

Functional Data Exchange (FDX)

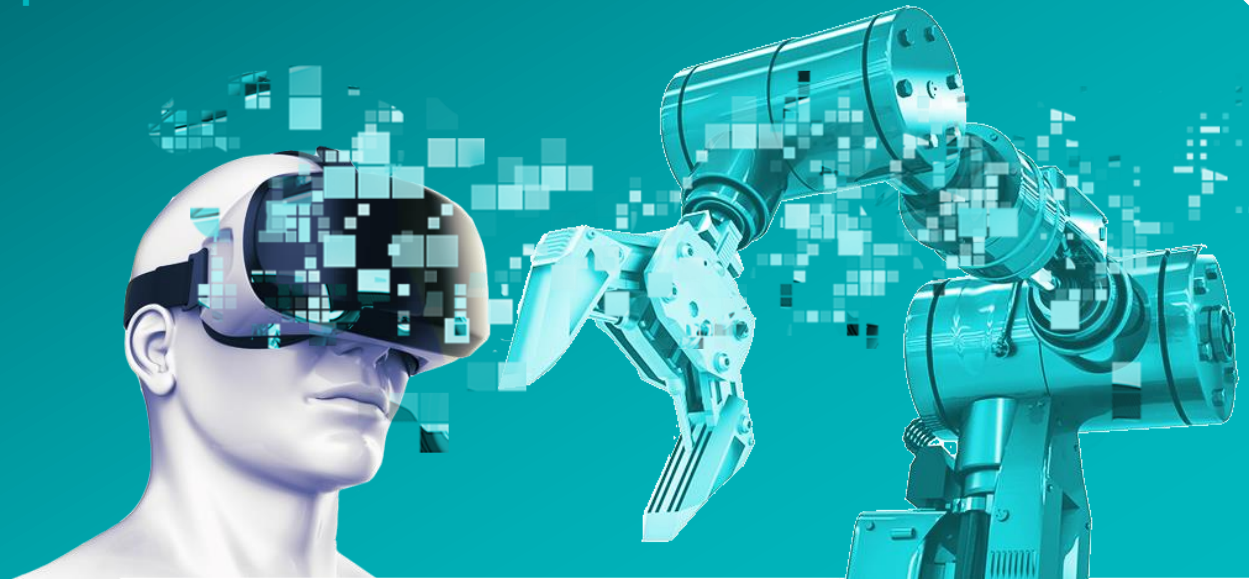
VDA

Verband der
Automobilindustrie

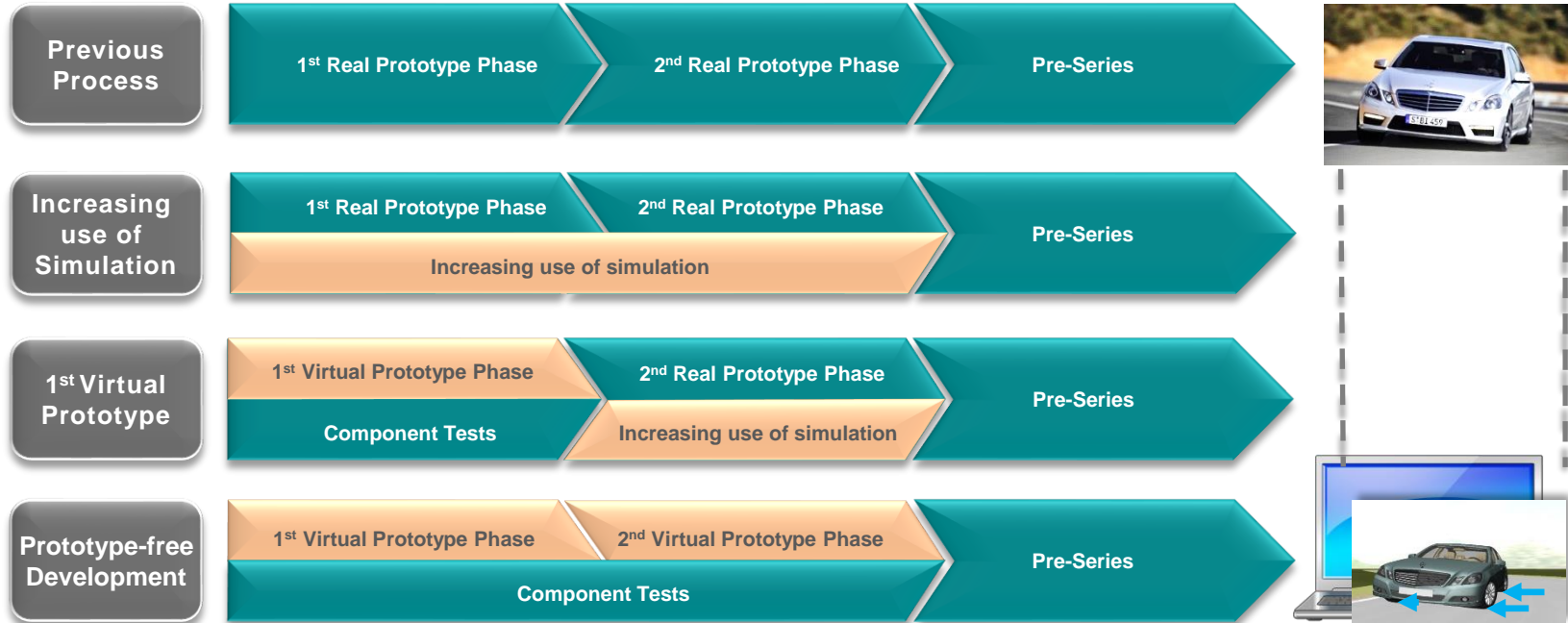


