



# Global Automotive E/E Standard

**Rick Flores**, General Motors, AUTOSAR Steering Committee  
Open Architecture Summit  
Washington, D.C. November 4, 2014

BMW Group



**BOSCH**

**Continental** The Continental logo, featuring the word "Continental" in a yellow, sans-serif font, with a yellow outline of a horse's head to the right.

**DAIMLER**



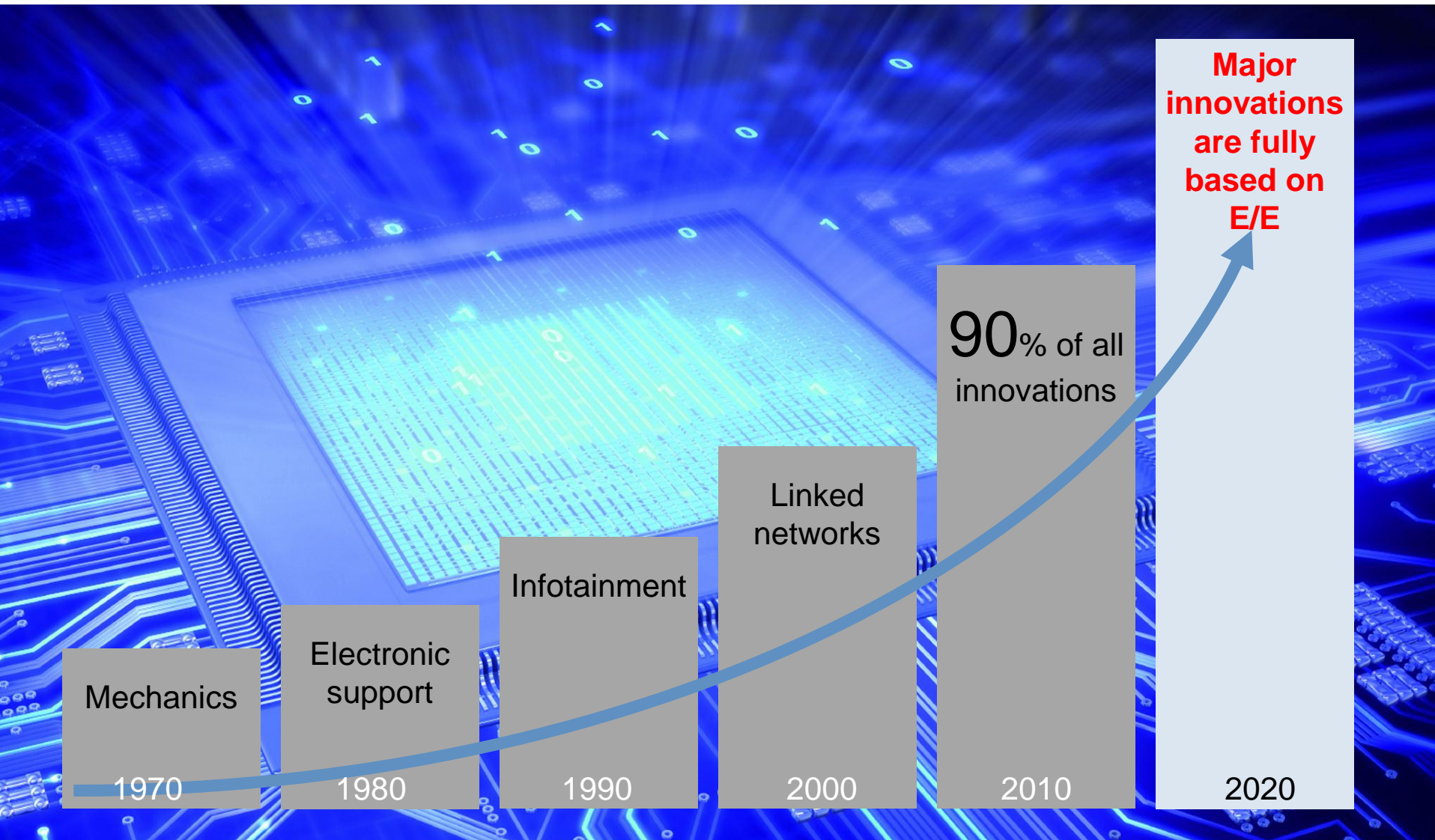
PSA PEUGEOT CITROËN The PSA Peugeot Citroën logo, a stylized "P" in blue and red.

