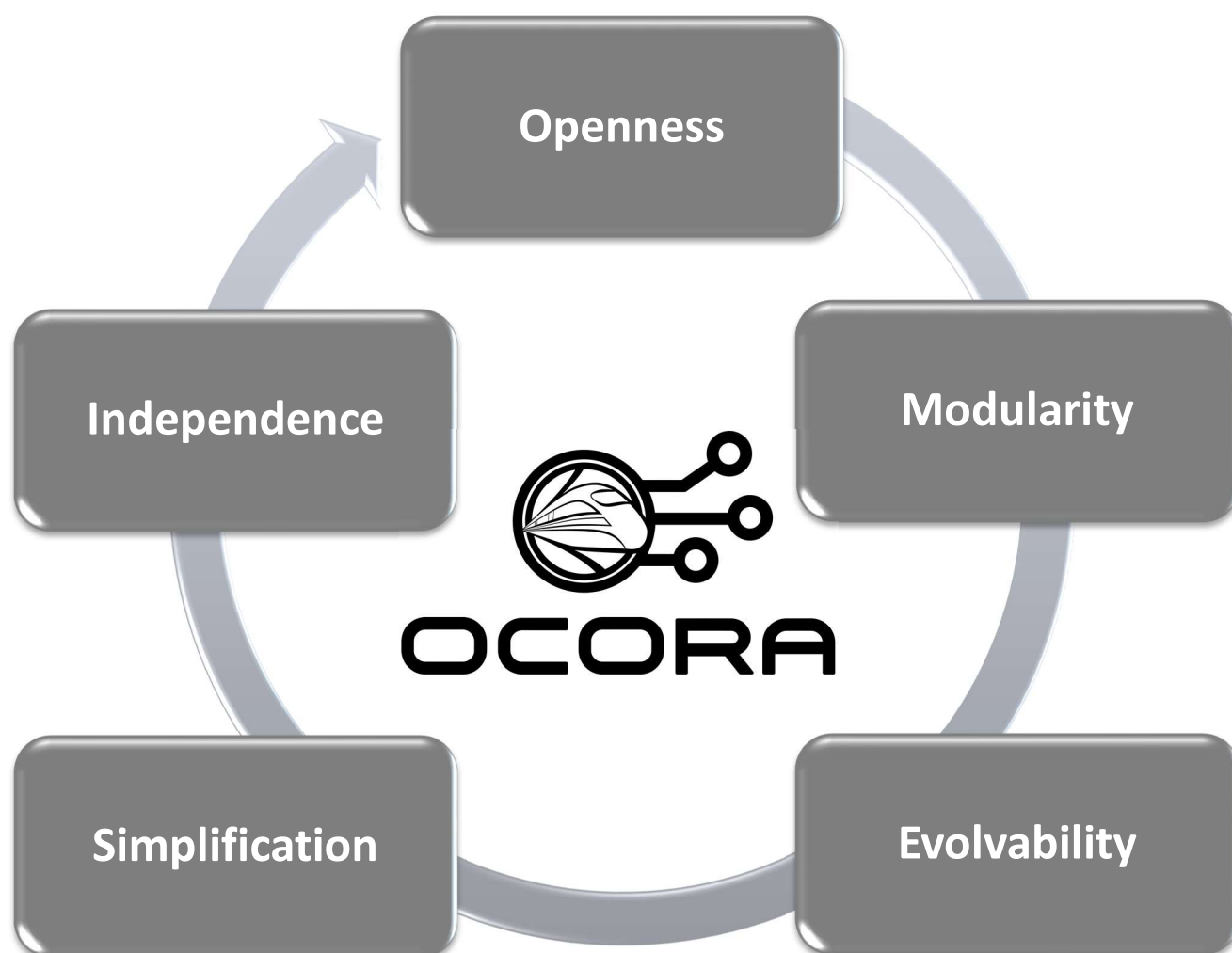# OCORA Beta Release: Program Poster
