

# The ERA EVORA Program

## Evolution of railway radio communication

CCRCC 2017 Valenciennes

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# ERTMS game changer: Radio communication

- Introduction of the successor of GSM-R during the rollout of ERTMS/ETCS
  - Due to obsolescence of 2G Technology, GSM-R support will be at risk after 2030
  - ERA prepares the necessary updates of the CCS TSI to allow deployment of new technologies from 2022 and timely migration of applications
- Limit the impact of the transition from GSM-R to other solutions
  - Limited or no changes of operational rules
  - Further development of bearer independent ETCS is needed
  - Additional radio spectrum has to be provided to allow smooth migration, also considering possibilities to reuse current assets
  - Create and manage a transparent migration planning, which includes also the decommissioning of GSM-R
- Create long term sustainability and flexibility
  - Separation of voice and data (ETCS) applications from radio communication bearer is essential; this will ease the implementation of new applications
  - Facilitate the use of dedicated and non-dedicated (shared/public) networks
  - Follow the public market technologies (3GPP 4G/5G, cybersecurity), no niches

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
Limited amount of applications	Increasing amount of applications, IoT: ACT

- 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 a **balance** between the usual updates and/or exchanges of Subsystems/IC's of the stakeholders, and the introduction of new radio system
  - Offer sufficient **flexibility** for future developments and new applications, minimize the impact of technical evolution in the ecosystem, prevent fragmentation



## **ERA has defined the EVORA Program**

- System definition
  - Functionality, technology, migration principles
  - Specific attention for radio spectrum
- Preparation of CCS TSI changes and Annex A documents
  - Impact analysis
  - Rules for migration (including decommissioning of GSM-R)
  - Requirements (incl. FRS, SRS), Standards
  - Interface with ETCS and other
- Support for Digitalisation of Railways
  - Identification of communication requirements in future applications
  - Synergy with other TSI's

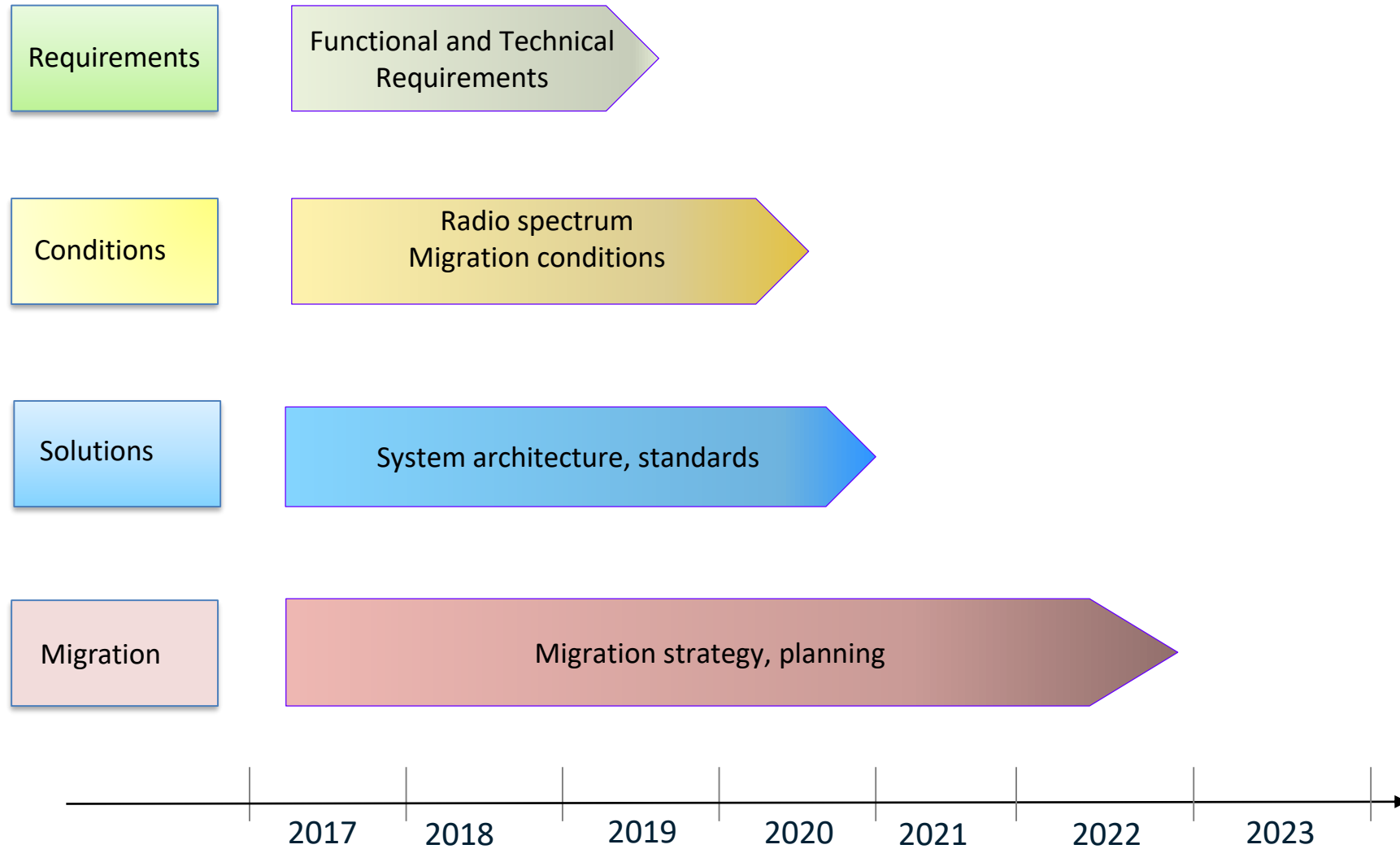
## **ERA provides coordination between key stakeholders**

