

projects
& future



uic ertms platform

About the ertms platform

The UIC ERTMS Platform is one of the five UIC Platforms with a specific cross-sector vocation. Its main objective is to enable the sharing of experience on ERTMS implementations and define strategies for a feasible migration. The key task is to contribute to the promotion of a viable migration strategy for ERTMS which is compliant with the interests of the railway sector as a whole.

Composition

Chairman: Michele ELIA (RFI - CEO)

Vice Chairman: Hansjörg HESS (SBB - Head of Infrastructure).

- / 40 members from railway infrastructure managers and railway undertakings
- / 4 representative bodies: CER, EIM, ERTMS Users Group and ERA
- / Steering Committee composed of high-level railway executives – meets 5 times a year
- / Plenary committee – meets twice a year

The Platform establishes thematic working groups at sub-Platform level in accordance with needs as identified by the members.

The Platform has conducted numerous highly valuable projects for the benefit of its members.

Strong cross-sector activity is maintained with the various other UIC bodies (Forums, Platforms and other relevant working groups).



<http://ertms.uic.asso.fr>

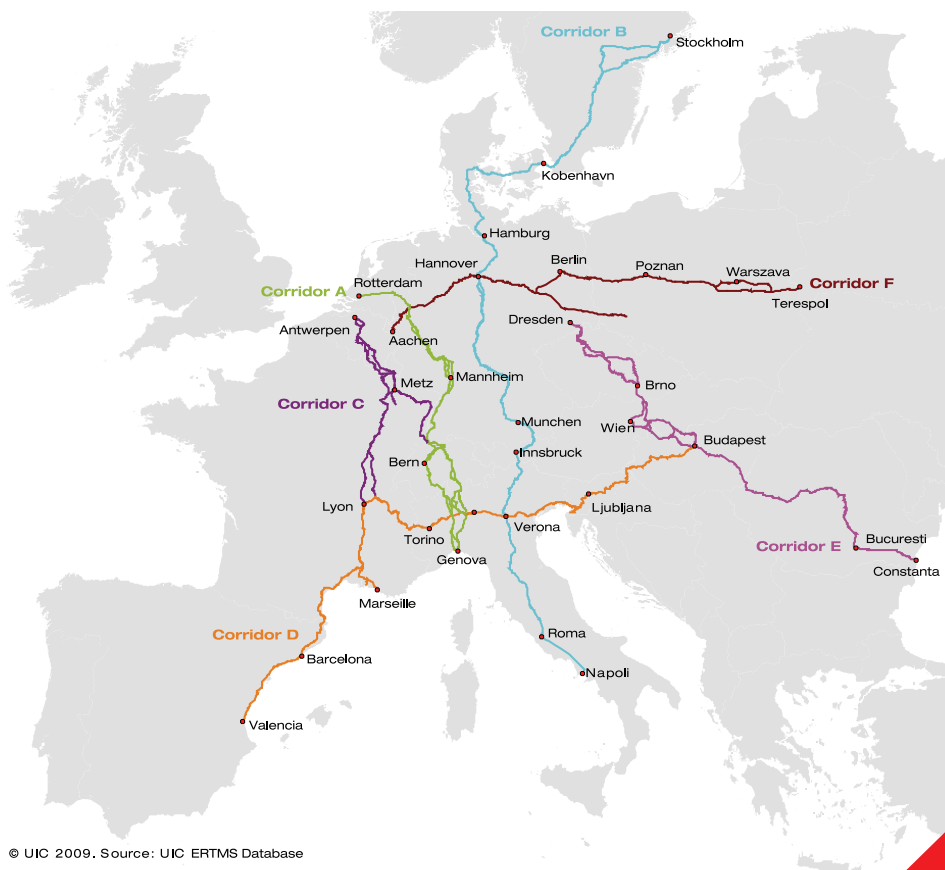


ERTMS Memorandum of Understanding

The Memorandum of Understanding, signed in July 2008 in Rome, between the European Commission and the European Railway Associations, concerning the strengthening of cooperation to accelerate the deployment of ERTMS, is a fundamental reference point outlining the Platform's work. The ERTMS Platform Chairman and Vice-Chairman represent UIC and the Platform at the MoU Steering Committee to ensure its application.

