



Shift2Rail - for competitiveness and sustainability

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What is Shift2Rail?

- EU biggest cooperation on rail development
- Strengthen industry, develop a sustainable rail system to meet tomorrow's transport needs and create jobs
- Working towards a Single European Railway Area and will impact all segments of the rail market
- The largest EU cooperation that Trafikverket has so far participated in
- Together with academia and industry, developing smart solutions in terms of vehicles, traffic information, capacity and infrastructure



Cooperation

Some SE participants so far: Trafikverket, CTH, KTH, JVTC/LTU, KAJT; LiTH, VTI, Uppsala University, SICS, BTH, LTH, SJ, Transrail, LKAB and Green Cargo.



Specific expected benefits of the project

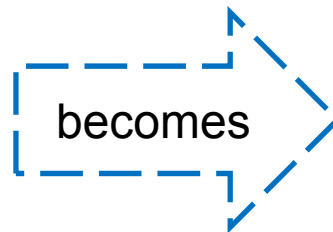
- Reduced life cycle costs for rail transport by **50 percent** through reduced costs for development, construction, maintenance and operation as well as increased energy efficiency
- An increase in capacity in the tracks by **100 percent**
- Increased reliability and punctuality by **50 percent**
- IP 1: Passenger Trains
- IP 2: Signaling systems
- IP 3: Mechanical Infrastructure
- IP 4: Travelling services
- IP 5: Freight
- Common Collaboration: Societal business case,



.. money, money, money..

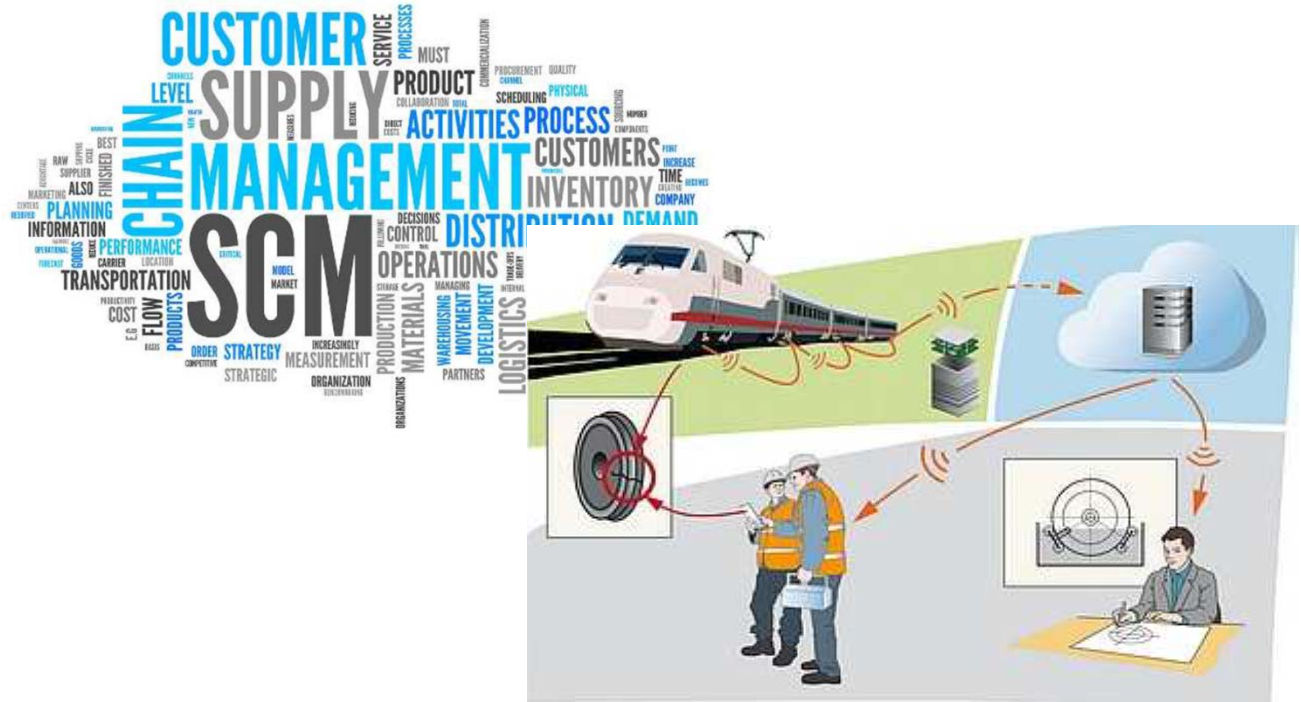
9 billion

200 million



A powerful European venture, with a leading Swedish role, for strengthened Swedish competitiveness and sustainability