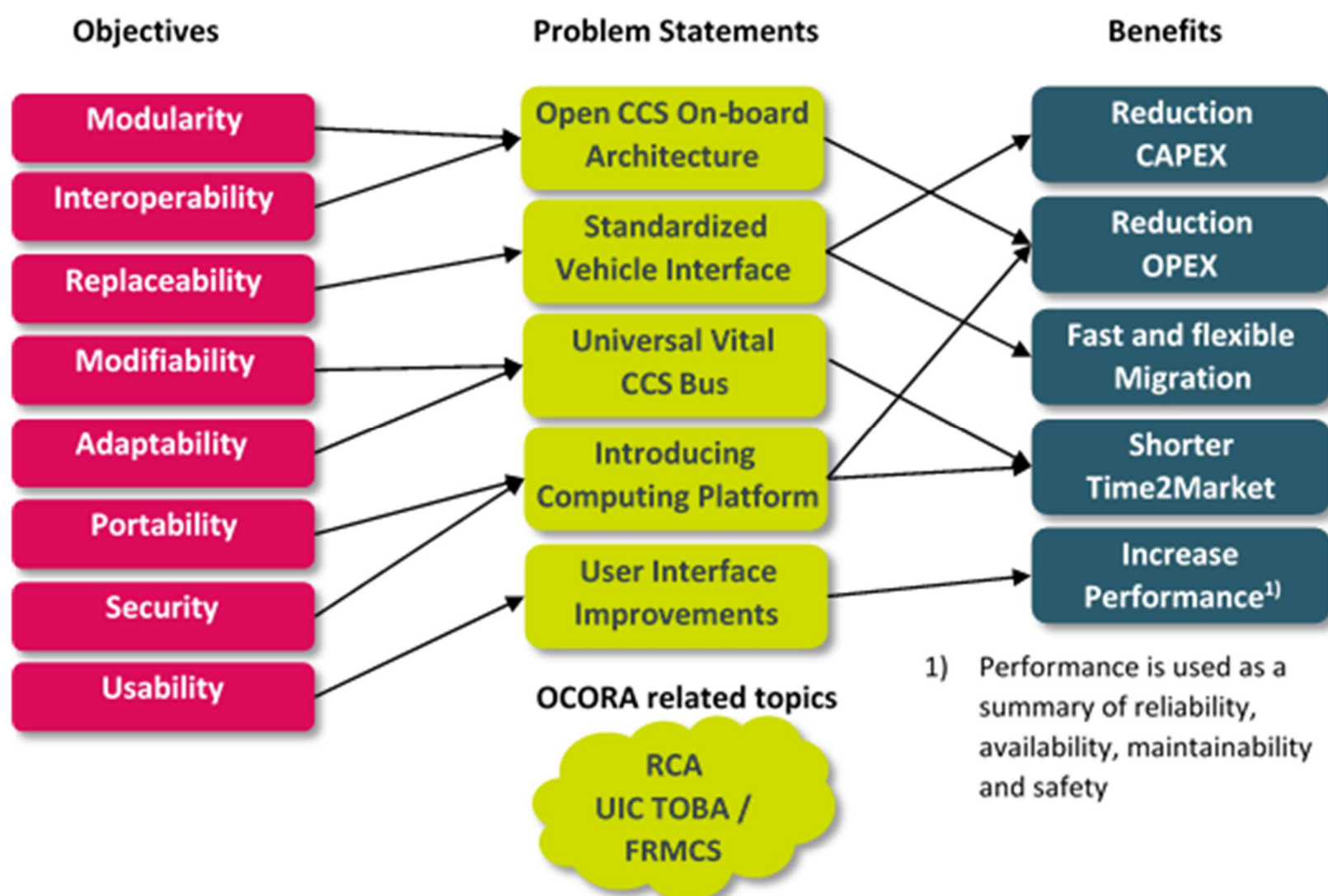
DESIGN PRINCIPLES

