SDVoF: Recent developments on EU-level

The Autonomous – SDV Spotlight Session
Wien, 24. September 2024

Dr Max Lemke, CNECT E4
Internet of Things – Mobility, Energy, Agriculture

Overview: The future of European Competitiveness – Report by Mario Draghi

Context

On September 9, 2024, Mario Draghi, former ECB president, presented a 400-page report - after being tasked by the European Commission - on the **future of European competitiveness**.

The findings of the report contribute to the Commission's work on a **new plan for Europe's sustainable prosperity and competitiveness**.

→ In particular, the report will contribute to **the development of the new Clean Industrial Deal for competitive industries and quality jobs**, which will be presented in the first 100 days of the new Commission mandate.

Key conclusions

Part A (Strategy)

Part B (In-depth analysis)

3 main areas for action to reignite sustainable growth are identified

1. **Closing the innovation gap** with the US and China
2. Joint plan for **decarbonisation and competitiveness**
3. Increasing **security,** reducing **dependencies**

10 sectoral policies and **5 horizontal policies** are identified, **including for Automotive** *Detailed next*

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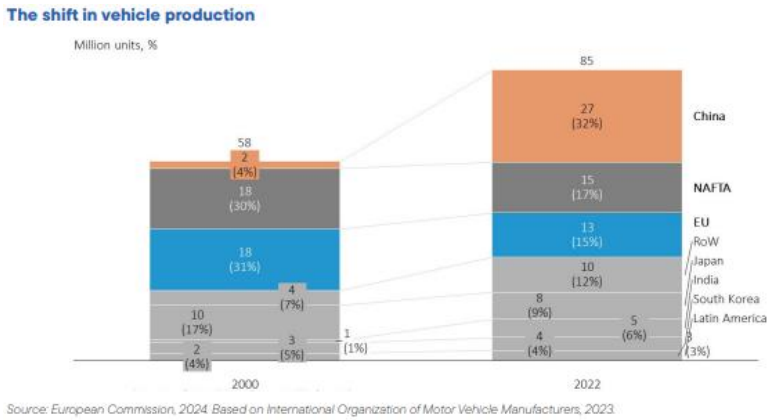
The Draghi report identifies that in the context of shifting value chains, the EU's position in the automotive sector **shows signs of eroding competitiveness**

Transformation of the automotive sector



Rise of EVs

The transition towards EVs implies **changes in technology, production processes, skills demand and inputs from supplier networks**,

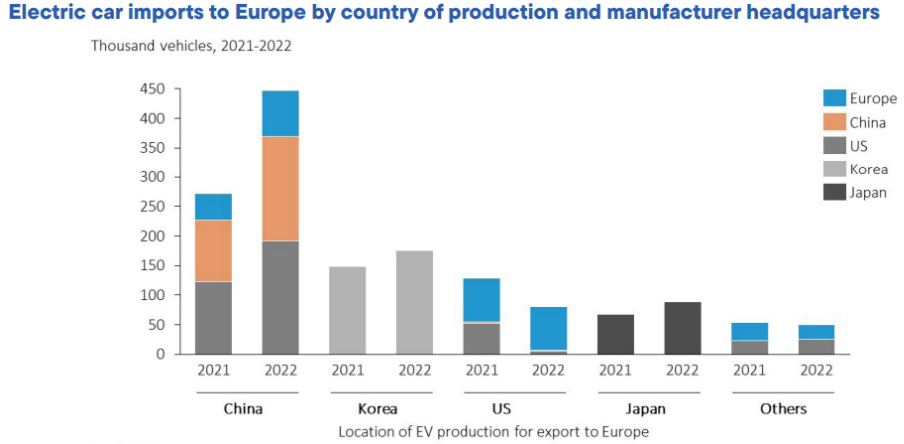
Integration with value chains

Integration with digital, mobility and circular economy value chains creates shift towards **software-defined vehicles, new business models, end-of-life recycling**

Demand in 3rd markets

Shift in global demand away from Europe **dampens the positive impact of world demand** on EU value added and employment

