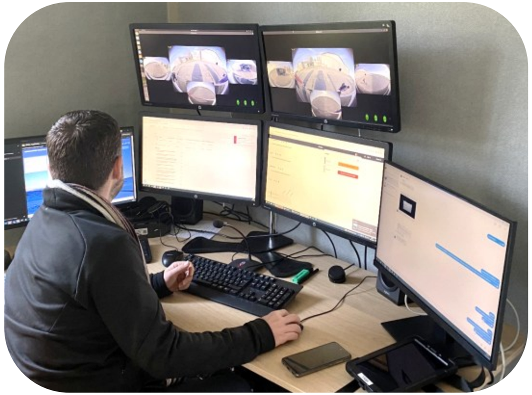
40,000+
Hours of service

175+ Operators trained

Since 2022, operating L4 services (SEMA, FRZ)

Impact of CCAM on public transport service (1/2)

- Widen the range of possibilities of the “transport cocktail”
  - Service for several sites at the same time, with cost optimization (shared resources for supervision)
  - Customized service, able to offer almost door-to-door trips / first-last mile solutions, thanks to multiple small vehicles operating on-demand or fixed schedule
  - Exclusive right-of-way transit, with possible platooning of buses and adaptative number of vehicles to better match ridership
  - Conversion of former railway lines



https://www.kit.edu/kit/english/pi_2021_050_platooning-the-future-of-unich-city-buses.php

Impact of CCAM on public transport service (2/2)

- Extend hours of service / offer more off-peak frequency
- Enhance road safety (valid for EU regulatory process, to be confirmed with USA/China « test-and-see » frameworks)
- Improve service accessibility for disabled customers (because it’s designed almost from scratch)
- Reduce the number of single occupancy vehicle use (#MovePeopleNotCars)
- Focus on user experience and acceptability

Impact of CCAM on PT service organisation

- Offer drivers a career evolution possibility and better work conditions (addressing qualified driver shortage by lowering resignations)

- Provide the sector with new jobs : maintenance more focused on electronics and informatics, and less on mechanics

- Renew fleet with electrical (or hydrogen) vehicles

- Focus on user experience and acceptability

Diagnosing Sharing Anxiety

Examining willingness-to-share factors and stakeholder involvement in on-demand ridehailing and autonomous vehicle contexts

SIGMA DOLINS

Thesis for the Degree of Licentiate of Engineering
The Licentiate Seminar will be held both in-person and via Zoom Video Conference
at
17:30 on Monday, November 1st, 2021.

To attend in-person:
NordanVinden, Chalmers tekniska högskola,
Hörsalsvägen 5, 412 96 Göteborg

The link to the Zoom presentation is below:
https://chalmers.zoom.us/j/65957836772

The discussion leader will be Dr. Giovanni Circella of University of California, Davis, Director of the 3 Revolutions Future Mobility Program and the Honda Distinguished Scholar for New Mobility Studies.

The thesis is available at

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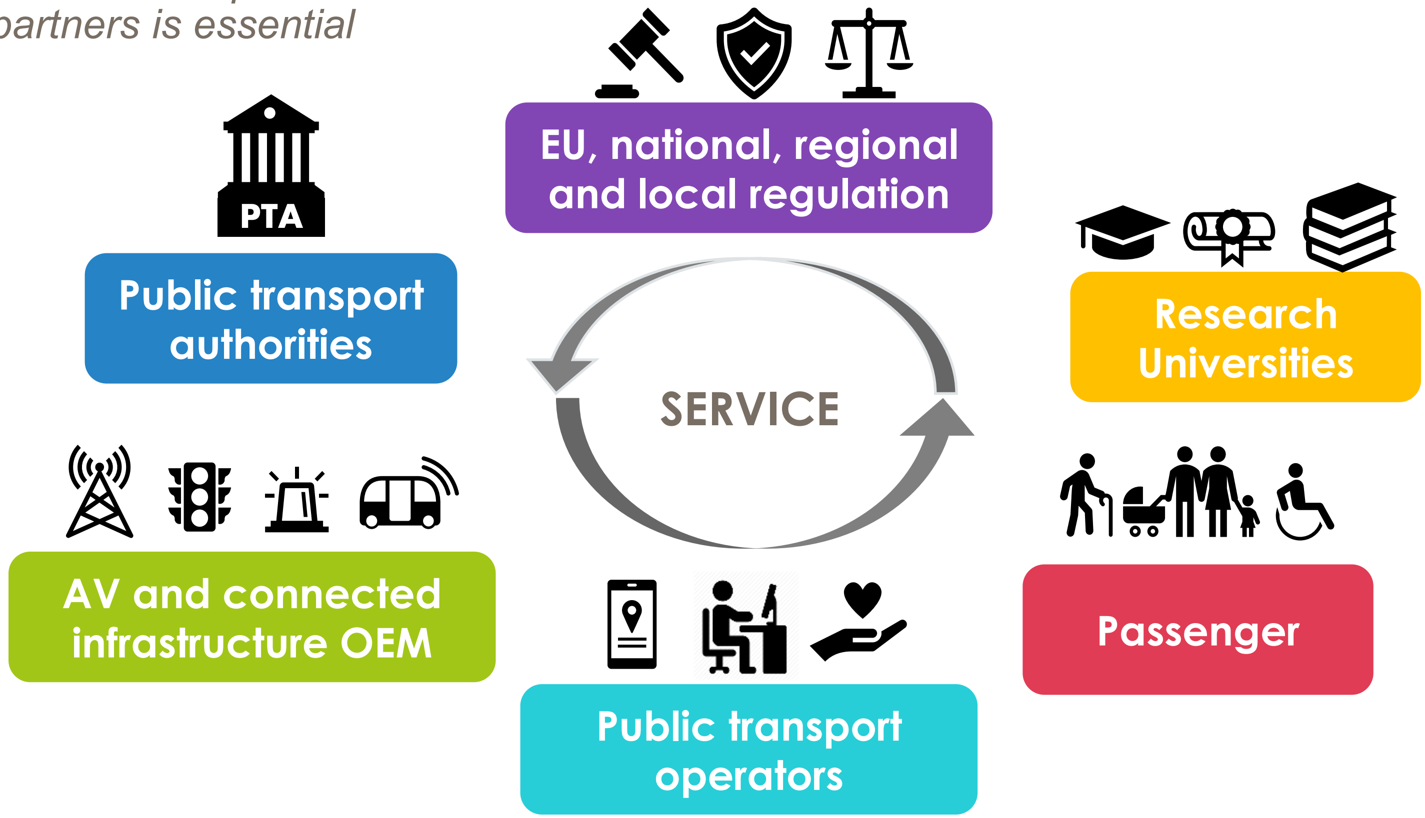
Sigma Dolins
PhD at RISE and Keolis Sverige