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

The **OCORA Beta Release** propose a first definition of the system. The **Roadmap** will help to make from the Beta release proven solutions. There are still improvements needed in regulatory and standardisation domains.

With the **Minimum Viable Product** definition, OCORA should be able to demonstrate the relevance for a new architecture paradigm.

OBJECTIVES – BENEFITS

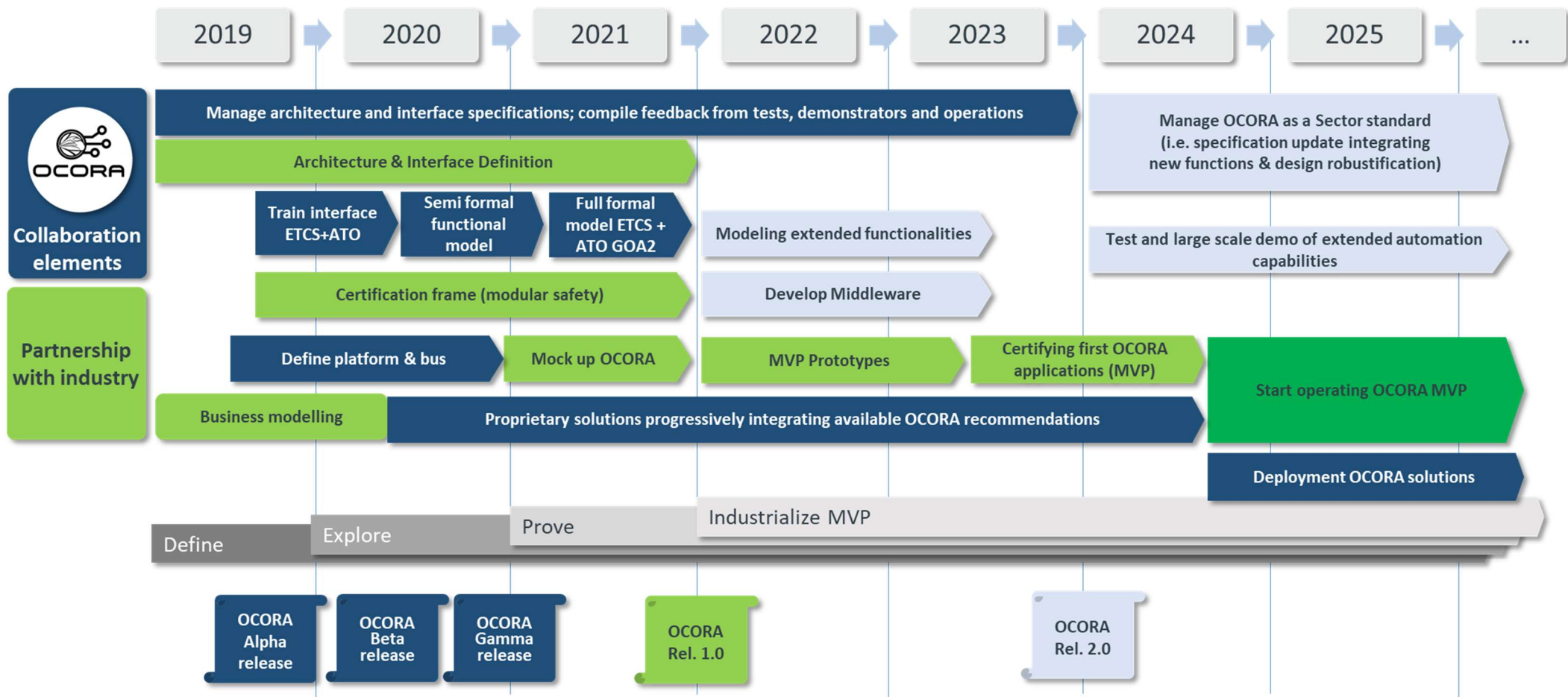1) Performance is used as a summary of reliability, availability, maintainability and safety

