

WCRR – From Milan 2016 to Tokyo 2019

The 11th World Congress on Railway Research (WCRR 2016) was held in Milan from May 29 to June 2, hosted by Trenitalia. Mr. Marco Caposciutti and Mr. Alessio Gaggelli of Trenitalia report on the Congress.



Marco Caposciutti
Chief Technology Officer
Trenitalia
the chairman of the WCRR
Organizing Committee



Alessio Gaggelli
Locomotives Procurement Manager
Trenitalia
a member of the WCRR Executive
Committee

The World Congress on Railway Research (WCRR) is the most relevant worldwide event concerning railway research; within the congress frame railway undertakings, infrastructure managers, universities, research institutes and the most important railway industries have the opportunity to promote their ideas, visions, upcoming projects and share results and outcomes of the recent ones.

The WCRR is an association with the main following aims:

- promoting railway research at international level;
- promoting innovation, communication and collaboration among all the organizations that operate in the railway field and the institutions;
- organizing roughly every 3 years a world congress on railway research and innovation.

The founding members of WCRR are:

- AAR/TTCI (Association of American Railroad / Transportation Technology Center Inc., USA)

- Deutsche Bahn AG (Germany)
- RSSB (Rail Safety and Standard Board, UK)
- RTRI (Railway Technical Research Institute, Japan)
- SNCF (France)
- UIC (International Union of Railways)
- Trenitalia (Italy)

The first congress was held in Paris in 1994; since then other editions followed and were held in:

- Colorado Springs, 1996
- Firenze, 1997
- Tokyo, 1999
- Cologne, 2001
- Edinburgh, 2003
- Montreal, 2006
- Seoul, 2008
- Lille, 2011
- Sydney, 2013

The 11th edition of WCRR has been hosted by Trenitalia (the railway undertaking of FS Group) and has been held in Milan from 29th May to 2nd June at the Stella Polare Congress Centre.



Barbara Morgante
(CEO, Trenitalia)

Per Allmer
(President of Western Europe, Middle East
and Africa Region, Bombardier Transportation)

Augusto Mensi
(CEO, Lucchini RS)

Jean-Pierre Loubinoux
(Director General, UIC)

The theme chosen for this edition of the congress has been *Research and Innovation from Today Towards 2050*. Such a theme underlines how the railway research has to face the innovation challenge, having a vision towards far future and keeping in touch with a significant glance to applications focused on improving railway services in the brief or middle time.

The congress has been set out in 3 days, each one with an initial plenary session in which worldwide keynote speakers given a strategic perspective of the railway research also compared with others views belonging to different fields than railway (e.g. chemical). **The detailed themes addressed in the 3 plenary sessions have been “Customers, market & competition”, “Technology & processes innovation”, “Research from different perspectives”, all of the three themes shared a common root “...from today to 2050”.**

All the papers presented during the 3 congress days have been clustered in 2

main sessions, one dedicated to **Vision & Future** and the other devoted to **Today’s Research**.

Papers presented in the Vision & Future were dedicated to studies and proposals

concerning long term applications, with the aim to improve the whole mobility system towards the horizon of 2050. These papers has been developed according to 8 specific themes:



Panels along entrance side at Stella Polare Congress Centre

- Rolling stock
- Infrastructure
- Railway system
- Passenger mobility from door to door
- Freight logistics
- Sustainability
- Economics and policy
- Operation and safety

Papers shown in the Today's Research were dedicated to application for a near future with the aim to improve the railways system based on the already available railway system. These papers addressed 34 different sub-themes or topics.

For the first time with respect to the other editions of the congress, it has been possible to present and show projects and studies through the two innovative communication ways, that is

