4th Newsletter

CONDUCTOR

Welcome!

May 2025

As the CONDUCTOR project approaches its final stage, we are excited to share recent highlights from across our pilot sites, research teams, and public engagement's initiatives.

This issue takes you from real time traffic assessment and shared mobility solutions, to last mile delivery innovations using connected and automated vehicles. You will also find results from our latest workshop in Ljubljana and the fifth General Assembly in Madrid, where partners reviewed early validation findings and prepared for the next steps.

On the research side, a paper recently accepted explores how artificial intelligence can forecast energy demand, anticipate traffic flows, and support greener logistics planning. These tools are helping cities to move toward climate neutral and more resilient transport systems.

And beyond technical progress, CONDUCTOR continues to take part in broader dissemination actions such as at events like EUCAD and RTR 2025 or in national talk show. Our work has contributed to the dialogue on how cities can become more connected, responsive, and sustainable.

We invite you to explore this newsletter and follow our updates as we move to the final stage of the project.

Yours sincerely,
CONDUCTOR Project Team

1 Integrated traffic management

2 Demand-responsive transport

3 Urban logistics

Smarter Last-Mile Deliveries: Using CCAM to Reduce Traffic and Emissions

Online shopping has grown rapidly in recent years, especially since the COVID 19 pandemic. This shift has brought more delivery traffic to city streets and added pressure on urban mobility and environmental targets.

So how can cities manage this growing demand while keeping streets cleaner and less congested? The CONDUCTOR project's Use Case 3 is exploring one possible answer. What if we could use passenger vehicles during their quiet hours to help with deliveries? By combining CCAM and demand responsive transport (DRT CCAM), the idea is to reduce the number of delivery vans, make better use of vehicle space, and cut down on empty trips made by connected and automated vehicles (CAVs).

A key challenge is to know where and when these services are actually needed. To tackle this, our partner **Nommon** is creating advanced machine learning tools that combine anonymised mobile network data with other relevant sources. These tools help uncover patterns in demand, paving the way for smarter, cleaner, and more efficient urban transport solutions.

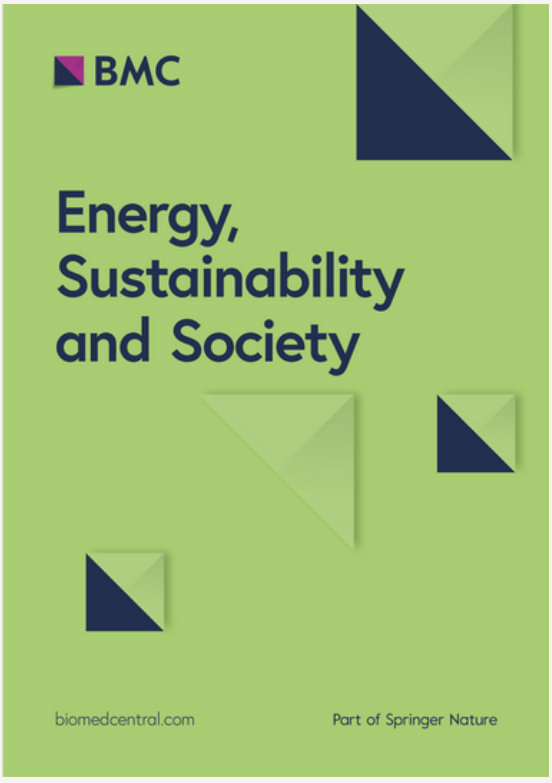
Harnessing Intelligent Approaches for Climate-Neutral Cities

With the urban areas continuous growth, cities face the challenge of reducing emissions while maintaining efficient and liveable environments. In a recent reviewed paper, our partner JSI explored how advancements in artificial intelligence—such as machine learning, deep learning, ensemble modelling and others—are providing cities with powerful tools to manage this transition.

The paper highlights:

- Forecasting energy demand, where gas consumption was successfully predicted up to 60 hours in advance;
- Predicting traffic flows by analysing historical patterns and weather data, contributing to better mobility planning;
- Optimising public transport and logistics systems, helping to reduce emissions, lower operational costs, and alleviate urban congestion.

