

ONLINE EDITION

# ObjektForum

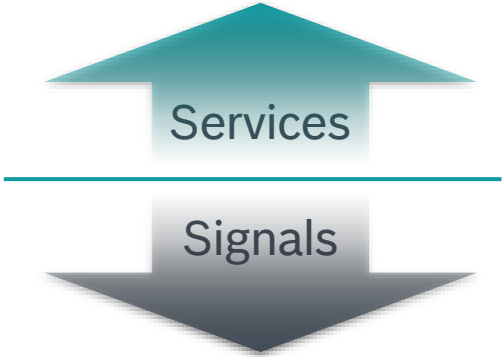
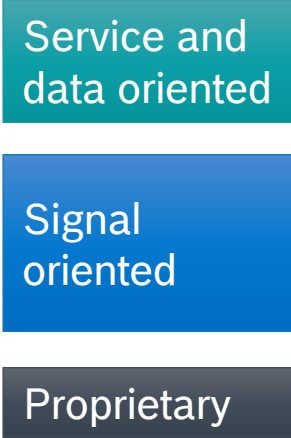
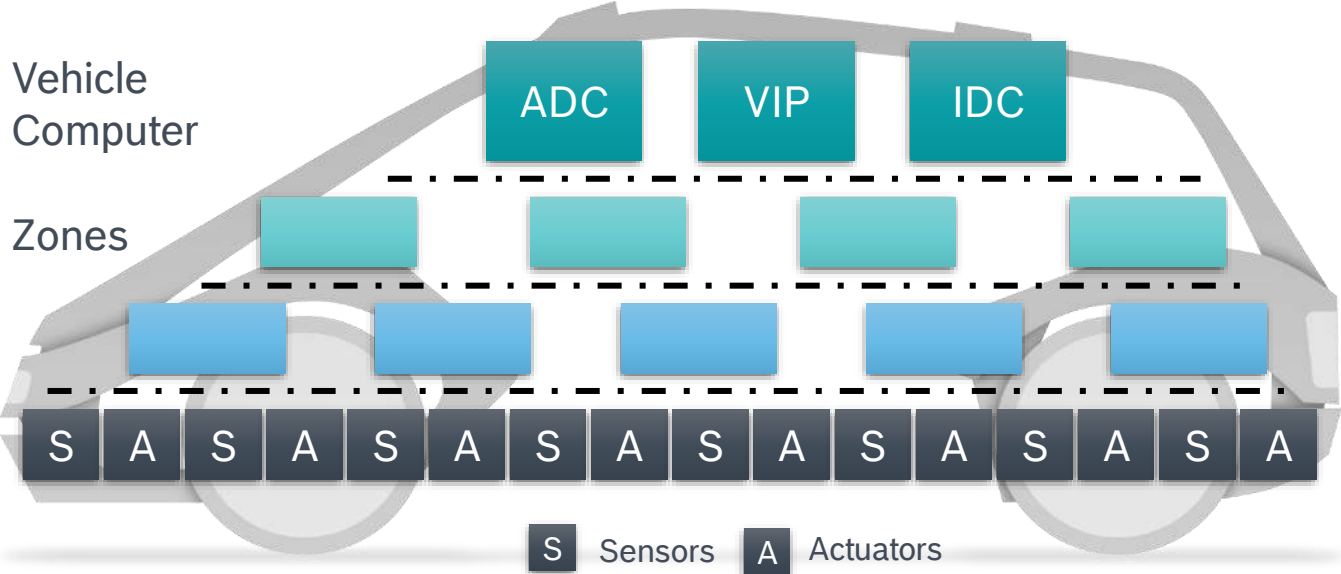
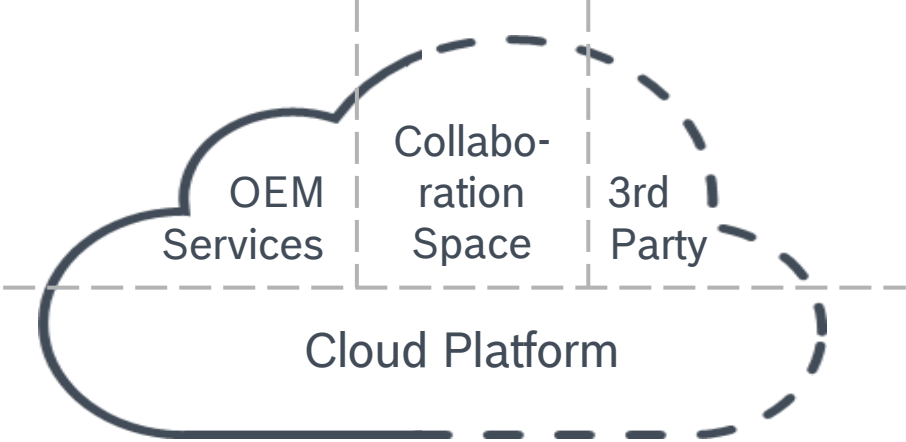
Vehicle-Apps – IT meets Automotive





