FP5-TRANS4M-R InnoTrans 2024 Recap

The Flagship Project 5 – TRANS4M-R was strongly represented at the biggest trade fair for transport technology from September 24th to 27th in Berlin.

Apart from a joint representation of the project at the booth of its funding organisation Europe's Rail Joint Undertaking, several partners presented FP5-TRANS4M-R results at their own booths or at dedicated events.

Figure 1 Joint FP5-TRANS4M-R representation with four DACs at the Europe's Rail booth (Photo: Fabian Acker, DB Cargo)

For the first time ever, four DACs of four different suppliers were simultaneously displayed at the **joint representation of the project at the booth of the Europe's Rail Joint Undertaking**. Dellner, Knorr-Bremse, Voith and Wabtec showcased the interoperability of couplers. The DAC is a key enabler for Digitalization and Automation (D&A) in Rail Freight Transport. Background information on the technology and D&A benefits were shown on an interactive screen at the booth as well.

In the framework of the **EU-Rail Innovation Tours** two guided tours were organized by the Europe's Rail Joint Undertakings. More than 60 people assisted the tours on Tuesday and Wednesday that started at the project's joint representation followed by the booths of Dellner, Knorr-Bremse, Voith and Wabtec as industry partners and concluded by ÖBB as a railway undertaking.

Figure 2 DAC Guided Tour organized by Europe's Rail Joint Undertaking (Photo: Fabian Acker, DB Cargo)

The project is supported by the Europe's Rail Joint Undertaking and its members.

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the Europe's Rail Joint Undertaking. Neither the European Union nor the granting authority can be held responsible for them.

Figure 3 Dellner Hybrid-DAC (Photo: Dellner)

At InnoTrans 2024, **Dellner** presented its Hybrid Digital Automatic Coupler (DAC), an innovative solution that combines both mechanical and digital connections to streamline freight operations. The Hybrid DAC will play a crucial role in the migration phase, supporting freight operators as they will transition from traditional screw couplers to fully digital automatic coupling systems.

Figure 4 Knorr-Bremse DAC for freight wagons (Photo: Knorr-Bremse)

At this year's **Knorr-Bremse** InnoTrans booth, we presented our DAC 5, which enables automatic coupling and uncoupling. Together with our digital content, which makes the DAC understandable and tangible, it was a real customer magnet. Our DAC was featured in multiple locations, underscoring its significance for the sector and Europe. Physically it was presented at the ÖBB, EU-Rail, and Tatravagonka booth, while its applications and functionalities were further highlighted digitally at the SBB and PROSE booths.

Figure 6 Voith Hybrid-DAC (Photo: Voith)

A major highlight at the **Voith** booth was the CargoFlex Hybrid for locomotives. The hybrid coupler allows both coupling to a draw hook and automatic coupling, because the head can be set to the automatic or manual position as required. This allows rail operators to gradually convert their fleets to the DAC.

DB Cargo organized a panel discussion on the Deutsche Bahn booth on Wednesday 25th. FP5-TRANS4M-R Project Coordinator Dr. Patrick Seeßle and the Head of DAC programme at DB Cargo, Dr. Armin Günter, together with Giorgio Travaini, Executive Director Europe's Rail Joint Undertaking talked about the importance of the DAC and the importance of cooperation in Europe for the whole DAC initiative.

Figure 5 Mobility Talk at the DB booth, Dr. Patrick Seeßle, Giorgio Travaini, Dr. Armin Günter (Photo: Sascha Fey, DB Cargo)

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The Digital Automatic Coupler (DAC) from Knorr-Bremse was exhibited at the **ÖBB** stand, being part of Europe's Rail Innovation Tours, where interested audience was provided with insights on the status of development from both manufacturer and railway perspective.

ÖBB was also represented at the event organised by Verband der Bahnindustrie with industry representatives and the EU Commission. Main takeaway was that DAC can only be implemented with joint efforts and suitable financial support.

Figure 7 DAC Knorr-Bremse (Photo © 2024 ÖBB, Espen Eichhöfer)

Figure 9 On-board perception system for automated shunting by m.ZERO (Photo: Fabian Acker, DB Cargo)

m.ZERO OG, affiliated entity to ÖBB Infra, showed the concept of the light electric shunter which is to be equipped with a DAC as test platform for WP20 and may also be used for special missions in WP21 of FP5-TRANS4M-R. Also on display was a research prototype that is intended to serve as on-board perception system on the same shunter.

The **FSI** booth was part of the Europe's Rail Innovation Tours disseminating the most mature innovations in which each Founding Member is actively involved. During the tour, the Polo Logistica showcased the activities carried out in FP5-TRANS4M-R, explaining how these represent a true revolution in the logistics sector. In Berlin-Spandau the first Mercitalia wagons equipped with FDFT components were shown. They will be part of the Italian Demo train as well.

Figure 8 Maria Antonietta Zocco presenting at the FSI booth (Photo: Mercitalia)

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At the SwissRail event "WE ARE READY FOR DAC!" at the INNOTRANS '24, **plc-tec AG** showcased its Powerline PLUS Train Backbone (PTB) technology - a reliable communication backbone solution for the Full Digital Freight Train. The PTB technology is being further developed and tested on the Swiss DAC+ test train as part of FP5-TRANS4M-R Work Package 18.

Figure 10 plc-tec AG at the SwissRail booth (Photo: plc-tec AG)


Figure 11 DLR booth (Photo: DLR)

The **DLR** presented a broad portfolio of research which was focused on operational concepts for automation as well as for vehicular concepts. Besides the regional train concept NGT-Taxi, the approach for the self-propelled freight wagon was one the concepts presented there which is worked on in the FP5-TRANS4M-R workstream Innovative Freight Assets.

The 2024 InnoTrans trade fair was a huge success for the FP5-TRANS4M-R project and its partners. The project topics have caught a lot of attention from stakeholders from the whole railway sector.

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