



Towards the vehicle of the future: reflections from a European perspective

Eclipse Automotive Open Source Summit
Garmisch Partenkirchen, 6 June 2023

Dr. Max Lemke, Head of Unit Internet of Things, DG CONNECT

[Open European software-defined vehicle platform | Shaping Europe's digital future \(europa.eu\)](#)

The challenge of the shift to software-defined vehicles

Mobility is increasingly:



electric



connected



autonomous



shared & servitised

Lines of SW code in a car

100 million **200 million** **1 billion**

Today

2025

2030

Share of electronics in total cost of a car
Deloitte



22%

2000



35%

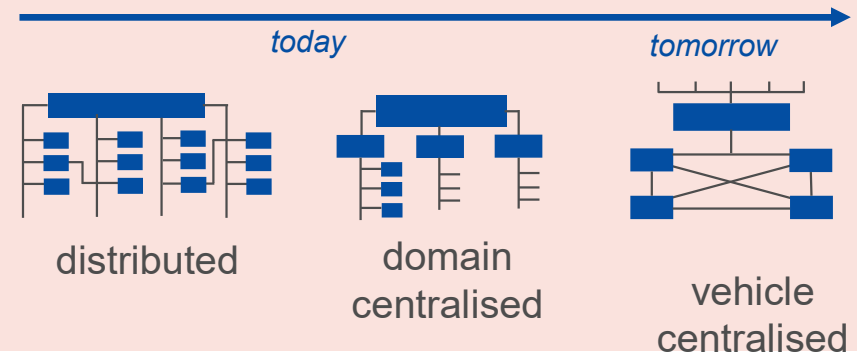
2010



50%

2030

Evolution of e/e architecture
McKinsey



Delivering on EU strategies in the automotive sector

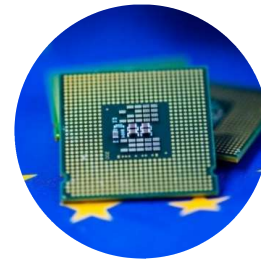


Automotive HW platform (open-source): under discussion



Open Framework for SW-defined vehicle platforms (CarOS + Middleware): 1st Call under KDT JU 2023

EU CHIPS ACT



CCAM
2ZERO

NEW INDUSTRIAL STRATEGY



RESEARCH AND INNOVATION POLICY

Horizon Europe



DATA STRATEGY

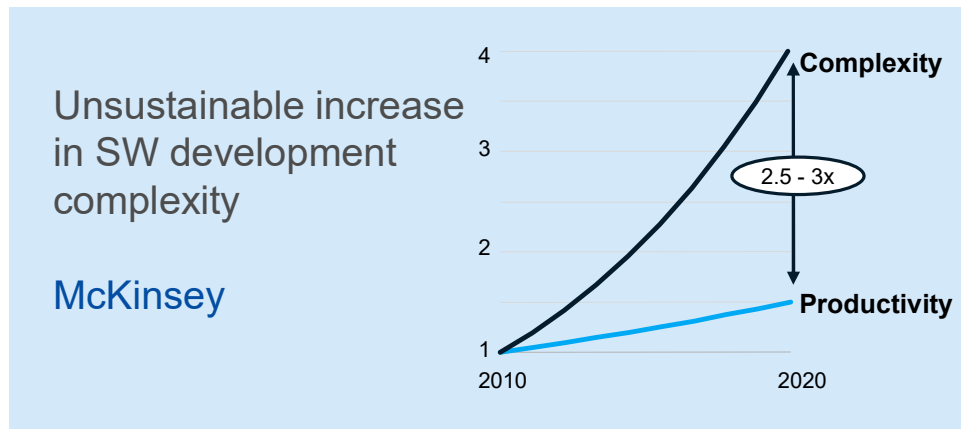


EUROPEAN GREEN DEAL

Fit for 55



Rationale for a European Software-defined Vehicle ecosystem



- European actors must master the glue of all digital components in the vehicle in order to maintain their lead role: the Software-defined vehicle platform (SDV)
- EU actors could join forces in an open and precompetitive set-up across OEMs and suppliers

Key challenges for OEMs and Tier-1 suppliers:

High effort and costs for managing SW complexity, backward compatibility, maintenance after SOP

