

Project Lightning Strategy Statement

PTC is unveiling “Project Lightning,” its vision and strategy to define the mechanical CAD market for the next 20 years

Through the 1990’s, the mechanical CAD market was very dynamic, with much technology innovation as the parametric modeling approach became widely adopted. In the last decade however, radical innovation on the core modeling paradigms has diminished. New releases of CAD systems have focused on UI advancements, more automated capabilities and specialized modules. This has led to the characterization of CAD technology as “mature” and a “commodity.” But big problems remain in this critical area of product development. And where there are big problems, there is a big opportunity for innovation.

One of the realities of product development is the diversity of people and roles involved in the process and therefore needing or wanting to interact in some way with the definition of the product model. From the marketing department, to design managers, engineers, analysts, designers, manufacturing engineers, and customer-facing engineers, each person and role has a distinct set of requirements for a mechanical design system.

In fact, those requirements are not just along a continuous spectrum of capabilities, but actually cross fundamentally different modeling paradigms and user interaction:

- 2D is the simplest paradigm, familiar to any child with a crayon. This is often the best way to capture ideas quickly and communicate broadly.
- 3D Direct modeling is the next most sophisticated paradigm. It “feels” like 2D as far as interacting with the model, but, has the additional benefits and sophistication of a true 3D model (interference checking, simulation, realistic imagery, etc.). This approach can make sense for many in the design process such as analysts and customer-facing engineers.
- 3D parametric modeling is the most sophisticated approach. Much of the power of the parametric approach is due to its abstract nature, where the user specifies a “program” for constructing the model. This can be extremely powerful, but, also leads to a more complicated user experience. This approach is often favored by designers who are tasked with creating families of detailed models, and others who are seeking the benefit of a model that can be programmatically changed.

If the decision of which paradigm to use was left up to each user they would naturally select the modeling paradigm (and tool) that would make the most sense for them and their task at hand. This is familiar in everyday life. There are many ways to dig a hole in the ground, from a simple garden trowel to a powerful backhoe. People naturally make the “right” choice for their personal situation and task at hand. But, in the CAD world, it has always been different. Because of the lack of interoperability between modeling paradigms, and because there is a need for all of the participants in the design process to share data, many companies seek to standardize on a single system and paradigm. This is a “compromise” approach that often provides many users with more capabilities (and more complexity) than they really need. It would be like issuing everyone a backhoe even if their job was just to plant flowers.

Project Lightning will eliminate this need for a company to mandate a single paradigm, by offering a set of solutions on a common platform, giving each user the flexibility to invoke whichever modeling paradigm is best suited for them and the task at hand.

Another dilemma confronting product developers has been the approach to assembly modeling. For relatively simple products with few variants, a pure CAD-based approach works fine. But for more complicated products that may have many hundreds of configurations, a CAD-based assembly approach is not feasible. In these cases, a PLM-based approach is required. Project Lightning will solve this problem by rationalizing these two methods with a simple, robust PLM backbone that will drive the CAD model.

PTC's Project Lightning will:

- Solve the big unsolved problems in mechanical CAD, including fundamental ease-of-use, interoperability, and assembly management
- Take a fresh new approach to the solutions, building on PTC's unique assets
- Deliver a scalable, interoperable, open, and easy-to-use set of mechanical design applications
- Provide the right-size solution for each participant in the design process at the right time
- Offer full upwards compatibility with the PTC products our customers are using today (Pro/ENGINEER®, CoCreate®, ProductView®, Windchill®, etc.)

PTC is uniquely equipped with the assets and desire to deliver on this vision because PTC:

- Invented parametric modeling
- Owns the world's leading direct modeling solution
- Offers a robust 2D modeling solution
- Created the world's leading collaboration and data management system for PLM
- Developed the industry's best performing visualization format

Current Pro/ENGINEER and CoCreate customers:

- Will be guaranteed that their models will be upward compatible with Project Lightning
- Should be energized about the commitment PTC is making to AGAIN revolutionize CAD

Lightning Strikes 10/28/2010:

A virtual launch event for Project Lightning will be held on October 28, 2010. Event details will be provided as they become available. Mark your calendars and tune in then for more information.

NOTE: Future plans are subject to change at PTC's discretion.

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