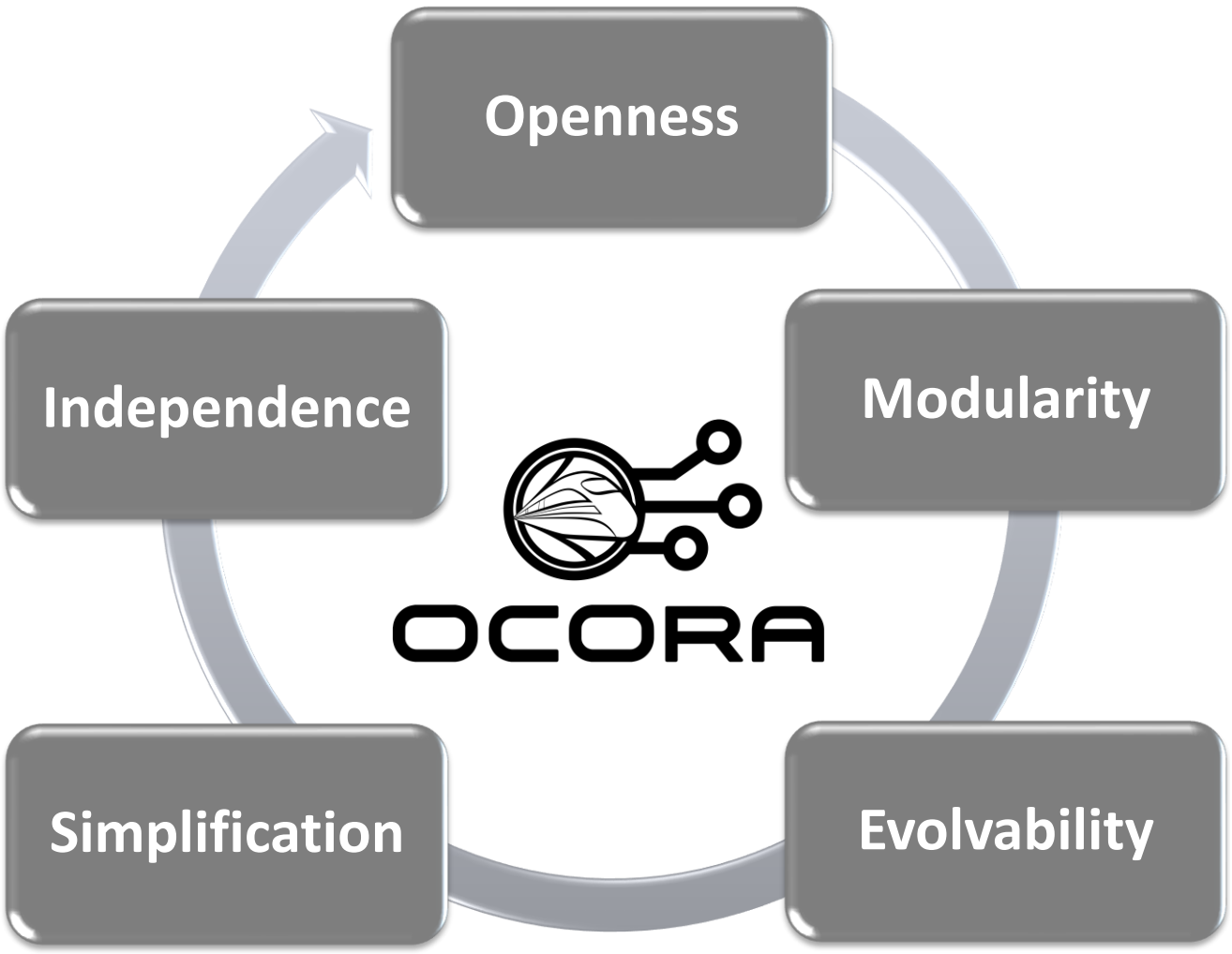
OCORA Gamma Release: Program Poster

DESIGN PRINCIPLES



OCORA is an open collaboration targeting an open and powerful **CCS On-board reference architecture**.

