



From technical input parameters to virtual testing – while maintaining full traceability

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Agenda

- Company Information
- Motivation
- Definition of “Technical Parameters / Technology Data”
- Concept Modules
- Realization based on SimData Manager
- Summary



PD Tec AG – what makes us tick!



INSPIRING || ENGINEERING || EXCELLENCE

„Inspiring || Engineering || Excellence“ summarize our way of seeing and thinking things and at the same time represent our DNA:

- Our solutions are designed to inspire our customer to work together more efficiently and create great innovations
- Our origin is engineering! We have been speaking our customers language and understanding their requirements for more than 25 years.
- We set high standards for our activities and deliver best-in-class solutions and consulting services
- Our main focus is on: Product Data Management / Simulation Data Management / Technical Data Management

P|D|Tec.



Motivation

How can engineers responsible for calculation work efficiently together?



How can all simulation engineers work and collaborate efficiently?

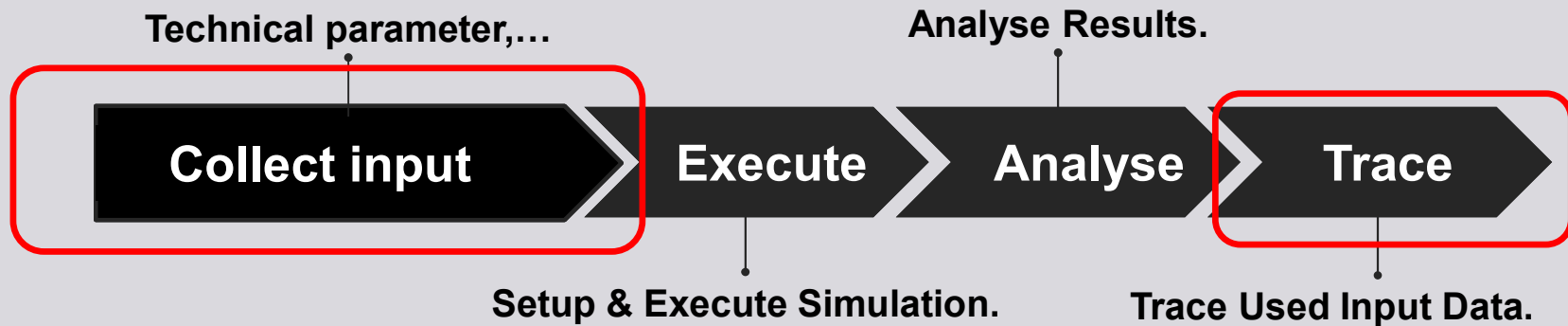


How to trust simulation results?

How can trust in calculation results be generated?

