ITEA 2

INFORMATION TECHNOLOGY FOR EUROPEAN ADVANCEMENT

openETCS

Catapulting the railway industry into the 21st century

The quest for standardization

supported by:

Federal Ministry of Education and Research

Liberté • Égalité • Fraternité
RÉPUBLIQUE FRANÇAISE
MINISTÈRE DE L'ENSEIGNEMENT SUPÉRIEUR ET DE LA RECHERCHE

INVESTISSEMENTS D'AVENIR

Région de Bruxelles-Capitale

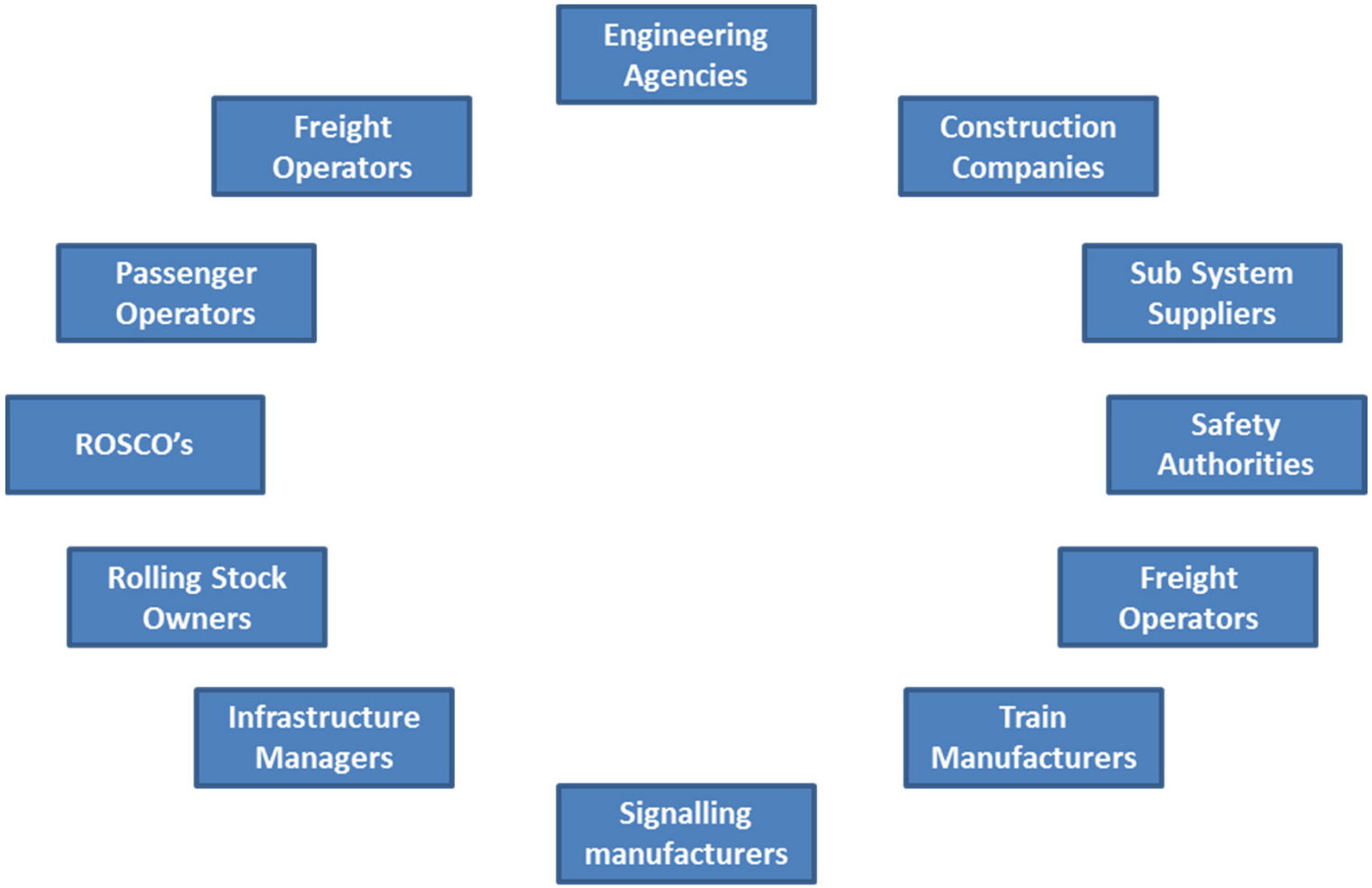
GOBIERNO DE ESPAÑA
MINISTERIO DE CIENCIA E INNOVACIÓN

openETCS@ITEA2 Project

