



## Make Rail the Hope for Protecting Nature 2 future Operation



Grant Agreement  
Number **826087**



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### M2O Key Facts

Project Coordinator: University of Rome Tor Vergata, Rome, Italy

Total Budget: € 599.955,00

Duration: 12/2018 – 12/2020

### About M2O

To achieve the objectives of the **European Commission White Paper** on Transport 2011 aiming at a shift to rail of 30% of road freight over 300km by 2030, rail freight transport market share has to increase strongly. The market requirements are **competitiveness, reliability, flexibility, frequency** and **information**. The FP7 Marathon project demonstrators have already shown the feasibility of 1500m long coupled heavy trains. **M2O** project, financed by Shift2Rail initiative, is a step further to implement and to **overcome the results** of the Marathon project which has shown the feasibility of the long heavy consist created by coupling two trains with distributed traction: one locomotive (Traction Unit) at the head of the train and one other remote controlled in the middle. The Marathon train, tested twice in France in 2014, has a total length of 1524m, and is composed by 72 wagons for a total of 210 TEUs carrying 4036 tons.



### M2O Objectives

M2O aims at overcoming the configurations of the Marathon project with long and heavy consists involving up to four active locos. The project develops and delivers a **reliable radio communication system** based on GSM-R, compatible with various types of locomotives, and **simulates the in-train forces** in all possible operational situations ensuring **safety and security**. A qualifying part of the M2O project development is the intense collaboration with the partners of the FR8RAIL II project. This synergy will deliver the safety and certification-related part necessary for the running of two test trains, so that the solutions developed are ready for exploitation into the marketplace. The M2O proposed solution is aimed to be compatible with various suppliers of GSM-R and its safety analysed by NIER Ingegneria and assessed by TÜV SÜD. The solution is integrated in the train DPS and the safety of the system is studied to cope with the various operational situations. Having set the radio communication system, the project defines the main possible train consists characteristics in terms of speed, type of wagons, acceptable load and its distribution along the train by using TrainDy simulations to ensure that the consist runs safely. These simulations will be monitored by Nier in terms of safety to ensure that the various hazards have been correctly taken into consideration while performing the simulations.



### M2O Consortium

The consortium incorporates partners of the FP7 Marathon project having already experienced the tests performed in 2014 and the specialist of TrainDy, a software that simulates the in-train forces in all various operational situations in nominal and degraded modes. The M2O Consortium is Coordinated by the University of Rome Tor Vergata in Italy and is composed of leading European companies, associations and universities engaged in the field of Research, Technology Innovation and testing, GSM-R manufacturing, Inspection & Safety assessment, Transport engineering. The presence in the consortium of specialists of safety engineering will make it possible to prepare the necessary files to get the “green light” to test such a train on the network, paving the way towards its future certification. UIC, the worldwide organization for railways, is also part of the M2O consortium.



For more information and contact details, please visit the website:

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