Management Perspective

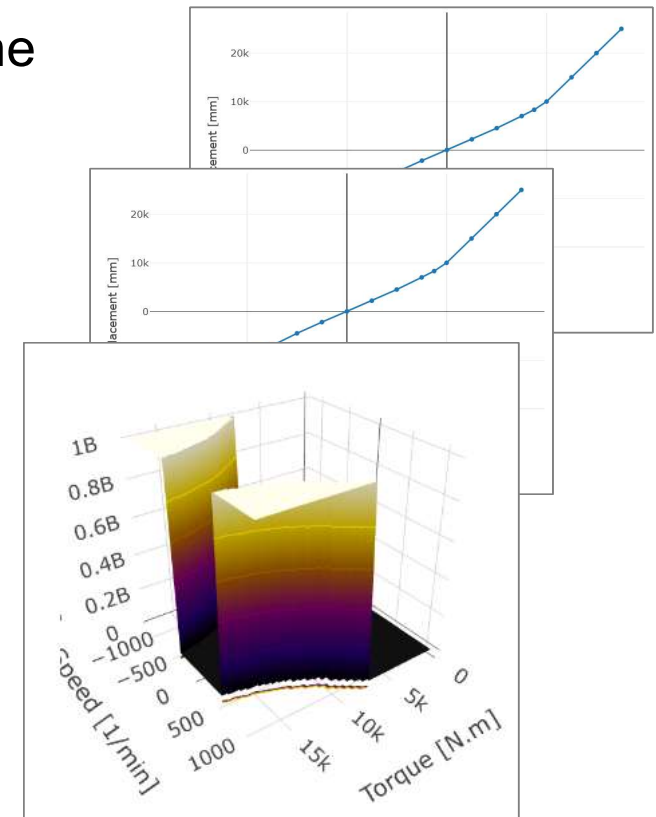
Technical Perspective





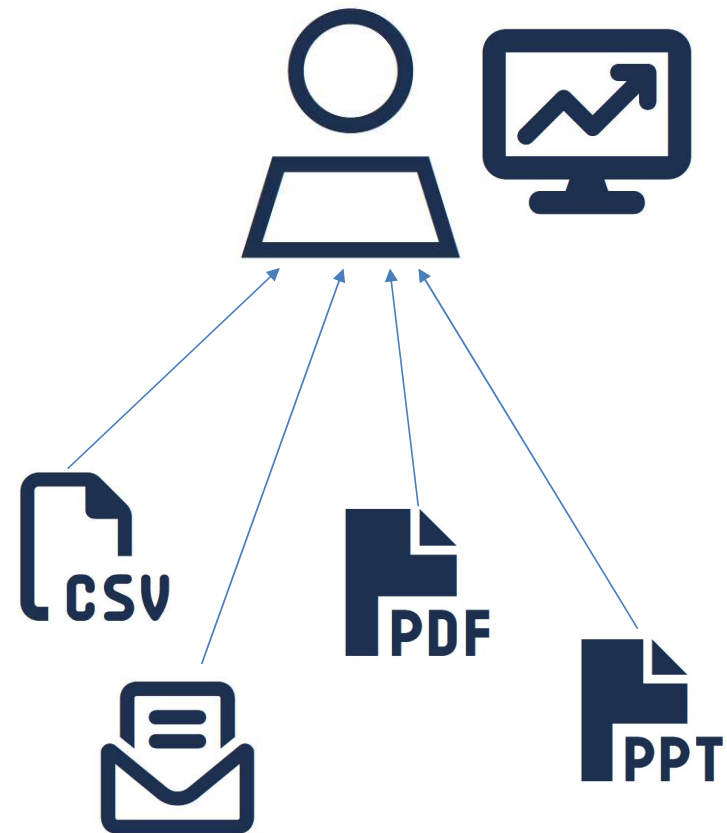
Definition

- Technical parameters or technology data describe the (non-geometric) properties of an overall product or a component or a (partial) system (e.g. brake system)
- Examples of technical parameters:
 - Mass / Center of mass
 - Bushing curves (e.g. of front axle)
 - Motor maps



Technology Data – known issues

- Data is provided in different data formats
- No "single source" management of technology data available
 - Available PDM systems for geometry data are typically not ideal
- Supplier integration is not uniformly solved





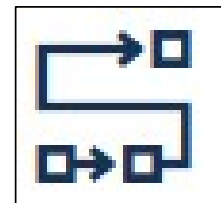
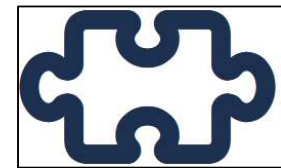
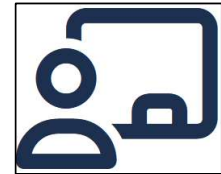
Goals of modern technology data management

- A "single source" for data management
- Data exchange with external suppliers (based on standardized formats)
- Integration of all data recipients (e.g. calculators) in their process chain
- Automation in the use of technical parameters in calculation models



