



# TRAKO Conference 2011

**Mutual rolling stock cross-acceptance –  
elimination of the bottle neck  
in the railway market liberalisation**

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sector**



## **Content of the presentation**

- European Railway Agency**
- Fragmentation of European Railway network**
- Cross Acceptance**
- National Reference Documents**
- Conclusions**



# The European Railway Agency



# What is the Agency and what does it do?

- **European Railway Agency (ERA)**, Valenciennes (F)
- established **2004/2005**
- approx. 150 staff
- core tasks: **Technical Diplomacy – support of EC railway policy**

## Services/products delivered

Technical specifications  
Technical Opinions

Recommendations  
Reporting (regular/specific)

Public Databases on railway issues  
Dissemination (e. g. training)



## Customers/stakeholders (main)

EC + DG MOVE  
Committee  
EU Parliament

Railway Actors  
(Railway Undertakings, Infrastructure  
Managers, Manufacturers,...)

National Safety Authorities  
National Investigation Bodies



- ***“The place where all the actors meet”***
- **50 working parties involving approx. 1500 experts representing**
  - National Safety Authorities
  - UNIFE (Manufacturers – car builders)
  - CER (Train Operators and Infrastructure Managers)
  - EIM (Independent Infrastructure Managers)
  - EPPTOLA (leasing Companies)
  - UITP (Public Transport Association – metros etc.)
  - Wagon Lessors
  - Combined Transport Association
  - Unions



# The Agency Objective

## Article 1 of the Agency regulation:

*The objective of the Agency shall be to contribute, on technical matters, to the implementation of the Community legislation aimed at improving the competitive position of the railway sector by enhancing the level of interoperability of railway systems and at developing a common approach to safety on the European railway system, in order to contribute to creating a European railway area without frontiers and guaranteeing a high level of safety.*

*The Agency shall have sole responsibility in the context of the functions and powers assigned to it.*



# Fragmentation of European Railway network

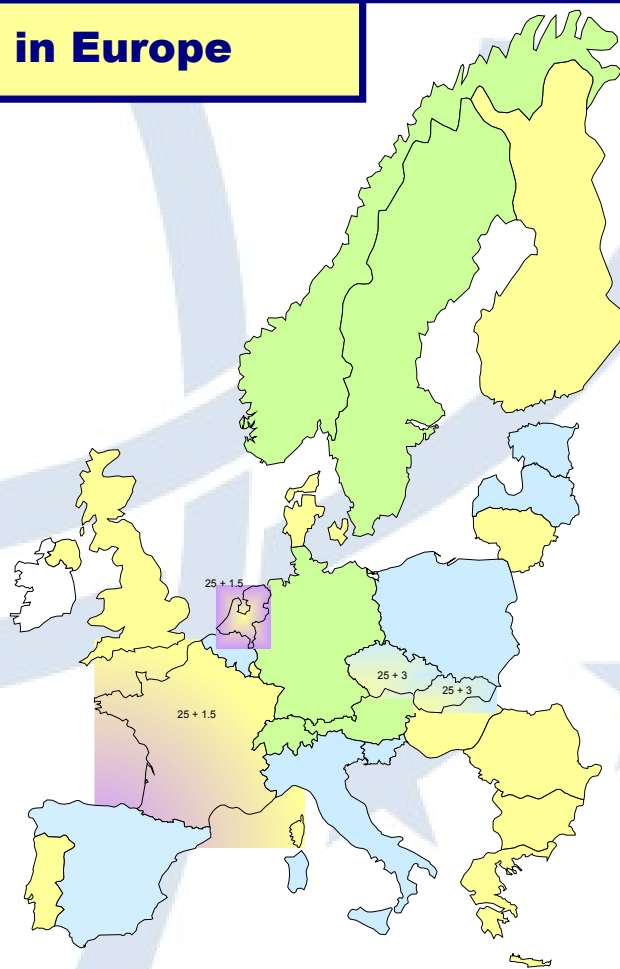
**Bottle necks in the railway market**



# A technical patchwork

## Voltages in Europe

- 5 types of electrification
- 21 signaling systems
- 5 track gauges
- 5 classes of axles load
- 6 line gauges
- National operational rules
- National technical rules
- National Authorisations



