

# Removing Barriers for a Digital Single European Railway Area

Vincent PASSAU, Mainlines Solutions Director

ERA and the Digitalisation of Railways, Firenze, 3rd May 2016

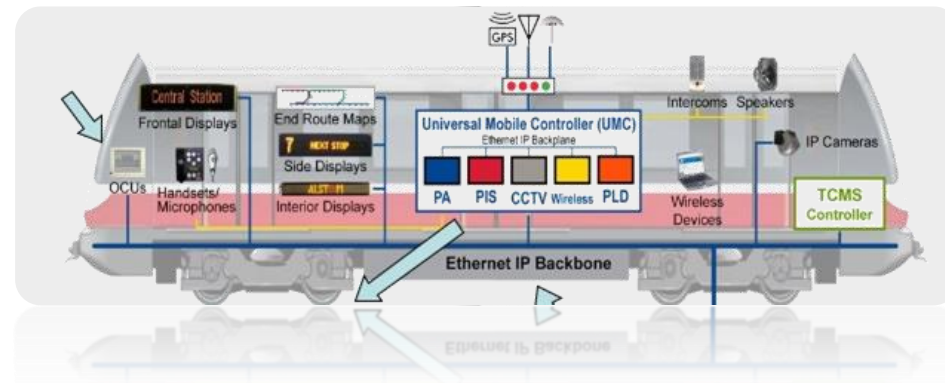
# Digitalisation : a revolution that will reshape Mobility



- The digital mobility revolution: a **technology leverage** for
  - Optimisation of **mobility and comfort** of **passengers**
  - Improving operators **operational & financial performance**
  - The development of a better **eco-system**
- A **multi-modal approach** in which **Railways** shall improve **competitiveness**

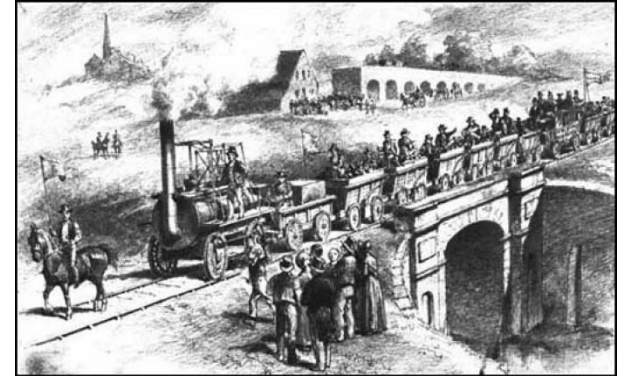
# Digitalisation : Railways

- Moving fast : automotive industry will soon put on the market **Connected and Autonomous Vehicles**
- In Railways, digitalisation started with **Radio-based Train Control solutions** being deployed (CBTC and ERTMS), but with a need for
  - **Automation and Regulation** for higher capacity and service
  - **Integrated Asset Optimisation**, including predictive maintenance
  - **State-of-the-art Passengers Security, Services and Infotainment**



# The challenge of Digitalisation for Railways

- The 1<sup>st</sup> public Railway opened in September 1825
- Many railways still use the same Standard gauge



- By 2020, 80% of the world's adult population will be using Smartphones
- Since 2007, Smartphones have been going through a succession of standard evolution: 2G -> 3G -> 4G and soon 5G

**Are Railways prepared to change evolution into revolution?**

# Digitalisation for Railways – Barriers to be addressed

**Legal  
Framework**



**Safety and  
Regulations**

**SELFIE DRIVING**



**DEATH**

**Stakeholders  
involvement**



**Standards &  
interoperability**



**Automation is  
changing role  
and  
responsibilities  
of operators**

**Solutions shall be  
developed aiming  
to secure full  
interoperability  
and upwards  
compatibility**



[www.alstom.com](http://www.alstom.com)

**ALSTOM**  
*Designing fluidity*