**TOYOTA**

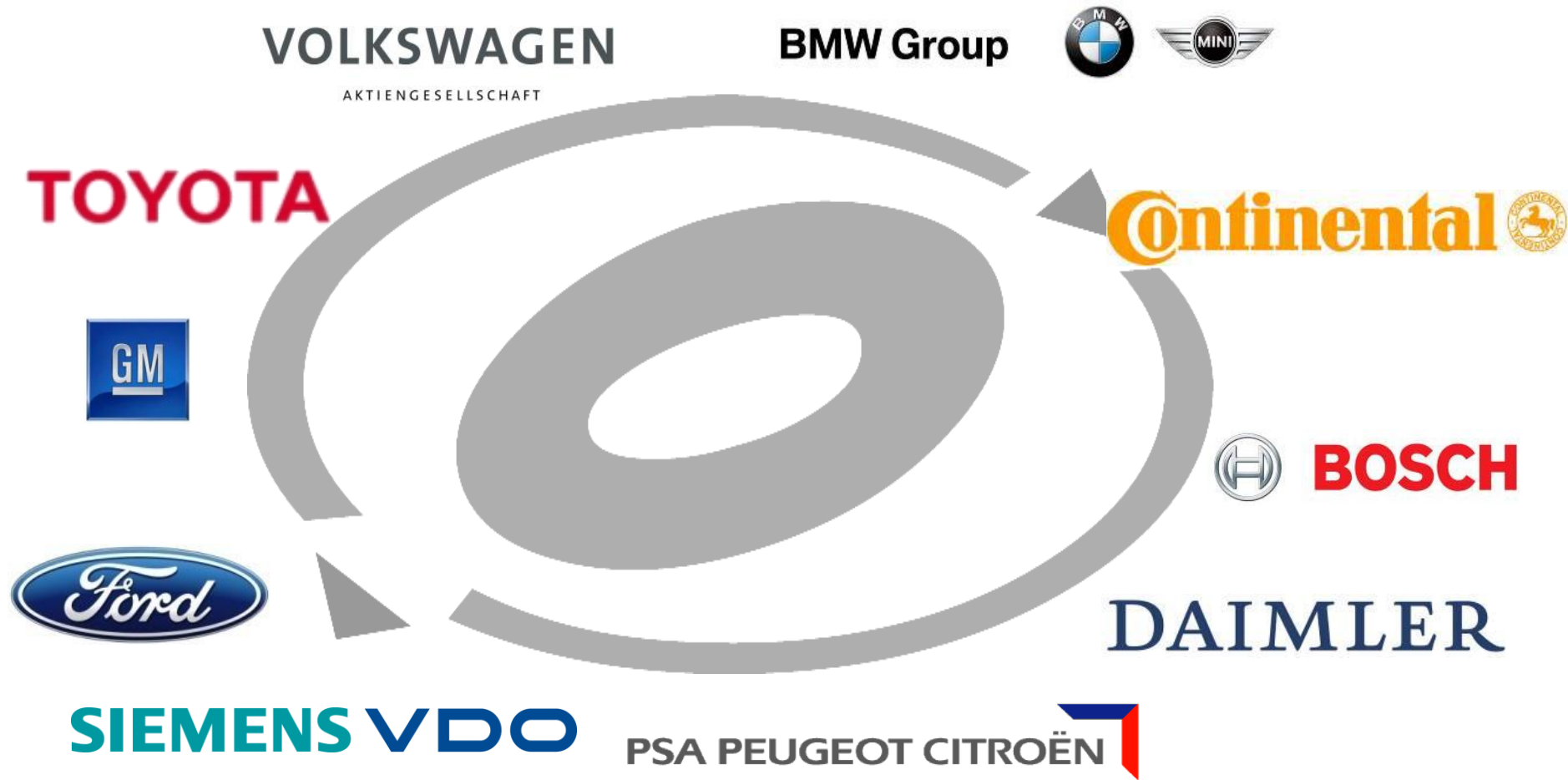
**VOLKSWAGEN**

AKTIENGESELLSCHAFT

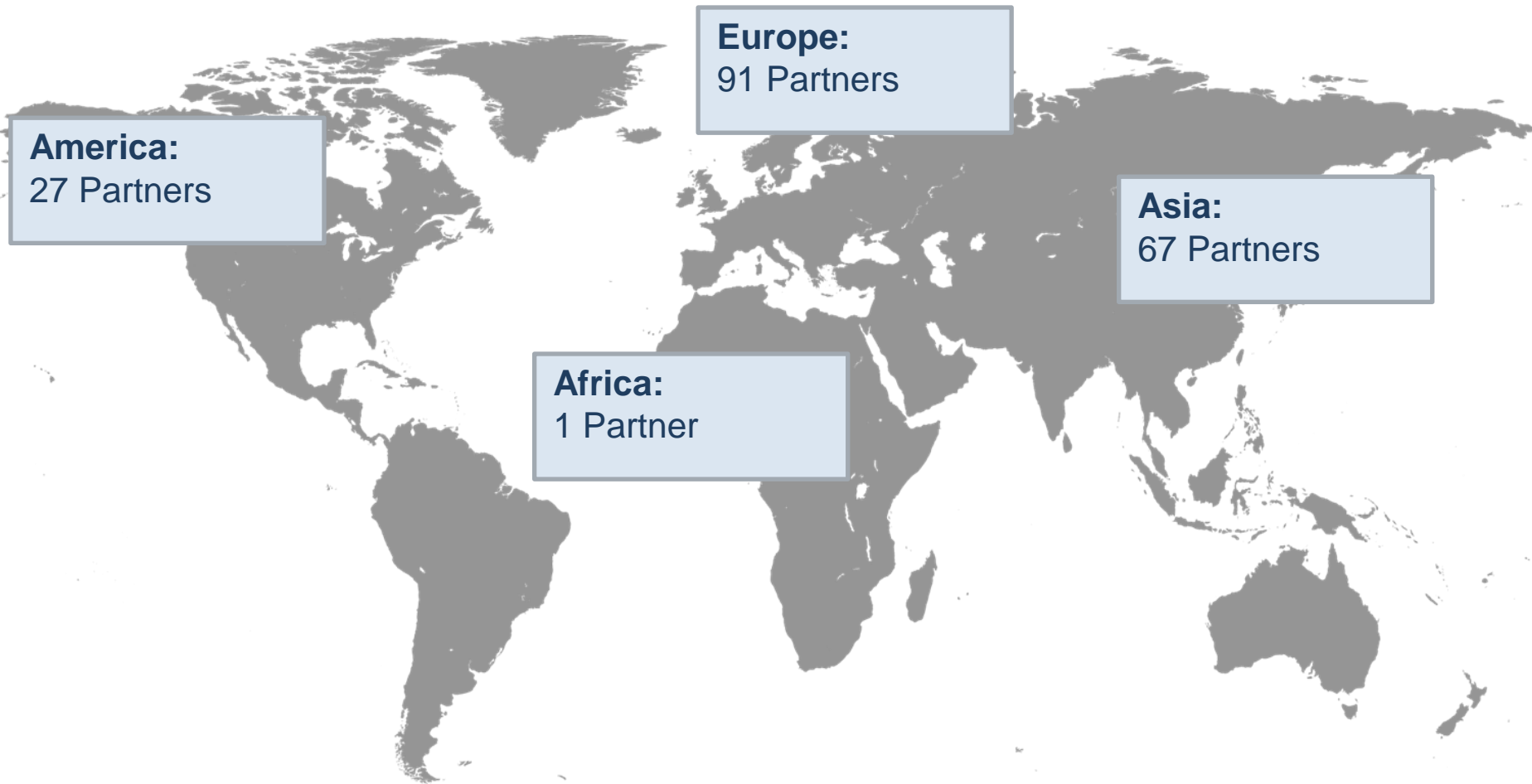
## *E/E innovations in vehicle development increases*



**2003** – 10 companies found AUTOSAR



## ***AUTOSAR has Become a Global Standard***



## Overview

### 1 AUTOSAR Motivation and Partnership



### 2 AUTOSAR Organization and Processes



### 3 AUTOSAR Worldwide and other Standards



### 4 AUTOSAR Outlook



## Overview

### 1 AUTOSAR Motivation and Partnership



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### 4 AUTOSAR Outlook



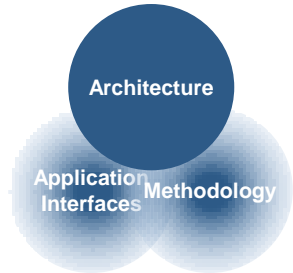
➤ Vision and Objectives

➤ Cooperation and Partner  
Status

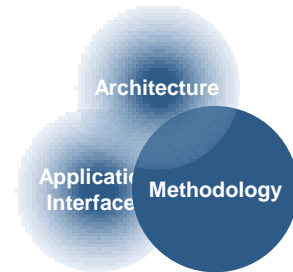


# AUTOSAR

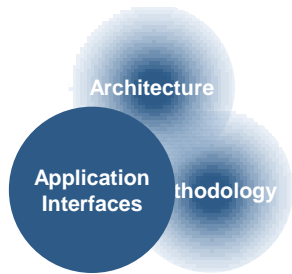
## Main Working Topics



- **Architecture:**  
Software architecture including a complete basic software stack for ECUs – the so called AUTOSAR Basic Software – as an integration platform for hardware independent software applications.