# Vehicle-Apps – IT meets Automotive Signals and Services

- > Modern E/E architectures rely on services
  - ▶ Services supports abstraction
  - ▶ Signals / data become information



# Vehicle-Apps – IT meets Automotive

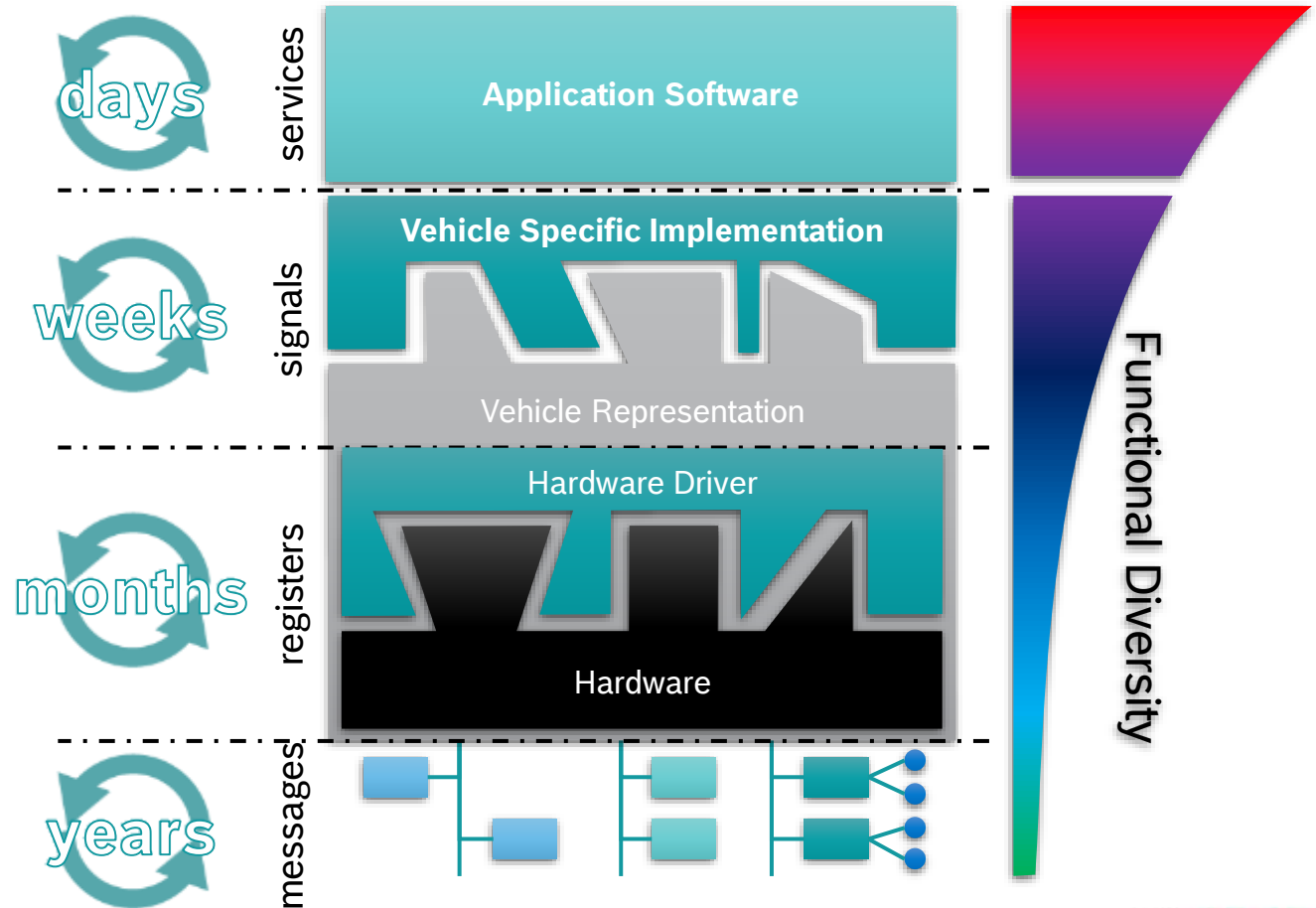
## Common Vehicle Interfaces Enables Scalability



