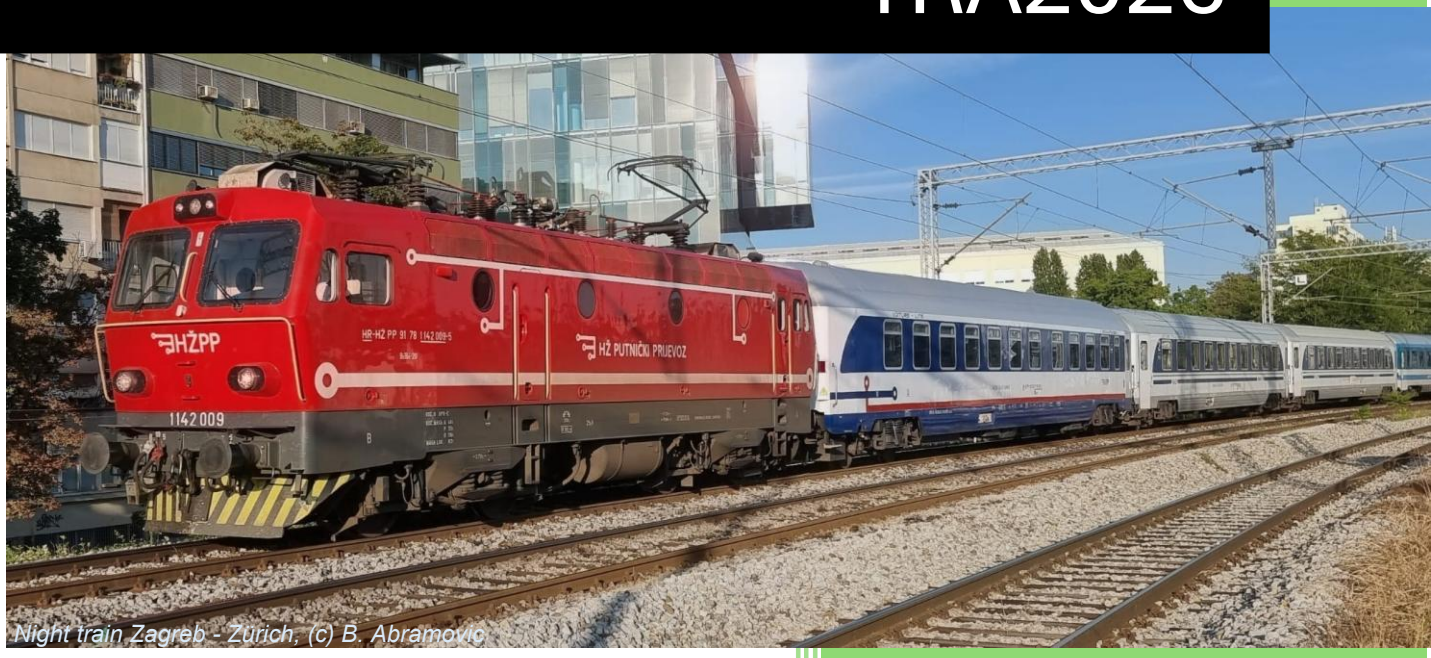
2026

Future of Efficient Night Trains in Europe, Round Table at TRA2026



Night train Zagreb - Zurich, (c) B. Abramovic

Dr.-Ing. Armando Carrillo Zanuy

EURNEX

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SPECIAL SESSION REPORT

Future of Efficient Night Trains in Europe

Event	Date & Venue	Format
TRA2026 – Transport Research Arena	May 2026, Budapest, Hungary	Panel debate + Audience Q&A (~90 min)

Moderator	Armando Carrillo Zanuy (EURNEX)
Rapporteur	Helena Luketic (HZPP – Croatian Railways)
Panelists	Kurt Bauer (ÖBB Personenverkehr) Borna Abramovic (University of Zagreb) Anton Dubrau (Luna Rail) Aaron Paz Martinez (DLR – German Aerospace Center) Michele Gesualdi (UIC – International Union of Railways) László Kormányos (MÁV Passenger Transport / Hungrail)

Executive Summary

This session brought together operators, researchers, a startup and an association to examine why night trains, despite clear demand and a solid climate case, remain underscaled across Europe. The panel converged on a core diagnosis: the problem is not demand, it is structural supply failure rooted in fragmented governance, unequal modal competition, and insufficient R&I investment. Concrete policy action is available and necessary.