Building blocks of the concept

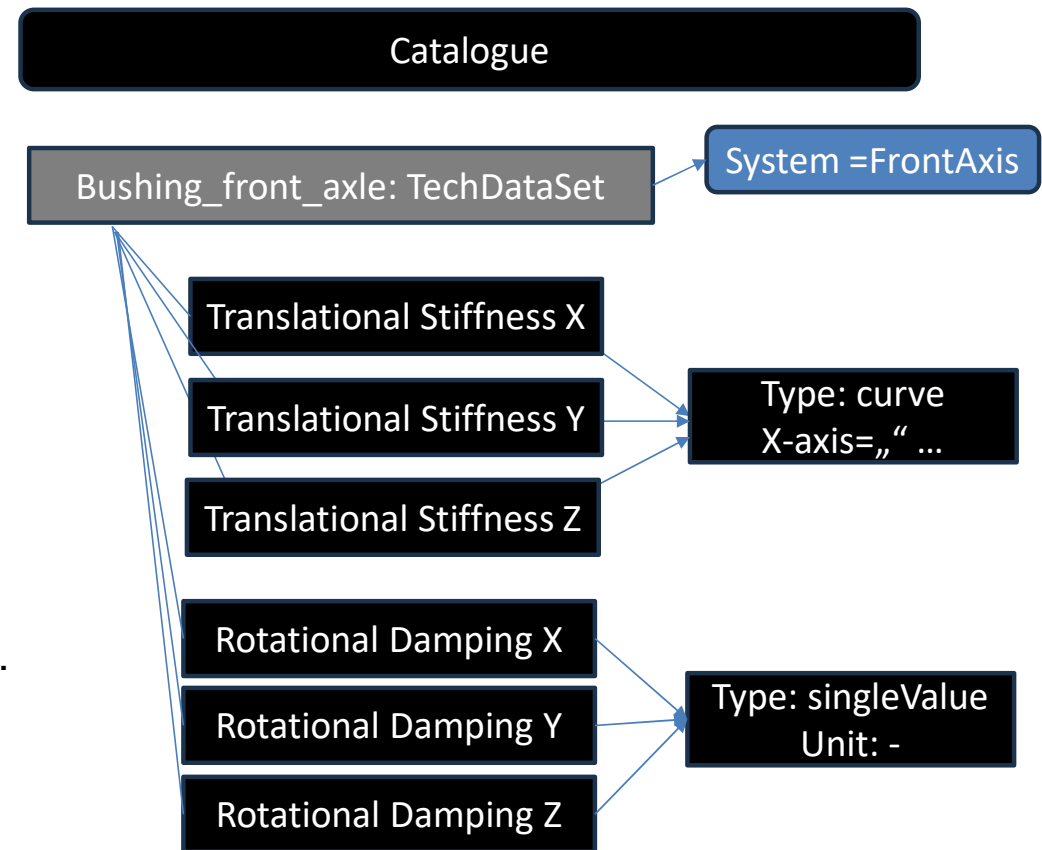
- Catalog mechanism for representing the technical parameters in a management system
- Process configurator for the ordering and delivery process for demand-oriented provision of data
- Dashboard mechanism for visual representation of delivery progress
- Plug-in mechanisms for the automatic filling of solver models
- Tracking and visualization of the data flow in the CAE process



