

## **Position Paper**

Brussels, September 2017

# **CER acknowledges formal methods and process proposed by EULYNX as good practice**

---

## CER acknowledges formal methods and process proposed by EULYNX as good practice

**CER supports the EULYNX approach of modularity in defining and standardizing interfaces in the future digital railway system by strict application of formal methods for the design of technical systems.**

In order to move towards formal method, model based system engineering compatible with SysML standard must become the common and shared method of the railway sector, starting with CCS. CER is fully convinced that this does not only boost specification quality but also contributes by formal proof to much quicker and more efficient authorisation of competing technical products. Formal method and in particular executable model can help increasing quality and performance.

CCS manufacturing industry should now shift to open formal specification and proof. CER acknowledge EULYNX as a good practice that is providing a tool platform with shared licenses of current industrial tools that are already used by a number of specification projects beyond EULYNX. Convergence of method and tools will be fostered by the EULYNX IT-platform.

**CER encourages the CCS manufacturing industry as well as ERA to join forces and contribute together to apply the EULYNX modelling standard and to use common IT-platform. It is essential to move towards common exchange format for model-based descriptions of solutions between different tools.**

### Background:

The goal is a significant reduction of Track Access Charges by cutting the lifecycle cost for signaling systems. The control and automation system forms the core of digital transformation of rail operations. Digitization brings major advantages to the railway system like continuous monitoring for condition based maintenance. In order to achieve rail digitalization, there are a number of challenges with a widely distributed safety system that have been taken up by EULYNX and will result in a further harmonisation of approval processes in EU.

Whilst IT-based control logic has a significantly shorter life-time than "heavy metal" solutions for robust field elements like point drives and level crossings, the control electronics will be subject of more frequent replacements than long-lasting investments in railway assets in the field. EULYNX enables to manage the life-cycles of interlocking / control logic independently from the life cycle of field elements. Therefore EULYNX provides first time in history on EU scale a modular and obsolescence-immune control and automation system. Thus it offers market access also for specialized manufacturers that may not supply the full range of CCS assets but single components like level crossings, control centres and point machines.

The EULYNX architecture establishes long-term stable interfaces and at the same time fosters intensive innovation on module level. This approach is a step necessary for rail digitalization and will enable the protection of invest while facilitating the introduction of plug and play innovation.

---

### **About CER**

The Community of European Railway and Infrastructure Companies (CER) brings together more than 70 railway undertakings, their national associations as well as infrastructure managers and vehicle leasing companies. The membership is made up of long-established bodies, new entrants and both private and public enterprises, representing 73% of the rail network length, 80% of the rail freight business and about 96% of rail passenger operations in EU, EFTA and EU accession countries. CER represents the interests of its members towards EU policy makers and transport stakeholders, advocating rail as the backbone of a competitive and sustainable transport system in Europe. For more information, visit [www.cer.be](http://www.cer.be) or follow us via Twitter at @CER\_railways.

This CER document is for public information.  
Although every effort is made to ensure the accuracy of the information in this document, CER cannot be held responsible for any information from external sources, technical inaccuracies, typographical errors or other errors herein. Information and links may have changed without notice.