Symptom Based Diagnostics – Scope of Standardization

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Introduction - Tata Consultancy Services (TCS)

$19.09 BN Revenue FY 18

$1 BN Revenue from Engineering and Industrial Services

Among the **Top 10** Global IT Service Providers

900+ Clients* 55 countries

190 Solution Centers in 18 countries

140,000+
Women employees

$100 BN
Market cap, April 2018

400,000+
Employees 143 nationalities
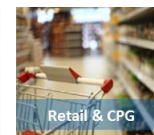
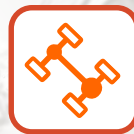| Automotive | Aerospace | Machinery & Process | Hi- Tech & Telecom | Energy, Resources & Utilities | Lifesciences | Retail & CPG |

Automotive Electrical and Electronics

Powertrain | **EV/HEV** | **Body** | **Chassis** | **Safety** | **IVI & Telematics** | **Autonomous** | **Diagnostics**
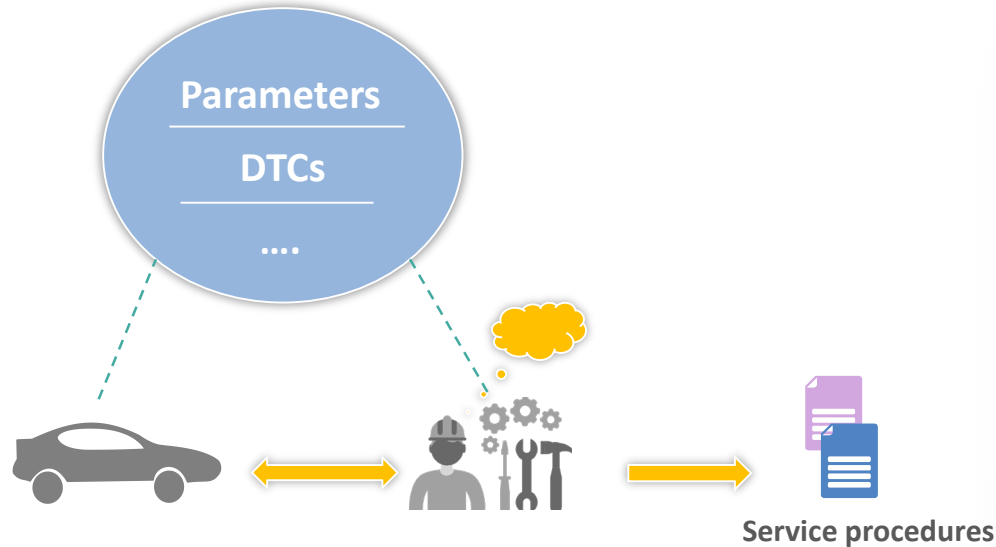
Platform Engineering

- Model Based Development
- AUTOSAR components
- Functional Safety Engineering and Support (ISO26262)
- Automotive SPICE
- Vehicle Security
- EE Architecture
- Hardware Development (Prototyping, Limited Volume Production)