Definition of catalogue

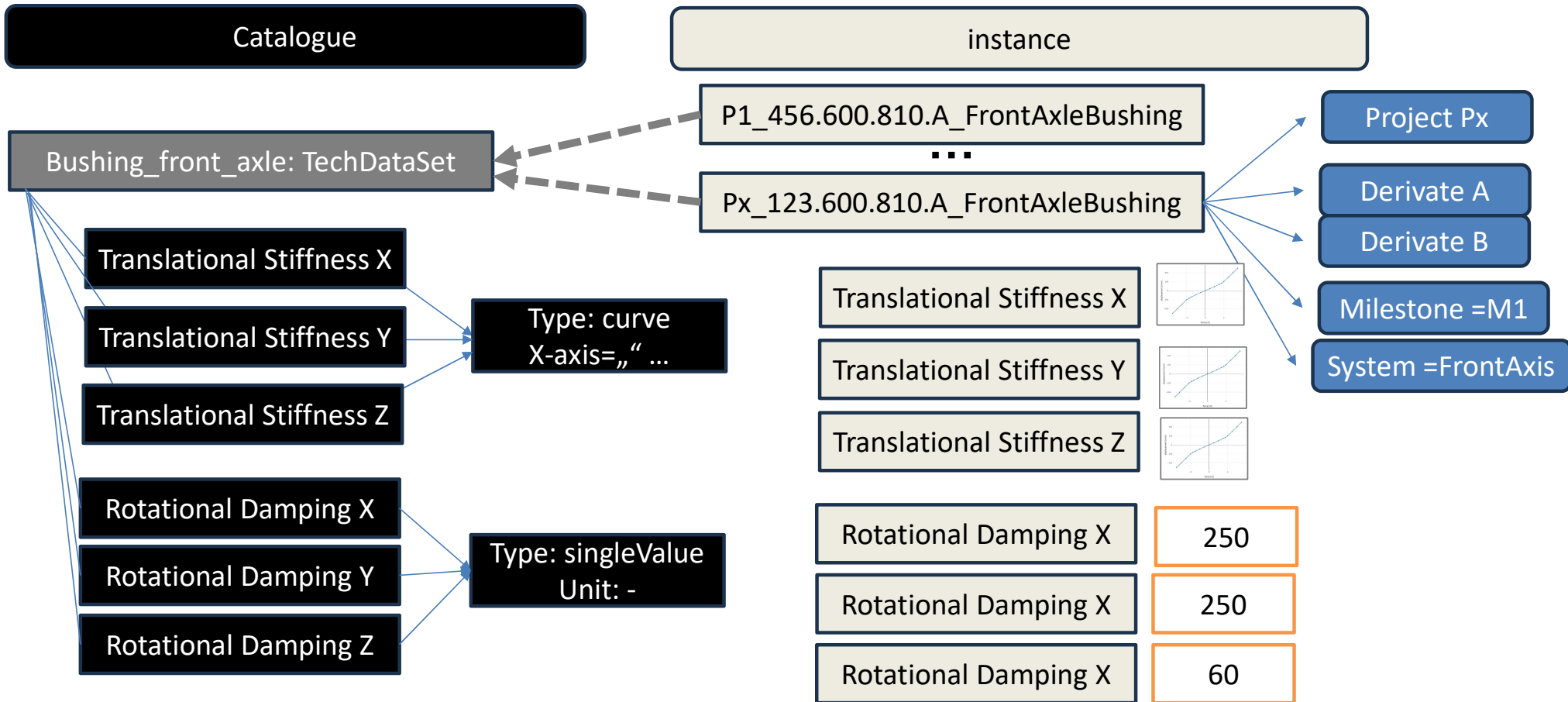


- Catalog consists of the artifacts
 - Technology data set
 - Collector for the technology data of the entire product or of components or their (sub)systems
 - E.g. technical parameters of the front axle
- Technology data item
 - Represents a technical parameter
 - There are various item types such as individual parameters, curve, 3D map
 - E.g. mass, bushing curve, engine map, etc.



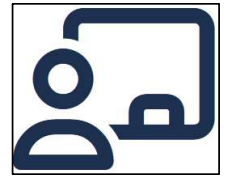


Catalogue instantiation

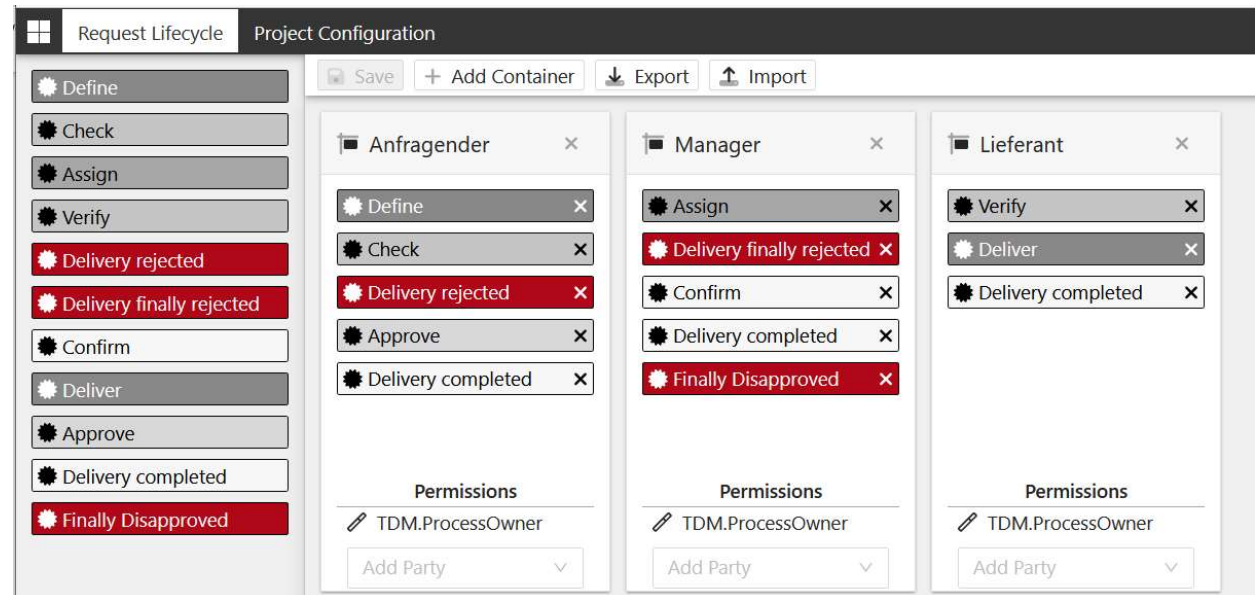




Process configurator



- Process configurator
 - Configuration of roles for the ordering and delivery process
 - Assignment of process steps to the corresponding role
- Process lib contains relevant process steps
 - e.g. define request, validate request, deliver request