Digital Railway



SYSTEM

- Real-time monitoring
- Connected within “IoT
- AI based traffic management systems
- Command and control fully digitalized
 - Continuous flow of information

INFRASTRUCTURE:

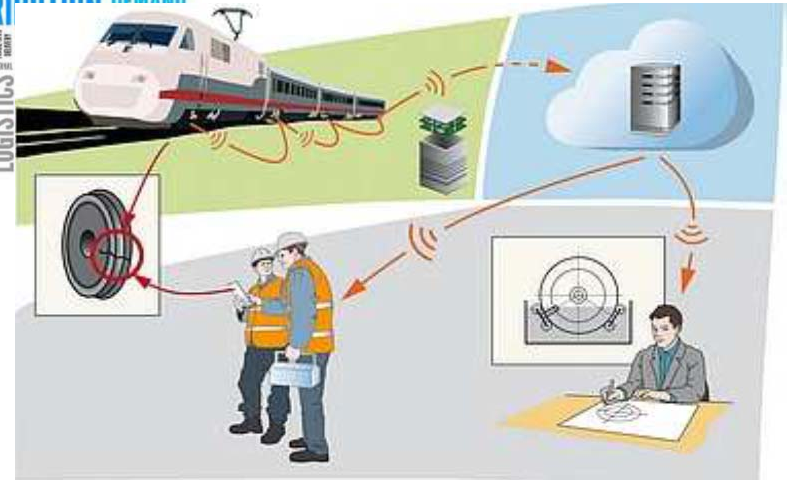
- Self-diagnostic and self-healing
- Assets communicate automatically
 - Automated robotic repair
 - Connected within “IoT”
- Predictive/ prescriptive maintenance

