



# Welcome to the World of Standards



## A GLOBAL RAIL (TELCO) SYSTEM STANDARDIZATION BODY

UIC's 3<sup>rd</sup> World Conference on Rail Transport Telecoms

Paris, 17 May 2017

Luis Jorge Romero – ETSI Director General

# ETSI IN A NUTSHELL



- ICT standards organization since 1988
- Formally recognized by the EU
- “ICT inside”
- Global membership
- Direct participation / consensus based
- “Made in Europe for global use”
- Partnership (3GPP, oneM2M...)

# THE HOME OF GSM...

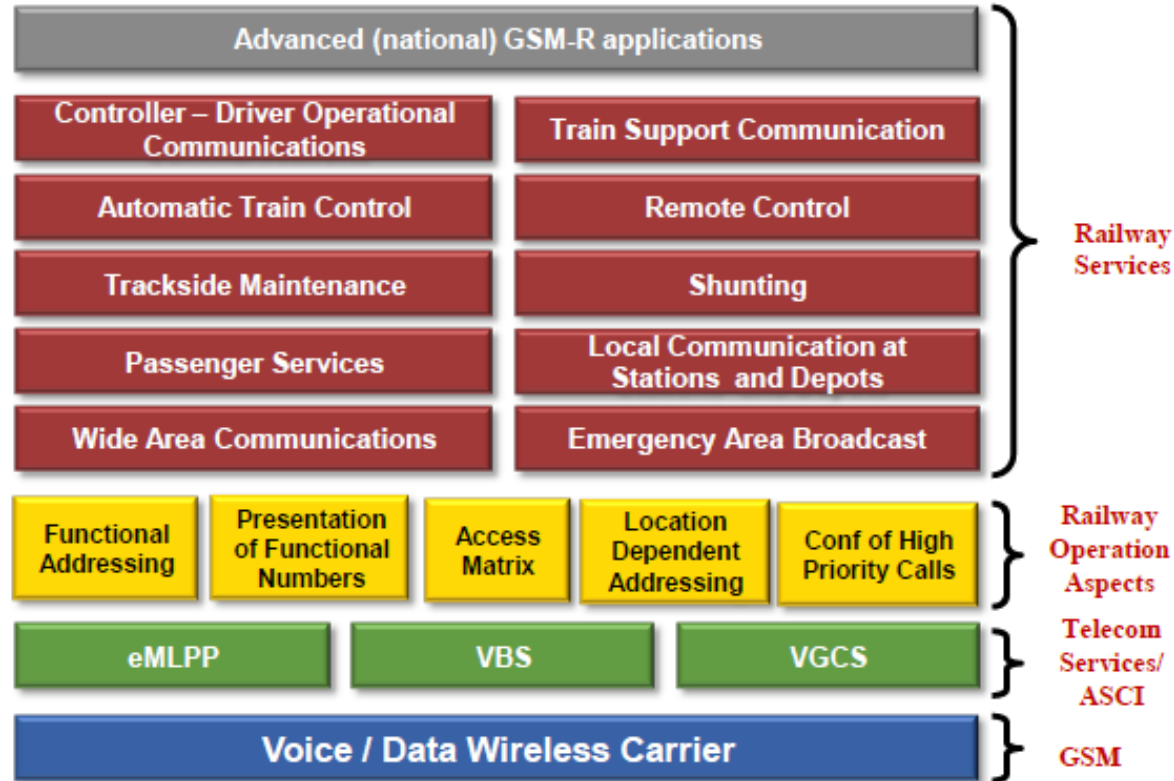


**Home  
of GSM**

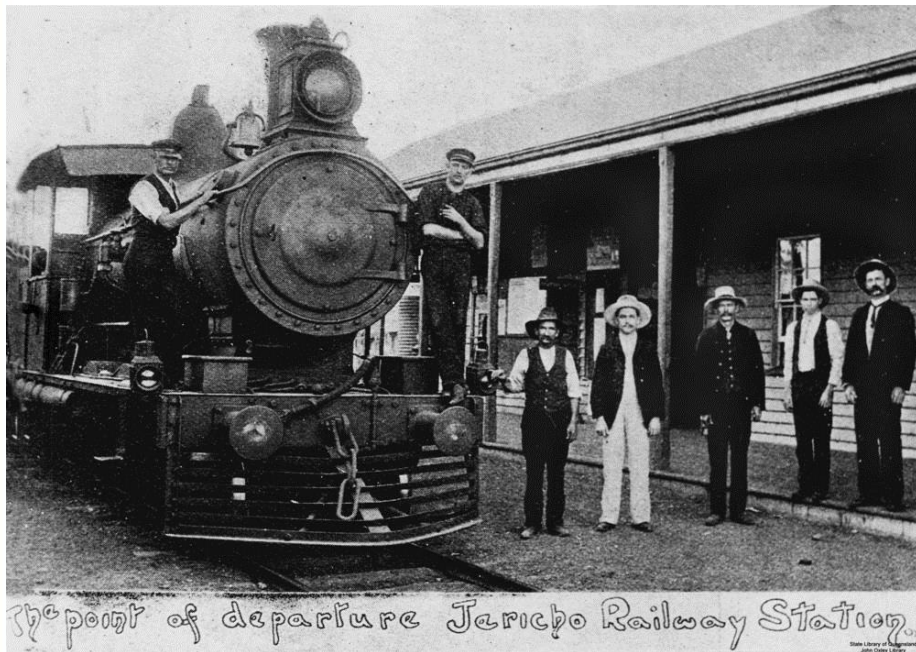
- 🌐 ... and mobile comms evolution – through 3GPP
- 🌐 ... and DECT...
- 🌐 ... and TETRA...
- 🌐 ... and NFV...
- 🌐 ... and so many others!!!

# ETSI AND GSM-R

- Standard based on GSM
- Voice and Data services
- Radio bearer for the ERTMS
- In commercial operation since the year 2 000
- ETSI TC-RT standardizing new functionalities and capabilities



# RAIL HAS EVOLVED...



... PICTURE FROM 1908...

... AND 2010...



