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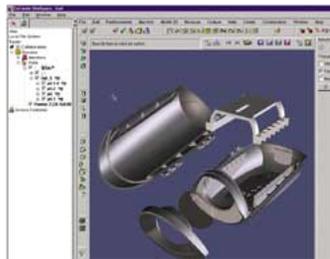
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Virtual design team speeds product to very real market

By admin
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For this moldmaker, it pays to collaborate online. What sets an innovator apart from the pack? The innovator is never satisfied with business-as-usual. Twenty-five years ago, when Bob Bechtold founded Harbec Plastics as a contract tool and die maker, he wasn't interested in doing business the same old way. He believed new technologies would transform the industry, and he wanted to be on that leading edge. As an early adopter of CNC and CAD/CAM technologies, Harbec has seen the benefits of offering its customers a better and more competitive approach to plastics part manufacturing and tooling design.



During an online collaboration session at Harbec Plastics, all key players on a project meet to discuss a new design. Harbec estimates that online collaboration may cut three to four days from a typical mold development project.

A generation later, Harbec offers a complete solution from initial concept modeling and advanced production tooling to low- or high-volume-production injection molding and secondary manufacturing and assembly processes.

Harbec is also leading its competitors in another important new technology area: online collaboration. "Collaboration is proving critical to our ability to provide customers with the best solution to their modelmaking, toolmaking, and plastic injection molding needs, and the quickest way to market," Bechtold says.

He says collaboration helps Harbec find the best and most innovative solutions for its customers by bringing together key players on a project—the designer, model- or moldmaker, and project manager from Harbec, along with the customer. Using OneSpace software from CoCreate, the various players are able to meet online in a virtual conference room.

Though physically separated, the team members communicate as if gathered around the same table. Team members explore alternative design approaches and build on one another's ideas until the team not only agrees on its next steps, but in many cases, reaches a solution that no single person had envisioned before the meeting started.

"Everybody knows the importance of getting to market first. But it does you no good to get to market with a product that won't serve the customer well. You need to get to market first with the correct product," says Bechtold.



Here are the original two parts of a fuel system product, one plastic and one metal (foreground). Harbec was able to use online collaboration and its Quick Manufacturing Solutions to create the tool in the background. Designers developed a one-piece solution (center) for the Detroit-based customer that reduces assembly time, cost, and leak potential.

Improving Speed to Market

Harbec is well known to its customers for being fast and accurate. One way that this moldmaker cuts the turnaround time for projects is with its Quick Manufacturing Solutions (QMS) process. This system enables Harbec to produce exact engineering models, using the same materials and processes that will ultimately be used in mass production. The process works for lot quantities as small as one piece.

With QMS, project turnaround time is reduced to two to four weeks vs. the typical eight to 12 weeks of more traditional shops. Customers get an exact representation of a new product design that they can test for fit and performance, and are assured of functionality before mass production. With the shorter lead times, Harbec can fine-tune the product within the same window of time normally needed to build a single model.

Collaboration contributes to the process by ensuring that projects continue to move forward without the delays required to schedule and hold physical meetings with team members. They meet in the virtual conference room with no business travel required.

Because collaboration sessions allow team members to explore all the feasible alternatives very early in the process, when 70 percent of a project's costs are defined, they reduce or eliminate potentially costly changes later in the process. "It prevents us from wasting a lot of effort, having to rework tooling and produce scrap," says Bechtold. "That speeds project completion and cuts costs for our customers."

Overall, Bechtold estimates that online collaboration may cut three to five days off a typical mold development project,

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accounting for up to a 20 percent savings in turnaround time. Avoiding tooling rework late in the process can save the customer anywhere from a few thousand dollars to upwards of \$100,000 or more, depending on the required changes.

Real-life Collaboration

How is collaboration likely to affect an individual project? Bechtold is happy to share a couple of examples.

Harbec works with customers on product design when customer requirements fall outside its core competencies. One such project was a test stand for a germ-sensing device involving nanotechnology. Harbec designers worked with the customer to develop the test stand while collaborating on aspects of the moldmaking and injection molding processes in order to provide an easily manufacturable solution at a reasonable cost.

"In this example, collaboration with our customer allowed an improved understanding of design and tooling choices—a critical aspect for a project of this scale, since interferences and incompatibilities in the tooling could take weeks to solve and cost tens of thousands of dollars," says Bechtold.

In another example, working with a Detroit-based company that manufactures fuel delivery systems, Harbec cut a week from the time required for review and approval of a design change. The client's existing product had a fuel bowl positioned over a filter and held onto the body of the filter by a metal ring and gasket. Harbec engineers eliminated the metal part and gasket, replacing the assembly with a single injection molded part. The new part reduces assembly time and cuts component costs, while eliminating the potential for a leak.

"We initiated a OneSpace session to review the proposed design change, and within 20 minutes had approval to proceed," says Bechtold. "Without online collaboration, it would have taken a week to schedule an onsite meeting and get that approval. We also saved the cost of travel."



Competitive Edge

Ultimately, customers care about the quality of Harbec's work and the speed with which it completes projects. But many potential customers are interested first in learning about the process a molding company will use. Harbec shares its online collaboration and QMS programs with customers who want an insider's perspective.

"You're always looking for something that will interest a potential customer and make you stand out from the competition. The ability to collaborate is helping us to differentiate ourselves to that customer," Bechtold says. "It shows that we're the kind of company that will be able to do parts faster, cheaper, and with less risk."

These are examples of another potential of Harbec's QMS system. They are nylon parts produced by a DTM Sinterstation. The parts are functional and accurate and were produced within two days.



During an online session (right) at Harbec, the project manager (pointing at the screen), the model shop manager (with the calendar), the tool designer (far left) and the toolmaker are in real-time conversation with an engineer and a project manager from the fuel system customer's company. They discussed the proposed one-piece design and reached agreement in roughly 15 to 20 minutes. Below, two tool designers and one project manager in an online session with the customer in Detroit discuss an additional design detail.

Meeting online

In an online session, each team member loads the CAD model onto his or her computer, regardless of the CAD software used. Each participant can see the same model being manipulated by other team members. It can be rotated, changed, and annotated. Team members have the potential to take control of the model at any time in the meeting and suggest ideas while manipulating the model.

One of the most powerful features of Harbec's online collaboration capability, Bechtold says, is CAD neutrality. "I've been involved in an effort to find real-time collaboration solutions for years. Among large companies involved in that search, the general mentality has always been that we were waiting for the ultimate translator—a neutral language—to bridge the gap between different CAD systems. Some people thought IGES was that ultimate translator, others thought STEP would be it."

Although CoCreate didn't find a universal language, it solved the problem by enabling all of the existing ones to be used. "They have native adapters for every contemporary CAD system out there, so we don't worry about what CAD system the customer has. We know he can work in his system, and we can work in ours, and OneSpace brings us together seamlessly online. We can even bring models from different CAD systems together. This is very powerful as we are able to identify possible interferences and validate the best final solution for the final tooling and assembly process."

Before the company began using the software, Bechtold says, Harbec had developed a collection of CAD viewers that it supplied to its customers in an attempt to achieve the same result. "We dealt with firewall problems and other issues as best we could, but the solution was never as elegant or powerful as we thought it could be."

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