

# Workshop group 3

## Quality and technical aspects





## What – The workshop group will do

Share the experiences

Discuss the technical aspects

Develop or adopt standards for the rail industry

Exchange ideas

Create a platform and community





## **HOW – Round table – identify technical / quality topics would you like discussed**

Harmonised coding for asset and vehicle identification

Reliability of EVN in coding

Data security

Implementation of EPCIS

Data content of tag

Where to place the tag (special case in multiple units)

Technical specifications on tag/readers to make interoperability happen

Technical Aspects of the RFID Technology and Certification processes

Drawbacks of using the vehicle number as part of identifier (operational point of view)

Tags data format

Reliability of data

Read range – how much time is available for reading when tag in range

Reliability

Numbering in the tag



# What technical / quality topics would you like discussed

Quality of systems, readers and tags

How to resolve anti-collision problem on high speed-(200km/h) in 18000-6C

General requests to identify the vehicles

Tags and readers

Coding (what data) in passive tags

Chip-less tags

Data security error rates

Passive tags application

Collision

Environment – Health

Level of confidence – cross-boarder





## Focus on 2 popular topics

1. Coding and Data Content - What data to encode in tag – should the EVN be encoded or not
2. Technical aspects of the RFID Technology – Quality and reliability



## Should the EVN be in the GIAI

### Pro

- Easier when installing as double check that right number is on right wagon
- Easy to replace if tag
- The EVN in the GIAI helps to get some data out without a database

Connection e.g. maintenance, workshop can get technical information

- It is the combination of a clear and clean structure
- The structure of the vehicle number is defined
- Can be a European law
- Possibility to get information from NVR

### Con

- Difficult to equip entire fleet
- Need competence to get right tag on right fleet
- 2% wrong tag on wrong train if precoded
- Need equipment to write into tag
- The significance of the EVN encoded in the GIAI with the Left or right side number doesn't speed up the maintenance process
- Handling of a tag replacement is more difficult.
- If tag broken – time before replacement
- Not possible to have stock of precoded tags
- When id of wagon change then tag number has to be changed – easier to change in database



## Should the side indicator be in the code

### Yes:

- Logistics efficiency – loading and unloading
- Maintenance data
- Axles

### No

- Better with non-significant random number
- The significance of the EVN encoded in the GIAI with the Left or right side number doesn't speed up the maintenance process

## Result – data content in tag

- The outcome is that the participants will check how the legal situation looks like in the handling of the EVN and also how Data can be shared between companies, countries and workers.
- Identify how the coding issue should be resolved in Europe
- Involve UIC



# Technical issues

## UHF EPC Gen 2 860 – 960 Mhz versus 2,45 Ghz

- if 2,45 Ghz is used there is no global standard of the datastructure on
- In UHF GS1 has defined a lot of standards:
- However there may be some applications where 2,45 Ghz works better

## UHF EPC Gen 2 860 – Reliability

- Environment
- Robustness
- Data protocall
- Physics
- How to get equipment from different partners to work together e.g. change manufacturer of tag or reader and it still works





# Results – What and when

- Share information / experience from their testings and implementations – why some tags / readers work and others do not – Now
- Produce specifications for the manufactures to support them in their development for the Rail Tags and Readers. - Now
- Specification sheet for Rail Tags and Readers to help users choose - Now
  - Minimum requirements
  - Define specifications for tags
  - Define specifications for readers
- Define test criteria- Soon
- Certification program for tags and readers for rail application - Future

