The importance of integrating your PLM & ALM Strategies

In today's world, it's hard to find any new products coming to market that are only based on mechanical design. In fact, today's new products are heavily weighted on differentiation by software features and capabilities. The fact is, that it's a great business model for Original Equipment Manufacturers (OEM's) to invest in. It allows them to enhance and improve their products via software enhancements versus the creation of a new physical product. The opportunity is great, but to be able to be successful in capturing this opportunity, OEM's need to be able to integrate both their software development framework and configurations with the mechanical design framework and configurations into a unified and configured bill of materials. This will be utilized for product design, verification and validation, as well as, product manufacturing and service.

Today's Product Lifecycle Management (PLM) technology has been and still is focused on the mechanical aspect of products. Application Lifecycle Management (ALM) is focused on hardware and software design and it is a relatively new offering within some PLM technologies and has also spawned a new set of ALM technologies software. Both have their pros and cons, from my perspective, the strength and power of the business solution are relative to the ability to integrate the two worlds into a seamless product development environment.

The **three** key principles for developing a successfully integrated PLM/ALM environment are:

1. ## Development of a "Single" Configurable Enterprise Bill of Material

   Bill of Material management in OEM's often had two versions, one for the mechanical world and one for the software/hardware world. Any potential variances in configuration between these worlds, can cause minor and sometimes major product quality issues through its design, manufacture and service lifecycles. Integrating all of this information (Mechanical, Hardware and Software) into one configured view will lead to an improved product development cycle times, better quality product and first-time service resolution, if needed.

   Deliver a "single" configured bill of material that contains all information in context is key to
   delivering shorter development cycles and improved product quality!

2. ## Integration of all Product Components to enhance product validation & verification

   This principle is based on the needed interoperability between the mechanical product and hardware/software components of the product to deliver a complete product design. Typically we think of unit testing and integration testing in the IT world, but, this world is now a reality in OEM products. OEM's need to assure integration testing that occurs includes both worlds - mechanical and hardware/software. This concept is needed in today's complex products to deliver a quality product from its initial release to the market. We also see the OEM`s pursuing the maturity level to connect product validation data to the data collected in the final assembly line to the data collected from the field when the product is in use in the market

   Integration testing—Mechanical and Hardware/Software in a unified environment
   to ensure product validation and verification!

3. ## Integration of Systems Engineering as the engine to unite the two worlds

   Systems engineering is focused on how to design and manage complex systems over their life cycles. At its core, systems engineering utilizes thinking to organize this body of knowledge. The outcome is to deliver a system derived from a combination of components that work in synergy collectively to provide a useful function. Using this thought process and focusing on how we utilize PLM and ALM to deliver product functions, will help OEM's focus their strategies around product information management in the right manner for success.

   Systems Engineering and its focus on delivering product functions will enable a
   successful PLM/ALM integrated product development environment !

Building an integrated PLM and ALM strategy is key to delivering complex products in a simplified manner. Focusing this integration with the thought process of Systems Engineering will deliver product development efficiency and product quality!

DRIVEN-4 has a great deal of experience in successful enablement of integrated PLM & ALM environments. Contact us at info@driven-4.com for any follow ups and questions.

Next Month: The Power of Integrating Product and Project Information