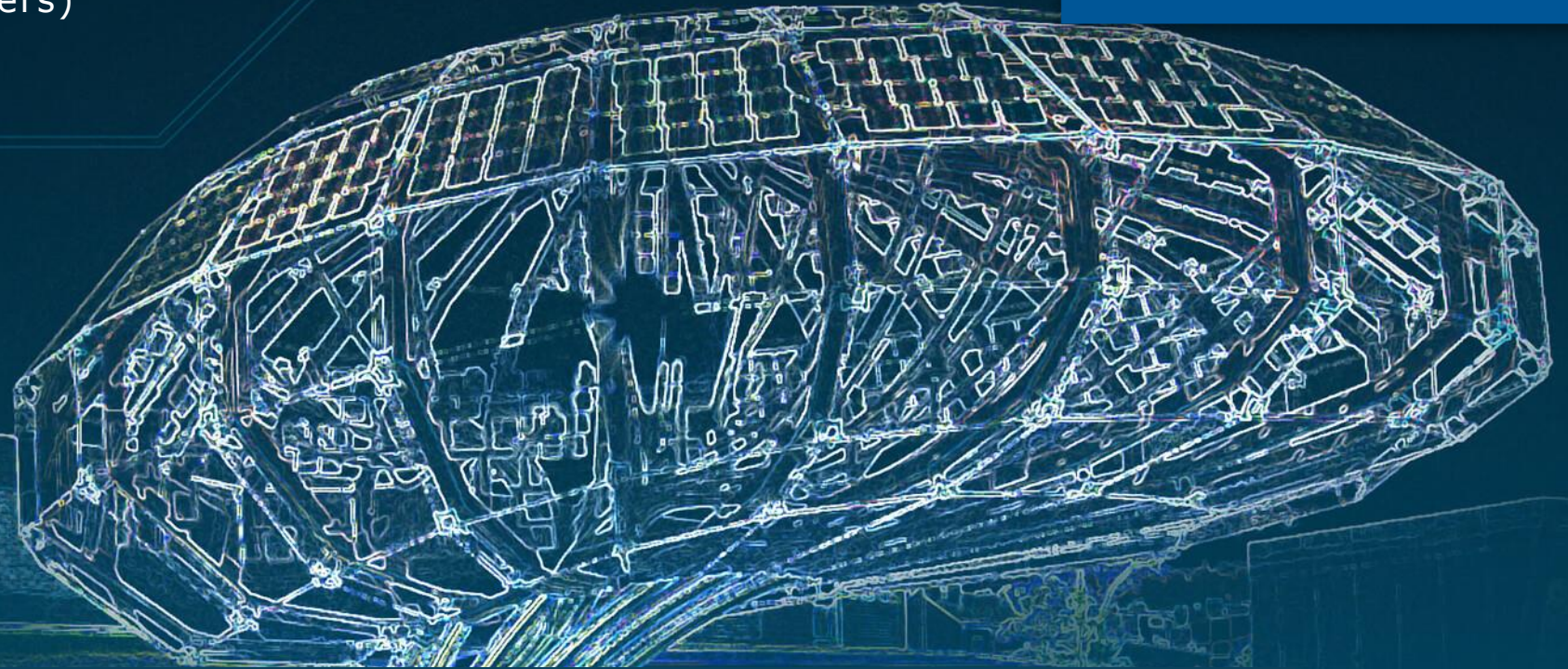


AVL



AVL List GmbH (Headquarters)



Smart Mobile Solutions

RDx Vehicle and Simulation Packages

**Patrick Falk, Marco
De Bei**

Efficient RDE Calibration Workflow

The Challenge

Issue: The RDE regulation has highly increased the calibration effort to validate new applications

AVL solution: a platform of Apps which support all phases of the calibration workflow, helping reduce the development effort