prostep IVIP

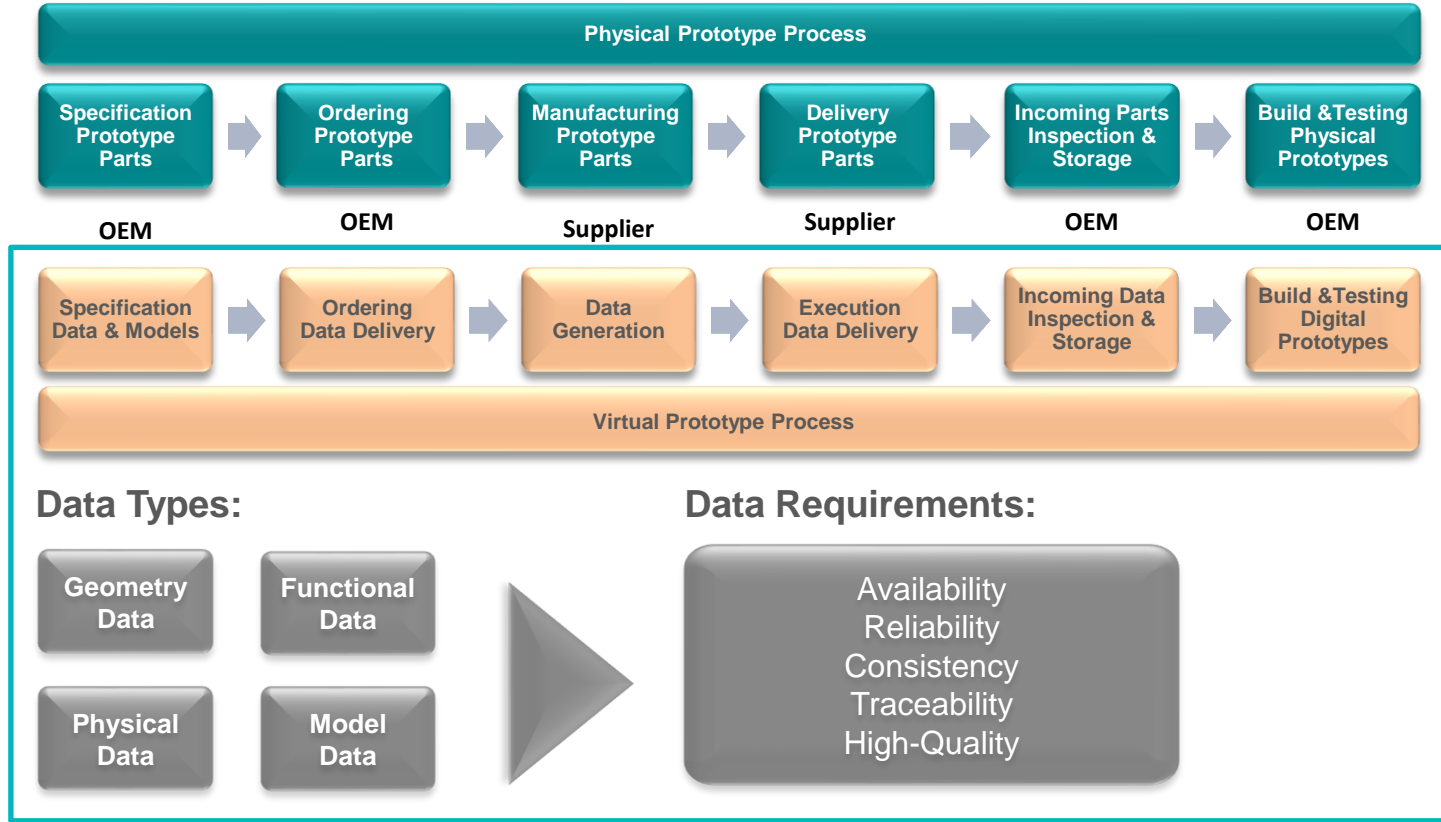
An important step for integrated process chains
in virtual vehicle development



