SPDRM: A platform for Process, Data and Resources Management for Engineering

Executive Summary

Introduction

Studies conducted by OEMs, on the lead time of the CAE process, conclude that too much time is spent in the modelling phase and less on analyzing results and developing countermeasures.

The problem intensifies as new challenges further limit the capability of CAE teams to deliver fast results while still ensuring the high quality of deliverables. Such challenges include:

- The rising demand for more individualization that leads to numerous product families and variations.
- The increasing complexity in new products designs imposed by the constant addition and update of regulations.
- The intensifying competition which directs towards shorter time-to-market cycles.
- The distributed product development, especially in geographically dispersed teams, that grows stronger.
- An increasing demand and supply gap in engineering experts.

From problems to SPDRM

Eventually, these challenges cause delays in the delivery of the product, low confidence in the simulation results due to the lack of traceability within simulation models and results and the overall feeling that there's no "single source of truth" to assist the engineers in making decisions. All these ultimately lead to higher product development cost.

Responding to the call for solutions to the issues above and driven by its deep understanding of the demands of simulation and its role in the enterprise BETA CAE Systems brought forth SPDRM, a software application for Simulation Process, Data and Resources Management.

SPDRM enables organizations to manage simulation knowledge and orchestrate the full spectrum of virtual product development procedures.

SPDRM key features

SPDRM offers a unique CAE framework within which engineers and other simulation stakeholders can manage and archive their simulation data, share knowledge and collaborate. Its key features and functionality include:

Distributed architecture and multi-site implementation
SPDRM is a database application with a client/server architecture. As a distributed application, it is a great solution for global teams.

Data security
SPDRM offers role-based access control for all data and only grants access to authenticated users.

Data management
SPDRM comes with a CAE-ready yet customizable data model to covers all data management needs, from Parts and Sub-assemblies down to Simulation Runs, Reports and Optimization Studies.

Data traceability
The Version Control and Lifecycle Management functionality, enables comprehensive traceability from CAD Part to Simulation Runs and Reports.

Process designing and job submission
SPDRM offers high-end Process Design capabilities that enable standardization and automation through Process Templates. The built-in "HPC connector" assists the interfacing with HPC systems and enables effortless job submission and monitoring.

Information tracking
During Process Execution, information is tracked on how data were produced, by whom, through which applications and with which methodology.

Remote resources utilization
The embedded utility "BETA Apps Launcher" enables the execution of time- and resource-consuming tasks on remote resources utilizing out-of-the-box load balancing and queuing capabilities.
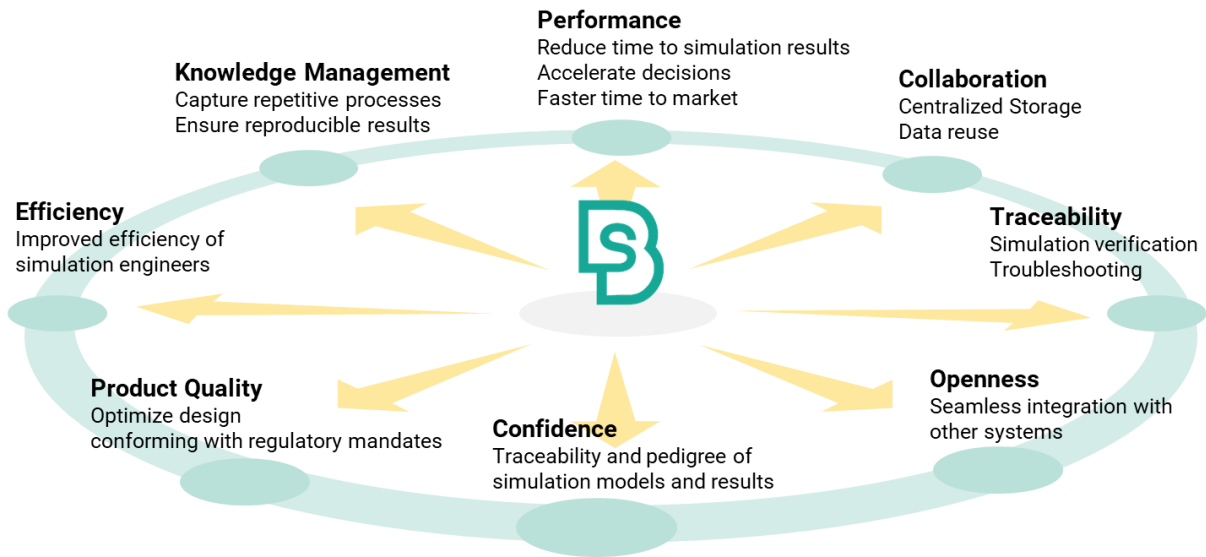
Modular Simulation Run management
When combined with ANSA and META, SPDRM offers excellent support for the Modular Run Management methodology used for the efficient preparation and management of CAE simulations of complex structures, their key-results and reports.

Why deploy SPDRM

Adopting SPDRM as a Simulation Process and Data Management system brings several key business benefits in the organization, as shown in the figure below.


