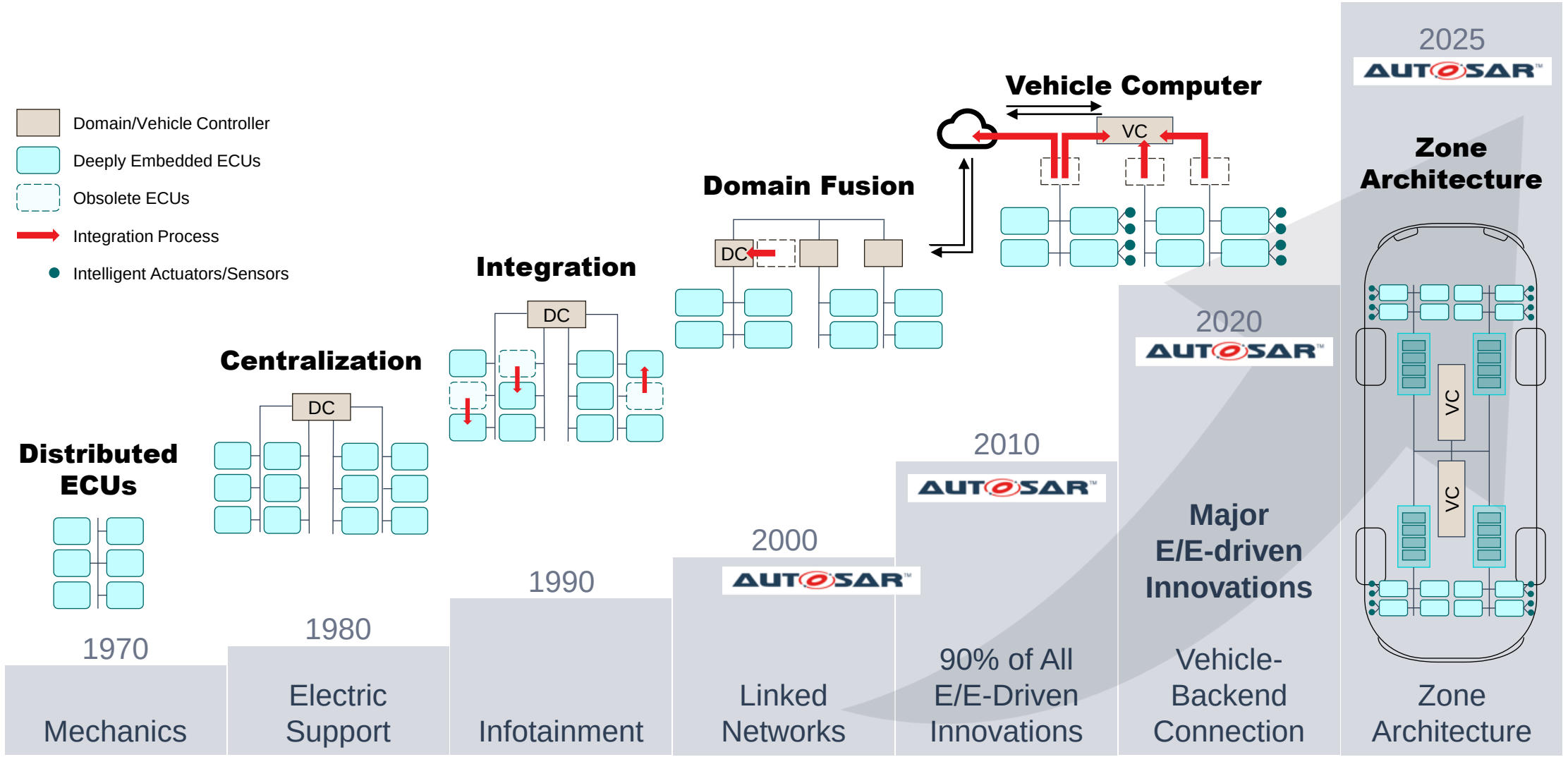
20 Years of Endurance and Global Success

