

FIRM

FEHRL INFRASTRUCTURE RESEARCH MAGAZINE



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INNOVATION FOR TRANSPORT INFRASTRUCTURE

Transport infrastructure is the lifeblood of modern society, but it often struggles to meet demands and expectations on reliability, availability, maintainability, safety, environment, health and cost. FEHRL's role is to provide solutions for the challenges now faced and anticipate the challenges to come. Through innovation, the operation of transport infrastructure can address society's needs.

FEHRL encourages collaborative research into topics such as mobility, transport and infrastructure, energy, environment and resources, safety and security, and design and production.

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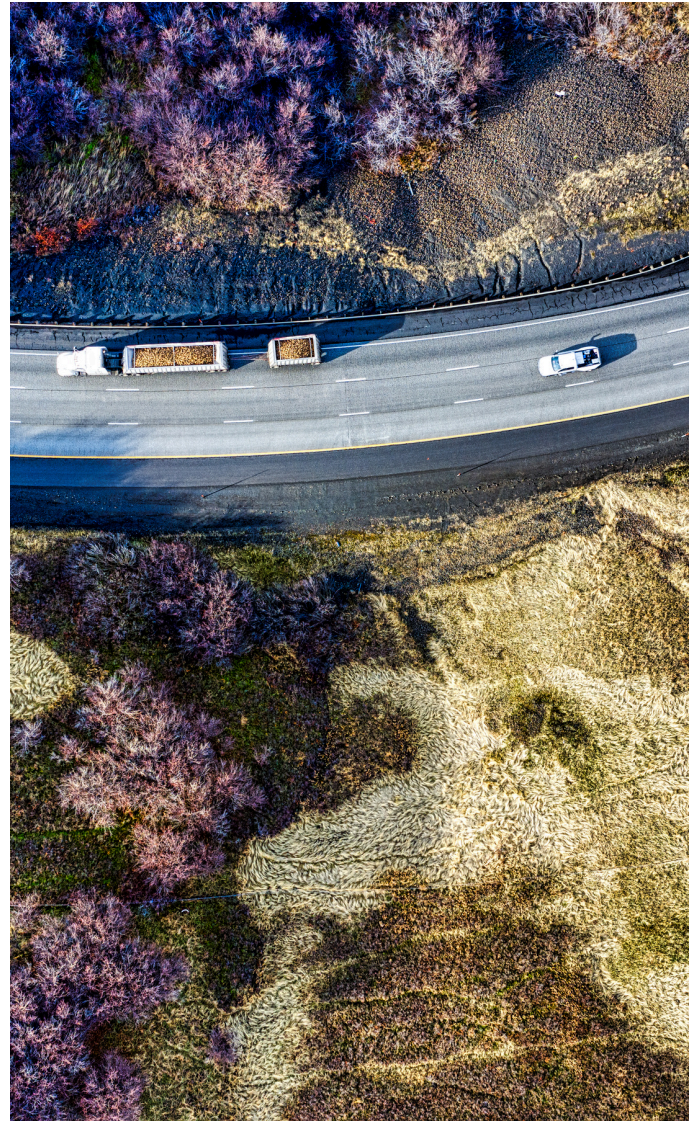
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FEHRL MEMBERS CORNER

Welcome

From Research to Impact: Accelerating Europe's Transport Transformation

Innovation in transport infrastructure is no longer a future ambition, it is a present reality. Over the past year, FEHRL and its members have intensified their efforts to turn research into tangible impact, strengthening Europe's capacity to respond to major transitions in mobility, climate resilience, digitalisation, and skills.

2025 has been marked by a strong acceleration of collaborative action. Through flagship initiatives addressing connected and automated mobility, circular infrastructure, biodiversity integration, and workforce transformation, FEHRL continues to act as a bridge between research, policy, and real-world deployment.

What makes this momentum particularly powerful is the collective nature of our work. National road research centres, European institutions, industry partners, and academia are increasingly aligned around shared challenges and common objectives. This edition of FIRM highlights how this cooperation translates into practical tools, policy-relevant insights, and concrete demonstrations across Europe.