For Tier-1 suppliers: High-share of non-value adding efforts, e.g., adaptation of applications & functions towards multiple OEM platforms/ standards

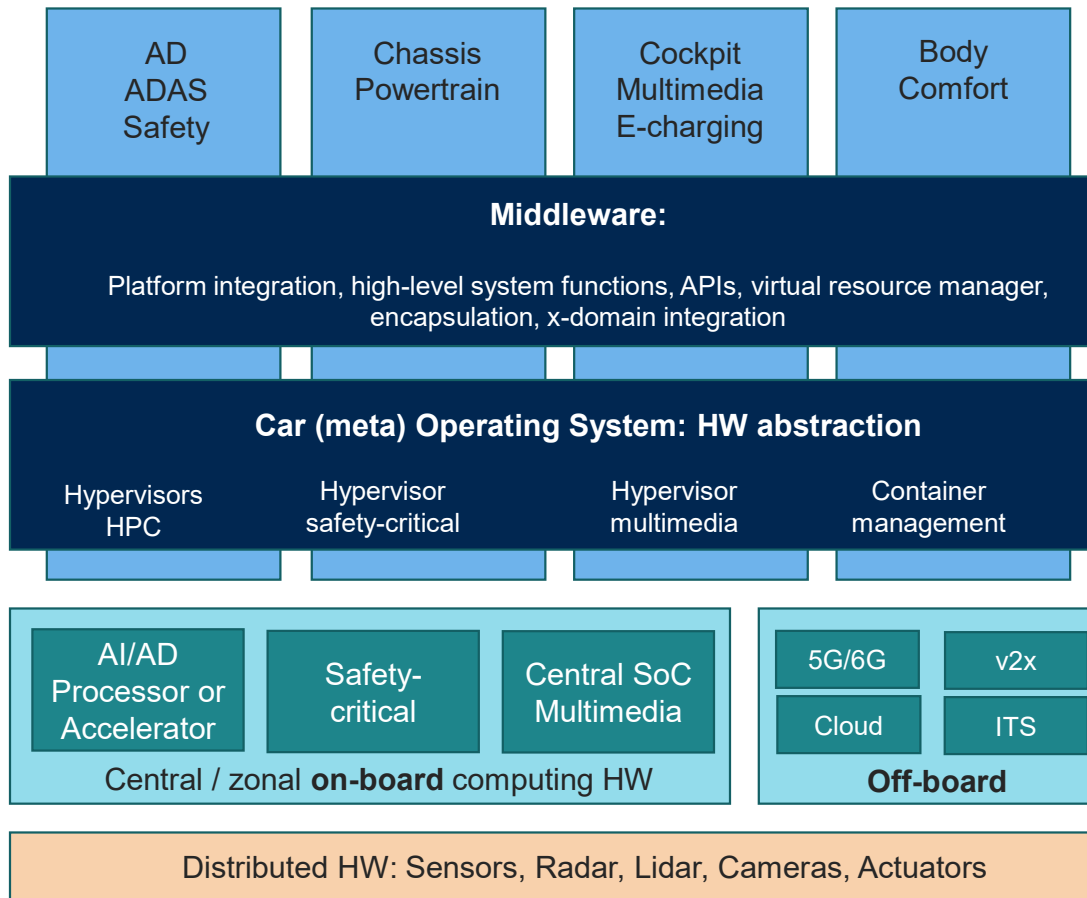
Increased dependency on tech companies who set de-facto standards

Delays in software projects are delaying new vehicle launches

High switching costs from legacy to new SW platforms

Vehicle of the Future: Software Stack for the Software-defined Vehicle

CCAM
2ZERO
Partnerships



SW-development Framework:
DevOps, Toolboxes, Tool-Integration

2024: Chips JU
SDV Focus Area
under
consideration

KDT JU
SDV Focus Area
Call 2023

2024: Chips JU
Automotive HW
Platform
under consideration



First characteristics of an open European SW-defined Vehicle initiative

pre-competitive

agility

code-first

level playing field

open source

hardware agnostic but
not hardware ignorant

ecosystem

non-differentiating elements

framework of
SDV architectures

common
open APIs

orchestrated distributed
development

common
building blocks

abstraction
layers

DevOps &
toolchains

overcome
fragmentation

shared
goals

building on
existing initiatives

Conclusions from the Workshops of the
Governance Group of OEMs and Suppliers