Photo source: TRA official media repository

The Big Picture: Three Core Tensions

The session was framed around three tensions that define the current night train challenge:

Climate ambition vs. operational reality
Night trains can meaningfully replace some short-haul aviation, but structural barriers keep supply constrained even where passenger demand is strong and growing.

Policy frameworks vs. execution
EU-level action plans exist (European Commission Action Plan, TEN-T revision, EIB Green Rail Investment Platform), but the bottleneck is cross-border delivery, governance and financing remain nationally fragmented.

KEY TENSION	*Innovation speed vs. railway inertia: startups and researchers have tools and ideas, but the regulatory and institutional environment slows deployment significantly. Vehicle procurement cycles of 30 years are incompatible with innovation timelines.*

Key Takeaways

1. Demand is not the problem supply is

The most emphatic point of consensus across all panelists was that passenger demand for night trains is already proven and robust. Both ÖBB Nightjet and other providers operate with very high load factors; trains sell out quickly. The constraint is not willingness to travel but the availability of trains, paths, and beds/seats.

Michele Gesualdi (UIC)	*"If you try to book a Nightjet, in most cases you cannot because they get sold out very soon. The load factor is very high. What is missing is not passengers it is supply. We need more trains, more capacity, and better cross-border coordination."*

2. The chicken-and-egg deadlock on rolling stock

The session identified a systemic coordination failure at the heart of night train supply:

- New operators will not order rolling stock without certainty that services will last long enough to recover the investment.
- Manufacturers and investors will not build or finance rolling stock without that same certainty.
- Infrastructure managers have limited overnight capacity and hesitate to allocate paths without a long-term market vision.
- Operators cannot provide certainty because they face dynamic path allocation, fluctuating track access charges, and market regulation daily.

The result: everyone waits for everyone else, and nothing moves. Breaking this deadlock requires external coordination, precisely the role of EU policy.

3. Unequal modal competition distorts the market

Several panelists stressed the fundamentally unfair competitive environment night trains face:

- Airlines pay no VAT on tickets (Croatia charges 25% VAT on rail tickets).

- Buses (e.g. Flixbus) pay no tolls on German motorways; railways pay over €5 per kilometre in track access charges.
- Infrastructure access charges accumulate linearly with distance, making long routes economically unviable: as one panelist put it, a Budapest–Madrid night train would see all revenues consumed by infrastructure fees before the first passenger boards.

Kurt Bauer (ÖBB)	*"We pay more than 5 euros per kilometre in infrastructure access fees. Airline tickets have no VAT. Flixbus pays no tolls. This is simply not fair. We need a level playing field across all modes of transport and this is where policymakers must act."*

4. Cross-border governance is the key bottleneck

Even where political will and policy frameworks exist, execution fails at the cross-border level. Identified failures include:

- Path allocation remains national: international trains must fit into multiple planning systems with different logics and timetables.
- Timetables are not coordinated across borders, making it difficult for operators to plan, sell tickets, and promote services.
- The economics of cross-border PSOs (Public Service Obligations) remain unresolved: when a train crosses four countries, no agreed mechanism exists to share costs and benefits.
- Passengers cannot easily discover or book night trains, not just a ticketing problem but a visibility and information gap.