As we look ahead, the upcoming milestones — from final project events to the countdown towards TRA 2026 in Budapest — confirm that FEHRL remains fully committed to shaping a resilient, sustainable, and inclusive transport system.

I would like to warmly thank all FEHRL members and partners for their continued engagement and trust. Together, we are not only preparing for the future of transport — we are actively building it.



Aleš Žnidarič,
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Welcome



Thierry Goger
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Research, Cooperation and Global Responsibility

The second half of 2025 has highlighted the critical role of research and international cooperation in addressing the growing challenges facing transport and road infrastructure.

Across Europe and globally, transport systems are under pressure from climate change, rapid technological change, and evolving societal expectations. In this context, FEHRL works to ensure that research-driven solutions effectively support policy, investment, and implementation, bridging the gap between innovation and real-world impact.

Recent weeks have been particularly dynamic. FEHRL actively contributed to high-level discussions at the IRF Global R2T Conference & Exhibition, engaging with global partners on infrastructure resilience, digitalisation, V2X communication, and connected and automated mobility.

At the same time, FEHRL's project portfolio continues to demonstrate the strength of collaborative research, addressing large-scale CCAM demonstrations, workforce transformation, circular infrastructure, and biodiversity integration. This spirit of cooperation is further reinforced by the expansion of our network beyond Europe. In 2025, we were pleased to welcome the Korea Expressway Corporation Research Institute as a new FEHRL member, strengthening our international perspective and our ability to exchange knowledge at global level.

I am deeply honoured by the 2025 IRF Global Man of the Year Award, which I consider a recognition of the collective work carried out with FEHRL members, partners, and colleagues, and a reminder of our shared responsibility to advance evidence-based solutions for safer, more resilient, and more sustainable transport systems.

As we look ahead to TRA 2026 in Budapest, FEHRL remains fully committed to strengthening cooperation and accelerating deployment.

Thank you to all who contribute to this journey. Together, we are shaping the future of transport infrastructure.

For more information, also see:

 www.fehrl.org

 info@fehrl.org



Recognising Leadership in Transport Research and Innovation

Dr. Thierry Goger awarded 2025 IRF Global Man of the Year



In December 2025, Dr. Thierry Goger, Secretary General of FEHRL, was honoured with the International Road Federation (IRF Global) Man of the Year Award, one of the highest individual recognitions in the global road and transport community.

Presented during the opening of the IRF Global R2T Conference & Exhibition in Long Beach, California, the award recognises outstanding leadership and long-term commitment to advancing safer, more resilient, and more sustainable transport infrastructure worldwide.

The recognition by IRF Global also underlines FEHRL's active participation in global discussions. During the IRF Global R2T Conference, FEHRL leadership contributed to several high-level and technical sessions, including strategic panel discussions on infrastructure evolution, V2X communication, digitalisation, and the integration of innovation into real-world transport systems. These exchanges reinforced the importance of aligning European research perspectives with international priorities and experiences.

By honouring Thierry Goger, the IRF Global Man of the Year Award sends a clear message: research, cooperation, and long-term vision are essential pillars for building the transport infrastructure of tomorrow. The award also acknowledges the collective efforts of FEHRL members and partners who contribute daily to advancing knowledge, innovation, and best practices across Europe.

This recognition further reinforces FEHRL's commitment to evidence-based decision-making and to strengthening Europe's voice in the global transport research and innovation landscape, at a time when international cooperation is more crucial than ever. His work has focused on accelerating the deployment of research results, reinforcing dialogue between researchers and decision-makers, and ensuring that innovation effectively supports infrastructure operators and policymakers.



This distinction reflects more than an individual achievement. It highlights the growing influence of research-driven approaches in shaping transport policy, infrastructure investment, and long-term strategic planning. In a context marked by climate change, digital transformation, and evolving mobility needs, research and innovation are increasingly recognised as essential enablers of resilient and future-ready transport systems.