Picture by Maxim75

# ... AND SO HAVE TELECOMS

## ... YESTERDAY (1940's)



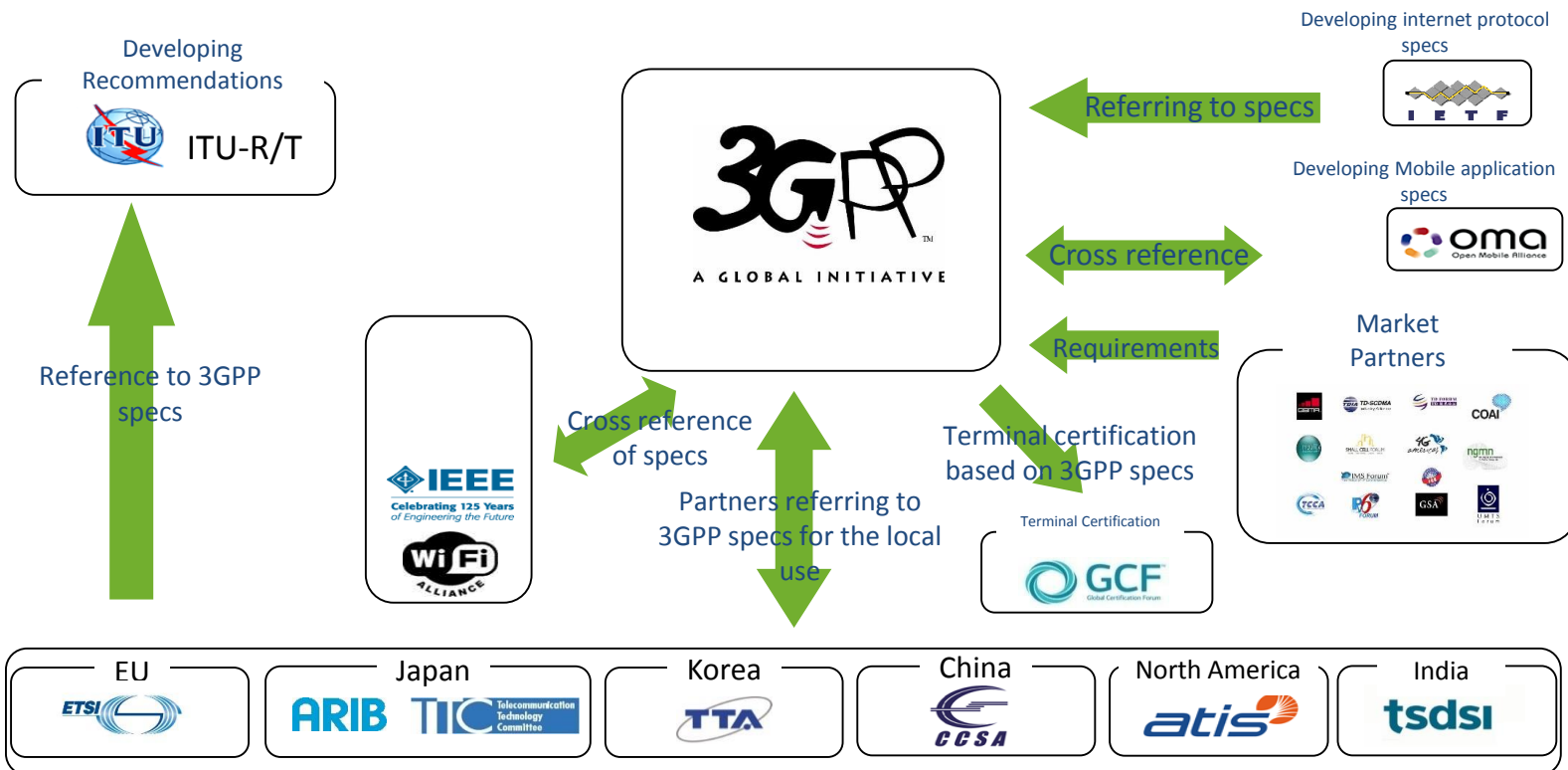
## ... TODAY (2017)...