Root causes of the emerging competitiveness gap



Industry dimension

Production is suffering from **higher costs, lagging technological capabilities, increasing dependencies, and eroding brand value**

EU producers have been undergoing changes at the company level

The transition from ICE vehicles to EVs, and particularly BEVs, has also far-reaching implications for the network of car part suppliers

Multiple pieces of legislation have **overlapped**

Policy dimension

No synchronized approach on the **conversion of the supply chain**

Technological neutrality principle **has not always been applied**

By contrast, China has pursued a "Made in China 2025" strategy **aiming to dominate the global auto industry**

Sources: The Future of European Competitiveness, European Commission, 2024

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Automotive: Recommendations from the Draghi report

Summary - Automotive proposals

1. *Ensure competitive transformation costs*
2. *Develop an EU industry action plan for the automotive sector*
3. *Ensure regulatory coherence, predictability, and timing*
4. Encourage standardization
5. Set-up Net-Zero Acceleration Valleys for automotive
6. *Support the development of recharging and refuelling infra*
7. Ensure a coherent digital policy for automotive
8. Support innovative projects, such as on SDV and AD
9. *Bridge skills gaps and address reskilling needs*
10. *Level the global playing field and enhance market access*

Explanation of selected proposals

Standardisation

4 **Encourage standardisation of new technologies** (incl. *standardised data formats and data exchange protocols*) **in the automotive sector** to benefit from economies of scale and connectivity in the Single Market

7 Ensure that a **coherent digital policy for the automotive sector is in** place**,** including policies to support innovative AI use cases that address **data and system interoperability**

SDVs

5 Set up reinforced **Net-Zero Acceleration Valleys** dedicated to the automotive ecosystem, to stimulate innovation on SDVs, e.g. through **State aid to manufacturing investment, reduced tax rate**

8 Support common European projects where **scale, standardization and collaboration** make a difference, including on affordable EVs, Software-defined Vehicle (SDV) and autonomous driving

Sources: The Future of European Competitiveness, European Commission, 2024

European Commission

Overview of the European Vehicle of the Future ecosystem

EUROPEAN CHIPS ACT

Chips JU

CCAM

2ZERO

Hardware

Chip production capacity

Large scale public and private investments into **fabrication** and enhanced **manufacturing, packaging, test and assembly**

Joint standards

RISC-V automotive HW platform

Coalition of IDMs, research orgs, start-ups to deliver a **next generation automotive HW architecture**, incl. for **AI computing capacity**

Software

Joint standards

SW-Defined Vehicle of the Future (SDVoF)

Pre-competitive collaboration between all major European OEMs and suppliers to promote **modular, open-source SW with HW-agnostic interfaces** towards **improved maintainability, portability, and faster time-to-market**

European Vehicle of the Future Initiative

€ 250 million investment for 2023-2024 by the EU, Member States, and the industry

Joint standardization

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EUR 100B+ in investments

Selected announced investments

Legend: High relevance for automotive; Other fab investments

Companies	Investment (€)	Location	Description
ESMC (TSMC, Bosch, Infineon, NXP)	10 billion	Dresden	300mm fab 28/22nm planar CMOS and 16/12nm FinFET
ST, GlobalFoundries	5.7 billion	Crolles	Jointly operated 300-mm manufacturing facility for FD-SOI-based technologies
Infineon	5 billion	Dresden	New factory for 300-millimeter analog/mixed-signal and power semiconductors
Wolfspeed, ZF	3 billion	Ensdorf	Joint 200-milimetre SiC fab and R&D
ST	1 billion	Catania	SiC wafer fab
Bosch	400 million	Dresden, Reutlingen	Expanding wafer fabs
Soitec	300+ million	Bernin	New fabrication facility for SiC wafers
onsemi	300 million	Rožnov	Expansion of SiC fab
Pending intel	30 billion	Magdeburg	Two fabs
OKMETIC	400 million	Vantaa	Wafer fab for 200mm Si wafer production

Note: 1. ESMC press release; 2. ST Press release; 3. 2. Bosch press release; 3. ST Press release; 4. Soitech press release ; 5. Intel Press Release ; 6. Okmetic press release ; 7; 8. Onsemi press release; 9.; 10. ZF press release.