Under Thierry Goger's leadership, FEHRL has strengthened its role as a platform for European cooperation, bringing together national road research centres to address shared challenges through collaborative research, knowledge exchange, and international engagement.



Building the Physical-Digital Backbone for Automated Mobility



The deployment of Connected, Cooperative and Automated Mobility (CCAM) depends not only on vehicle technologies, but increasingly on the readiness of transport infrastructure. Roads are evolving from passive assets into Physical-Digital Infrastructure (PDI) capable of sensing, communicating, and responding in real time, an essential transformation for safe, efficient, and scalable automated mobility.

Throughout 2025, FEHRL actively advanced this paradigm at both European and international levels, promoting infrastructure as a core enabler of CCAM and supporting its integration into real-world transport systems.

From Passive Assets to Active Infrastructure

Physical-Digital Infrastructure brings together traditional road assets with digital layers, connectivity, and data-driven services. By enabling vehicle-to-infrastructure (V2I) and vehicle-to-everything (V2X) communication, infrastructure can support automated vehicles in complex environments, enhance situational awareness, and contribute to safer interactions with all road users.

Across Europe and beyond, discussions have increasingly focused on how infrastructure can:

- Support automated driving functions,
- Improve traffic efficiency and network resilience,
- Protect vulnerable road users and road workers,
- Enable scalable and interoperable CCAM deployment.

FEHRL has consistently advocated for this infrastructure-centric perspective, positioning roads as active partners in automated mobility ecosystems.



Advancing the Dialogue at IRF Global R2T

This message was strongly reflected at the [IRF Global R2T Conference & Exhibition](#) in Long Beach, California, held from 9 to 12 December 2025, which brought together more than 600 participants from over 50 countries, with over 200 distinguished speakers and 60+ technical and executive sessions covering key transport sector priorities.

During a high-level Executive Session on “Harnessing V2X Communication: Enhancing Safety and Efficiency Through Vehicle-Infrastructure Links”, FEHRL’s Secretary-General, Dr Thierry Goger, contributed to discussions on the evolving role of infrastructure in connected and automated mobility.

The session explored how V2X-enabled infrastructure can improve safety, support traffic optimisation, and facilitate more efficient interactions between vehicles and their environment. Discussions also highlighted the importance of interoperability, standardisation, and data governance to ensure that infrastructure-based services can be deployed at scale and across borders.

By participating in these strategic exchanges, FEHRL reinforced the importance of research-driven approaches in shaping practical and deployable CCAM solutions.

Global Perspectives at ISTS 2025 in Shenzhen

FEHRL’s engagement in Physical-Digital Infrastructure was further strengthened at the [International Smart Transportation Symposium \(ISTS\) 2025](#), held in Shenzhen, China, from 30 October to 1 November. The symposium provided a global platform for exchanging perspectives on smart mobility, automation, and infrastructure innovation.



Dr Thierry Goger contributed to the Opening Ceremony Panel Discussion, bringing European insights on CCAM development and the role of international cooperation in accelerating innovation. FEHRL also played a central role in the Special Session “Enhancing Infrastructure Readiness for Large-Scale Autonomous Deployment”, moderated by Dr Goger.

The session examined how physical, digital, and communication infrastructure must evolve together to support large-scale autonomous deployment, addressing shared challenges related to interoperability, data sharing, and system integration. FEHRL showcased European initiatives such as Augmented CCAM and highlighted the upcoming Transport Research Arena (TRA) 2026 in Budapest, underlining Europe’s leadership in collaborative transport research.

Technical visits, including to Huawei’s Smart City and Intelligent Transport Systems facilities, illustrated how digital platforms, AI-driven traffic management, and integrated systems can translate innovation into practical, scalable solutions.

From Research to Reality: The Augmented CCAM Project

These international exchanges are firmly grounded in hands-on European experience.

Through the Horizon Europe project Augmented CCAM, FEHRL and its partners have demonstrated how Physical-Digital Infrastructure can support CCAM use cases in real traffic conditions.

