THE
GERMAN TRANSPORT FORUM

Our mission

The Deutsches Verkehrsforum (German Transport Forum) is the only multi-modal industry association in Europe. As the lobby for all modes of transport, we provide stimuli for the political decisionmakers. In Berlin and Brussels, we proactively promote competition and the elimination of red tape.

In constant dialogue with politicians, scientists, the media and the public at large, the German Transport Forum is a dynamic stimulus provider, competent knowledge manager and politically independent platform rolled into one. We see our role as that of an »advocate for mobility« and promulgate an integrated transport system that is efficient, customer-oriented, affordable, resource-saving and eco-friendly. In order to safeguard and improve mobility, about 170 German and European member companies and associations have joined forces in the German Transport Forum.

Our aims

Our overall aim is to enhance public awareness of the economic, political and social potential of mobility and to improve the framework conditions for the transport industry.

The German Transport Forum establishes a link between the transport industry and other sectors of the economy. Experienced, high-calibre industry representatives contribute to our work. This allows us to act as a knowledge manager that consolidates, evaluates and imparts information and knowledge.

At the intersection between business, politics and science, we create opportunities for dialogue relating to all aspects of mobility.

- To obtain recognition for the key importance of mobility by politicians and society
- To safeguard and further develop a competitive and efficient transport infrastructure
- To establish intelligently-networked transport systems that fully utilise the synergy potential and specific strengths of individual transport providers
- To ensure fair competitive conditions for all transport providers at national and international level

- To provide customer-oriented and integrated mobility solutions
- To promote mobility-oriented research and prompt implementation of research results
- To protect the global climate by reducing emissions, increasing efficiency and using resource-saving technologies.

ERTMS/ETCS –
ACTION PLAN
FOR THE COORDINATED
INTRODUCTION OF THE SYSTEM

Management Summary

This position paper describes the action required with regard to the European Rail Traffic Management System (ERTMS) and its key component, the European Train Control System (ETCS).

ERTMS/ETCS makes it possible to use rail vehicles throughout Europe, allows trains to be scheduled at shorter intervals and makes a significant contribution towards more punctual and environmentally friendly rail transport. It offers huge potential for cutting costs over the long term.

However, as a result of the diverse requirements of different countries, a patchwork of different versions of ERTMS/ETCTS has developed over the years. This is both complicating the introduction of the system and increasing its cost considerably. In addition, particularly in Germany, investments have been made in control and safety technology over the years, and consequently investments in ERTMS/ETCS are not cost effective.

Five key measures are therefore suggested for the coordinated introduction of ERTMS/ETCS, which have to be implemented concurrently:
1. **Elimination of different versions of ERTMS/ETCS**
2. **Developing detailed national implementation plans**
3. **Strengthening of European powers of implementation**
4. **Securing of finance**
5. **Improvement of approval processes**

Benefits of ERTMS/ETCS

For historical reasons, the signal and safety systems used in railway systems in the EU still vary greatly from one country to the other. There are thus at least twenty-three mutually incompatible train control systems in use in Europe. Consequently, locomotives and multiple-unit trains that use multiple networks have to have on board the equipment required for each of these networks. This increases the costs and reduces the reliability of rail transport.

Universally used high-performance control and safety technology has a key role to play in the further development of the European rail transport market and in enabling interoperability on European railway lines. The common European Rail Traffic Management System (ERTMS) is one of the key points of focus of joint European efforts aimed at achieving better rail interoperability. It is hoped to make railway signalling more consistent across different European countries. The European Train Control System is the key component of ERTMS. The system must be installed both in the rail infrastructure and in the vehicles themselves.

With ERTMS/ETCS there is no longer a need to stop at borders and switch locomotives and personnel, which significantly reduces the outlay required in terms of logistics as well as saving time. Rail vehicles can thus be used universally throughout Europe, which is an important step in the direction of an integrated European rail network.