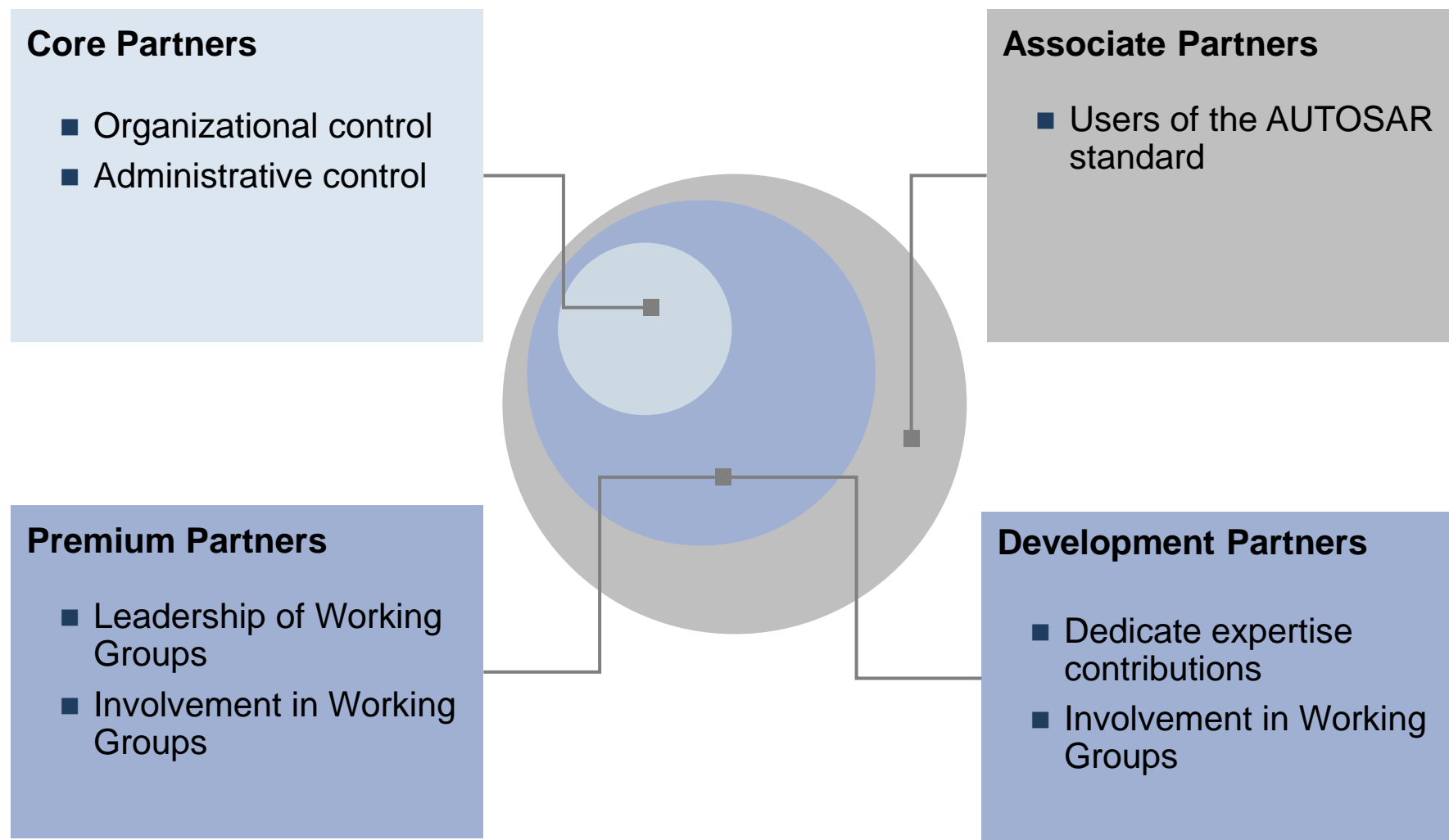


- **Methodology:**  
Defines exchange formats and description templates to enable a seamless configuration process of the basic software stack and the integration of application software in ECUs. It includes even the methodology how to use this framework.



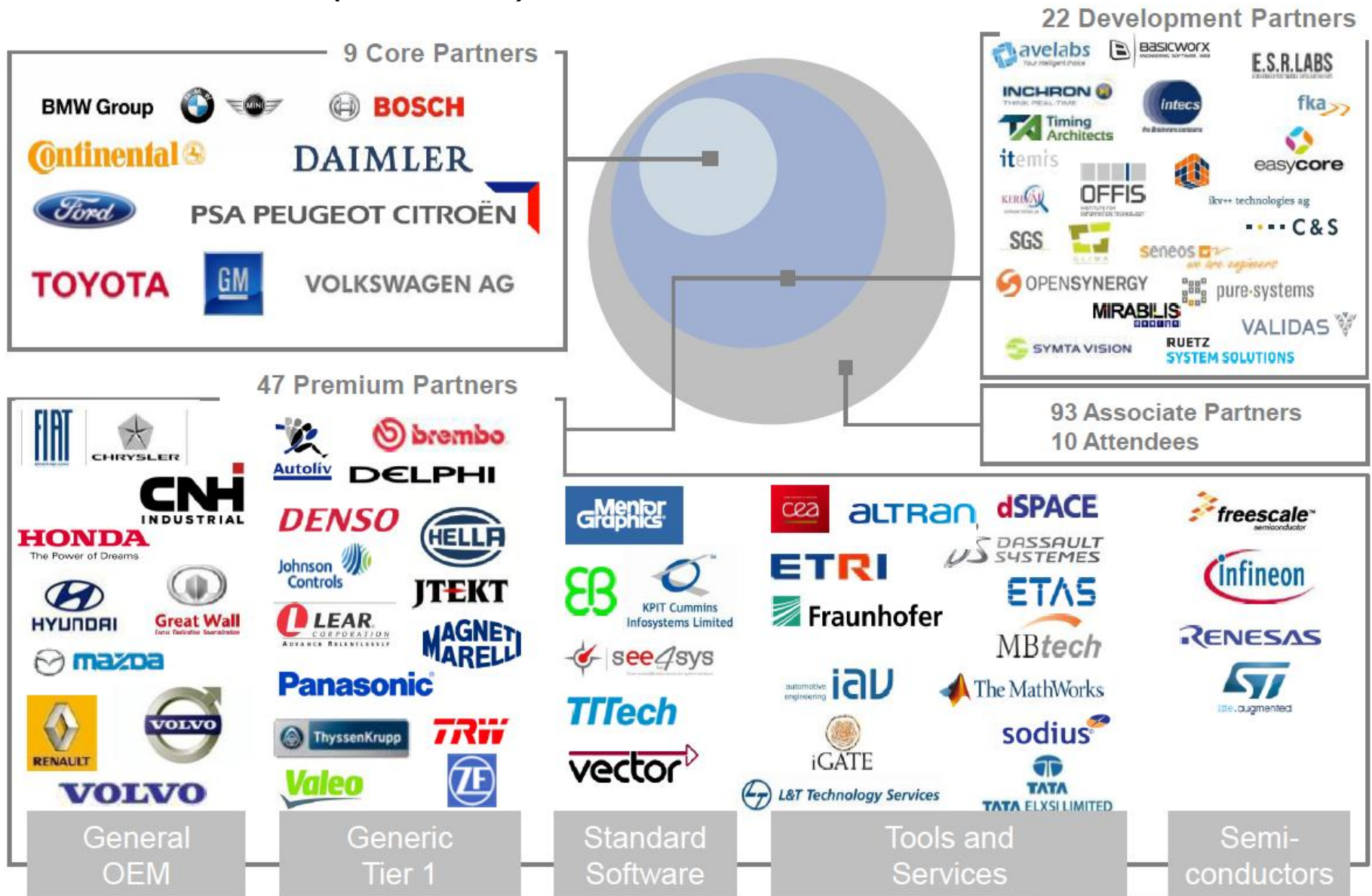
- **Application Interfaces:**  
Specification of interfaces of typical automotive applications from all domains in terms of syntax and semantics, which should serve as a standard for application software.