**GSM (2G)... TO UMTS (3G), LTE (4G) AND 5G**

# WHERE STANDARDS FOR MOBILE HAPPEN





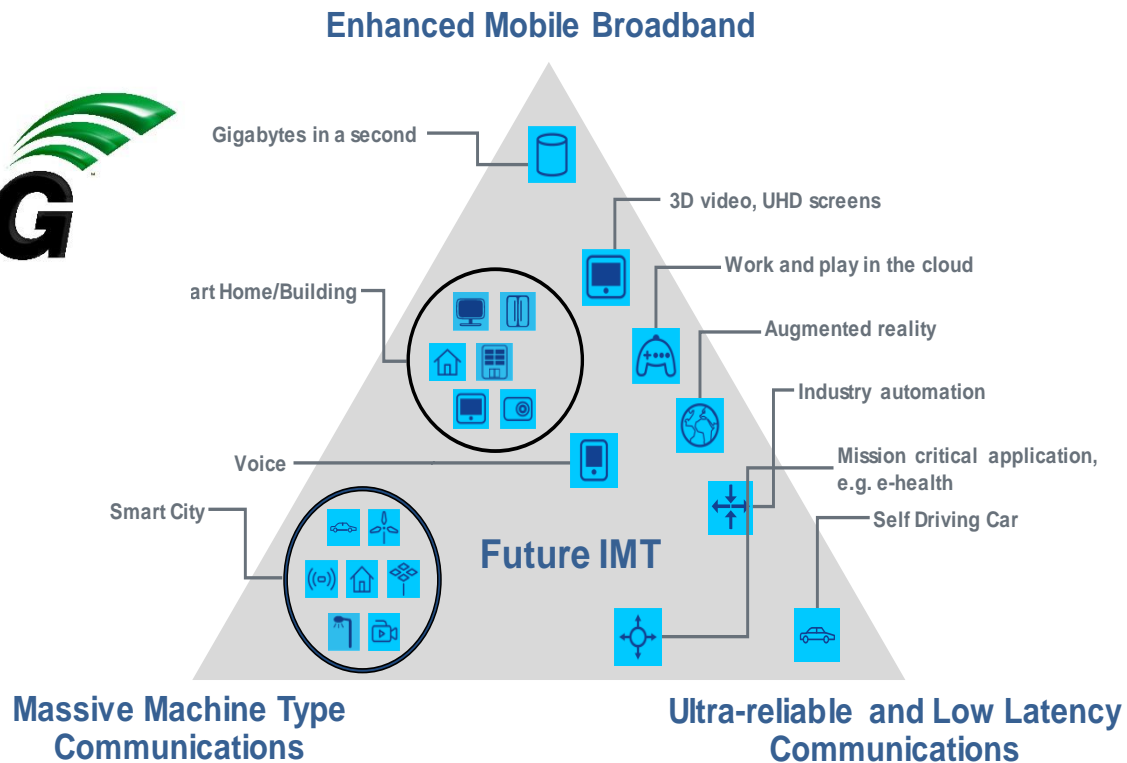
# LOOKING FORWARD TO 5G

Enhanced Mobile  
Broadband



Massive Machine Type  
Communications

Ultra Reliable and  
Low Latency  
Communications



# MUCH MORE THAT JUST PEOPLE...

## FACTORIES OF THE FUTURE

- 1 Time-critical process control
- 2 Non time-critical factory automation
- 3 Remote control
- 4 Intra/Inter-enterprise communication
- 5 Connected goods

## ENERGY

- 1 Grid access
- 2 Grid backhaul
- 3 Grid backbone

## e-HEALTH

- 1 Assets and interventions management in Hospital
- 2 Robotics
- 3 Remote monitoring
- 4 Smarter medication

