DAIMLER

Model-Based Body Controller Software Development

Transforming Customer Expectations into Virtual Reality
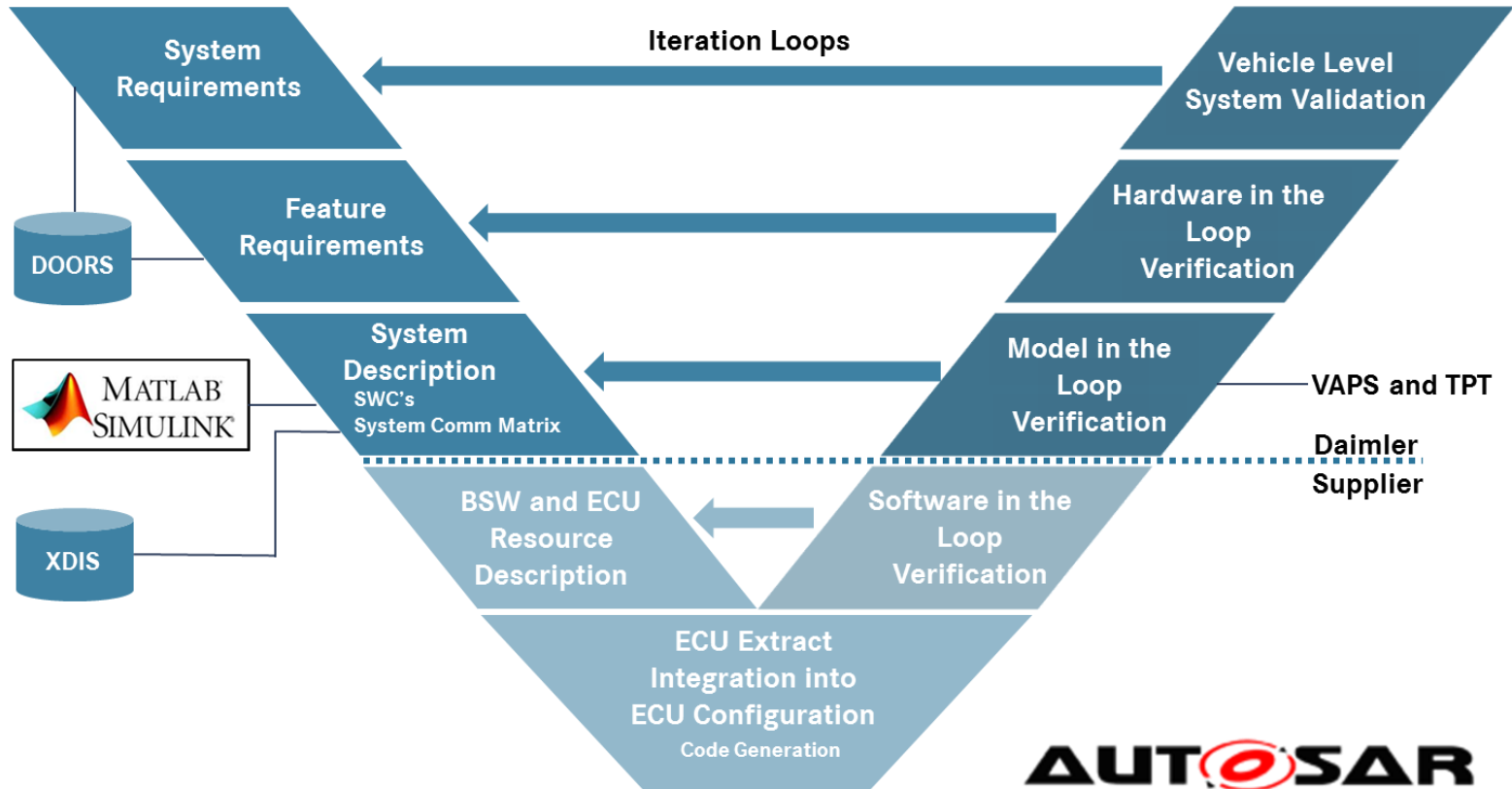
Overview