OCORA targets a systematic identification of design, regulatory and economic enablers for a soft and value adding CCS On-board migration.
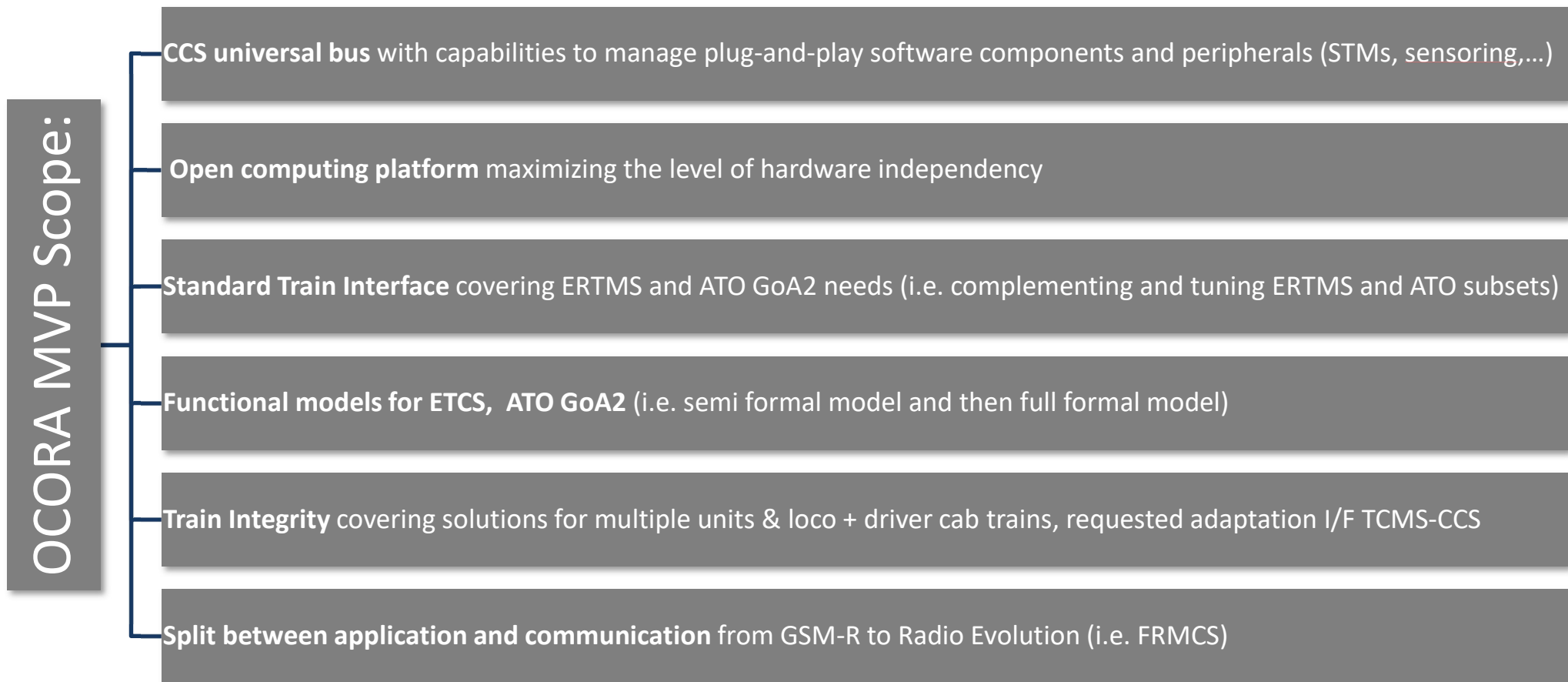
OCORA Beta Release: Program Poster

ROADMAP

> OCORA foresees steps for developing a minimum viable product and extended functionalities, industry partnership will drive speed and relevance.