The project tested infrastructure-based services across multiple European pilot sites, addressing challenges such as vulnerable road user protection, emergency vehicle prioritisation, traffic management, and road worker safety.

A major milestone was reached with the Augmented CCAM Final Event, held in Paris on 15 and 16 December 2025, bringing together project partners, public authorities, infrastructure operators, industry representatives, and policymakers.



Discussions focused on scalability, interoperability, governance, and deployment readiness, underlining the need to align technical solutions with operational practices and policy frameworks.



The project confirmed that successful CCAM deployment requires not only mature technologies, but also clear roles, harmonised standards, and strong stakeholder cooperation.

Building the Backbone for Future Mobility

Taken together, FEHRL’s activities throughout 2025 underline a consistent message: the future of automated mobility will depend on robust, intelligent, and connected infrastructure. By linking European research projects, large-scale demonstrations, and global knowledge exchange, FEHRL continues to support the development of a physical-digital backbone capable of enabling safe and sustainable automated mobility.

As CCAM moves from experimentation to deployment, infrastructure readiness will be a decisive factor. Through its research leadership and international engagement, FEHRL remains committed to ensuring that infrastructure evolves in step with technology and delivers tangible benefits for society.



The AUGMENTED CCAM Project has received funding from the European Union’s Horizon Europe programme under Grant Agreement No. 101069717

The AUGMENTED CCAM Project has received funding from the Swiss State Secretariat for Education, Research and Innovation (SERI)

People at the Centre of Transport Automation

The transition towards automated and digital transport systems is not only a technological challenge — it is a profoundly human one. While connected and automated mobility (CCAM) promises safer, more efficient and more sustainable transport, its success ultimately depends on people: the skills they possess, the roles they occupy, and their ability to adapt to rapidly evolving systems.

As automation, digitalisation and artificial intelligence reshape the transport sector, new professions are emerging, existing roles are evolving, and organisational models are being transformed. Preparing Europe's workforce for these changes is essential to ensure that the transition to CCAM is not only innovative, but also inclusive, socially responsible and economically resilient.

Anticipating Skills for the Future of Mobility

FEHRL is addressing this challenge through initiatives that place skills, employment and social readiness at the core of transport innovation. A flagship contribution in this area is the Horizon Europe project RESKILLING, which focuses explicitly on the human dimension of CCAM deployment.

Rather than treating workforce adaptation as a secondary concern, RESKILLING combines technical foresight with social sciences and humanities. The project examines how automation affects jobs across the entire CCAM value chain, from infrastructure operation and traffic management to maintenance, data services, remote operations and system supervision.

One of the project's key results to date is a comprehensive mapping of CCAM-related occupations, identifying 108 jobs impacted by automation and structuring them into 33 job families spanning technical, operational, regulatory, business and educational domains. This mapping highlights that CCAM workforce transformation is multidimensional, affecting all skill levels and confirming that automation reshapes — rather than simply replaces — many existing roles.

From Analysis to Action: Enabling a Just Transition

Beyond analysis, RESKILLING is focused on delivering practical, actionable outcomes. The project is developing a structured taxonomy of CCAM skills, aligned with different levels of vehicle automation, to support targeted reskilling and upskilling strategies. This framework provides a solid basis for designing training programmes, curricula and professional pathways that respond to real labour market needs.

RESKILLING also supports the co-design of modular and adaptable training pathways, enabling workers to transition into emerging roles without exclusion. By linking technological deployment with workforce development, the project contributes to a just transition — one that fosters innovation and competitiveness while safeguarding employment quality and social cohesion.

A key output under development is the CCAM Employment and Skills Observatory, which will provide policymakers, employers and education providers with evidence-based insights to support long-term workforce planning.

Engaging Stakeholders Across Europe

Stakeholder engagement is a cornerstone of RESKILLING's approach. The project has established a broad stakeholder community covering public authorities, infrastructure operators, industry, research organisations, education providers and trade unions. This engagement is supported through workshops, international events and the RESKILLING Stakeholder Forum, an online platform designed to foster co-creation and knowledge exchange.