## MEDIA & ENTERTAINMENT

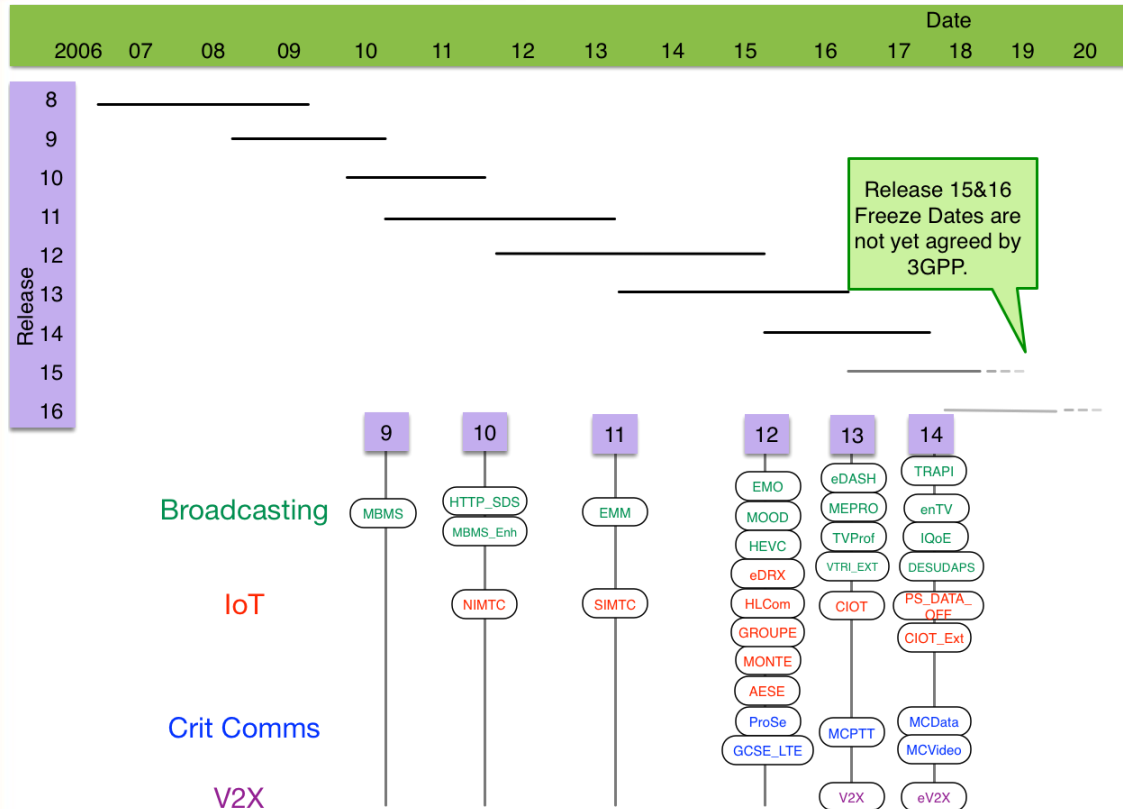
- 1 Ultra High Fidelity Media
- 2 On-site Live Event Experience
- 3 User/Machine Generated Content
- 4 Immersive and Integrated Media
- 5 Cooperative Media Production
- 6 Collaborative Gaming

## AUTOMOTIVE

- 1 Automated driving
- 2 Share My View

- 1 Bird's Eye View
- 2 Digitalization of Transport and Logistics
- 3 Information Society on the road

# FOLLOWING A TIGHT TIMELINE



Including requirements from different sectors

Already starting with the LTE family...



# TIME TO EVOLVE TELECOM SYSTEMS IN RAIL?



INTERNATIONAL UNION  
OF RAILWAYS

Future Railway Mobile  
Communication System

User Requirements  
Specification

Source: FRMCS Functional Working Group  
Date: 25<sup>th</sup> of March 2016  
Reference: FU-7100  
Version: 2.0  
No of pages: Cover + 36 pages