Performance
Reduce time to simulation results
Accelerate decisions
Faster time to market

Knowledge Management
Capture repetitive processes
Ensure reproducible results

Collaboration
Centralized Storage
Data reuse

Efficiency
Improved efficiency of
simulation engineers

Traceability
Simulation verification
Troubleshooting

Product Quality
Optimize design
conforming with regulatory mandates

Openness
Seamless integration with
other systems

Confidence
Traceability and pedigree of
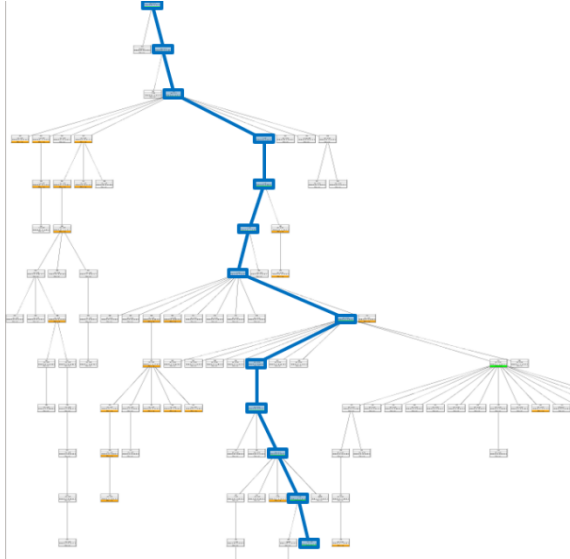simulation models and results

SPDRM alone has a huge contribution to the achievement of business objectives. However, teams that deployed SPDRM in combination with the ANSA/META pre- and post- processing suite have experienced its full potential that is unraveled through its seamless integration with the pre- and post-processor. This integration, that is available out-of-the-box, enables direct utilization of data and process management functionality right where it's needed: Within the software applications that produce and consume most of the simulation data.
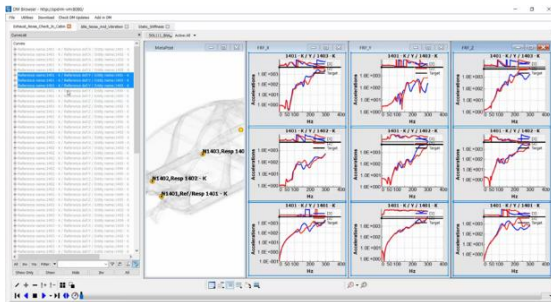
Testimonials

Implementation of an SPDM System at CEVT
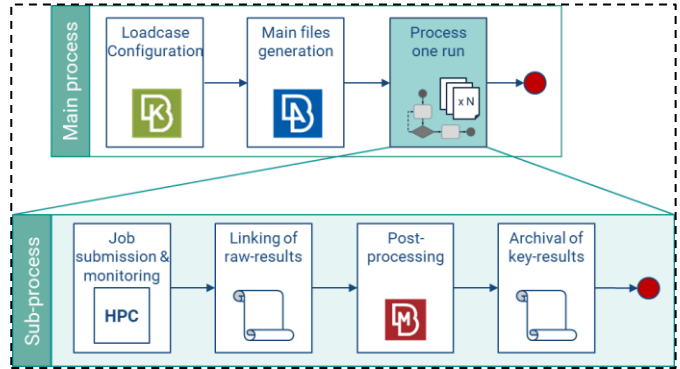
"The fastest way to create a new simulation model, by maximizing reuse of both data and best practices"

Niclas Dagson, CEVT

Simulation Model and Result Management for NVH

"Well organized CAE platform for NVH analysis becomes reality. We recognize the following effects:
- Identical output from every operator.
- Integration of model management system
- Good data traceability
- Free from ID management
- Integration of interface"

Haruki Kubokawa, HGT

SPDM Platform for Digital Model Factory
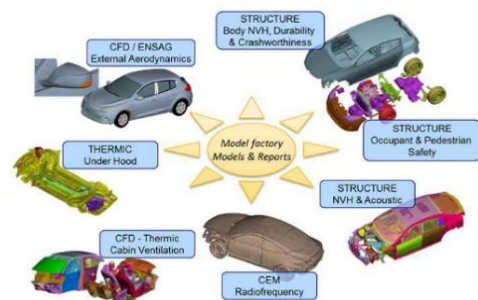
"Gains by implementing of SPDRM in the Model Factory:
- History tracking, through simulation data management
- Quality management and lead-time reduction, through workflow and lifecycle management
- Standardization and capitalization, using a rich library of templates, standard models and through the management of configurations"

Laurent Noyelle & Jeremie Gomez, Renault SAS

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About BETA CAE Systems

BETA is a simulation solutions provider, dedicated to the development of state-of-the-art software systems for CAE. For more than 30 years, we have been developing software tools and delivering services for the front-runners in numerous sectors by listening to their needs and taking up even the most demanding challenges.

For more information on our company, our products and our services, visit www.beta-cae.com.

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