Why Best-in-Class Manufacturers Use 3D Modeling

By CAT MCCLINTOCK | Published: AUG 3, 2015

In the age of conspicuous consumption, consumers are consistently seeking newer, better, and increasingly more complex products. And that creates stiff competition for manufacturers—especially those who still rely on 2D CAD systems.

According to a report on small- to medium-sized companies from the Aberdeen Group, "3D CAD is a critical application with the promise to improve the productivity of engineers as well as cut substantial costs from product development budgets."

The SMBs that emerge ahead of their competition to capitalize on new opportunities—what Aberdeen calls its 'best-in-class' performers—report product profit margins that are 21% higher than companies still using 2D CAD. Aberdeen also reports that best-in-class manufacturers get to market an average of 99 days earlier and spend $50, 637 less on their product development costs.

If you think that's impressive, check out what happens when you combine 3D CAD with 3D printers:

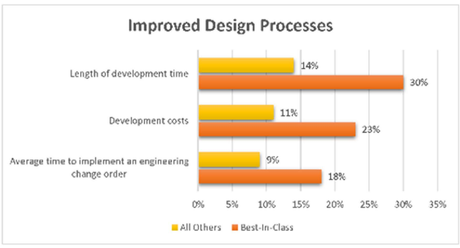
The research is clear—3D CAD offers advantages far beyond the limited dimensions of 2D for SMBs.

Key Benefits of 3D Compared to 2D

Companies using 2D development are often unaware of collision problems until they assemble a physical prototype. But with 3D CAD, manufacturers can develop *virtual* prototypes, which means they can check models for potential problems and overall quality before investing in a physical prototype. Unsurprisingly, the Aberdeen Group has consistently found that best-in-class performers produce an average of 1.4 fewer prototypes than their lower-performing competitors.

Investigating potential problems earlier in the design process also substantially reduces the number of expensive engineering change orders (ECOs) later. In fact, the Aberdeen Group reports that best-in-class performers average 6.1 fewer change orders the lowest-performing manufacturers.

To see how the right CAD technology can improve design processes and provide much-needed time and cost savings, take a look at this chart from Aberdeen. It illustrates how much best-in-class manufacturers reduced the length of development time, the average time to implement ECOs, and development costs:



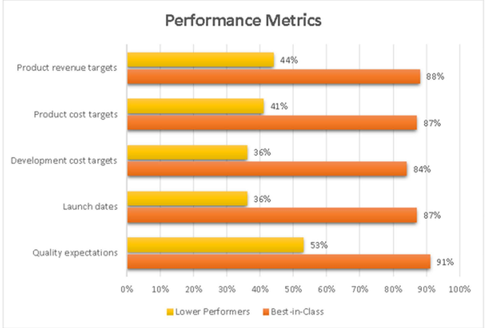
3D Best Practices

Naturally, the key to becoming a best-in-class manufacturer requires more than the best technologies—it also depends on how manufacturers use those tools. According to Aberdeen Group, there are three strategies that best-in-class manufacturers employ to gain their competitive advantage:

1. **They leverage previous projects by copying existing features into new designs**. This practice prevents designers from wasting time recreating commonly used features, while it also adds consistency to the designs.
2. **They embed drawing details into their 3D models.** Since the drawing details can be auto-populated, this practice saves precious engineering time when it's time to produce detailed drawings for manufacturing.
3. **They synchronizing design data as team members work on different parts in an assembly.** Data synchronization promotes effective collaboration and makes better use of resources.

Real-World Results

The companies that make these efficiency and design process improvements have already seen how they directly benefit bottom lines. According to Aberdeen, best-in-class manufacturers that use 3D CAD and employ these strategies are more than *twice* as likely as their lower-performing competitors to hit the revenue, cost, launch date, and quality targets for their products:



To experience the benefits of the most robust, scalable 3D modeling software in the industry for yourself, download a Free PTC Creo 30 Day Trial and see how PTC can improve efficiencies and design processes in your own organization.

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