ERTMS/ETCS allows trains to be scheduled in more rapid succession and can thus make a contribution towards allowing more trains to be run on busy lines without the need for expensive and time-consuming construction work. This will also improve the competitiveness of rail transport in Europe. ERTMS/ECTS allows better use to be made of resources, improves capacity utilisation and punctuality and reduces journey times. ERTMS/ETCS can thus also makes a contribution towards reducing energy consumption. In addition, ERTMS/ETCS can offer infrastructure operators considerable economic benefits due to the fact that existing fixed signalling equipment is no longer required and capacity is freed up. The owner of the railways in Germany, in other words the federal government, which is responsible for paying for the maintenance of the railways in accordance with the terms of the relevant service and financing agreement, has much to gain from using ERTMS/ETCS because there is considerable potential for cutting the costs of maintenance in the future. The successful use of ERTMS/ETCS requires modern electronic interlocking systems in the appropriate locations.

In terms of technology, ERTMS/ETCS also provides a uniform foundation for further innovations, such as driver assistance systems or increased automation.

Progress made introducing the system

The EU has put the statutory prerequisites in place for the introduction of ERTMS and also made significant European funding available. Due to the huge financial cost of introducing the system in the European rail network, it will be implemented in phases. The ERTMS corridors stipulated by the European Commission in 2009, on the basis of the TEN-T core network corridors, are to be equipped primarily with ERTMS/ETCS. These European corridors account for 20 % of European rail freight.

On the basis of these statutory foundations, many member states and rail companies and the industry as a whole have made significant investments in order to develop the standard and prepare it for series production.

ERTMS/ETCS is already a reality in Europe – as well as in over 30 countries outside Europe. Some EU member countries are increasingly demanding the introduction of ERTMS/ETCS. In Belgium, for example, trains without ETCS equipment will not be allowed in the rail network with effect from 2020.

Obstacles to introducing the system

However, the introduction of the system is proceeding haltingly in a number of EU member countries, including Germany. There are various reasons for this.

As a result of differing national requirements, different ETCS versions have emerged in various European countries that are not compatible with each other. This makes the introduction of ERTMS/ETCS more complicated, arduous and expensive. The different national versions of ETCS pose financial challenges for smaller and medium-sized rail companies, in particular. The outlay required to equip the traction unit also increases.

This is because of the different rates of implementation and specifications in the different countries. The current patchwork of ETCS sections of the network in Europe have to be adapted specifically to suit the country-specific systems in place. Change requests of national network operators often result in high costs for the rail companies, which have to purchase specific national solutions and have to go through costly approval procedures for each country or network. Adapting locomotives that are equipped with ETCS to suit the existing systems of individual countries is a complex process, and when they are used in more than one country, this complexity increases significantly again, particularly in the event of faults.

Train control systems currently account for up to 25 % of vehicle costs. In addition, these systems have to be overhauled in some cases at relatively short intervals. Moreover, the question of what is an appropriate transitional period for the implementation of country-specific adaptations has not been clarified.

A solution to this fragmentation is urgently required because the current situation where there are multiple mutually incompatible systems runs counter to the basic principles behind ERTMS. Not until these national differences are eliminated can interoperability be ensured.

Apart from this lack of interoperability, the performance of the existing national solutions in some EU member countries is satisfactory. In Germany and France, in particular, extensive investments have been made in control and safety technology in the past, and high-performance control and safety technology is very widespread. For the rail companies and infrastructure operators, cost-benefit considerations indicate that converting these systems to ERTMS/ETCS is not cost effective for many sections of track as far as domestic transport is concerned. The limited finance available for modernising the railways in Germany is also an obstacle to rapid implementation.

Recommendations of the steering committees

Given the challenges described above and the necessity of introducing ERTMS/ETCS in order to achieve a standardised European system, the measures described below must be implemented as a matter of urgency. If they are not, the rail companies, particularly those that offer international services, will be faced with considerable costs without clear benefits. Consequently, rail transport will be weakened in competition with other modes of transport.

1. Elimination of different versions of ERTMS/ETCS

It must be ensured that the installed ERTMS/ETCS infrastructure is future proof, and the transitions between the different systems must be smooth. To this end, the ETCS standard must be applied consistently, and the stability of the specifications must be ensured. Dependence on individual vendors (vendor lock-in) should be avoided. As far as equipping vehicles is concerned, a technically mature solution is required that must be available at prices that are acceptable to the market and that can be used throughout Europe.