MINIMAL VIABLE PRODUCT SCOPE (MVP)

OCORA MVP Scope:

- **CCS universal bus** with capabilities to manage plug-and-play software components and peripherals (STMs, sensoring,…)

- **Open computing platform** maximizing the level of hardware independency

- **Standard Train Interface** covering ERTMS and ATO GoA2 needs (i.e. complementing and tuning ERTMS and ATO subsets)

- **Functional models for ETCS, ATO GoA2** (i.e. semi formal model and then full formal model)

- **Train Integrity** covering solutions for multiple units & loco + driver cab trains, requested adaptation I/F TCMS-CCS

- **Split between application and communication** from GSM-R to Radio Evolution (i.e. FRMCS)
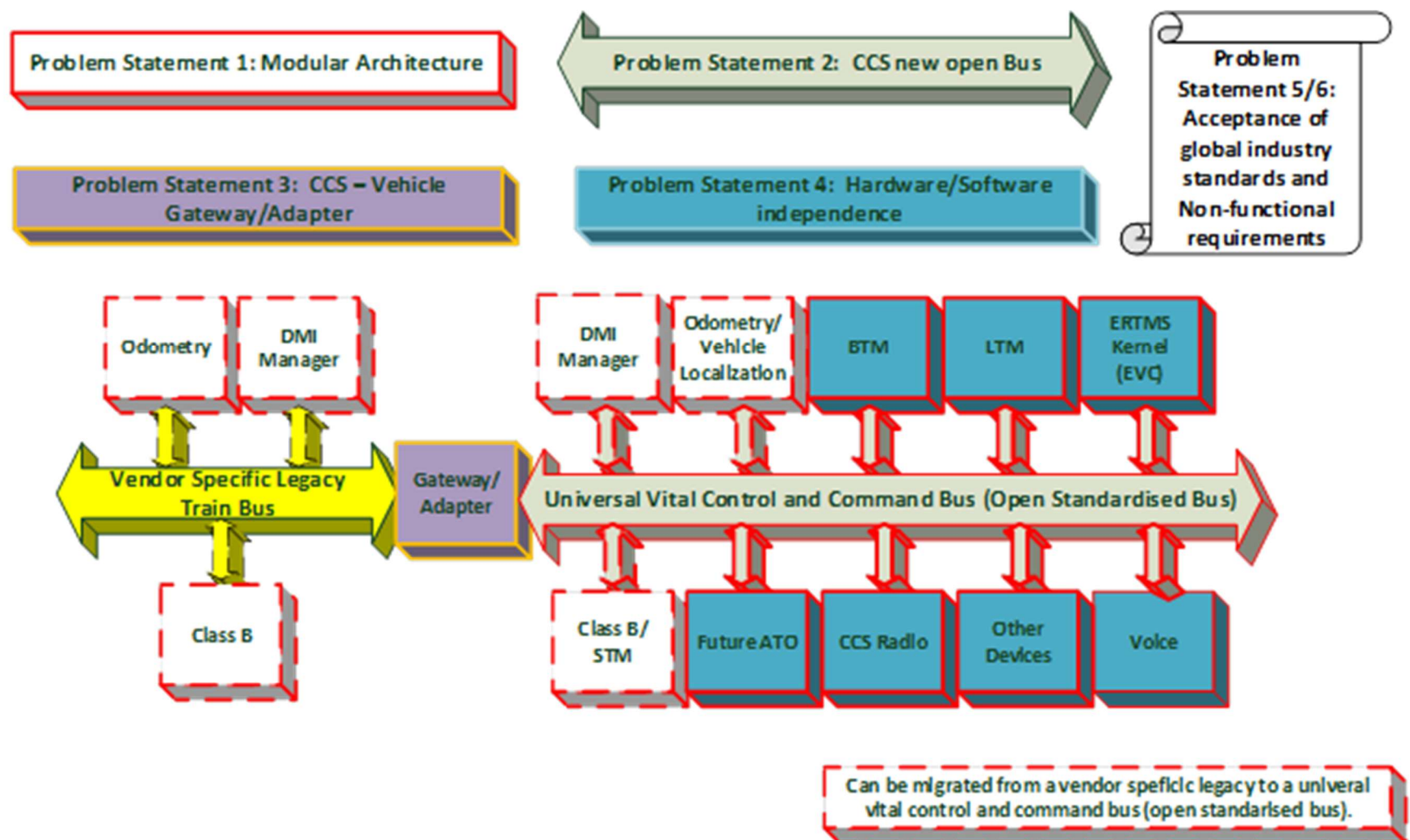
> The MVP shall allow to demonstrate the feasibility of OCORA concepts and gain early experience on OCORA based products.

