

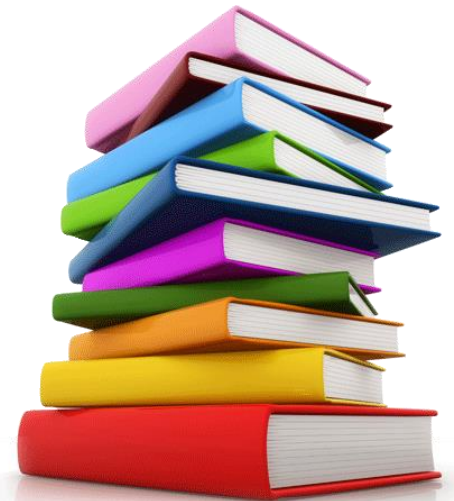
Evolution of legal framework in the EU railway domain

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- **Interoperability Directive**
 - Setting objectives, general principles and scope for the interoperable rail system
 - In force: (EU) 2008/57/EC
 - From 2019 (or earlier when MS decides): (EU) 2016/797
- **Control Command TSI, Annex to EU Regulation 2016/919**
 - Ch 3: essential requirements
 - Ch 4: Characteristics of Subsystems (vehicles, infra)
 - Ch 5: Interoperability Constituents (e.g. Cabradio, EDOR, SIM)
 - Ch 6: Conformity assessment
 - Ch 7: Implementation



- **Annexes to the CCS TSI : technical documents**
 - Only what is strictly necessary for interoperability is mandated
 - Index 32, 33: EIRENE FRS/SRS (relevant part)
 - Index 64, 65, 66, 68: Standards (EN, ETSI TS)
 - Index 34, 67, 69-76: MORANE docs (relevant part)
- **Main objective in “non-legal terminology”:**
 - The aim is to equip all trains with an interoperable radio system (GSM-R) and to be able to operate in all Member States.
 - The obligation to install the radio system (GSM-R) is only applicable for *new or updated* vehicles or lines; no mandatory retrofit.
- **New approach for legal texts:**
 - Include the WHAT and not the HOW
 - Impact to be analysed by ERA



Today	Future situation
Single radio access technology	Multiple radio access technologies
Dedicated networks	Dedicated/shared/public networks
Dedicated radio spectrum for railways	Dedicated/shared radio spectrum
Simple/static on-board devices and interfaces	More complex and flexible on-board architecture
Clear implementation objective	Challenging transition phase: continuous evolution

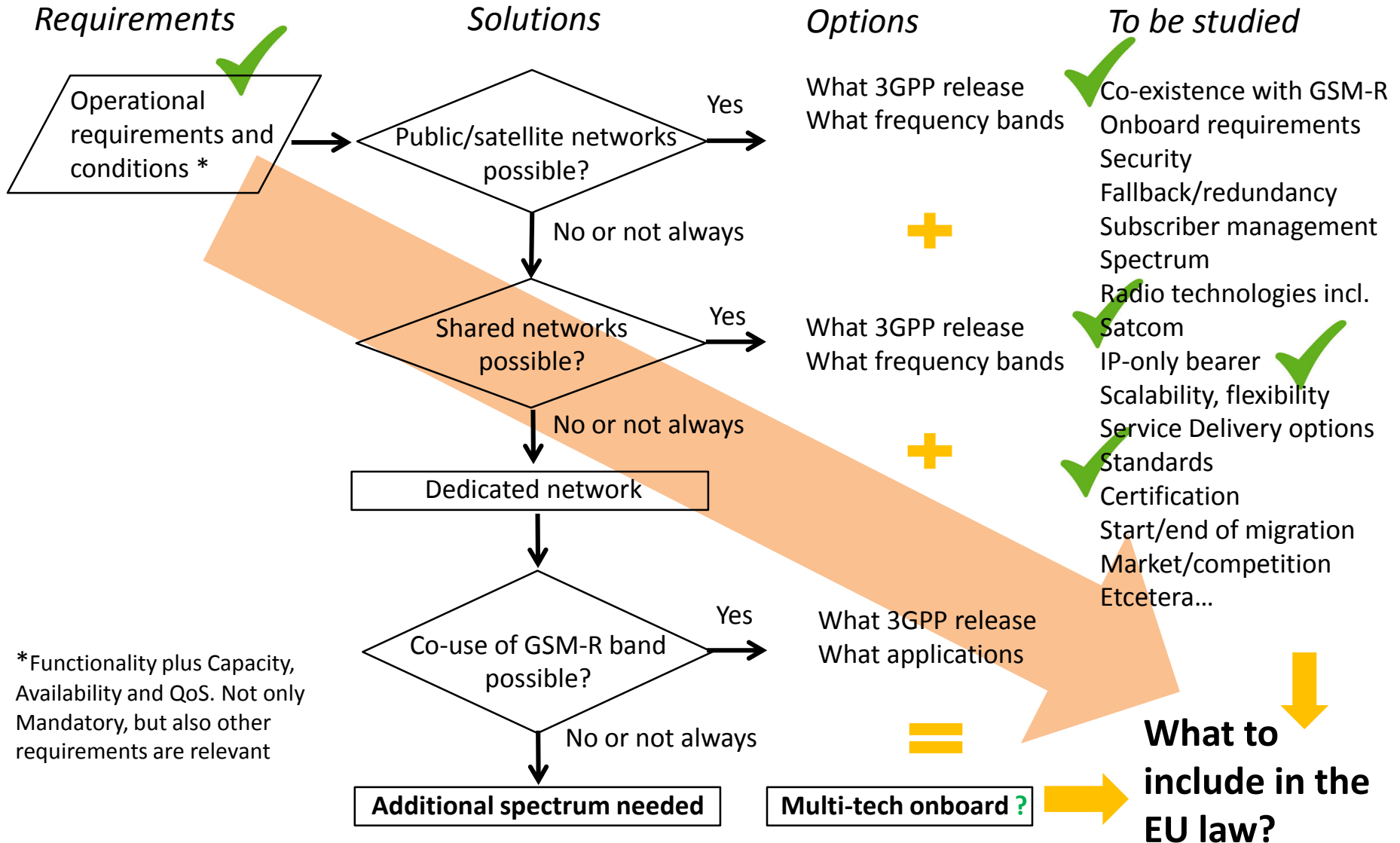
Main challenge: what has to be included in the legal framework in order to