## Running the AUTOSAR partnership: Three tier partnership structure





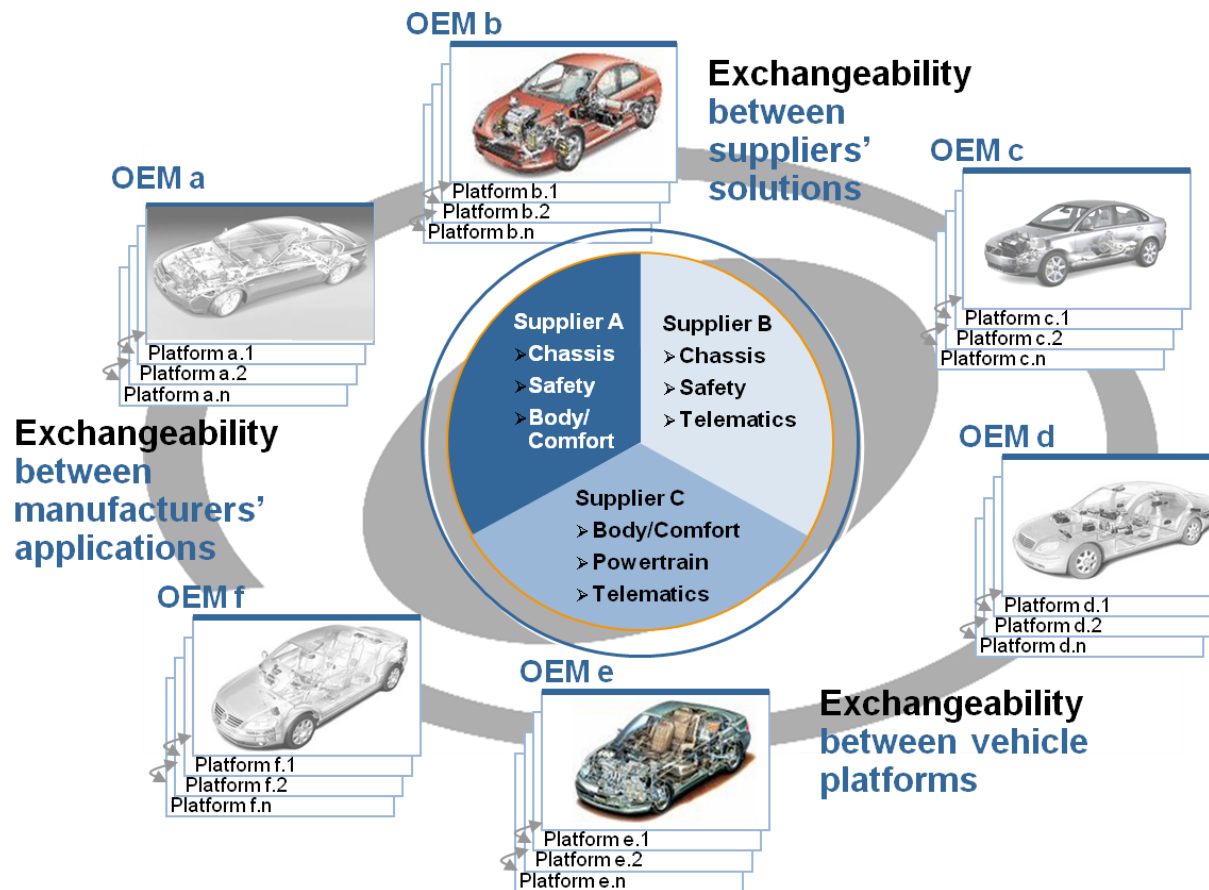
## AUTOSAR Partners (March 2014)



Up-to-date status see: <http://www.autosar.org>

## AUTOSAR Vision

AUTOSAR aims to improve complexity management of integrated E/E architectures through increased reuse and exchangeability of SW modules between OEMs and suppliers.



## ***The Principles of the Development Cooperation***

- Core-, Premium- and Development Partners jointly develop a common automotive standard
- AUTOSAR Partners grant each other a non-exclusive, non-transferable license under its essential intellectual property rights
- AUTOSAR Partners do not assert against each other when commercially exploiting the AUTOSAR standard
- As part of their exploitation of AUTOSAR, AUTOSAR Partners developed AUTOSAR compliant products
- AUTOSAR Partners commit for product conformance to AUTOSAR specifications to ensure interoperability



**Cooperate on standards, compete on implementation.**

***Running the AUTOSAR partnership:  
Exploitation license valid for automotive applications***

**“Automotive Applications**

means applications related to engine powered, land-based, non-railed vehicles, such vehicles intended for primary transportation purposes.”