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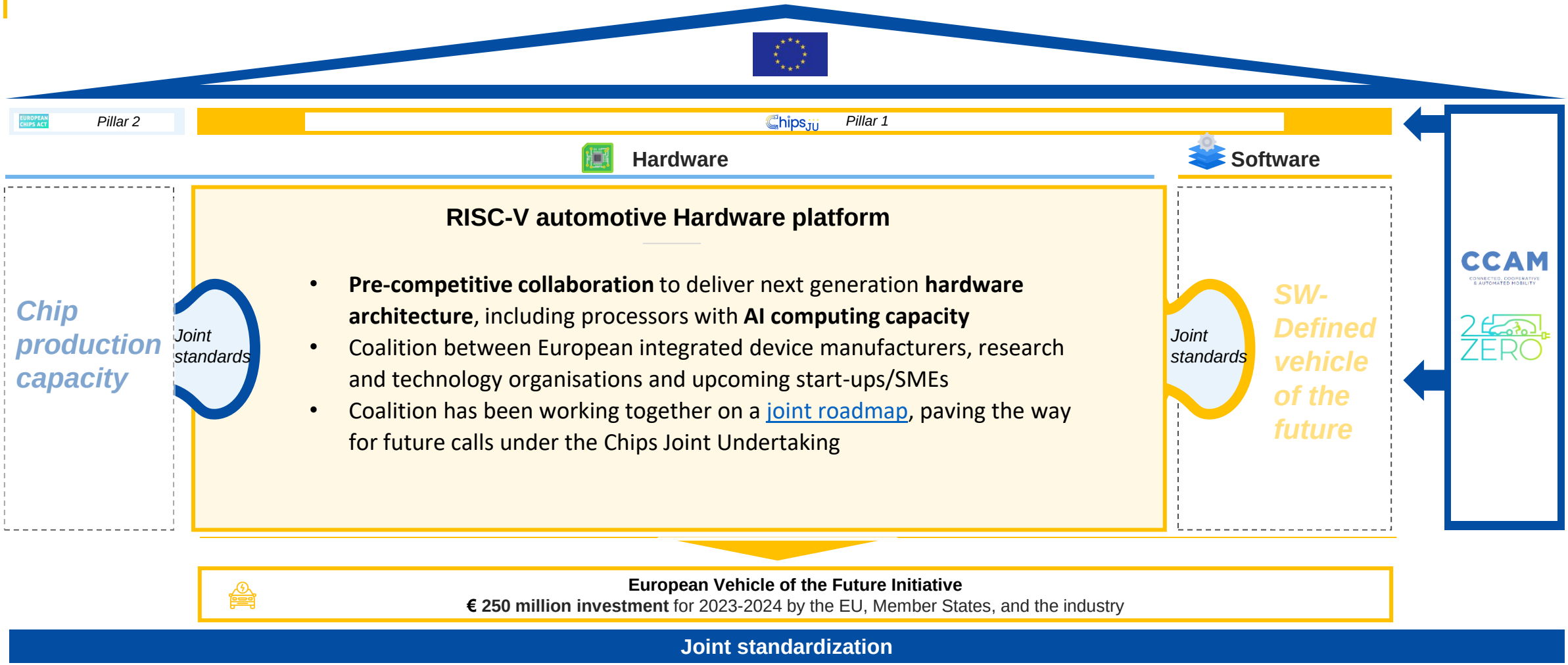
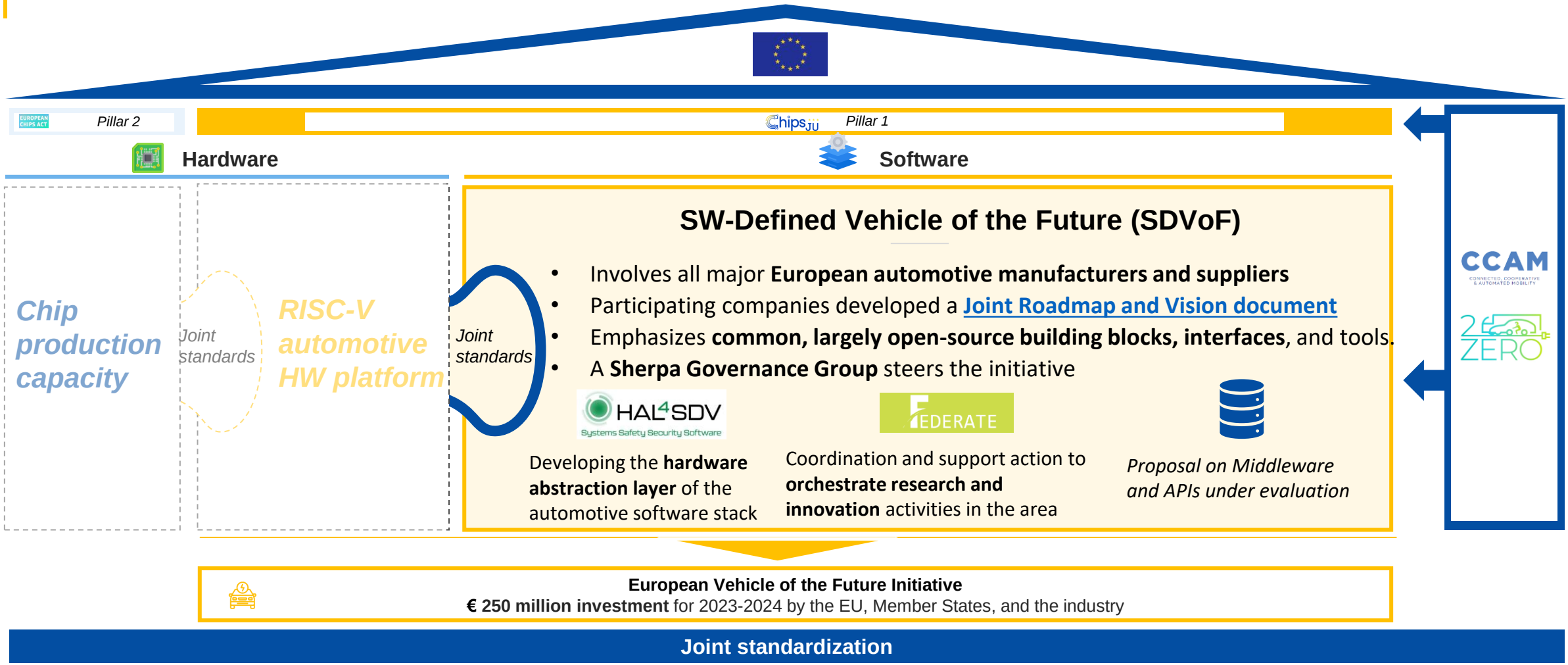