6,000+ automotive engineers

* Revenue > US$1 Million
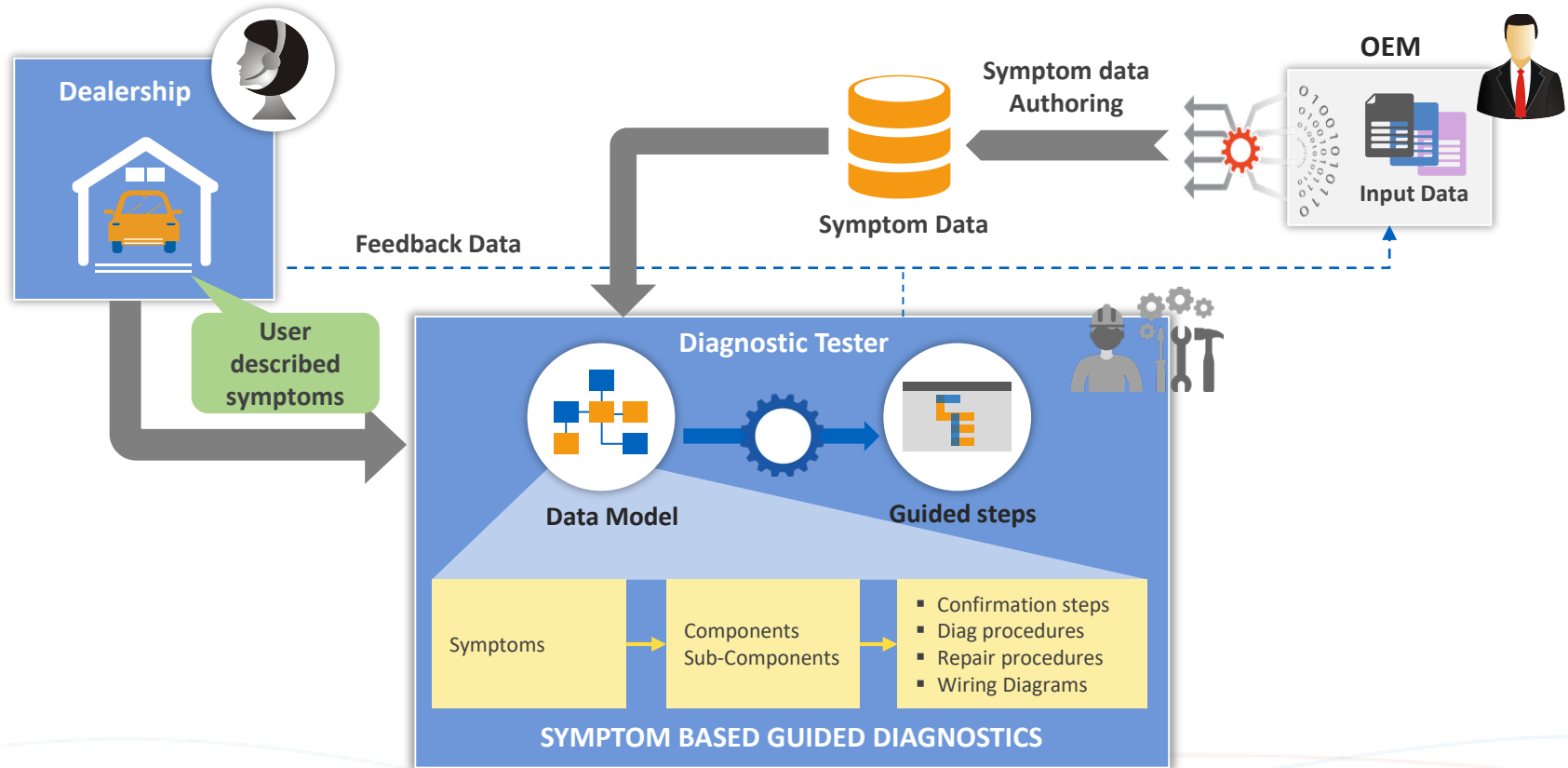
Motivation for Symptom Based Diagnostics

Diagnosing vehicle problems involves reading fault codes and associated parameters, and then referring service procedures to identify root cause for repairs.

Parameters

DTCs

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Service procedures

- Requires highly skilled technicians for quick, accurate diagnosis and repairs

- Rising levels of sophisticated features in vehicles, changing vehicle architecture and increasing proportion of software and electronics.