5. Rolling stock design: capacity, privacy, and modularity

The session featured substantive debate on what the right vehicle concept looks like:

- Privacy is the decisive product feature: passengers consistently prefer compartments over reclining seats, and demand for individual sleeping cabins (the mini-cabin model pioneered by ÖBB Nightjet) far exceeds supply.
- Capacity drives economics: the more passengers per train, the lower the per-person cost. Maximising capacity within the infrastructure envelope is the central design challenge.
- Luna Rail (Anton Dubrau) presented a concept targeting 80% of day train capacity in a night train configuration — sit comfortably during the day, sleep privately at night — as the key innovation frontier.
- DLR (Aaron Paz Martinez) presented research into lightweight modular double-decker concepts: upper deck for reclining/sleeping, lower deck for families, sanitary facilities, and larger cabins; also exploring multi-night operation similar to US Amtrak practice.
- Full day-night hybrid operation was considered by ÖBB and ultimately ruled out due to maintenance logistics: cleaning and inspection cycles leave insufficient time for commercially viable daytime routes.

6. High-speed night trains: potential but significant constraints

The question of high-speed night trains generated the session's most nuanced exchange:

- High-speed infrastructure in countries like France is closed at night for maintenance, making this operationally impossible on key corridors.

- High-speed lines require far more maintenance than conventional lines, and that maintenance is logically done at night creating direct conflict with passenger operations.
- High-speed trains are more expensive and have lower capacity than conventional rolling stock both disadvantages for the night train model.
- A more useful framing, per DLR research: trains capable of 150 km/h commercial speed with no intermediate stops could cover 1,200–2,000 km within a comfortable overnight window and access routes currently closed to heavier conventional stock.
- The EasyJet average flight distance (approx. 1,200 km) was cited as the relevant benchmark: night trains do not need to be ultra-high-speed to compete meaningfully with low-cost aviation on this market segment.

7. Yield management is essential and socially beneficial

In response to an audience question, Kurt Bauer (ÖBB) made a strong case that revenue management is not only commercially necessary but socially progressive: it enables very cheap off-peak tickets (€12 Budapest–Vienna was cited), fills trains to 70–90% load factors, and produces better environmental outcomes than flat-fare pricing. The flat-fare model of 20 years ago was more expensive for passengers overall.

8. Noise: a real but manageable issue

A question from an SNCF acoustics specialist raised noise as a concern for wider night train deployment. The panel response: night trains are quieter than freight trains, which already operate at night on the same lines. The more fundamental point is that railway noise (unlike CO_2 from aircraft) is perceptible to communities, making acceptance a real political challenge but one that belongs to all rail traffic, not specifically to night trains. Track-based noise reduction was identified as more effective than trackside barriers.

What R&I Can Do: Concrete Tools

The session explicitly positioned R&I not as background context but as an active lever. Specific tools discussed:

R&I Tool	Application
Emission calculators	Quantify CO_2 savings of night trains vs. aviation/road on specific corridors; provide evidence base for policy decisions and infrastructure prioritisation.
Game-theoretic models	Model the coordination problem among operators, infrastructure managers, manufacturers, and investors; identify which actor should move first and under what incentive structure to break the deadlock.
Multi-criteria optimisation	Optimise trade-offs between availability, affordability, accessibility, reliability, and environmental impact for specific network configurations and target markets.
Ergonomic / cabin design research	Luna Rail's approach: build physical prototypes, test with users, iterate bridging the gap between innovation and commercial deployment that operators cannot bridge alone.
Modular vehicle concepts	DLR lightweight double-decker: reduce vehicle weight to lower track access charges and expand route access; modular interiors to serve day and night configurations.

How EU Policy Can Help: Concrete Pathways

The panel converged on a set of specific policy interventions. These are not new diagnoses — most appear in existing EU frameworks — but they require execution rather than further study.

I. Level the modal playing field

- Extend VAT neutrality to rail tickets across all Member States, or apply VAT to aviation tickets consistently.
- Reform track access charge frameworks for night trains: consider the freight intermodal model (reduced or zero charges for specific service types) as a template.
- Ensure road hauliers and bus operators internalise full infrastructure costs, including environmental externalities, to correct the current distortion.