These approaches have the ability to process large, diverse datasets in real time, supporting more adaptive and data-informed decision-making. The review argues that the integration of advanced computing into city systems is essential—not just for improving efficiency, but for enabling cities to become more resilient to climate impacts and proactive in their environmental strategies.
Full paper: https://dx.doi.org/10.1186/s13705-025-00517-z



The Energy, Sustainability and Society journal.

Talking about the future

In November 2024, the slovenian talk show "Talking about the Future" dedicated an episode on the topic of Smart Cities with the partcipation of: Živa Kavka Gobbo from the environmental organisation Focus, Marko Peterlin from the Institute for Spatial Policy and Dr Gregor Papa from the Jozef Stefan Institute. The discussion focussed on the challenges that the climate crisis and technological development pose for cities and human settlements. They highlighted the necessity and benefits of information and communication technologies and solutions for the efficient functioning of the city and how they should help citizens. Gregor Papa - the technical manager of CONDUCTOR - presented the transport perspective on the interaction of ICT solutions with existing infrastructure and citizens' needs, which is also reflected in the project activities of the Horizon Europe project CONDUCTOR.

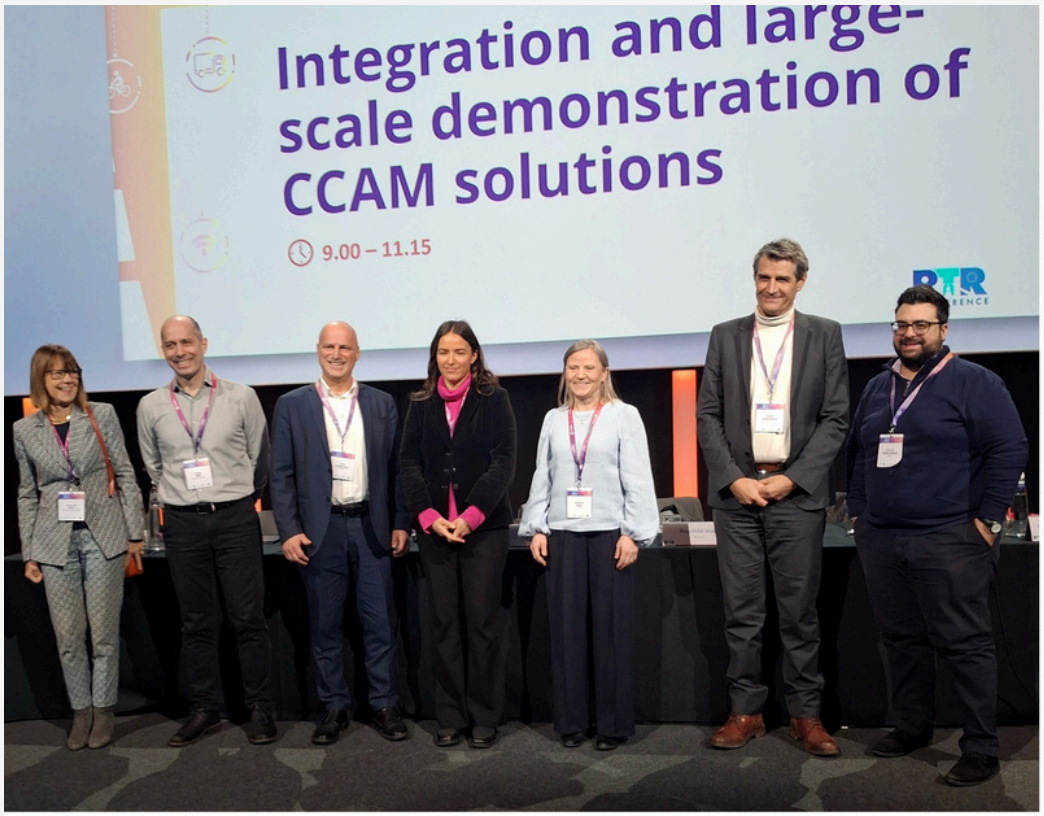
Slovenian talking show dedicated to the topic Smart cities.