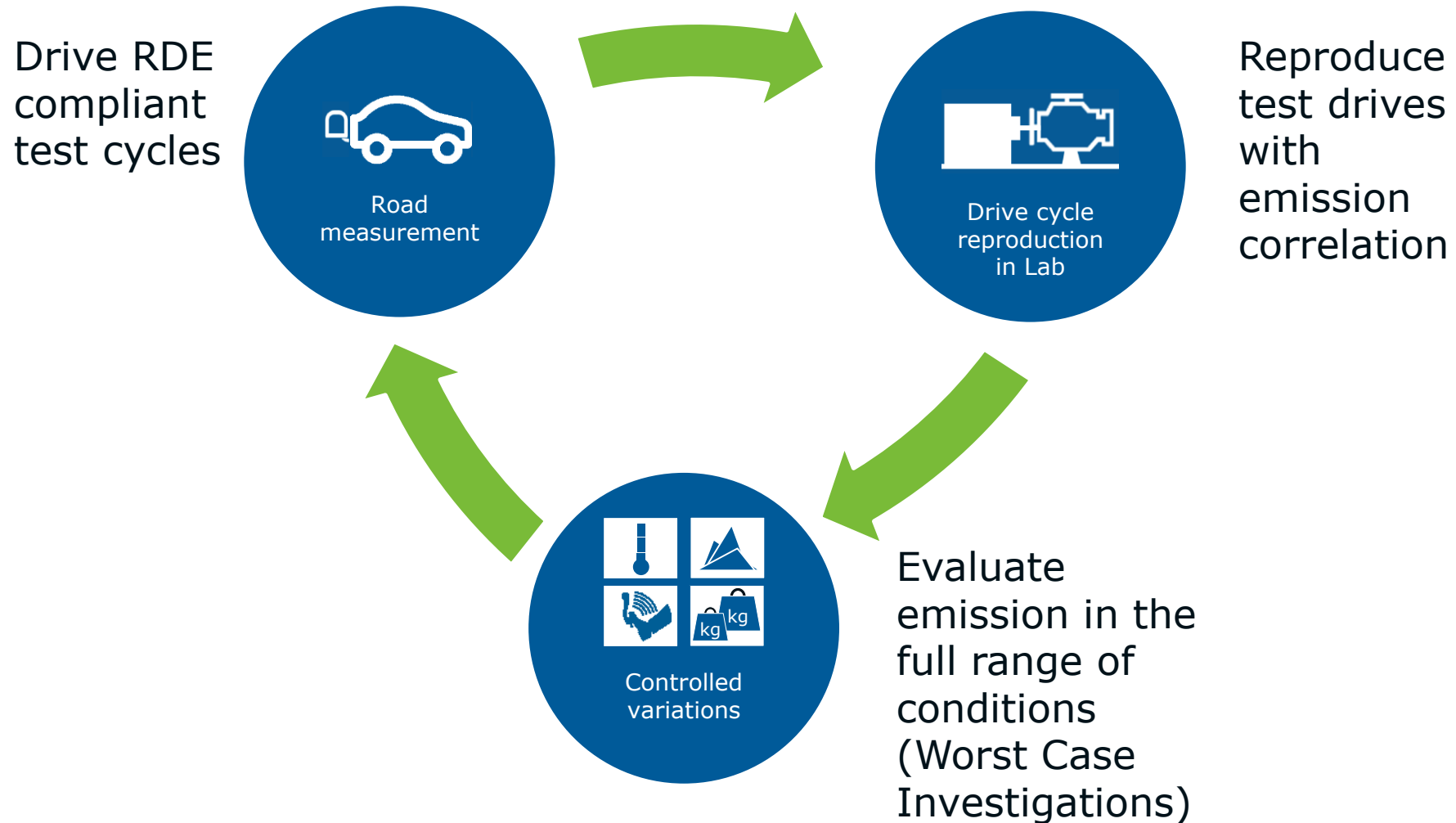


app. 5 times more effort per type approval

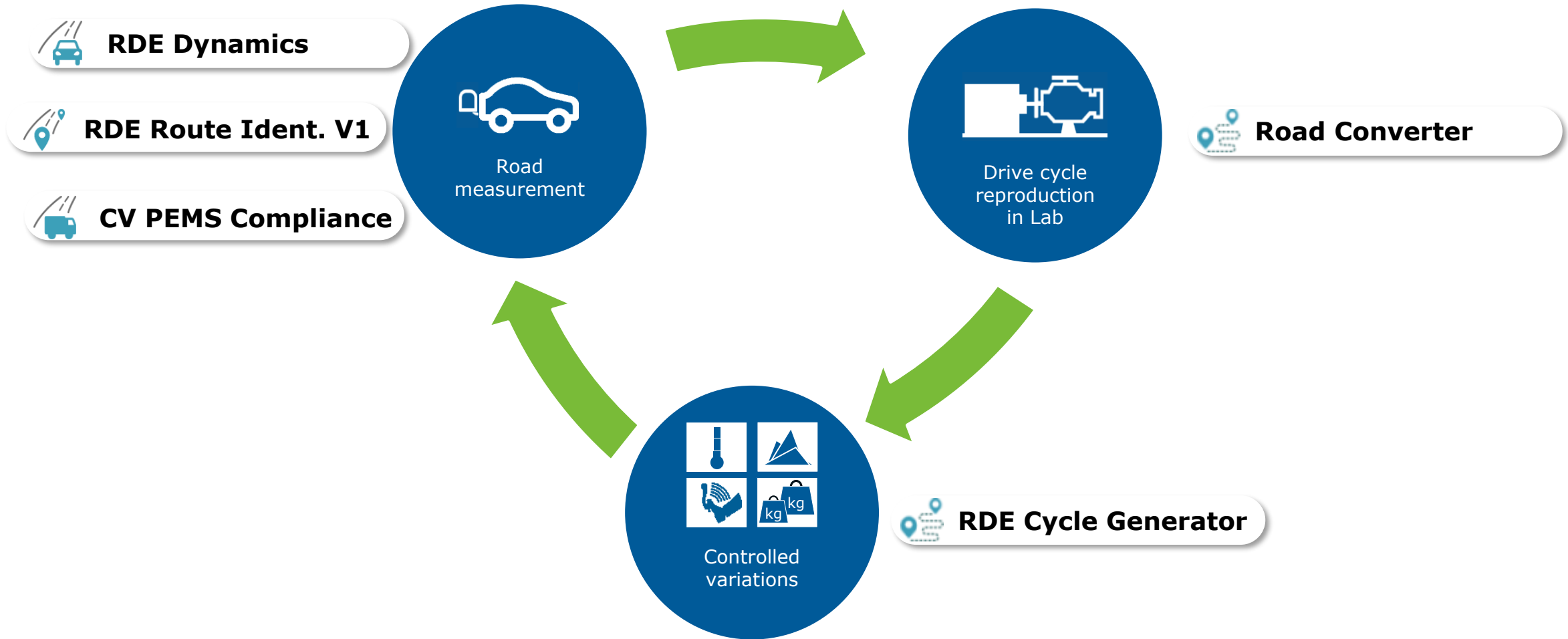
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RDE Workflow



RDE Workflow



RDE Dynamics

アプリ "RDE Dynamics" デモ動画



RDE Route Finder

Channel-Browser

- FILE1 (Online Signals)

PAR - Parameters

TM - Time Based (60)

<Edit Channel Name Filter>

\$ActiveCalibrationPage	0
\$Altitude	m
\$AudioComment	
\$AudioCommentData	*
\$Latitude	*
\$Longitude	*
\$Maneuver	-
\$Speed	km/h
Misfire_determination	-
Misfire_load	%
Misfire_n	rpm
RaceStart_Drehmoment_Rad_HIL	Nm
RaceStart_Drehmoment_Rad_HIR	Nm
