

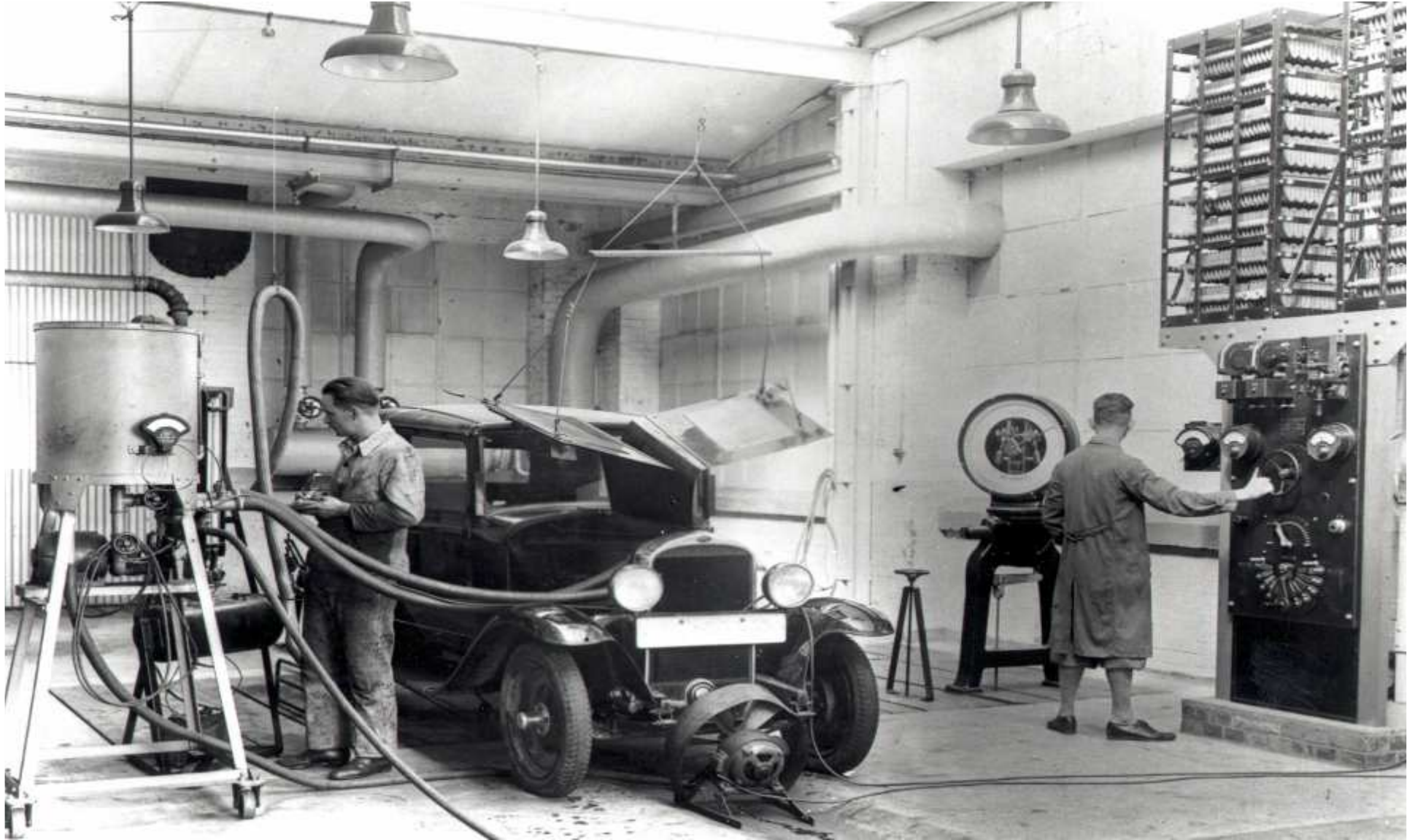
Efficient Test Factory Management

Increase Efficiency and Quality within Automotive Testing

