



Diagnosis – A Key Factor for Efficiency in After-Sales

07.10.2008, Dr. Thomas Raith

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Diagnosis – A Key Factor for Efficiency in After-Sales Overview

1 The Automotive Market in Europe and Germany

- Facts & Figures
- Retail Revenue & Profit
- After-Sales Market Structure & Competition

2 Challenges on After-Sales Processes and Systems

- Customer Use Cases & Expectations
- Applications & Data to be Managed
- IT Infrastructure

3 Required Actions to Improve Workshop Efficiency

- Enhance Ability to Diagnose
- Use Vehicle and Diagnostic Data in Reception
- Introduce the Next Diagnostic System Generation

The Automotive Market in Europe and Germany

Facts & Figures

Western Europe Market*

- More than 200 million cars on the road
- 16 major OEMs with 33 brands
- Close to 100.000 outlets for sales and service
- 2,5 million jobs in marketing, sales, distribution & service



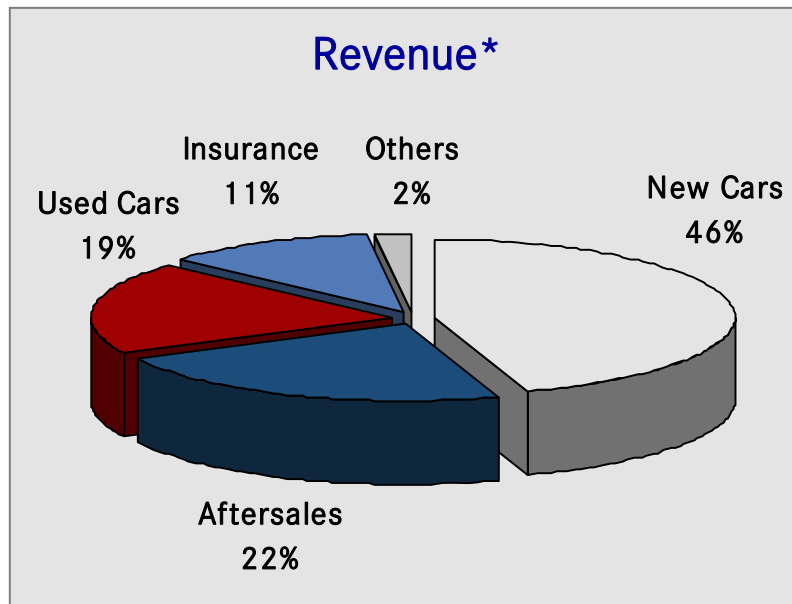
*Source: Datamonitor; J.D. Power; Company Reports; Roland Berger analysis; IBM GBS Consultants Analysis

Mercedes-Benz, Germany

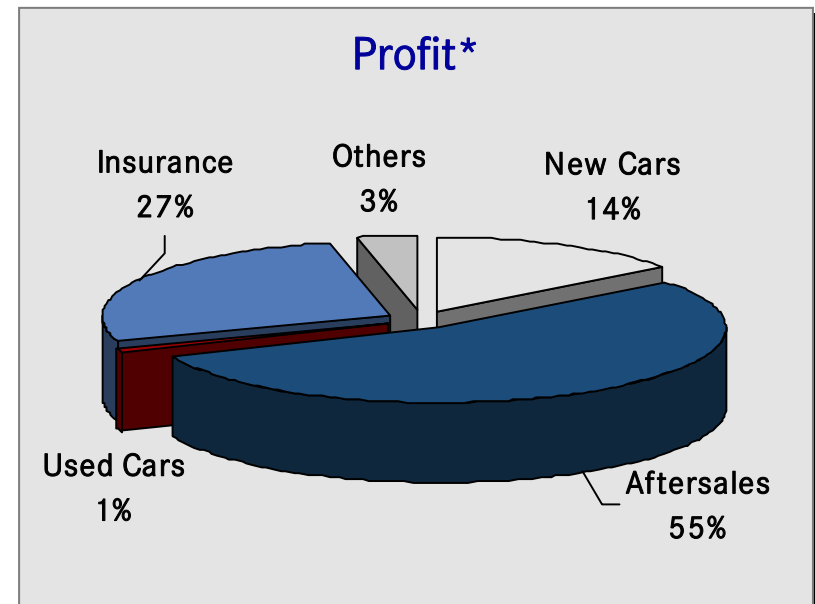
- 18.000 technicians in more than 1200 retail workshops
- 37% of the workshop have less than 10 technicians
- Per day more than 70.000 customer service contacts
- 7 million vehicle workshop visits per year