PROBLEM STATEMENTS

Current ETCS On-board solutions:

1. are based on the TSI specifications ensuring interoperability, but the **subset specifications are incomplete and ambiguous**. Therefore, interoperability is not a given.
2. are more **expensive than technologically justifiable**. This seems to be a result of high integration engineering and certification efforts, as well as small batch sizes and high project risks.
3. are **difficult to be integrated into existing vehicles**.
4. are **difficult and time consuming to adapt/change/update/upgrade**:
    - In the case of patching in non SIL area (e.g. cyber- security patching)
    - In the case of error correction in SIL area
    - In the case of baseline upgrade (e.g. ETCS baseline 2 to 3)
    - In the case of functional enrichment (ex. base for game changer introduction is not a given)
5. do **not respect different, non-overlapping life cycles** (e.g. vehicle vs. CCS vs. connectivity)
6. are **difficult to maintain** (e.g. maintenance, monitoring, diagnose possibilities very limited)
7. are **lacking built-in cyber security**, since this is a newer topic, especially in combination with 4 + 6.
8. are **performing below expected availability and reliability** (from overall ETCS system perspective).

In addition:

- The benefit of ETCS On-board only pays off, if the ERTMS rollout progresses in Europe on large scale.
- The ETCS On-board functions as such also need some improvements (e.g. braking curve, odometry accuracy, etc.) to serve current operational needs.
- Difficult, expensive and time consuming ETCS On-board fitments in general, are delaying national deployment plans, impacting trackside investments, and postponing ERTMS rollouts.

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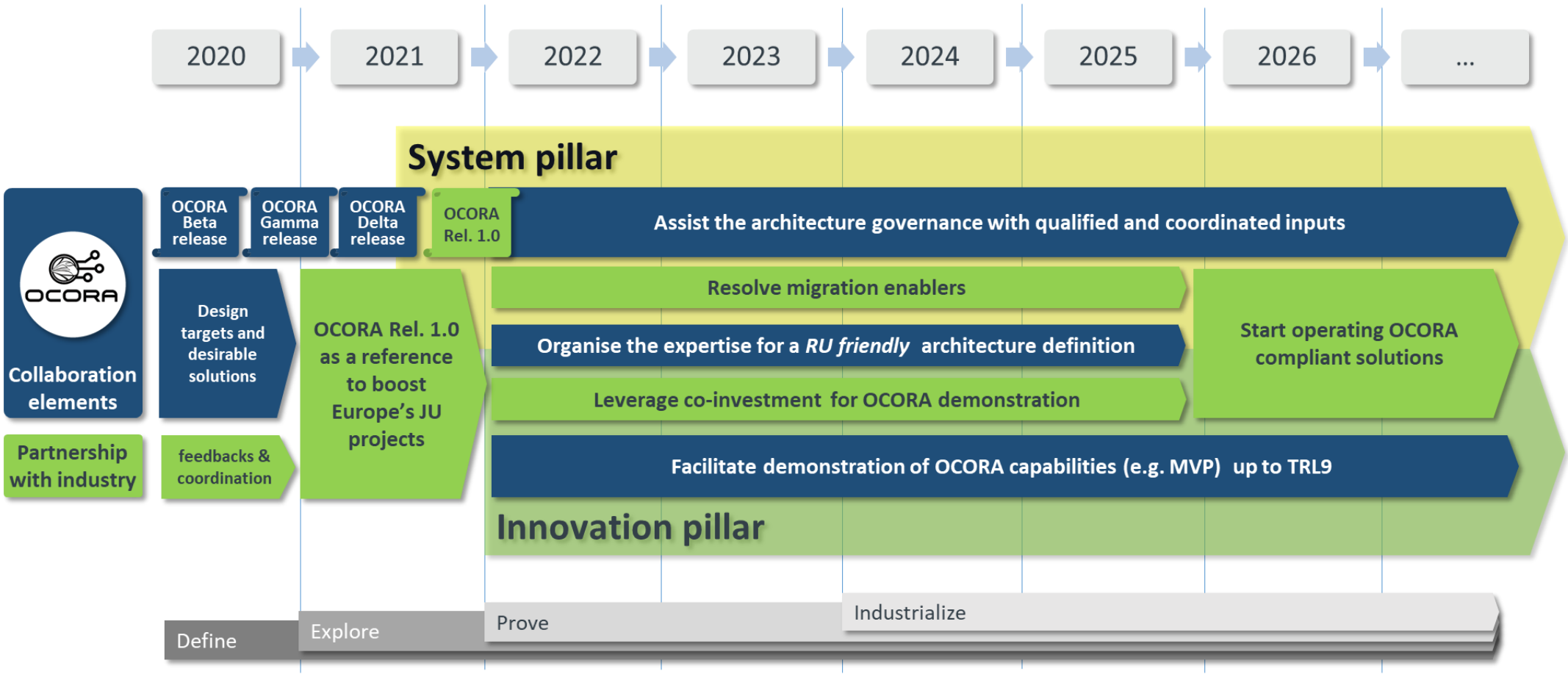
ROADMAP

