

Altair Engineering marks 30 years; IPO possible



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(Photo: Photos by Max Ortiz / The Detroit News)

Troy — Jaideep Bangal clicks on an image of a bracket shown on his computer screen. In the blink of an eye, the part morphs into a new design that is mathematically the ideal part for the bicycle it's intended for.

With another click, the senior application engineer with Altair Engineering can change the part from steel to aluminum. Then, once the design is set, another click of the mouse simulates the functionality of the part, which could be designed for anything — from a simple bicycle to a space shuttle or car.

"That bracket can be holding a hundred-pound engine right next to it," says Bangal, pointing to the screen. "The concept of designing, it's the same whether we go from one industry or another. Just the applications are different."

Bangal is demonstrating the Troy-based company's newest version of Inspire, a digital product development program that enables design engineers and architects to generate and explore ideal shapes for a given space for a component.

The program is one of more than 85 software applications Altair, celebrating its 30th anniversary this year, offers. Altair's software suites can mathematically determine the best design and structure of almost anything, and test its functionality.

"It's really re-imagining how you conceptualize products," Altair CEO and chairman James R. Scapa said during a recent interview in Dearborn.

Inspire is essentially an engineering playground that reduces product design time and reduces weight by calculating the most efficient use of material. It also does simulations of functionality of the part.

The company started as an engineering supplier to support the design of a vehicle platform for General Motors in 1987. It quickly expanded to the Detroit-based automaker's crosstown rivals. Altair now works or supplies software for every major carmaker, with automotive applications representing roughly 40 percent of its business, according to Scapa. It has more than 5,000 customers.

What has allowed Altair to thrive and expand into different industries is its HyperWorks computer-aided product engineering suite, which in laymen's terms is Inspire on steroids. It's used for in-depth analysis and optimization (the kind automakers and NASA do) that can not only simulate and produce designs, but also can mathematically optimize a structure.

"There's a very traditional approach that people take to doing these things, and we're really trying to turn it on its head," Scapa said.

HyperWorks, now in its 13th version, can run in-depth analysis and tests on almost anything. Besides automakers, NASA, Coca-Cola and thousands of other companies are customers for Altair. Along the way, the company has grown from one office in Metro Detroit to 45 offices in 24 countries.

The privately held company has acquired a dozen other companies since 1996, and more acquisitions are on the way, according to Scapa, a co-founder of Altair. An initial public offering is an option, but not a necessity for the company, which expects to generate more than \$300 million in revenue this year.

"We've started with a startup and have gone through the stages," said Scapa, whose professional career started at Ford Motor Co., an Altair client since 1989. "And today, I think the way we're managed, we're at a level where we could certainly be a public company if we wanted."

Scapa sees the company growing and moving to smaller customers with products like Inspire, which is more user-friendly than its massive HyperWorks offering.

"There's a huge amount of expansion potential," he said. "There's a huge amount of companies as you go down from high-end companies, where we mostly play, unto the middle tier."

Altair's business model is based on licensing programs, or units, it leases, or sells, to its customers. Based on the amount of units a company wants and

people using the systems, contracts range from about \$550 per year for a single user, to millions of dollars for suites of packages and thousands of units for an entire department or company.

"The breadth of our software suite is really unparalleled at this point," Scapa says.

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Jim Scapa, CEO and chairman, with a wing rib for the Airbus A380, says, "It's really re-imagining how you conceptualize products." (Photo: Max Ortiz / The Detroit News)

Altair actually started as a hands-on engineering firm that worked with automakers, almost on a consulting basis. The company still does this, and has a test and development lab in Troy.

"We're rooted in engineering," said Altair Chief Marketing Officer Jeffrey Brennan, who has three engineering degrees. "The software side of the business has grown up over the last 25 years to be much larger, but our roots are still there."

Staying with its engineering roots helped Altair start Toggled, a wholly owned subsidiary that produces LED tube lights. The products are being rolled out nationwide at Home Depot.

Altair produces the lights at a separate highly automated facility in Troy.

The business was spawned from the company developing the "world's first series hybrid hydraulic bus," a lightweight concept bus that uses a diesel engine and hydraulic storage tanks that provide hydraulic pressure to power the vehicle. The diesel engine, somewhat like the gasoline engine in the Chevrolet Volt, is used only when needed.

While the bus hasn't had any takers, the innovative 48-inch LED lighting inside the bus was the impetus for Toggled, which now has 69 patents issued for its products.

"The bus itself isn't driving on the road, but some of its ideas are," says Brennan inside the bus at the company's development lab. "It's amazing."

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