- Increasing complexity, resulting in high levels of no-trouble-found cases, incorrect repairs and increased warranty costs.
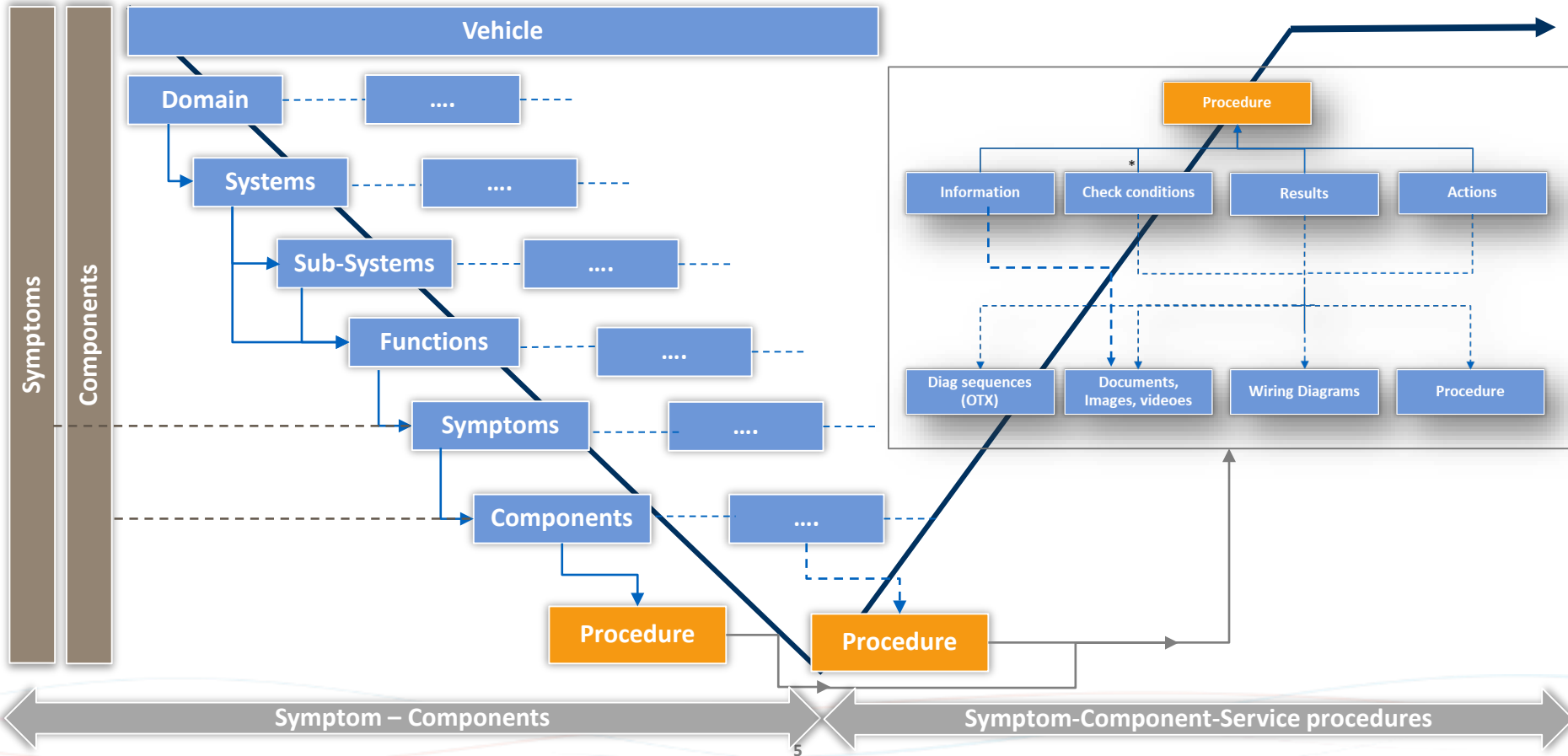
Need for informative, accurate diagnostics method that can be associated with user-identifiable symptoms
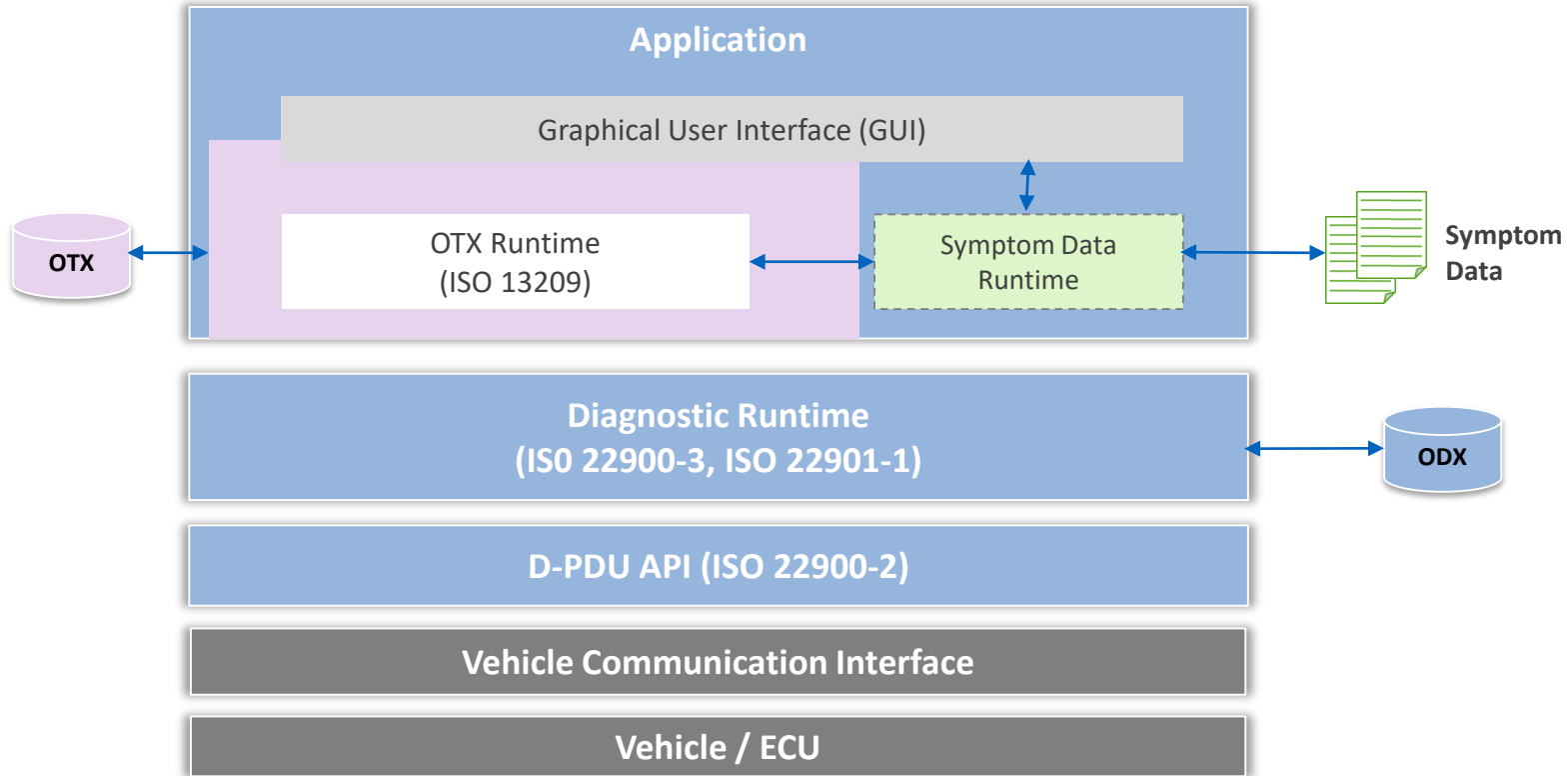
What is Symptom Based Diagnostics?

Dealership

OEM

Symptom data Authoring

Symptom Data

Input Data

Feedback Data

User described symptoms

Diagnostic Tester

Data Model

Guided steps

Symptoms	Components Sub-Components	▪ Confirmation steps ▪ Diag procedures ▪ Repair procedures ▪ Wiring Diagrams

SYMPTOM BASED GUIDED DIAGNOSTICS

Symptom Data Model
Organization and Structure

Symptom Data Model
Diagnostic Tester

Symptom Data Model
Benefits

Benefits of Standardization

01 **Convenient exchange of symptom data**
- Can be defined as early as design phase and matured through the vehicle lifecycle
- Independent
- Reusable

02 Simplified and standardized authoring of Symptom data

03 Greater probability of accurate and advanced diagnostics

Thank You !

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