RaceStart_Drehmoment_Rad_VL	Nm
RaceStart_Drehmoment_Rad_VR	Nm
RaceStart_EndTrigger	Unit_Per
RaceStart_OelSumpftemp_AT	Unit_Deg
RaceStart_OelSumpftemp_HAG	?C

Graphic Dependencies

Message List

To start the application, let's go to "Mobile Apps"

Road Converter

DATA CONVERSION PROCESS for ROAD TO TESTBED

Analysis and Report

Outdoor Testing

Indoor Testing



Generate speed and gradient profile from GPS and vehicle recorded data

GPS signal filtering and smoothing, Sensor fusion

Direct export to all Test formats (PUMA SSQ, generic CSV files)

Cycle Generator

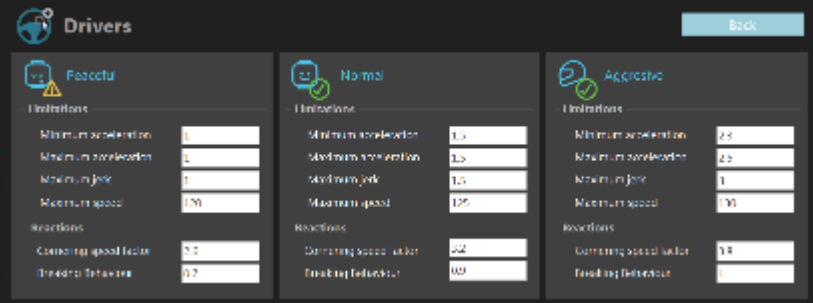
AVL RDE Cycle Generator Workflow Overview



