Kapsch CarrierCom

Digitalization
Viewpoints
March 2018

kapsch >>>
challenging limits

Kapsch CarrierCom's scorecard

Leadership in Mission-critical communication

> **164m Euro revenue** (FY2017)

> **627 employees** (FY2017)

> **6 R&D centers**

> **39 customers served**

> **17 core network references**

> **83.000 km access network**

> **~40% global market share**

> **17 ETCS Level 2 projects**

> **12 high-speed line projects**

Mission-critical Networks in 25 countries

Algeria	France	Italy	Saudi Arabia	
Austria	Germany	Lithuania	Slovakia	
Bulgaria	Great Britain	Luxembourg	Slovenia	
Brazil	Hungary	Poland	Spain	
China	India	Portugal	Turkey	
Czech Rep.	Ireland	Romania	UAE	
Finland				

Why Digitalization ?

There needs to be more than technology

What railways want
Increase capacity   **Enhance customer experience**   **Improve competitiveness**

Digitalization / Technology shall be the enabler to achieve the targets

Digitalization vs Investment cycle

Different speeds are meeting

> **Other industries have paved the way**

> > Banking, Utilities, Telecommunication and many more leverage ICT

> > Aerospace introduced digital systems in the 1980s ⇨ 60% traffic increase

> > Urban Traffic has shown that a similar increase is achievable in rail

> **The Railway Industry is known for long and cyclical investments**

> > This is not compatible with the current speed of Digitalization

> > Railways planned to update all their systems over the next 40 years

> > Competition as well as passenger/freight customers demand will reduce timing

Reference: Digital Railways UK

Touchpoints in Railways
Where Digitalization will matter

Traffic Management and Control Systems

Internet of Things

Rolling stock

Shunting

Infrastructure operation

Operation center

Workforce management

Cybersecurity

Communication backbone

Enabling technology for all industries

1 **ERTMS / eGPRS introduction**

- ERTMS as the main pillar
- ATO discussed as well
- eGPRS as fundamental enabler

2 **Seamless communication**

- TETRA, DMR, GSM-R, VoIP
- Secondary line solutions
- Interworking and feature parity

3 **Software Defined WAN**

- Service-oriented architecture
- Minimized CAPEX & OPEX
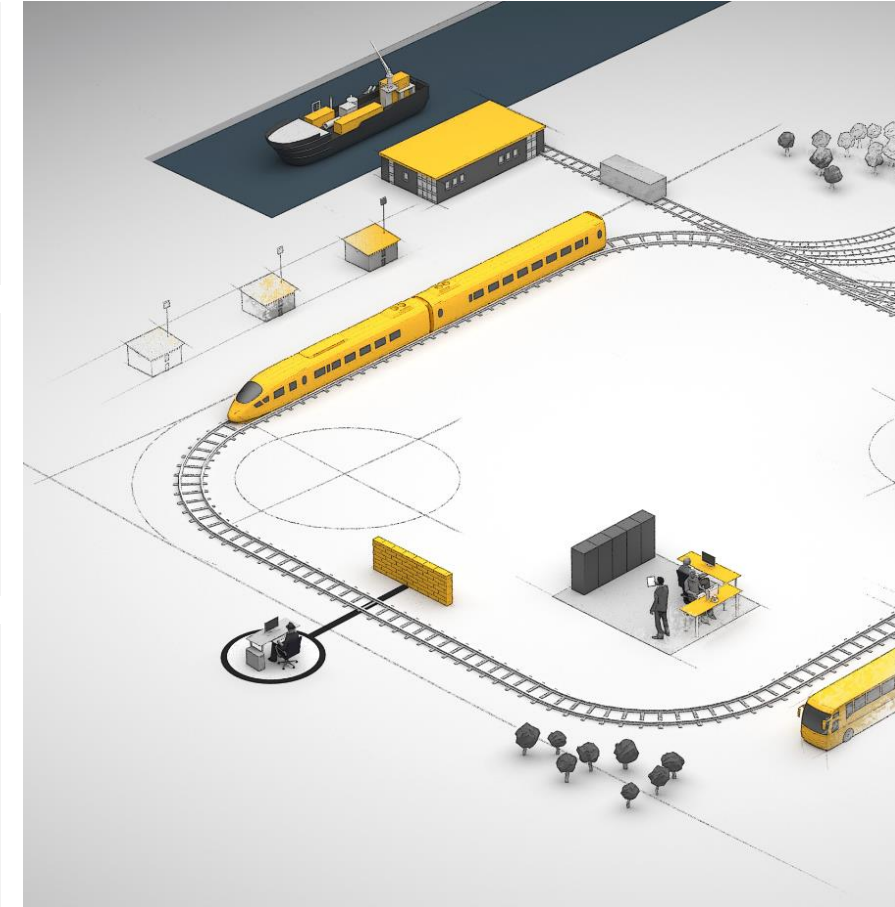- Increased network resilience

4 **Internet of Things**

- LoRa solution + Analysis backend
- Unlicensed band communication
- Helps to optimize your assets

5 **Cybersecurity**

- Protecting the 'mission-critical'
- Complying to regulations
- Solution portfolio available

6 **Network Function Virtualization**

- ETSI NFV Architecture Framework
- From Silo to Data Center
- Leveraging IT in Telco

Thank you

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