COMMON SEMANTIC APPROACHES
SIGNALS AND SERVICES

› MODERN E/E ARCHITECTURES RELY ON SERVICES
› SERVICES SUPPORTS ABSTRACTION
› SIGNALS / DATA BECOME INFORMATION

ADC: Autonomous Driving Computer; VIP: Vehicle Integration Platform; IDC: Infotainment & Cockpit Domain Computer
COMMON SEMANTIC APPROACHES
COMMON VEHICLE INTERFACES ENABLES SCALABILITY

COOL IDEA
IMPLEMENTATION
ADAPTATIONS PER PLATFORM

BUSINESS DOES NOT SCALE
COMMON SEMANTIC APPROACHES
DECOUPLING OF DEVELOPMENT & DEPLOYMENT CYCLES

▷ Decoupling of implementation

▷ Decoupling of deployment cycles

▷ Service development does not require knowledge of all future functionality

▷ New business models possible due to independent deployment
COMMON SEMANTIC APPROACHES
COMMON VEHICLE INTERFACE INITIATIVE

Cooperate on standards, compete on implementation.

Specific data model = Vehicle + Profile + Extension (e.g. ebike) (e.g. EV)
DIGITAL TWIN CONCEPTS APPLIED TO VEHICLE DATA
WE ARE WORKING ON THE DATA DRIVEN LIFECYCLE

Closing the loop ...

Value Stream

As designed
As produced
As operated

Data integration across product lifecycle, enables Data Driven Business and Operations

CONFIRMED
DIGITAL TWIN CONCEPTS APPLIED TO VEHICLE DATA
CLOSING THE LOOP NEEDS OPEN STANDARDS & PARTNERING

DATA AS PRODUCED – EXAMPLE: OPEN MANUFACTURING PLATFORM (OMP)

BOSCH CONTINUES CONTRIBUTING TO OPEN SOURCE ACTIVITIES WITHIN THE INDUSTRY 4.0 ECOSYSTEM.
Bosch teams up with Microsoft to develop software-defined vehicle platform for seamless integration between cars and cloud

Bosch contributes software to the Common Vehicle Interface Initiative

Gain insights into the open source project Common Vehicle Interface (CVII) of automotive suppliers

The fundamental shift from a hardware-based to a software-centric IoT device on wheels requires a rethink to address customer needs. Today, customer value is driven by software features such as infotainment as well as driver assistance and intelligent connectivity features rather than by mechanical functions. This presents a towering challenge, as no company is going to be able to transform the automotive industry on its own. Companies have to collaborate within the automotive ecosystem and build synergies with partners. This is why we believe that open standards and open source, as a model for collaborative development, offer a faster path towards new and rapid innovations.

As part of the CVII, Bosch has contributed and is working on the Vehicle Edge and IoT Event Analytics open-source projects.

IoT Event Analytics is an efficient stream processing and complex event processing (CEP) engine based on a publish/subscribe system. It can run inside a vehicle to pre-process data and in the backend. IoT Event Analytics platform already includes ETLs for Node.js, Python, and C++ to implement "teal" and use the platform. A Visual Studio Code plugin helps you to get productive fast.

The Vehicle Edge is a software stack for vehicle computers. It acts as a bridge to signals and services from field buses and other ECUs. The Vehicle Edge stack integrates various software components and is built around the IoT Event Analytics platform. Vehicle signals are abstracted using the GENIVI VSS data model. These VSS signals are made available to vehicle-agnostic applications running in the IoT Event Analytics platform via the kuksa valve server implementing the WSCI VSS standard.

Bosch supports the GENIVI and CVII goal of establishing an industry-wide common vehicle data language and invites the open source community to use and further develop the Vehicle Edge and IoT Event Analytics.

Join the CVII by participating in any of the active subprojects.

For further information regarding the IoT Event Analytics or Vehicle Edge you can contact Lars-Erich Kiefer, Christian Krawitz or Sebastian Schmitz.
COMMON SEMANTIC APPROACHES
OUR COMMON GOAL

TOGETHER
SHARE OUR LOVE FOR OPEN SOURCES AND STANDARDS AND BE PART OF THIS JOURNEY.

TRANSPARENT
SPREAD THE APPROACHES WITHIN OUR NETWORK AND BEYOND.

TRANSFORMATIVE
LIVE THE TRANSFORMATION AND THE AGILE WAY OF MOVING THINGS FORWARD.
BE PART OF THE JOURNEY. BE PART OF THE LIFECYCLE.

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THANK YOU.