

## European Digital Automatic Coupling Delivery Programme

# Memorandum of Understanding between European Railways and Rolling Stock Keepers for the European Digital Automatic Coupling (DAC) for rail freight

## A- Preamble

The Union's Green Deal objectives in terms of transport and mobility will be achieved essentially through the transfer of a large share of the current land transport towards rail freight.

This will ensure the achievement of a climate neutral land freight transport, but it will need a substantial transformation of the way rail freight is performing: capacity, life-cycle cost, efficiency and effectiveness, overall new business models, etc.

Delivering a new Intelligent Rail Freight system results from harvesting the benefit of new technologies, starting with automation and digitalization, and new smart operational solutions, building upon a shared sector vision of the overall rail system. It requires the clear commitment of the Rail Freight Operators but also of the other stakeholders of the Rail system, Rail Operators, Infrastructure Managers, rolling stock keepers, supply chain, etc. and it will require interfacing with the respective clients.

The Shift2Rail Joint Undertaking R&I Programme and its successor, jointly established by the Union and the rail sector, should provide the next- generation innovative solutions for deployment in the rail system, with rail freight at its core. Others may come from national or individual activity.

## B- Objectives to be achieved

The overall objective is to achieve the Intelligent Freight Rail, building upon different enablers such as data, telecoms, sensors, positioning, autonomy, etc. – where the Digital Automatic Coupler is considered one of the major game changers whose deployment success results from a shared sector vision.

The short-term objective is to deploy DAC type 4 in order to generate benefits for the European rail system as soon as possible, but as well as to ensure interoperability and compatibility with a DAC type 5 deployment, as the economic feasibility of the upgrade from type 4 to type 5 needs to be considered in the deployment plan for type 4.

DAC will be the essential basis for automated (de)coupling/shunting, marshalling yard automation, delivering train integrity and allowing freight trains to be operated with ETCS Level 3 or NG as well as ATO, which should allow for an increase of capacity of the entire system.

DAC can also be a gateway for heavier and longer freight convoys - depending on infrastructure characteristics - because of its higher capacity to handle longitudinal tractive forces compared to the actual screw coupling system

DAC can enable telematics applications with power supply as well as secure data communication throughout the entire train, being the basis for numerous additional applications to increase operational efficiency, quality, safety, security, as well as maintenance and asset optimization, supply chain digitalization and reducing costs & time for rail freight operation.

DAC expected key benefits:

- Increasing infrastructure capacity
- Increasing rail freight cost-efficiency
- Delivering the “Green Deal”
- 30+% by 2030, 50+% by 2050
- Key enabler for further digitalisation and automation of European rail system

## C- Key Commitments

As it is already mentioned, the success of the DAC deployment depends on a shared vision covering the different stages, such as

- demonstrating the benefits of the available prototypes,
- assessing and selecting the European DAC open model
- establishing a migration programme
- identifying the relevant funding model(s) to enable, accelerate and bridge the transition process until deployment is completed.

The signatories of this MoU acknowledge the potential benefits and value of the European DAC for freight railway undertakings, rolling stock keepers, infrastructure managers and the entire railway system, as well as its impact in achieving the Green Deal.

The signatories commit to the Union-wide deployment of the digital automatic coupling in the railway freight sector until 2030, subject to a sound migration plan and strong financial support by European Commission, which will pave the way to achieve this goal encompassing all concerned actors. The signatories commit in particular to the following:

### ***Ambition and Objective***

1. Acknowledging the European DAC as one of the key enablers for efficiency, capacity and digitalisation/automation of the European railway system.
2. Supporting the ambition that all relevant operating freight wagons in Europe must couple automatically latest by 2030 taking into account that based on efficiency gains the total number of wagons (today: 600.000+) can be reduced. This includes ensuring the compatibility and interoperability with the locomotives needed.

### ***Collaboration and Cooperation***

3. Stepwise integration of all ongoing and planned DAC-initiatives into the European Digital Automatic Coupling Delivery Programme
4. Supporting cooperation among rolling stock keepers, railway undertakings and infrastructure managers to deploy and implement the commonly agreed and harmonised, “single system” DAC and respecting the 3 major interest spheres and related different use- and business cases (IM, Freight-RU/rolling stock keepers and socio-economics)
5. Nominating one single contact point at every signatory (RU/IM/rolling stock keepers...) as the main contact person for the DAC programme.