# Vehicle-Apps – IT meets Automotive

## Decoupling of Development & Deployment Cycles

- › Decoupling of implementation reduces effort and complexity
- › Decoupling of deployment cycles allows fast updates for high level features and well-proven processes for embedded functionality
- › Service development does not require knowledge of all future functionality
- › New business models possible due to independent deployment

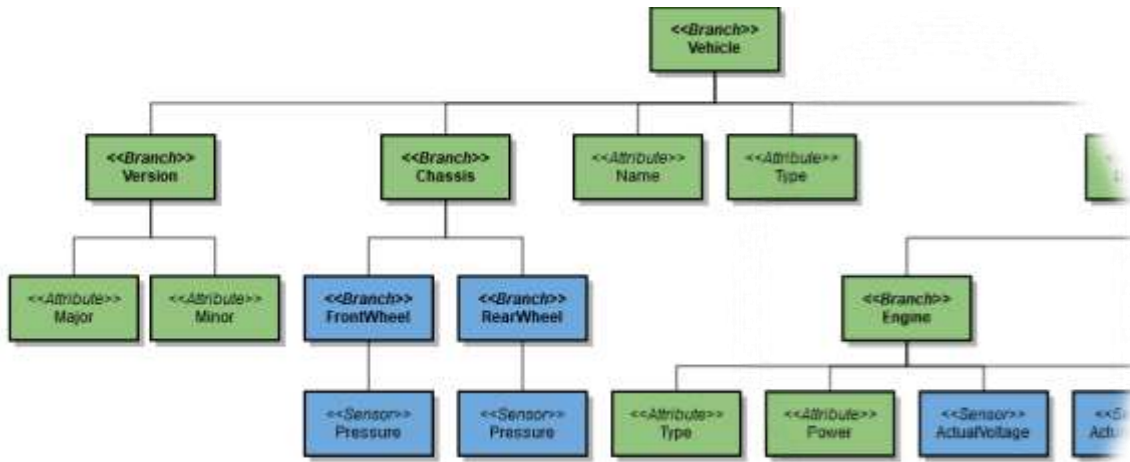


# Vehicle-Apps – IT meets Automotive

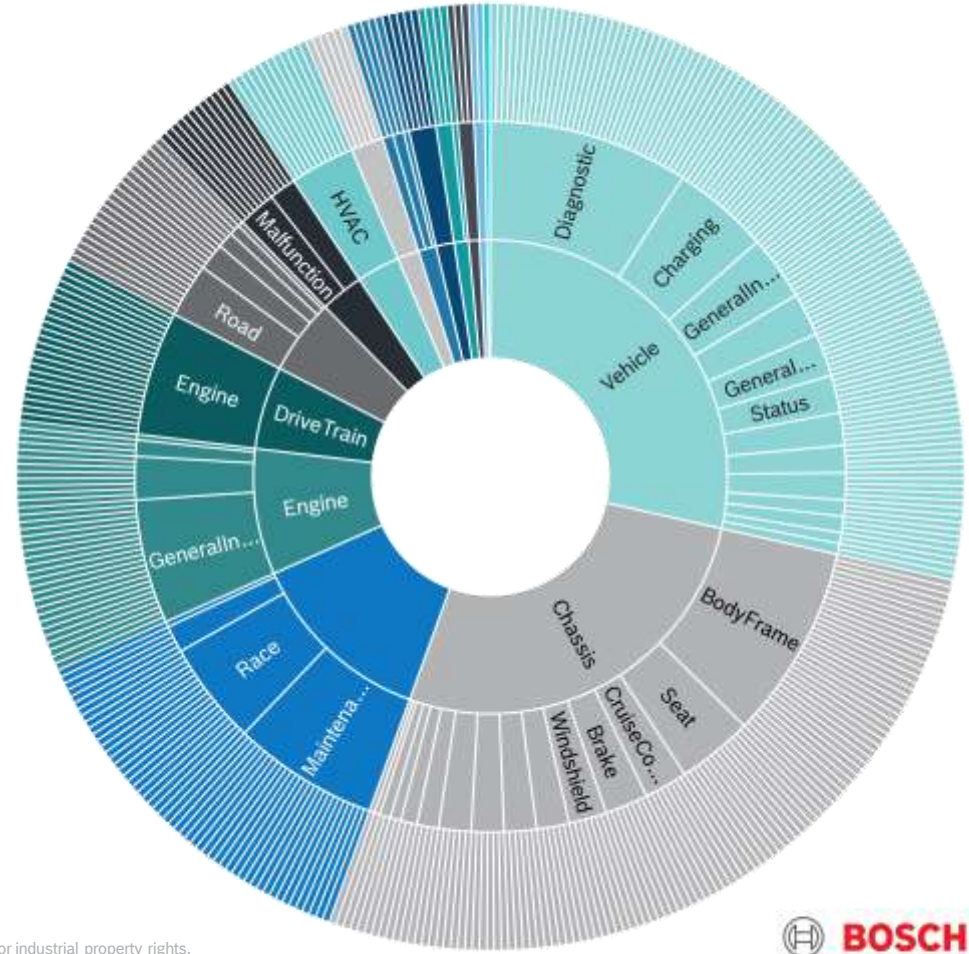
## Common Vehicle Interface Initiative

Cooperate on standards, compete on implementation.

*differentiating*



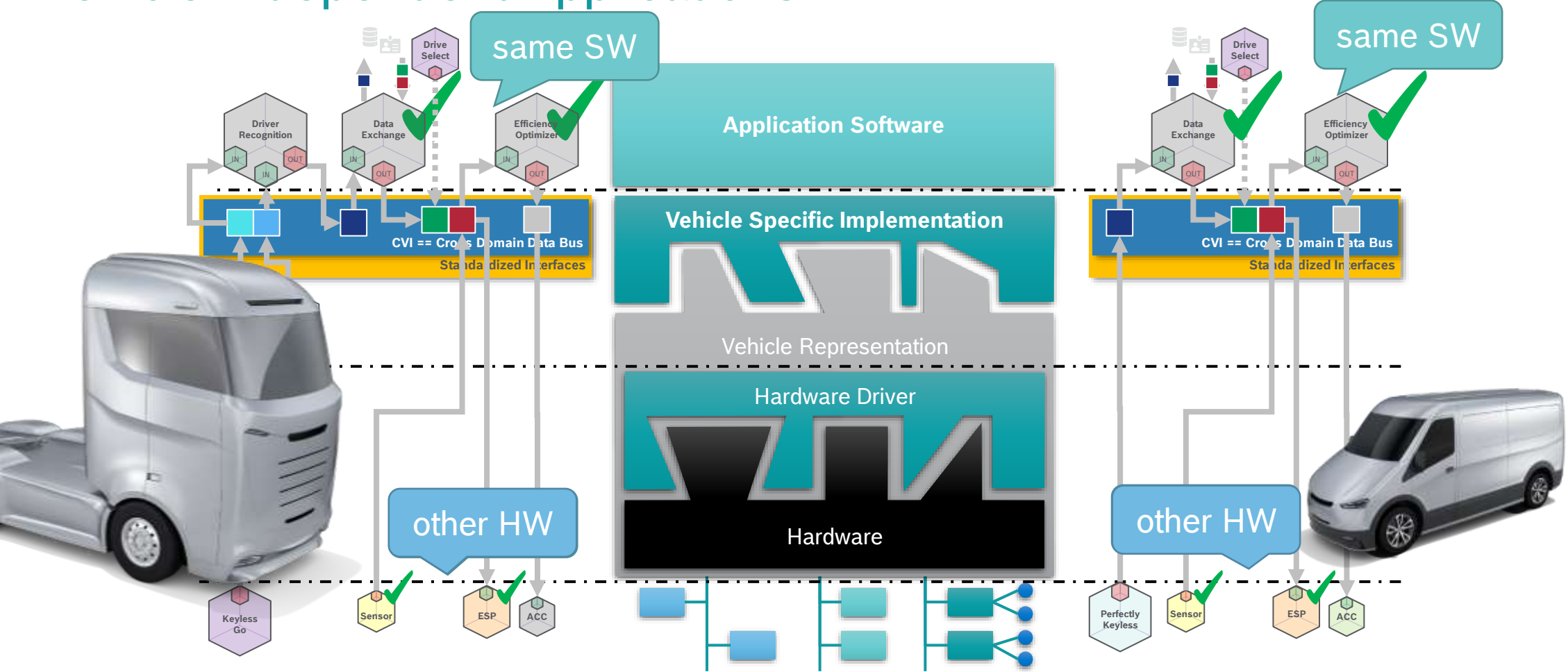
Specific data model = Vehicle + Profile + Extension  
 (e.g. ebike) (e.g. F1)