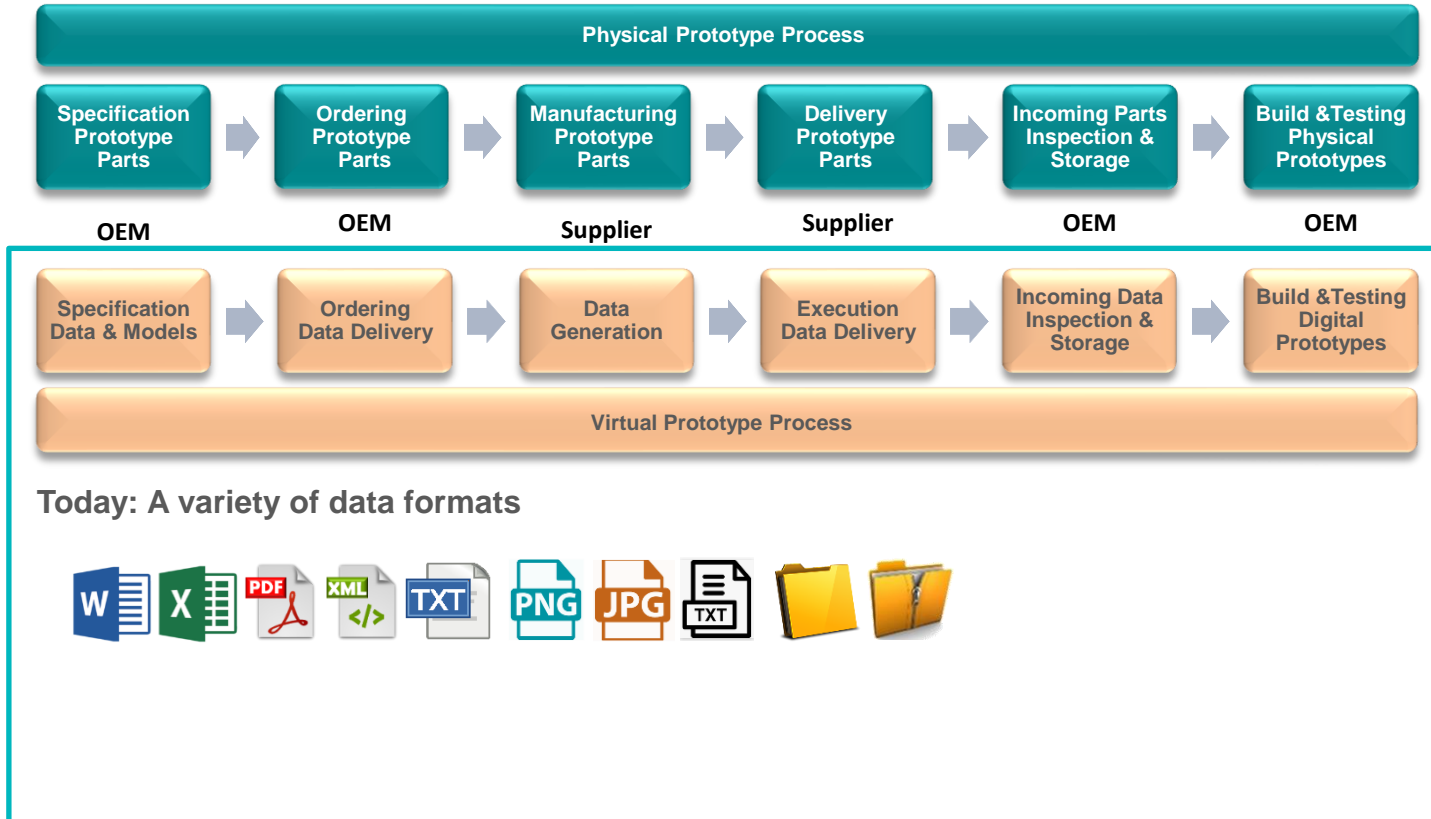
Increasing use of simulation in vehicle development