II. Fix the cross-border governance gap

- Mandate coordinated overnight path allocation across national infrastructure managers for international passenger services.
- Establish a EU-level coordination mechanism (potentially within Europe's Rail or ERA) for cross-border night train timetabling, path reservation, and dispute resolution.
- Develop a framework for cross-border PSO financing: a train crossing four countries should not be commercially stranded because no single Member State is willing to subsidise the full service.

III. De-risk rolling stock investment

- Use the EIB Green Rail Investment Platform to provide guarantees or concessional financing for night train rolling stock orders, reducing the risk premium that currently blocks procurement.
- Commission a coordinated EU framework contract for night train rolling stock — similar to the successful model used for regional trains in some Member States — to achieve economies of scale and reduce per-unit costs.
- Establish minimum guaranteed path availability windows for night trains over multi-year horizons to give operators and investors the certainty they need.

IV. Fund targeted R&I

Prof. Borna Abramovic (University of Zagreb) outlined what an ideal European Commission R&I call for night trains should look like:

- Clear EU-level policy commitment to night trains as a decarbonisation tool establishing that this is a strategic priority, not a heritage curiosity.
- Joint industry-academia consortia as a mandatory requirement: research without operator involvement produces results that cannot go on track.
- Concrete operational goals, not just technical studies: the call should specify measurable outcomes (e.g. a viable commercial night train service on a defined corridor within X years).
- A passenger-centred component: demand analysis, willingness-to-pay research, and accessibility assessments must be integral, not add-ons.

R&I Funding Gap	*Both Luna Rail and DLR noted that funding agencies often do not recognise night trains as an innovation frontier, associating them with 19th-century technology. Reframing night trains explicitly as a net-zero technology eligible for Horizon Europe and Europe's Rail funding is a necessary first step.*

V. Improve passenger information and ticketing

- Mandate open data sharing of night train schedules and availability through the European Multimodal Travel Information Service (EMTIS) and national journey planners.
- Explore a common booking interface for international night trains (analogous to what exists for aviation) to address the discoverability problem.

Closing Takeaways from Panelists

Each panelist was asked for one concrete recommendation:

Panelist	Key Recommendation
Kurt Bauer (ÖBB)	Create a level playing field across modes: address track access charges, VAT, and road costs simultaneously. Industry cannot do this alone.
Michele Gesualdi (UIC)	Close the gap between framework and execution. The policy exists; what is missing is cross-border path coordination and PSO financing mechanisms.
Anton Dubrau (Luna Rail)	Recognise night trains as a net-zero innovation frontier and fund the research needed to de-risk new cabin and vehicle concepts that operators cannot develop alone.
Aaron Paz Martinez (DLR)	Focus rolling stock R&I on lightweight, modular concepts that reduce track access costs and allow day/night flexibility within operational constraints.
Borna Abramovic (UNIZG)	Launch a dedicated EU R&I call with mandatory industry-academia consortia, clear operational targets, and a passenger-centred focus.
László Kormányos (MÁV/Hungrail)	Fair regulation and equal opportunity across transport modes is the prerequisite. Night trains have a role, including seasonal/tourist services, but need a corrected competitive environment to thrive.

A Note on Scope: Night Trains Will Not Replace Aviation

One of the most valuable moments of the session was a frank acknowledgement by Kurt Bauer (ÖBB): night trains will not, and cannot, replace aviation at scale. A TGV or ICE carries 1,000 passengers; the best-designed night train carries 450–600. Replacing 1% of aviation modal share is achievable and meaningful. Replacing 20–30% (as some advocacy scenarios suggest) would require tens of thousands of trains and is not credible.

This is not an argument against night trains, it is an argument for precise policy goals. Night trains serve specific markets: passengers who cannot or will not fly; those who prefer sustainable travel; musicians with instruments; families needing overnight mobility without hotel costs; and business travellers who value door-to-city-centre arrival. For these markets, the product is excellent and demand is proven. EU policy should be calibrated to this reality rather than to inflated substitution claims.

Report prepared by EURNEX based on session transcript and briefing materials, TRA2026, Budapest, May 2026.