24.10.2008



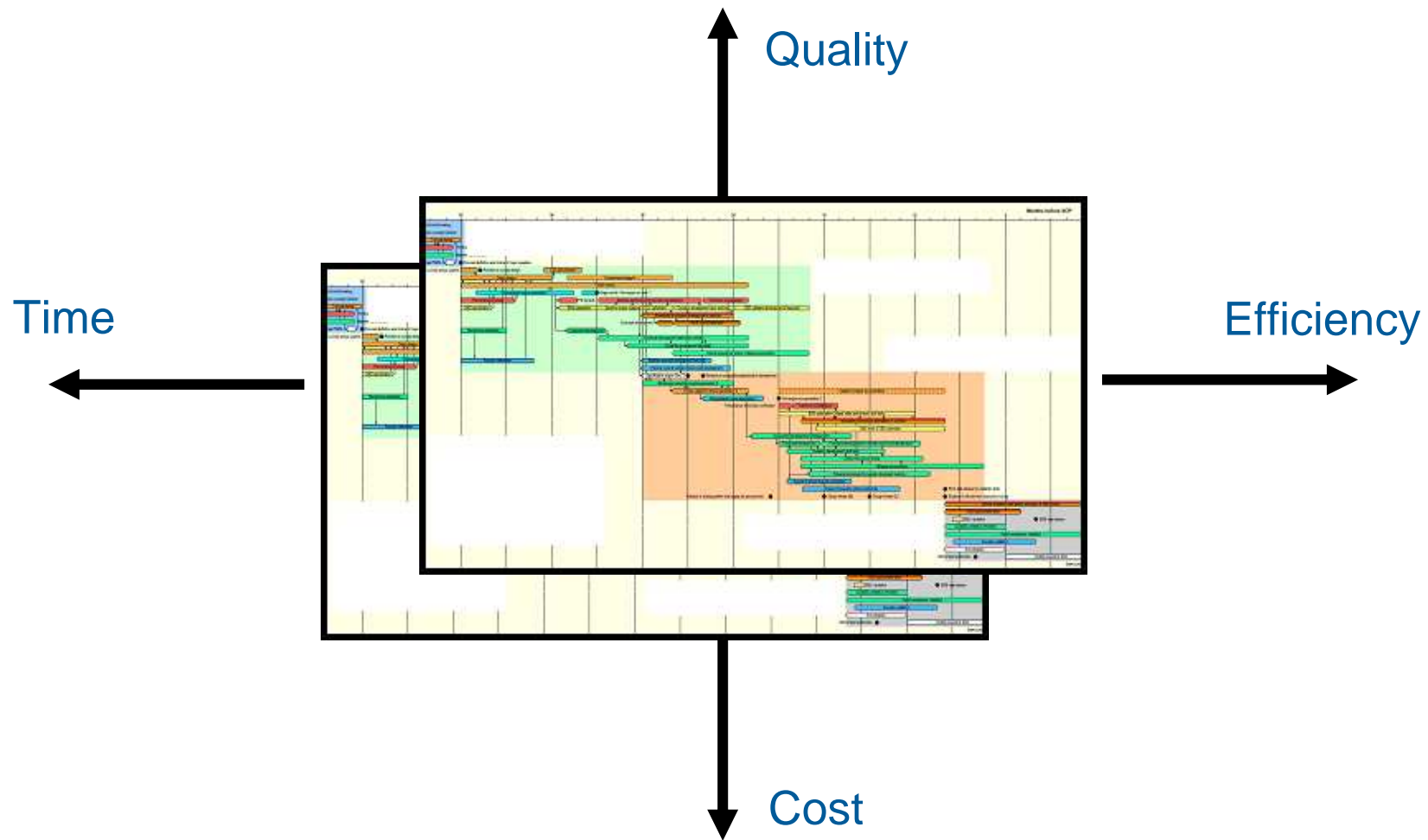
Testing in the Past...



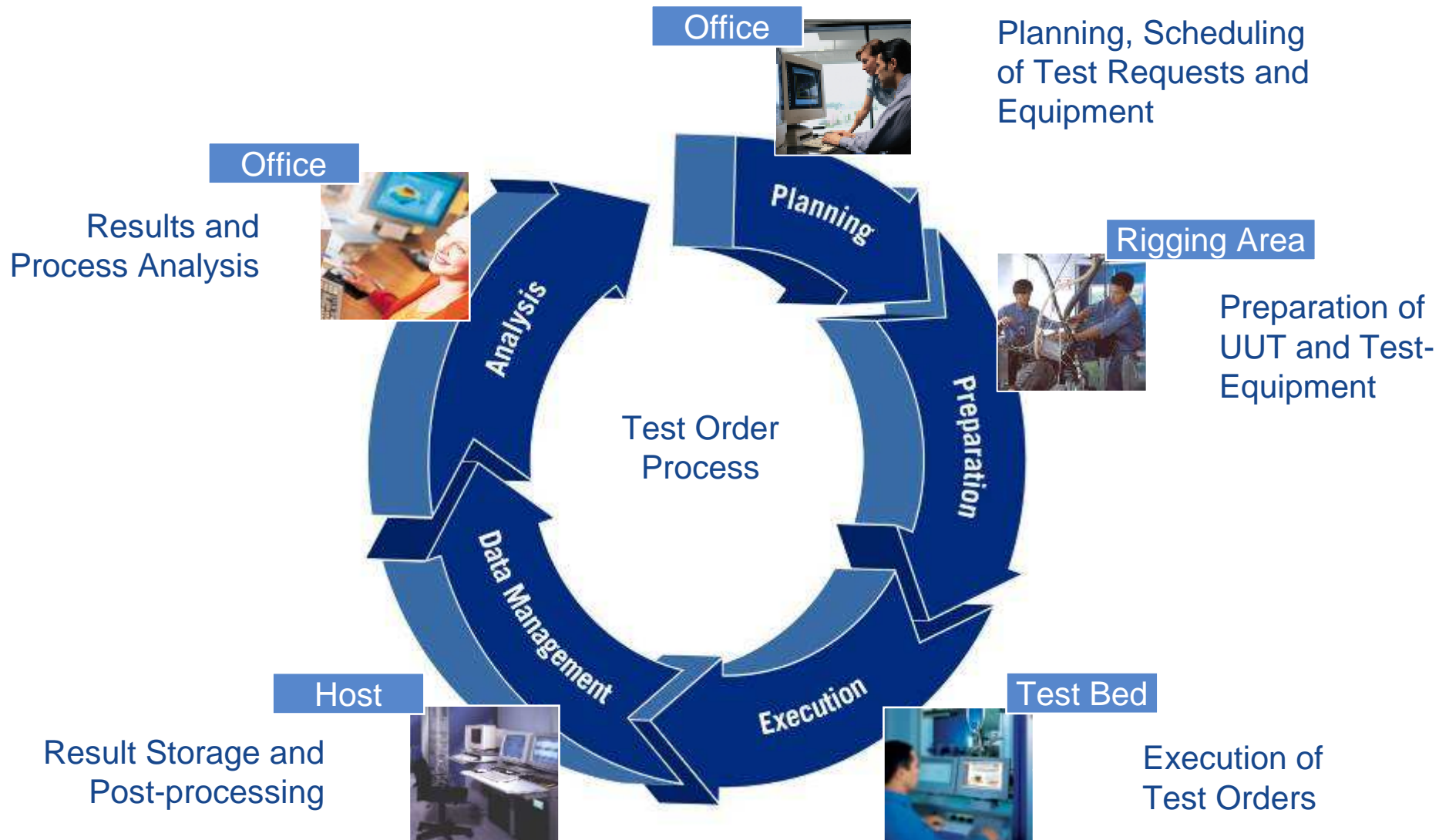
And Today...



