



## The MDM (Measurement Data Management) system environment

## Audi fast facts



- **Brands: Audi and Lamborghini**
- **964.151 premium cars delivered to customers 2007**
- **€ 33.600.000.000 turnover 2007**
- **53.347 employees worldwide**



## Overview

- Audi's test environment
- Measurement data management – what users want - and what's behind
- Declaring basic goals - Choosing basic principles
- Integration of heterogeneous processes with MDM
- MDM – a multi domain approach – what's beyond
- The MDM community



## Audi's R&D test environment



fuel economy

vehicle performance

NVH / acoustics

electronics / HIL

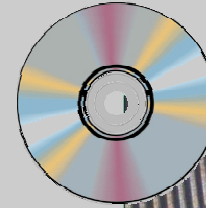
safety

durability

aerodynamics

power train test

...



## Audi's R&D test environment



Business data item

## requirements for data management

- shared format
- shared semantic context
- availability
- safety and security
- manageable
- complete



## Audi's R&D test environment

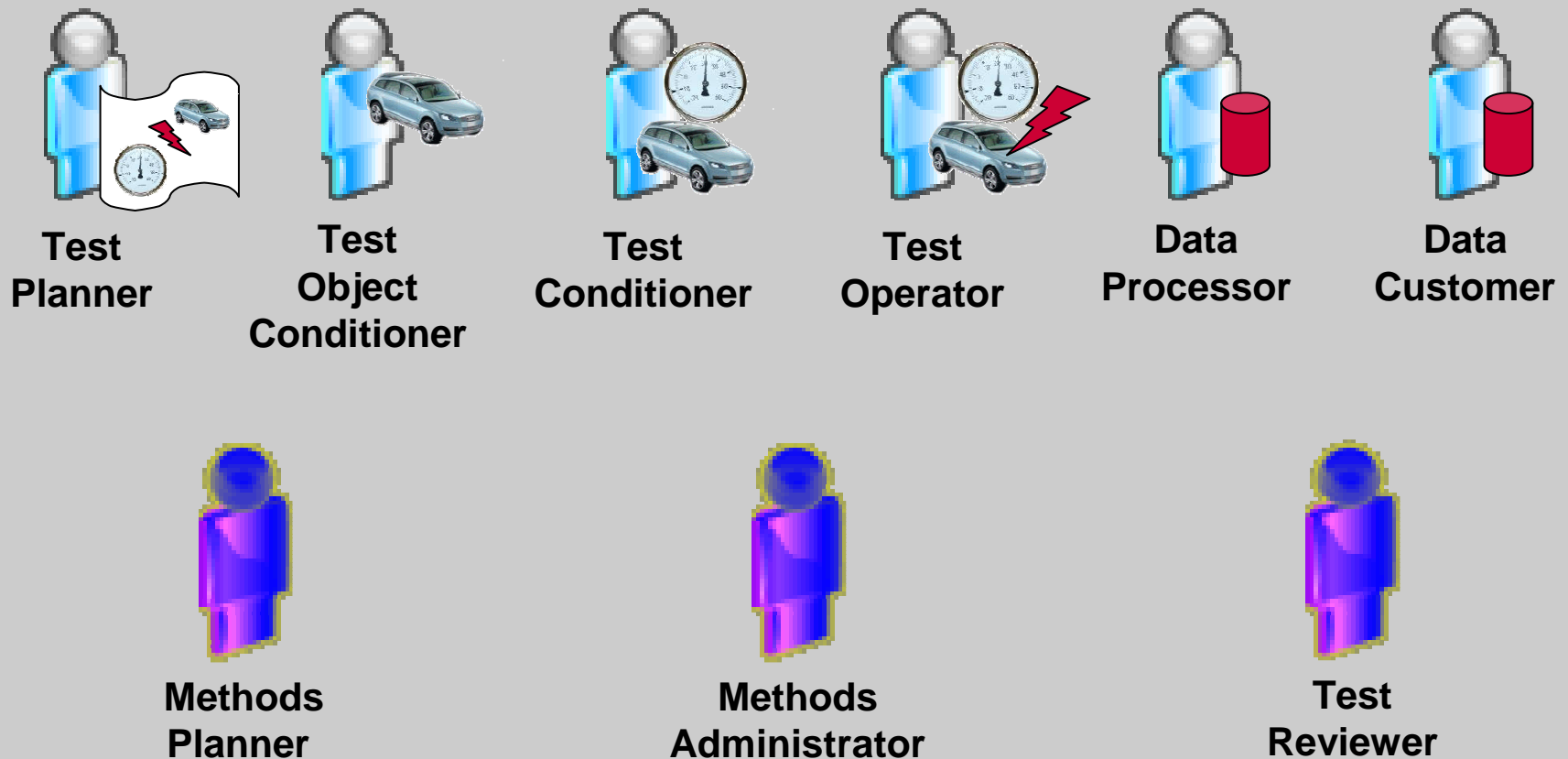
### Requirements to be met by a measurement data management solution

- reusable ASAM ODS application model which fits the needs of several domains
- reusable measurement data management applications
- fast deployment of new systems
- increased robustness of the system
- measurement data management development and operation at minimized effort/costs