AUTOSAR Day China 2023

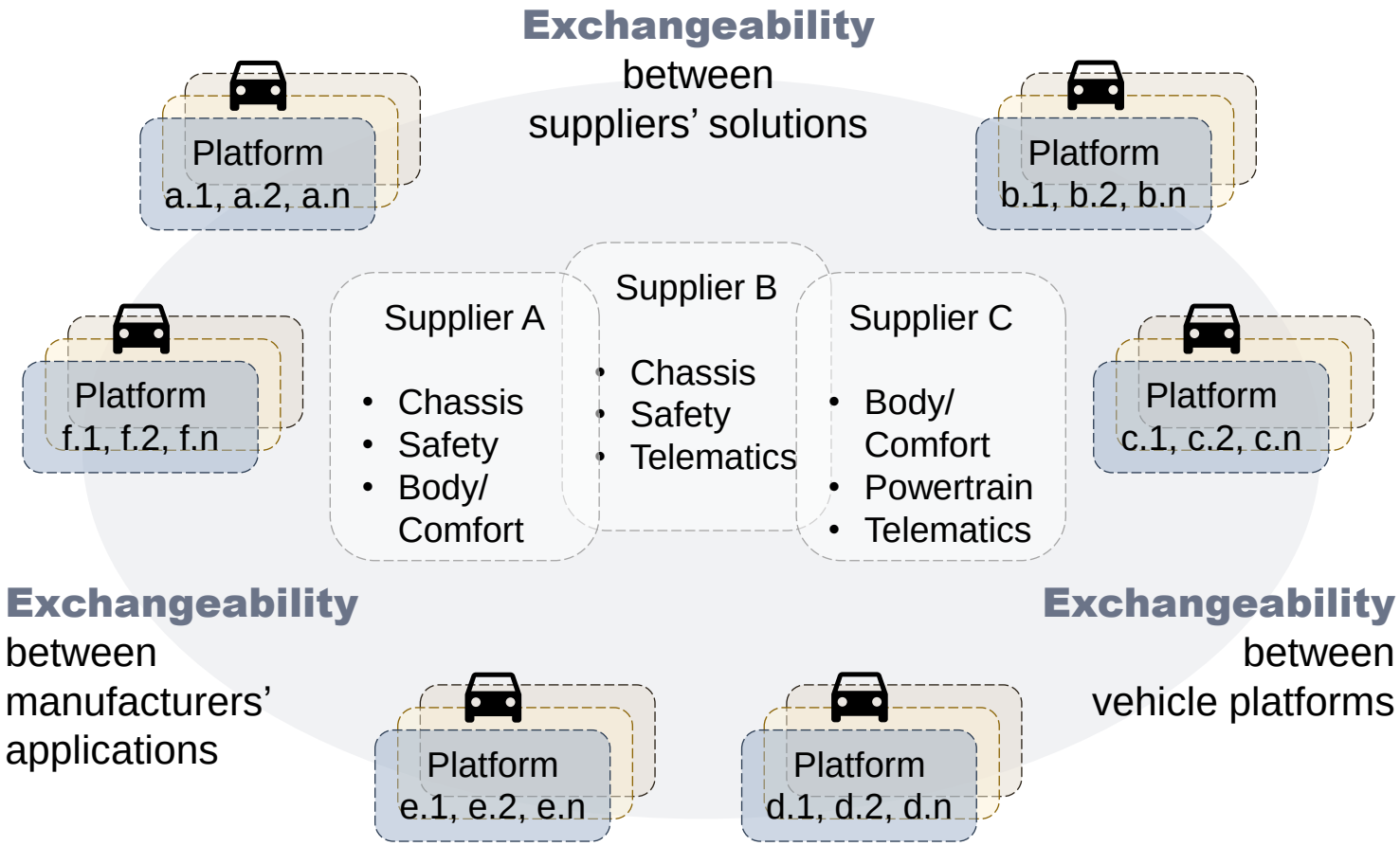
Thomas Rüping, AUTOSAR Chairperson

Increasing Complexity and Amount of Software

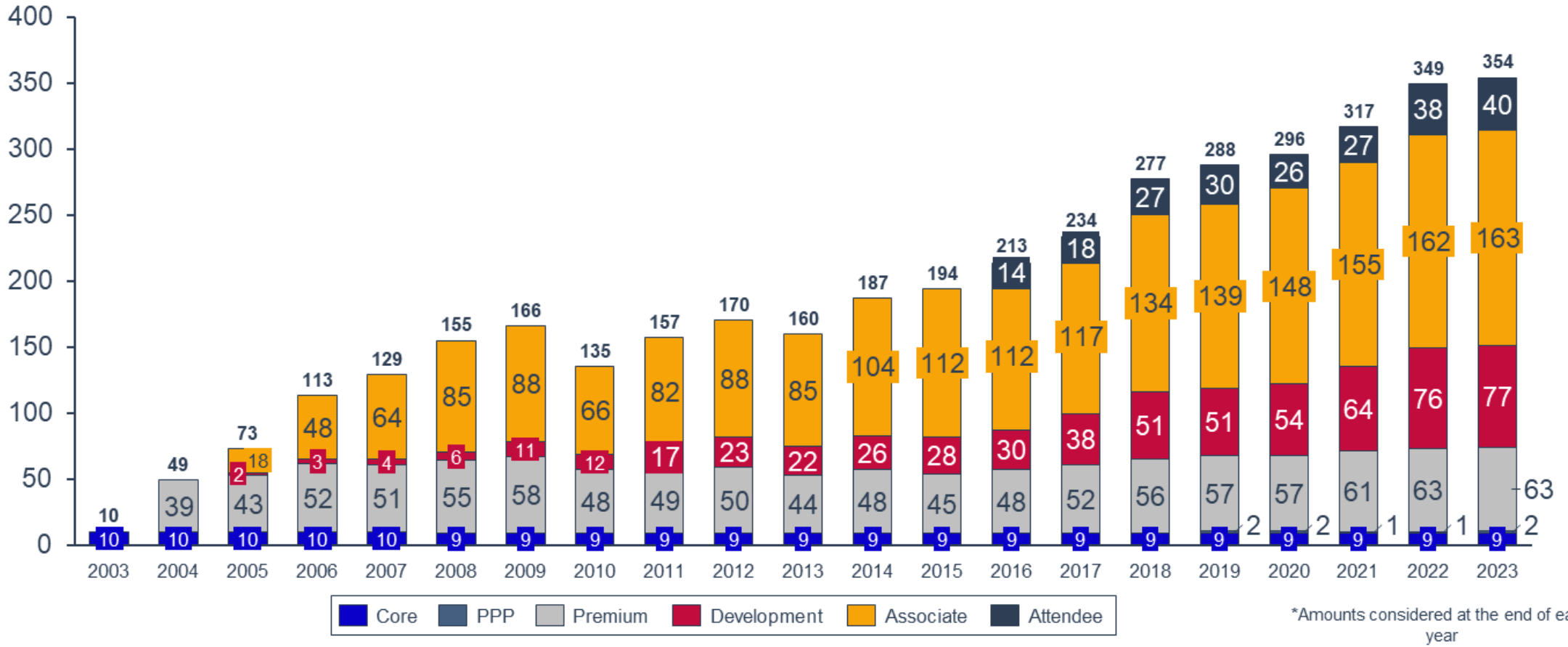


AUTOSAR Basic Approach

AUTOSAR ensures an advanced complexity management of integrated E/E architectures through increased **reuse** and **exchangeability of software modules** between OEMs and suppliers.



Partner Development



More Than 350 AUTOSAR Partners

9 Core Partners

BMW Group · BOSCH · Continental · DAIMLER · Ford · gm · PSA GROUPE · TOYOTA · VOLKSWAGEN AKTIENGESELLSCHAFT

60 Premium Partners

ALTEN · APTIV · APTJ · arm · Baidu 百度 · BlackBerry · CAC · Capgemini · cea · DASSAULT SYSTEMES · Deloitte. · DESAY SV automotive · dSPACE · Elektrobit · eSOL · ETAS · Fraunhofer · Great Wall · Green Hills SOFTWARE · HCL · HELLA · HONDA The Power of Dreams · HUAWEI · HYUNDAI MOTOR GROUP · Infineon · intel · itk · intron 英恒 · CETC 普华基础软件 · JTEKT · KPIT · L&T Technology Services · LG Life's Good · LUXOFT · MathWorks · MITSUBISHI ELECTRIC Changes for the Better · NEC · Neusoft REACH · NISSAN · NXP · Panasonic · RENAULT · RENESAS · SCSK · SIEMENS · sodius · ST life.augmented · SUMITOMO ELECTRIC · TATA CONSULTANCY SERVICES Experience certainty. · TATA ELXSI · TATA MOTORS · thyssenkrupp · tieto EVRY · Valeo · Tech Mahindra · VECTOR · veoneer · VOLVO · ZF