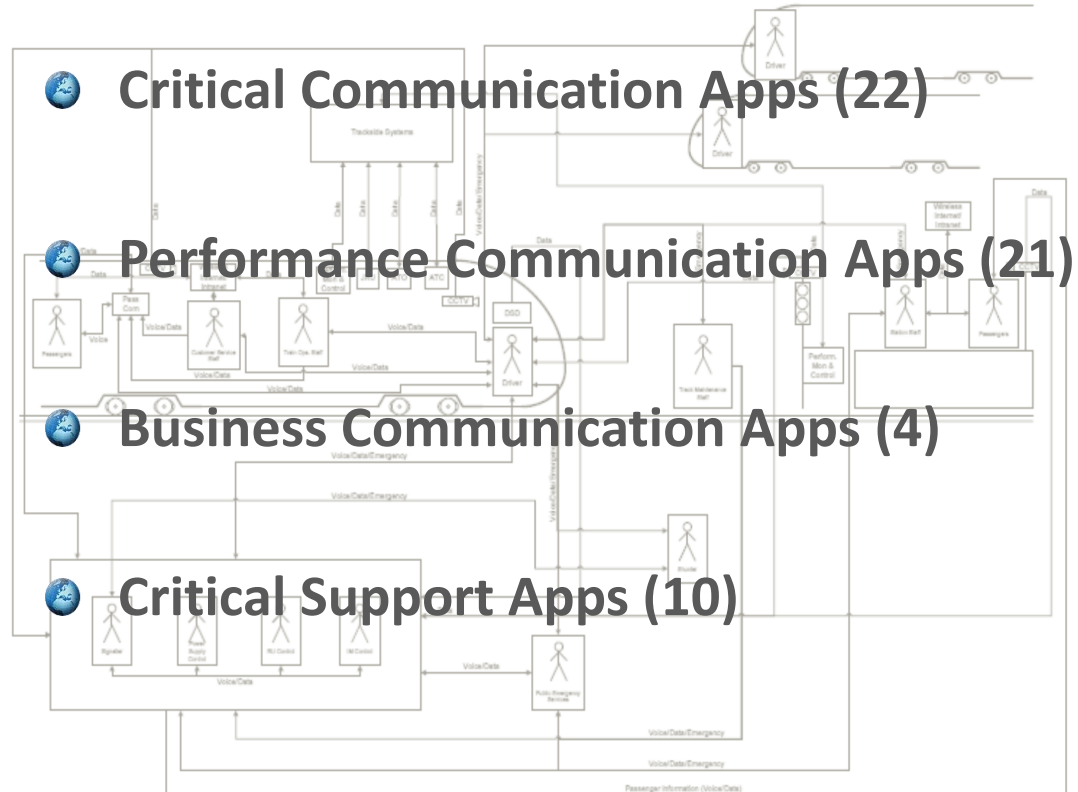