CONDUCTOR at RTR Conference 2025

At the RTR Conference 2025, held from 10 to 13 February in Brussels, our Technical Manager, Dr Gregor Papa, took part in the session on "Integration and large-scale demonstration of CCAM solutions". He presented the latest achievements of the CONDUCTOR project and outlined their expected impact on the future of road transport.

The session brought together CCAM-related projects CONDUCTOR, IN2CCAM, MODI, Move2CCAM and ULTIMO to address key challenges from the CCAM Strategic Research and Innovation Agenda. Discussions focused on increasing public understanding of CCAM benefits and overcoming fragmented research efforts. The session highlighted the need for real-world testing, stakeholder engagement, and harmonised approaches to support scalable, integrated and widely accepted CCAM solutions.

With several CONDUCTOR consortium partners actively involved in the conference, we were proud for playing a key role in shaping the future of transport innovation.

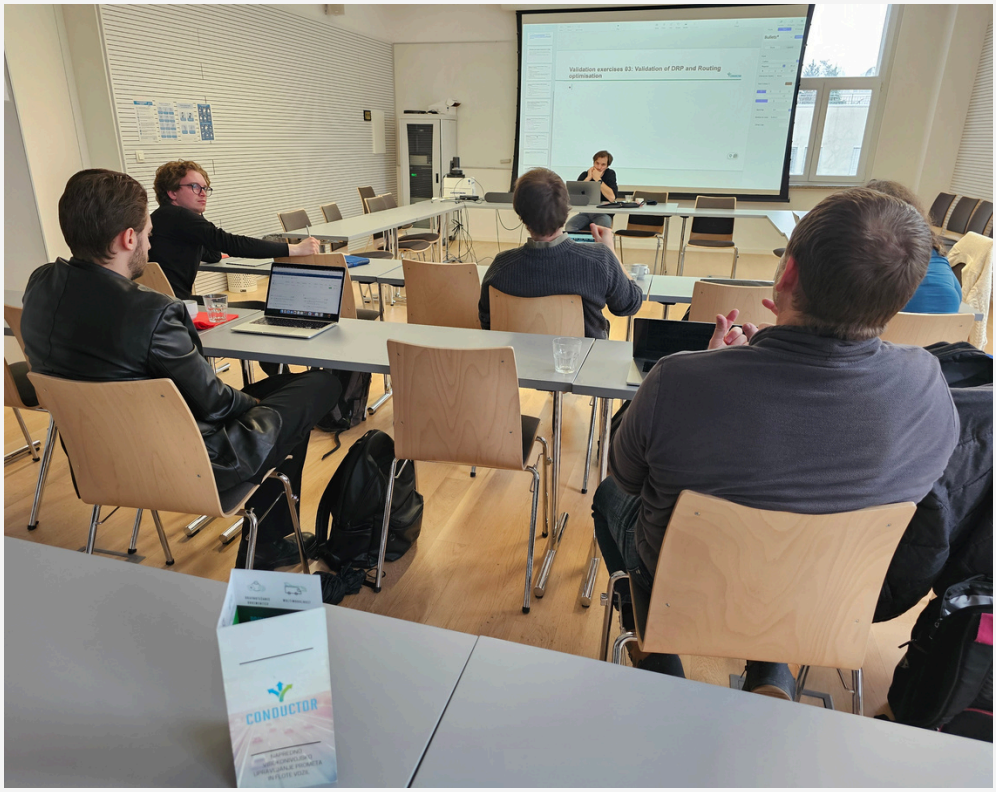


RTR Conference 2025.

Advancing Traffic Assessment and Validation

On 14 February 2025, CONDUCTOR Use Case 2 (UC2) partners met at the Jožef Stefan Institute in Ljubljana (Slovenia) for a workshop focusing on aligning efforts for upcoming activities and integrating the Traffic Assessment Service. UC2 aims to improve traffic flow and shared mobility by integrating real-time traffic data, predictive analytics and AI-driven route optimisation into GoOpti's platform. This helps reduce congestion, cut delays, and enhance user experience, contributing to more sustainable urban mobility. The workshop centred on strategic planning and overcoming key implementation challenges.