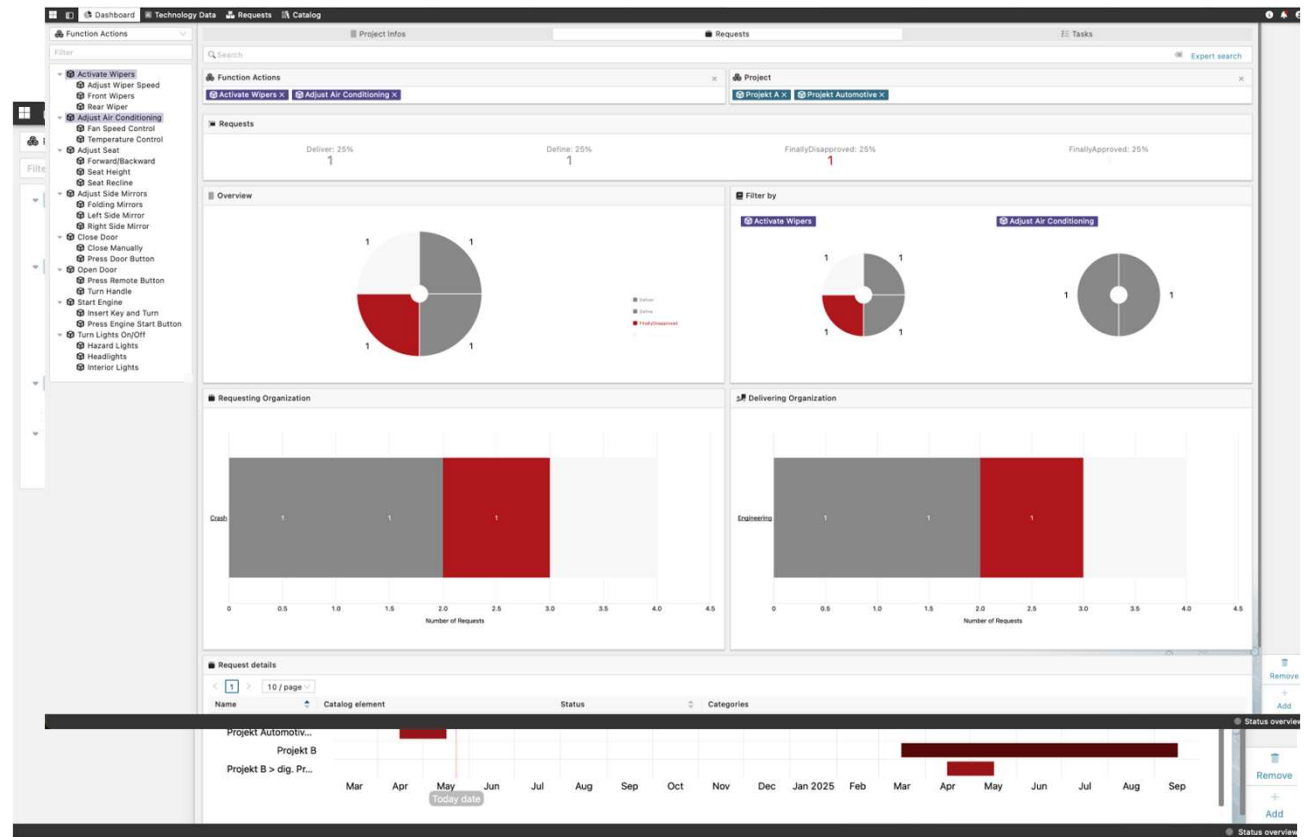




Dashboard

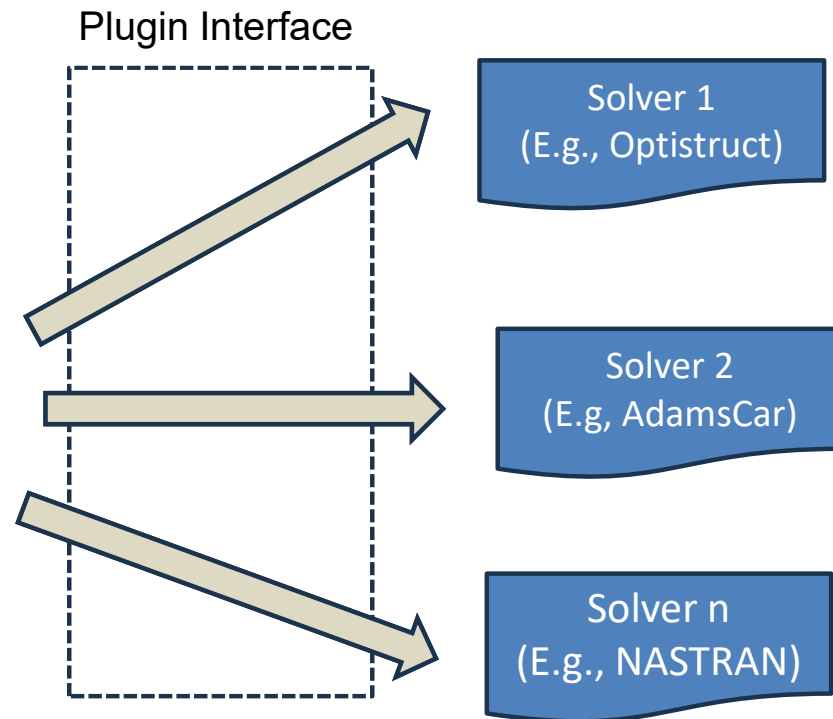
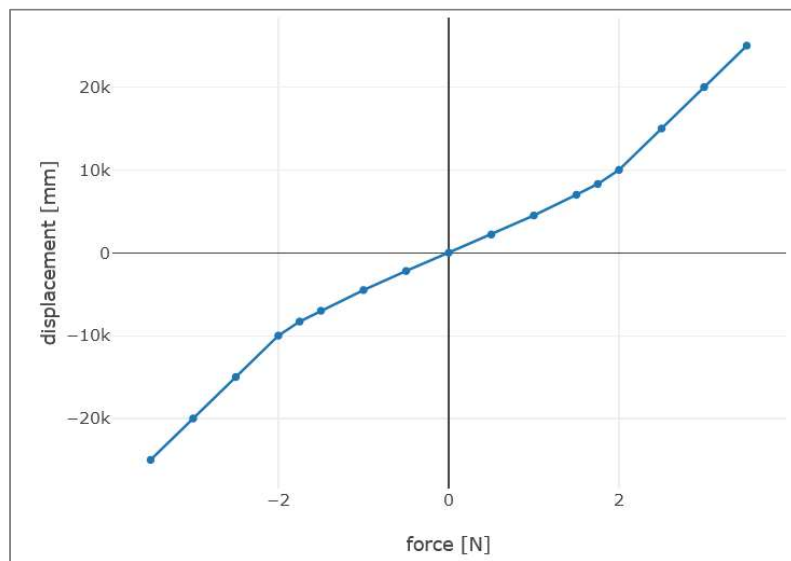


- Overview for team/department head
 - How many technology datasets are still outstanding for the current milestone?
- Overview for data requesters
 - What percentage of the requested tech data has been delivered? ... can I start as planned?