### ***Governance and Funding***

6. Supporting Shift2Rail and/or its successor as the governing body with a dedicated structure independent from the standard S2R governance as described in the annexe. Providing a framework approach with all relevant players/partners, initiatives and organisations (UIC, CER, UIP, RFF, ...), defining clear roles and tasks for all involved organisations and being the umbrella organisation for the European DAC Delivery Programme.

7. Asking jointly for strong support and funding from the European Union to the EC and therewith ensuring the necessary financing for a fast and economically sustainable (business-case-based) European-wide deployment (with estimated costs more than EUR 10 bn.) as well as R&D and pilot project funding

***Single Open Model, Standardisation and Safety***

8. Ensuring a transparent assessment and selection process of developed types of couplers to define the single, open, fully functional, operationally tested, safe European standard DAC ready for industrialisation and deployment until the year 2021. After the safety is approved with large-scale demonstrators under all relevant operational conditions this standard can be adopted.
9. Contributing to deliver final specifications of the selected model by the end of 2021 to be referenced in the respective TSIs, Green Deal & Digitalization Package 2022 (safety & interoperability)

***Migration and DAC Road Map***

10. Developing and drawing up a European roadmap for migration to the commonly agreed DAC: Contributing to develop efficient and cross-countries compatible migration and business plans and minimizing the period of dual system operation, as well as setting a clear deadline for its deployment, incl. the transition phase for the parallel operation of wagons with DAC and screw couplers (non-compatible). Synergies of DAC migration should be considered together with the introduction of ATO and yard automation as well as ETCS Level 3 as their benefits will be mutually strengthened. Such a systemic change needs to be managed in “one shot” rather than spread over several years regarding the potential negative impact for rail operation and rail customers. Migration shall however be methodically planned together for retrofitting wagons as well as for new purchased wagons in accordance with feasible asset strategies and taking into consideration the relevant additional capacity of coupler’s manufacturing and workshops capacity.

## **D- Status of the Parties**

Each Party should carry out its responsibilities and obligations in accordance with regulations and rules applicable to that Party. This MoU does not generate any financial obligations for the Parties involved.

## **E- Confidentiality and Conflict of Interest**

The Parties should ensure the protection of any sensitive information and the confidentiality of any internal document and information related to parties or the participants in the activities under the present MoU. The Parties should endeavour to inform each other prior to disclosing sensitive or privileged information obtained in course of the activities carried out under this MoU.

## **F- Miscellaneous**

The Parties should annually review the state of cooperation and evaluate the achievement of the objectives set herein and their future perspective.

This MoU is not intended to create rights or obligations under Union, national or

international law.

The Parties commit to implement this MoU in good faith and agree to address any dispute in an amicable way and not to refer to any tribunal or third party for settlement.

Any notice required to be given by either Party under this MoU should be in writing, should be deemed given when received by the other Party, and should be conveyed via electronic mail.

## **G-Draft Calendar and Processes**

Three Phases approach:

### **1. Preparation phase (2020-2021)**

- preparing the framework, governance
- consensus of all relevant players regarding objective, structure and business case principles
- soft start with provisional governance based on this concept
- pre-kick-off of proposed supervisory board and programme board
- nomination of WP managers, deputies, and general programme manager
- developing a programme master plan (including detailed time table for Programme phase and deployment phase)
- forming the respective coordination groups in organisations
- pre-kick-off of WP
- stepwise integration of all DAC activities in particular the results of ongoing studies and demonstrators
- transparent assessment and selection process of developed types of couplers.
- deliver final specifications to be referenced in the respective TSIs subject to approved safety with large-scale demonstrators under all relevant operational conditions
- pre-phase powered by S2R I (PMO+)

### **2. DAC Programme phase: (2022-2025)**

- detailed timeline based on the development of programme masterplan in preparation phase
- Developing the migration plan including pre-production and workshop capacities
- Detailed business cases including funding needs
- Requesting the respective funding schemes
- Upgrade concept from Type 4 to Type 5 including studies and relevant prototypes
- Further tasks tbd in phase 1 (based on programme master plan)
- Integrated in S2R II (timeline depending on S2R II kick-off)

### **3. DAC Programme deployment phase: (2025-2030)**

- detailed timeline based on the development of programme masterplan in preparation phase