***Running the AUTOSAR partnership:  
Exploitation license valid for derived applications***

**Civil machineries**



**Ultra hazardous activities**



## Overview

### 1 AUTOSAR Motivation and Partnership



### 2 AUTOSAR Processes and Organization



### 3 AUTOSAR Worldwide and other Standards



### 4 AUTOSAR Outlook

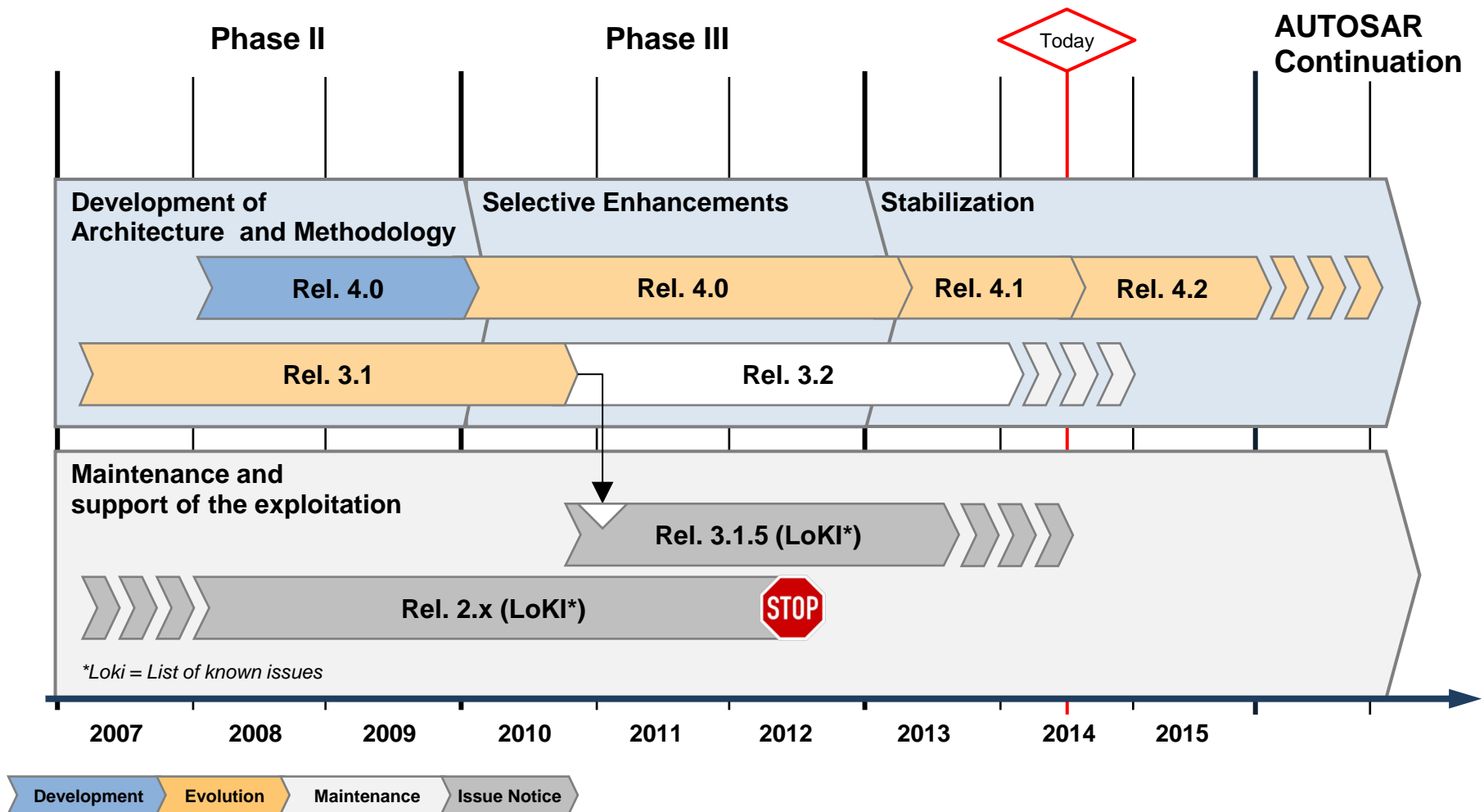


➤ Life cycle model and  
concept handling process

➤ Release Phases

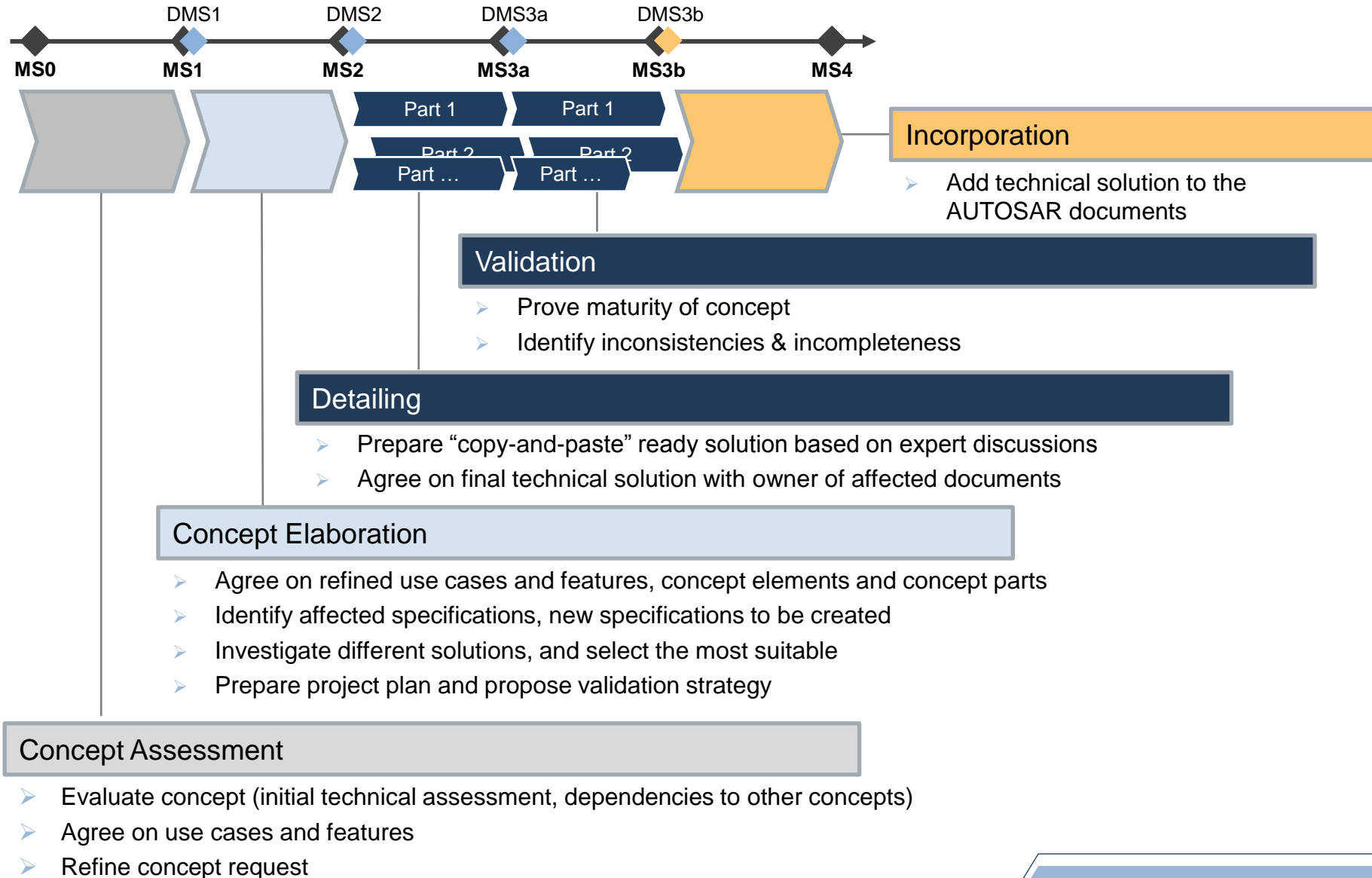
➤ Management boards and  
work packages

# AUTOSAR Release Phases





## AUTOSAR Release Management: Decoupled Concept Development Process

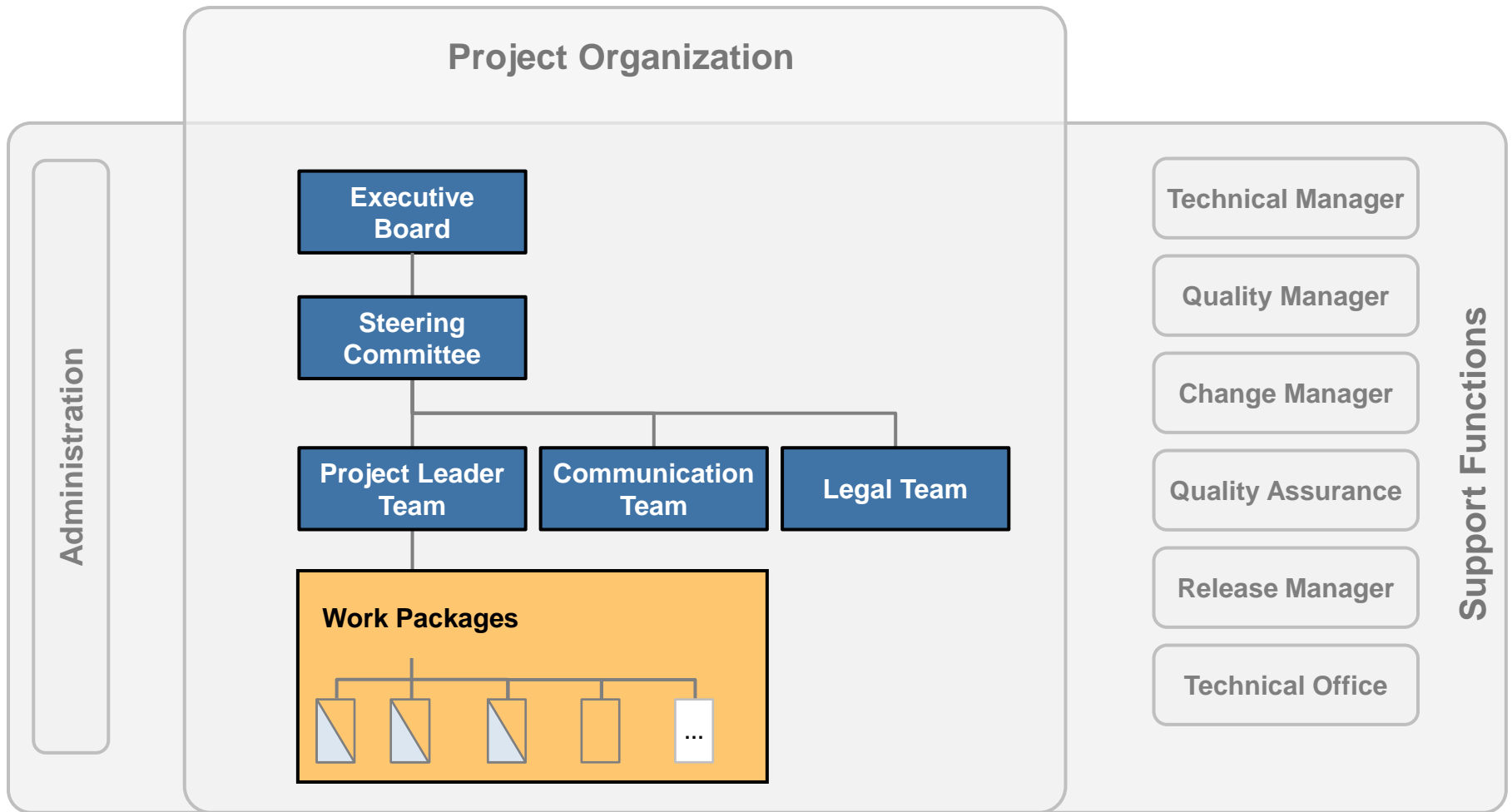