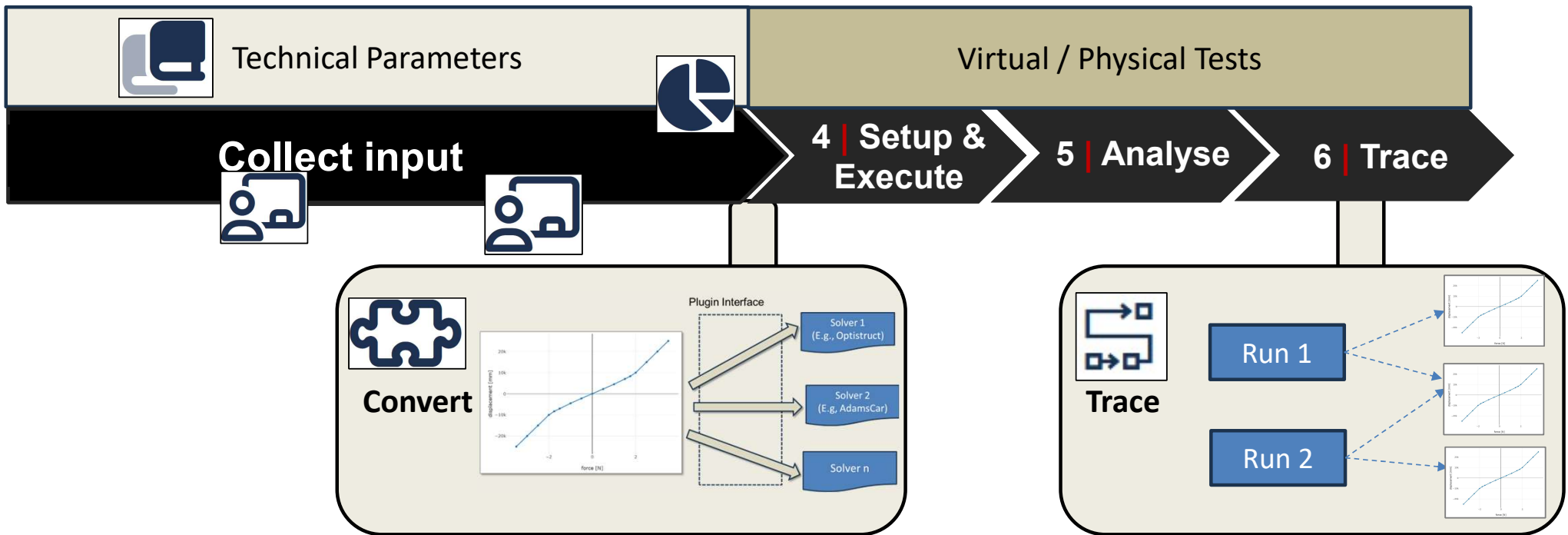


Automated data processing of solver models (plugin)