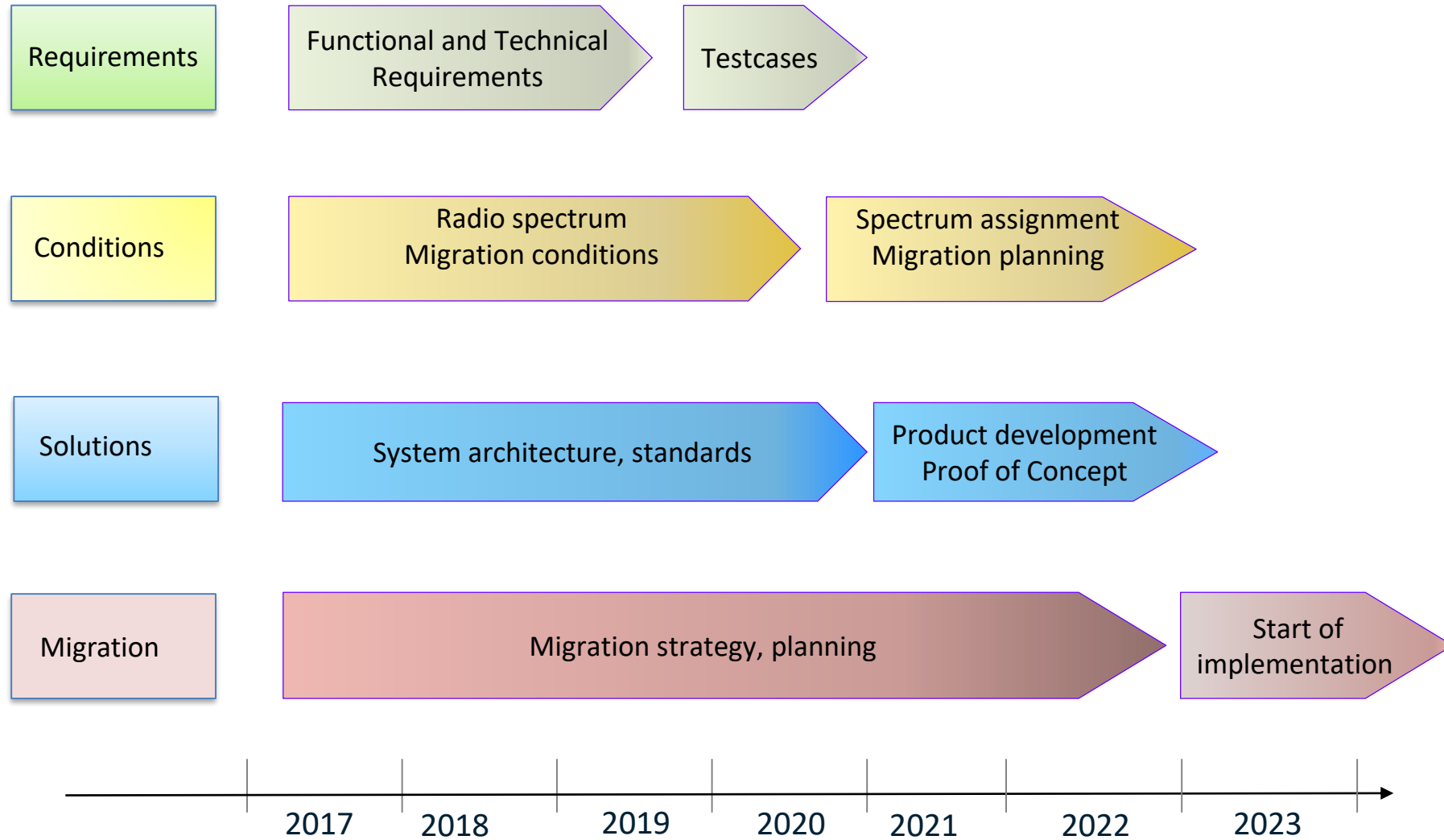
- Railway stakeholders, ETSI, UIC, Telecom Supply Industry, UNISIG, Shift<sup>2</sup>Rail