This enables the Platform to express its position and to make proposals with reference to the decisions made by the MoU. All the railways in Europe thus have the opportunity to put forward their points of view by presenting them to the ERTMS Platform.

The six ERTMS freight corridors represent circa 6% of the European rail network but carry around 20% of Europe's rail traffic. A common methodology has already been established for each corridor, and the focus will be on freight transport. A key objective is to reduce transit times for freight by circa 20%, leading to better use of assets. A business case has been developed, performance targets defined, and an ERTMS migration strategy established.



© UIC 2009. Source: UIC ERTMS Database

ERTMS Benchmark on costs

The ERTMS Platform decided to launch an international benchmark on costs with the objective of providing UIC Members with a methodology and framework for an economic evaluation of ERTMS implementations based on a life cycle model.



Previously, the situation regarding economic evaluations of ERTMS implementations using a common European methodology had been unsatisfactory and there was no working group in place at Platform level. Hence, there was no common view of the system description of ERTMS implementations or of the definition of the subsystems and system components to be analysed as part of an economic evaluation.

This situation led to a lack of understanding of the cost drivers at European level, and prevented the objective of reducing future implementation costs from being achieved.

The sharing of information at European level in order to increase transparency on the market and the creation of a network of experts in the field of ERTMS economic evaluations will strengthen the position of the railways on the market.

Twenty-one UIC Members (IMs and RUs), five experts from the UIC ERTMS support team and two independent experts (PMP) worked together to produce initial results:

- / Development of a common understanding of the system definitions, subsystems and related cost elements;
- / Basic set-up of the benchmark structure:
 - / Modular cost structures for three benchmark pools (ERTMS/ETCS level 1 trackside & ERTMS/ETCS level 2 trackside implementations, and ERTMS onboard equipment).
 - / List of Key Performance Indicators.

It is hoped that the agreed cost model will become a standard model used in tendering processes.



A validation of the theoretical framework developed for the benchmark is scheduled to take place via examination of two separate case studies:

- / ERTMS/ETCS level 2: "Betuwe Line – ProRail"
- / ERTMS onboard: "Fitting 20 TRAXX locos – SBB".



ERTMS Regional

The Platform also focuses on promising new developments such as the ERTMS REGIONAL concept, which enables cost-saving solutions for signalling to be applied on regional and local lines when renewing or introducing signalling equipment on such lines.

The ERTMS REGIONAL concept is a trackside development of specifications and systems based on interoperable and standardised communication with rolling stock over the air gap, as specified in the CCS TSI specifications.

The key points for cost savings are:

- / Staff reduction in stations
- / Less trackside equipment
- / No lineside signals
- / No traditional interlocking
- / Minimising cables by controlling elements via radio
- / Track circuits and axle counters only for special locations
- / Fall-back level guaranteed by rules and regulations

