UIC ERTMS World Conference

Brussels, 1 March 2016

Opening speech given by Jean-Pierre LOUBINOUX, UIC Director General

Dear Minister,

Dear colleagues and friends,

It is a great pleasure for me to welcome you all today, less than two years after our successful event on the bank of the Bosphorus in Istanbul, to this 12th UIC ERTMS World Conference prepared in close cooperation with our colleagues and friends from Belgian, Infrabel, the conference co-organiser with UIC.

Therefore my sincere thanks go in first to Infrabel, its CEO Luc Lallemand, and all the teams who were fully committed during the last two years, to host and organize this event in the best conditions in Brussels. My warmest thanks also go to all of you, over 600 delegates from all over Europe but also from Africa, Middle-East, Asia, Australia, in total 30 countries, and all speakers, exhibitors and sponsors, whose contributions are essential to make this new ERTMS conference to a success and an important milestone in the deployment of ERTMS across the world.

The overall theme of this 12th edition is *"ERTMS, Managing long-term safety investment in a rapidly changing world".*

The objective with this global conference is to inform and exchange in presence of all actors involved, on the current status and future perspectives of ERTMS development in taking into account all the new challenges and progress that occur in the operations of the rail system as

well as in all technologies connected to railway operations, such as telecommunications, digitalization, …

The future of ERTMS is influenced in my view by 4 main dimensions or factors.

1) The geographical dimension

Definitively ERTMS is no more to be considered as a European unified system, we have to move to a Global RTMS or **GRTMS**.

The concept and the products are open and available on the world market.

In this context UIC is willing to fully contribute to the geographical extension of ERTMS for the benefit of the international railway system, thanks to its position allowing to bridge different cultures, different ways of managing rail operations and railway safety, and through the International Railway Standards, **IRS**, that UIC is progressively developing as voluntary specifications for the potential benefit of all its members worldwide.

I also underline in this respect the increased requirements concerning interfaces to the existing train management systems; it is essential to keep the coherence and an overall vision of the Rail System (with all its interfaces).

2) The Functional dimension

Currently, when we refer to functional requirements, ERTMS consists essentially in ETCS and GSM-R, the radio sub-system chosen to support ETCS L2 and L3,. While the development of the GSM-R has been taking care of the functional requirements till now (“EIRENE” FRS and SRS), on the ETCS side the management of the functional requirement was interrupted when the Baseline 3 arrived, for different reasons.

In our view, the rail operating sector (in Europe or outside Europe) has definitively to clearly define its Functional Requirements, FRS, in the shape of IRS to be managed by UIC, with

different sub-parts especially dedicated to the various regions. UIC is already working in this direction, via a project that we call (with not much fantasy): “ERTMS Global”.

But train control is not enough; Finally ERTMS will also have to deal more intensively with Traffic Management, regulation, anticipation of the impact of decisions, running, timetables, energy saving, positioning,…

Information gained from ETCS, with the support of artificial intelligence and digitalization, must serve an overall Rail system vision and not only Block and speed control. Business is the new driver. Terms of the transport contracts are related to the type of transport, the wear and tear of infrastructure and costs for the slot, energy consumption, wear and tear of rolling stock, quality level target, safety level target. Each train has its own objectives, optimization takes place through the NASH System.

3) The Technological evolutions

The third dimension is technical progress. The Functional Requirements for the ERTMS deployment and developments must be independent from the evolution of the radio telecommunication technologies.

ERTMS has definitively to be seen as a digital application, it must be able to work on any telecommunication network, even public or private network, as long as its Quality of Service meets the ETCS requirements.

The ERTMS radio protocol in turn has to be secured and better attention must be paid to enhance resilience against cyber attacks, especially when looking at the future communications that will be based on IP (Internet Protocol).

A current challenge with rapidly increasing importance is indeed the integration of Cyber security into the requirements of ERTMS in order to protect the system from hackers who could try to enter the system.

On regional lines, the system has also to ensure full reliability and safety despite possible lower requirements of radio communications and possible “holes” in the radio coverage.

An exciting evolution is the integration of Satellite positioning for the operation in levels 2 or 3, in particular for lines in “hostile” areas (theft, vandalism) or very long and remote regional lines where cost saving allowed by removing beacons (and their maintenance!) is a primary enabler for the installation of the line. . In this context it would be beneficial to review Functional Requirements of ETCS level 2 and 3 with Satellite Location (SATLOC).

Considering the growing economic constraints, technological evolution and the progress have to strongly focus on the cost aspects, the time for Return on Investment, the simplification of systems and, more generally, their cost reduction.

4) The methodological aspects

The last aspects to be addressed relate to methodology used for system development. In order to answer new Functional requirements as well as for Safety or Security reasons, the ERTMS system of tomorrow will integrate new complexities, and therefore it will need new working methods, new process for the validation and the management of changes and evolutions, finally resistant to always possible human mistakes and misinterpretations.

There are also specific needs in terms of defining the Functional requirements at the Interfaces between ERTMS and Non-ERTMS rail system components (like in the interface between the Interlocking and the ERTMS Radio Block Centre).

ERTMS is definitely a complex system and UIC welcomes the decision of EC to reduce its versions and to push for an upgrade of onboard systems to the new release, so to limit the combinations, reduce installation costs and make easier future updates.

All these aspects and the ways to secure the future of an interoperable ERTMS system in a changing world, marked by higher requirements and new technologies, in particular the digital revolution, will be discussed in-depth during this 2 days conference, with the active participation of suppliers, operators, decision-makers.

We thank you all again for your presence today and wish you a very fruitful conference.