ASECAP DAYS

BRATISLAVA 2026

CALL FOR PAPERS

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Investing to make road infrastructure resilient for Europe's future mobility needs

As Europe confronts the twin imperatives of climate adaptation and geopolitical resilience, strengthening road infrastructure has become a key strategic challenge. The growing frequency of extreme weather events - floods, heatwaves, freeze-thaw cycles - is accelerating the deterioration of critical assets. In parallel, the EU's focus on military mobility highlights the need for infrastructure that can seamlessly serve both civilian and defense purposes. In addition, the decarbonization of transport infrastructure remains a strong priority, requiring the deployment of low-emission construction techniques, the integration of renewable energy, and the promotion of greener mobility options. These priorities must also be aligned also with road safety enhancements to ensure that modernization efforts deliver both environmental and societal benefits.

Addressing these challenges requires substantial and well-targeted investments to upgrade existing networks and develop new infrastructure that is resilient, interoperable, and sustainable. But the scale of these needs raises essential questions: What type of investments will be required to face those challenges? What innovative and sustainable financing mechanisms can support this transformation in line with EU climate and security objectives?
The 53rd ASECAP Days will provide a high-level platform to explore these questions, focusing on how to channel investments toward climate-resilient infrastructure, enable dual-use functionality for civil and military needs, and mobilise both public and private capital through EU-aligned sustainable finance frameworks.

PRESENTATION SUBMISSION

Abstract not exceeding 400 words should be submitted using online facility: CLICK HERE TO SUBMIT YOUR PAPER

TIMELINE	
Deadline for submission of abstracts **November 15th, 2025**	Notification of acceptance of abstract **End of December 2025**

A – Developing Climate-Resilient Road Networks: Integrating Asset Management and Risk-Based Strategies

Increasingly frequent extreme weather events - such as floods, snowstorms, and heatwaves - are placing unprecedented stress on transport infrastructure. To maintain reliability and performance, road authorities must embed climate resilience into every phase of infrastructure planning, operation, and maintenance.

This session will explore how a forward-looking asset management approach - supported by predictive tools, robust data, and innovation - can help safeguard infrastructure against evolving climate risks. It will highlight strategies for adapting both new and existing assets to future conditions.

Topics may include:

- Designing and retrofitting infrastructure to withstand extreme weather
- Predictive and preventive maintenance for roads, bridges, and tunnels
- Embedding resilience into asset management policies and processes
- Use of ITS and digital tools for real-time monitoring and decision-making
- Developing and applying resilience metrics and risk assessment models
- Nature-based infrastructure for climate resilience
- Cross-modal resilience planning under extreme conditions

B– Harnessing Pricing Systems to Achieve Net-Zero Goals

Tolling has evolved beyond a mere revenue mechanism - it is now a strategic tool for sustainable mobility. As the transport sector races to cut emissions, dynamic tolling and pricing schemes can promote greener travel behavior, reduce congestion, and support multimodal integration.
This session will examine how modern tolling systems contribute to net-zero objectives by encouraging shifts toward sustainable transport, integrating with broader policy frameworks, and leveraging technology to drive behavioral change.

Topics may include:

- Smart tolling systems supporting cleaner mobility
- CO_2 reduction through dynamic pricing and demand management
- Interoperability and efficiency across national tolling systems
- Best practices in congestion-based and emissions-based tolling
- Aligning tolling strategies with electrification and modal shift goals
- Green loyalty schemes and eco-performance pricing models
- Monetizing externalities: pricing for noise, air pollution, and congestion
- Urban-road tolling synergy: coordinated policy for emissions control

C – Towards Resilient and Carbon-Neutral Infrastructure: Rethinking Investment and Innovation for Tomorrow's Mobility

As Europe faces pressing demographic shifts, rapid urbanization, and the demands of a globalized economy, the need to modernize transport infrastructure has never been more urgent. Meeting EU climate targets requires road networks that are not only greener and more inclusive but also resilient and accessible - regardless of geography. Ensuring long-term viability will depend on future-proofing infrastructure and unlocking sustainable investment models.

This session invites discussion on what tomorrow's road infrastructure should look like - from a 15-year to a 30-year horizon - and what conditions must be met to attract private and public investment. Key issues include aligning with EU taxonomy, boosting resilience, and identifying new financial frameworks that support a just and green transition. As Europe strives to meet its climate ambitions, the modernization of transport infrastructure must address a dual imperative: achieving carbon neutrality and adapting to the escalating impacts of climate change. Road networks of the future must be greener, more inclusive, and resilient - capable of withstanding extreme weather events while supporting the decarbonization of mobility.

This session will explore how to future-proof critical infrastructure over the next 15 to 30 years through innovative investment models, forward-looking design, and robust climate adaptation strategies. It will examine the conditions required to mobilize both public and private financing, how EU taxonomy can unlock green investments, and how mature concessions can be leveraged to accelerate the transition.
Participants will also discuss concrete actions and technologies that enhance the resilience and performance of road systems, including retrofitting, digital tools, and risk assessment frameworks.