The Automotive Market in Europe and Germany Retail Revenue & Profit



- The 22% market share corresponds to 40 Bill € revenue



- In Germany more than 50% of the profit is generated in after-sales

*) Source: CARE – Creating higher After-Sales Revenues and Earnings, © 2008 McKinsey & Company

The Automotive Market in Europe and Germany

After-Sales Market Structure & Competition

Changes in Competition



Independ. Service Provider



2nd OEM Channels



Insurance Companies



Remanufacturing

General Challenges



Increasing
Vehicle Complexity



Regulations
(BER, EURO5/6)

Customer Structure



Private Customers



Leasing Contracts



Fleet Customers

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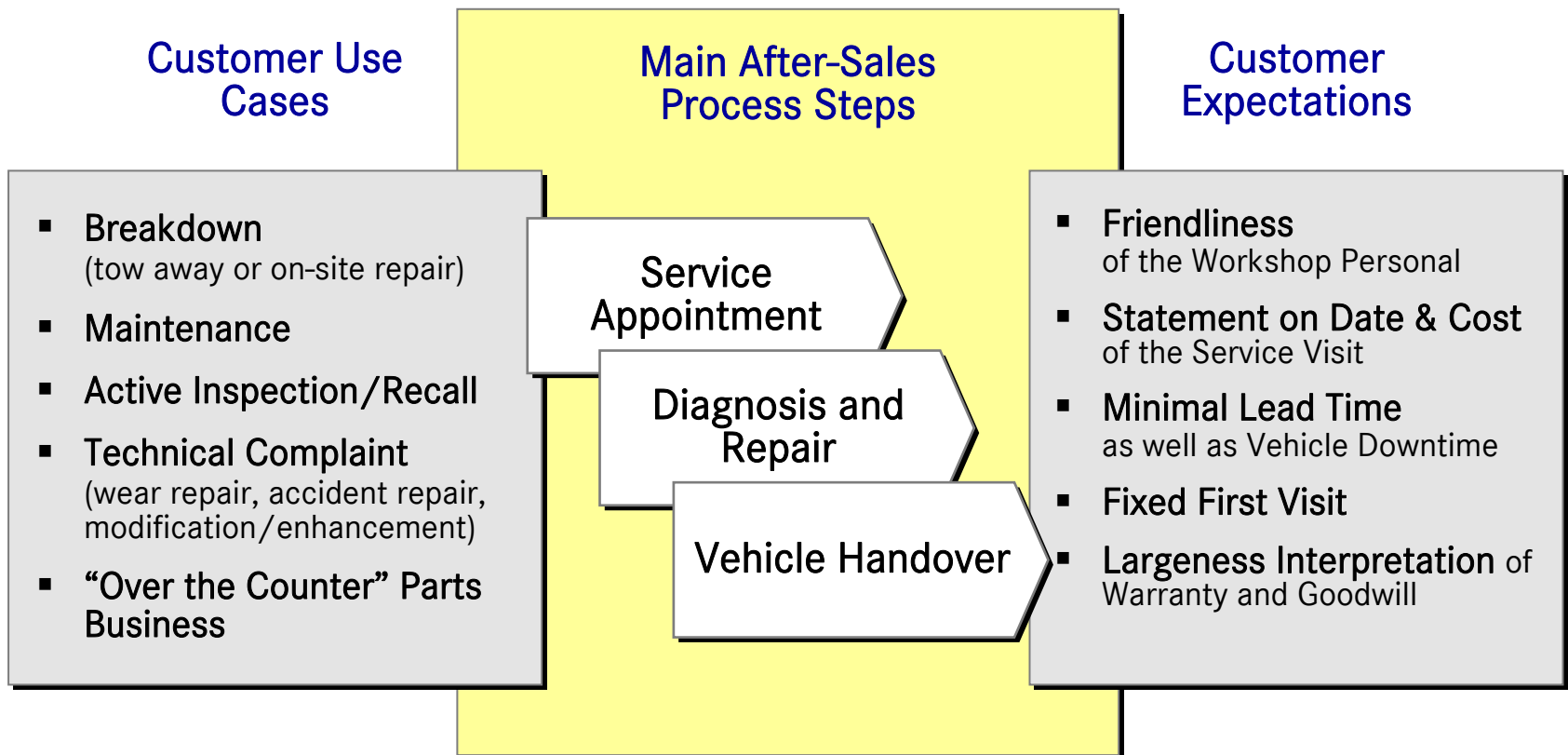
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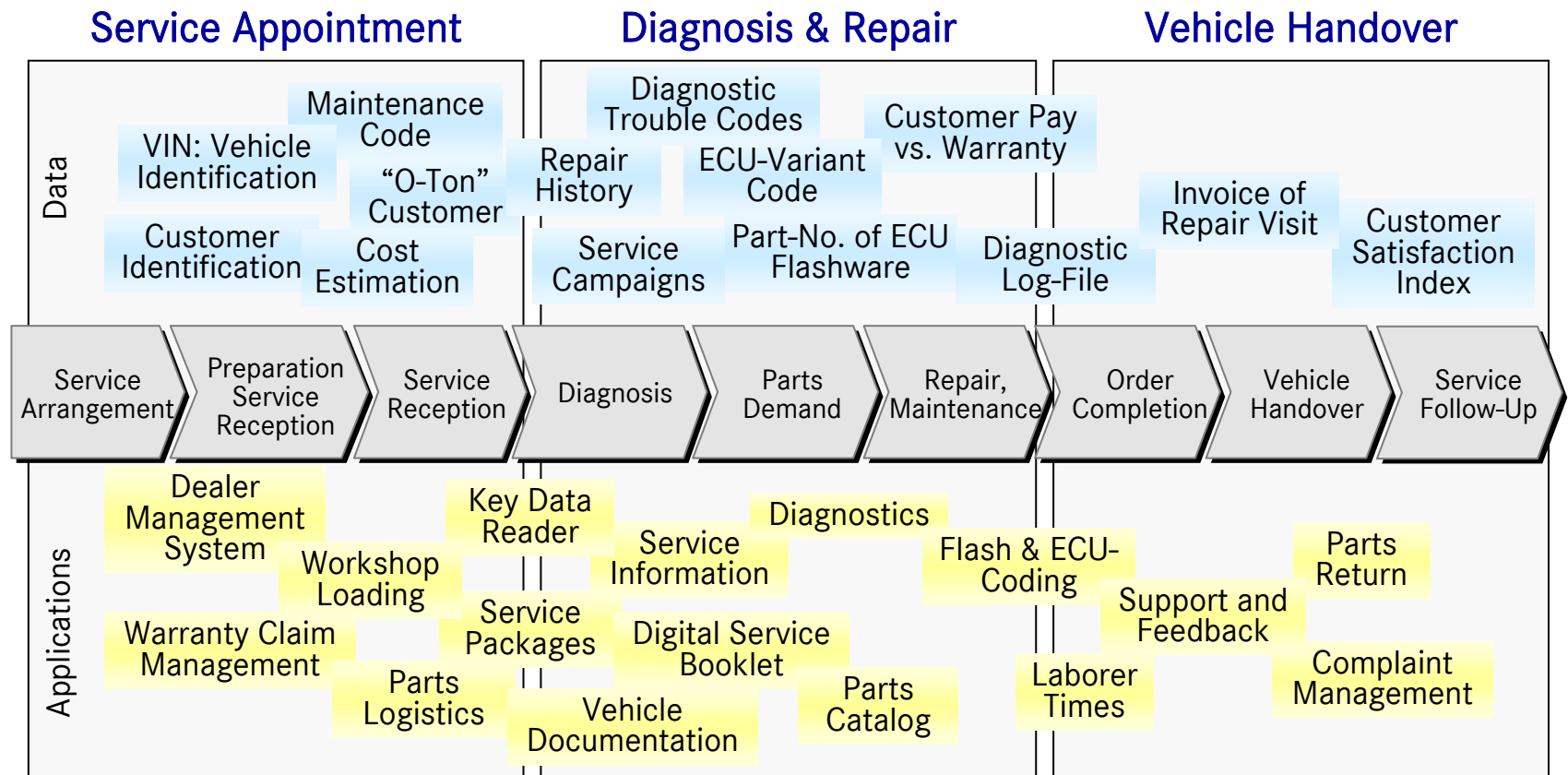
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Challenges on After-Sales Processes and Systems