These interactions ensure that research results remain closely aligned with operational realities and policy needs, while also capturing the perspectives of workers and local authorities. They reinforce trust in automation by ensuring that social impacts are anticipated and addressed proactively.

Technology Works Best When People Are Ready

Together, these efforts send a clear message: the future of automated mobility will only succeed if people evolve alongside technology. By grounding CCAM innovation in robust evidence, practical tools and inclusive governance, FEHRL and the RESKILLING project are helping to ensure that Europe's transition to automated transport delivers not only technological progress, but lasting societal value.



Join the
ReSKILLING
Stakeholder Community

This work has received funding from the Swiss State Secretariat for Education, Research and Innovation (SERI) for the Swiss partners. Illustrations by Storyset / Freepik



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This project has received funding from the European Union's Horizon research and innovation programme under grant agreement No 101147328.

Towards Circular, Climate-Resilient Infrastructure



Climate change, resource scarcity, and growing economic pressure are fundamentally reshaping how transport infrastructure is planned, built, and maintained. Across Europe, road networks must adapt to more frequent extreme weather events, tighter environmental constraints, and increasing expectations for sustainability and performance.

In this context, moving away from linear models towards circular and climate-resilient infrastructure systems has become a strategic priority. However, achieving this transition requires more than innovative materials or technologies alone. It calls for robust research and development (R&D) tools that support evidence-based decision-making, reduce uncertainty, and enable real-world deployment at scale.

From Innovation to Implementation

FEHRL-supported research is actively addressing these challenges by developing tools that help bridge the gap between innovation and implementation. The CIRCUIT project focuses on one of the most persistent obstacles in the road sector: understanding why circular solutions often struggle to move beyond pilot projects and into mainstream practice.

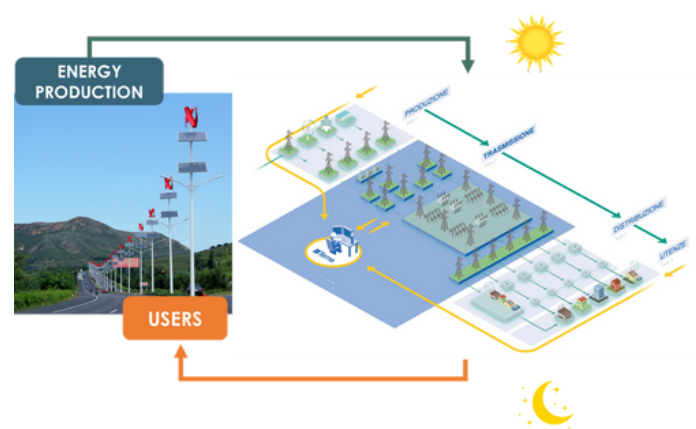
Through comparative analyses across European countries, CIRCUIT has examined regulatory frameworks, procurement practices, and market conditions that shape infrastructure decision-making. The results confirm that outdated standards, fragmented regulations, and risk-averse procurement models remain major barriers to the uptake of circular materials and practices — even when technical solutions are mature and available.

CIRCUIT responds to these challenges by delivering practical R&D tools tailored to the needs of infrastructure managers and policymakers. These include circularity assessment frameworks, life-cycle comparison methodologies, and guidance to support the integration of circular principles into planning, design, and procurement processes. By structuring how alternatives are assessed and compared, these tools help reduce uncertainty and support more informed investment decisions.

Demonstration and Data from Real-World Pilots

Beyond analysis and guidance, CIRCUIT places strong emphasis on real-world validation.

Recent project activities include the installation of innovative tunnel monitoring sensors at the Italian pilot site. These sensors enable continuous monitoring of structural behaviour, durability, and environmental conditions, generating valuable data on infrastructure performance over time.



Such pilots play a crucial role in building confidence among infrastructure owners and operators. By demonstrating how circular and resilient solutions perform under operational conditions, CIRCUIT provides tangible evidence to support wider adoption and contributes to stronger business cases for innovation.