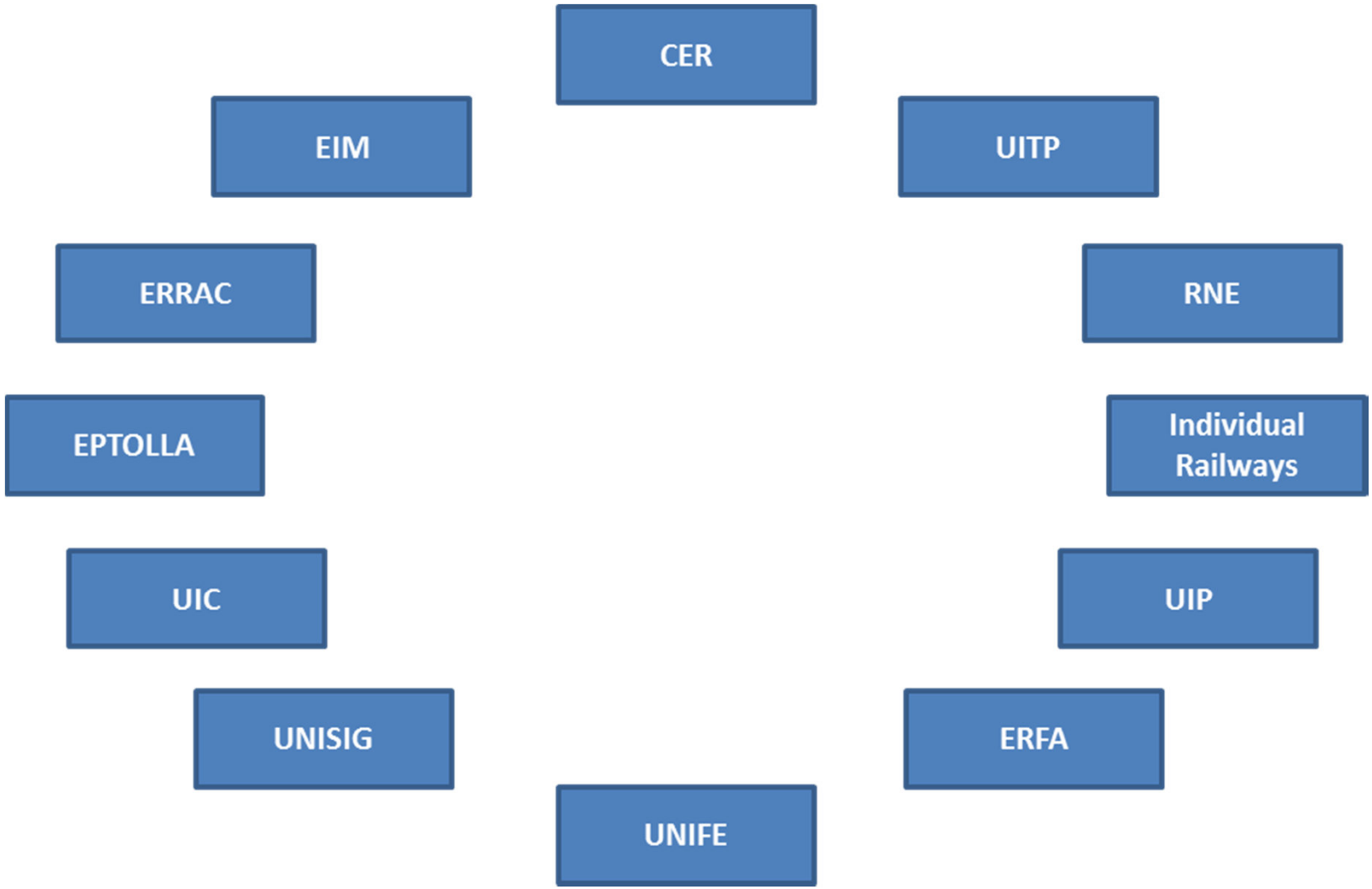
Jos Holtzer
NS Netherlands Railways

Berlin, 24.09.2014

European Railway Industry (not exhaustive)



Voices of the Railway Industry not exhaustive)

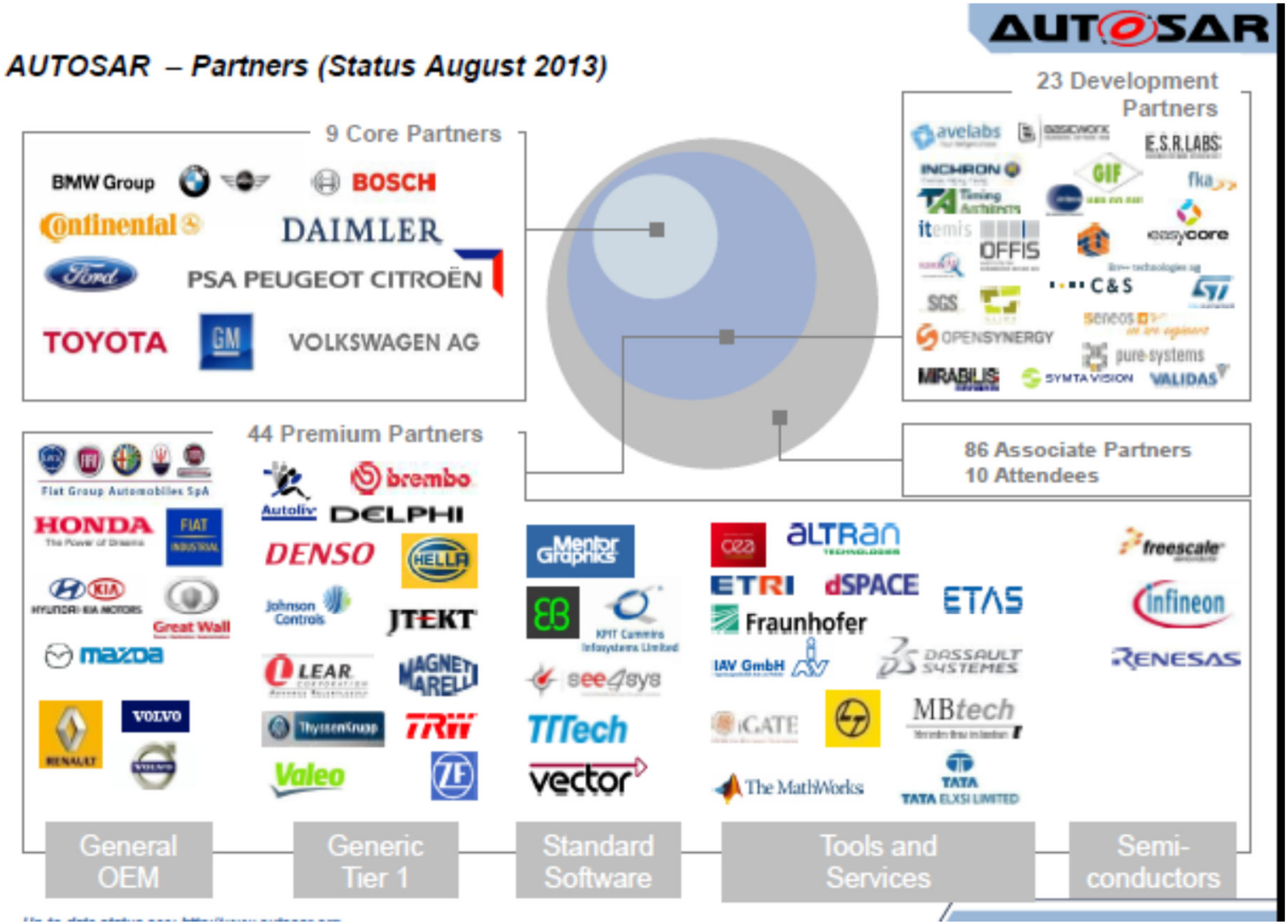


Now how about the competition?