<http://ertms.uic.asso.fr>

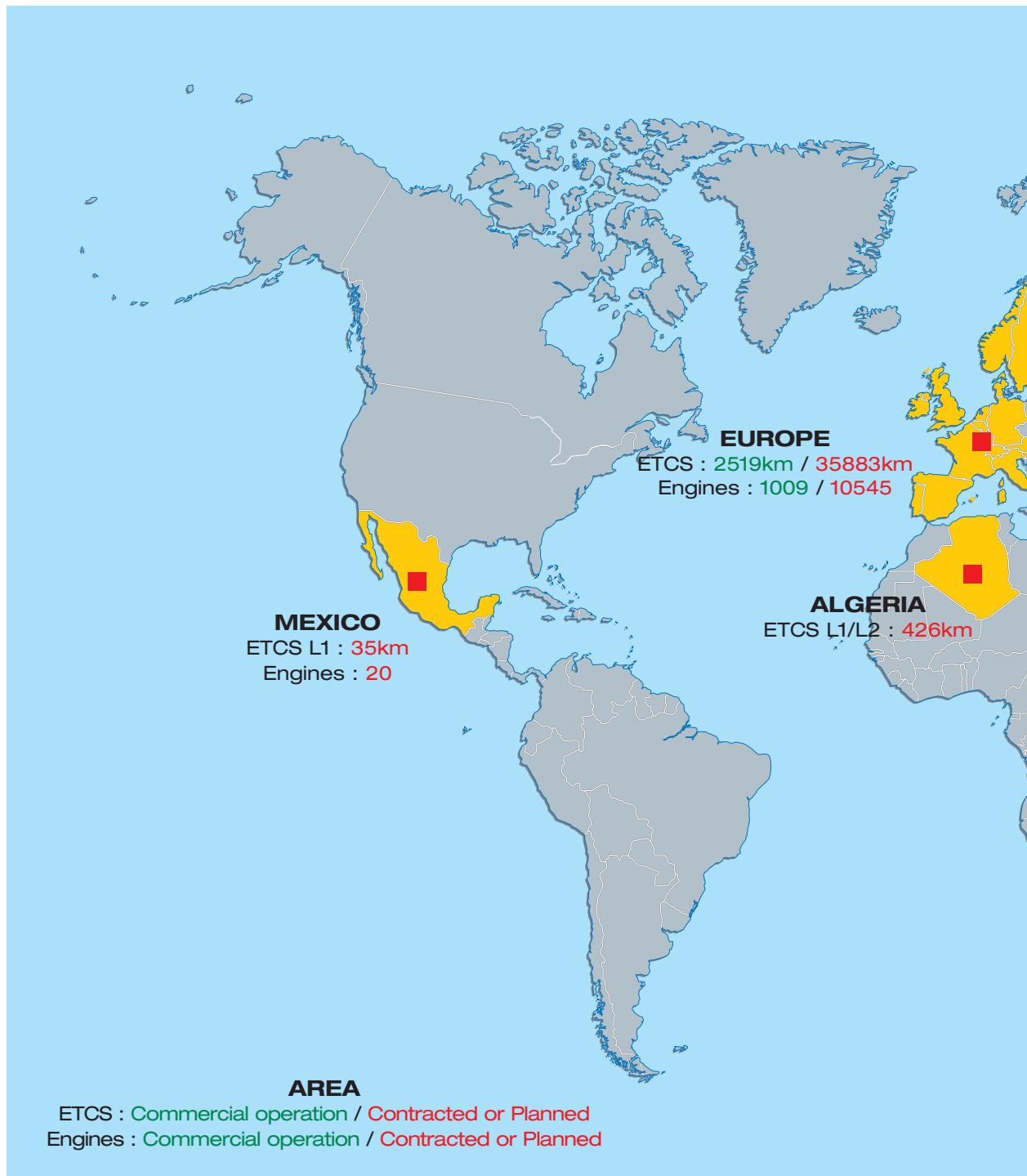
ETCS

The Platform has prepared an ETCS Implementation Handbook for infrastructure managers and railway undertakings to support them in decisions relating to ETCS implementations.

It has also commissioned a study to demonstrate the influence of ETCS on line capacity: there is a significant increase of capacity with ETCS level 3, level 2 with optimised block sections, level 1 with limited supervision, and with level 1 and level 2 with in-fill loop/radio in-fill.

Moving block sections could be an interesting alternative means of utilising the potential of these results. A new generic study on the influence of ETCS on the capacity of nodes will complement the previous study.

ERTMS worldwide implementation



The UIC ERTMS Database

Information on ERTMS components (ETCS, GSM-R, interlockings, rolling stock) + cost elements has been collected at UIC on a regular basis since 2006, and is stored by the Infrastructure Department in a comprehensive database classified by line section and country, reporting detailed information on infrastructure and rolling stock. Geographical and thematic maps are also derived from the database via GIS software (Geographical Information System) in order to visualise geographically-referenced information.



The database is based on the official information provided by Platform members and completed with manufacturers' data (through their association UNIFE), with the objective of offering an ongoing added-value service and maintaining the Platform's strategic position and understanding of the rail business.

The main output of this work is the ATLAS of ERTMS worldwide implementations, which is available to purchase on the UIC website.

<http://ertms.uic.asso.fr>

GSM-R and telecommunications for ERTMS

Maintaining the specifications

With 55,000 km of railway track covered by GSM-R, implementation of the system is now well underway in Europe and interest is also developing beyond Europe's borders. UIC, via the European Radio Implementation Group (ERIG), has the task of maintaining the GSM-R specifications and managing the UIC roll-out plan for the system. UIC plays an official role in the ERA change request process. It works together with other standardisation organisations such as ETSI, CENELEC and JPC Rail.