## ***Achievements – new concepts in release 4.2.1***

For the AUTOSAR Basic Software and Methodology Release 4.2.1 new concepts were developed and integrated:

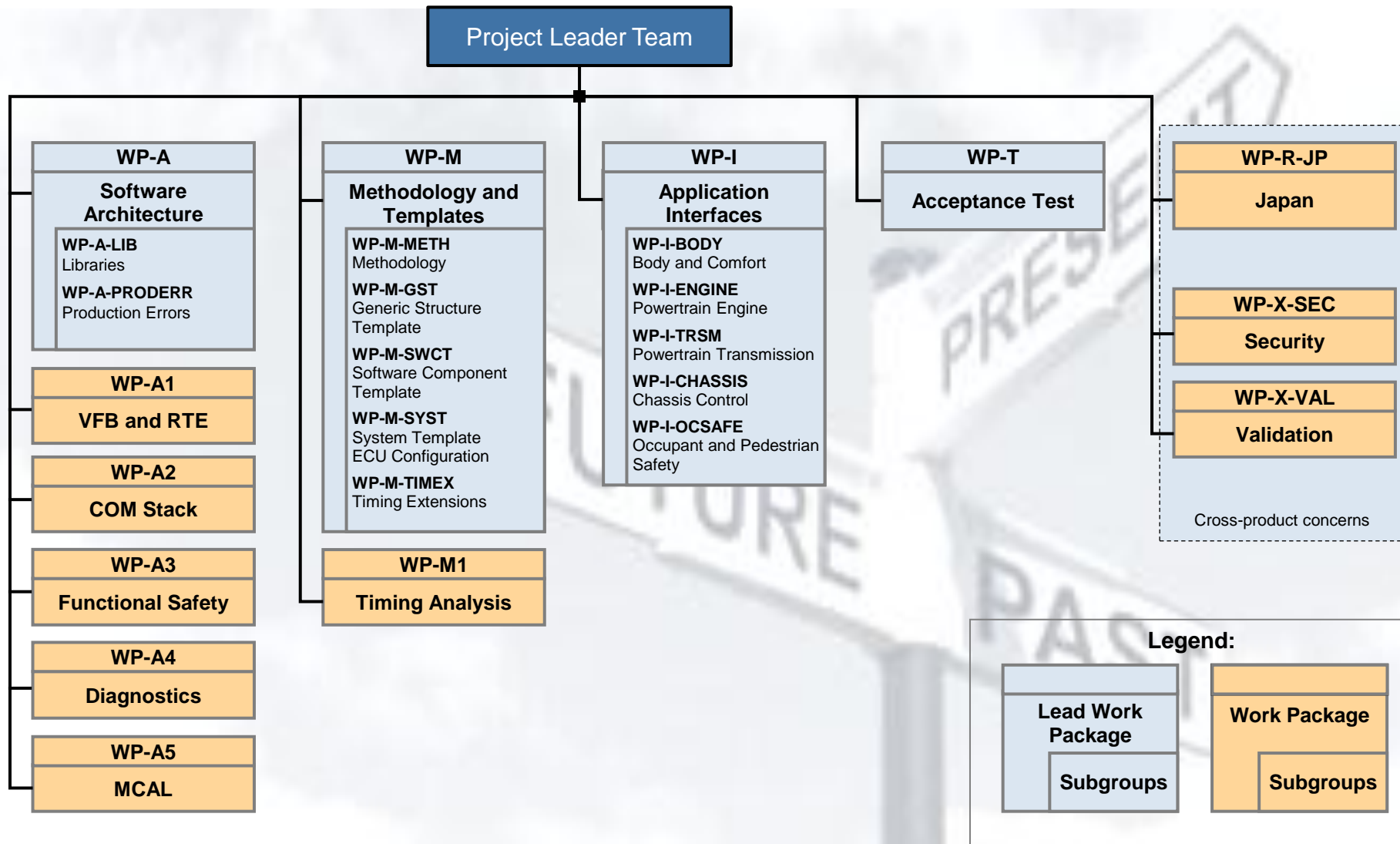
- Communication
  - Enhanced Ethernet Support
    - Switch Configuration
    - Sender Receiver Serialization
  - CAN FD
- Safety & Security
  - E2E Extension
  - ASIL QM Protection
  - Secure On Board Communication
- Basic Software
  - NV Data Handling RTE
  - EcuM Fixed MC
- Methodology
  - Safety Extensions
  - Decentralized Configuration

