

LeanDRA by efs



TURN
ANY CAR
INTO A TEST
VEHICLE

*Lean***DRA**

INTRO

A compact, modular solution that turns any vehicle into a test vehicle within minutes. Built for the development, prototyping and validation of driving functions in the real world.

KEY FACTS

- Plug & play installation within minutes. No permanent vehicle modifications.
- Small and compact form factor. Invisible within the cabin.
- Full vehicle access and control: actuators, sensors, networks.
- Built for development, prototyping and validation of driving functions.
- Seamlessly integrates into your existing hardware and software stack.

THE CHALLENGE

Test vehicle conversion takes weeks per car. Real-road data rarely flows back into development.

WHERE TEAMS LOSE TIME

- Fragmented tool landscape: separate systems for actuation, sensing, logging and analysis.
- Real-road data captured in silos. Feedback to development is slow and manual.
- Fleet test programmes are hard to scale. Each vehicle is a custom build.

THE SOLUTION

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LeanDRA is a comprehensive solution for the development, prototyping and validation of driving functions in production vehicles. LeanDRA uses existing vehicle systems and provides control over actuators, sensors and communication networks. Installation takes minutes; the form factor fits in the glove compartment.

Inputs

- Sensors
- Vehicle Bus
- Driver Inputs

Outputs

- Actuation Commands
- Logged Data
- Live Telemetry

KEY CAPABILITIES I

01. MODULAR HARDWARE PLATFORM

Compact, modular design that adapts to vehicle architecture. Add or remove modules per test campaign without custom builds.

02. PLUG & PLAY INSTALLATION

Connects to the vehicle system in minutes via standard interfaces. No invasive modifications, removal is just as quick.

SPECIFICATIONS & USE CASES

TECHNICAL SPECIFICATIONS

FORM FACTOR

- Compact form factor – invisible in the cabin

INSTALLATION TIME

- Minutes from box to first test run

VEHICLE INTERFACES

- Production Vehicle Buses
- Sensor inputs
- Actuator control

HARDWARE STRATEGY

- Uses existing vehicle hardware, software and connectivity

MODULARITY

- Modules added or removed per test campaign

USE DOMAIN

- Development
- Prototyping
- Validation of driving functions

USE CASE

ADAS FUNCTION PROTOTYPING

Iterate on new ADAS algorithms in a vehicle from day one. Go from idea to test result within a single day.

USE CASE

DRIVING FUNCTION VALIDATION

Validate driving functions across vehicle variants without separate test rigs. The car itself becomes the rig.

USE CASE

R&D DEVELOPMENT

Explore and develop advanced autonomous driving functions – with production-ready look and feel.



KEY CAPABILITIES II

03. VEHICLE SYSTEM CONTROL

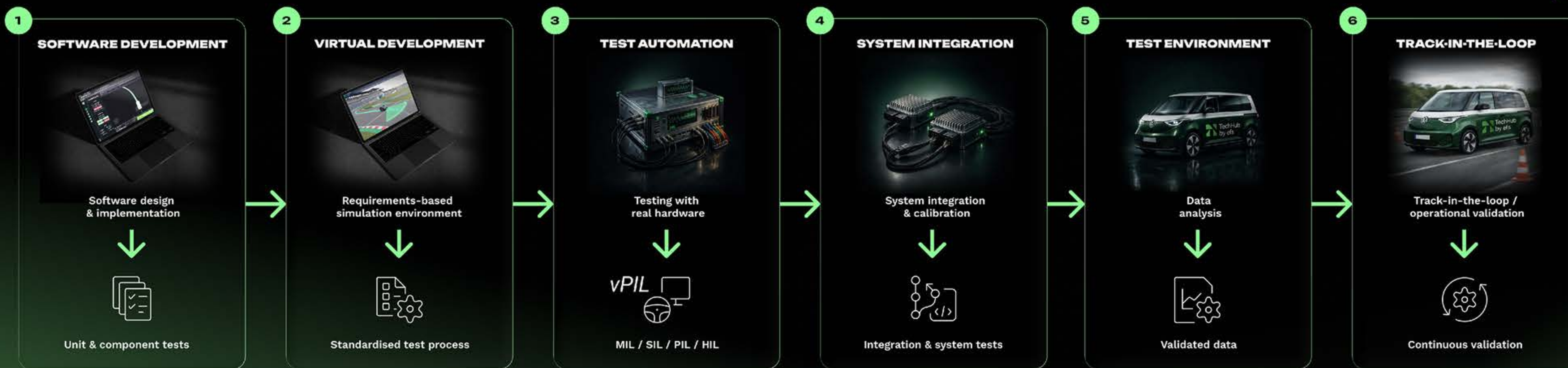
Full access to actuators, sensors and communication networks. The production vehicle's own subsystems become the test environment.

04. DATA CAPTURE & ANALYSIS

Synchronised data capture across all vehicle interfaces, fed directly into the development tool chain. Data is usable, not just stored.



END-TO-END VERIFICATION WITH IDENTICAL TESTS AND CONSISTENT DATA FLOW



MODEL-BASED SYSTEMS ENGINEERING

AI METHODS AS ENABLERS

(test design, anomaly detection, data analytics, predictive analytics, scenario generation)



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