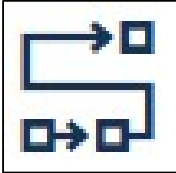


View on the overall process

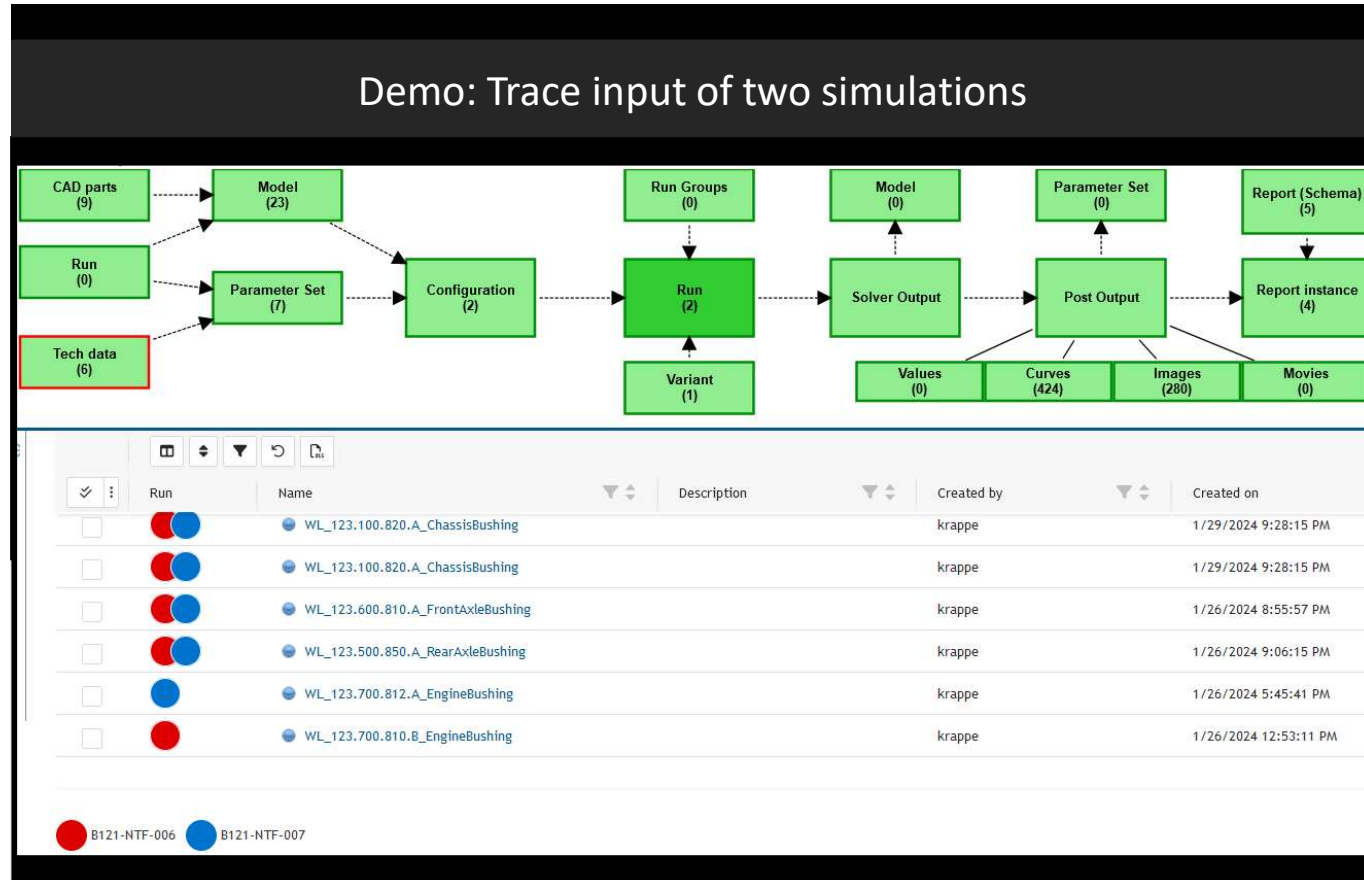




Traceability



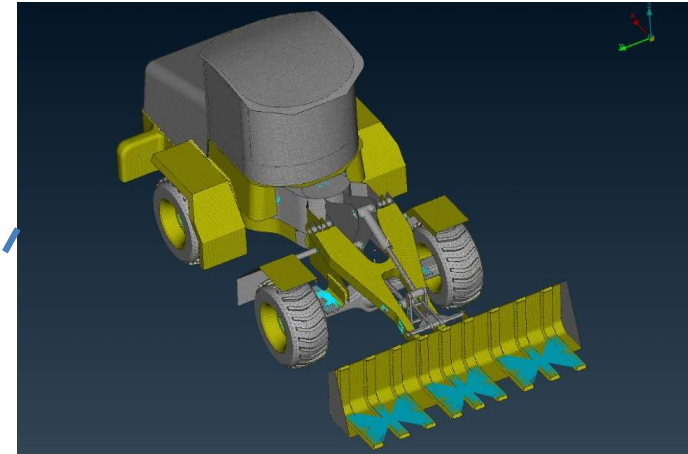
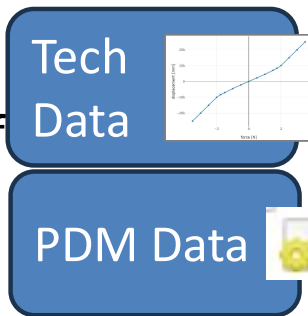
- **Visualization of the use of data**
 - Trace input (technology data, CAD) for each simulation or report
- **Analyze differences in input**
 - Recognize differences in the input data of multiple simulations
- **Visualize the history of items**
 - Visualize the history of runs, models or parameters



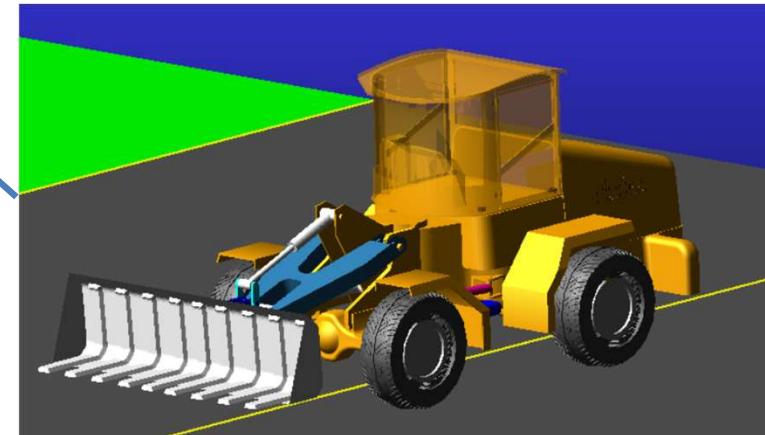


Traceability – Benefits

- Ensure that (release-relevant) simulations are based on the same input data:
 - Cross-discipline
 - Can be checked at any time and at the touch of a button



FEM



MKS



Summary – SimData Manager



How can all simulation engineers work and collaborate efficiently?



How to trust simulation results?

SimData Manager Driving CAE with Data.



... enables teams to collaborate efficiently, with **seamless process** integration driving effective virtual product development



... ensures data continuity by enabling efficient and **seamless management** of simulation data



... ensures transparency with **traceability of all input data** into the respective engineering results



You have questions – we provide answers!



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