

In search of a safer, more profitable and more efficient railway system

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This is a steam locomotive placed at the Carlos III University of Madrid, model Mikado. Credit: Carlos III University of Madrid

In spite of the fact that the railway industry has two centuries of experience behind it, in order to continue improving the research being done on the safety, profitability and efficiency of railroads, it will be necessary to develop and strengthen the relationship between universities and companies in the sector. This is one of the main conclusions that have come out of an international forum on the subject that was recently held at Carlos III University of Madrid.

The [forum](#), the First European Forum on [Railway](#) Running Gears, organized by the European Association of Railway Personnel, UC3M's

Pedro Juan de Lastanosa Institute of Technology, and the MAQLAB research group of the University's Mechanical Engineering Department, was the first of its kind dedicated exclusively to railway running gears, with the hope that it would be the beginning of a scientific discussion and the exchange of ideas, leading to advances on a European scale. In this second decade of the 21st century, railroads are presented as a highly competitive solution for transporting both travelers and freight. Trains' high levels of [energy efficiency](#), reliability, and safety, their excellent integration into the environment, their relatively low costs and, finally, their speed seem to indicate that they will play a key role in society and in the economy.

This is the first forum on this subject that has been held in Europe and the world that deals specifically with railway running gears, and it was clearly a necessary event. "The rolling gear is the core of railway technology, involving the entire railway industry: manufacturers, operators, regulators, maintenance engineers, designers and researchers", explains one of the organizers, UC3M Professor José Luís Pérez Díaz. Over thirty speakers and one hundred attendees took part in the event; all were top-level professionals in the railway sector, including as manufacturers, operators, laboratory personnel, certifiers and researchers. In addition, the forum was sponsored by such prestigious firms as RENFE, SKF, Danobat group, MGN, Aquafriech, ALKO and ANSYS, the Ikertia Foundation, MAFEX (the Spanish Association of Manufacturers and Exporters of Equipment and Services for the Railway Industry). The forum also enjoyed the collaboration of the Autonomous Community of Madrid.

"Even though this sector has many years of experience, there are technological and regulatory challenges that require research, development and the strengthening of relations between the university and companies if we are to continue improving the safety, profitability and efficiency of the industry" ", states Professor Juan Carlos García

Prada, the director of the MAQLAB research group. The objective of this international forum, which was held on the Leganés campus of the university in mid-June, was to foment the exchange of ideas and knowledge that the evolution of the technology and advances toward interoperability requires. "Specifically - Professor García Prada explains- we wanted to give information about the current lines of research, which will soon bring about regulatory changes, and the simplification of the homologation processes –particularly with the use of numerical simulation tools – and the consolidation of safety criteria".

Provided by Carlos III University of Madrid

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