Customer Use Cases & Expectations



Challenges on After-Sales Processes and Systems Applications & Data to be Managed



Challenges on After-Sales Processes and Systems IT Infrastructure

4 OEM Level (HQ) Back-End Applications



- Authoring of Service Relevant Data
- Application Management
- Feedback and Support System

Intranet, Internet

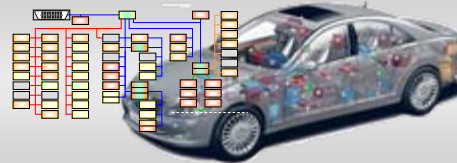
3 Retail Level Front-End Applications



- Dealer Management System
- Sales & After-Sales Applications
- Infrastructure Manag. (e.g. WLAN)

K-Line, Diagnostics on CAN, Diagnostics on TCP/IP, ...

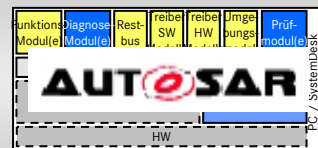
2 Vehicle Level E/E Vehicle Architecture



- Vehicle Communication Interface
- Quick Test & Guided Diagnostics

CAN, LIN, MOST, FlexRay, Ethernet...

1 ECU Level ECU Software Architecture



- DTC Set Conditions
- Diagnostic Standards & Regulations
- ECU Flashing and Variant Coding