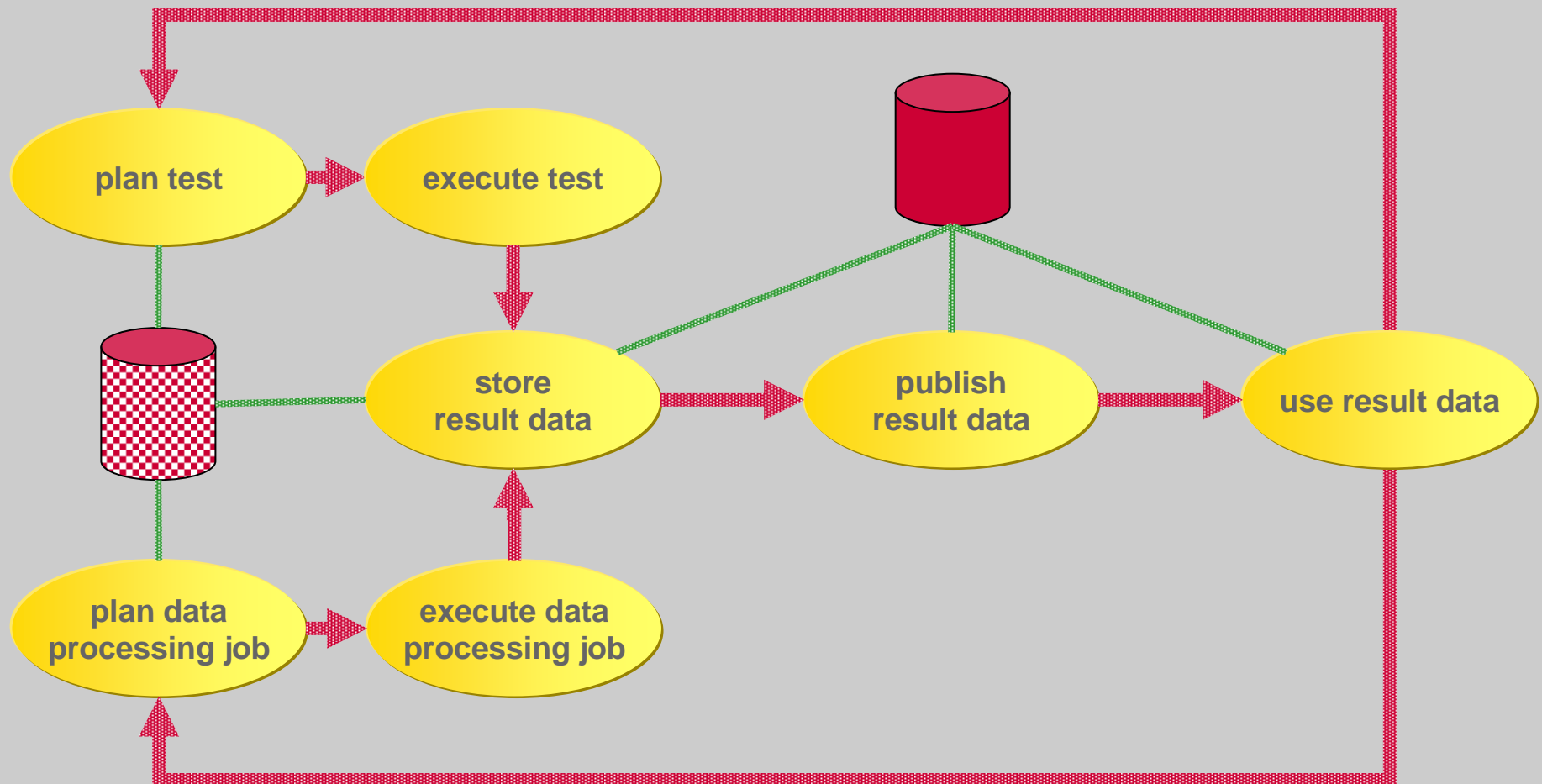
The Audi MDM Team was and still is convinced, that these requirements can be met.