Topics may include:

- Innovative and sustainable financing mechanisms aligned with EU goals
- Leveraging EU taxonomy and green finance to support adaptation and decarbonization
- Investment priorities for future-proof and resilient road networks
- Conditions for attracting long-term private and institutional investors
- Public-private partnerships as enablers of a just and green transition
- Technological innovation for climate adaptation and performance optimization
- The evolving role of the concession model in delivering low-carbon, resilient infrastructure
- Long-term climate stress scenarios and infrastructure foresight
- Transforming the concession model for the twin transition (green and digital)

D – Enabling Innovation in Roads and Traffic Management: Adapting Regulation to Future Mobility

Technological change is transforming road transport - reshaping how we manage traffic, use infrastructure, and regulate mobility. From smart cities and AI-driven systems to autonomous vehicles, the speed of innovation demands a regulatory framework that supports progress while ensuring safety and inclusiveness.
This session will explore the intersection between innovation and regulation. Experts will assess the state of European regulatory frameworks, identify bottlenecks, and propose forward-looking solutions to foster a more adaptive and innovation-friendly environment for road and traffic management. Promote real-world experimentation (living labs, regulatory sandboxes).

Topics may include:

- The digital evolution of road infrastructure and traffic systems
- Smart traffic management tools and connected mobility services
- Legal and policy frameworks for enabling innovation
- Managing congestion through digitalization and data-driven tools
- Opportunities and risks of automation and real-time mobility management
- Testbed ecosystems for technology validation
- Flexible regulation that enables innovation while protecting users
- Ethical and responsible innovation in mobility systems

E– Digitalizing the road network – solutions and applications for digital roads

The digitalization of transport infrastructure has opened the door to innovative maintenance and monitoring solutions, with digital twins emerging as a transformative tool. A digital twin - a real-time virtual model of a physical system - enables predictive analysis, performance optimisation, and informed decision-making throughout an asset's lifecycle.

This session will explore how digital twin applications are revolutionizing road infrastructure management, from tolling to structural health monitoring, and how these technologies contribute to sustainability, safety, and operational excellence.

Topics may include:

- Digitalization strategies for motorway maintenance and management
- Real-time asset monitoring through digital twins
- Predictive maintenance of bridges, tunnels, and other critical assets
- Transportation modelling and planning using digital replicas
- Enhancing cyber resilience in digital infrastructure
- Smart infrastructure and AI-based analytics in road operation
- Cybersecurity for critical infrastructure management
- BIM-Digital Twin convergence for life-cycle asset management
- Generative AI for predictive maintenance optimization
- Interoperability of digital twins across European corridors

F – Road Safety at the Core: From Innovation to Vision Zero

Despite being among the safest transport modes, roads - especially outside motorways - still account for the majority of traffic fatalities. Reaching Vision Zero demands a systemic approach, combining policy, technology, infrastructure design, and data-driven decision-making.
This session will showcase policies, projects, and technologies that support safer roads, with a special focus on predictive tools, AI-enabled systems, and fast-response solutions that reduce incident severity and enhance emergency handling.

Topics may include:

- Integrating the Safe System approach into road operations
- Using AI and data analytics for crash prediction and prevention
- Deployment of automatic incident detection and response systems
- KPIs and data frameworks to track safety performance
- Public awareness campaigns and regulatory alignment with EU targets
- Predictive safety models for vulnerable road users
- Intelligent emergency management systems

G - The future of cooperative mobility – connected and automated driving on European roads

Digitalization and automation - particularly through Cooperative, Connected and Automated Mobility (CCAM) - are top priorities on the European Union's agenda. These technological shifts are set to transform nearly every industry, including the toll road sector. Whether you're a network operator, toll service provider, or revenue assurance and business analyst, you are already experiencing the impact and advantages of this digital evolution - and you expect similar capabilities from your partners, clients, and stakeholders.
Beyond individual benefits, digital transformation enhances efficiency, performance, and the ability to adapt and personalize toll road services - elements that are vital to the industry's long-term success. It enables the strategic deployment of a wide range of digital technologies, capitalizing on accelerated market trends. Key initiatives such as the "Vision Zero" for road fatalities, the EU's decarbonization goals, and the rise of CCAM technologies are all powerful drivers supporting this ongoing transformation.

This session will explore how digital transformation is already reshaping Europe's road infrastructure, and it will address the key challenges to be tackled in the coming decade to fully realize its potential.

Topics may include:

- Preparing for the deployment of automated vehicles
- C-ITS deployment for vehicles and infrastructure
- C-ITS services now and in the future: What does the vehicle-road ecosystem require?
- The C-ITS ecosystem: Services and applications enabled by cooperation
- Cybersecurity for Intelligent Transport Systems (ITS)
- Secure and ethical handling of vehicle-generated data
- Explainable AI in operational road decisions

H - The power and challenges of connected mobility – data sharing and exchange platforms

As the world becomes increasingly connected and data-driven, the development of mobility data spaces and data-sharing platforms is essential. These technologies have the power to revolutionize transportation systems by creating smarter, more efficient mobility networks - improving traffic flow, optimizing public transit routes, enhancing user experiences, and supporting data-informed policymaking. This session will focus on how to effectively structure and secure these platforms while promoting cooperation and openness. Ensuring the cybersecurity of transportation systems and infrastructure is a key concern, especially as data sharing increases. Industry leaders and mobility data experts will discuss the current landscape, highlight key challenges and opportunities, and showcase the benefits these solutions can offer.