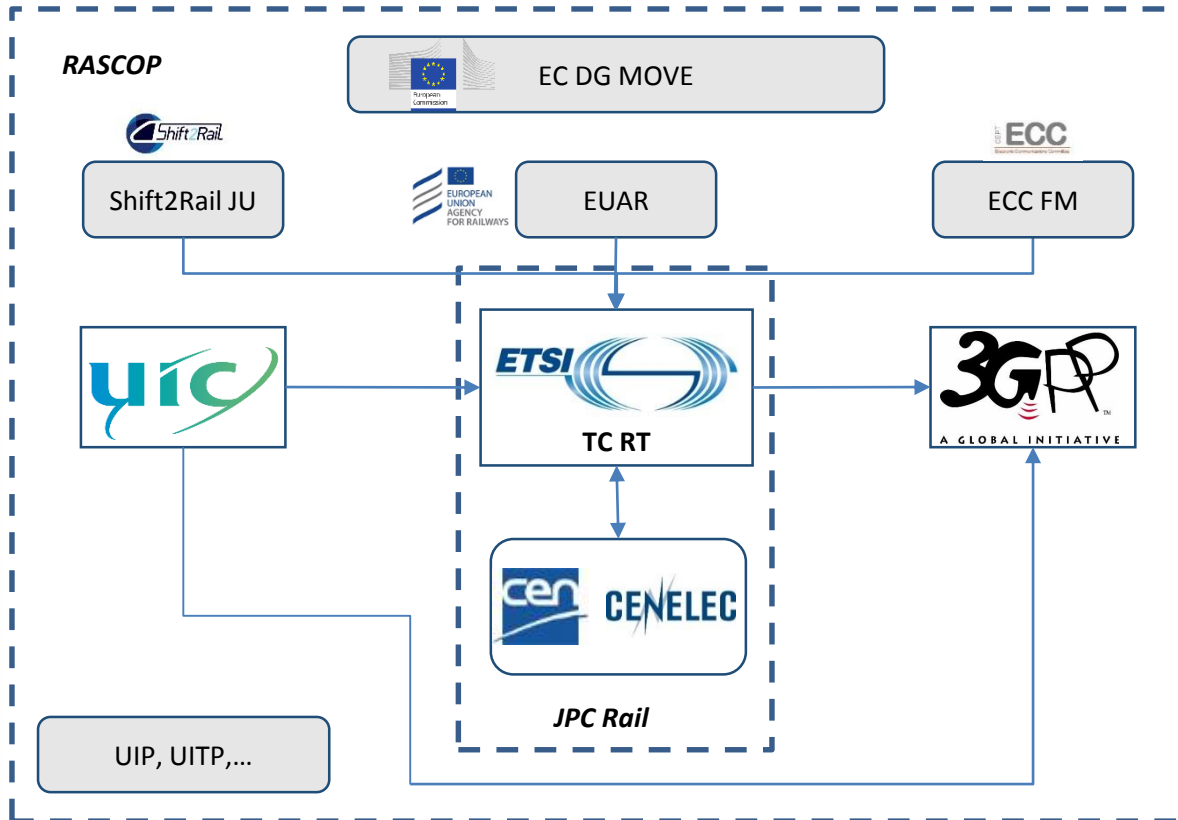