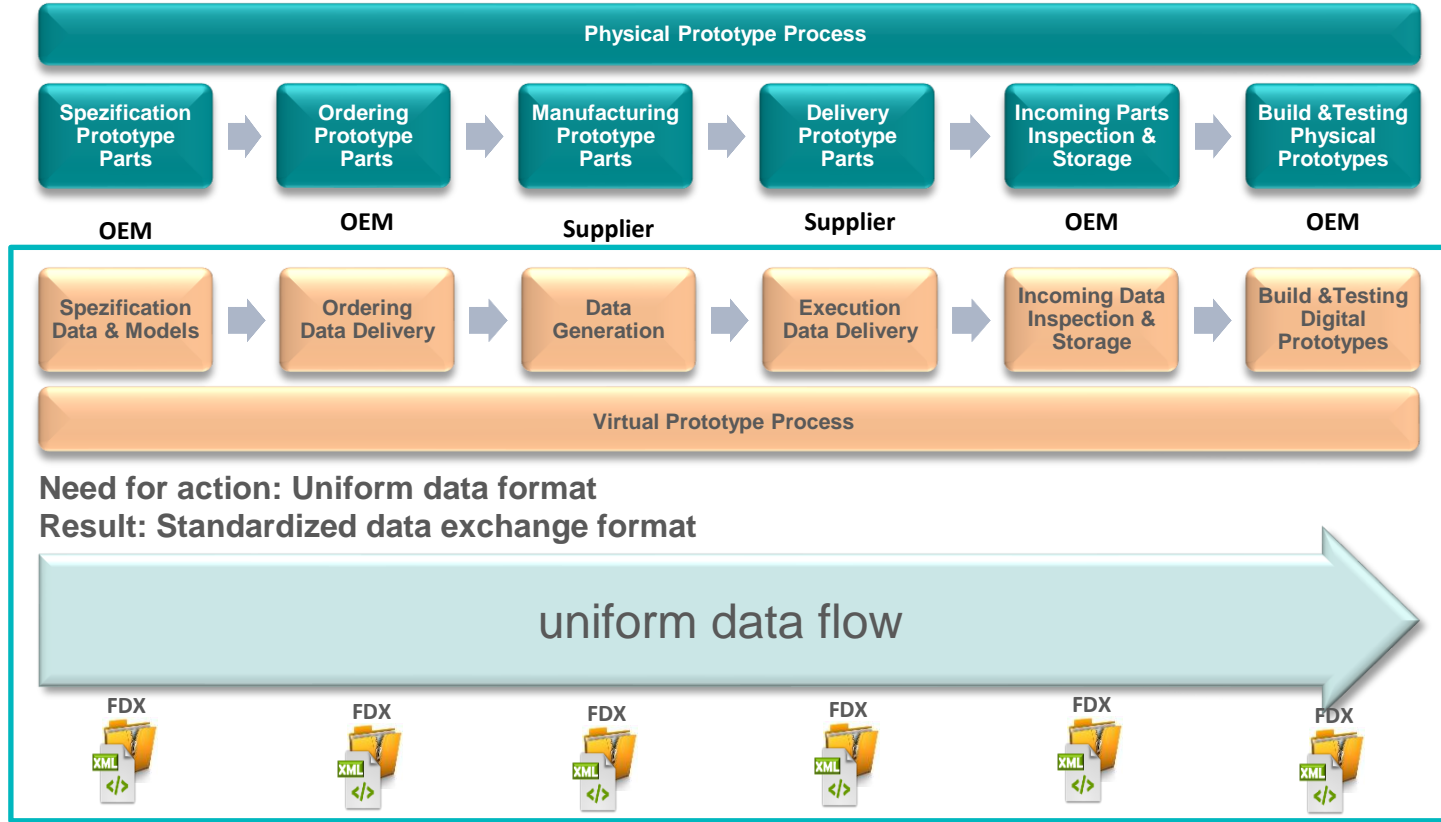
Virtual development needs data



Virtual development needs data



Virtual development needs data



Working Group



Aim

Elaboration of a recommendation for functional data exchange

Members

Chair:

K.M. Hahn (Stellantis N.V.)