Model-based software development V-model

System requirements - The Customer Experience

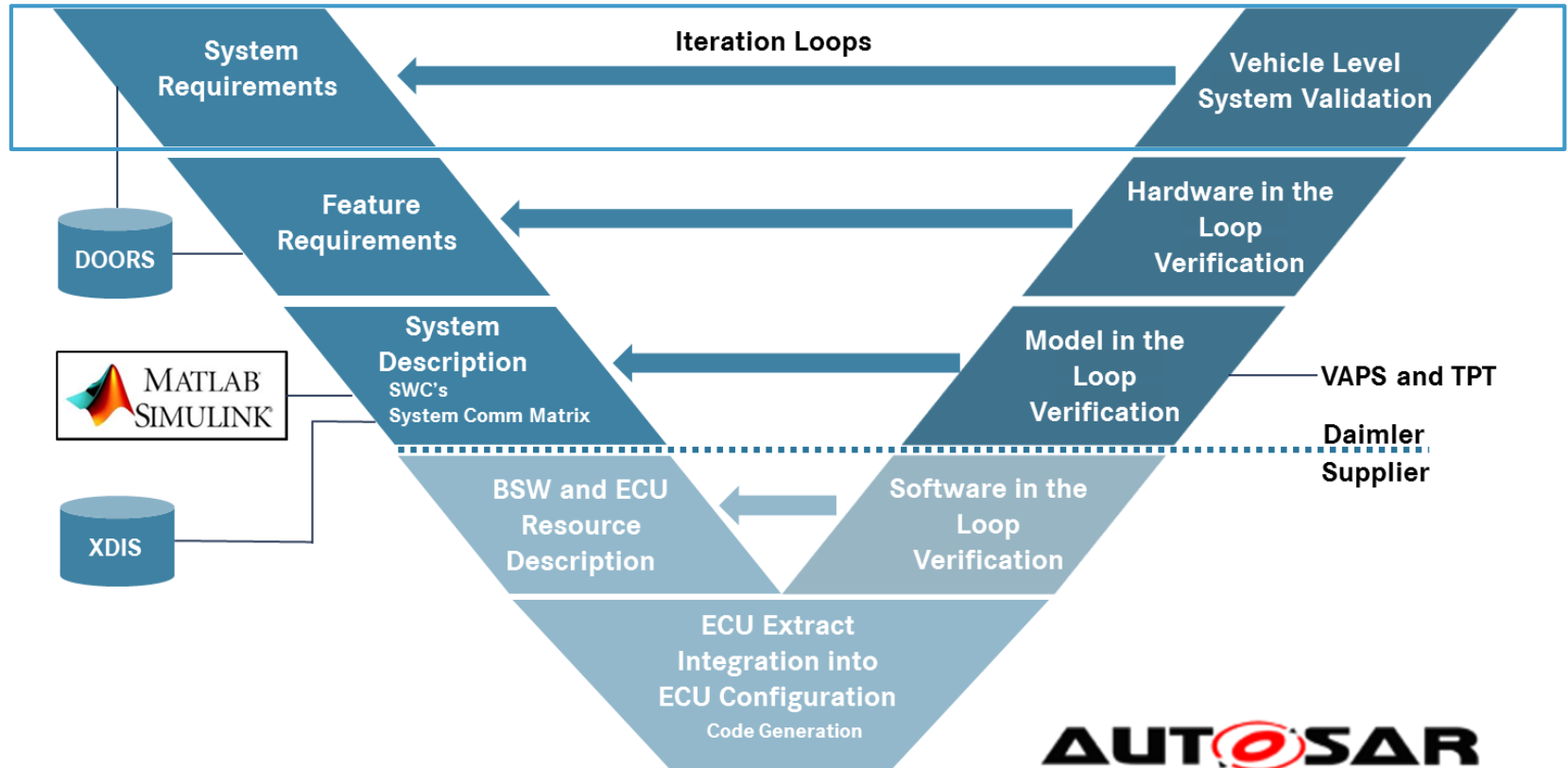Feature requirements – Functional description of software components