Challenges during Product Development

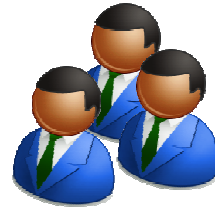


Testing Processes



Organizational Challenges

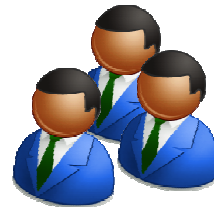
Product Development Engineers



- Reduce Time To Market
- Increased product complexity

Test Request

Testing Engineers

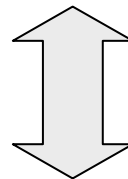


- Provide high quality tests
- Deliver results in time
- Minimize costs

Test Results

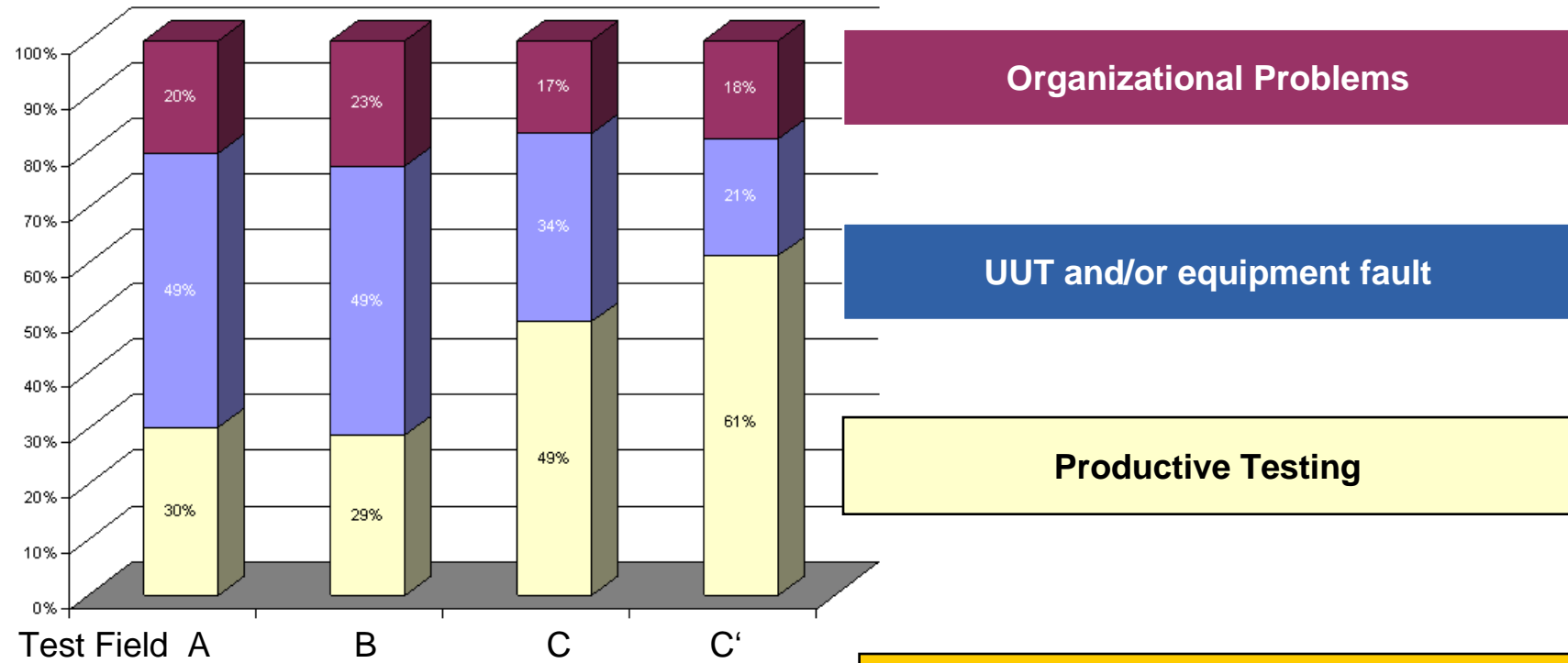
Support by test field management tools

Test Automation



- Test preparation
- Test execution
- Maintenance & Calibration
- Data processing

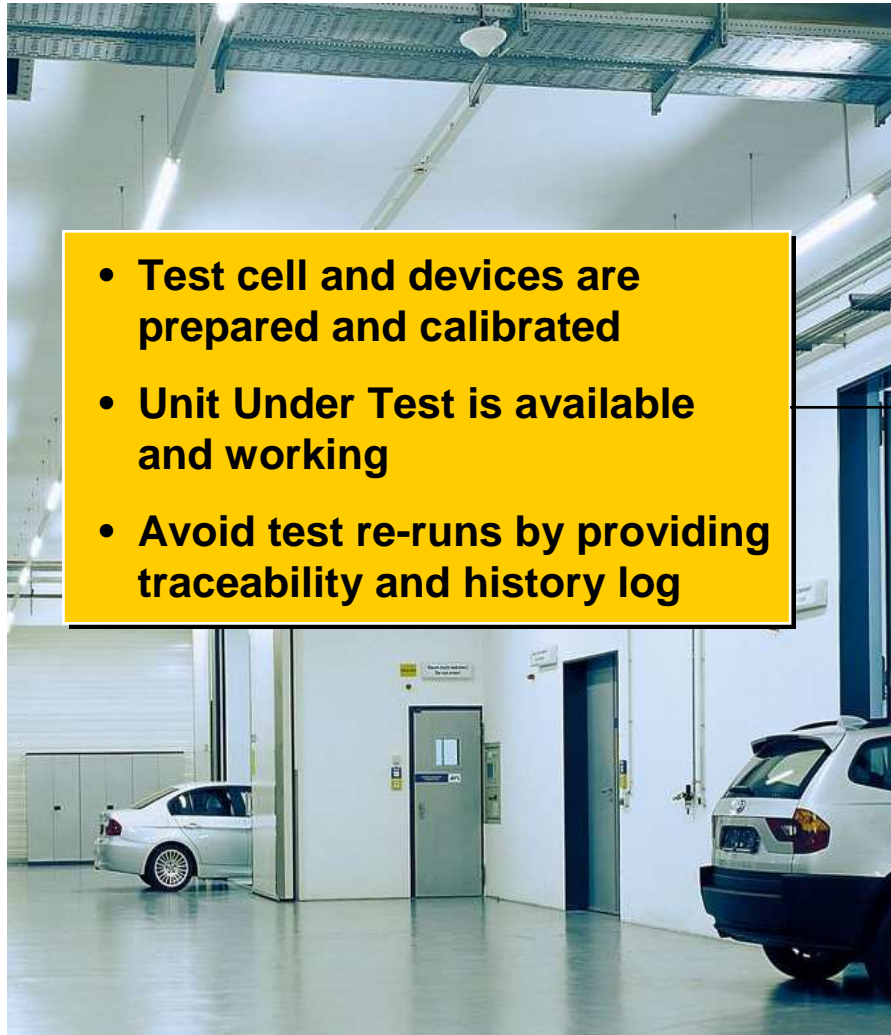
Potential for Improvements



AVL Study: Test Field Efficiency (DE)

At least 20% of the available capacity can be affected by using test field management software tools