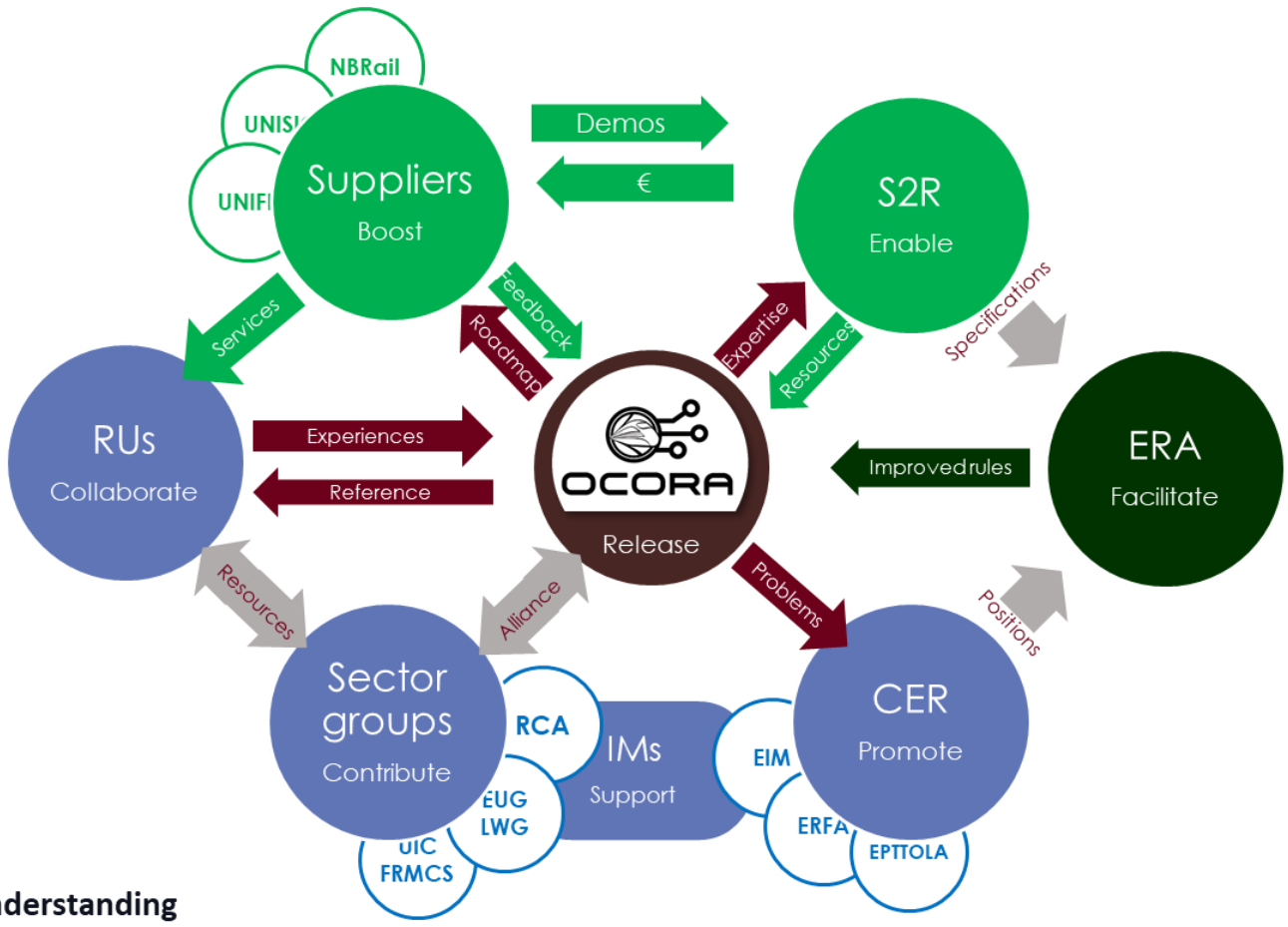


SECTOR DIALOGUE

OCORA collaboration is open to support:

- ➔ S2R: financing and an agile frame for industry partnering
- ➔ Suppliers : joined activities (e.g. models, PoC, prototype, MVP…)
- ➔ ERA : optimised acceptance based on just rules

Other fleet owners and any expert or EU citizen are welcome to join as supporter or contributors.



OCORA liaisons and alliances allow to find common understanding and complementarity at expert, corporate and institutional level.

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BETA RELEASE CONTENT

Release Information

- OCORA-10-001-Gamma Release Notes
- OCORA-10-003-Gamma Feedback Form

Communication Material

- OCORA-20-001-Gamma Executive Summary Slide Deck
- OCORA-20-002-Gamma Program Slide Deck
- OCORA-20-003-Gamma Technical Slide Deck
- OCORA-20-004-Gamma Program Posters
- OCORA-20-005-Gamma Technical Posters

Program Documentation

- OCORA-30-001-Gamma Introduction to OCORA
- OCORA-30-002-Gamma Problem Statements
- OCORA-30-003-Gamma Road Map