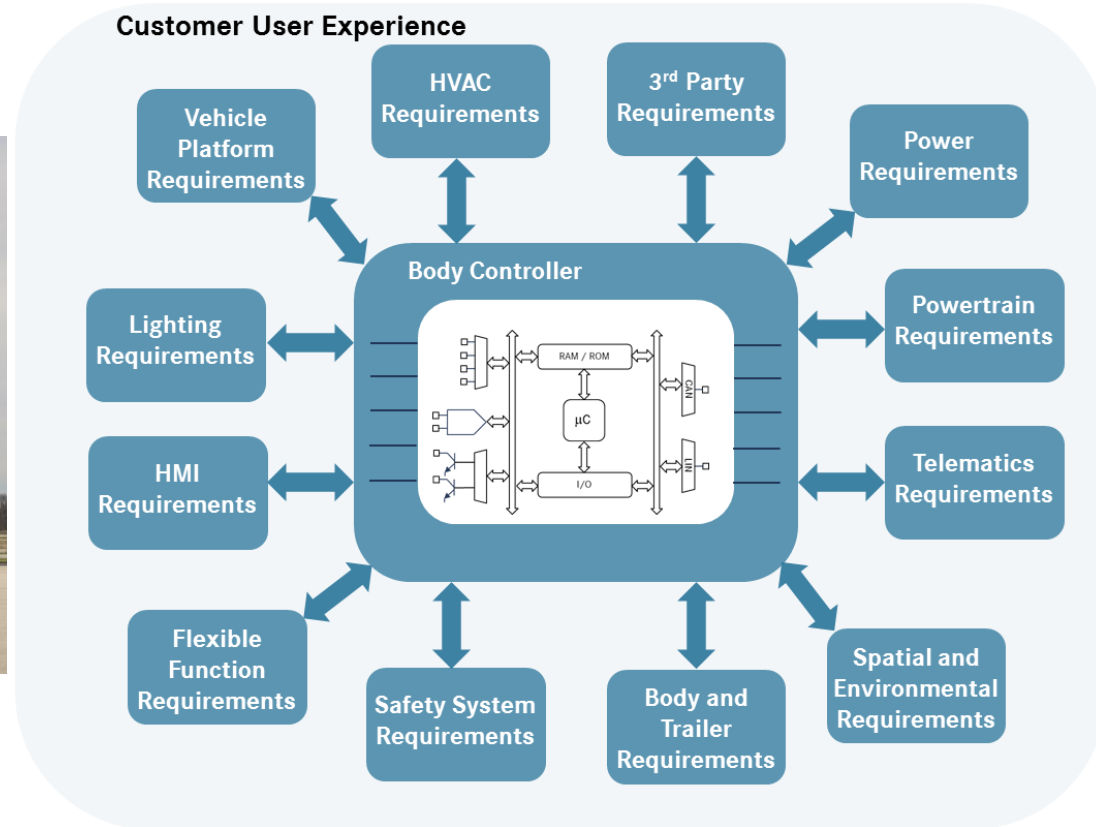Software component modeling and verification
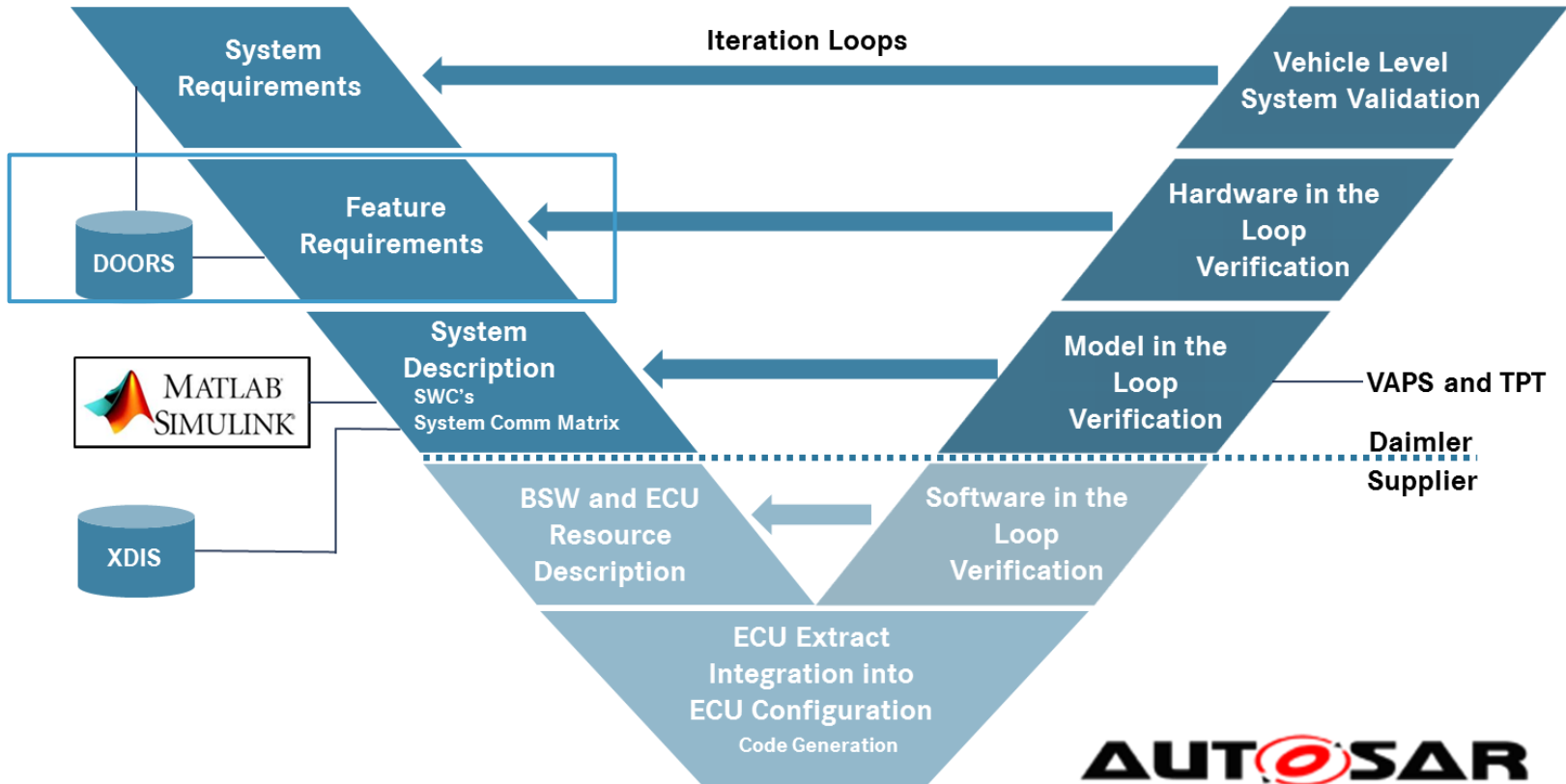
Model Based Software Development V-Model