Project Coordinator:

G. Schneider (Peak Solution GmbH)

Participants:

Daimler AG
 Dr. h.c. Ing. F. Porsche AG
 Audi AG
 Stellantis N.V.
 Schaeffler Technologies AG & Co. KG
 ZF Friedrichshafen AG



Scope of work

- Definition of the application area
 - Requirements
 - Process and use cases

- Definition of the underlying standards

- Elaboration, maintenance and further development of the technical data model
 - Overall attribute list
 - Component-specific attributes

- Provision of software tools to exchange functional data between OEMs and suppliers

Requirements

Supplier:

- Protection of intellectual property
- Efficient creation of exchange objects
- High process quality / security
- Internationalization
- Low operating costs
- Consistent use by OEMs

OEM:

- Consistent component description
- Process quality / security
- Flexibility and expandability
- Low operating costs
- Acceptance from suppliers



Data Model:

Definition of a data model based on the industry standards ASAM-ODS and openMDM

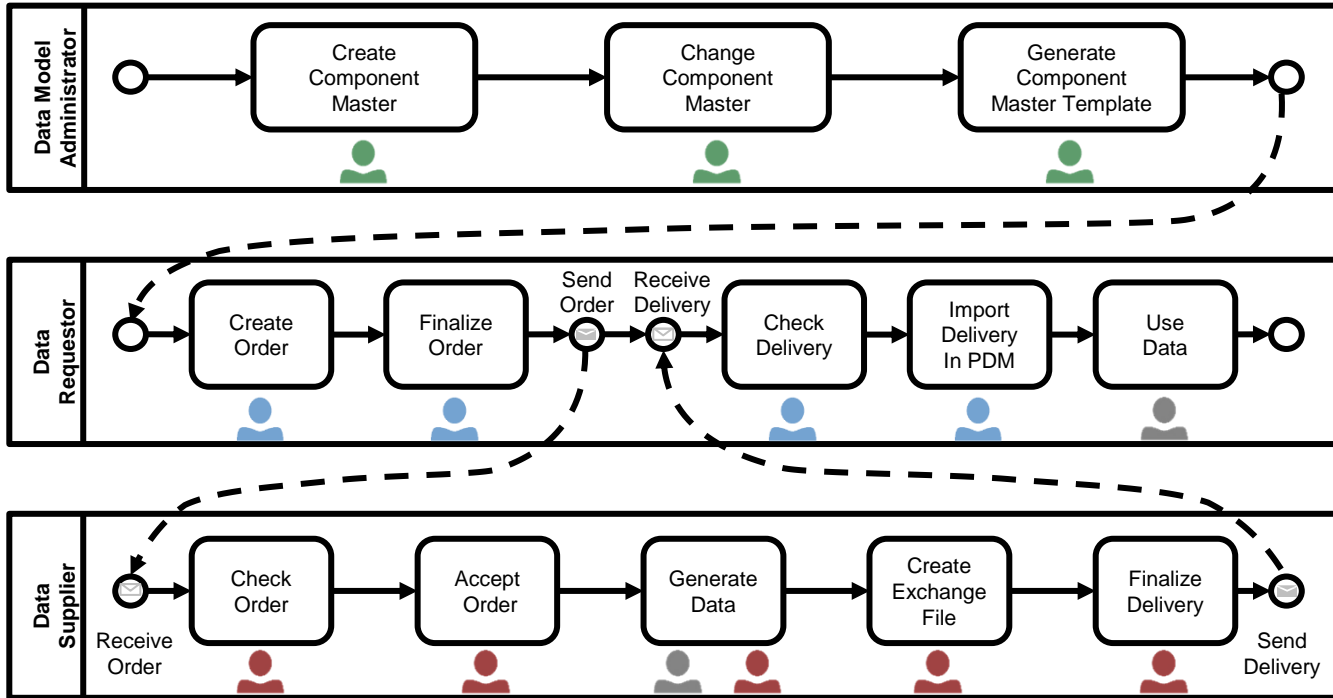
Data Exchange Format:





Use of the XML-based industry standard ASAM ATFX

Software Tool:

Provision of an editor for data entry and process support

Process and use cases



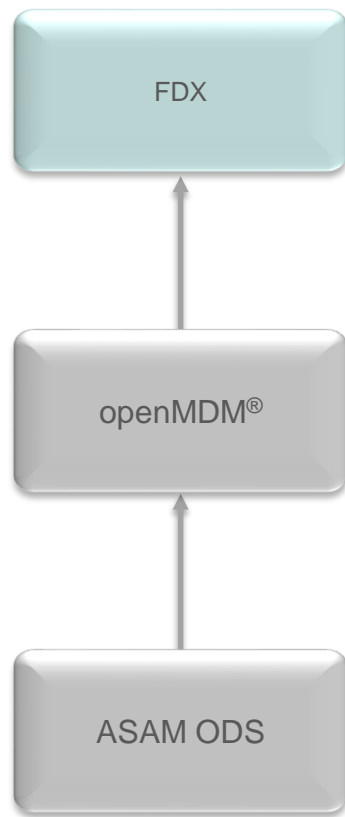
-  Data Model Administrator
-  Data Requestor
-  Data Supplier
-  Data User

Underlying standards

Defined data **names, attributes and values**, specified by FDX Working Group

Derived **application model** for managing test data, specified by openMDM Eclipse Working Group

Generic **base data model** for describing test data, specified by ASAM^{*)}



Extension of the application model

- Rule-based attribute control
- Differentiation between 'mandatory' and 'optional' attributes
- Implementation in a container file with seal of approval

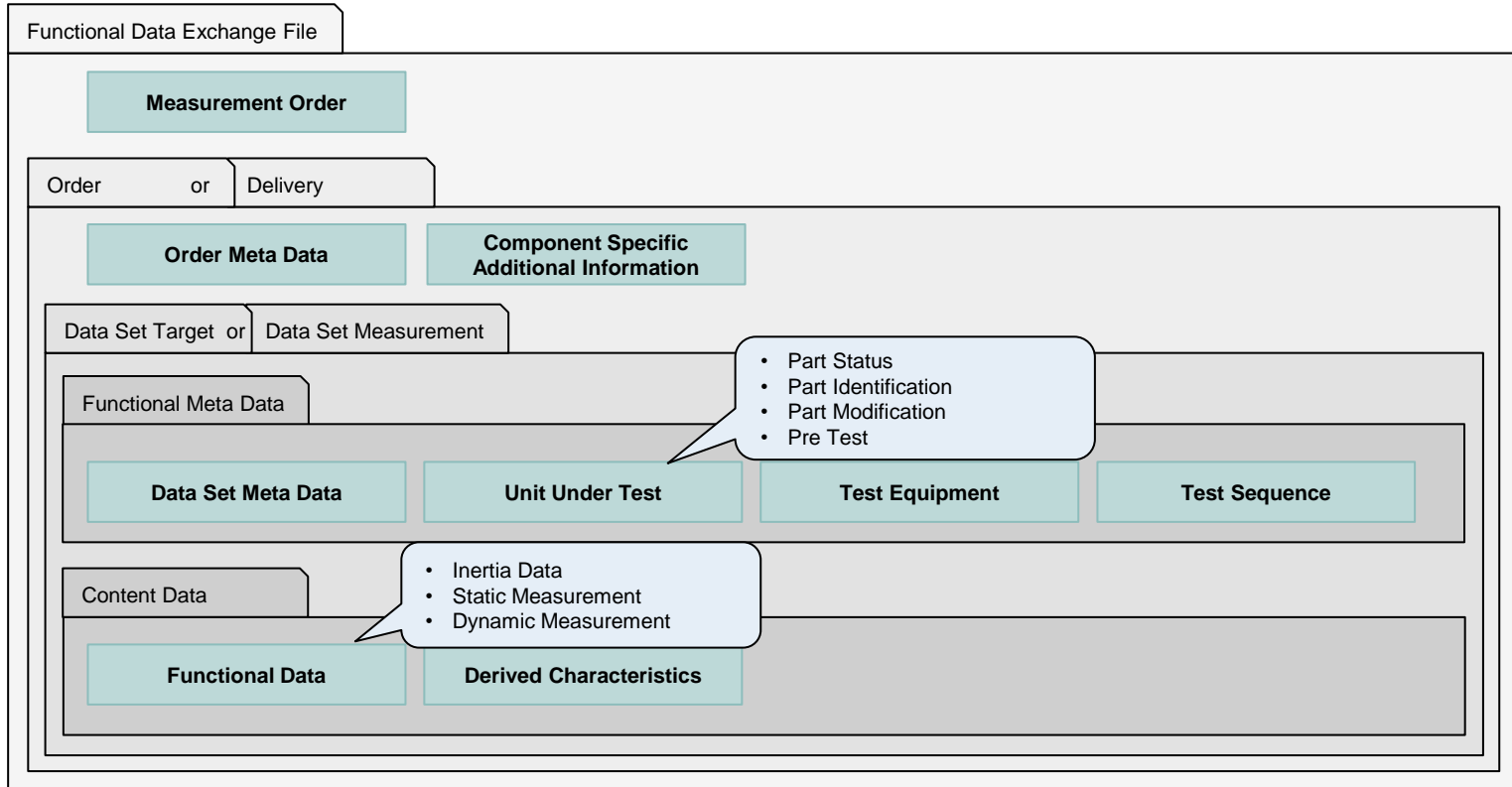
Detailing of the base data model:

- Structures and links between model elements
- Templates and catalogs
- Differentiation between 'ordered' and 'delivered' data

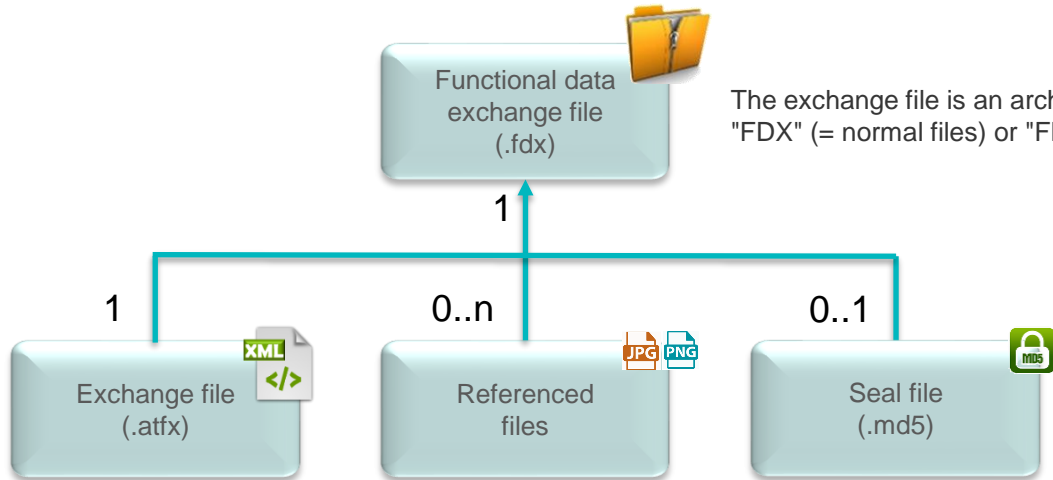
Data Model - Features

- Representation of extensive information on components, measurements and payload data
- Representation of different types of components in the same data model
- Generic description of values, maps and curves
- Representation of rule-based dependencies between attributes and values of attributes
- Data model for data request and data delivery
- Expandability through OEM-specific information blocks
- Divisibility of an overall data transmission into several sub-scopes

Data Model – main categories and subcategories



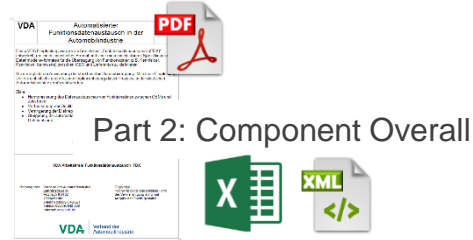
Data Exchange Format



The exchange file is an archive (ZIP) which has either "FDX" (= normal files) or "FDT" (= template) as file extension