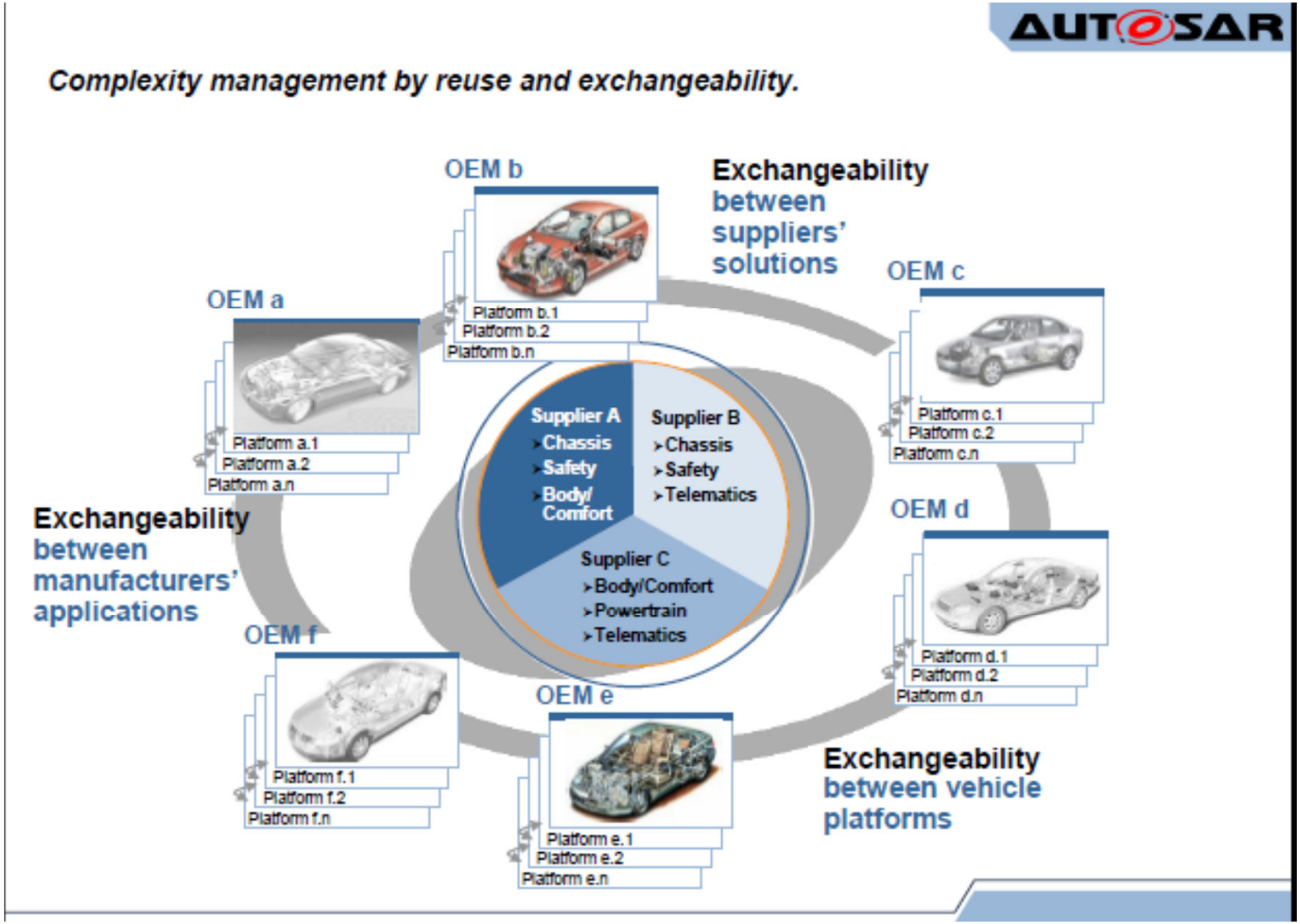
"Automotive Applications

means applications related to engine powered, land-based, non-railed vehicles, such vehicles intended for primary transportation purposes."