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System Requirements

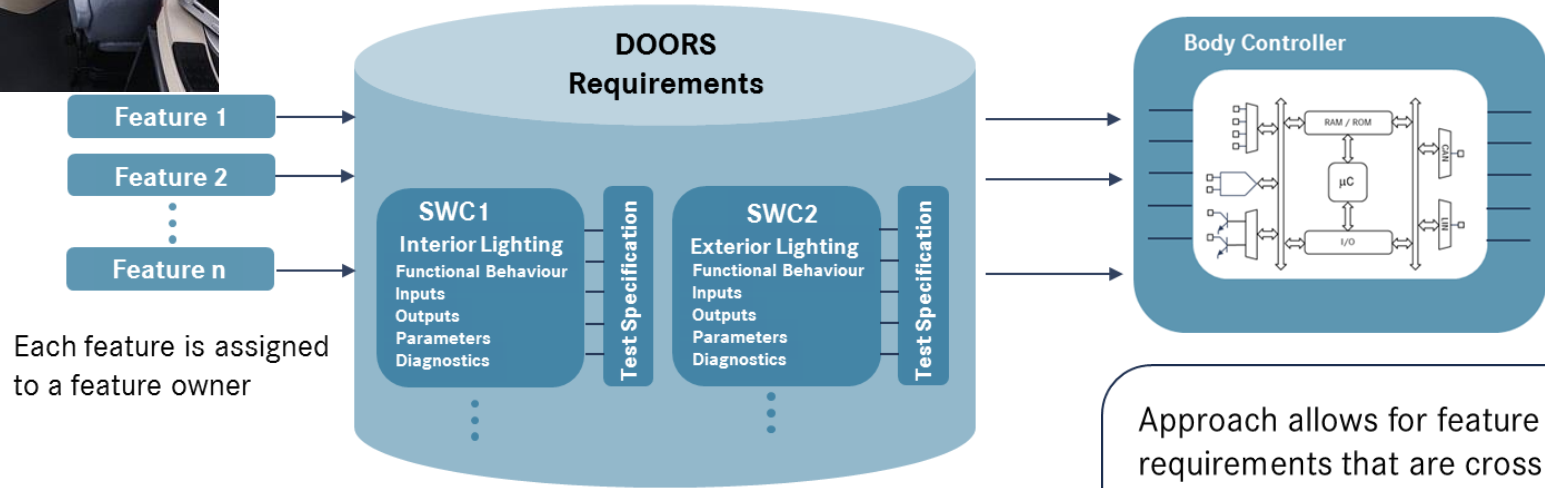# Model Based Software Development V-Model

