How This Semiconductor Manufacturer Used aPriori to Identify Design and Cost Outliers

Results included fact based negotiations with their suppliers and double digit savings on their product

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> Working as a value engineer can be a tricky job. It requires juggling multiple moving parts to get the best value. Perhaps one of the hardest parts is determining cost avoidance. Axcelis Technologies turned to aPriori to help alleviate that headache. As a result, we've streamlined our process and are saving in material cost and labor hour reduction.

As the Business Excellence Manager at Axcelis Technologies, my focus is on value engineering. As with any manufacturing company, we're always looking to reduce cost and create a better and more efficient process and product.

In business for more than 35 years, Axcelis builds semiconductor manufacturing equipment, specifically ion implantation systems, one of the most critical and enabling steps in the IC manufacturing process. However, we're still a relatively small company and we needed a software solution to help eliminate cost.

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What is Value Engineering?

What is value engineering? The primary purpose of value engineering is to reduce cost and increase margin for a company, specifically by redesigning or modifying designs. During new product design, the ultimate goal would be to make better design for manufacturability choices upfront to avoid going over cost later during production. However, it does not always happen that way. Ultimately, the goal is to reduce the base cost of our product, so that we can increase margins.

We are a small team and one of our biggest challenges was trying to control and reduce costs, so we adopted aPriori, a digital manufacturing simulation software that helps manufacturers collaborate across the product development process to make better design, sourcing and manufacturing decisions, drive product costs lower and create higher value products in less time. Adopting a powerful piece of software like aPriori can be a big change for any company, especially for a small team. Admittedly, it took some time to set the software up properly and learn how to use it to its maximum potential. We've been using aPriori for about four years and the platform has overhauled my position as a cost engineer.

Automated Cost Analysis

What makes aPriori so powerful? As you might imagine, the earlier you can get a cost quote when you're a value engineer, the better. Prior to adoption, we would often wait multiple weeks to find out what a cost might be on various projects. aPriori allows us faster analysis. It can even run several different scenarios at once by looking into new designs that we're working on, which allows us to adjust costs on the fly.

While aPriori isn't a crystal ball, it allows me to manipulate the data and make more informed decisions while I'm waiting on a quote. In fact, I can actually try different iterations while we wait and then use the quote from our supplier as a baseline to negotiate with them. At that point, I can use the platform to help me determine if one change or another will help to reduce cost that much more. And sometimes, that makes all the difference for us.

Cost Avoidance

Cost avoidance is the greatest value that we receive from aPriori. Cost avoidance can also be hard to track. That's especially true when you get involved in a case late in the game and have to shift focus to the end cost. That's exactly what happened in the following case study.

aPriori Spend Analytics helped Axcelis to identify a supplier that was supplying parts at a higher cost than alternative suppliers for similar components. We engaged aPriori to scan through 100 machined and sheet metal parts, all of them sorted by cost, material, volume, complexity, manufacture region and supplier. We were then able to review these parts for cost and design outliers and compare actual costs with aPriori's estimates. We actually used the mass of each part as a driving factor.

That data led into a cost vs. mass baseline, which gave us a group of parts on which to direct the next phase of the analysis. That led us to looking into the complexity and material composition of the parts, which can drive costs way up.

After all was reviewed, we were able to clearly see that one supplier was coming in at a substantially higher cost. And this wasn't for a better quality part, but for something that was at the same level as alternative suppliers.

Running through 10 different components across various companies, we were actually able to go back and renegotiate with the supplier that had the higher costs. This project led to a direct cost reduction, but it also helped Axcelis to avoid cost during the initial design and supplier selection on future projects.

Ultimately, Axcelis was able to retain a 10 percent discount on the discrepant parts. That's huge, and we attribute it to the power of aPriori. Without it, there's little chance that we would have been able to see the varying price points, and even less of a chance that we'd have been able to work out the discount that we needed.

All the components in this case study were of high or medium complexity and were all primed for a design for cost review. This design for cost review led to additional cost savings on the reviewed parts and cost avoidance on similar part concept designs.

I would recommend this software to value engineers who work in both large and small companies. As I mentioned previously, set up is paramount. aPriori's excellent Customer Success Team helped to get the software just right for our low volume, highly customized services, and they squash bugs like pros. I also suggest having a firm grasp of your business goals in order to maximize the power and savings of aPriori. As a small business, we knew we needed a scalable third-party solution that would increase our profits with ease. We've achieved that goal with aPriori.

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