Simulation Data Management for CarMaker

Apply & Innovate TECH WEEKS 2020
Agenda:

- Who is PDTec
- Simulation Data Management for CarMaker
  - Requirements for data management
  - Solution SDM4CM
  - Live examples
- Summary
Who is PDTec?

- **PDTec**
  - Stands for ... **Product Data Technology**
  - Founded 1998
  - Headquartered at Technology Park Karlsruhe, Germany
  - Focus on Engineering Data Management & Data Xchange

- Innovation through integration
SimData Manager for CAE data management

✓ MANAGE the constantly increasing CAE data in a structured (IT) environment
✓ SHARE CAE data across multiple teams, disciplines, locations, suppliers,…
✓ LINK CAD & CAE data for simultaneous development
✓ MAP CAD models to CAE assemblies
✓ RE-USE FE-models, minimize redundancy
✓ TRACK and trace the CAE data, simulation results, variants, versions,…
✓ AUTOMATE simulation process (e.g. workflows, reporting)
✓ CAPTURE the knowledge of simulations
✓ KEEP simulation results accessible (compliance)
✓ REDUCE simulation data (delete rules)
✓ PROTECT the company IP
✓ INCREASE engineering capacity & efficiency
✓ IMPROVE simulation quality
Simulation Process for Virtual Test Driving with CarMaker

- Data Collection & Selection
- Model Selection & Parameterization
- Virtual Prototype Assembly
- Test Scenario Configuration
- Test Run Execution
- Postprocessing

- PDM + Functional Data
- Model Parameters
- Vehicle Parameters
- Model Libraries
- Simulation Runs
- Reporting & Key Results

- Environment
- Traffic
- (Driver)
- (Maneuver)
Benefits SDM4CM

Central Data Storage & Collaboration
Benefits SDM4CM

Links vs. Copies

Libraries:
- Models
- Sensors
- Traffic
- Environment
- Parameters
- ….
Benefits SDM4CM

Versions & Variants

Version management

Variant management

Diff, Merge, Compare,...
Benefits SDM4CM

Configurations & Audit Trail

Traceability along the complete simulation process

ISO certification
Benefits SDM4CM

Life Cycle Management
Benefits SDM4CM

Fast & global SEARCH
Benefits SDM4CM

User Management & Access Control

Simulation Data Management for CarMaker
Benefits SDM4CM

HPC integration
Benefits SDM4CM

Results Evaluation
## Benefits SDM4CM

### Project Management

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<tr>
<th>Name</th>
<th>Description</th>
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**Diagram:**
- Simulation Data Management for CarMaker
- Diagram showing project management processes and milestones.

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Benefits SDM4CM

Target Value Management

Management View
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SDM4CM (SDM_for_CarMaker) – Introduction

Background, Objectives

- Virtual Test Drive Simulations require data management solutions to address data volume and data complexity.

Solution

- Generic data management solution for 1D Simulation Input Data
- Specialized data model for CarMaker documents + structures
- Integration into SimData Manager for Job Submit + Post Processing
Simulation Data Management for CarMaker

SDM4CM Enables

- Transparency & Traceability
  - Data Structure Versioning
  - Where-Used Analysis
  - Meta Data & Search Functions
  - ISO 26262 conform

- Collaboration & Reuse
  - References instead of Copies
  - User Workspace Synchronization
  - Branch, Diff & Merge Support
  - Library Data Management

- Security & Organization
  - Central Data Storage & Backup
  - User Management & Access Control
  - HPC / Batch Processing
Simulation Data Management for CarMaker

SDM4CM Features

- HTML Web User Interface
- Workspace Client
- Model, Parameter Set and Test Run Management
- Versioning, Release and Data Freeze Management
- Data Model Customization
- Graphical Structure Views
- Service-oriented Software Architecture
- Scripting / Service Integration API
- HPC / Batch Processing
- Multisite Installation
SDM4CM User Interface: Details View and Navigation
SDM4CM User Interface: Versioning and Search
Workspace Client
Summary

- Simulation for Virtual Test Driving require data management solutions to address data volume and data complexity.
- Specific data model to manage all data in a centralized enterprise system.
- Reuse and standardization of simulation models, environment, parameters.
- Enable collaboration in global engineering teams.
- Traceability for all simulation results.
- Enable AI / big data analysis tomorrow, data better be collected and organized today.
If you are interested to test the new data management for CarMaker pls. send us a mail and we will arrange cloud access for you.

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