# Objective and transparent analysis of vehicle attributes

AVL-DRIVE™ APPLICATION

The AVL-DRIVE™ measurement system captures various sensor and CAN bus signals, such as longitudinal acceleration, engine speed, vehicle speed, pedal positions and vibrations. These input quantities are collected by the DMU (DRIVE Main Unit) and passed on to the AVL-DRIVE™ software for further processing and analysis. Additionally, AVL-DRIVE™ is capable to work in conjunction with selected third-party measurement equipment.
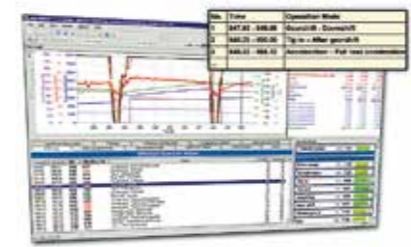
Over 100 different driving modes for driveability, ride comfort, handling and ADAS (e.g. part load acceleration, tip in after closed pedal, down shift after kickdown, TOF-Approach, Cut-in) are detected automatically and more than 450 criteria are rated in real-time.
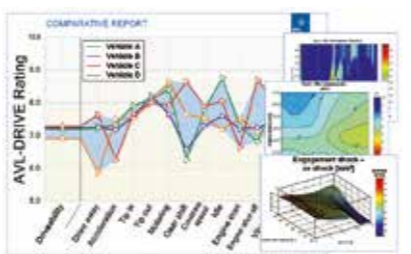
A profound data analysis is accelerated by means of a graphical representation of the test results. (e.g. 2D/3D plot, statistical trend analysis, frequency analysis, comparative report). The automatic generation of reports in combination with an automatic creation of benchmark libraries is key to the fast communication of test results.
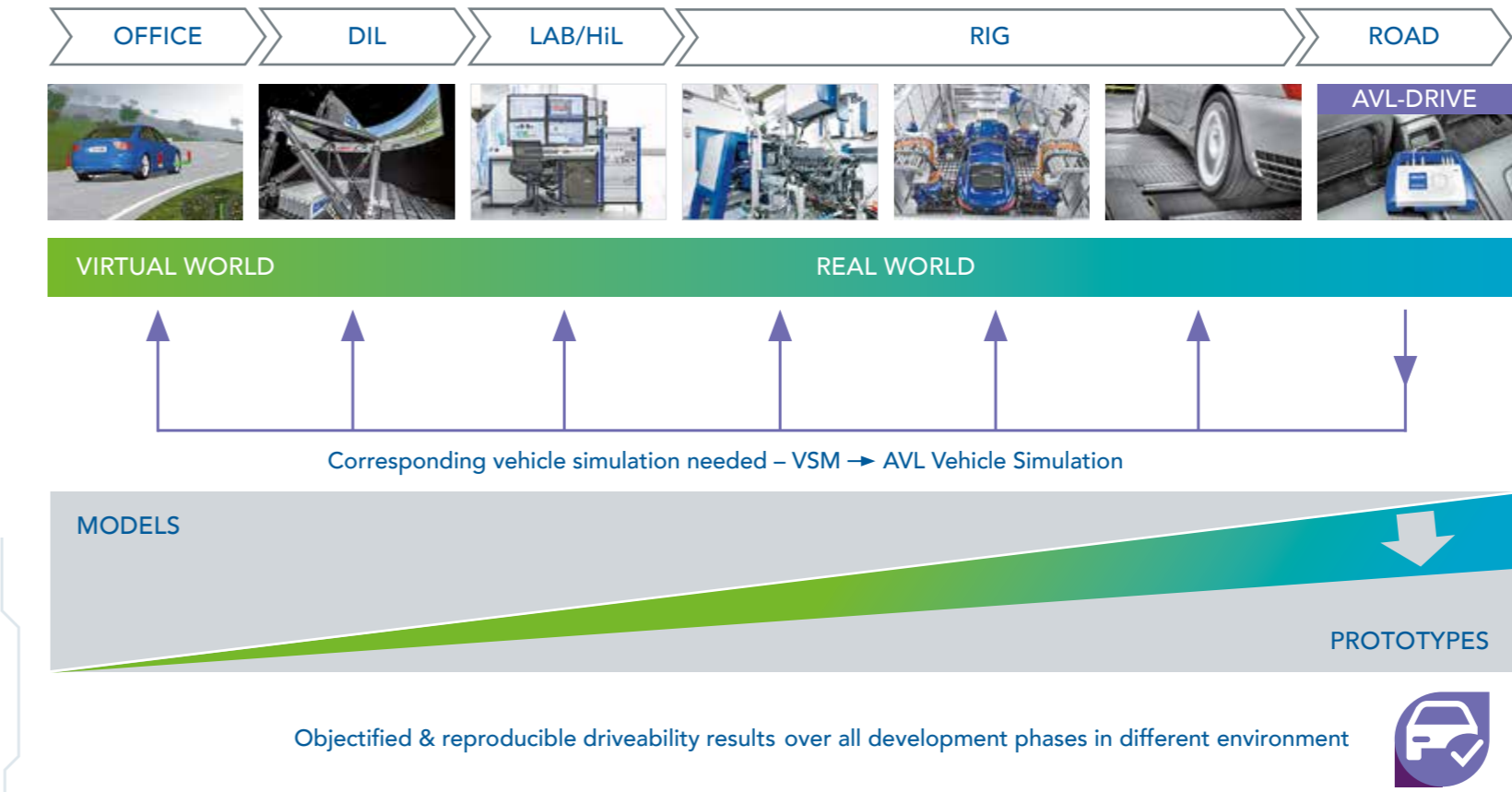
THE CHALLENGE

