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Simulation Life Cycle Management as Tool to Enhance Product Development and its Decision-Making Process for Powertrain Applications

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Abstract: Product development is becoming more complex. It involves not only system simulation requirements, but also the need to manage and share huge amounts of engineering information that is housed throughout the world. It quickly becomes complex when getting into detailed system simulation for powertrain applications such as sealing products.

Computer Aided Engineering (CAE) has played a major role in development, design, and performance optimization for those applications for a long time. Due to the complexity of the current simulation environment and the need to expand simulation to the whole engineering process, including manufacturing, new analytical tools are required to support development, virtual testing, and decision-making. The sheer complexity requires a new approach to the engineering process. The PLM (Product Life Cycle Management) as we know it will look completely different in the future. We believe that in a simulation-driven engineering business, SLM (Simulation Life Cycle Management) plays a central role.

In this paper we use the processes for cylinder head gaskets (CHG) and material data input management as examples of how SIMULIA SLM provides us with more consistency, accuracy and faster turnaround times through easier, coordinated information flow and access. Using 3D-Live capabilities enables us to provide an easy-to-use environment to make simulation information available to non-CAE users, like engineering management, to support decision-making.

Keywords: SIMULIA SLM, CAE, Sealing, Powertrain, PLM, Virtual Testing, 3D-Live, Engineering Process, CHG, Data Management, HPC