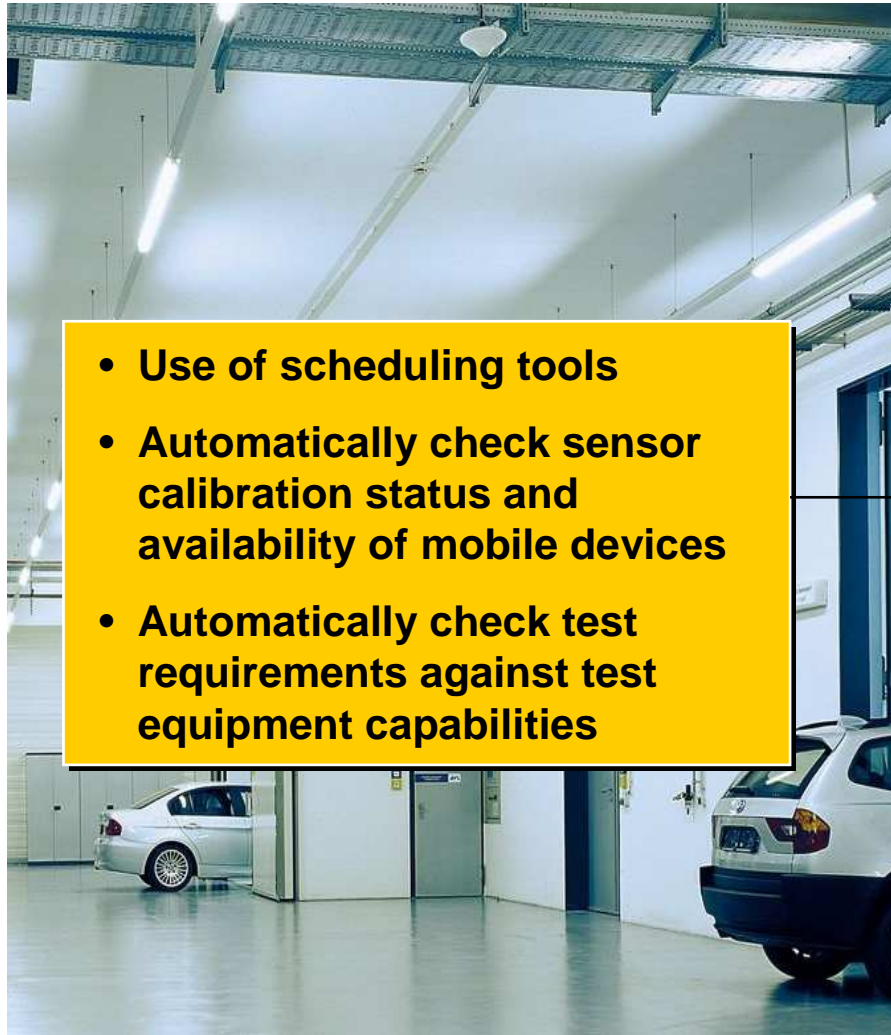
Benefits of Test Field Management Tools



- **Test cell and devices are prepared and calibrated**
- **Unit Under Test is available and working**
- **Avoid test re-runs by providing traceability and history log**

- Increase Productive Testing Time
- Optimize Resource Utilization
- Keep Quality with Reduced Effort

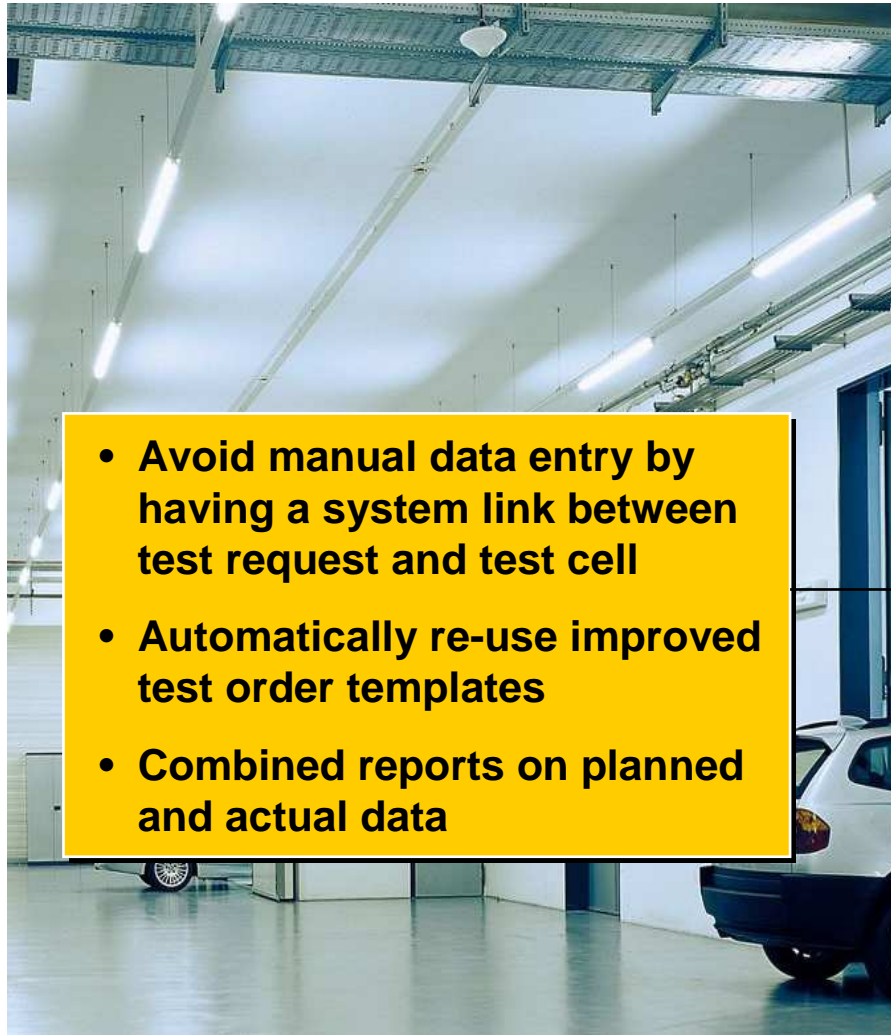
Benefits of Test Field Management Tools



- **Use of scheduling tools**
- **Automatically check sensor calibration status and availability of mobile devices**
- **Automatically check test requirements against test equipment capabilities**