PROBLEM STATEMENT OVERVIEW
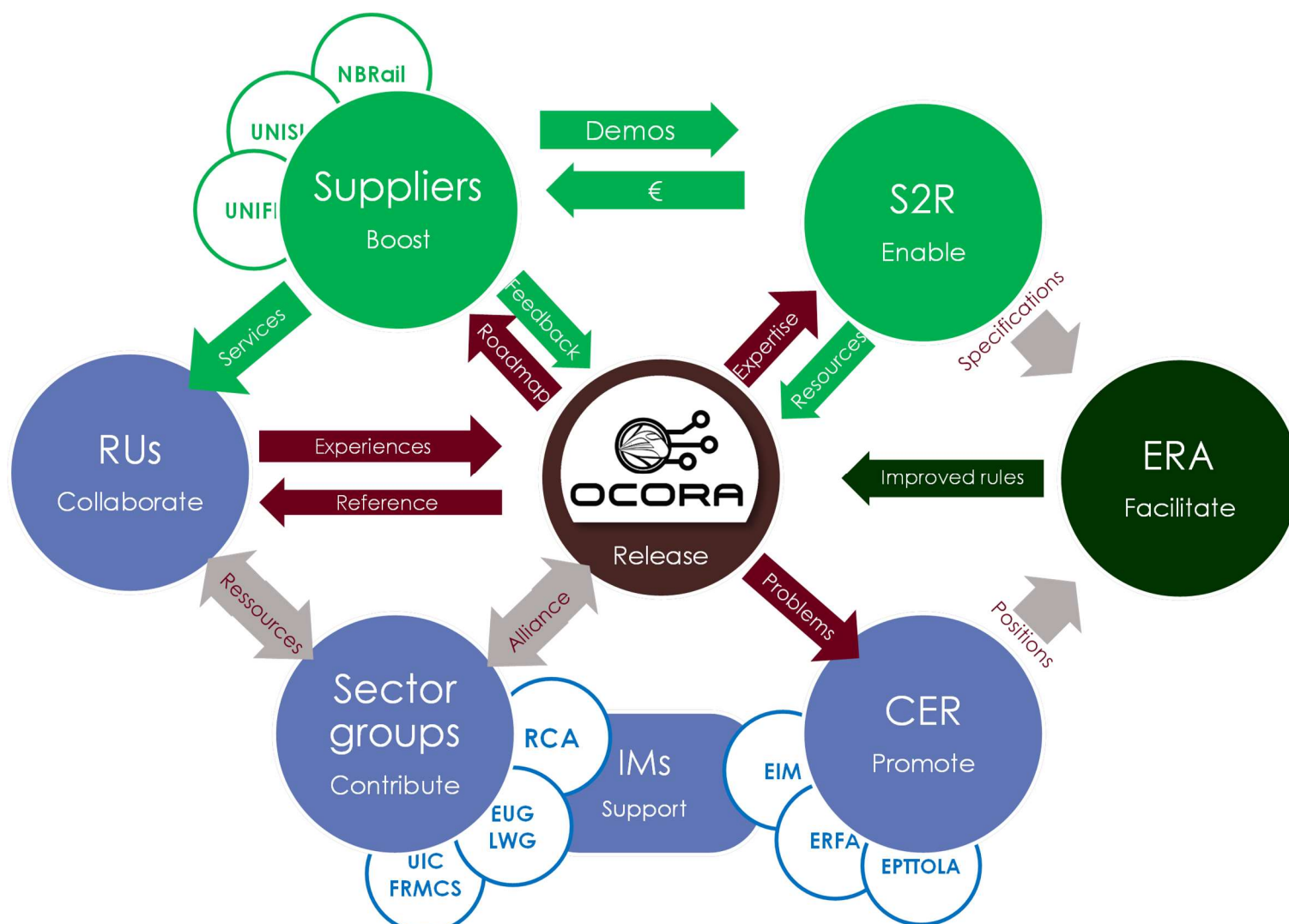

Problem Statement 1: Modular Architecture

Problem Statement 2: CCS new open Bus

Problem Statement 5/6: Acceptance of global industry standards and Non-functional requirements

Problem Statement 3: CCS – Vehicle Gateway/Adapter

Problem Statement 4: Hardware/Software independence

Odometry | DMI Manager

Vendor Specific Legacy Train Bus

Gateway/Adapter

Class B

DMI Manager | Odometry/Vehicle Localization | BTM | LTM | ERTMS Kernel (EVC)

Universal Vital Control and Command Bus (Open Standardised Bus)

Class B/STM | Future ATO | CCS Radio | Other Devices | Voice

Can be migrated from a vendor speficic legacy to a univeral vital control and command bus (open standarised bus).

> To move to a modular system adapting to new technologies, design choice and adapted acceptance process will be necessary.

SECTOR DIALOGUE

NBRail
UNISIG
UNIFE

Suppliers — Boost

Demos
€

S2R — Enable

Feedback
Roadmap

Services

Expertise
Resources

Specifications

RUs — Collaborate

Experiences
Reference

OCORA — Release

Improved rules

ERA — Facilitate

Resources

Alliance

Problems

Positions

Sector groups — Contribute

RCA
IMs — Support
EUG LWG
UIC FRMCS

CER — Promote

EIM
ERFA
EPTTOLA

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

OCORA Beta Release: Program Poster

BETA RELEASE CONTENT

Release Information

