Automated Evaluation and Reporting of Simulation and Test Result Data integrated with CAE Process Workflow

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1 Introduction

Exclusiveness and efficiency are the keys to survive the fierce competition in the contemporary product development market. Efficiency usually demands time, which in itself is an expensive resource. The demand in degree of Process Automation has been perpetually increasing, as industries thrive to reduce product development time and improve efficiency. Increasing consumer and legal requirements coupled with the affordability of higher computational power, has led to development of complex products. This is followed by large amount of physical tests and simulation data throughout the product development lifecycle. To facilitate the engineers to efficiently handle, analyze and document the results, SCALE offers powerful modular software solutions to automate the result evaluation and reporting for integration with the CAE Process Workflow.

2 Result Extraction and Processing

The simulation result data can be available in different file formats depending on the FE Solver in use. In the presentation a general purpose SCALE Post-processing tool GECO is introduced (compatible with different solvers) which allows the definition of desired output results to be extracted in XML Format (as Input commands for the Tool) and further processing of the extracted data. The tool also supports modification of the time-history curves, extraction of scalar values from the available physical tests data and generation of data for optical result assessment like movies, animations and photos. In the presentation the concept and its application is discussed in detail with appropriate examples.

3 Result Assessment and Reporting

Product development cycle requires comparison of simulation with physical test result data to validate the simulation results. SCALE software solutions for automated reporting are general purpose and support comparison of the simulation and physical test results. These can either be integrated with external post-processing tools like GNS Animator or can also generate reports in PDF or PPTx format, customized as per the user requirements. In the presentation, the complete process chain integrated with SCALE SDM product LoCo is illustrated in detail with relevant examples and the software tools CAViT and Status.E for result assessment are also introduced.
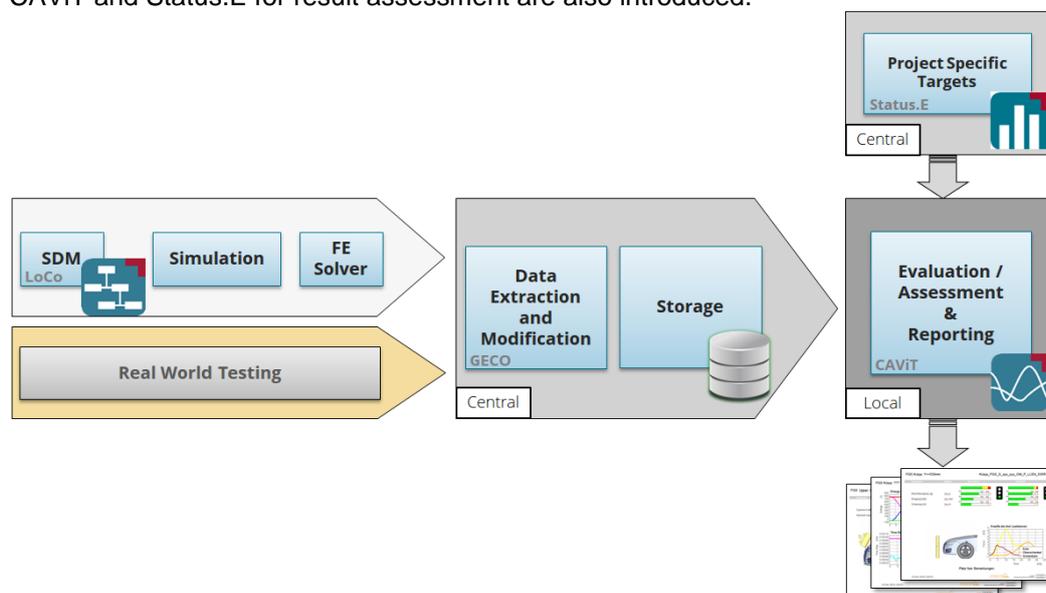

Fig.1:   Complete CAE Process Chain (Schematic)