Main voltages

25kV 50Hz

15 kV 16 2/3Hz

3kV DC

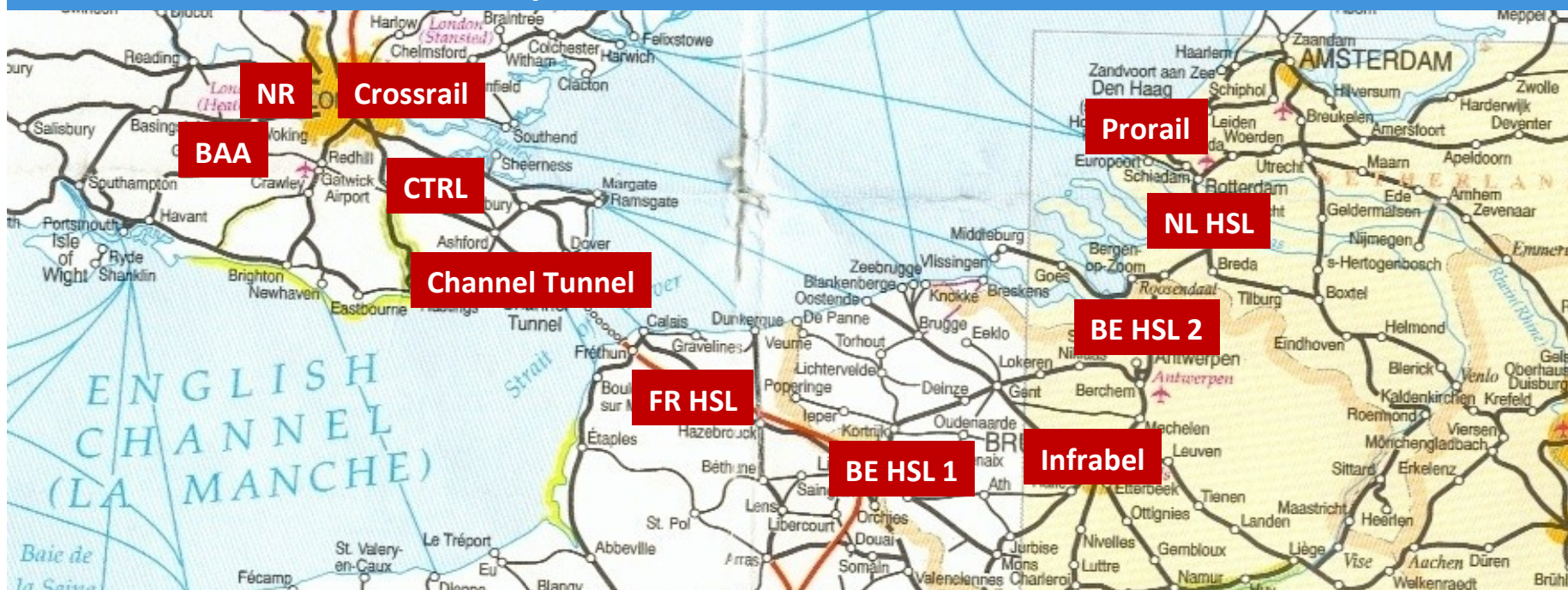
1.5kV DC





# Technical and administrative boundaries hindering competitive position for railway transport

London - Amsterdam (34 flights/day) Heathrow –Schiphol 390 km  
Potentially 4h by train. Today 10 technical system boundaries  
At least 5 Authorisations required



Solution for seamless travel:

- 1st step Cross Acceptance of national rules
- 2nd step One set of European rules (Interoperability)