ERIG Sub groups:

- / GSM-R Functional group
- / GSM-R Operators group
- / ETSI Rail Telecom (TCRT)
- / ERA CCM / CCB
- / Radio Frequency Group

The issue of the frequencies

UIC assesses the readiness of IP-based solutions (e.g. GPRS) to be available for ETCS level 2 in order to overcome future restrictions, especially in areas with dense coverage. It also gathers and manages railways' frequency needs for all frequencies and their common needs. It acts as an interface between the railways and European frequency authorities, and as the centre of competence in the field of telecommunications for railways.

It supports the campaign for frequency band extension, and protects the GSM-R spectrum against any interferences and disturbances (e.g. UMTS).

Concerning additional GSM-R frequencies, UIC has managed, with DB's support, to have the issue placed on the CEPT agenda. The chances of obtaining additional frequencies in what is called the "trunk band" are quite good.

GPRS and other future solutions

GPRS is being tested to ensure its suitability for ETCS needs. The testing campaign is being organised under the aegis of UIC in conjunction with Italian railways.

A new project called eTrain aims to develop a harmonised quality of service for the various technologies used in trains (GPRS, EDGE, UMTS, WiFi, WiFi-Max and others). Other studies are focusing on the Internet Protocol technologies used onboard trains.



GALILEO is a European project dealing with satellite transmission. UIC is part of the consortium and works in close cooperation with its Panel of Telecom Experts and the ERTMS Platform.

<http://gsmr.uic.asso.fr>



Requirements engineering

The UIC ERTMS Platform is unique in its knowledge and competence regarding the capture, modelling and simulation of functional requirements for interlocking systems using requirement management software (DOORS) and UML. This knowledge also includes the management of qualitative requirements, hazard / risk analysis, and data file format standards.

The Euro-Interlocking Team has delivered a state of the art report on activities relating to the “Capture and modelling functional requirements”, “Simulation platform and test cases” and “Data preparation and risk analysis”. All the data is summarised in a baseline CD produced in 2008, and is available for broad use by member railways. The content of this baseline is now fully integrated in the EU INESS project.

Work relating to the management, maintenance and dissemination of the existing qualitative and functional requirements for interlocking systems will continue within the context of this activity. The UIC ERTMS Platform will also include this valuable knowledge in the next edition of its ERTMS Training Programme.

INtegrated European Signalling System

In 2007, UIC responded to the first call for proposals for the Sustainable Surface Transport component of the EU's 7th Framework Programme on Research and Technological Development, addressing the topic of “Delivering ERTMS-compliant interlocking systems”. The aim of the research is to define and develop specifications and hardware for a new generation of interlocking systems to facilitate the introduction of ERTMS systems.

www.iness.eu

Global Signalling

The ERTMS Platform is also a major contributor to UIC's "Global signalling initiative", which aims to benchmark the various signalling systems across the world and highlight possible convergences in the longer term.

An initial conference on Global Signalling was held in October 2008 Istanbul at the invitation of TCDD, the Turkish railways. The second such conference is set to be held in Tokyo in spring 2010. ERTMS technology or part of its components is now widely used worldwide.

ERTMS Training Programme

Having identified a need for training, the ERTMS Platform organises each year a three-day session targeted at managers in decision-making positions in the transport sector in general and the railways in particular. It is also targeted at ERTMS experts in countries planning to implement ERTMS in the near future. Countries outside Europe which are implementing ERTMS components may also be interested in learning more about the latest developments regarding this technology.

The objective of this training course is to give a complete overview of ERTMS and all its features:

- / background, legal framework and ERA control process
- / how it works and what its components are (ETCS, GSM-R, Interlockings)
- / experience gained in commercial application (ETCS, GSM-R)
- / ERTMS system evolution and specific solutions (ERTMS Regional, Limited Supervision, In-fill, etc.)
- / next-generation interlockings and methodologies for capturing and simulating their functional requirements
- / added value of ERTMS for a sustainable transport system (capacity, safety, economic value, etc.)