58 Development Partners

ABUP 艾拉比 · Airbiquity · AirPlug · avelabs · AVIN SYSTEMS · BASELABS Data Fusion Results · basicworx · beyless · BNS · b-plus · C2A · clarinox · easycore · eJad · emmtrix Technologies · ESR LABS · EVIDENCE · evo · excelfore · FPT Software · Freetech · GAIO TECHNOLOGY · HANECS · INCHRON THINK REAL-TIME · IncQueryLabs · INTREPID CONTROL SYSTEMS · IP Camp · I SYSTEM · ixia · KRONO-SAFE · LAUTERBACH DEVELOPMENT TOOLS · MATRICKZ · SEMIDRIVE 芯驰科技 · NCES · Neusoft REACH AUTOMOTIVE TECHNOLOGY · nordsys · OPENSYNERGY · pls · PopcornSAR · PRQA · rti · RTst · RUETZ SYSTEM SOLUTIONS · SAFERIDE · HINGE · optimize! softing · SYSGO EMBEDDING INNOVATIONS · TECHNO-WELLE · tracetronic · TTTech · VALIDAS · VAULT MICRO · VEHICLEVO · VEROLT · 博云 BoCloud

Premium Partner Plus

DENSO Crafting the Core · VECTOR

+ 146 Associate Partners
+ 27 Attendees

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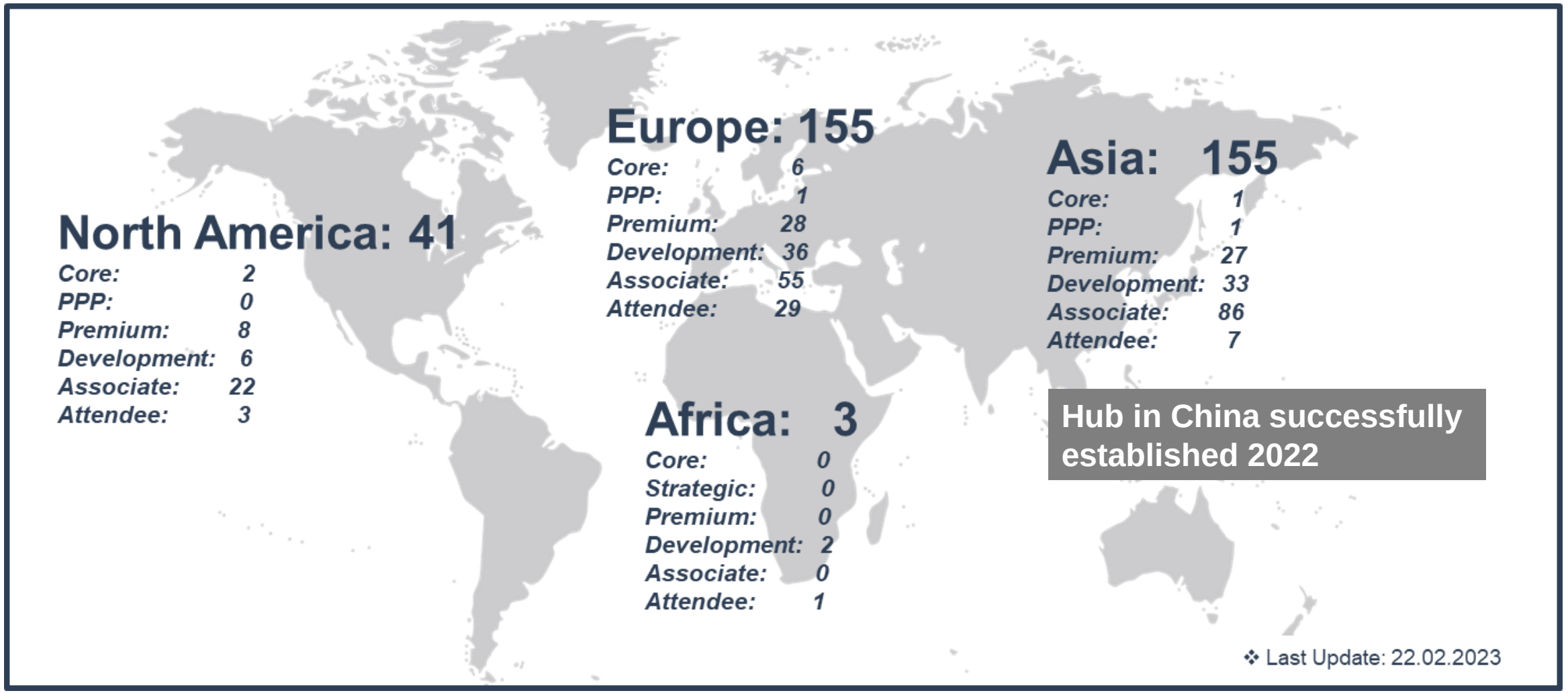
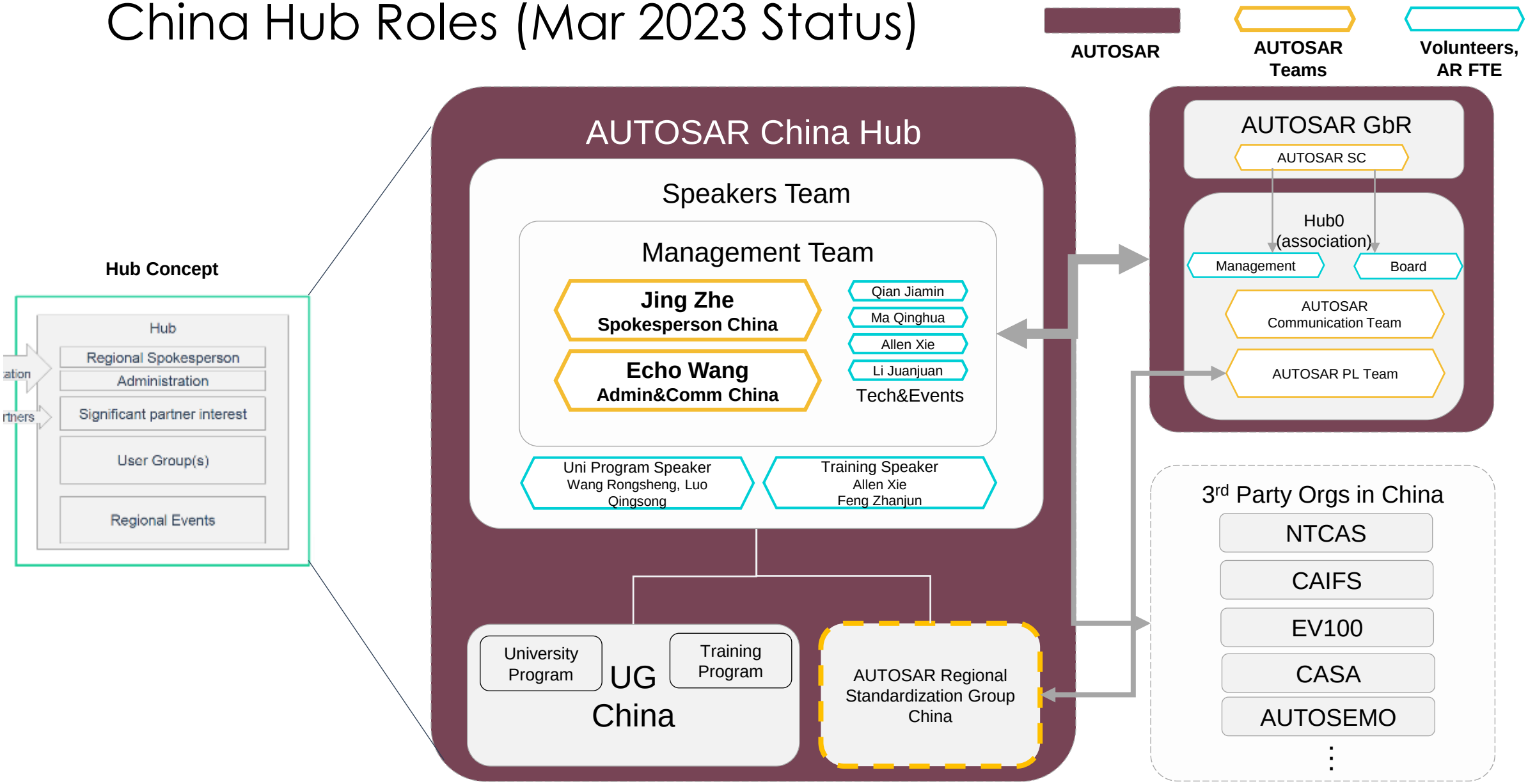
Geographical Partner Distribution



China Hub Roles (Mar 2023 Status)



AUTOSAR University Program in China: Progress

Tracing back to our initial planning, we've proposed and been promoting FOUR types of cooperation between AUTOSAR members and Universities in China: including Joint-Lecture, Joint-Lab, Joint-Projects, and Thesis & Internship opportunities.