## Measurement data management – what users want - and what's behind

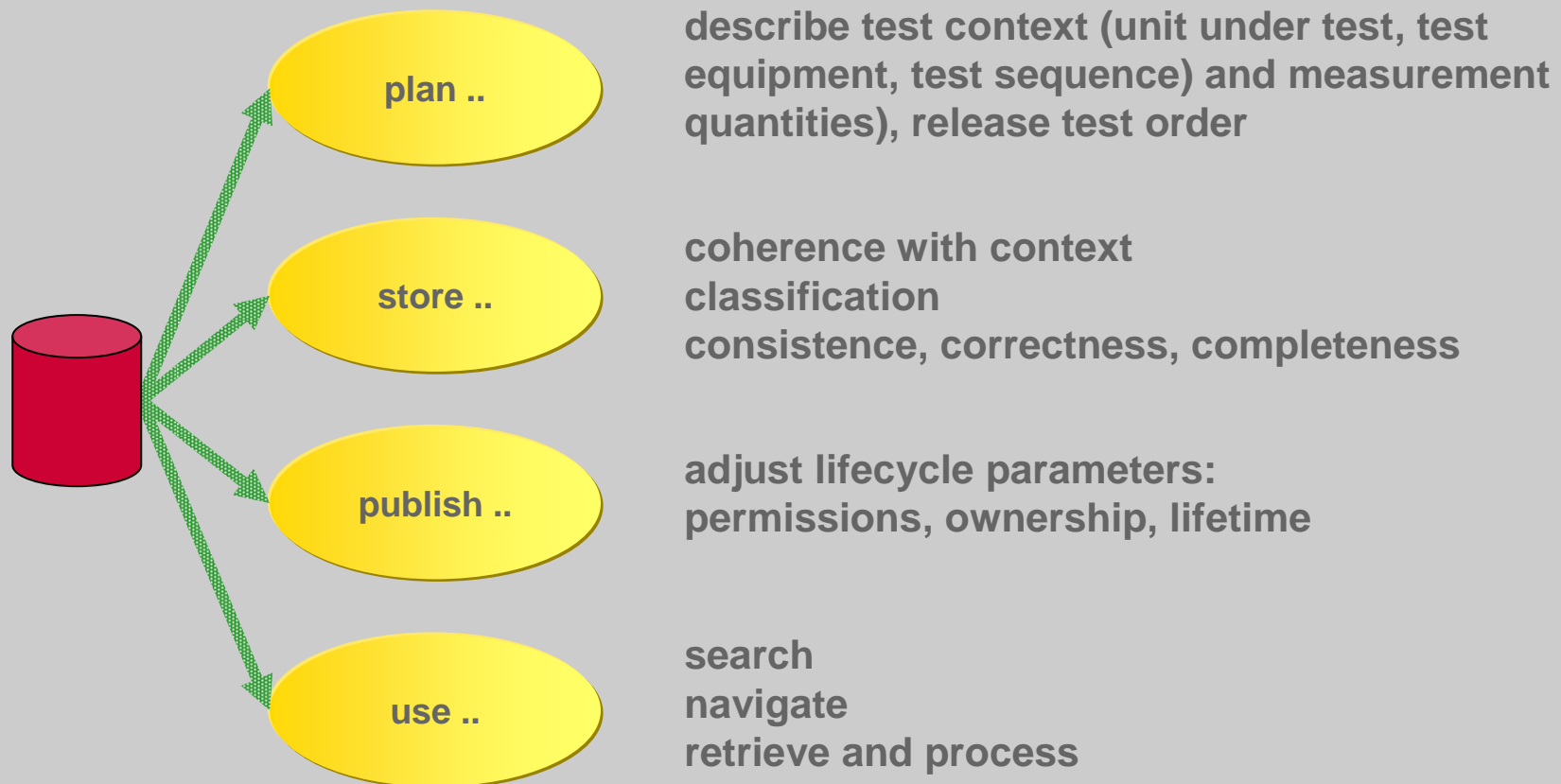


## Measurement data management – what users want - and what's behind



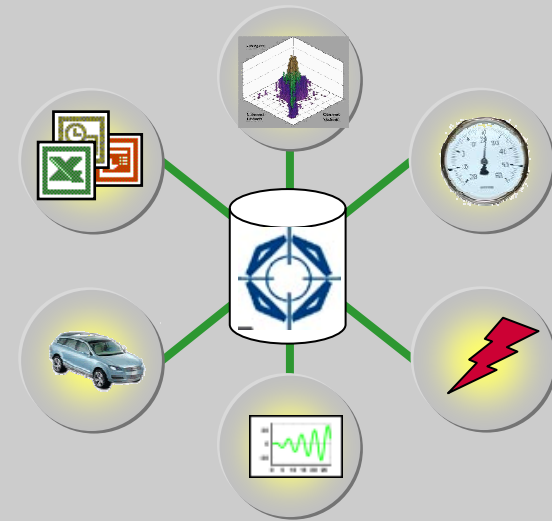


## Measurement data management – what users want - and what's behind



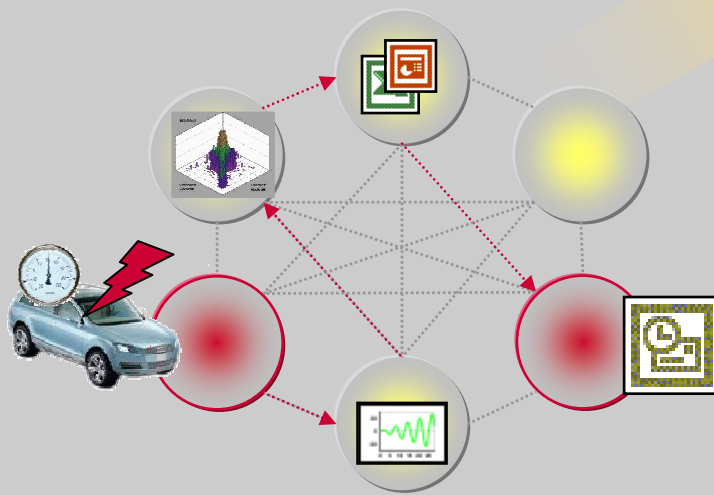
## Measurement data management – what users want - and what's behind

### ASAM ODS based data centric approach



ASAM ODS is not only the persistence layer for test data, but

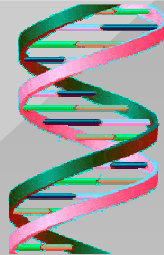
- central conversion platform
- configuration control database
- process control database
- application integration platform (by MDM typing concept)