<http://ertms.uic.asso.fr>

UIC ERTMS World Conference

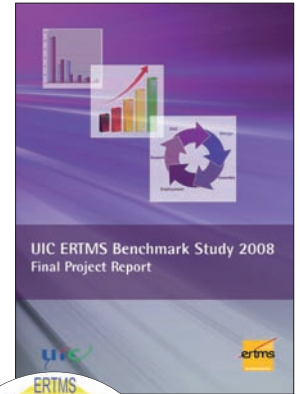
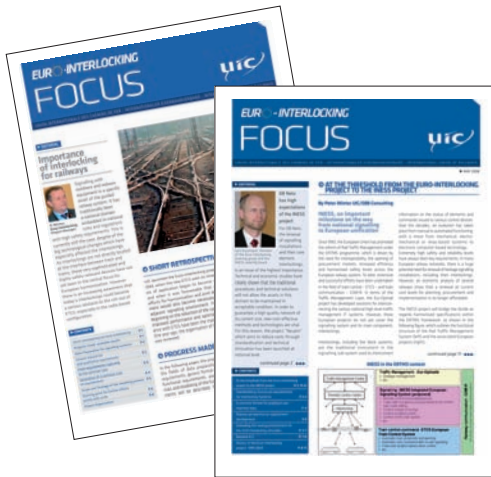
The UIC ERTMS World Conference is held every 18 months and is designed to give a complete overview of the state of the art in the field of ERTMS. It gathers around 800 participants mainly from Europe but also outside, in countries where ERTMS is currently being implemented or having projects to implement it.

This event also features an international exhibition of ETCS, GSM-R and other suppliers represented by UNIFE, GSM-R Industry Group and smaller industries proposing software and other equipments in relation with signaling, telecommunications and control command in the railway business.

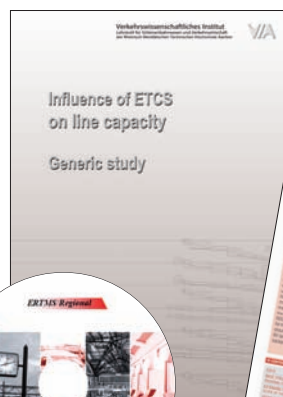
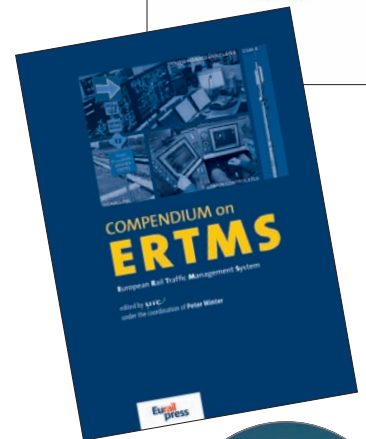
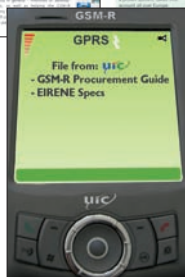
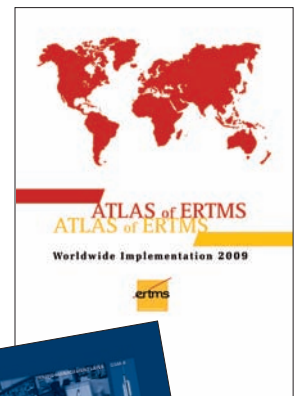
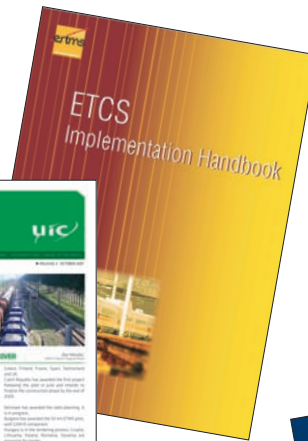
Málaga 2009, Berne 2007, Budapest 2006, Rome 2004, Leipzig 2003, Florence 2001, Paris en 1997, 1998, 1999.

www.ertms-conference.com





Main deliverables



UIC ERTMS Programme team

Peter Winter	ERTMS Programme Manager
Paolo de Cicco	ERTMS Platform Coordinator
Françoise El Alaoui	Communications
Poul Frøsig	ETCS Project Manager
Klaus Konrad	GSM-R Project Manager
Dan Mandoc	Senior Adviser for GSM-R
Emmanuel Buseyne	INESS Project Manager
Florian Lesné	INESS Adviser
Khalid Agrou	INESS Adviser
Helen Slaney	INESS Communications

© UIC 2009

ertms@uic.org