# AUTOSAR Organization Overview



- Core Partner
- Lead WP and WP
- Subcontractor
- Regional WPs

## Work Package structure from 2015 on



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### 4 AUTOSAR Achievements and Outlook



➤ Globalization - motivation  
and activities

➤ Regional co-operations

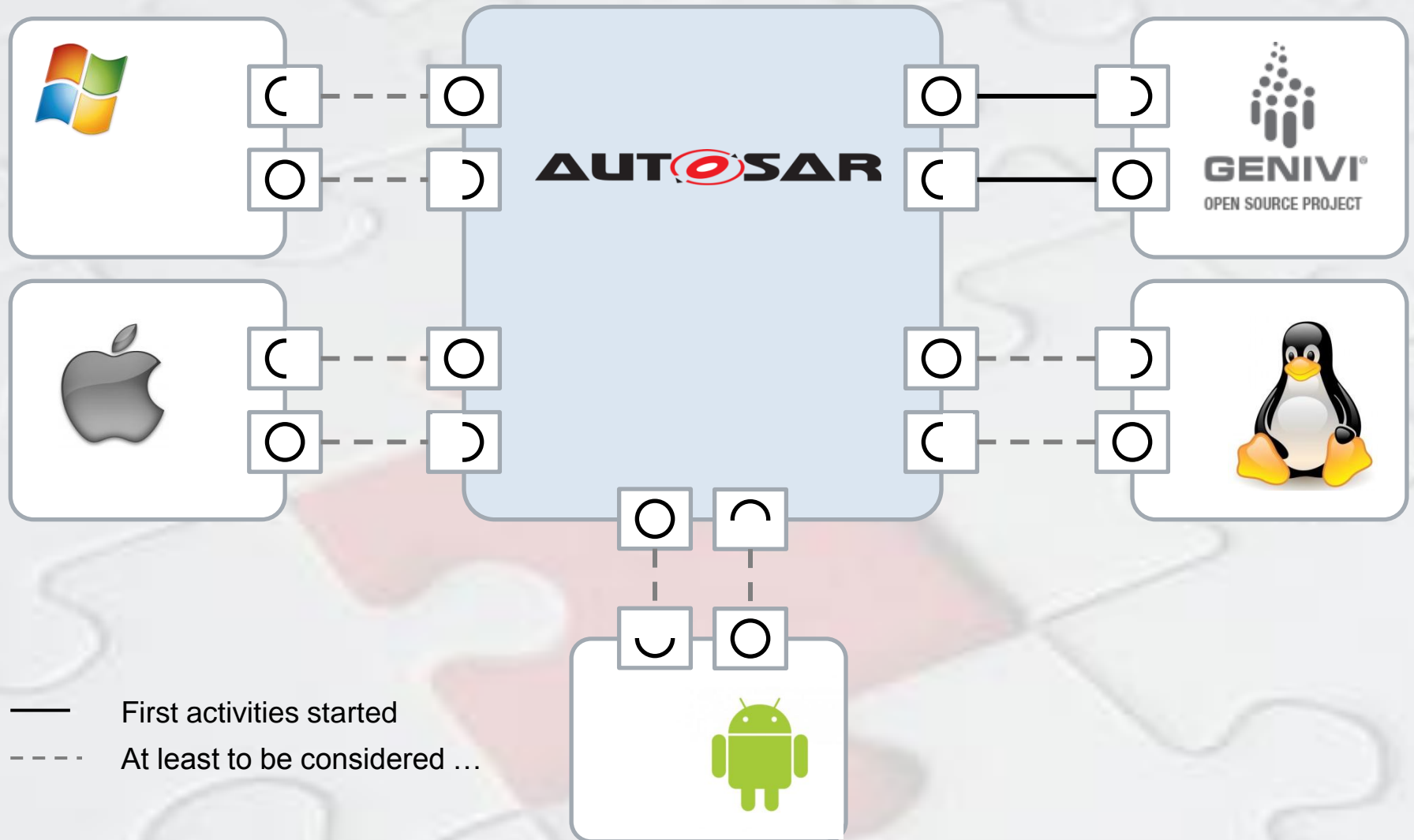
➤ Other Standards

## ***Motivation to Globalize the AUTOSAR Organization***

- Foster AUTOSAR as a global standard
- Make the participation for partners in the regions China, India, Japan and US more attractive. That means:
  - Make F2F-Meetings easier
  - Cover local / regional requirements (e.g. provide specific configuration, translations ...)
  - Motivate our regional partners to join and support the standardization process
- Avoid the creation of variants of the standard in the regions

**AUTOSAR started to introduce regional work packages and user groups**

## AUTOSAR Worldwide: Open to Connect Others ...





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### 4 AUTOSAR Outlook



➤ Future of AUTOSAR

## Future of AUTOSAR – objectives and challenges

### Goals

- Maintain stability and compatibility of existing standard.
- Main directions of the Future of AUTOSAR:
  - Reflect new use cases of today's and future market needs.
  - Adapt to upcoming market needs.
  - Support new technologies.