Strengthening Research Capacity for Climate Resilience

While CIRCUIT focuses on overcoming deployment barriers, STREnGth_M addresses a complementary challenge: strengthening Europe's research and innovation capacity to respond to climate-related risks affecting road infrastructure.

The project works to improve access to shared research infrastructures, testing facilities, data, and expertise, enabling more coordinated and efficient research on materials performance, durability, and climate resilience. By mapping existing capabilities and identifying gaps, STREnGth_M supports better alignment between European, national, and international research agendas.

Key outputs include roadmaps, innovation maps, sustainability trackers, and methodological frameworks that help structure future research priorities and investment. These tools support both research organisations and public authorities in anticipating climate impacts and evaluating adaptation strategies more systematically.

Collaboration and Knowledge Exchange

STREnGth_M also places strong emphasis on collaboration and knowledge exchange. By bringing together research organisations, infrastructure operators, policymakers, and industry, the project helps accelerate the transfer of research results into practice and fosters a shared understanding of emerging challenges.

As the project reaches its conclusion, with a Final Event scheduled for **29 January 2026 in Brussels**, it highlights the importance of sustained investment in R&D capabilities as a foundation for resilient infrastructure systems.



The CIRCUIT project has received funding from the European Union's Horizon Europe Innovation Programme under grant agreement No 101104283"

STREnGth_M has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096253.



R&D Tools as Drivers of Systemic Change

A key message emerging from both CIRCUIT and STREnGth_M is that R&D tools are not merely supporting elements, but drivers of systemic change. Assessment frameworks, testing methodologies, shared research facilities, and data-driven approaches enable infrastructure owners and public authorities to move beyond experimentation towards confident deployment.

By translating research outputs into actionable knowledge, both projects help reduce uncertainty, support compliance with evolving sustainability and policy objectives, and accelerate the adoption of circular materials, climate-adaptive designs, and innovative maintenance strategies.

Building the Foundations for the Future

Together, CIRCUIT and STREnGth_M demonstrate that the transition towards circular and climate-resilient transport infrastructure depends as much on how research is organised and applied as on the solutions themselves. By strengthening the link between research, policy, and implementation, FEHRL continues to support a systemic, evidence-based transition towards infrastructure that is resilient, sustainable, and fit for the challenges ahead.

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Mainstreaming Biodiversity in Transport Infrastructure



Integrating biodiversity into transport infrastructure planning is no longer optional — it is now essential for long-term sustainability and climate resilience. As transport networks expand and adapt, they increasingly interact with ecosystems, landscapes, and natural habitats, making it crucial to minimise environmental impacts and, where possible, contribute positively to nature.

Despite increasingly ambitious policy objectives, translating biodiversity goals into operational practice remains complex. Infrastructure managers and public authorities often face fragmented assessment methods, limited life-cycle integration, and challenges in comparing biodiversity impacts and benefits across projects.

From Ecological Ambition to Practical Tools

Through the SYMBIOSIS project, FEHRL and its partners are working to bridge the gap between ecological ambition and infrastructure delivery. Building on a review of current Environmental Impact Assessment practices, the project has identified persistent gaps in biodiversity valuation, long-term monitoring, and the integration of benefits alongside traditional performance indicators.

To address these gaps, SYMBIOSIS is developing practical tools and harmonised data approaches that support infrastructure operators in embedding biodiversity considerations throughout planning, design, construction, and maintenance. This includes methodologies for impact assessment, guidance on nature-based solutions, and approaches that make biodiversity measurable, comparable, and actionable.

Strengthening Monitoring and Decision-Making

A key focus of the project is improving how biodiversity performance is monitored and used in decision-making. Current practices vary widely across countries and organisations, with limited standardisation and weak links between ecological data and infrastructure management systems. SYMBIOSIS is therefore exploring scalable monitoring approaches, including digital tools and data integration methods, to support more consistent tracking of biodiversity outcomes over time.