Lecture

- Professors start AUTOSAR lecture(s), or add AUTOSAR content to existing lectures at the universities
- Benefits: enriched lecture content, enhanced student chance for good jobs, good experience for visiting professors

Joint-lab

- Companies (especially AUTOSAR vendors) cooperate with universities, providing tools and sponsorship, used by professors and students.
- Benefits: professors get additional sponsorship, companies enhance branding & have trained students

Projects

- Companies contract universities for AUTOSAR related software development.
- Benefits: companies have software developed at a lower cost, universities get research funding, students get trained

Internship & Thesis

- Companies get candidates and tasks get finished
- Students get trained, and bridge to a job

During the past year, we've seen quite a few cooperations been made between our members and universities:

Including

Joint-Lecture: (prior to the program)

VECTOR 同济大学 TONGJI UNIVERSITY

Joint-Lab:

世冠科技 Global Crown Technology 武汉理工大学 Wuhan University of Technology

Thesis and Training Projects:

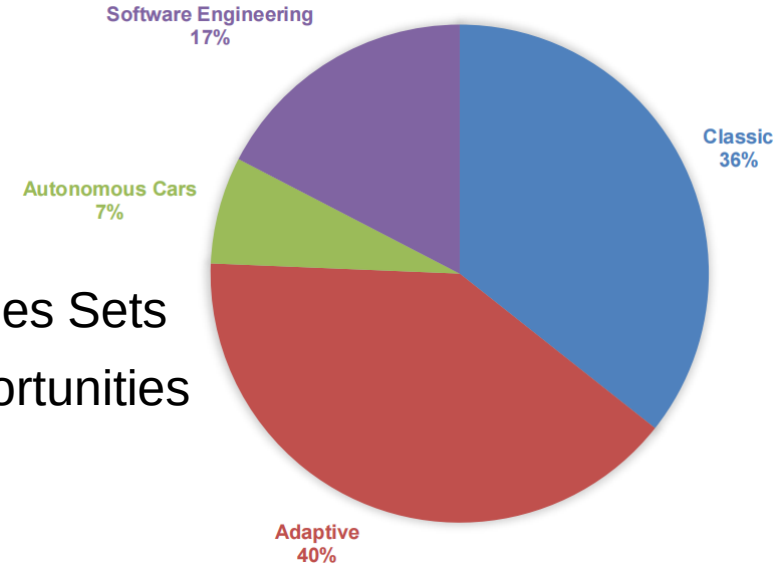
CETC 普华基础软件 北京邮电大学 Beijing University of Posts and Telecommunications

Jobs and Internship Opportunities: (to be held)

AUTOSAR Joint Career Fair (Scheduled on March 22)

AUTOSAR University Program: Forecast

Topic #	Topic Name
Introductory AUTOSAR Topics	
Topic 1	Introduction to AUTOSAR i.e. AUTomotive Open Software Architecture
Topic 2	Functionality of AUTOSAR in Automotive Software Development
Topic 3	Safety and security requirements for automotive software system
Topic 4	Growing complexity of the software and future challenges in automotive domain
Topic 5	Role of Configuration in AUTOSAR
AUTOSAR Classic Platform Topics	
Topic 6	Introduction to Classic AUTOSAR i.e. Layered Architecture
Topic 7	Functionality of Microcontroller Abstraction Layer in Classic AUTOSAR
Topic 8	Functionality of ECU Abstraction Layer in Classic AUTOSAR
Topic 9	Functionality of Services Layer in Classic AUTOSAR
Topic 10	Functionality of Complex Drivers
Topic 11	Communication System in Classic AUTOSAR i.e. Runtime Environment
Topic 12	CAN Protocol
Topic 13	Flex Ray Protocol
AUTOSAR Adaptive Platform Topics	
Topic 14	Introduction to AUTOSAR Adaptive Platform
Topic 15	Services in Adaptive AUTOSAR
Topic 16	APIs in Adaptive AUTOSAR
Topic 17	Functionality of Platform Health Management
Topic 18	AUTOMOTIVE Ethernet
Topic 19	Introduction to Service based communication
Topic 20	Functionality of ara::com in Adaptive AUTOSAR
Topic 21	Introduction to Update and Configuration Management
Topic 22	Introduction to Diagnostic, Log and Trace Functionality
Topic 23	Functionality of State Management
Topic 24	Functionality of Execution Management
Topic 25	Use of POSIX Complaint Operating System in Adaptive AUTOSAR
General Automotive/AUTOSAR Topics	
Topic 26	AUTOSAR Classic Vs AUTOSAR Adaptive
Topic 27	Language and Communication Technology Independent Software Development
Topic 28	Safety Critical Vs Non-safety Critical Software Development
Topic 29	Safety Requirements in AUTOMOTIVE Domain
Topic 30	Future Concepts in AUTOSAR
Autonomous Cars	
Topic 31	Architecture of Autonomous Cars
Topic 32	Use of AUTOSAR in Autonomous Cars



Global Perspective: .