# Disadvantages of Island solutions

## Advantages and disadvantages of “Island” / national solutions:



- Effort for regulation and standardisation can be minimized
- Less contract interfaces



- Interoperability is questionable regarding...
  - ... other high-speed “island” infrastructure
  - ... other rolling stock
  - ... the use of the around existing infrastructure
- Creates a dependency from the supplier (monopolism)
- The small number of vehicle series...
  - ... can rise cost for a later rolling stock replacement
  - ... can have negative influence on the operating cost (cost of spare parts)
- Each “island” system will have its own special safety regulation. The safety authority has to handle all the different safety regulations.
- Creates problems and rises the cost if the operator should be changed later



# Technical incompatibility - ERTMS

- Each project used a “show me a system safety case” approach so requirements for on-board ERTMS are unknown and Technical Incompatibility between projects a 100% certainty
- In each project all the different suppliers equipment is compatible with each other's  
BUT
- Every project in Europe is incompatible with every other - (F)RTMS, (I)RTMS, (Welsh)RTMS
  - 3 incompatible versions on 3 routes in the same country (NL)



# Results of Technical Incompatibility

- **Cost per loco authorisation (excluding ERTMS)**
  - 5m-30m (7m-40m\$) for first authorisation
  - 2.5m (4m\$) per additional authorisation thereafter
- **Authorisation of ICE in France and TGV in Germany = 6 years, 30m Euros**
- **Cost for authorising an on-board ETCS for one infrastructure: 2.5m Euros and 2 years**  
(the same as it costs to authorise an airbus for the whole world)
- **Cost for an additional authorisation for another route: Another 1m Euros and 12months**



## With business as usual, everything remains as it is. Imagine a road system where ...

- nobody knows the height and width of the bridges
- Freight and Passenger road users must **pay** the Infrastructure Manager to **measure the bridge heights** if they want to operate on a new route
- each **new section** of motorway
  - is built with **bridges of different heights and different road signs**
  - has **different traffic rules** defined by each project manager building the road
- purchasers of Trucks and Busses **don't know when or where or if** they will actually **be authorised to run until 6 months after they have been delivered**
- you needed a **separate authorisation for two separate parts of the same motorway**, each with a **different process and different rules**



With business as usual, everything remains as it is.  
Imagine an aviation system where ...

- If you bought **another 10 planes identical to the 10 you bought last week** you **don't know if they will be authorised**
  - Immediately?
  - After a delay?
  - After modification to comply with surprise new rules?
- **Each individual plane** has to be **specially authorised for each individual airport**





With business as usual, everything remains as it is.  
Imagine a railway system where ...

- You have to change due to national rules your fire extinguisher at each border while the same might be able to extinguish the fire



one fire extinguisher in the loco cab (not 25) !



# **Cross Acceptance – Elimination of the bottle neck in the railway market**





# Where does Cross Acceptance Fit (1)?

Technical Specifications for Interoperability are applied for new or substantially upgraded railway subsystems