A key part of the workshop was the review of validation exercises and impact assessments, ensuring that the project meets all KPIs and KPAs by its conclusion. The team also reviewed the remaining dissemination activities within certain work packages, establishing clear action points and timelines to guide the project through its final phase.



CONDUCTOR Use Case 2 Workshop.

5th CONDUCTOR General Assembly Meeting in Madrid

The 5th General Assembly of the CONDUCTOR project was held in Madrid on 19–20 March 2025, bringing together project partners to share and assess the first validation results from all five pilots. These early findings provided valuable insights into the platform's performance, helping to identify areas for refinement and future development.

On the first day, we focused on the current status of each pilot, as partners presented technical progress, initial outcomes, and priorities for the next phase. Particular attention was given to platform usability, scalability, and its ability to respond under varying traffic and mobility conditions.

On the second day, two interactive workshops addressed two important topics, namely: user experience and technical integration across use cases, and impact and exploitation—discussing potential adopters, stakeholder needs, and opportunities to extend CONDUCTOR's solutions beyond the project. These workshops helped to position CONDUCTOR for broader uptake and long-term relevance in the evolving CCAM landscape.

The CONDUCTOR team gathered at the 5th GA meeting in Madrid..

CONDUCTOR Showcased at EUCAD 2025

The CONDUCTOR project was pleased to take part in the 5th European Conference on Connected and Automated Driving (EUCAD 2025), held from 13 to 15 May at the Joint Research Centre (JRC) in Ispra.

Paola Lanzi from **Deep Blue S.r.l.** presented the project's results addressing the societal needs in CCAM design and validation. Her talk, “User-Centred Design for CCAM: A Holistic Approach Integrating Stakeholder and User Needs with Regulatory Requirements”, outlined the "double funnel" methodology developed within CONDUCTOR project which combines top-down policy and regulatory inputs with bottom-up insights from users and real-world use cases, supporting the development of inclusive, responsible and sustainable mobility solutions.

The CONDUCTOR project was also showcased in the exhibition area, sharing a stand with sister project IN2CCAM. The event offered valuable opportunities to exchange ideas, share progress and explore future collaboration with stakeholders from across Europe and beyond.

We thank everybody who visited our stand and we are looking forward to build on the connections made at EUCAD 2025.

The CONDUCTOR team at EUCAD 2025.

Liaison with other projects

The CONDUCTOR project is actively enhancing collaboration with other European CCAM initiatives. At EUCAD 2025, CONDUCTOR shared a stand with IN2CCAM, presenting their efforts in traffic and fleet management. Further, at ITS 2025, both projects co-joined two Special Interest Sessions on traffic management, safety, and efficiency (SIS 7: Integrating CCAM technologies in traffic management: trials & insights and SIS 24: Traffic efficiency and safety for VRUs and emergency response).

In addition, CONDUCTOR has joined the Integrated CCAM Technologies Cluster (iCCAM) — a network of six EU-funded projects working together to advance innovation, interoperability, and the practical deployment of CCAM solutions across Europe.

This cooperation marks a strong step towards a more connected and coordinated European mobility ecosystem.

Upcoming events

FISITA WMC WORLD MOBILITY CONFERENCE
3 – 5 June 2025 | Barcelona

DRIVE TO zero
4 - 5 JUNE 2025
Paris Expo Porte de Versailles
Pavilion 5.3

UITP SUMMIT HAMBURG - 2025
15 – 18 June 2025

» IAA MOBILITY
9 – 12 September 2025 | Munich

EXPO Ferroviaria
30 September – 2 October 2025 | Milan

ICTR2025
12th INTERNATIONAL CONGRESS ON TRANSPORTATION RESEARCH
16 – 18 October 2025 | Thessaloniki

