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Callaway Golf

Siemens PLM Software helps Callaway Golf drive innovation

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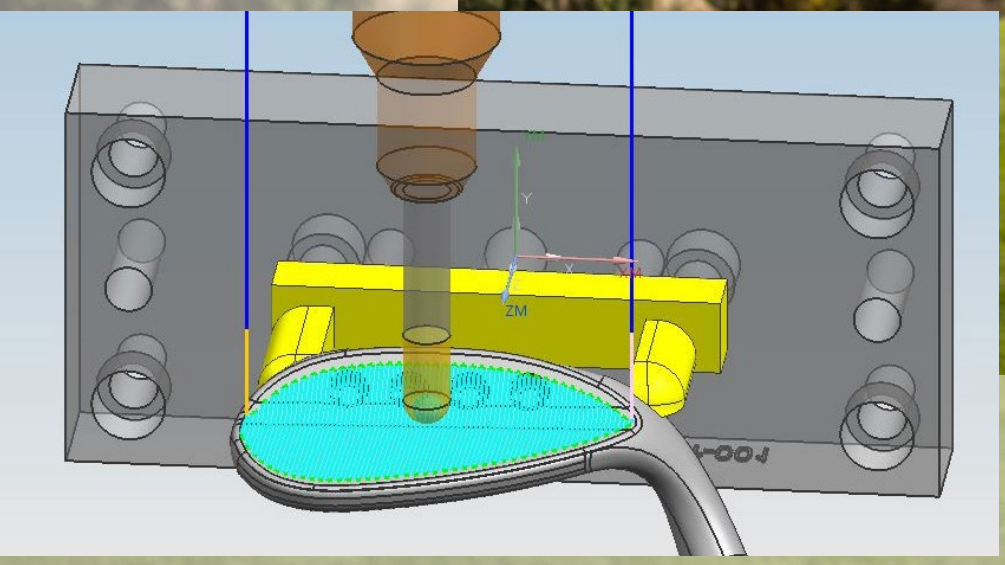

Disrupting the industry

There are 60 million golfers around the world, and whether they are weekend duffers, skilled amateurs or highly-compensated professionals, they are all looking for ways to improve their game. However, until fairly recently, the only way to do that was to take a lesson.

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Alan Hocknell
Senior Vice President, R&D
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Callaway Golf came up with a second way: Improve the clubs. Until about 20 years ago, the company had designed mostly by trial-and-error. Callaway had lots of good designers with insights into what would be desirable in a golf club, but it had no understanding of how to realize those insights other than making lots of prototypes.

Then for the first time Callaway hired a number of engineers, becoming the first company in the industry to seriously invest in engineering. The company used technology developed in aerospace programs to engineer enhanced quality into its clubs. That investment not only disrupted the industry, but helped make the future more predictable for the company.

"We started to be able to simulate the performance of the golf club before we built prototypes," says Alan Hocknell, senior vice president of research and development (R&D) at Callaway Golf. "And we upgraded our design capability with NX CAD. All these things came together to give us a toolbox that we never had before."

Speeding club design, prototyping and testing

As the industry moved to this engineering-centric approach, it accelerated the rate of new product introduction and challenged companies to speed up design processes. For instance, in just the last few years, the lifecycle of a golf club at Callaway has gone from two to three years to 10 to 16 months. As a result, the company needed a software platform that would enable it to design, prototype and test products quickly and precisely.

Callaway Golf turned to Siemens PLM Software to provide the tools to meet these challenges. Designers used NX™ CAD software to dream up more complex clubs; engineers used NX CAE to analyze club face thickness; machinists used NX CAM to make push-button prototypes, and they all used Teamcenter® software to manage the entire process.

"Siemens PLM Software lets us design at a much more precise level, which helps us communicate that precision with our suppliers more accurately," explains Hocknell. "It also allows us to relate our simulation data to the CAD models, our prototyping data and even our test data. And for that, we get a much more accurate and faster process."

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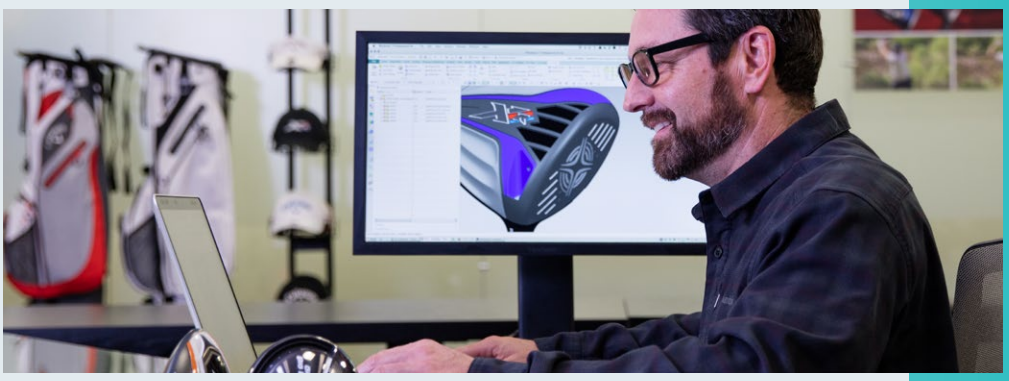

Hocknell notes, "We could never have achieved the level of product performance that we have without the kind of detail that we have in the design these days. The accuracy with which we design is really incredible compared to what it was even five years ago."

Exploring new options

Callaway dedicates a large budget to R&D, so it is no surprise the company has introduced clubs that are lighter to swing, faster on arrival at the ball and make it easier to hit the sweet spot. Indeed, Callaway's engineering-focused approach has sparked an innovation race in the industry.

For instance, Callaway has significantly upgraded its clubs by using multiple materials to get an advantage in where the weight is placed in the head. And the newest frontier is to allow that weight placement to be adjusted to suit the swing type of any golfer.

The engineers accomplish this by starting with a master model of a golf club and then adding features, enabling them to load in the industrial design relatively late in the process so they don't have too many relationships fighting with each other at the same time.

At the forefront of innovation

Despite growing complexity, Callaway Golf is prospering as an industry pioneer. Callaway pushes hard in design, prototyping and testing to design right up to the limits of the rules, trying to stretch and optimize what's allowable in the form of a golf club head.

Callaway golf clubs are known for being easy to hit. Most golfers see that as an advantage: to create distance with straightness and control so you can score a little better.

"Our clubs are also used on the toughest stage on earth, the PGA Tour," says Hocknell. "We need to design to their demands as well. That harsher environment is a really great testing ground for our clubs. We think we do a good job of designing for the entire golf market."

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