Software First, Digital Always
How Software accelerates
Next Generation Mobility

Dr. Christian Müller | Corporate R&D | ZF Group
The Car Becomes Part of our Everyday Infrastructure

- Personal Network
- Home Network
- Circular Network
- Office / Retail Network
- Car Network
- Mobility Network
- Energy Network

The Networked Vehicle
Software is Driving Next Generation Mobility at ZF: Leveraging Vehicle System Expertise for Disruptive SW Functions
Managing the new SW paradigm

Complexity dilemma

Relative growth over time, for automotive features*
indexed, 1=2008

Transformation need

New EE-Architectures & HPC
Connectivity & Cloud
SW / HW Separation & SWaaX
Shared Platforms & Development Kits
Community Mindset & People

*Analysis of >200 software-development projects from OEMs and from tier-1 and tier-2 suppliers.
**Top-performing quartile of technology companies.

Source McKinsey

*Source Synopsis 2022
software first
digital always
360° offering for Software-defined Vehicles

Focus areas:
- Software solutions
- Connectivity
- Computing
- Power
Software-enabled Acceleration

DevOps development approach

Cloud-based platform
Continuous integration

Benefits
• Agile development and higher robustness
• Improved international collaboration
• Higher efficiency, quality and transparency

Integration time
Today: Build Time 8 h
Future: Build Time 4,5 h (-44%)

Frontloading Middleware

Generic Middleware
OEM specific application

Benefits:
• Shortened starting phase of projects
• Earlier supply of software on target hardware
• No gateway workaround solutions needed

Delivery time
Today: Ready for C-Sample 6 months
Future: Ready for B-Sample

Future software kit enables high product maturity and reduction of delivery time
With the Function Adapter, ZF already equips each function with the appropriate connector for every interface in SdV-platforms
Summary

- Software efforts will grow above average
- Companies work on components in the software ecosystem (non differentiating)
- Join forces with “code first” inner and open source approach leverages individual efforts
Next Generation Mobility.

NOW.
clean, safe, comfortable