



PTC Adds Artificial Intelligence and Generative Design Capabilities to Enhance and Expand its CAD Portfolio with Acquisition of Frustum

Cutting-Edge Technologies to Guide Engineers and Designers to the Next Generation of Products

NEEDHAM, Massachusetts – November 20, 2018 – [PTC](#) (NASDAQ: PTC) today announced that it has acquired [Frustum Inc.](#), an advanced generative design software company, for approximately \$70 million. Frustum's technology for generative design—an approach that leverages artificial intelligence (AI) to generate design options—is a transformative addition to the [PTC Creo portfolio](#).

Based in Boulder, Colorado, Frustum offers patented desktop and cloud-based engineering software that enables designers and engineers to go beyond the limits of their personal experience by leveraging powerful AI capabilities that guide the discovery of high-performance, next-generation product designs.

"PTC is pushing the boundaries of innovation with this acquisition," said Jim Heppelmann, president and CEO, PTC. "Creo is core to PTC's overall strategy, and the embedded capabilities from ANSYS and, later, Frustum will elevate Creo to a leading position in the world of design and simulation. With breakthrough new technologies such as AR/VR, high-performance computing, IoT, AI, and additive manufacturing entering the picture, the CAD industry is going through a renaissance period, and PTC is committed to leading the way."

Frustum complements [PTC's strategic relationship with ANSYS, which was announced at LiveWorx in June 2018](#), and will bring analysis upstream to the very start of the design process. With embedded Frustum and ANSYS capabilities, Creo will be able to recommend design approaches using generative design, guide the user through the iterative design process using ANSYS Discovery Live, and ultimately validate the full product design at scale using ANSYS Discovery AIM. With these capabilities embedded in Creo, engineers will have unmatched capabilities to rapidly drive product innovation.

"This acquisition is a natural step for PTC and its customers," said Jeff Hojlo, program director, product innovation, [IDC](#). "AI and machine learning (ML) are widely discussed as two of the most impactful technologies of the future. For design, engineering, and R&D, the potential positive impacts of complementing the development process with AI and ML are astounding: lowering cost of quality (which is currently 20-25 percent of annual revenue at the average manufacturer), improving product success rate (which remains very low with more than 80 percent of products failing), and improving time to market and time to revenue by meeting customer needs accurately the first time."

The Power of Generative Design

With generative design, engineers can interactively specify the functional requirements and goals of their design, including preferred materials and manufacturing processes—and even indicate key design parameters that take into consideration purchasing decisions, manufacturing capacity, supply chain status, and regional-required product



variances. The system then uses AI and powerful high-performance computing techniques to present design alternatives for consideration as a starting point or as a final solution. By removing the constraints of human imagination and experience, engineers will be able to interact with the technology to create superior designs and innovative products more quickly.

Generative design is appealing to PTC's vast customer base as they seek ways to:

- Increase engineering productivity
- Improve innovation and conceptual design exploration
- Develop higher-performance designs that are lighter weight, with improved durability
- Optimize new products for improved manufacturability, reduce material costs, and decrease manufacturing cycle times
- Create complex geometries optimized for additive manufacturing
- Deliver better products faster

The Impact of Artificial Intelligence

Integral to Frustum's technology is a powerful AI component that learns, evolves, and, ultimately, performs key tasks, including:

- Providing valuable feedback to a designer early in the design phase
- Optimizing designs for multiple objectives simultaneously and offering a designer with multiple novel design alternatives, which enables companies to substantially reduce engineering cycles
- Modifying designs to manage multiple requirements and constraints, physics, materials availability, manufacturing processes, and design objectives
- Automating testing the outcomes of the design with other enterprise insights, including costing, supply chain, and quality data

Learn More – Upcoming Webcast and Live Stage Announcement

PTC will hold an informational webcast to explain the significance of this acquisition today, Tuesday, Nov. 20, at 11:00 a.m. EST.

- To view the slides, please join the webcast here: <https://ptc.zoom.us/j/948384709>
- To join the webcast audio only, please call in using:
Toll Free: 800-857-5592
Toll: 1-773-799-3757
Participant passcode: PTC

In addition, PTC will feature this announcement on-stage at [PTC Forum Europe](#), held in Stuttgart, Germany, on Nov. 28. To register for the online or virtual event, please visit: <https://www.ptc.com/en/special-event/ptc-forum-europe>.

The Transaction

The transaction closed on Monday, Nov. 19, 2018. The acquisition is not expected to add material revenue for 2019 or to be dilutive to the financial guidance PTC provided on Oct. 24, 2018.



Additional Resources

- [Learn more about the Frustum acquisition](#)
- [Join the webcast](#)
- [PTC and ANSYS partner announcement](#)

Forward-Looking Statements

This news release contains statements about future events, including business performance and the effect of the acquisition on our future financial results, the integration and development of solutions, and the expected value of the acquired technology to users. These statements are “forward-looking statements” and actual results may differ materially from those projected as a result of certain risks and uncertainties, including that the acquisition may not have the expected effect on future financial results and that the integration of the solutions may not occur when or as expected, and those risks and uncertainties described in PTC’s filings with U.S. Securities and Exchange Commission. These forward-looking statements reflect our beliefs as of the date of this release and we undertake no obligation to update or revise any forward-looking statement, whether as a result of new information, future events or otherwise.

About PTC (NASDAQ: PTC)

PTC helps companies around the world reinvent the way they design, manufacture, operate, and service products in and for a smart, connected world. In 1986 we revolutionized digital 3D design, and in 1998 were first to market with Internet-based product lifecycle management. Today, our leading industrial innovation platform and field-proven solutions enable you to unlock value at the convergence of the physical and digital worlds. With PTC, manufacturers and an ecosystem of partners and developers can capitalize on the promise of the Internet of Things and augmented reality technology today and drive the future of innovation.

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