By strengthening the connection between data, monitoring, and management, the project aims to support evidence-based decisions and enable infrastructure managers to better balance environmental, technical, and socio-economic priorities.



Stakeholder Engagement and Capacity Building

Stakeholder engagement is a cornerstone of SYMBIOSIS. Public authorities, infrastructure operators, industry representatives, researchers, and civil society actors are actively involved through workshops, surveys, and targeted exchanges. This dialogue helps ensure that research outputs remain relevant, applicable, and transferable beyond pilot contexts.

As part of this engagement strategy, SYMBIOSIS has launched a [Learning Needs Assessment Survey](#) to better understand current knowledge levels, skills gaps, and training needs among professionals working at the intersection of transport infrastructure and biodiversity. The results will directly inform the development of future training and capacity-building activities, strengthening stakeholders' ability to apply biodiversity principles in practice.

Towards Infrastructure that Supports Nature

Together, these efforts position SYMBIOSIS as a key enabler for mainstreaming biodiversity in transport infrastructure. By combining scientific evidence, harmonised tools, digital innovation, and inclusive governance, FEHRL and its partners are helping to shift infrastructure from a source of environmental pressure to an active contributor to ecosystem health and resilience.

For more information please contact:

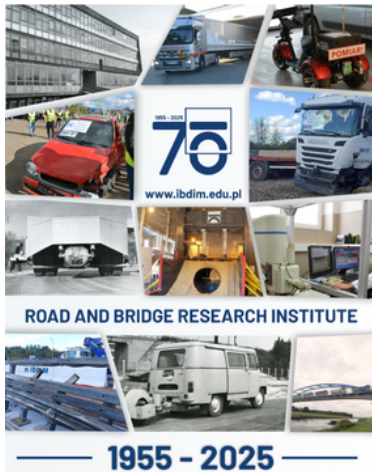
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IBDiM'S INTERNATIONAL COLLABORATIONS AND FUTURE PLANS (NOVEMBER 2025)

Road and Bridge Research Institute (IBDiM) is a leader in road and bridge research, collaborating internationally through organizations like FEHRL, FERSI, and ERTRAC to influence European research and policy. By joining EU-funded projects such as Horizon Europe (Rail4Cities, FutuRe) and Cornet (BiBaCoM, MicroSafeCoatings), IBDiM advances transport infrastructure sustainability, climate resilience, and digital transformation.

IBDiM has led several national projects, including the RID rSMA2 initiative on sustainable reclaimed asphalt use and the DiagSC project for advanced monitoring of bridge structures. The institute has also contributed to geotechnical testing for road investments and heads the WIM project, which focuses on automatic vehicle weighing for better infrastructure protection and traffic management. Currently, IBDiM leads a consortium analyzing technical conditions and standards for traffic management on roads to optimise EU funding and promote road safety, with recommendations expected for future regulations.

The institute organizes monthly seminars featuring internal and international experts, such as from MIT, to share research and encourage discussion in road and bridge engineering. These efforts foster collaboration with global research centers and universities, leading to joint research, staff exchanges, conferences, and the integration of new technologies and standards into engineering practice.

Key Events and Activities

In September 2025, IBDiM marked its 70th anniversary with a ceremony attended by leaders from government, academia, and infrastructure. October featured the international **MRP'25 conference** on road pavements, recycling, and decarbonization, as well as the **iCRASH'25 conference** on safety, including a live crash test. In November, IBDiM hosted the **LightFlow 2025 conference** focused on road and public space lighting. All conferences gathered Polish and international experts.

Further areas of collaboration

These events underscored the institute's importance as a center for sharing expertise and fostering international collaboration. Over the next few months, IBDiM will expand its training—including courses on corrosion protection, European standards, and new materials technology—and is involved in preparing three Horizon Europe proposals.

Strategic Directions

In the coming years, IBDiM will focus on sustainable road infrastructure by researching recycled materials, bio-based binders, and low-emission technologies. The institute will advance digitalisation and automation in road and bridge monitoring using AI, IoT, and self-monitoring materials. IBDiM will also maintain its role in certifying and assessing construction products to encourage innovation in Poland and Europe.