Digital Railway

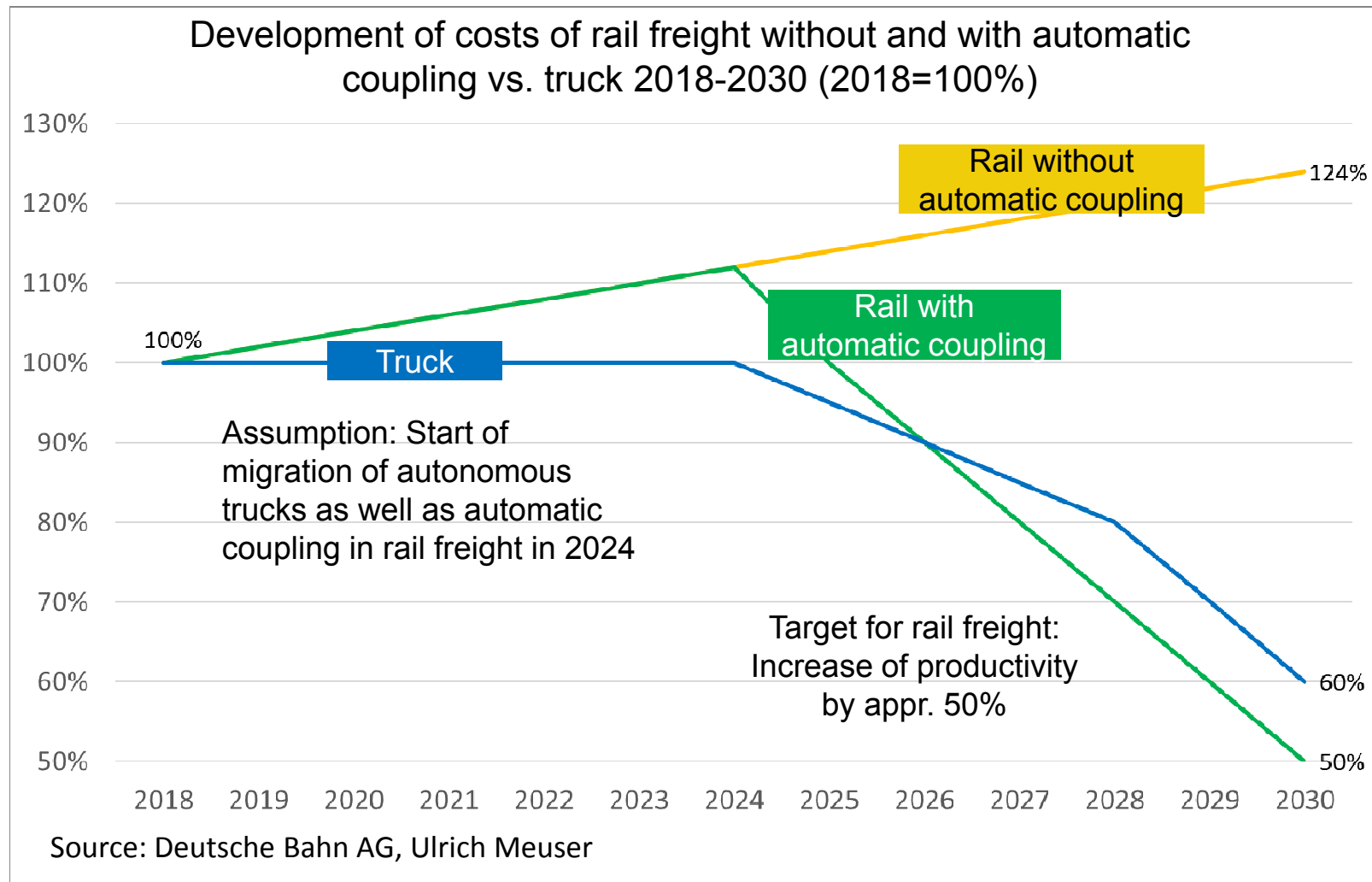


VEHICLES

- Intelligent
- Communicate V2V, V2I
 - Autonomous
- Running closer together



Rail freight increase of productivity needed



Ergo

Without massive increase of productivity, competitiveness of rail will be weakened significantly.

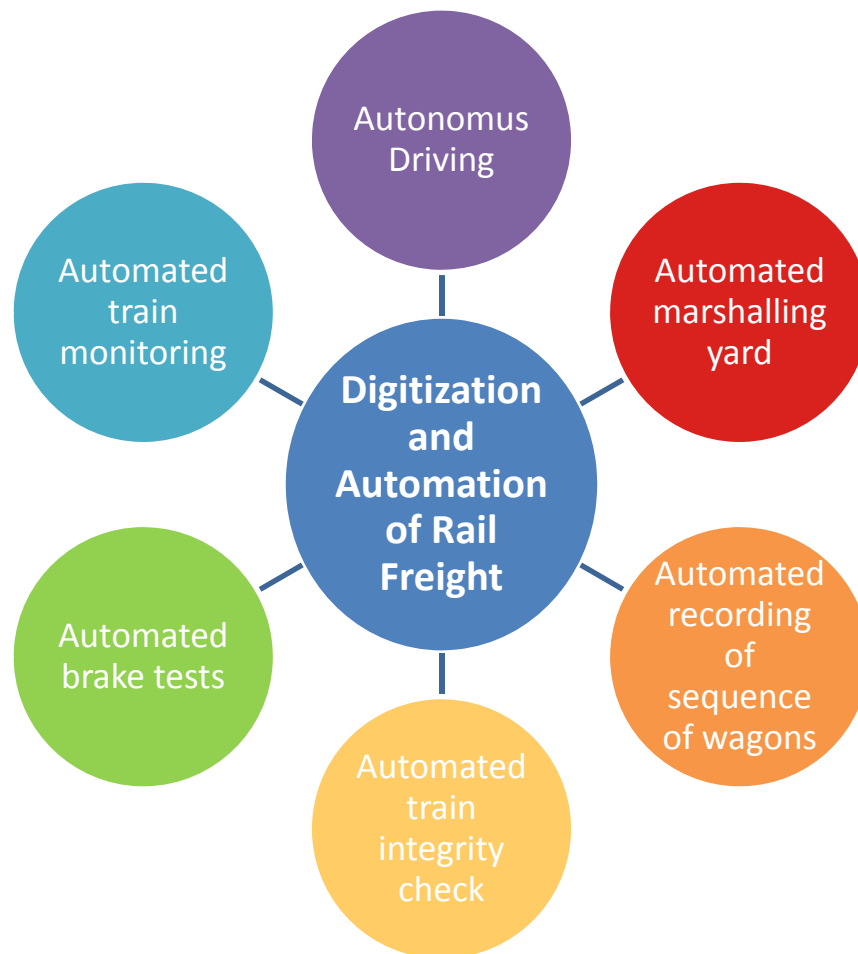


It's all about Smart Rail Transport

- effective solutions that combine the right cost and quality with lower carbon dioxide emissions.