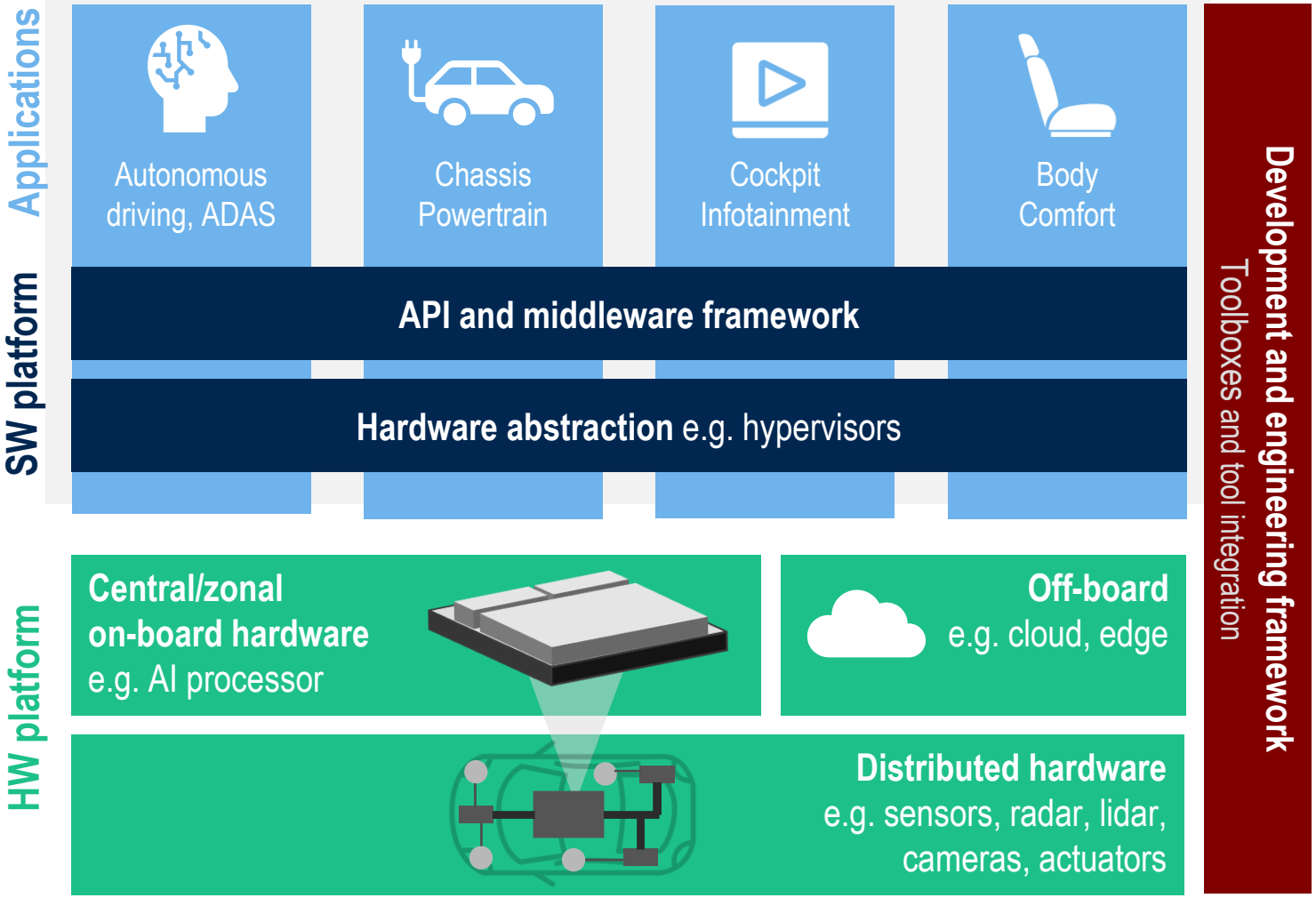
European Vehicle of the Future ecosystem: Deep-dive on **RISC-V based automotive HW platform**(1/2)