### Challenges

2014

2020

***Anticipate the future*** – identification of technological trends, key features and next challenges for AUTOSAR

***Stabilize the standard*** – maintain the standard, reduce complexity and increase usability, improve job sharing

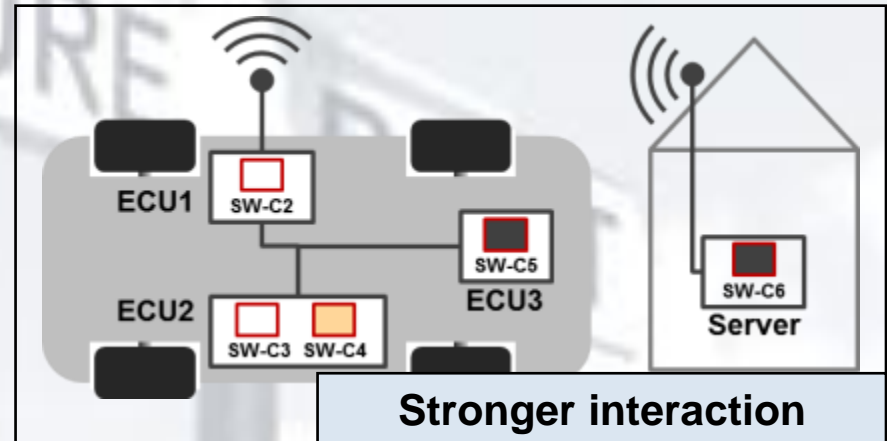
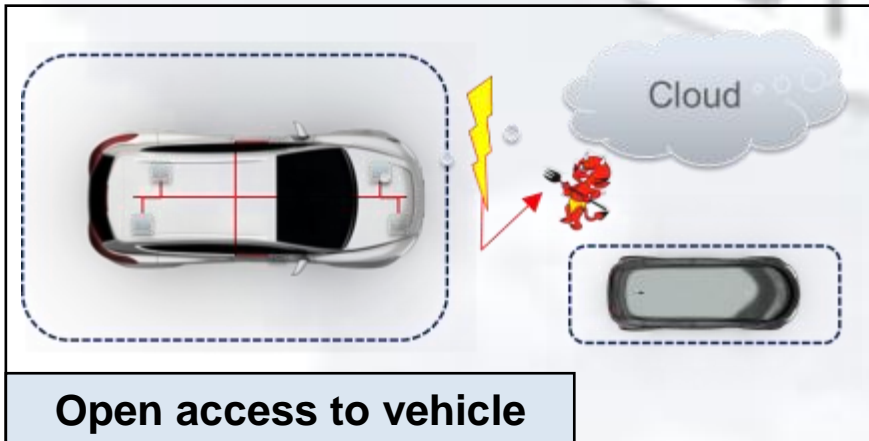
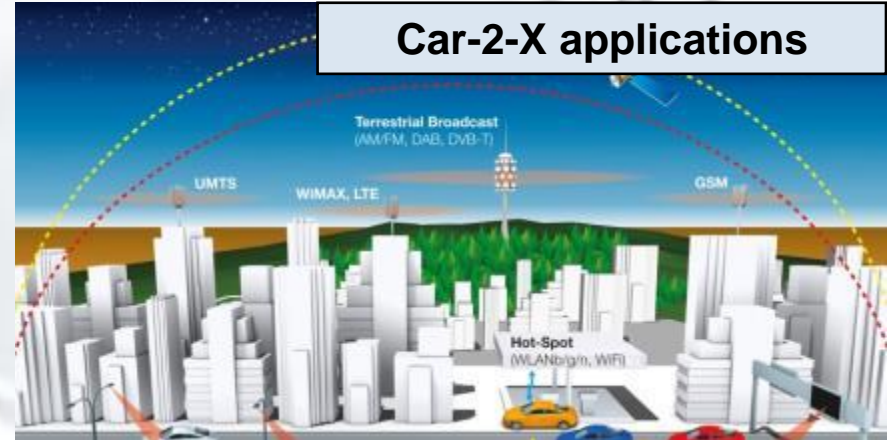
## Starting point – selected main drivers

Main drivers for new automotive software systems have been determined.

### Highly automated driving



### Car-2-X applications



## Summary

### Challenges of a living standard:

- Improve stability and keep compatibility with existing releases
- Reflect new use cases of todays and future market needs

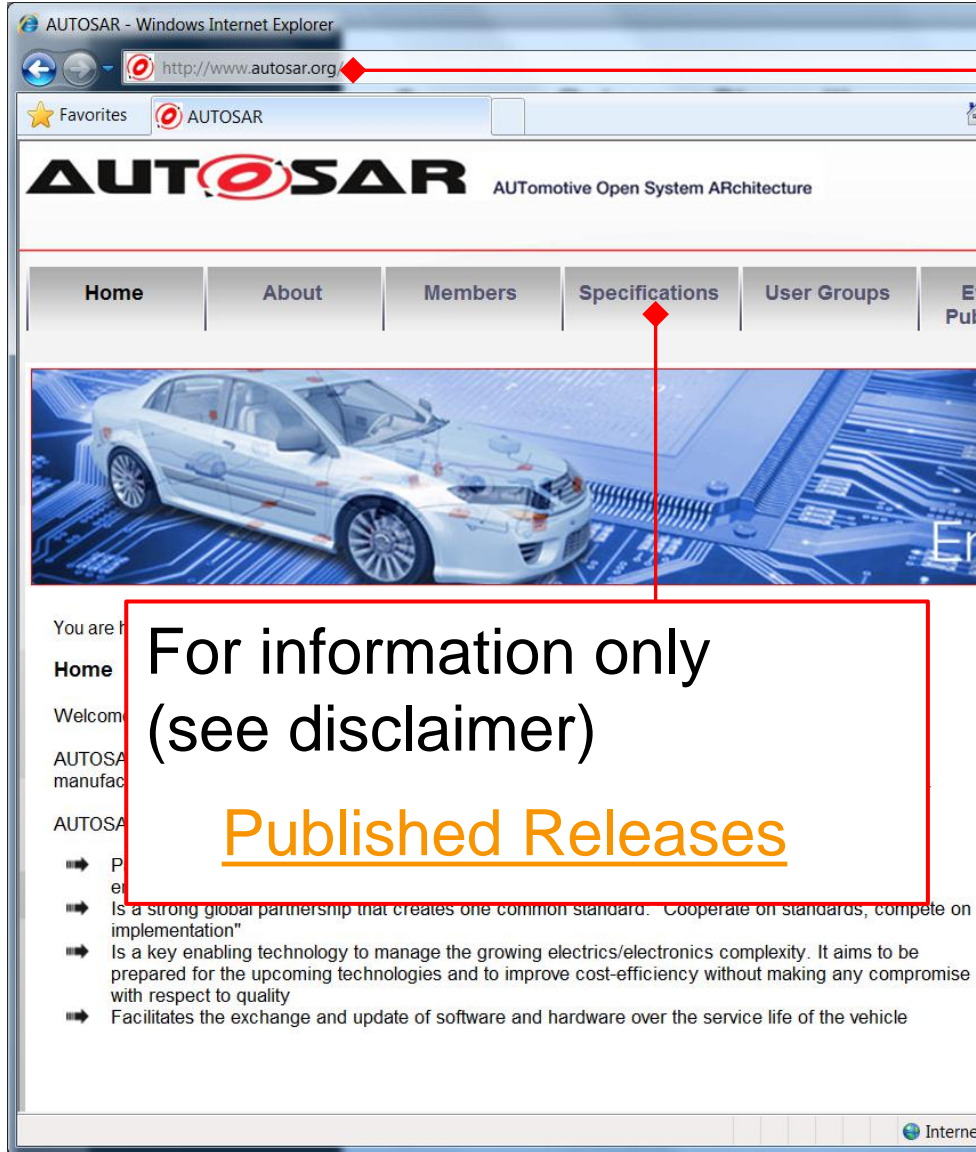
### Main directions of the Future of AUTOSAR:

- Improve existing standard
- Adapt to upcoming market needs
- Support new technologies: Car2X, enhanced security, dynamic architectures, ...

***Thank you for your attention!***

**More Information about  
AUTOSAR:**

<http://www.autosar.org>



**For information only  
(see disclaimer)**

[Published Releases](#)

**Become a partner and get  
exploitation rights for the  
AUTOSAR standard**

[request@autosar.org](mailto:request@autosar.org)