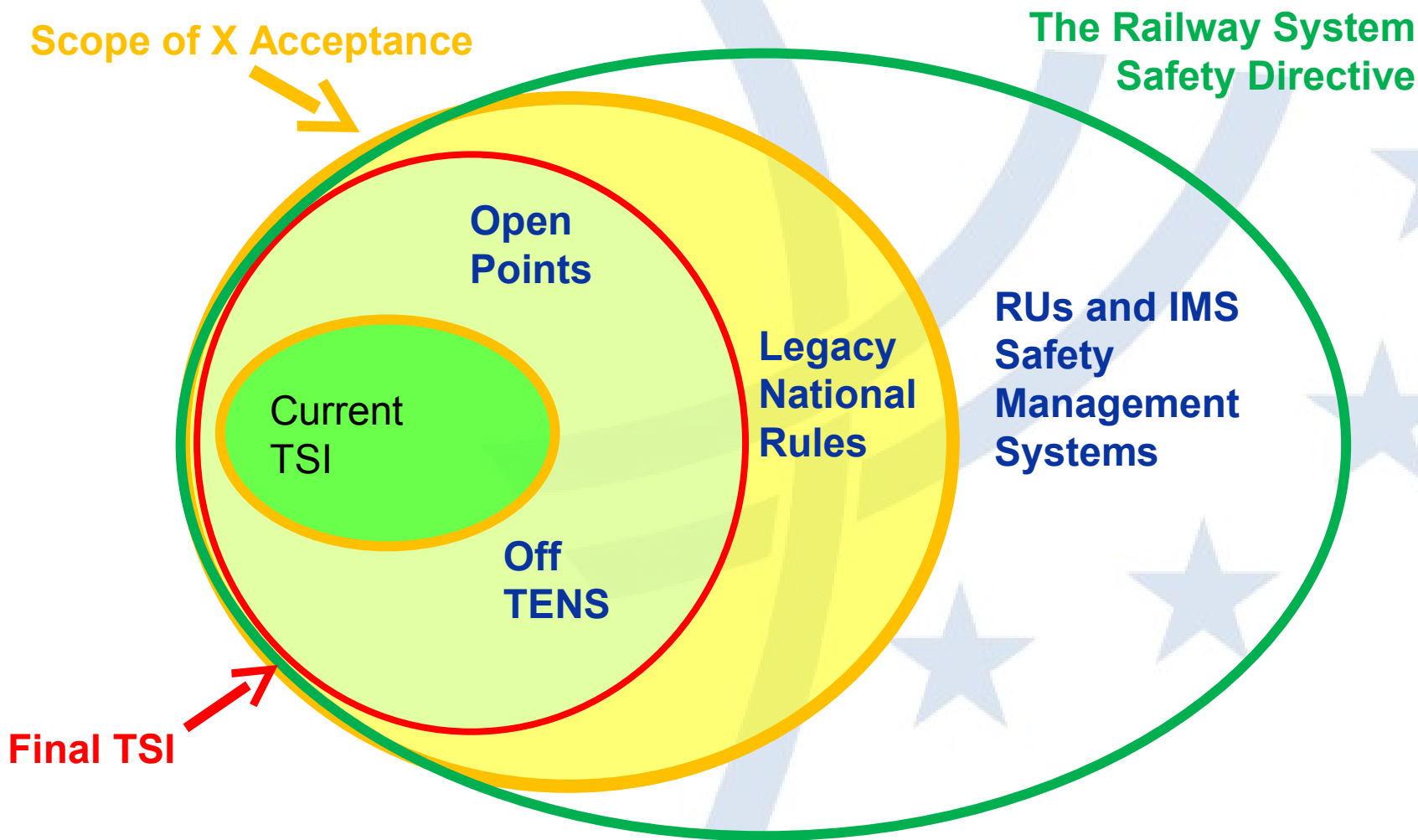
## **But**

- For the time being TSI are not mandatorily applied outside of the Trans European Network TEN
- Existing infrastructure may even for a long period of time not being TSI compliant
- TSI have still open points where no harmonised requirements are available
- TSI contain specific cases for MS

Wherefore in a series of cases national rules still apply in addition to TSI requirements



# Where does Cross Acceptance Fit (2)?

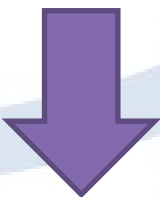




# The essence of Cross-Acceptance

## **Cross-Acceptance requires**

- **confidence and trust**
- **Transparent, repeatable national rules**
- **Transparent, repeatable national checking process**



## **Cross Acceptance relies upon mutual recognition of**

- **principle of equivalence**
- **Recognising that there is more than one way of meeting an essential requirement**



## Achieved results

**Mutual recognition requires a harmonised structure to identify requirements used by national authorities in conjunction with the authorisation for placing into service of railway vehicles**