European Vehicle of the Future ecosystem: Deep-dive on **Software-defined vehicle of the Future (SDVoF)** (2/2)



Vehicle of the Future: AI dimension



Use AI: autonomous driving, EV-charging, virtual assistant
→ Discussed under CCAM & 2ZERO

AI for Productivity: (generative) AI to support engineering and validation
→ Topic under preparation for Chips JU 2025 - SDV

Support AI processing: Design and fab for the AI HW platform, accelerators, tools
→ Discussed under Chips JU

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SDVoF Ecosystem and Manifesto

Participants in Chips JU projects
HAL4SDV and FEDERATE

Automotive OEMs
BMW
DAIMLERTRUCK
FORD OTOSAN
MERCEDES-BENZ
RENAULT - AMPERE
STELLANTIS
VOLVO TRUCK
VW - CARIAD

SW dev.tool providers
AVL
DASSAULT
ECLIPSE EUROPE
FEV
METIS BALTIC
TERAGLOBUS
TRUSTINSOFT
VECTOR
VERUM

Semiconductor companies
ARM
CAE List
INFINEON
NXP
ST MICROELECTRONICS

Automotive Tiers
ACCENTURE
BOSCH - ETAS
CONTINENTAL - ELEKTROBIT
CRITICAL SOFTWARE
DIMECC
FORVIA
MICHELIN
OP'nSOFT (OPMobility)
RESILTECH
ROVIMATICA
SYSGO GMBH
TENSOR EMBEDDED GMBH
TTTECH
VALEO
VITESCO
ZF