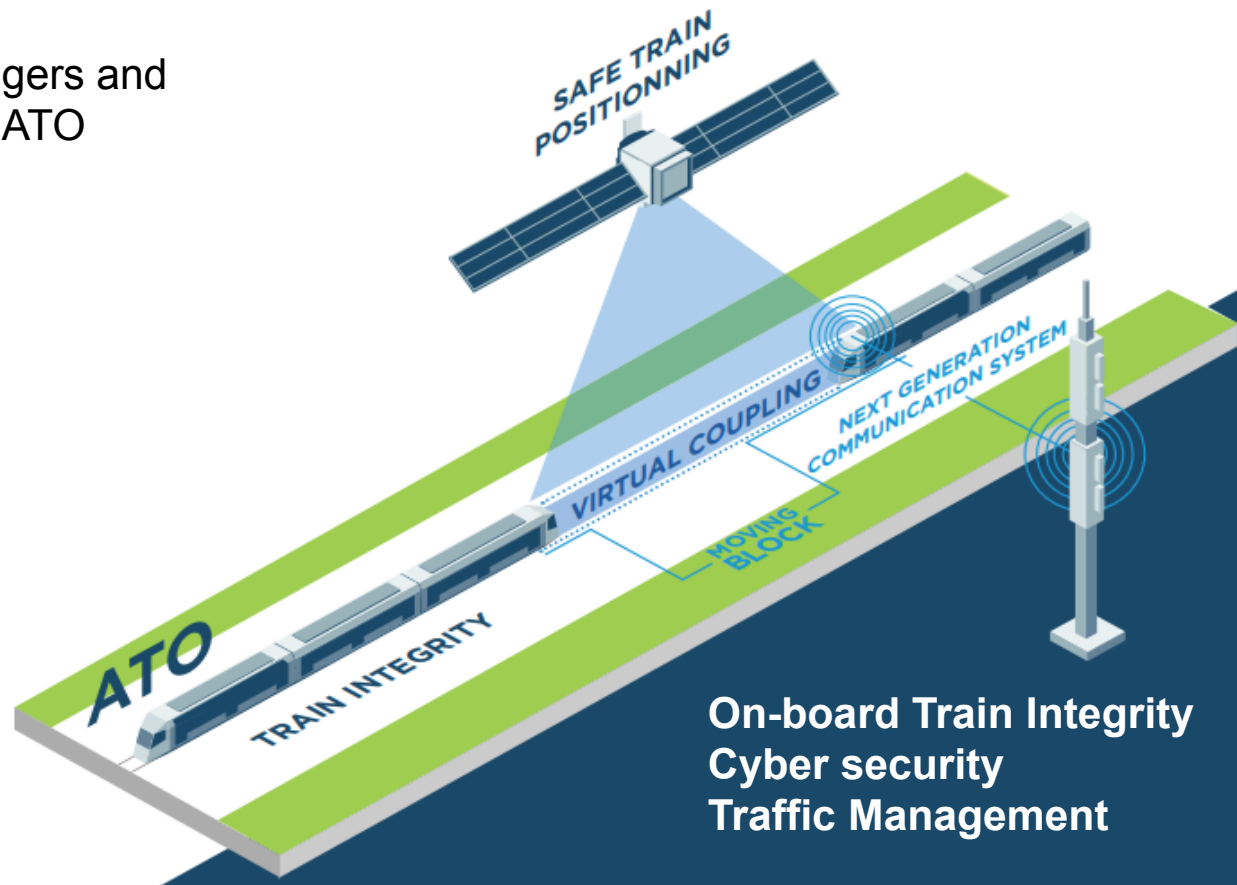
Rail freight development direction



With digitization and automation in rail freight traffic there will come up applications increasingly, which will raise attractiveness and productivity of rail significantly.

ATO through... Building Blocks

Passengers and
Freight ATO





AGURA SYSTEM

Accompanying and securing the voyage and doubling as emergency rescue drone system.

Intelligent
autarkic
sensory drones

TRICOPTER
SENSOR DRONE

DATA COLLECTOR
FOR RAIL NETWORK

DRONE SLOT

ON BOARD
SENSORS

ENERGY
HARVESTING

ELECTRIFICATION

DIGITALISATION

AUTOMATION

Cargo ANTS, J. Schlaht Siemens AG November 2017

Thanks for your interest!

Bo Olsson,
Trafikverket

