

The Europe's Rail Joint Undertaking (EU-Rail) invites the European Rail Freight Sector, its Customers and other stakeholders to openly **express their interest** to be part of the needed phase of large-scale testing of DAC technology (Digital Automatic Coupling for freight trains incl. DAC based applications) in **100 pre-deployment trains** according to the DAC General Master Plan 01 (see below).

### **The reasons why a large-scale DAC testing and the pre-deployment phase is needed**

DAC technology will be an essential game changer in the European rail freight transport. It will already be quite mature after the technological validation in the R&I activities of the ongoing EU-Rail Flagship Project 5 (in labs and through demonstrator trains). But, in order to successfully implement it in Europe and in line with the preconditions for DAC deployment set out by the European DAC Delivery Programme (EDDP) enabled by EU-Rail, it is necessary to allow **sufficient time and resources for successful testing on a large scale of this technology**.

The foreseen testing in different European regions is intended to **prove functionality, reliability, availability, performance and added value of DAC in real-life operation**. Sound and robust future investment decisions for the entire European Rail Freight Sector can only be based on feedback on how DAC applications perform in daily operation in different environments, geographical areas and operational conditions across Europe over a longer time.

### **A successful full-scale transformation requires a successful pre-deployment phase first**

To gather **statistically significant and sufficient information** and data to represent European freight traffic, long-term tests with a number of **around 100 DAC pre-deployment trains** are required. They are foreseen to operate for approximately two years throughout Europe, collecting important findings on technical challenges, regional specificities and use in different operational scenarios, added value for customers, and for potentially gaining cross-border experience.

This number is a preliminary statistical sample size that is considered sufficient to deliver the needed confidence level for low error rate in later full-size deployment, allowing 40.000 train trips in 2 years for a „population size“ of around 5 mn. train trips/year in Europe. An authorisation strategy (whether at Member State or EU level) for safe in-service testing is currently under development.

**These results will enable to reach technology maturity for series production and general deployment** at the end of the tests and in addition will help to further increase acceptance and trust by all stakeholders involved in this game-changing technology. **This will pave the way for a reliable full deployment** on the European Rail Freight vehicle fleet.

### **What shall be tested in the pre-deployment trains and how**

The 100 pre-deployment trains shall be equipped with the **DAC basic package**, following the endorsement in the open EDDP platform and developed by the Europe's Rail JU Flagship Project 5:

- DAC-coupler incl. energy and data system
- train composition detection
- Automated brake test

- Train integrity/train length determination
- Automated uncoupling (in-train from loco and with wagon-sided push-button)

**Potential interested parties for these trains** should

- operate as much as possible in commercial operation, maybe supported by special supervision (as potentially not yet fully authorized by the start of operation)
- cover multiple European regions and Member States
- cover different relevant operational conditions and show a considerable number of shunting operations in production, if possible
- reach out to partners and operators who are not yet engaged or involved
- address possible support in the form of in-kind activities (e.g. test drivers, shunting yard staff, inspectors, project management, etc.)
- **start operation around in late 2026 for a duration of 2 years minimum**

Furthermore, the identification of **shunting yards** (with low utilisation or partially utilised) in which over-the hump and horizontal coupling/uncoupling endurance tests can be carried out in the same period is important.

To summarise we ask for:

- a) possible availability of physical trains (locomotives and wagons) and parties interested to pioneer this new technology in operations
- b) insight in operational patterns for these trains during the pre-deployment phase (e.g. specific corridors, involvement of specific customers/shippers, yards, type/mode of transport)

We are looking for **all sorts of (not yet binding) inputs from various sources** (Railway Undertakings, Railway Customers, Wagon Leasing Companies, ...) on the above in order to reflect the variety of rail freight operations in Europe.

The EDDP will use the received input to assess the contribution to the overall objectives of the deployment programme (e. g. a variety of operational patterns, trains, wagons and regions) and build the definitive pre-deployment plan, including scope, detailed planning, type of rolling stock and budget. It will also determine the vehicle types (in particular: locos) to be analysed in context to retrofitability and to be prepared in first priority for DAC upgrade/retrofit.

**Your benefits for being a pioneer and operating/using DAC pre-deployment trains**

Operating DAC pre-deployment trains brings you in early touch with this technology before it is fully rolled out. You will have the possibility to optimise its integration into your operations to gain best efficiencies and to give feedback on its operational and technical handling, especially for your staff, if improvement should be needed. You will be able to gain an advantage in shaping your future freight train operations best to your needs and to become, together with your customers, innovation frontrunner to early optimise and secure your future business.