Structure of the Recommendation

Part 1: Main document

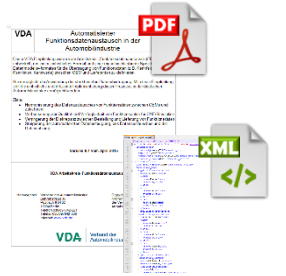


Attribute list

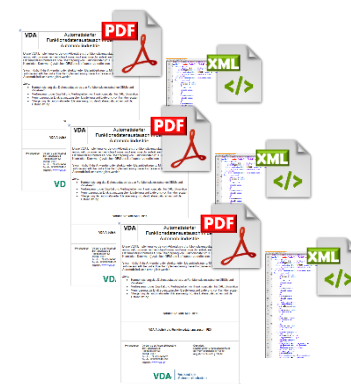
Part 3-1: Rubber Mounts

Part 3-2: Shock Absorbers

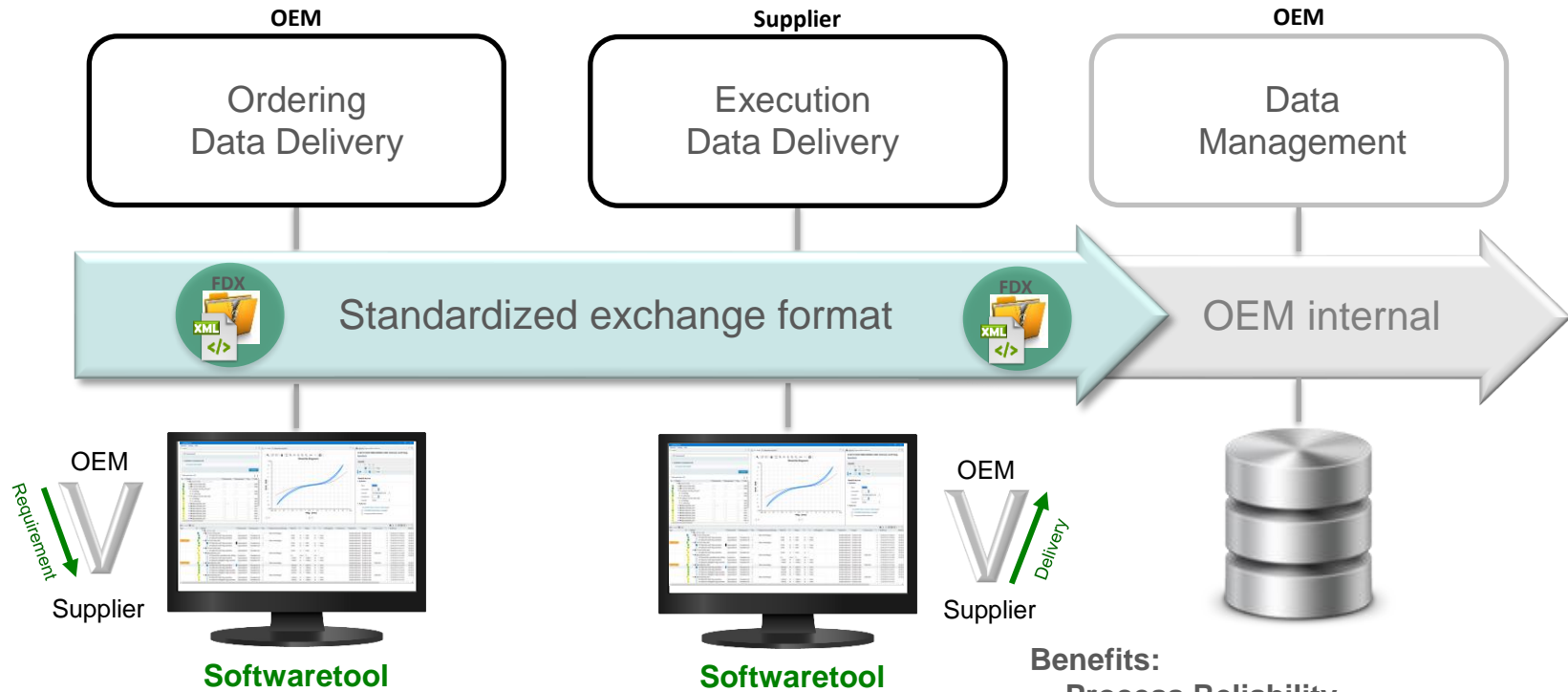
Part 3-x: Further Components



component-specific application administration



Software support



- Benefits:**
- Process Reliability
 - Process Automation
 - Process Quality