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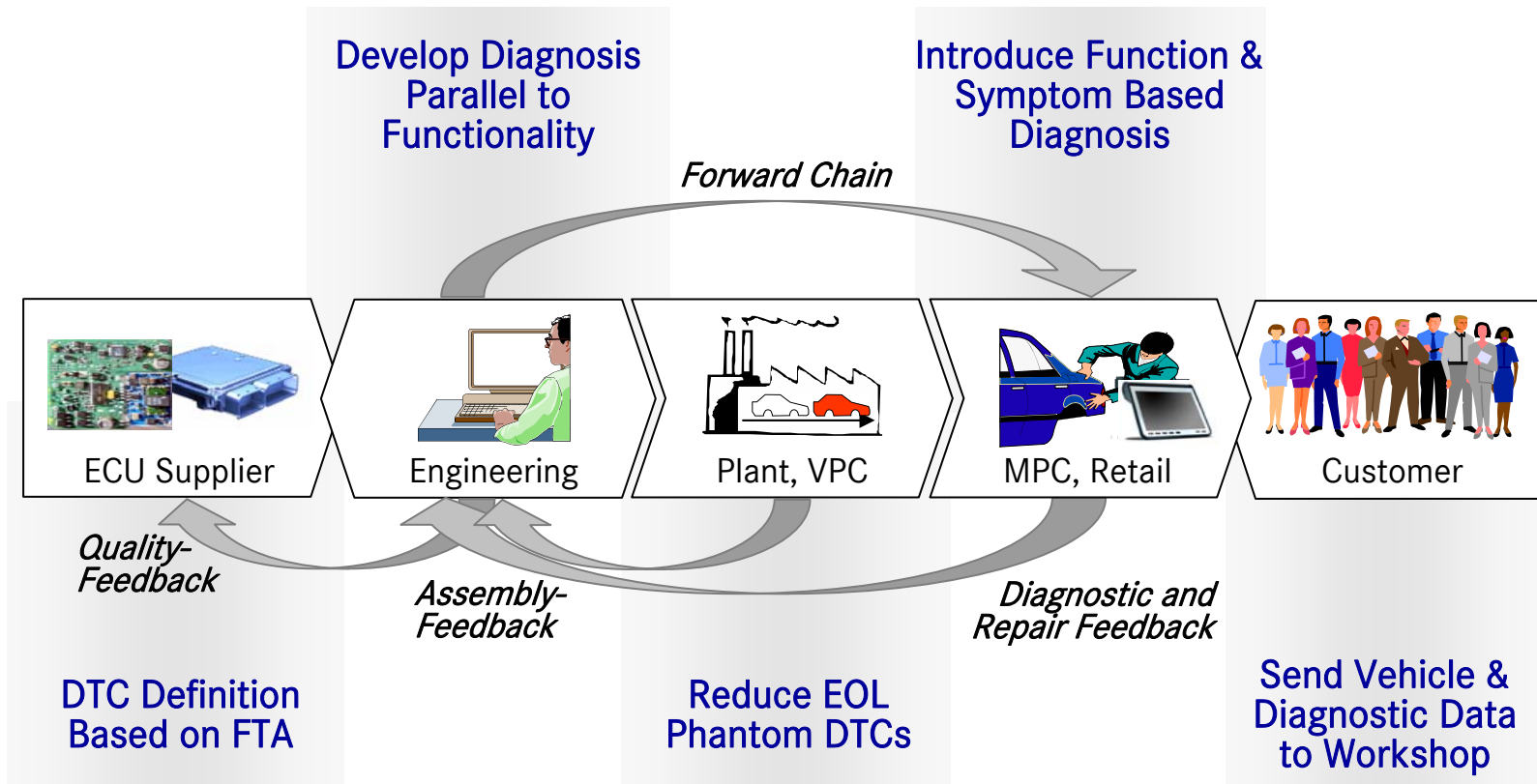
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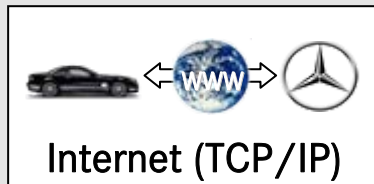
Required Actions to Improve Workshop Efficiency Enhance Ability to Diagnose (Examples)



Required Actions to Improve Workshop Efficiency

Use Vehicle and Diagnostic Data in Reception

Technological Options*



Questions to be Answered:

- Vehicle Conditions & Data,
- Repair Price,
- Warranty or Customer Pay,
- Service Appointment,
- Repair time,
- ...

Vehicle Data and Information:

- Vehicle Identification Number,
- Mileage Status,
- Fuel Level, Maintenance Code,
- Vehicle Position,
- Quick Test Data,
- ...