Feature Requirements

Feature owners create feature requirements which become software component descriptions

Body Controller is divided into functional features

DOORS Requirements

Feature 1

Feature 2

Feature n

Each feature is assigned to a feature owner

SWC1
Interior Lighting
Functional Behaviour
Inputs
Outputs
Parameters
Diagnostics

Test Specification

SWC2
Exterior Lighting
Functional Behaviour
Inputs
Outputs
Parameters
Diagnostics

Test Specification
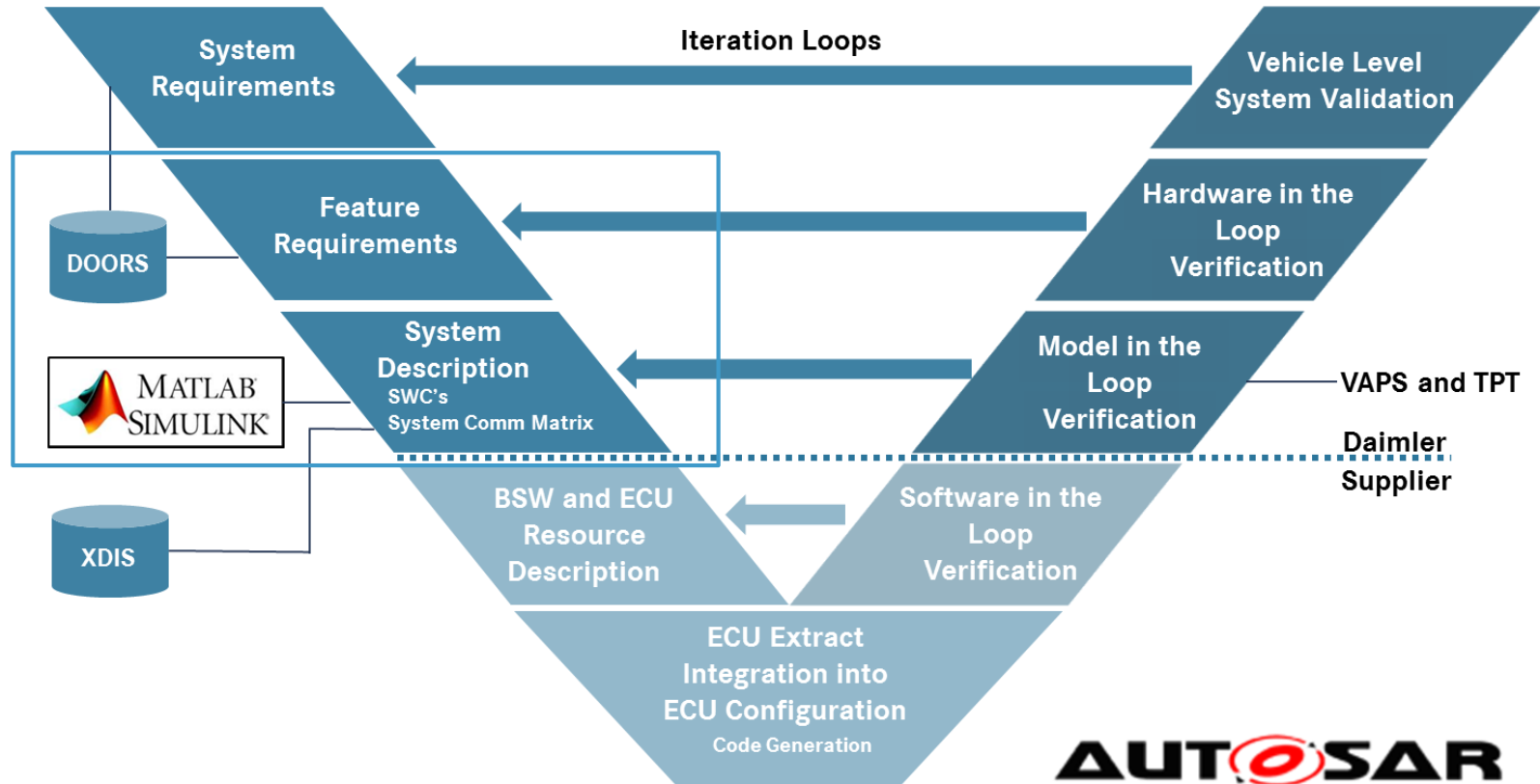
Body Controller

RAM / ROM

µC

I/O

Software Component Requirements

- Each requirement shall be testable
- Each requirement shall be traceable

Approach allows for feature requirements that are cross platform in a global Daimler market
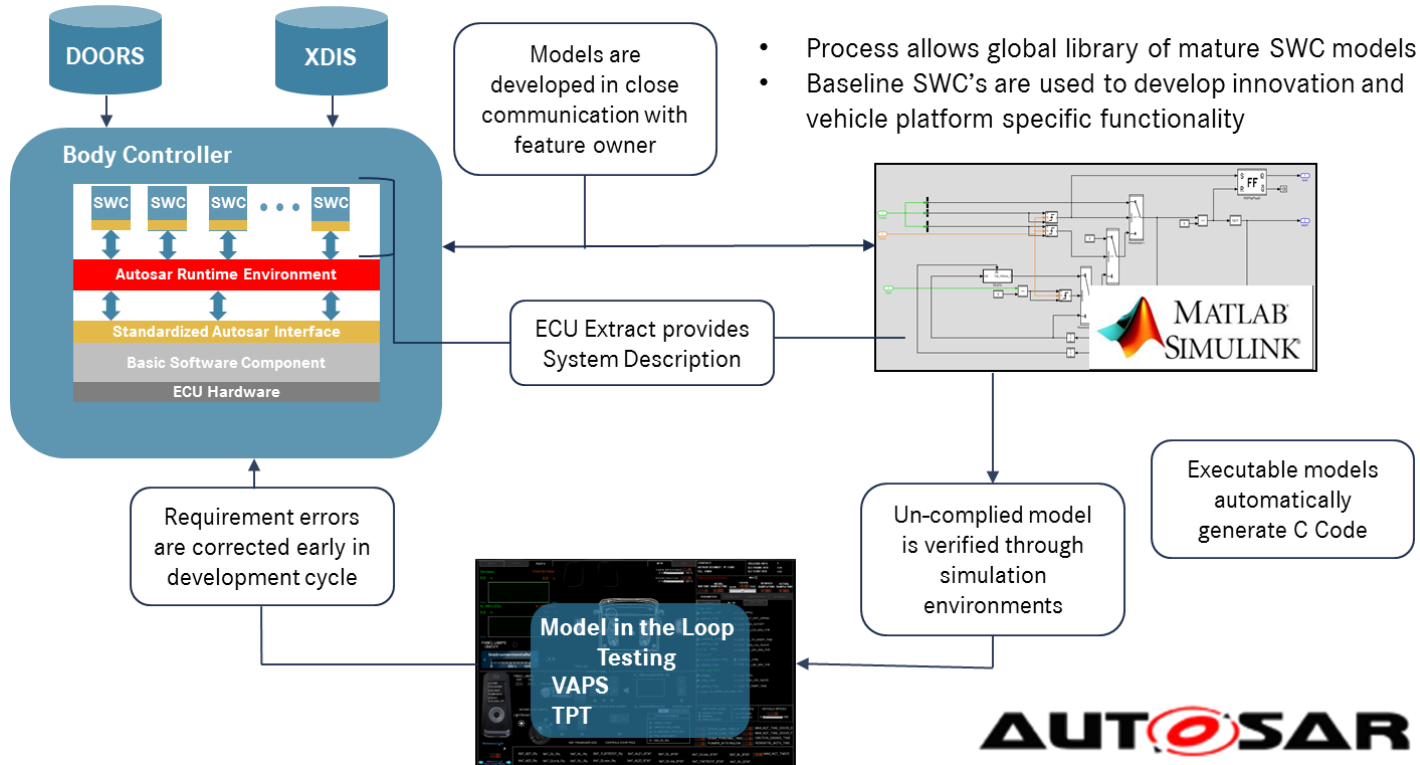
Feature quality improves as requirements mature