- Increase Productive Testing Time
- Optimize Resource Utilization
- Keep Quality with Reduced Effort

Benefits of Test Field Management Tools

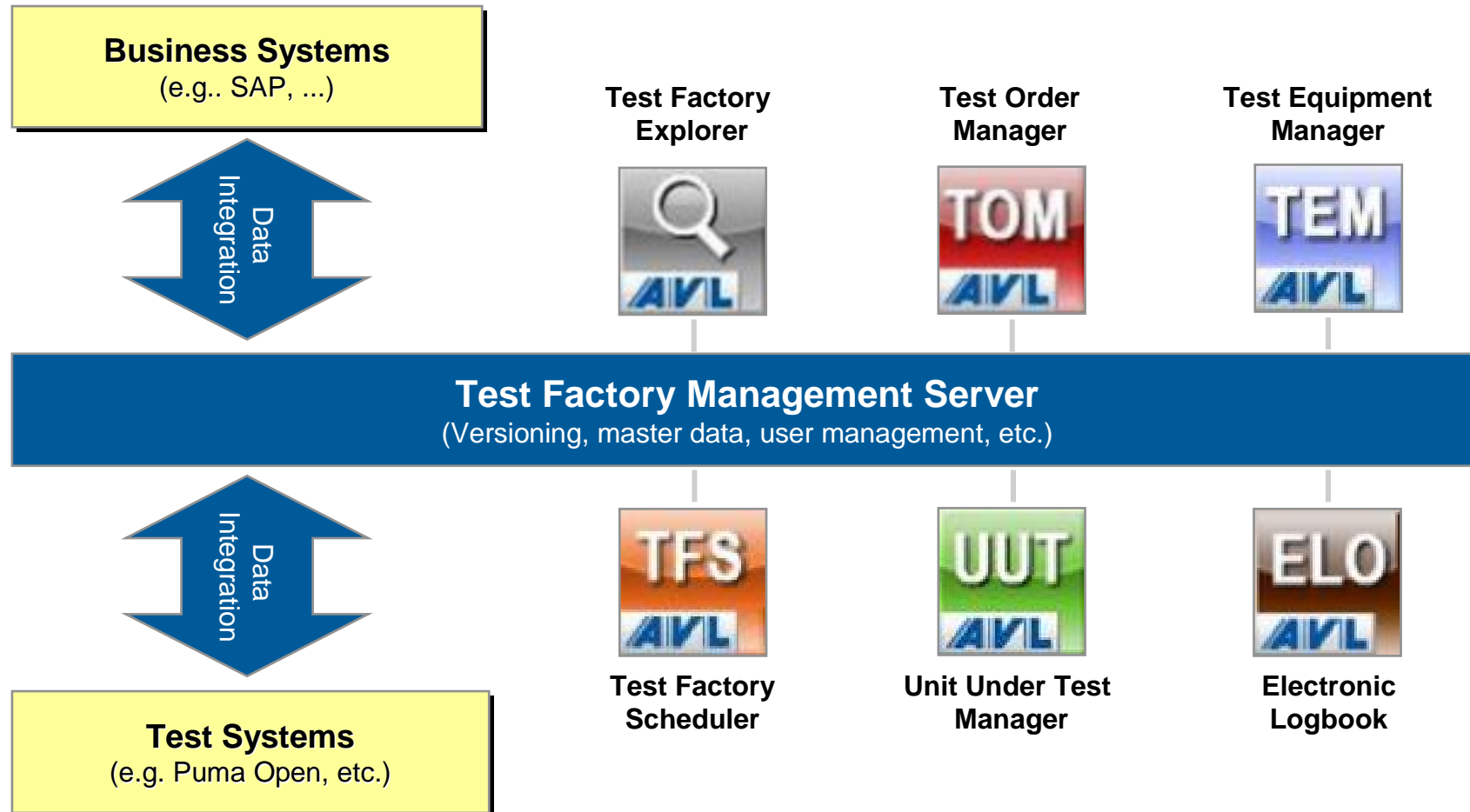


- **Avoid manual data entry by having a system link between test request and test cell**
- **Automatically re-use improved test order templates**
- **Combined reports on planned and actual data**