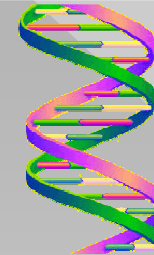
## Declaring basic goals - Choosing principles



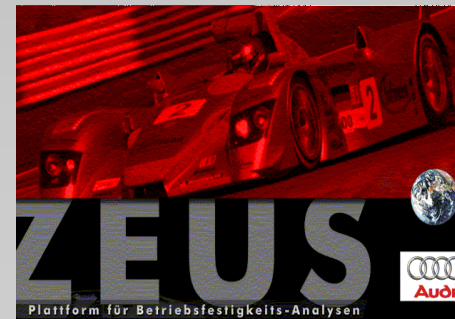
### MDM toolkit



generic and complete  
test context description

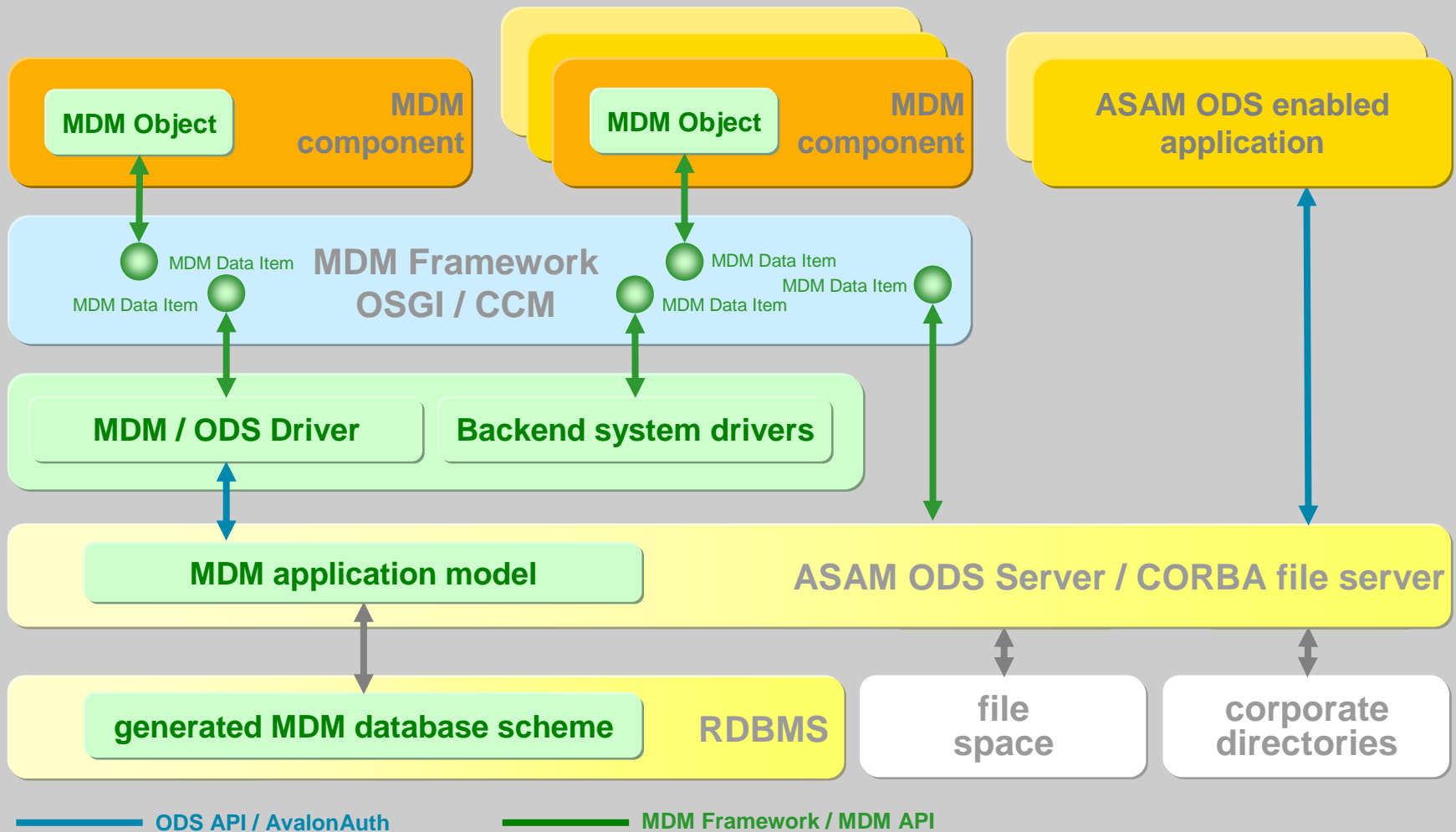


native ASAM ODS standard  
extensible components architecture