- OCORA-10-001-Beta   Release Notes
- OCORA-10-002-Beta   Review Plan
- OCORA-10-003-Beta   Feedback Form

Communication Material

- OCORA-20-001-Beta   Program Slide Deck
- OCORA-20-002-Beta   Technical Slide Deck
- OCORA-20-003-Beta   Program Posters
- OCORA-20-004-Beta   Technical Posters

Program Documentation

- OCORA-30-001-Beta   Introduction to OCORA
- OCORA-30-002-Beta   Problem Statements
- OCORA-30-003-Beta   Road Map
- OCORA-30-004-Beta   Business Objective and Economic Model
- OCORA-30-005-Beta   Alliances
- OCORA-30-006-Beta   High Level Methodology
- OCORA-30-007-Beta   High Level Tooling
- OCORA-30-008-Beta   Acceptance of Global Standards
- OCORA-30-009-Beta   Minimal Viable Product-MVP
- OCORA-30-010-Beta   Set of Requirements

Technical Documentation

- OCORA-40-001-Beta   System Architecture
- OCORA-40-002-Beta   System Architecture – Capella Model
- OCORA-40-003-Beta   UVCC Bus Evaluation
- OCORA-40-004-Beta   Computing Platform
- OCORA-40-005-Beta   Functional Vehicle Adapter
- OCORA-40-006-Beta   CCS-TCMS Interface - ETCS Functionality SS119
- OCORA-40-007-Beta   CCS-TCMS Interface - ATO Functionality SS139
- OCORA-40-008-Beta   (Cyber) Security

Supporting Documents

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

> OCORA Beta Release is a first comprehensive system description that will be enhanced. Your feedback will add value to the next OCORA releases.