- OCORA-30-004-Gamma Economic Model
- OCORA-30-005-Gamma Alliances
- OCORA-30-006-Gamma High Level Methodology
- OCORA-30-007-Gamma High Level Tooling
- OCORA-30-008-Gamma Minimal Viable Product
- OCORA-30-009-Gamma Requirements

Technical Documentation

- OCORA-40-001-Gamma System Architecture
- OCORA-40-002-Gamma System Architecture – Capella Model
- OCORA-40-003-Gamma UVCC Bus Evaluation
- OCORA-40-004-Gamma Computing Platform - Whitepaper
- OCORA-40-005-Gamma Functional Vehicle Adapter - Introduction & Overview
- OCORA-40-006-Gamma CCS-TCMS Interface - ETCS Functionality (SS119)
- OCORA-40-007-Gamma CCS-TCMS Interface - ATO Functionality (SS139)
- OCORA-40-008-Gamma Gap Analysis ETCS-TCMS interface vs. UNISIG SS119
- OCORA-40-009-Gamma (Cyber-) Security - Overview
- OCORA-40-010-Gamma (Cyber-) Security - Strategy
- OCORA-40-012-Gamma Modular Safety
- OCORA-40-013-Gamma Generic Safe Computing Platform Requirements
- OCORA-40-014-Gamma ATO Demonstrator

Supporting Documents

- OCORA-90-001-Gamma Question and Answers
- OCORA-90-002-Gamma Glossary