CONDUCTOR publications

Publications in Peer-reviewed Journals

- Rožanec, J. M., Petelin, G., Costa, J., Cerar, G., Bertalanič, B., Guček, M., Papa, G.& Mladenić, D. (2025). Dealing with zero-inflated data: Achieving state-of-the-art with a two-fold machine learning approach. Engineering Applications of Artificial Intelligence, 149, ISSN 0952-1976, DOI: 10.1016/j.engappai.2025.110339
- Papa, G., Hribar, R., Petelin, G. & Vukasinovic, V. Advanced computing to support urban climate neutrality. Energ Sustain Soc 15, 16 (2025), DOI: 10.1186/s13705-025-00517-z
- Chau, M.L.Y., Gkiotsalitis, K. (2025). A systematic literature review on the use of metaheuristics for the optimisation of multimodal transportation. Evol. Intel. 18, 36 (2025), DOI: 10.1007/s12065-025-01020-2
- Luan, X., Eikenbroek, O., Corman, F., & van Berkum, E. (2024). Passenger social rerouting strategies in capacitated public transport systems. Transportation Research Part E: Logistics and Transportation Review, Volume 188, 2024, ISSN 1366-5545, DOI: 10.1016/j.tre.2024.103598
- Petelin, G., Hribar, R., & Papa, G. (2023). Models for forecasting the traffic flow within the city of Ljubljana. European Transport Research Review, 15(1), 1-20, DOI: 10.1186/s12544-023-00600-6

Conference Papers

- Farahmand, Z. H., Eikenbroek, O., Gkiotsalitis, K., & van Berkum, E. (2024). High-Resolution Platoon Prediction for Coordinated Traffic Control along Urban Arterials. Euro Working group on Transportation 2024
- Sánchez-Cauce, R., G. Cantú Ros, O., Ruiz, P., & Burrieza-Galán, J. (2024). Identification and characterisation of delivery trips from mobile network and logistic operator data. Mobile Tartu 2024
- Nisyrios, E., Nikolopoulou, A., & Gkiotsalitis, K. (2024). The Dynamic Pickup and Delivery Problem with Crossdock for Perishable Goods. ECCOMAS 2024
- Petelin, G., Rožanec, J., & Papa, G. (2024). Traffic Forecasting With Uncertainty: A Case for Conformalized Quantile Regression. ECCOMAS 2024
- Papa, G., Massi, F., & Vukašinović, V. (2024). Fleet and Traffic Management Systems for Conducting Future Cooperative Mobility. ECCOMAS 2024
- Lanzi, P., Brambati, F., Giampaolo, N., & Spiller, E. (2024). User-centred design for CCAM: a Holistic Approach Combining Stakeholders and Users' Needs with Regulatory Requirements. 10th Transport Research Arena

CONDUCTOR publications

- Papa, G., Vukašinović, V., Sánchez-Cauce, R., Cantú Ros, O. G., Burrieza-Galán, J., Tympakianaki, A., Pellicer-Pous, A., Gosh, A., & Serrano, L. (2024). Fleet and traffic management systems for conducting future cooperative mobility. 10th Transport Research Arena
- Matthaiou, A., Nisyrios, E., Lai-Ying Chau, M., & Gkiotsalitis, K. (2024). Impact assessment of governance models on the integration of connected and autonomous vehicles. 10th Transport Research Arena
- Gkiotsalitis, K., Nikolopoulou, A. (2023). The Pickup and Delivery Problem with Crossdock for Perishable Goods. ITSC2023, DOI: 10.48550/arXiv.2311.15428
- Wolf, F., Engelhardt, R., Zhang, Y., Dandl, F., & Bogenberger, K. (2023). Effects of Dynamic and Stochastic Travel Times on the Operation of Mobility-on-Demand Services. ITSC2023, DOI: 10.48550/arXiv.2308.05535
- Hulleman, R. (2023). Sustainable Mobilityby providing Connected Mobility for all Modes of Transport. ITS European Congress, DOI: 10.5281/zenodo.11280221

The CONDUCTOR project is co-funded by the European Union's Horizon Europe research and innovation programme under the Grant Agreement No 101077049. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Commission. Neither the European Union nor the granting authority can be held responsible for them.

Co-funded by the European Union