Communication Options

via phone



via Internet, email



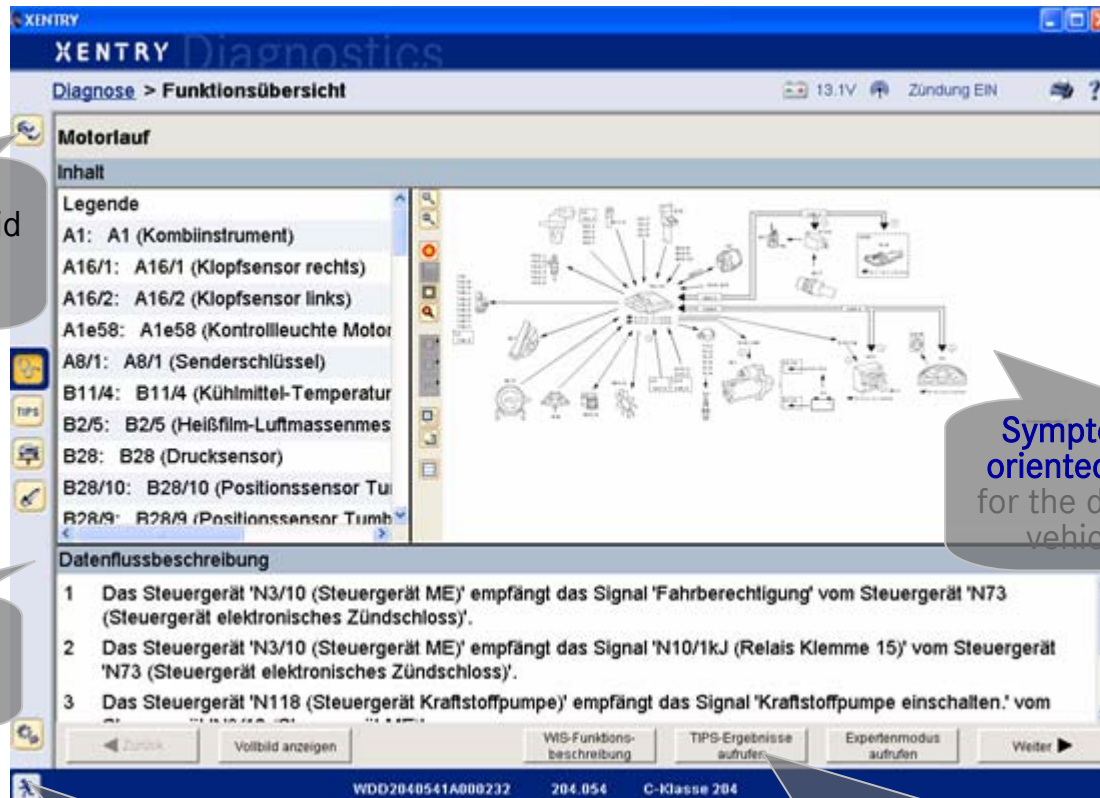
face-to-face



* partly available in the markets

Required Actions to Improve Workshop Efficiency

Introduce the Next Diagnostic System Generation: “Xentry Diagnostics”



The screenshot shows the Xentry Diagnostics software interface. The title bar reads 'XENTRY Diagnostics'. The main window is titled 'Diagnose > Funktionsübersicht'. The left sidebar contains a 'Legende' (Legend) with various components listed, such as 'A1: A1 (Kombiinstrument)', 'A16/1: A16/1 (Klopfsensor rechts)', and 'B28: B28 (Drucksensor)'. The main area displays a complex functional diagram with numerous interconnected nodes and lines. Below the diagram is a 'Datenflussbeschreibung' (Data flow description) section with three numbered steps describing signal flow between control units. At the bottom, there are navigation buttons like 'Zurück', 'Vollbild anzeigen', and 'Weiter', along with a status bar showing 'WDD2040541A000232 204.054 C-Klasse 204'.

Vehicle identification valid for all Xentry applications

Symptom and function oriented troubleshooting for the diagnosis of future vehicle generations

Common look & feel based on Xentry frame

Single sign on for all Xentry applications

Easy change of applications with perpetuation of context data

Diagnosis – A Key Factor for Efficiency in After-Sales Summary

- In the automotive market the **after-sales business** is compared to other core retail business **highly profitable**.
- There is a **change in the market structure** ongoing towards multi-brand and independent service providers supported by European legislation (Euro5).
- A key success factor in the retail business is a comprehensive **management of vehicle and diagnostic data** across the (horizontal) after-sales process.
- Furthermore, in order to fix a vehicle the corresponding data and information has to be transferred (vertical) over **several dedicated IT infrastructure levels**.
- In future the **management of the after-sales applications will be in the back-end**. Only Data and Information will be displayed in the front-end, e.g. on a thin-client.
- In order to **improve the workshop efficiency** - among others, diagnose will be one of the key factors. Typical examples for improvements based on diagnostics are:
 - An **integrated diagnostic process management**, from the supplier to the customer
 - Availability of **vehicle & diagnostic data in reception** in order to answer customers questions, e.g. on time and cost
 - Introduction of a **function and symptom orientated diagnosis** in order to master current and future vehicle complexity

Thank You for Your Attention!