- Keep **interoperability** during the transition: GSM-R and its functionalities and properties will be operational until at least 2030...
- Find an **balance** between natural updates and/or exchanges of Subsystems/IC's of the stakeholders, and the planned introduction of FRMCS (RU's vs IM's)
- Offer sufficient **flexibility** for future developments : minimize the impact of technical evolution in the overall system



- **Conclusions on functionality**
 - Keep the “GSM-R voice functionality”; but with additional flexibility?
 - Prevent impact on Operational Rules
 - Enhanced harmonisation (e.g. signaller/driver DMI)?
- **Conclusions on technology**
 - What radio technologies to be included in the “catalog”?
 - How to manage (be prepared for) future developments? How to modify the “catalog”?
 - What shall be (and what could be) supported by on-board?
 - Functionality and applications shall be independent of used technology and networks!
- **Conclusions on radio spectrum**
 - What frequency bands could be made available for railway use?
 - What frequency bands shall be supported by on-board?
- **Conclusions on migration strategy**
 - Are multi technology multi band on-board systems the only (mandatory) solution?
 - When shall start the obligation to install something else than GSM-R? When may the first FRMCS-only lines be allowed?

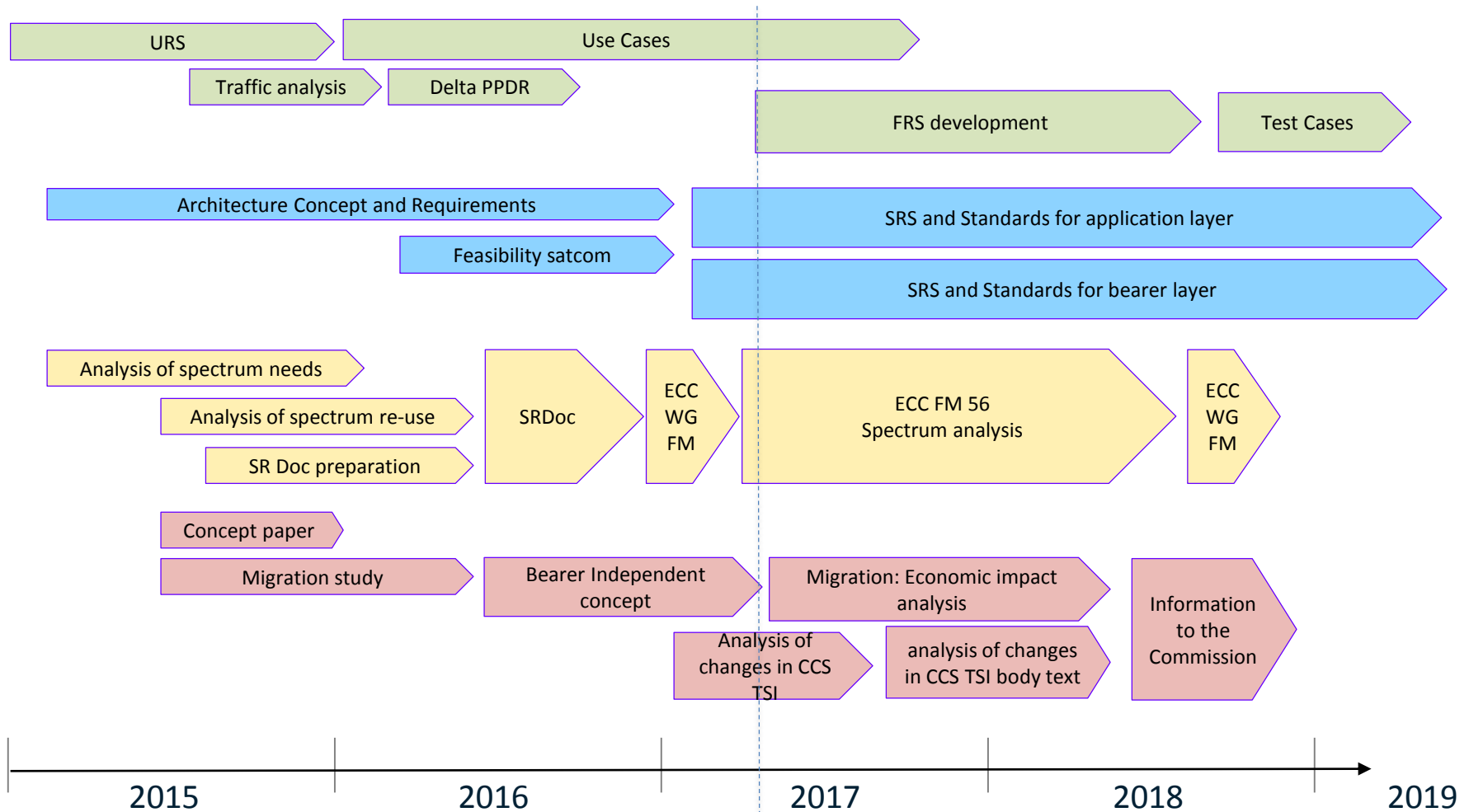
Many Questions to be answered



- **UIC FRMCS Project**
 - Drafting of Requirements and use cases. Input to be considered for the technical documents in the TSI
 - Covering Functionality, Technology, Spectrum
 - Note: scope is not limited to Europe , adaptation may be needed
- **ETSI TC RT**
 - Transfer of contributions to 3GPP and input from European industry