In order to ensure that infrastructure and vehicles are developed at a uniform pace during the introduction of the ERTMS system, until further notice the requirement to install ERTMS technology in accordance with the technical specifications for interoperability should be considered to have been met, provided it can be demonstrated that the new vehicle to be approved has been prepared for the installation of ETCS technology. This reduces the burden particularly for rail companies that want to use certain vehicles only for domestic transport. It also makes it easier to gain approval for rail vehicles in the current situation.

2. Developing detailed national implementation plans

The coordination of the introduction of ERTMS/ETCS must be institutionalised to a greater extent than before. In Belgium a national implementation plan has been developed with a single management team and clear targets. A national implementation plan like this (an ERTMS master plan), based on international corridors and derived from the European ERTMS/ETCS plans, is also required in Germany. The plan must include a clear schedule and a detailed cost-benefit analysis and indicate the exact technical configuration of the required conversion. Information on these national implementation plans must be made available at the European level, and they must be harmonised.

It must also be decided how lines are to be prioritised. Due not least to the European implementation requirement, the priority initially must be to implement the publicly funded installation of ERTMS/ETCS along the TEN-T corridors. However, it must also be decided how to prioritise lines outside these corridors. The prerequisite for the implementation of the plans is the establishment of the technical framework.

In addition to the technical requirements, the users (dispatchers and train drivers, in particular) must be included in the implementation process. The extent to which a system integrator, who oversees the seamless integration of the infrastructure, vehicles and operations, is required for successful implementation should also be examined.

As a general principle, the relevant ERTMS stakeholders must collaborate and exchange information to a greater extent than has previously been the case.

3. Strengthening of European powers of implementation

The European Commission's increased commitment to demanding the stability and backward compatibility of the specifications is very welcome. The EU member countries must also make a clearer commitment to this.

The European ERTMS governing body, which is currently under development, is an important step towards making purposeful progress on interoperability.

ERTMS/ETCS may also benefit from the broadening of the responsibilities of the European Rail Agency (ERA) as a result of the EU's fourth railway package. The ERA should be able to assist to a greater extent than before with the coordination of the implementation of ERTMS/ETCS in Europe. However, it must also be given the resources it needs in order to do this.

4. Securing of finance

Thanks to the Connecting Europe Facility (CEF), European funding for the Trans-European Transport Networks (TEN-T) has doubled compared to the previous EU budget, from which ERTMS/ETCS will also benefit. It is right that the CEF funding should primarily be used to help equip the most important European corridors. Germany has to bear the main burden here, since four of the six ERTMS corridors run through Germany. The 1.6 billion Euro estimated by the German government for the conversion of the main European corridors that run through Germany in

the next eight years represents the necessary basis for this. At the same time, European funding for the upgrading of locomotives must be implemented and approved under state aid law.

5. Improvement of approval processes

The issue of the approval of ERTMS/ETCS is closely linked to the different versions of ERTMS/ETCS. For the purpose of approval, the outstanding criteria for an assessment must be quickly clarified in order to permit operations to go ahead on the lines that have been equipped with the system. In particular, the transitions between the systems are often not described or only dealt with in individual cases. In addition to the streamlining and optimisation of the approval processes, laboratory tests should also be used for approvals.

Conclusion

ERTMS/ETCS offers huge potential for the European rail system: both economic and environmental benefits as well as benefits in terms of attractiveness to the customer. In order to realise this potential, however, the different versions of ERTMS/ECTS have to be eliminated, and there must be smooth transitions between the different ETCS sections.

Harmonised national implementation plans and an improved exchange between the relevant ERTMS stakeholders are indispensable if the coordinated introduction of the system is to be achieved. At the same time, greater authority to implement the system must also be granted at the European level. Europe also needs to take a step forward in terms of the approval of rail vehicles and the infrastructure.

Last but not least, to secure existing and future investments, adequate funding is required from both national governments and the European Union. Not until these issues are tackled can the introduction of ERTMS/ETCS become a genuine success and add value for infrastructure operators, rail companies and the rail industry.

September 2015

www.verkehrsforum.de