- **Decision 2009/131/EC - Revision of Annex VII of Directive 2008/57/EC**
- **Decision 2009/965/EC - Detailed list of parameters**
- **Decision 2011/155/EC - Management and publication of the Reference document**
- **Decision 2011/217/EC - on the authorisation for the placing in service of structural subsystems and vehicles**



## Additional work

**To facilitate mutual recognition the Cross Acceptance Unit carries out the following investigations:**

- **EMC requirements**
- **On-Track testing study**
- **Infrastructure dependencies**
- **National rules to close open points for ERTMS**
- **Risk assessment applied in conjunction with authorisation of railway vehicles**



# National Reference Documents

where to find the national technical rules to get a vehicle authorised in EU Member States?



# NRDs available by the Agency

M S	NRD provided	Date	Status	MS	NRD provided	Date	Status
AT	YES	06/2010	<i>In revision</i>	LV	YES	04/2010	Vers. 1.0
BE	YES	07/2011	<i>In revision</i>	LT	YES	02/2010	Draft vers. 0.1
BG	YES	07/2011	Vers. 2.0	LU	YES	03/2010	<i>In revision</i>
CZ	YES	06/2011	Vers. 2.0	NL	YES	08/2011	<i>In revision</i>
DE	(YES)	-	-	PO	YES	07/2011	Vers. 1.0
DK	YES	03/2010	Vers. 1.0	PT	YES	05/2010	Vers. 1.0
EE	YES	07/2011	Vers. 2.0	RO	YES	04/2010	Vers. 1.0
FI	YES	03/2010	Vers. 1.0	SK	YES	05/2011	Vers. 0.2
FR	(YES)	-	<i>In revision</i>	SI	YES	05/2010	Vers. 1.1
HE	YES	04/2010	Vers. 1.0	ES	YES	06/2011	Vers. 1.1
HU	YES	07/2011	Vers. 2.0	SE	YES	07/2011	Vers. 2.0
IE	YES	04/2010	Vers. 1.0	UK	YES	06/2011	Vers. 4.0
IT	YES	07/2011	Vers. 1.0				

[http://www.era.europa.eu/Document-Register/Pages/National\\_Reference\\_Documents.aspx](http://www.era.europa.eu/Document-Register/Pages/National_Reference_Documents.aspx)



# National Reference Document

## National Reference Document for Member State A

<u>Parameter</u>	<u>Ref to Rule</u>	<u>Checking requirement</u>	<u>Recognition of other MS rules</u>				
			<u>Aut</u>	<u>Be</u>	<u>etc</u>		
12.2.1 xxxxxxxxx			A	B	C		





# How does Cross Acceptance work

## Comparison of National Technical Rules between National Safety Authorities (NSAs)

Grouping of NSAs according regional and commercial interests

At the moment 18 NSAs participate in comparison of rules

Current GIGs:

BeNeFLuCH Group	(BE, NL, FR, LU, CH)
Nordic GIG	(FI, NO, SE, DK, DE)
Corridor A / TFI Group	(DE-AT-CH-IT-NL)
Corridor A / ERTMS Group	(DE-AT-CH-IT-NL)
Central East North	(DE, AT, NL, CZ, PL)
Central East South	(HU, BG, RO, SL, AT, DE, CH)
+ Binational Agreements	

