



Moving from a Drawing Centric to a Model Centric Approach

There has been a push within the design engineering community to move from a Drawing centered approach to a Model centric approach for quite a while now. This movement is one that has been difficult and very problematic for industry. The reasoning for this has been that companies have not been able to capture the benefits and advantages throughout the company's extended supply chain that will drive a model centric approach. However, with today's technological advancements, the benefits are very much achievable. Some of the key benefits and technologies are:

- **Rapid Validation utilizing 3D Models** - Upfront design analysis and 3D rapid prototyping
- **3D Tolerancing and Assembly Fit and Function** – Validation of both part tolerancing and assembly stack up and form/fit analysis
- **AR/VR Experiences** – Development of experiences for both Manufacturing and Service use cases

Rapid Validation utilizing 3D Models

With the development of 3D Models for your design, comes the ability to drive upfront validation from both a digital perspective, as well as, the needed model for rapid prototyping. The 3D model is the foundation for the design analysis and to understand how the design will support the functionality and desired performance that is needed. Analysis tools that are now available have truly become a design engineers virtual assistant. The integrated approach of finite analysis tools, such as PTC's Creo Simulation Live that utilizes the ANSYS Discovery Live functionality for "on fly" feedback to designers as the design is being develop is a game changer.

The other benefit presented when modeling your design in 3D is the ability to quickly translate the 3D model definition into a STL file that can be utilized by 3D printers to produce a rapid prototype for you for design validation. In fact, with today's 3D printing technology, it is now possible to produce quality production parts when needed.

3D Tolerancing and Assembly Fit and Function

With the 3D Model centric approach the ability to understand and evaluate the design's tolerance needs and how it will stack up in terms of manufacturing the assembly or sub-assembly is one aspect that provides key benefits in terms of fit and function for the components, sub-assemblies and the final product. It also allows for greater ease of communication between product development and the internal supply chain – Manufacturing and Quality and the extended supply chain—tooling/fixture providers and component/sub-assembly suppliers.

AR/VR Experiences

When I was in the role of a design engineer, it was always additional work for me to support the other "Asks" that cross-functional departments had for my design work. The need to explain how it would be manufactured/ assembled or serviced, was always a need that needed to be articulated to our internal team and suppliers. With the 3D Model centric approach the ability to articulate these perspectives became inherent to the design and the assets I was creating.

It also provides the needed artifacts for the cross-functional enterprise to develop 3D digital work instructions along with service instructions. These 3D models also provide the mechanism for relaying this information in Augmented Reality or Virtual Reality. This delivery method minimizes, if not, completely eliminates any misunderstanding of the design's intent and service.

At DRIVEN-4 we have extensive experience on how to enable you in realizing the benefits of utilizing the 3D Model approach within your organization. If you'd like to discuss this further give us a call.

Next Month: Transforming your PDM Implementation into a PLM Transformation