Increasingly stringent emission legislation on a global level as well as cost pressure and increasing customer demand for quality have strong effects on vehicle design and characteristics. The choice of CO_2 and efficiency measures from the powertrain to the vehicle is all about deciding on the right balance between cost and positive driving attributes like driveability handling, ride comfort and (AD/ADAS) – forming the vehicle's "DNA".

These driving attributes describe the qualitative assessment of the vehicle's response to the driver's or environmental input. An outstanding level of these attributes greatly enhances the overall driving experience while an acceptable level is an essential prerequisite for driving pleasure and purchase decision. Furthermore they are decisive factors in brand identification.

AVL-DRIVE™ supports the development of driveability, ride comfort, handling and AD/ADAS and enables to:
- Provide a high driveability quality level for vehicles with conventional, hybrid and pure electric powertrain concepts
- Handle the trade-off between emissions, fuel economy, performance and driveability
- Guarantee an agreed vehicle character (Branding)
- Improve ride comfort and handling by means of objective evaluation
- Manage an increased vehicle complexity
- Increase efficiency (Target driven development)
- Reduce time to market
- Reduce development costs
- Define parameters for perceived safety and comfort with human-centric approach (AD/ADAS)

OFFICE	DIL	LAB/HiL	RIG	ROAD

AVL-DRIVE

VIRTUAL WORLD   REAL WORLD

Corresponding vehicle simulation needed – VSM → AVL Vehicle Simulation

MODELS

PROTOTYPES

Objectified & reproducible driveability results over all development phases in different environment


Based on a benchmark analysis, quality targets for vehicle attributes are defined and used as a reference to provide targets for the evaluation of these driving attributes at all stages within the development process (definition of quality gates, target driven development).
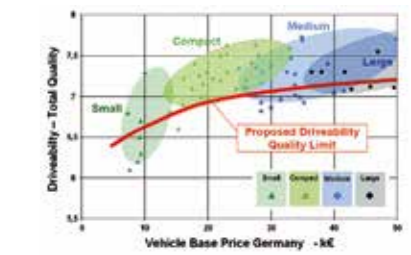
Frontloading of driving attributes development activities (from road, chassis dyno and engine testbed to simulation) leads to a reduction in vehicle testing which creates cost savings. Simultaneous development in early phases leads to improved quality and – with computer-based automatic optimization – this improved quality can even be achieved in a shorter amount of time.

A new level of efficiency in vehicle development in simulation, on engine and/or powertrain test-beds is achieved by a closed loop optimization process incorporating AVL-DRIVE™, AVL VSM™, AVL PUMA Open™ and AVL CAMEO™.
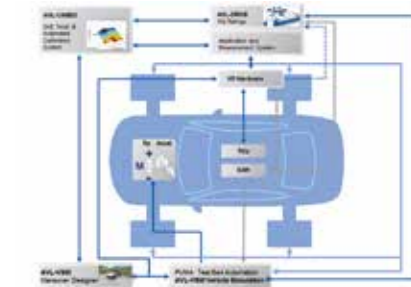
THE AVL SOLUTION PACKAGE

AVL Services
- AVL-DRIVE™ system support and maintenance
- AVL-DRIVE™ system introduction and user training
- Objective vehicle benchmarking and target-setting
- Comprehensive vehicle analysis, presentation of modification and improvement potential
- Driveability development/calibration
- Integration of OEM-specific criteria and assessment algorithms
- System integration in customer test field

AVL-DRIVE Product Family:
AVL-DRIVE™ Driveability
For the objective evaluation of longitudinal accelerations

AVL-DRIVE™ ADAS
For the objective evaluation of ADAS and AD functions

AVL-DRIVE™ Ride & Handling
For the objective evaluation of vertical and lateral accelerations

AVL STRENGTHS

- Vehicle Benchmarking based on extensive database for comparison of vehicle attributes with market competitors
- Target specification for vehicle attributes
- Frontloading of vehicle attributes assessment with AVL-DRIVE™ and AVL VSM™ reduces the number of development loops and prototypes
- Automatic optimization for balanced vehicle attributes
- Reduction of after-market costs caused by driveability quality issues
- Objective verification of vehicle attributes supporting the release process
- Broad expertise and know-how in all main powertrain elements and deep understanding of driveability functions

THE ADDED VALUE

Fast
Objective and automated real-time assessment provides instant feedback on driving attributes quality issues.