Industry associations
ANFIA
AUTOSAR
COVESA
EUCAR
PFA
VDA
VDI/VDE-IT

Academia & RTOs
AGEN.EST.CON.SUP.INV.CIENT.
ASTAZERO
BARCELONA SUPERCOMP.CENTER
COMMIS.ENERGY
DLR
FRAUNHOFER-IKS
FZI
INRIA
INSTITUTO SUPERIOR PORTO
KIT
POLITECNICO DI MILANO
POLITECNICO DI TORINO
RWTH AACHEN
TU Berlin
TU EINDHOVEN
TU LULEA
TU MUNICH
UNI OSTRAVA
UNIV BOLOGNA
UNIV.COTE AZURE
UNIV.STUTTGART
UNIV.UOLU
UNIVERSITA MODENA E REG.EMILIA
VIF

Declaration signatories
"Collaboration on a European Software-defined Vehicle of the Future Ecosystem"

Renault Group	**Henry Bzeih** Vice President SW & SWS
BMW GROUP	**Dr. Christoph Grote** SWP Electronics and Software
AVL	**Prof. Dr. Helmut List** CEO
Continental	**Giles Mabire** CTO Automotive
ETAS BOSCH	**Dr. Thomas Irawan** President
FORVIA Inspiring mobility	**Christophe Aufrere** SVP, CTO
MICHELIN	**Eric Vinesse** EVP, R&D
OPmobility	**Alexandre Corjon** EVP, Innovation & SW
PFA FILIÈRE AUTOMOBILE & MOBILITÉS	**Luc Chatel** President
TTTech	**Dr. Stefan Poledna** President
Valeo	**Christophe Le Ligné** CTO
VDA Verband der Automobilindustrie	**Hildegard Müller** President VDA e.V.
ZF	**Dr. Dirk Walliser** SVP Corporate R&D

SDVoF Vision and Roadmap

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Support to the core Vehicle of the Future Ecosystem in EU Partnerships in 2023-24

Icons: Freepik

- Running projects
- Calls in 2024

CCAM Partnership - HE Cluster 5

Call 5/24–9/24 12M€(EU) +- 2 proj.
Centralised in-vehicle control architectures for CCAM connected to cloud-edge continuum

2ZERO Partnership - HE Cluster 5

Call 12/23 – 4/24 10M€ (EU) 4-5 proj.
Development tools for SDV
that enable zero emission mobility

Investments 2023-2024:
250M EURO

EU + Ind
~ 40M€

Under evaluation by the Chips JU

Chips JU Focus Area - Software-defined Vehicle of the Future (SDVoF)

2023: CSA FEDERATE 2M€ (EU) Start Oct 2023
Coordination of the VoF Initiative, Roadmapping, Support Governance, …

2023: RIA HAL4SDV 18M€ (EU, started April 2024)
Hardware abstraction layer of the SDV, SW-tool framework

2024: One IA up to 20M€ (Chips JU WP 2024 – closed on 14 May 2024)
Service Oriented Framework for the Software Defined Vehicle of the future

EU **2 M€**

EU + MSs + Ind
~ 65M€

EU + MSs + Ind
~ 70M€

Chips JU Focus Area RISC-V automotive HW Platform

2024: One IA up to 20M€ (Chips JU WP 2024 – closed on 14 May 2024)
High Performance RISC-V Automotive Processors supporting SDV

