Tech-Clarity Insight:

The How-to Guide for Implementing PMI

Making Product and Manufacturing Information a Strategic Advantage

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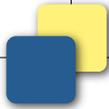
Executive Overview

With so much global competition, companies are struggling to competitively differentiate their products any way they can. Much of this differentiation will come from engineering so it is critical for engineers to focus the majority of their energy on design work that will create that differentiation. This requires streamlining the development process so that engineers are able to focus on innovation.

PMI is very important to our business and supports our overall Model Based Product Definition (MBPD) initiative.
Jeff Erno, Consulting Engineer for the CAD Tools and Product Definition Group, GE Power & Water

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PMI (Product and Manufacturing Information) is a way to achieve this goal. With PMI, the need for 2D drawings is greatly reduced or eliminated altogether. Explains Jeff Erno, a Consulting Engineer for the CAD Tools and Product Definition Group at GE Power & Water, "*PMI is very important to our business and supports our overall Model Based Product Definition (MBPD) initiative.*" Adds Erno, "*It also allows us to be more productive in producing our product definition as fewer views are needed to achieve the same goal and we can build the documentation faster than with classical drawing methods.*" GE Power & Water is a provider of power generation and water technologies for utilities, independent power producers and industrial applications. PMI also enables better communication, which leads to fewer mistakes and higher quality. Andreas Pietsch, Development Body in White Manager at Daimler AG says, "*It is obvious PMI saves us money by saving documentation time.*" Pietsch continues, "*Of course there are also less mistakes because specifications are more clear.*"

It is obvious PMI saves us money by saving documentation time.
Andreas Pietsch, Development Body in White Manager, Daimler AG

Enabling better communications improves relationships with suppliers. More importantly, 3D models can make it easier for customers to work with you, which is a competitive advantage.

While PMI offers many advantages, adopting it does require some organizational changes, which can be difficult for any organization. However, with proper planning for PMI, the adoption process can be much easier. This report serves as a how-to guide to implement PMI and make it a success at your company.

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Conclusion

In today's competitive environment, companies must work hard to differentiate their products. Much of this differentiation will come from engineering. With fewer engineers, companies need to make the most of the engineering talent they have by streamlining their workload. Taking advantage of PMI is one way to accomplish this. With PMI, much of the time previously used for producing 2D drawings can instead be applied to designing better products or reducing time to market or both.

> ***With PMI, people are able to talk more clearly about the process and requirements.***
> *Andreas Pietsch, Development Body in White Manager, Daimler*

Changes in the make-up of the engineering workforce as well as evolutions in CAD tools have made PMI an attraction option to consider. However, adopting it does require some cultural change, both internally and with suppliers and customers. Identifying those challenges and planning for them before the adoption of PMI will make the transition go far more smoothly. Companies who have addressed cultural resistance before it happens, developed training plans, and used pilot programs have reported much success with their PMI programs. "*A new process forces people to do something different and that is always hard. Once they start using PMI, they find they no longer like 2D*," says Daimler's Pietsch. "*With PMI, people are able to talk more clearly about the process and requirements*." Among other benefits, companies find PMI has helped them achieve greater efficiency, lower cost, better supplier relations, and happier customers.

Recommendations

Based on industry experience and research for this report, Tech-Clarity offers the following recommendations:

- Consider PMI as a way to streamline the engineering workload and reduce the amount of non-value added work.
- Select a tool that supports valid ISO and ASME GD&T drawing standards
- Do not overlook the resistance to cultural change. Even when a change is for the better, it can still be hard.
- Provide all impacted departments a good understanding of why it will help them before they use it.
- Provide training to those who need it.
- Make sure there is a champion with management support.

- Keep in mind adopting PMI does not have to be all or nothing approach. It can be a gradual transition from 2D drawings.
- Take the time to ensure that suppliers and customers understand the value of PMI and why it will be easier for them.
- Start small with pilot programs.
- Use what is learned from pilot programs to identify and develop best practices that can be used company-wide.

About the Author

Michelle Boucher is the Vice President of Research for Engineering Software for research firm Tech-Clarity. Michelle has spent over 20 years in various roles in engineering, marketing, management, and as an analyst. She has broad experience with topics such as product design, simulation, systems engineering, mechatronics, embedded systems, PCB design, improving product performance, process improvement, and mass customization. She graduated magna cum laude with an MBA from Babson College and earned a BS in Mechanical Engineering, with distinction, from Worcester Polytechnic Institute.

Michelle began her career holding various roles as a mechanical engineer at Pratt & Whitney and KONA (now Synventive Molding Solutions). She then spent over 10 years at PTC, a leading MCAD and PLM solution provider. While at PTC, she developed a deep understanding of end user needs through roles in technical support, management, and product marketing. She worked in technical marketing at Moldflow Corporation (acquired by Autodesk), the market leader in injection molding simulation. Here she was instrumental in developing product positioning and go-to-market messages. Michelle then joined Aberdeen Group and covered product innovation, product development, and engineering processes, eventually running the Product Innovation and Engineering practice.

Michelle is an experienced researcher and author. She has benchmarked over 7000 product development professionals and published over 90 reports on product development best practices. She focuses on helping companies manage the complexity of today's products, markets, design environments, and value chains to achieve higher profitability.