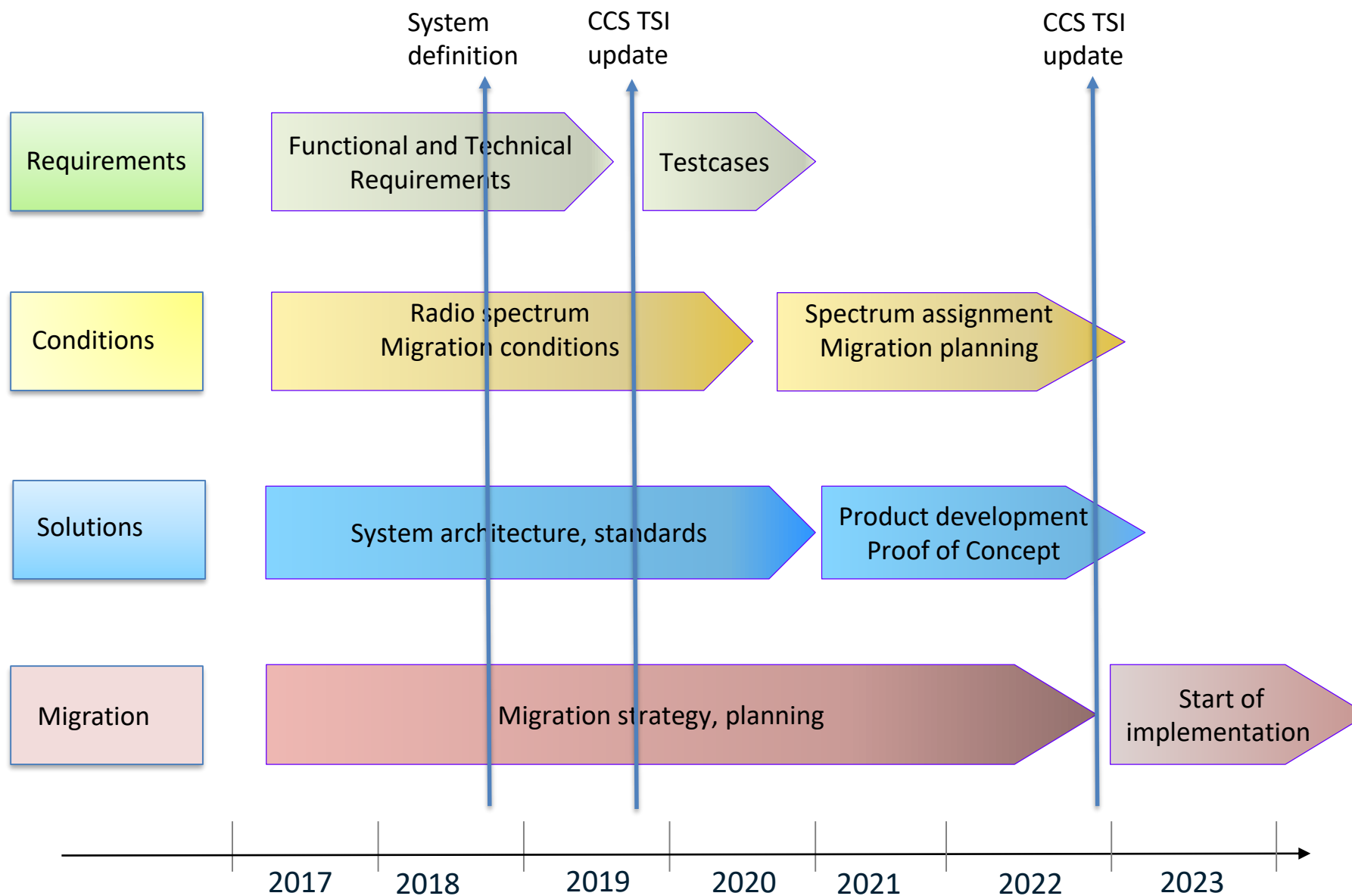
## High level time plan

- 2018: Report to EU Commission on System Definition
  - Covering achievements, conclusions and risks related to Functionality, Technology, Spectrum and Migration
  - Recommendation for the next phase
- 2019: CCS TSI update
  - Include Rules for the introduction of commercial operation of FRMCS
  - Include Rules for the decommissioning of GSM-R
- 2022: Inclusion of FRMCS in CCS TSI
  - *What:* Functionality to be offered/supported by onboard and track subsystems (as far as relevant interoperability), independent of the use of GSM-R or FRMCS
  - *How:* Technical requirements for on-board and trackside subsystems













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