EU + MSs + Ind
~ 70M€

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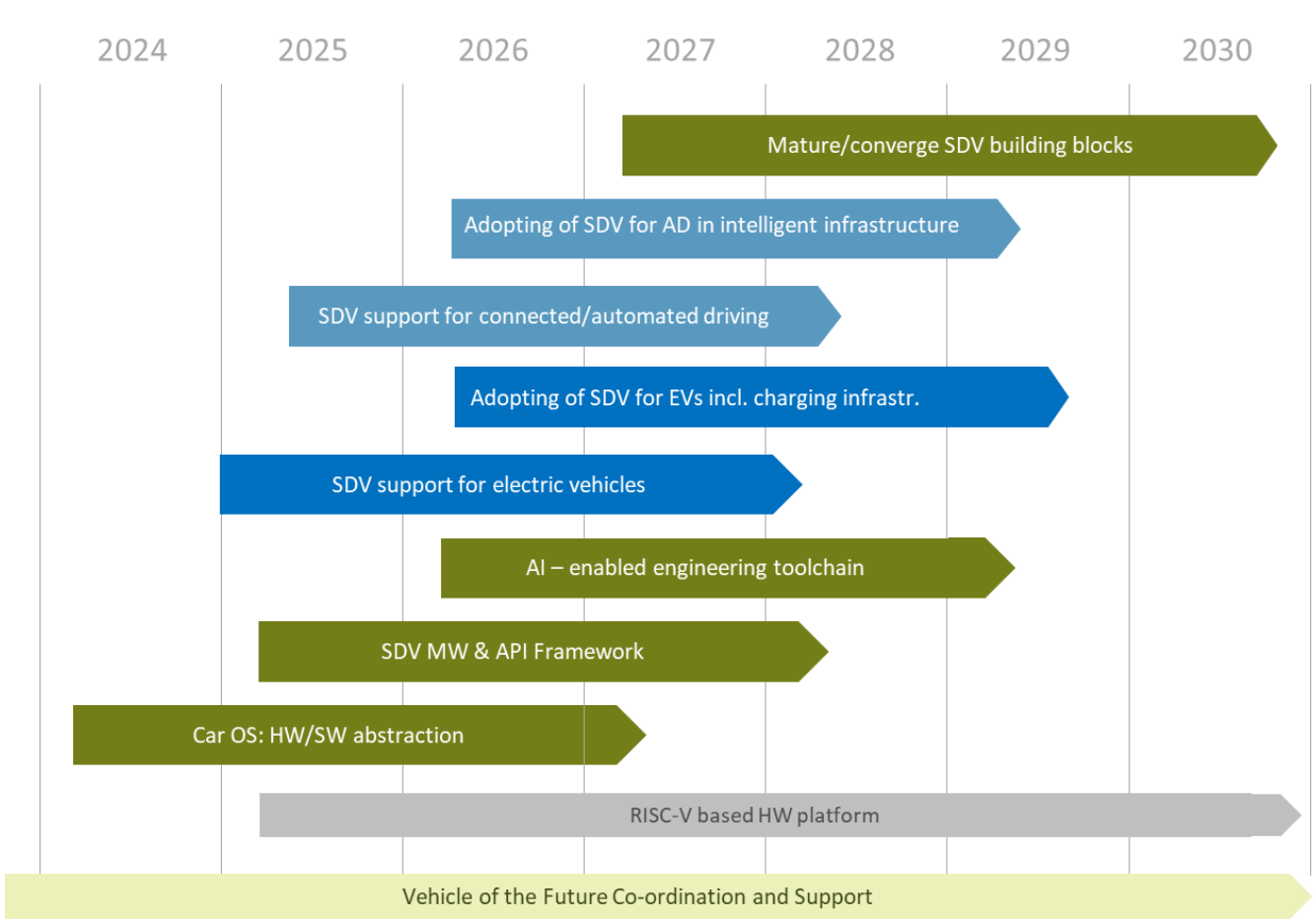
European SDV Initiative – Roadmap



European Partnerships

Chips JU 2026 (*)

CCAM 2025+27 (*)

CCAM 2024 (*)

2ZERO 2025+27 (*)

2ZERO 2024

Chips JU 2025 (*)

Chips JU 2024

Chips JU 2023

Chips JU 2024++

Chips JU 2023 + 2026 (*)

Legend:
(*) current proposal by the SDV Sherpa Governance Group to the decision making bodies of the European partnerships

European Commission

Thank you

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