The panel will also delve into the latest advancements in data collection, integration, and interoperability, emphasizing the role of open data and strong governance frameworks. Critical themes such as privacy, security, and trust will be explored to ensure responsible and ethical use of mobility data.

Topics may include:

- Data sharing: Cooperation models and business strategies for mobility data spaces
- Data quality and liability
- Potential applications of mobility data spaces and platforms
- The evolution of data platforms and their impact on the future of transportation
- Cybersecurity for mobility data environments
- Leveraging AI for mobility real-time data sharing and analysis
- Governance, privacy, and data protection
- Business models based on open mobility data
- Transnational interoperability and legal harmonization

I – Rethinking Toll Collection to match customer needs: Innovation, Technology, and the New User Paradigm

In an era of digital mobility, toll collection must be seamless, personalized, and inclusive. The tolling landscape is evolving rapidly with the rise of cashless, contactless, and fully electronic systems. As user behaviour shifts and technology advances, toll collection must keep pace - delivering efficiency, fairness, and adaptability.

This session will explore the future of toll collection, from mobile-based and ANPR systems to block chain and AI tools, and how these innovations reshape enforcement, pricing models, and user experience. Let's shape the next generation of tolling where transparency, security, and convenience are at the core of the user experience.

Topics may include:

- Transitioning from manual to all-electronic tolling (AET)
- Enhancing free-flow tolling and interoperability across Europe
- Emerging payment platforms: inclusive, mobile, license plate, AI-driven tools
- Managed lanes, carpool incentives, and dynamic pricing models
- Cross-border enforcement and data protection frameworks
- Tolling as a digital mobility service platform
- User-centric design for seamless, inclusive tolling

J – Powering the Future: The Role of Alternative Fuels in Building a Sustainable, Safe, and Smart Road Transport System

The shift toward alternative fuels - such as electricity, hydrogen, and biofuels - is a cornerstone of the road transport decarbonization agenda. Yet, its impact extends well beyond emissions reduction. It also reshapes vehicle technologies, infrastructure planning, traffic management, and road safety frameworks.
This session will explore how new energy sources are transforming the operational ecosystem of road mobility. It will highlight the infrastructure requirements, integration challenges, and system-level innovations needed to support a resilient and interoperable fuel transition.

Topics may include:

- Roll-out of alternative fuel infrastructure
- Electrification strategies for motorway corridors
- Integrating energy production and distribution with road operations
- Connected vehicles, V2X communication, energy-aware traffic systems
- Local energy storage
- Safety, maintenance, and operational challenges linked to fuel diversification
- Infrastructure-as-energy hubs for hydrogen and electric mobility
- Operational resilience under energy system volatility

K – Investing in People: Attracting young professionals to prepare the future

As mobility systems grow more complex, success depends not just on technologies but on skilled professionals and effective collaboration across disciplines. From engineers to data scientists, urban planners to behavioral experts, tomorrow's mobility ecosystem is fundamentally human-driven.

This session will explore how to invest in human capital and promote cross-sectoral coordination to meet future needs in traffic and infrastructure management. It will highlight strategies for upskilling, inclusion, and team integration in a fast-changing environment.

Topics will include:

- Talent development and training in the mobility sector
- Managing interdisciplinary teams and knowledge-sharing
- Preparing for generational shifts, mentorship and knowledge transfer
- Embedding diversity, equity, and inclusion in workforce planning
- The role of AI-human collaboration in transport operations
- Future skills in AI, climate tech, and smart infrastructure
- Human-machine teaming for mobility system operation
- Return from young people about their experiences joining the toll industry

L – Advancing Circular Economy and Environmental Sustainability in Motorway Operations and projects

The European Union's transition toward a circular economy sets clear expectations for infrastructure operators to reduce their environmental footprint across all stages of the asset lifecycle. For motorway companies, this means embedding circular principles into daily operations - cutting CO_2 emissions, conserving resources, and enhancing biodiversity protection - while ensuring alignment with the EU Taxonomy Regulation.

This session will highlight concrete actions and forward-looking projects undertaken by road operators to support the green transition. It will showcase how sustainability can be operationalized through responsible resource use, innovation, and sustainable investment planning.

Topics may include:

- Initiatives to reduce carbon emissions and improve energy efficiency
- Strategies to limit water consumption, noise pollution, and material waste
- Projects enhancing biodiversity and natural habitat preservation
- Compliance with the EU Taxonomy Regulation for sustainable investments
- Circular economy models applied tomotorway maintenance and operations
- Green procurement and circular design for road assets
- Embedding life-cycle thinking into everyday operations

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