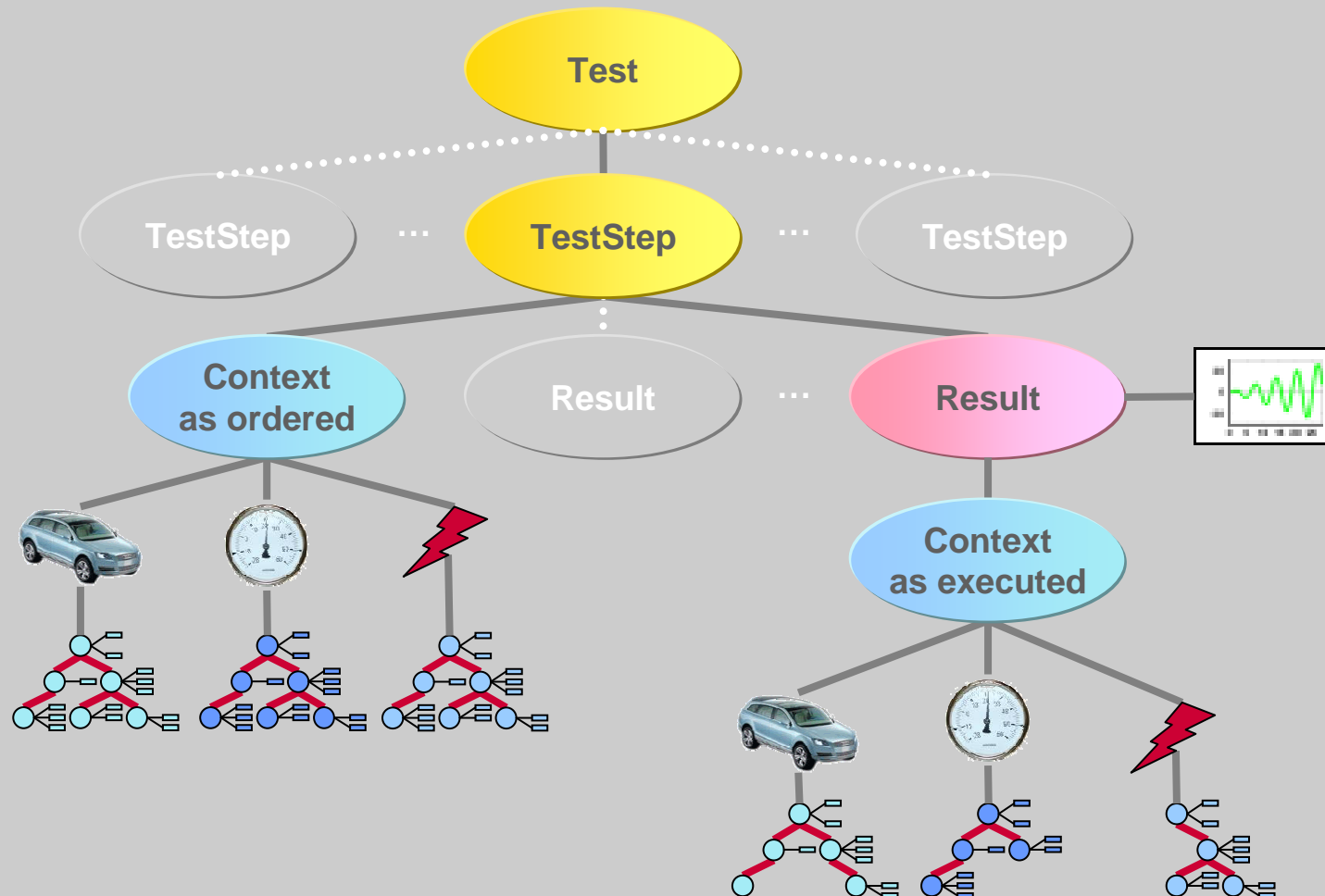




## Declaring basic goals - **Choosing principles**

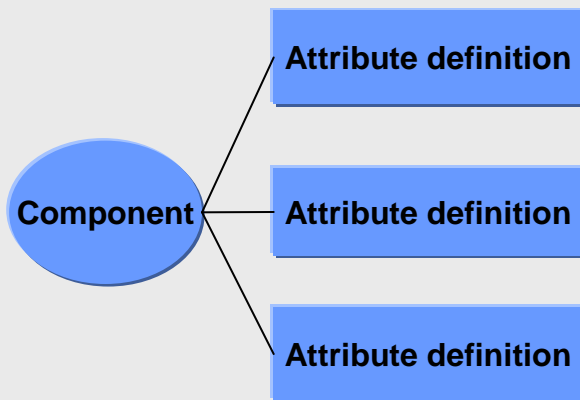


## Declaring basic goals - **Choosing principles**



## Declaring basic goals - **Choosing principles**

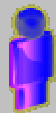
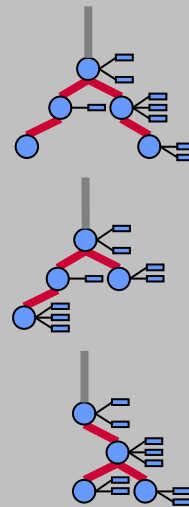
### MDM Catalogue