- Updating on the AUTOSAR Slides Sets
- Reviewing and Distribution opportunities
- More materials...

China Perspective: .

- AUTOSAR Joint Career Fair (Spring + Autumn)
- Micro-Lectures for Universities (Faculty + Student)
- Promotion the Attendee Status to China Universities
- More opportunities...

Training Program Motivation

AUTOSAR China Hub will provide a long-term public AUTOSAR training program, that AUTOSAR partners and students can participate for free.

- Official trainings from AUTOSAR organization
- About AUTOSAR development process, standards
- No budget and contracting process is required
- Long-term program, 2 topics per Month
- Training will be in Chinese language

Training Program Content and Schedule

The 1st training session will be online on 6th April 2023

Sessions already planned:

- 《AUTOSAR组织和标准基本介绍》
  《Introduction of AUTOSAR Organization and Standards》
- 《AUTOSAR软件介绍》
  《Automotive Software Introduction》
- 《AUTOSAR解决方案简介》
  《AUTOSAR Solution General Introduction》
- 《AUTOSAR概述和应用 》
  《AUTOSAR Overview and Application》
- 《AUTOSAR诊断事件管理DEM模块培训》
  《AUTOSAR Diagnostic Event Management and DEM Module Training 》
- 《AUTOSAR CAN协议栈介绍》
  《 Introduction of AUTOSAR CAN Stack 》
- 《BswM在控制器系统状态机设计上的应用》
  《Application of BswM in Controller System State Machine Design》

To be continued…

Note: The training program is free for AUTOSAR partners and students

Future Challenges

Selected Main Drivers

Highly Automated Driving with Dependability

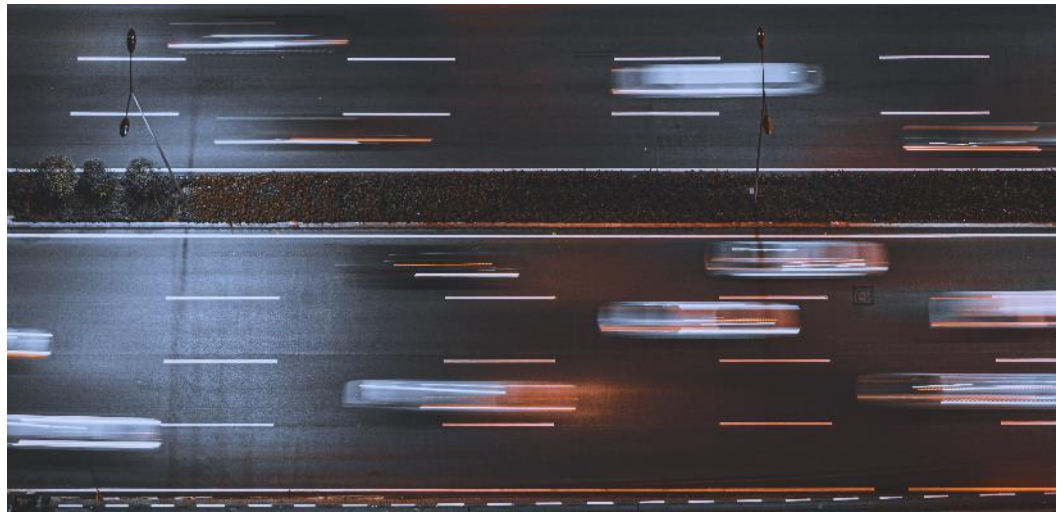
- Reliability
- Availability
- Maintainability
- Safety
- Security