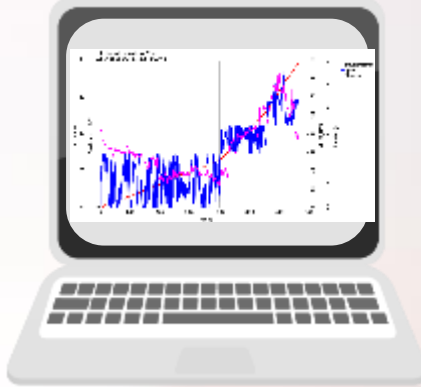
Define Start/End point in Google Map or upload an existing RDE measurement



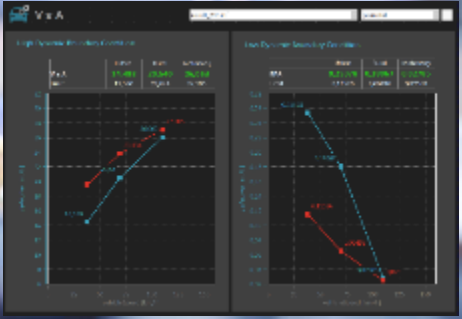
Select different driver types or vehicle parameters



Select a road & traffic condition



Calculate a RDE compliant drive cycle for simulation & testbed



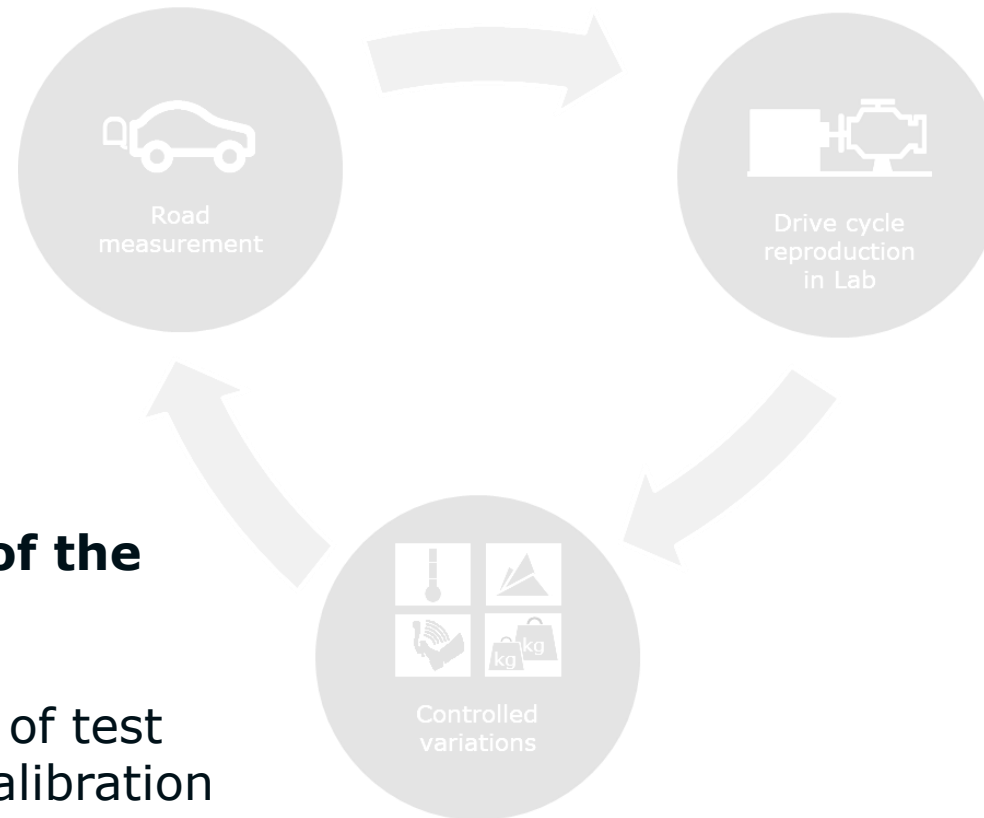
Smart Mobile Solutions – Key benefits

High efficiency in road tests:

Close to 100% valid RDE cycles!

Enhance the quality of the validation

Generating a wide field of test cases allows a robust calibration with reliable results



Shorten the development cycle of emissions calibration

Easy import of vehicle measurements allows frontloading of vehicle tasks to all testbed environments