# Vehicle-Apps – IT meets Automotive

## Vehicle Independent Applications



# Vehicle-Apps – IT meets Automotive Use Cases & Proof of Concepts



## Efficiency

Optimizing vehicle efficiency by combining different vehicle / domain information



## Fleet Optimization

Ensure optimized fleet, utilization and cost efficiency



## Vehicle Health / Diagnostic

Detect engine and battery problems. Track maintenance.



## Enhance Vehicle Information

Enrich embedded information by combination of available embedded signal data



## Electronic Horizon

Using environment and vehicle information for optimized driving experience



## Data Driven Development

Identification of relevant events and scenarios



## Connected Development

Remote support for application and development issues



## Save Communication

Communication between QM and ASIL Domains safe and secure



## Automotive Integration Platform

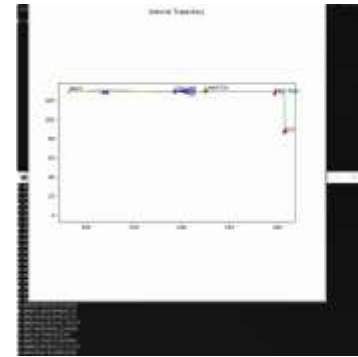
Integration into Vehicle Computer Demonstrator

- Flexible Safety Domain (Autosar Adaptive / QNX)
- Linux Implementation to enable Fleet Management



## Nyon

Exemplary Integration of Vehicle Interface into eBike / Two Wheeler (Linux)



## Rapid Prototyping

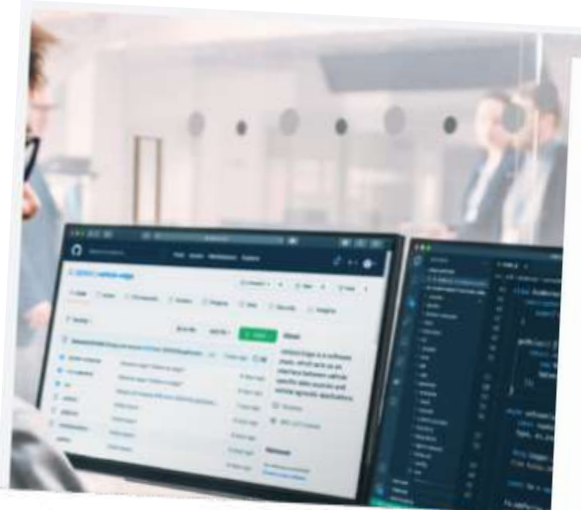
Software Simulation for rapid prototyping, Software in the Loop, and to allow first experiences with vehicle interfaces



# Vehicle-Apps – IT meets Automotive Partnering & Open Source

## Bosch teams up with Microsoft to develop software-defined vehicle platform for seamless integration between cars and cloud

contact download share



#DEVELOPER

## Bosch contributes software to the Common Vehicle Interface Initiative

Gain insights into the open source contribution of Bosch to the Common Vehicle Interface Initiative (CVII) of

### Bosch contributes Vehicle Edge and IoT Event Analytics to the Common Vehicle Interface Initiative (CVII)

Erstellt von Sebastian Schildt, zuletzt geändert von Gunnar Andersson am 16. Mär 2021

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 SDKs for Node.js, Python, and CPP to implement "talents" extend 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 combines 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 KUKSAval server implementing the W3C VISS 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. In the CVII we look forward to sharing best practices across the industry and to further fruitful discussions and software contributions.

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 Kerstan](#) or [Sebastian Schildt](#).

# Vehicle-Apps – IT meets Automotive

## The Starting Point for our Collaboration



### Collaboration with University of Mannheim

–

#### Build your own start-up:

You get access to an interface that allows you to read out all data of a vehicle and import new data (bilateral communication).

Based on this possibility, what would be your business idea to found a startup?



**andrena**  
OBJECTS  
Experts in agile software engineering

Quellen: Mannheim Business School entnommen aus [Handelsblatt 25.04.2019](#); Andrena Objects AG entnommen aus [LinkedIn Profil](#)



Have a wheelie  
nice day  
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ETAS  **BOSCH**