V2X, Internet of Things, Cloud-Based Services

- Security
- QoS
- Over the Air (OTA) Update/Upgrade

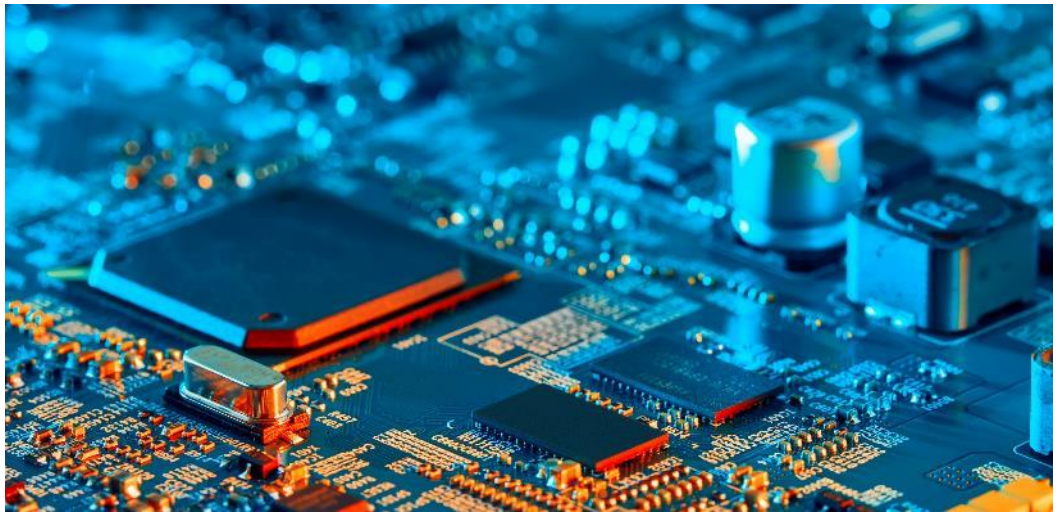
Future Challenges

Selected Main Drivers



Increasing Data Rates and Volume

- Automotive Ethernet
- 5G

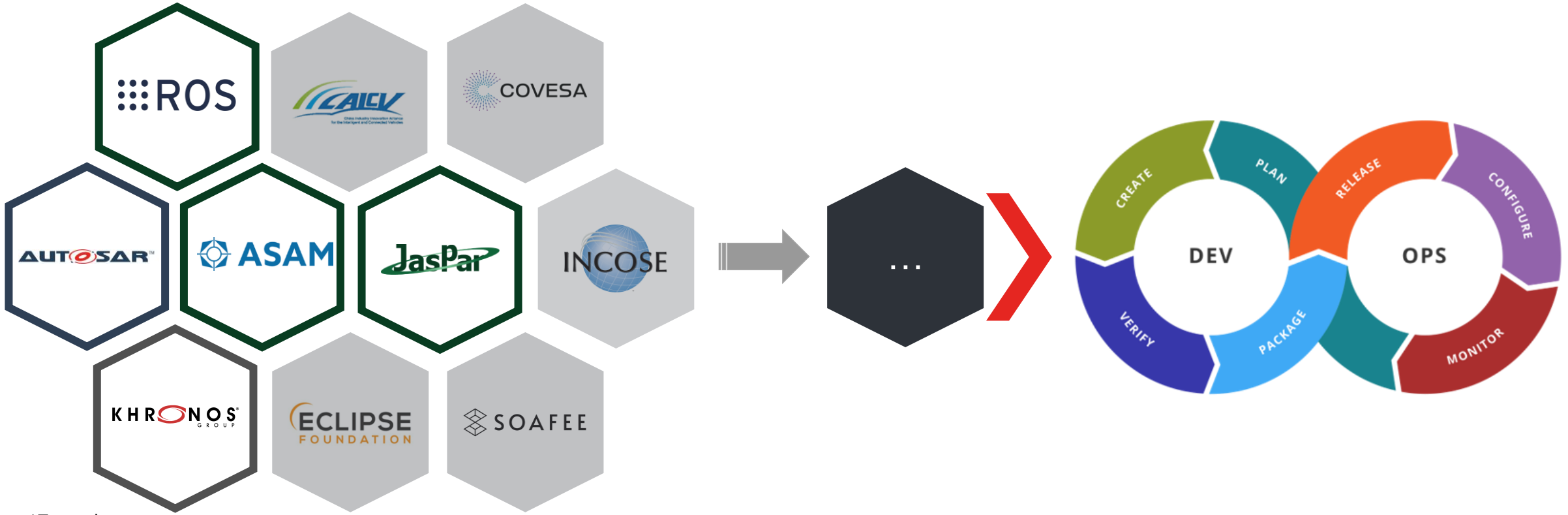


New Automotive Processor Technologies

Centralized multi-core processors

Future Challenges
Software defined Vehicle - Multi Party Collaboration

A future automotive development environment will be provided by different organizations in an orchestrated collaboration.



*Exemplary excerpt

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Thank you very much for your attention

and let's continue the success story!

BMW BOSCH Continental Mercedes-Benz Ford gm STELLANTIS TOYOTA VW