 - Contributions to ECC on spectrum items
 - Preparation of (European) Standards
- **3GPP**
 - Drafting Specifications for (mobile) communication (global) (4G, 5G) : features and radio frequency bands for each technology
 - Note: very strict release planning, usually every 2 years a new release. Schedule of the releases to be taken into account in the planning.
- **ERA: overall coordination**
 - Dedicated Working group: *Coordination Radio Working Party*
 - Coordination between Railway sector, standardisation bodies, supply industry
 - Perform/contract specific Studies and Economic Impact Analysis
 - Link to Commission, in particular DG MOVE, DG Connect
 - Links with other ERA Working Groups incl. OH, NSA Focus, etc

Overview of coordinated activities

Phase 1: Preparation



- **ERA: Draft conclusions**

- On functionality, technology, spectrum, migration
- High level, no details
- Identification of specific topics
- Draft ready end of June 2017



- **Consultation on the draft conclusions**

- Consultation of the Sector Organisations between July and Sept 2017



- **First Report to the Commission**

- Draft conclusions including consultation result
- Identification of specific topics
- Foreseen end of 2017



- **Similar steps to be taken in 2018**
 - Draft conclusions, with more details on system definition
 - Second consultation
 - including conditions for success
- **2018: CCS TSI update is planned**
 - Some preparation for FRMCS could be included
 - **No full definition of the new system included**
- **CCS TSI update in 2021-2022**
 - Full solution to be included
 - **Legal framework ready for FRMCS deployment**





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