The received input will also be used to clarify the budget needed for these trains, as funding for the pre-deployment phase is not secured yet. A list of „train candidates” and interested players are indispensable to support the identification of the next steps, including possible funding/financing aspects. EDDP will encourage collaboration among participants and experts to foster knowledge sharing and collective problem-solving.

We kindly ask you to come back **until 29 February 2024** to the coordinating EDDP programme under [info-DAC@rail-research.europa.eu](mailto:info-DAC@rail-research.europa.eu)

with an expression of interest from your side to operate pre-deployment trains

If possible until then, please indicate

- one contact person per company
- Number of trains envisaged
- Type/description of operating train patterns and modes
- all potential related questions you might have

This request is addressed to the entire European Rail Freight Sector including its customers and is transparently published on the EU-Rail EDDP website for any interested stakeholders to answer.

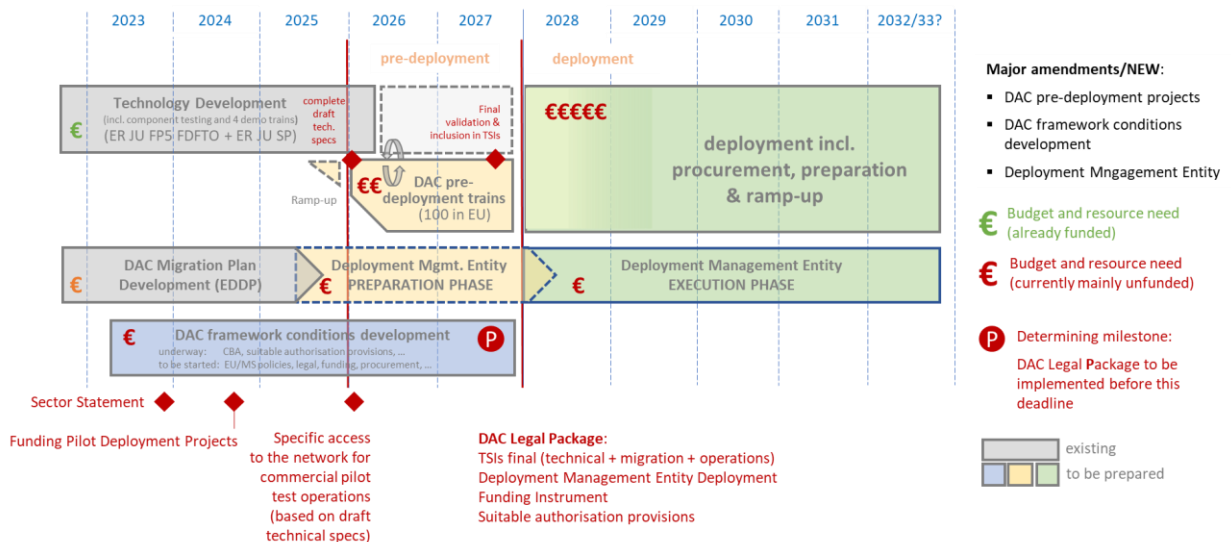
We are looking forward to all your feedback which we will thoroughly discuss with you in Q2/2024.

Enclosure.: Background - The DAC General Master Plan 01

## Background

### The DAC General Master Plan 01

#### DAC General Master Plan 01 [June 2023]



## Ongoing enabling work

The development and first testing of the DAC technology currently takes place in the Flagship Project 5 (FP5)-TRANS4M-R within EU-Rail. The focus of FP5-TRANS4M-R in the upcoming 3 years is primarily on:

- developing the DAC technology incl. DAC based applications (DAC basic package endorsed by the EDDP)
- testing the DAC system under laboratory conditions and stepwise with up to 5 demonstrator trains proving principal functionality, performance, safety and interoperability

Preparation for the pre-deployment phase is in parallel supported by other EU-Rail planned activities. The output of this **request for expression of interest** will be aligned by EDDP with the other analyses to make a comprehensive plan containing a better overview of available and needed trains, technology and operational processes around Europe.

The other supportive activities launched by EU-Rail comprise:

1. Ongoing call for proposals: **“DAC Fleet retrofitting and retrofit capacity plan”** (published 4 October 2023, deadline for application 7 February 2024)
2. Call for tender/proposals: **“Engineering solutions”** for locomotives (to be published 2024)
3. Call for proposals: FA5 **“DAC testing to support future authorisation”** (to be published 2024)