CCAM service stakeholders

Working in close cooperation with all partners is essential



Challenges to scale things up

Regulation

- EU is anticipating, France and Germany are (almost) ready, other countries are getting there

AV & CI OEM

- Availability and reliability of solutions (AV, CI…)
- Cost of technology ; increasing the volume of AV produced will lower the cost of ownership

Research

- Meet safety requirements
- Wider ODDs (rural / urban sites ; obstacles…)
- Better performances : higher speed, more capacity
- Standards need to be set to reach interoperability (API integration)

PTO

- Reliability of service
- Quality of service (relationship with remote manager, passenger information all journey long…)
- Integration into PT system/app
- Training operators and change management
- IHM and tasks/systems/processes definition designed to reduce mental overload and visual fatigue

Passenger

- Time for customers to get used to the technology
- Security inside to increase service acceptability

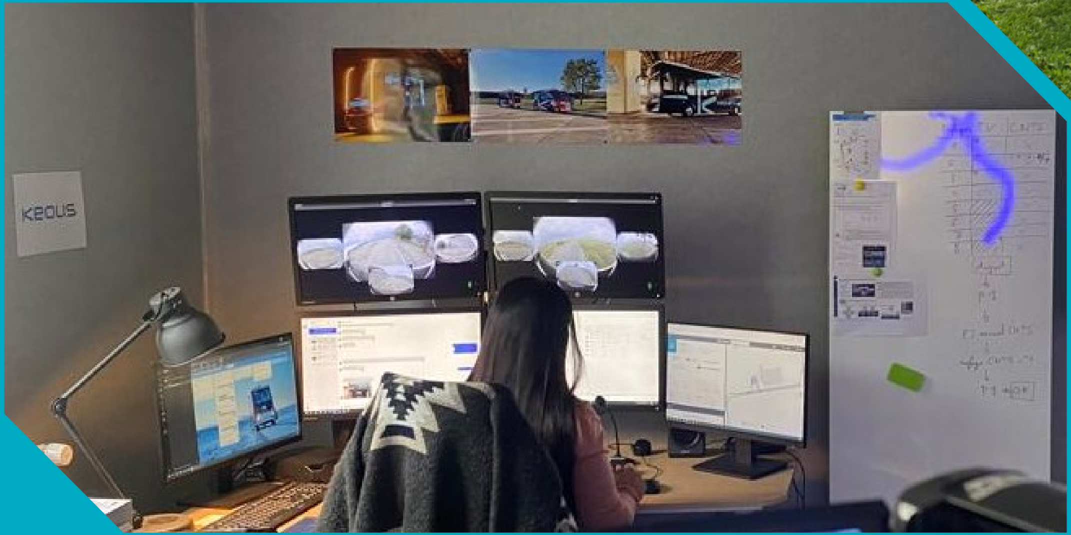
PTA

- Investments on connected infra, good road conditions…

Conclusion

- Operators are ready to operate ! Some already do in L4 (Keolis amongst them) – and private sites and low-traffic public sites are up for it

- The business case needs to be tested :
  1 supervisor/field agent for **?** vehicles



Thanks !

Questions ?

Q&A

- Feel free to share your opinion or ask a question (no good or bad questions)!
- If you need any material, please reach out to me via clarisse.decerjat@eurocities.eu

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