SHIFT STRATEGY CALIBRATION

In a virtual environment

THE CHALLENGE

Shift strategy calibration usually accounts for approximately 25 % of the overall effort for transmission calibration in vehicle development. This task is normally carried out with prototype vehicles on the road or a test track. Complex and expensive environmental testing paired with the fact that vehicle prototypes are usually only available in a limited quantity and very late in the development process calls for new ways to manage shift strategy tasks.

THE AVL SOLUTION

AVL's approach is to combine simulation and hardware consistently over the whole process to allow frontloading of tasks. Thus, at every process stage all components that are not yet available in hardware are substituted by simulated components. With this methodology shift strategy tasks can be carried out already in an office, Software-in-the-Loop, or Hardware-in-the-Loop environment and calibrations only have to be validated in later environments.

THE ADDED VALUE

- Reduce prototype vehicles – perform driveability calibration and evaluation in the virtual world
- Reduce development and testing time up to 40 %
- Reduce costs drastically
- Design and asses your shift strategy and fulfill your brand specific requirements

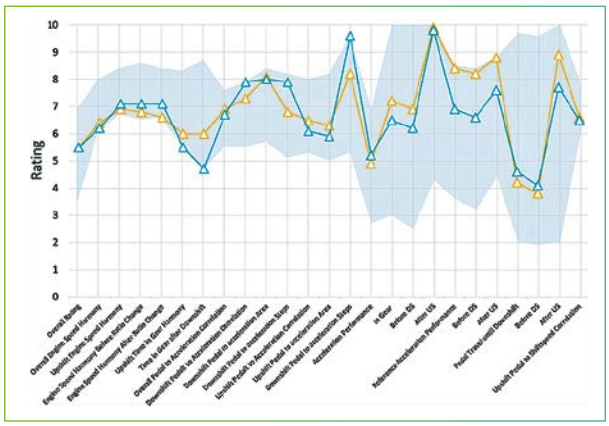
SOLUTION OVERVIEW

HOW DOES IT WORK?

Model.CONNECT™, AVL's neutral co-simulation platform connects the vehicle simulation and transmission simulation (e.g. AVL VSM™) with the software of the transmission control unit and AVL SPA™ (Shift Pattern Analysis). SPA is a tool to objectively and assess shift strategic behavior of a vehicle in regards to driveability. Shift strategy calibration is then carried out based on defined maneuvers in the virtual environment and assessed with SPA.

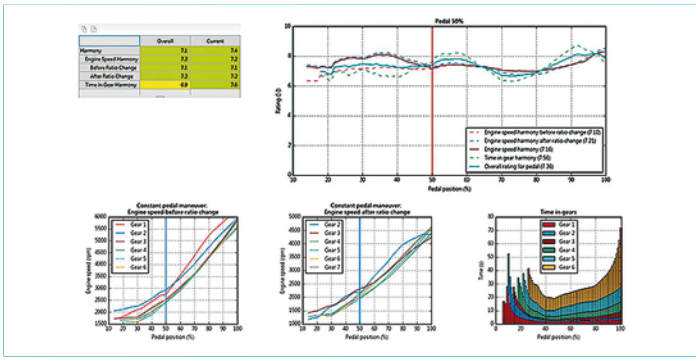
BENCHMARKING SERVICE

Compare customer vehicles to others



ANALYSIS AND CALIBRATION SERVICE

- Define brand driveability through analysis of calibration and performance data
- Calibration of shift strategy based on SPA assessment



Reduction of development time

- 5–10 times more measurement points in same time period
- High maneuver automation – 24/7 (168 hours a week)
- Early start of shift strategy calibration work
- Derivative calibration via vehicle model parameters

Reduction of costs

- Less time for calibration and testing
- Less prototype vehicles
- Less environmental tests

Increase of product quality

- Higher test coverage
- Easy test repetition (urban, interurban, mountainous, highway …)
- Any test track / road all over the world can be simulated
- Visualize tradeoffs between fuel consumption and driver satisfaction

FIND OUT MORE:

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