

Enhancing Simulation Value using Abaqus with SIMULIA SLM - A Customer's Perspective

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Abstract: The emergence of simulation data management software packages provides an opportunity to both streamline simulation processes and further leverage the impact of simulation results. The nimble mechanism for process automation offered by SIMULIA SLM (Simulation Lifecycle Management) product reduces simulation turnaround by establishing connections between and managing simulation stages while allowing interactive components, such as Abaqus/CAE, to provide rich functionality. A strategy of combining a server based management system with local interactive components allows new and existing simulation processes to be quickly encapsulated into a streamlined tool. The management system (SLM) tracks data pedigree and provides sophisticated search/retrieval tools for simulation related data. The results are faster simulation cycles (build/run/analyze) and improved quality control of simulation activities (formalized process and associated control mechanism). Achieving the correct balance between adaptability and rigidity within a simulation process is a key aspect to consider as SLM is configured to a specific target user group. For example, expert users can take advantage of process streamlining and data management with full access to interactive application capability providing maximum flexibility. At the other extreme, a directed process with intentionally limited choices may be appropriate for a non-expert user. Combining a configurable process and data management tool (SLM) and customized interactive components (i.e., Abaqus/CAE) provides a common environment for teams to realize full value from simulation efforts. This paper uses two applications using SLM in conjunction with interactive tools to provide formalized simulation processes to illustrate the advantages of such a strategy.

1. Introduction

Computer simulations commonly require and generate voluminous amounts of digital data, these data represent a significant challenge to organize, share and manage. Further, as researchers, businesses and industries rely more completely on simulation based results to support decisions and aid learning, it is increasingly important to track data pedigree to insure conclusions are based on valid input. Many current business practices incorporate simulation, as a result, standardized analysis procedures are developed to insure quality results are delivered and used appropriately to aid business function. These factors are common to a large cross section of industrial and educational organizations and as such, many share the desire for a commercial solution that is robust, adaptable and scalable to meet their needs. SIMULIA SLM (SLM hereafter) product has proven to be a good solution to these problems and is being used to manage our Abaqus simulation data. This paper is intended to summarize our experience in using SLM (VR2009x) to