Don't Isolate Engineering Simulation

Leverage the tremendous value of the technology by tightly integrating simulation into your company's product development process.

The benefits of integrating simulation into engineering processes are well known. By making analysis a routine part of design — especially up front in the cycle — companies can spot and fix problems early, cut down on testing numerous physical prototypes, optimize product performance and create innovative designs that often would not be feasible without the use of simulation to explore alternative concepts. Software vendors across the board have been touting this message for years. Yet ironically — and unfortunately for the CAE user community — software from many vendors does not support such integration.

One of the big problems is that many simulation programs are not interoperable with other software, especially with a broad range of CAD programs, other CAE technologies and data management tools. Because the architectures of these CAE programs are generally closed and rigid, programs simply don't talk to one another and exchange information well. So users must go through inefficient and error-prone processes of converting data, reworking models, duplicating mesh representations and copying information from one system to another.

Another difficulty is that the programs often are aimed solely at particular user skill levels and specific types of analyses, or they may run only on certain computers. Moreover, users may find that some software is not all it's cracked up to be in handling the wide range of complex problems and real-world applications that engineers routinely encounter in their work. As a result, engineering simulation at many companies may be performed sporadically in isolation from other tools and groups throughout the organization —

working against the full integration of analysis into product development processes and negating many of the potential benefits of the technology.

Although such problems are rampant throughout the simulation industry, some software has been developed that takes the user community's needs into consideration. Case in point can be found in this issue's Spotlight on Products and Technology section covering the capabilities of simulation solutions from ANSYS Inc. An open architecture enables the software to work well with other programs through bi-directional CAD associativity, and direct links to other analysis solvers (including competitive programs) and product lifecycle management (PLM) systems. The software has been purposefully developed to be scalable across a wide range of users and computers. This enables companies to deploy simulation solutions in a flexible manner across the organization. It also enables users to drill down as deep as they need to in a broad range of disciplines — including the simulation industry's most comprehensive multiphysics portfolio.

In this way, innovative companies can implement advanced simulation technology in a completely integrated manner using a single platform and common infrastructure, while competitors struggle with piecemeal analysis and fragmented workflow isolated from the rest of the organization's programs and processes. ■
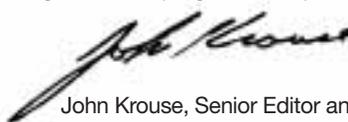
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About the Cover
Speedo takes advantage of simulation in designing a new swimsuit.