MDM methods administrator

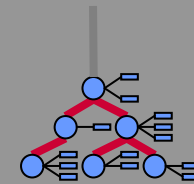
### MDM component structures

#### MDM Templates



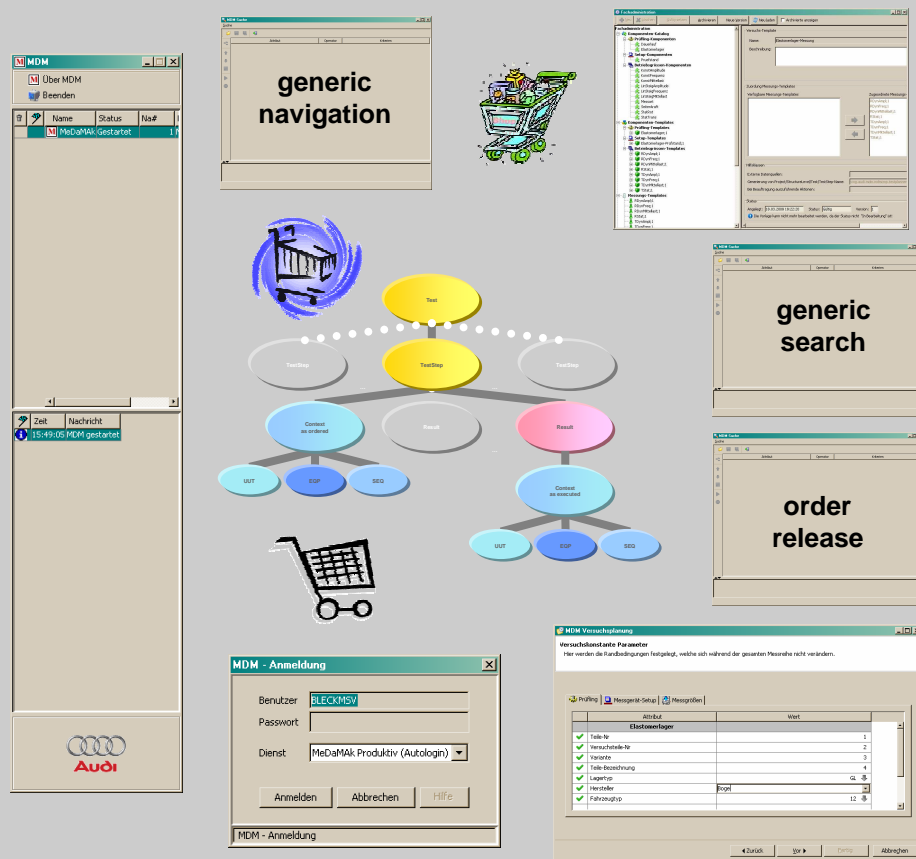
MDM methods administrator

#### MDM Measurements



MDM test planner

## Integration of heterogeneous processes with MDM



### How to create an MDM solution

- build on MDM base environment
- analyze process and requirements
- design description patterns
- design access rules
- connect applications if necessary
- add convenience components
- plan and deploy commercial components (ASAM ODS server, database server)

... ready !