Figure 1: Application Layer Relationship Diagram

# WHERE ETSI PLAYS A PIVOTAL ROLE



🌐 We are not alone...

🌐 ... and we know it!

# WORK ALREADY TAKING PLACE IN 3GPP-SA1!

3GPP TR 22.889 v15.0.0 (2017-03)  
Technical Report

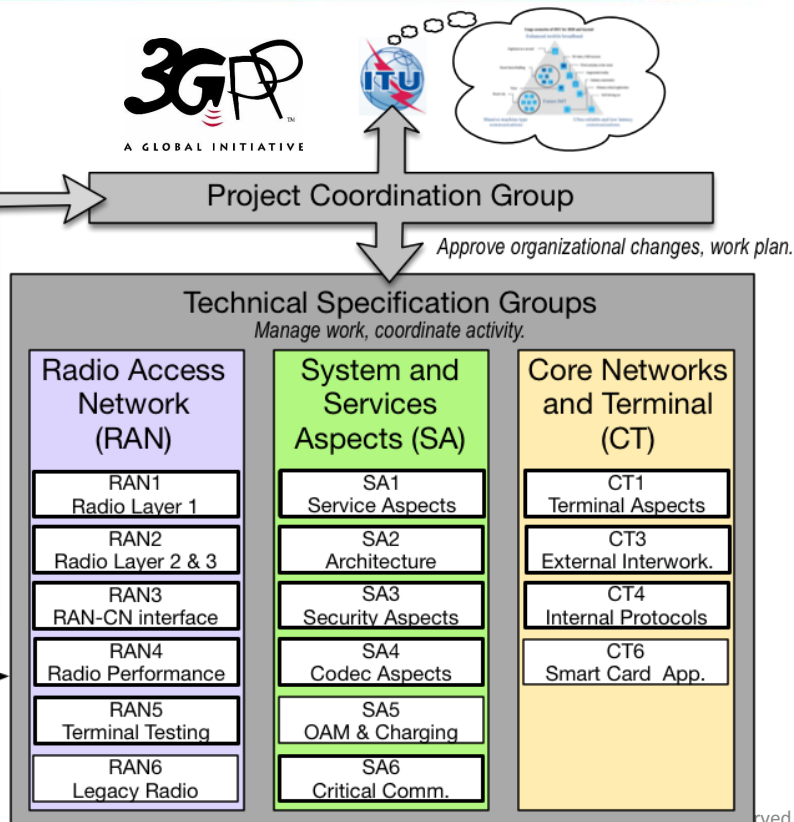
**3rd Generation Partnership Project;  
Technical Specification Group Services and System Aspects;  
Study on Future Railway Mobile Communication System;  
Stage 1  
(Release 15)**

The present document has been developed within the 3rd Generation Partnership Project (3GPP™) and may be further elaborated for the purposes of 3GPP. The present document has not been subject to any approval process by the 3GPP Organizational Partners and shall not be implemented. This Report is provided for future development work within 3GPP only. The Organizational Partners accept no liability for any use of this Specification. Specifications and Reports for implementation of the 3GPP™ system should be obtained via the 3GPP Organizational Partners' Publications Offices.




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# SUCCESS THROUGH CONTRIBUTION

-  Team work
-  Cooperation
-  Partnership