Cooperation for innovation



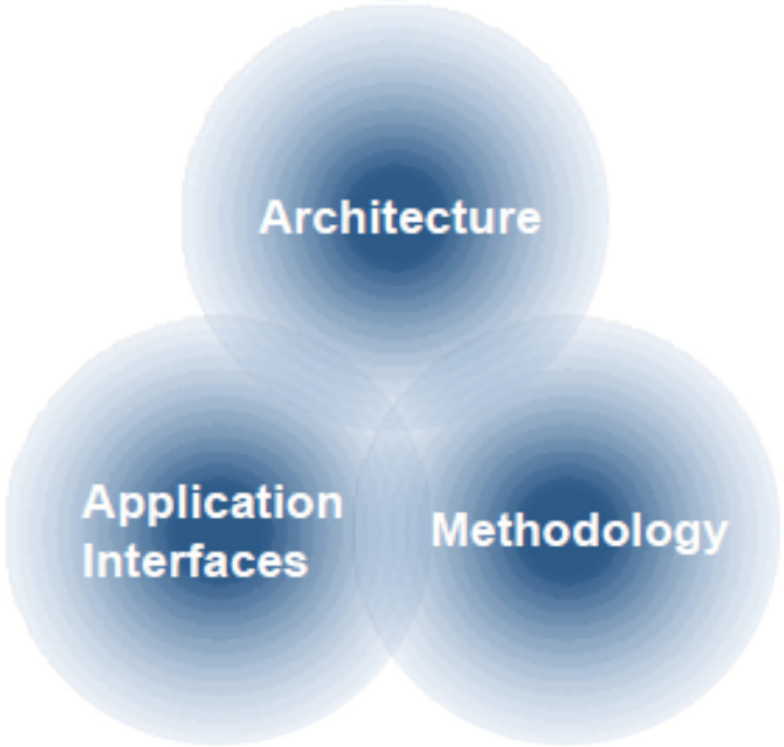
Cooperation for standardization



Cooperation for mutual benefits

Running the AUTOSAR partnership: 3 main working topics

Topics



Users

	The big 5 benefits
OEM	▪ Exchangeability
Tool provider	▪ Reusability
Supplier	▪ Innovation enabling
New market entrant	▪ Cost reduction ▪ New business models

Key issues

- **Standardisation**
- **Cooperation**
- **Transparency**
- **Sustainability**
- **Trust**
- **Cost effectiveness**
- **Competitiveness**

1. Introduction

1.1. Technical Background

The objective of AUTOSAR is to establish an open global industry standard for the automotive software architecture between suppliers and manufacturers [2]. The standard comprises a set of specifications describing software architecture components and defining their interfaces [3]. The principal aim of the standard is to master the growing complexity of automotive electronic and software architectures. The need to build a common architecture as well as development methodology and application interfaces became stringent for a variety of reasons, among which:

- Defining a common understanding how electronic control units (ECU) cooperate on same functions.
- Separating the software from the hardware in order to allow software reuse and smooth evolutions limiting re-development and validation.
- Finally AUTOSAR is enabling multiple different functions as for example software modules to be hosted on the same ECU, independently from the supplier of either part.

The ongoing development of AUTOSAR based products by the member companies provides a unique feedback loop into the development of the standard itself. This allows fast and pragmatic improvements and adaptations to market needs. The reusability of software has already been experienced in major developments and it has resulted in substantial savings in the overall development costs.

Challenges for the Railway Industry

- Standardisation
- Cooperation
- Transparency
- Sustainability
- Trust
- Cost effectiveness
- Competitiveness