## Integration of heterogeneous processes with MDM



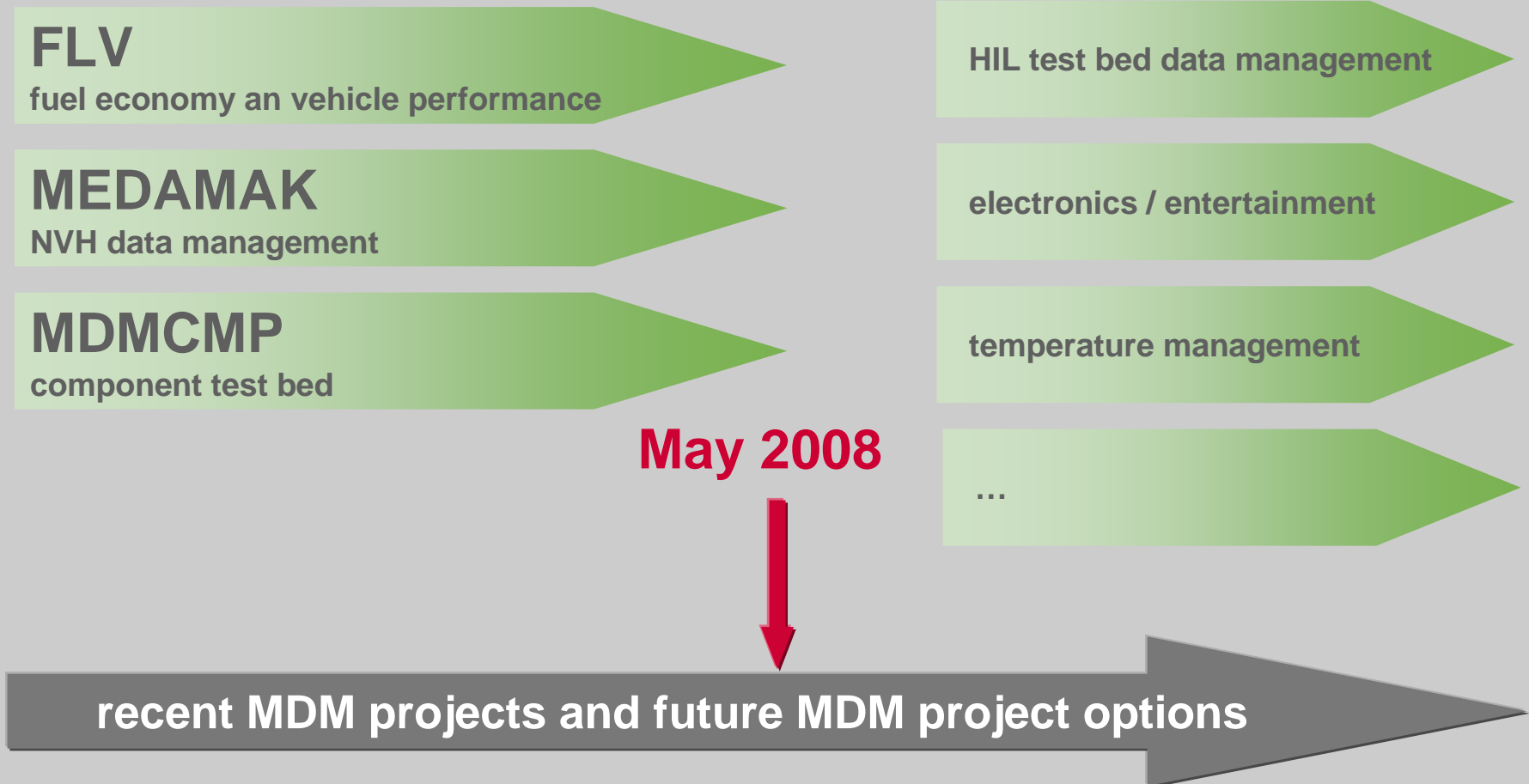
May 2008



MÜLLER-BBM  
VibroAkustik Systeme

3rd party application integration

## Integration of heterogeneous processes with MDM

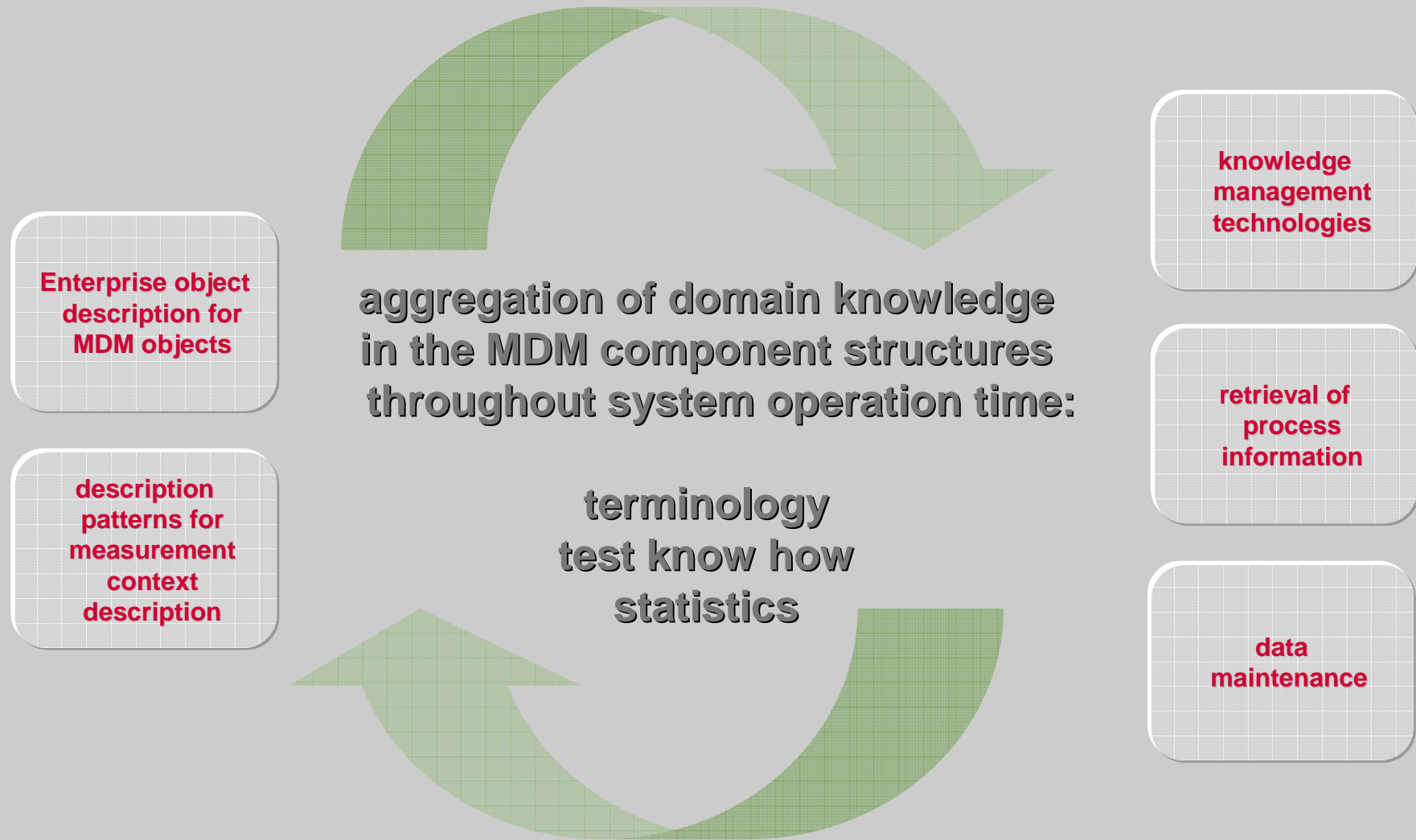


## MDM – a multi domain approach – what's beyond

### So - what's MDM ?

- a generic application model
- a client application core
- an API
- a set of optional generic software components
- a set of methods for
  - test process mapping
  - application development
  - application integration
  - test data storage organization
  - ASAM ODS database scheme development