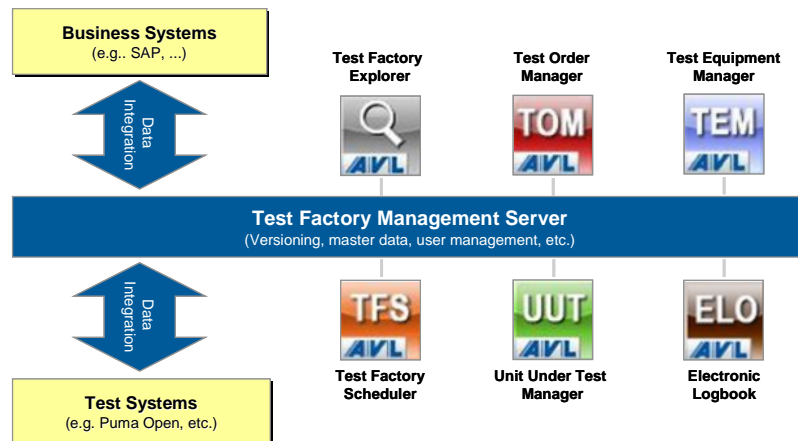
- Increase Productive Testing Time
- Optimize Resource Utilization
- Keep Quality with Reduced Effort



AVL TestFactory Management Suite™ (TFMS)

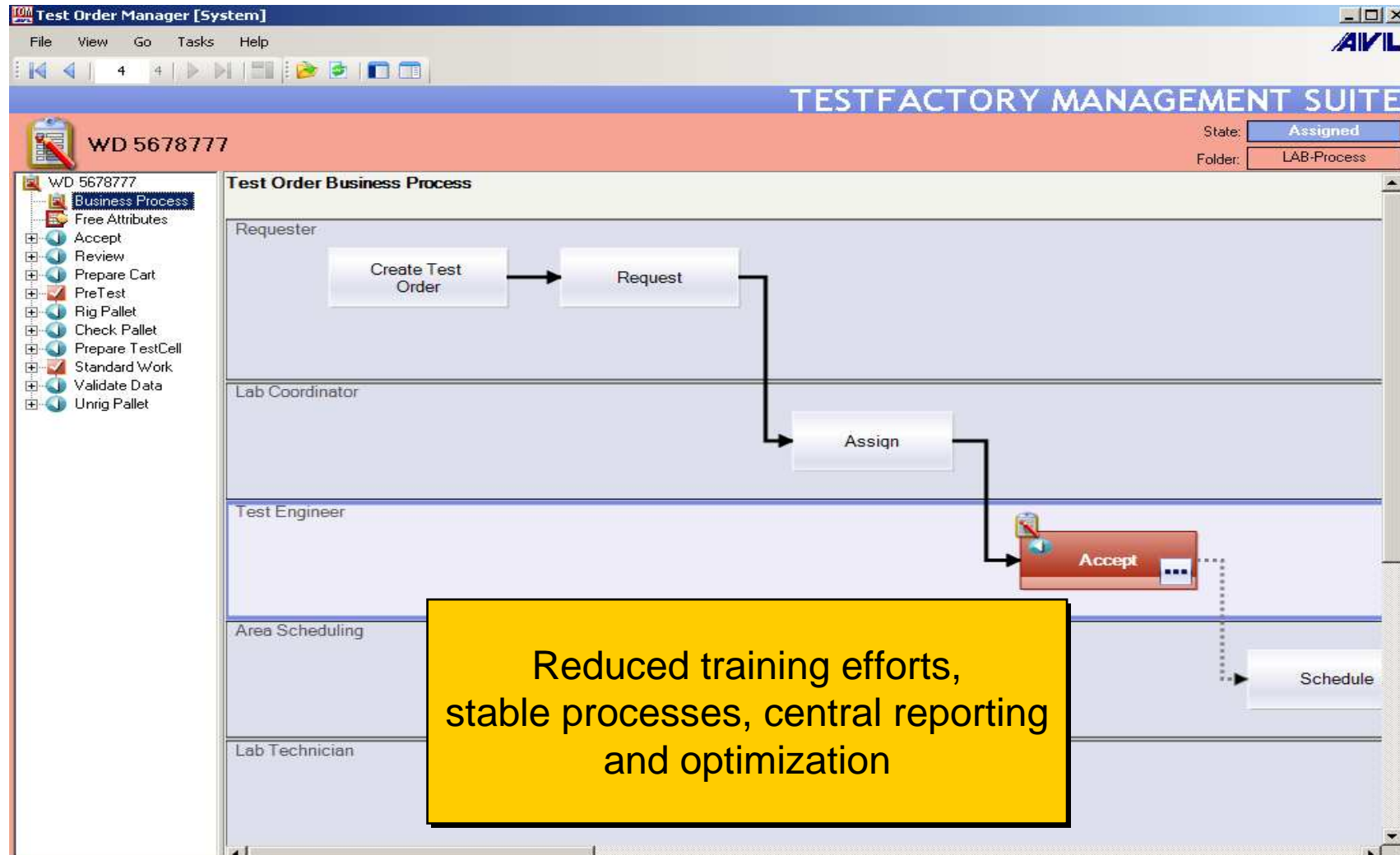


TestFactory Management Suite™ Use Cases



- Enter test requests and track project progress incl. confidence check
- Parameterization of Test by Requester
- Process/Workflow Guidance
- Calibration Due Date Check/Handling & Scaling Data Download
- Maintenance tests of equipment & UUT
- Automatic parameterization of intelligent mobile devices instead of local parameterization
- TestCell/Lab Utilization Reports
- Observation Reports (UUT logbook)
- Tracking of Consumables
- Finding Result Data based on Test Request
- ...