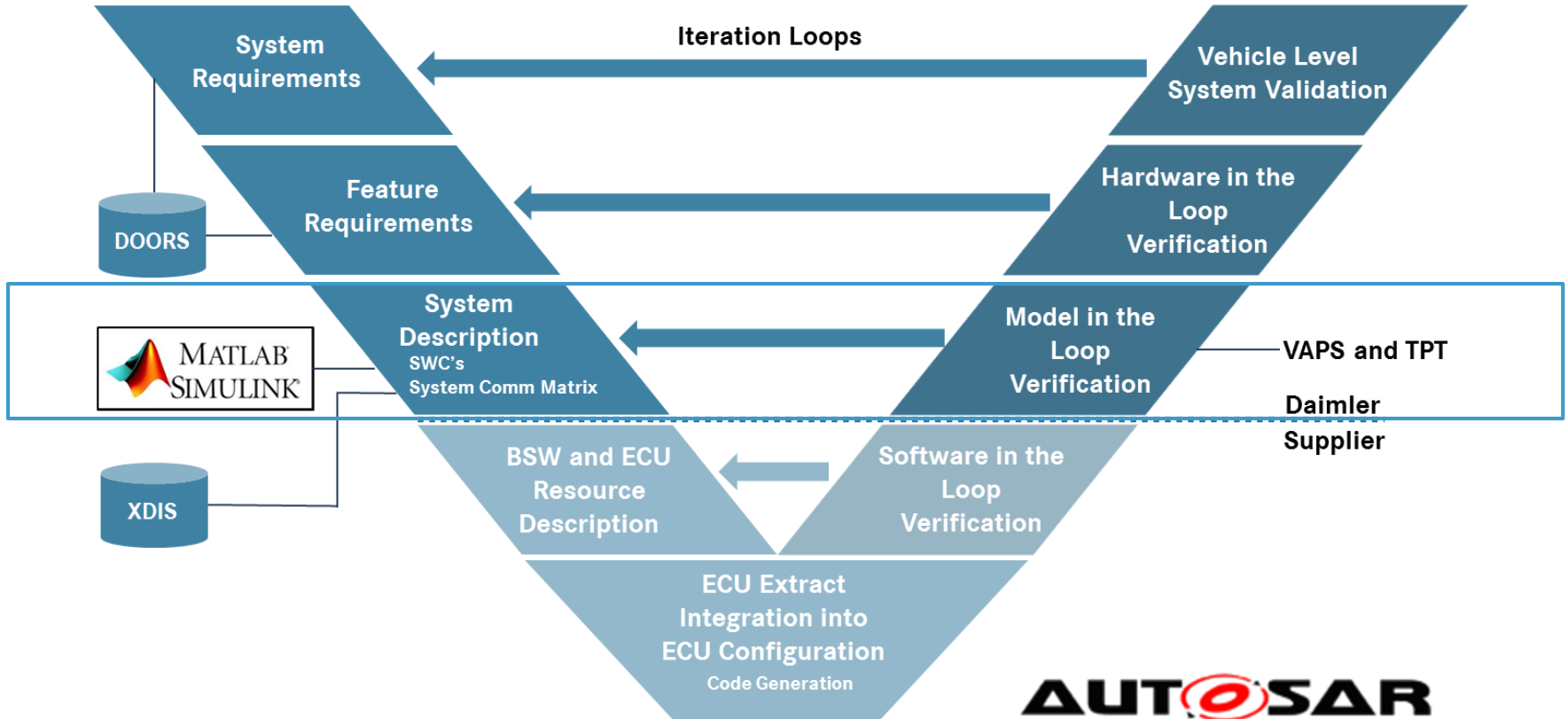# Model Based Software Development V-Model

System Description: Software Component Modeling
Software Component Model is Developed from Feature Requirements

- Process allows global library of mature SWC models
- Baseline SWC's are used to develop innovation and vehicle platform specific functionality

Models are developed in close communication with feature owner

ECU Extract provides System Description

Executable models automatically generate C Code

Un-complied model is verified through simulation environments

Requirement errors are corrected early in development cycle

Model in the Loop Testing
VAPS
TPT

Model Based Software Development V-Model

Model in the Loop Verification - VAPS

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Thank You