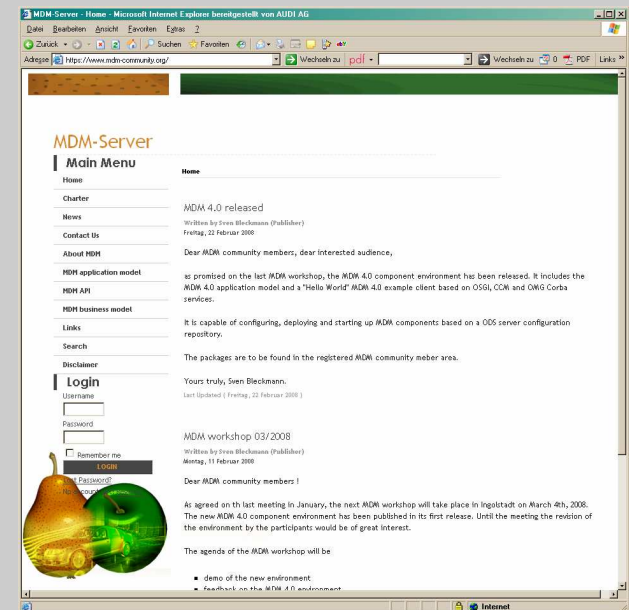
## MDM – a multi domain approach – what's beyond



## The MDM community

Reuse of the MDM toolkit and methodology by other organizations/companies will result in

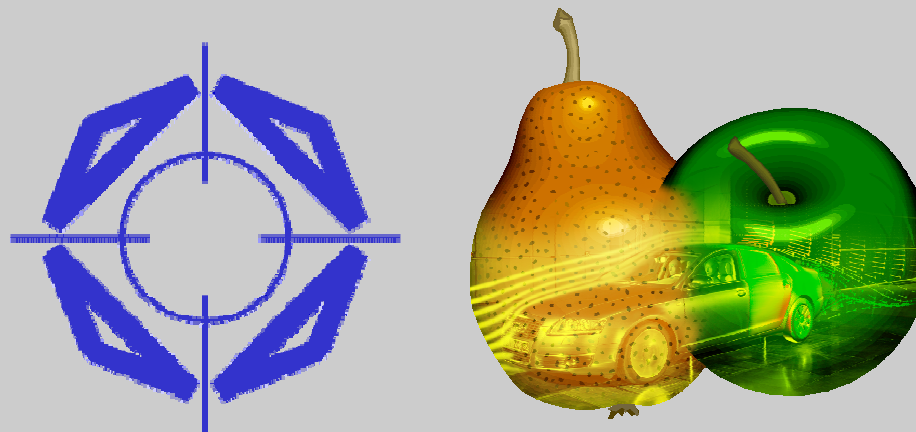
- Higher quality of the MDM applications
- Improvement of the MDM design technologies
- New functions for the MDM applications
- Options for users to choose best- in- class tools
- ad hoc familiarity with systems of similar look & feel
- Efficient implementation of new system instances
- Establishing ASAM ODS know how at multiple sites
- Promoting ASAM ODS as "first choice" for application suppliers
- Development of companies which can provide MDM based system solutions



## The MDM community

- MDM is intended to be a collection of ASAM ODS best practices

The MDM community maintains this collection



Join us at <https://www.mdm-community.org>

## The MDM community

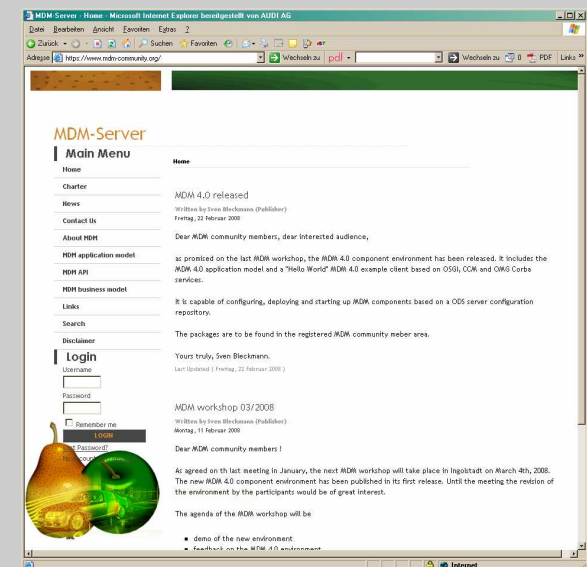
- Membership is for the staff of companies generating test data

Service suppliers can gain membership if they provide a reference to a project with a client company with the above characteristics, confirmed by this client company

- Mutual benefit for the MDM community members
- MDM community web site (launched in autumn 2007)

- Information resources
- Community forum
- Contacts
- <https://www.mdm-community.org>

- MDM software interchange
  - Members only, No warranty, Permanent source disclosure
  - modifications have to be published back on source level
  - See MDM community web site for details
- MDM community local meetings and workshops
  - held until now by Audi, so far open for registration







**Thank you !**