Full Process Support for all Users in Vehicle-, Engine-, Transmission- and Component Tests



Optimized Scheduling: Gross/Detail planning, Milestone-Trend-Analysis, Test Bed-, Test Order-, Equipment and UUT scheduling



The screenshot displays the AVL Test Factory Scheduler interface. The main window is titled "TESTFACTORY MANAGEMENT SUITE" and "Schedule". The state is set to "Assigned". The interface includes a menu bar (File, View, Go, Tasks, Actions, Help), a toolbar, and a left-hand navigation pane with sections for "General Tasks", "Specific Tasks", and "Report". The main area shows a Gantt chart for the period "Sep. 2-Okt. 2, 2007", with weeks labeled "VW36" through "VW39". The chart lists various test orders and test steps, such as "Prüfauftrag CD 1", "Test Order Durability 05", and "Test Order Durability 03". A yellow callout box is overlaid on the chart, containing the text: "Results-oriented scheduling, Early identification of conflicts, Easy and Quick re-scheduling by drag&drop". The bottom of the screen shows the Windows taskbar with the start button, system tray, and several open application windows.

„Test Field Google“ Full Search over all Data within the Test Field

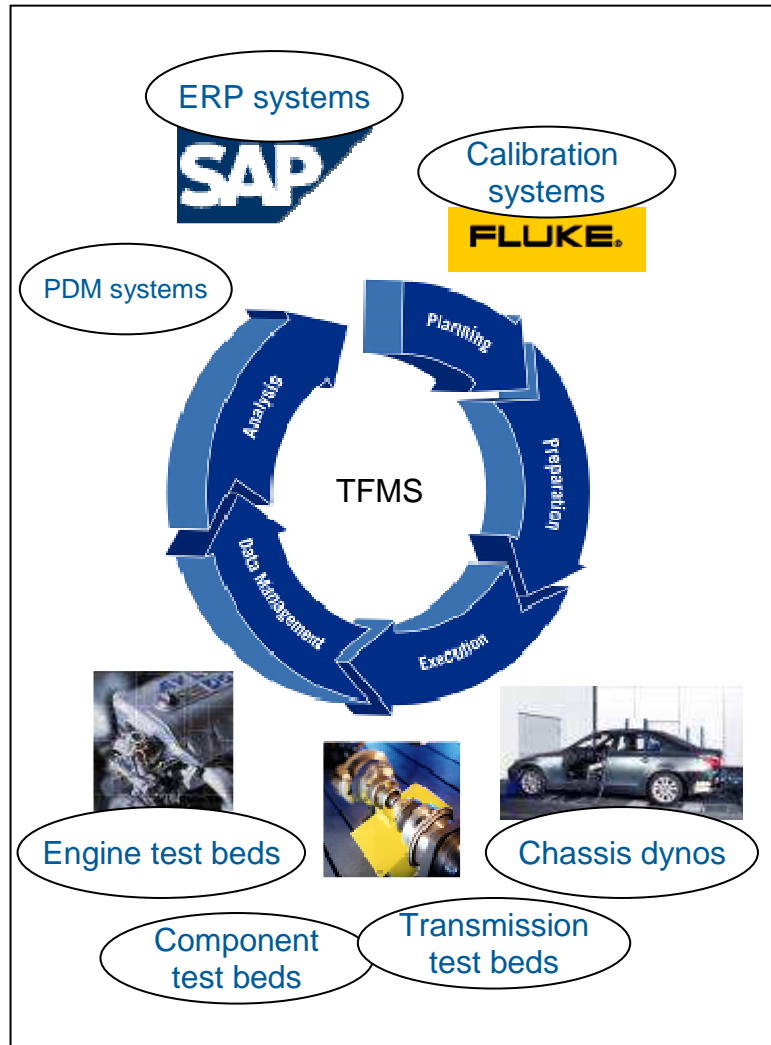


The screenshot shows the Test Factory Explorer application window. The left pane displays a hierarchical tree structure of test equipment and orders. The right pane shows a table of test results.

Name	Type	Modified	State
4 Cylinder 123	Unit Under Test	2007-09-17 16:40:43	Available
uug 234	Unit Under Test	2007-09-17 16:39:03	Available

Overlaid on the screenshot is a diagram with a central red question mark. Five blue ovals with arrows pointing towards the question mark are labeled: "Test Orders", "Equipment", "UUT", "Planned Data", and "As-Is" Data. Below this diagram is a yellow box containing the text: "Time savings during operations" and "Easy-to-Use".

TFMS integrates into existing customer environments



- Easy adaptation in order to fit into customer environments
- Short integration time due ready to use modules
- Standardized interfaces: ASAM ODS and Web Services

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