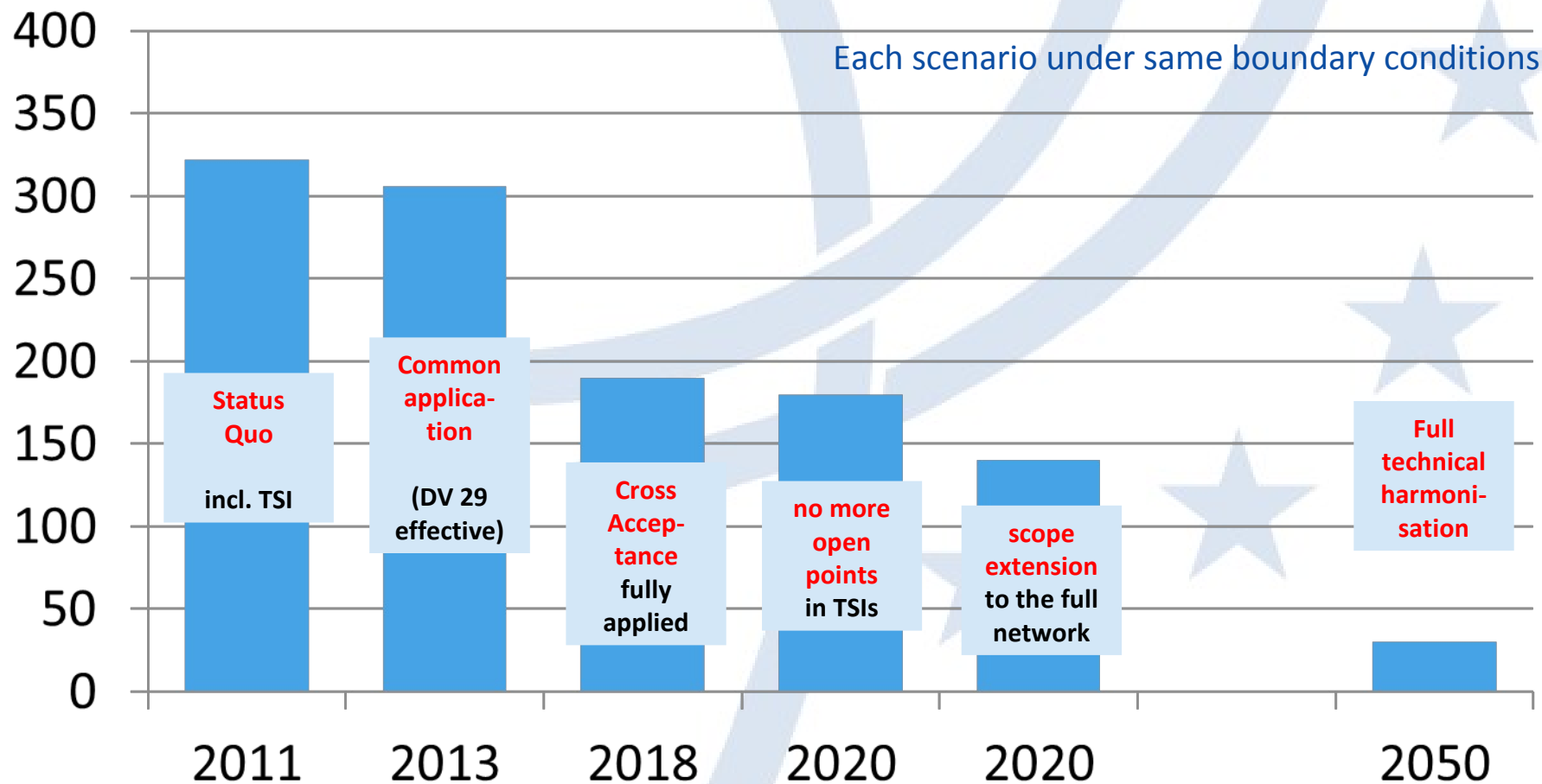


# Conclusions



# Application of European tools will reduce vehicle authorization costs dramatically

Mn EUR/ year (EU total)





# Which next steps to achieve this European goal?

- **Member States to implement**
  - the directives
  - mutual recognition (cross acceptance)
  - the TSIs\*
  - according to the common understanding
- **Agency**
  - Complete the National Reference Documents (for Cross Acceptance)
  - Support NSA to compare and classify their national rules
  - Extend the scope of the TSIs
  - Extended role of the Agency?

\* Technical Specification for Interoperability



## Conclusion: the basics are there, now we must apply!

**The tools are there**

**Now they must be understood and used in the same way to deliver the benefits**

**The Agency stands ready to help the actors with the implementation**





**Thank you for your attention!**