- e-poster
- Proof of Concept

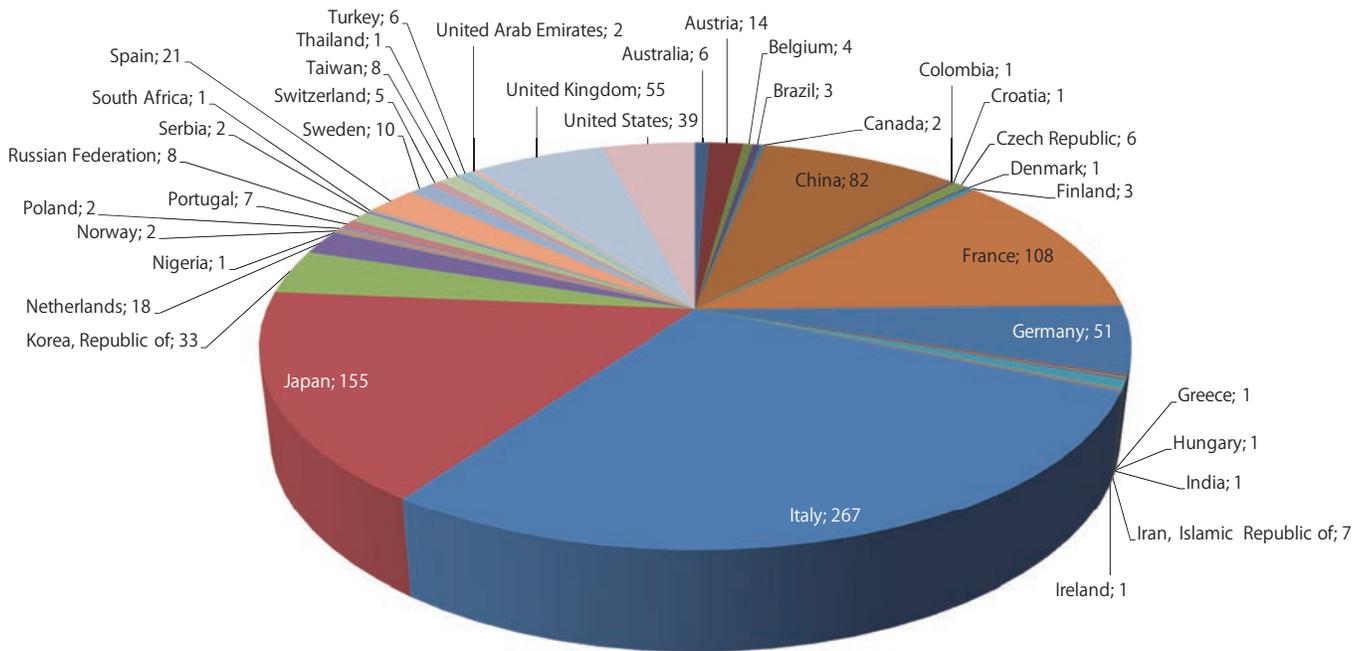
so that specific congress areas were arranged allowing researchers to give particular emphasis to their short term applications by means of practical demonstrators.

Moreover, this Congress edition hosted also a rolling stock exhibition, it has been set up inside Trenord's Fiorenza maintenance plant, a suitable room located very close to the Stella Polare Congress Centre; the exhibited rolling stock shown innovative features, both in regional/commuting transport services as well as in high speed travelling.

The congress organization began 2 years and half earlier and it has been

accomplished mainly thanks to the support of the WCRR Organizing and Executive Committees. One of the most important task has been the papers selection. An experts panel of worldwide specialists belonging to several domains has ranked and selected the papers via a web application, resorting to a blind and multi-reviewer rating process. Many abstracts has been submitted from all over the world, collecting more than 900 abstracts.

The outcome of the papers selection process has been the acceptance of 72 speeches in the Vision & Future session and 240 speeches in the Today's Research session. In addition to that about 150 papers have been shown as e-poster. Congress registered delegates have been more than 1100.



More than 900 abstracts coming from 38 countries



Handover ceremony to WCRR 2019 in Tokyo – Dr. Kumagai, Mr. Caposciutti, and Dr. Okumura

During the congress final day 11 awards have been assigned, just 8 to papers belonging to 8 different congress main themes, 1 to the most attractive e-poster, 1 to the most interesting Proof of Concept and 1 to the youngest researcher.

Above the congress outline and figures, we believe that it worth sharing some outcomes and messages rose during the three Congress days.

First of all the common idea for the future is not to consider only the “railway system” but the whole “mobility system”.

Furthermore, among the most important available tools able to improve efficiency to the whole mobility system arose digitalization and “big data system applications” for predictive maintenance, circulation managing and CRM.

Great efforts must be done to increase the infrastructure capacity by means of technology enhancement instead of with just growing up new infrastructures: for this reason great interest has shown by ERTMS High Density.

In order to decrease operational costs driverless trains applications (Automatic Train Operator) can be actually foreseen in the railway services and not only in metro application.

Besides, it is fundamental to pay attention to “sustainability” and to the “environmental matters” in order to preserve and build a “more green” world.

Finally, the suggestion of Hyperloop has been presented as a side event, having a look to the state of art of the technology and evocating future exploitation.

The edition of WCRR 2016 has brought also a great contribute in knowledge, exchange of experiences and fruitful networking environment among all the mobility partners confirming the importance in pursuing with the promotion of this kind of events. The next WCRR edition (the 12th edition) will be hosted by RTRI in Tokyo in 2019. We send our personal best wishes to the Japanese colleagues for the efforts they should face, assuring them all our care and showing them our gratitude for the effective support they gave us.