Efficient
Fast driving attributes assessment in combination with automatic report generation encourages target driven development.

Universal
Common language between development areas, management and within the supply chain.

Consistent
Reproducible assessment of driving attributes based on measured physical values.

Flexible
AVL-DRIVE™ for all phases of the development process, from simulation to on-road vehicle testing.

Human-centric approch
Already at very early stages of the development process our focus is on the end user's expectations when driving a vehicle.

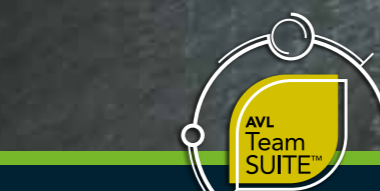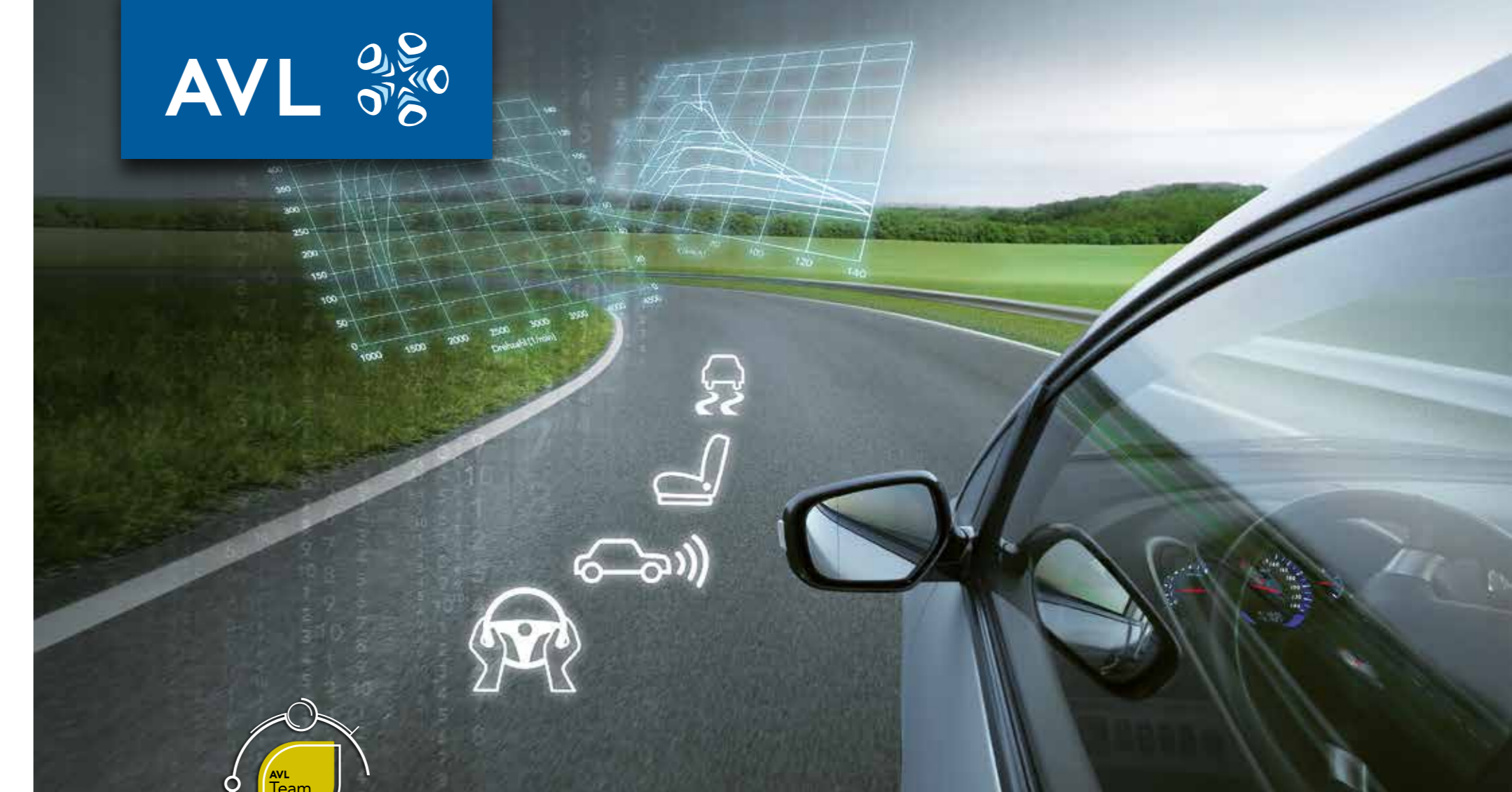**AVL-DRIVE™ – Drive your brand DNA**

AVL Team SUITE™

SUCCESS BASED ON INTERPLAY

Combine your strong team flexibly out of compatible, complementary players to meet your needs.

www.avl.com/meet-the-team

AVL-DRIVE™
The objective assessment of vehicle attributes.