Automotive Solution for Data and Process Management

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The increasing number of product derivates, the increase in regulatory requirements and the constant increase in requirements in the automotive industry increases both the number of simulation and the complexity of the models themselves. To efficiently handle these challenges an appropriate simulation data and process management environment needs to be established, which enables the analysts to increase their simulation throughput, offload them from repetitive tasks and enables them to have a clear and auditable view on the simulations they have performed. In addition, results and reports have to be communicated back into the PDM System.

Analyst needs to conduct simulations more systematically and consistently, which requires them to easily generate and launch simulations with different load cases (scenarios) for a given model variant. Such a solution needs to:

1. Generate the individual input decks for the individual simulations, ensuring the correct loadcase specific configuration and automated generation of the input deck using the correct idealizations of the individual model subsystems.
2. Handle the logistics of launching the individual simulations on the high performance compute cluster (HPC), off loading the analyst from the tasks of directly interacting with the job scheduling and submission environment.
3. Automatically run loadcase specific standardized post processing analysis, generating all the key results which always need to be created for the specific load case. Clearly, the system needs to be flexible enough to allowing for the end user easy modification of the "story board" of post processing to be performed for given scenarios.
4. Condense the key results of different model variants into preformatted (through templates) reports, which can be easily annotated by the analysts in a collaborative manner to come as fast as possible to a comprehensive final simulation report to be communicated to the PDM.

Such an environment needs to be open and extendible to allow easy integration of new applications and scripts at the individual process steps of load case assembly, solving and post processing. By providing simple straight forward interfaces such an environment can easily be adopted to new disciplines and approaches to the simulation process, as CAE is a fast pace environment, where approaches, tools and applications are constantly changing.