Organisational Changes at IBDiM – New departments

Department of Research, Development and Knowledge Transfer which coordinates scientific research, supports publications and R&D projects, fosters collaboration, manages infrastructure databases, and analyses road investments and user behaviour.

Laboratory of Mobility, Environmental Protection and Eco-Infrastructure which studies mobility and environmental issues, monitors traffic, emissions, and noise, develops models for mitigating impacts, and offers policy advice for sustainable transport.

Summary

IBDiM remains a key authority in construction product certification and technical assessment, promoting innovation in Polish and European markets. With new research departments and laboratories, its capacity for sustainable transport research has grown. International partnerships and a clear innovation strategy help IBDiM connect scientific research with practical applications, advancing sustainable transport infrastructure in Poland and Europe.

FEHRL MEMBERS' CORNER



96 HOURS OF RESILIENCE: DECOUPLING TRAFFIC SAFETY FROM THE POWER GRID

By: *Adi Gamliel*
 FEHRL – Board Member Head of Strategy and Innovation Division,
 Netivei Israel - National Transport Infrastructure Company

Background

In the modern landscape of national infrastructure, "resilience" has evolved from a theoretical goal into a non-negotiable operational mandate. As the National Transport Infrastructure Company of Israel, Netivei Israel is responsible for the integrity and functionality of the country's intercity road network. In this role, ensuring the continuous flow of traffic is not merely a matter of convenience—it is a critical component of national security. The most formidable challenge we face is the "Blackout" scenario: a large-scale, prolonged power outage that could last five days or more. In such a crisis, the ability to maintain functional traffic signals at strategic intersections is the difference between a managed emergency and total gridlock.

The Barrier

Historically, traffic signal continuity has been tethered to the vulnerabilities of the central power grid. Netivei Israel manages approximately 700 signalized intersections, most of which were equipped with standard Uninterruptible Power Supply (UPS) systems. However, these systems presented a significant barrier to long-term resilience, offering a narrow backup window of only 6 to 10 hours. Once this threshold was crossed, the company was forced to rely on the manual deployment of diesel-powered generators. This traditional approach was fraught with logistical bottlenecks, including the need for constant refueling, noise pollution, and high carbon emissions. Furthermore, the sheer scale of a nationwide blackout meant that manpower and fuel availability could never be guaranteed, leaving our most critical junctions at risk of going dark.

The Solution

To break this 10-hour barrier, the Innovation, Strategy, and ESG Division launched the "Blackout Challenge," seeking a disruptive, green, and autonomous energy source. The winning solution came from Phinergy, utilizing their proprietary Aluminum-Air technology. This system generates electricity through an electrochemical reaction between aluminum and oxygen, offering a clean, silent alternative to fossil fuels.

The impact was transformative: we successfully extended the operational autonomy of our intersections from 10 hours to 96 hours (4 days) of continuous power. Beyond the ten-fold increase in duration, the system provides a "seamless" online transition during grid failure and is equipped with IoT-based remote monitoring for real-time status updates. Most remarkably, this project moved from a conceptual challenge to full-scale deployment in dozens of strategic intersections within just six months, proving that high-tech innovation can be implemented at the speed of operational need.



A working traffic light illuminates the darkness

Summary

The success of this project serves as a masterclass in the implementation of innovation within a large-scale public utility. True innovation is not achieved simply by finding a clever gadget; it is implemented only when a solution proves its clinical effectiveness and, more importantly, when organizational trust is established. This breakthrough was made possible through the deep-seated collaboration between the Innovation, Strategy, and ESG Division and the Operations and Maintenance Division. By aligning the "future-ready" goals of the innovation team with the "ground-ready" requirements of the maintenance teams, we bridged the gap between theory and practice. At Netivei Israel, we have demonstrated that when trust is the foundation, technological innovation can successfully decouple critical infrastructure from grid vulnerabilities, ensuring the lights stay on even in the most challenging scenarios.





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