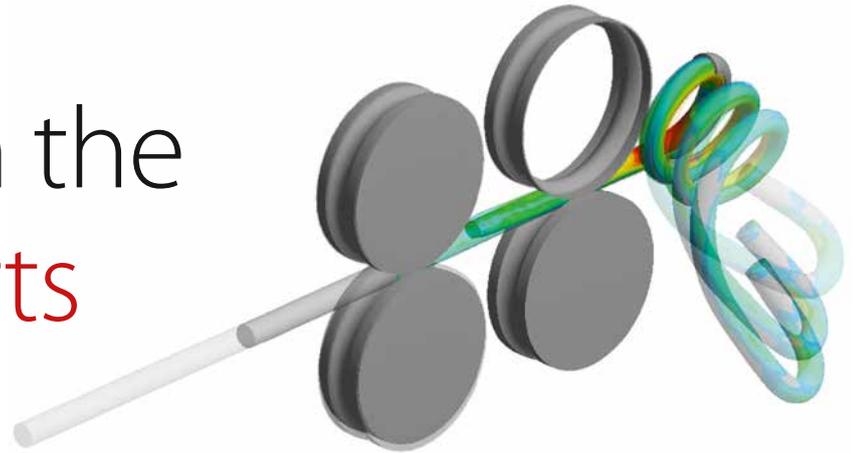


# ...greater than the sum of its parts



One plus one can be three, when two best in the class technologies are combined.

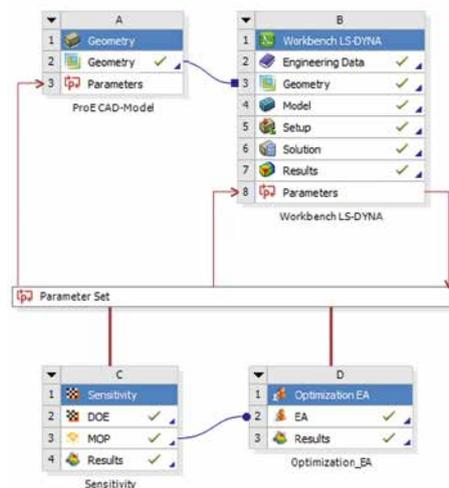
Combining ANSYS Workbench, the most commonly used and de facto standard platform for engineering simulation, with LS-DYNA, the most widely used explicit finite element (FE) program, has produced a system that is greater than the sum of its parts.

The key to democratization (wider acceptance and use) of engineering simulation is ease of use. The less time and effort needed to learn how to communicate with a program and generate useful results the higher the probability that the program will become a common place tool for engineers. Especially in today's environment where "apps" for mobile devices are download, tried and discarded if not instantly usable, our younger engineers expect software that speaks language they understand and will not have patience with esoteric numerical terminology.

## Simplifying the simulation

ANSYS Workbench LS-DYNA, the new user environment is a major step towards simplifying the simulation of high speed, complex interaction between parts, impacts, and problems with large material deformation and failure. It was created in collaboration between Livermore Software Technology Corporation (LSTC) and ANSYS, Inc. with contributions from ANSYS Channel Partners, including CADFEM. The work was greatly simplified with the use of the ANSYS Application Customization Toolkit (ACT), a scripting interface used to customize applications in Workbench.

The community of LS-DYNA users is already aware of the advantages of solving highly non-linear dynamic and quasi-static problems, the efficient parallel performance, advanced element formulations and extensive material modeling capabilities. Users of the multi-physics capabilities sup-



In the upper picture a wire forming with LS-DYNA is shown and below the parametric variation with ANSYS Workbench and optiSLang.

ported by the Workbench platform benefit from comprehensive CAD interfaces, built in library of material models, physics based meshing, parametric modeling and design exploration as well as the generation of a full report with the details of the problem run.

## For beginners as well as for experts

Workbench LS-DYNA brings together these two user communities by fully integrating the LS-DYNA solver in Workbench. This new environment is ideally suited for beginners as well as expert users by providing safe defaults for the majority

of input required for new users, while enabling convenient access to most parameters for the expert user.

In today's highly competitive environment, innovative teams are under pressure to produce new products with increasingly shorter deadlines, resulting in designs that are changing often, sometimes on a daily basis. In some cases, by the time simulating the response of a product is completed, the CAD model is no longer current. In the ANSYS Workbench LS-DYNA environment, a single click will update the project, automatically apply all the analysis related changes that were made to the model, assign materials to the model, re-mesh the new geometry, apply initial and boundary conditions, re-run the solution and generate results as specified in the initial problem set-up.

Engineering simulation as implemented with Workbench LS-DYNA is becoming a tool used as a convenient, integral part of product development. This is a welcome change from the past when simulation was a full time job for highly specialized scientists focused on the intricate details of the simulation tool itself.

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