Philips Healthcare Gains Greater Control of Costs With SEER for Manufacturing

Philips Healthcare, headquartered in Eindhoven, The Netherlands, is the world's leading supplier of cardiovascular X-ray systems and second in general X-ray systems. The company's long history in medical imaging dates to 1895 when it purchased the company that manufactured the first commercial X-ray tube. Today, with 32,500 employees in more than 63 countries and nearly $9 billion in sales, Philips Healthcare accounts for nearly a quarter of its parent company's total revenues.

Philips Healthcare manufactures X-ray machines and peripheral equipment and supplies at its facility in Eindhoven. These include analogue and digital units as well as cutting edge cardiovascular X-ray systems for advanced interventional procedures. In mid-2007, G. Pruijsen MSC, manager of value engineering, wanted to gain tighter control of costs by better understanding supplier pricing and design options. With an experienced cost engineer already on staff, he sought a software application that could help them plan, manage and control all areas of parts design and manufacturing.

Having previously worked in purchasing, Pruijsen had developed a cost management methodology that involved benchmarking, acquiring data from supply markets and looking deeply into processes to determine how much material and labour would be involved. This method used conventional spreadsheets to perform complex calculations and "just finding the right data was labour-intensive and time consuming."

"Cost estimation is a very important topic for me," said Pruijsen. "Cost engineers may differ on their estimates so we needed a tool that could calibrate those differences. A colleague at Boeing recommended Galorath Incorporated. They

explained how they successfully used Galorath cost estimation applications and offered their positive opinion. Galorath was invited to give us a demonstration of SEER for Manufacturing (SEER-MFG) a project estimation and management solution. The most convincing part of the demonstration was, after we showed Galorath a drawing of a random part, 15 minutes later we had an estimate on the tooling cost. Four days later we got a quotation on the tool. The SEER estimate was within 2% of the quote. That's when we decided to run a pilot on the use of SEER for Manufacturing."

Galorath (www.galorath.com) is a global company focused on improving estimation across a range of processes and industries with offices both in the USA and Europe. The client base is varied and includes BAE Systems, Agusta Westland, Airbus, Boeing, Ford Motor Company; Lockheed Martin; Northrop Grumman; Siemens, and the U.S. Department of Defence. SEER-MFG is widely used by manufacturing outsourcers to develop "should-cost" guidelines and analyse manufacturing project and process options. It bridges the gap between design and manufacturing by providing insight into the cost and producibility of design decisions.

One of SEER-MFG's strengths is its ability to influence design decisions, pointing the way to the simplest and most cost-effective solution. This became evident to Pruijsen's team during one of the pilot projects when they used SEER-MFG to calculate the cost of the parts for a new patient table. "We discovered that SEER-MFG is an interesting application because if you have a solution in mind it allows you to check on the cost and see alternative technologies," he said. "A mechanical designer might not consider certain technologies because they are out of his experience. But if you can quickly calculate different scenarios, you can determine their cost impact and the amount of investment needed in areas like tooling. That is very valuable" Pruijsen said.

“If you invest twenty thousand Euros in a mould and you are only making a couple of hundred components for our machines with it, then the percentage of the tooling costs is a substantial amount. There is a risk in investing too much money in tooling. Knowing the impact of this before hand can be very helpful.”

SEER also plays an important role after the design phase, when the completed drawings are sent to a supplier for a cost estimate. Generally, Pruijsen believes that supplier estimates for fabricating mechanical parts should come within 5-10 percent of the cost projected by his cost engineer using the SEER-MFG software. However, there are sometimes large discrepancies between the “should-cost” projections and the bids submitted by suppliers: “In one case a supplier offered a quote of 1,000 Euros for a part but our cost engineer, using SEER-MFG, calculated that it should be 200 Euros,” said Pruijsen. They eventually settled on a final price of 350 Euros—about one-third of the original quotation. “Without SEER-MFG, we might have been satisfied just reducing the price 10 percent to 900 Euros through negotiation. In the end the tolerances for this particular part were found to be much higher than necessary; the lower specifications allowed the supplier to significantly reduce his price. Of great impact and as a reflection back to our engineers is, that with SEER-MFG you directly can show the cost impact of the tolerances, technology and materials they choose, and then discuss what is good enough. This really drives costs down during the design stages.”

An area where SEER for Manufacturing contributes significantly is determining whether it makes sense to outsource to Low Labour Cost Countries. This is mainly dependent on the amount of labour involved in the manufacturing process. By showing the labour cost SEER-MFG makes much clearer decisions possible on this.”

Over the course of a year—ordering between 5,000 and 10,000 standard parts and specialized components from over 500 suppliers—such savings can become

quite significant. Pruijsen believes that over the past 12 months the cost engineers working with SEER-MFG have saved his division about one million Euros. “And we’ve only just begun. The potential is substantially larger. You need lots of data and analysis,” he said. “The goal of the purchasing department is usually to negotiate about 3 percent off the offered price. But the purpose of my cost analysis is to find a difference in the area of 20-30 percent.”

Paying the right price, Pruijsen said, is what using cost estimation is all about. “SEER-MFG helps because when you confront a supplier with figures compiled by a cost estimation expert, the supplier can say that’s just the opinion of one person. But if you come with proof and share openly the SEER results, they are interested in how we do this. Then they see that what we are giving them is a more data-driven figure. This helps in convincing the supplier to come down on the price.

“It is interesting that our cost engineer did not believe that SEER-MFG would help him because he has over 30 years experience. The funny thing is that after using SEER-MFG for three months he no longer wanted to work without it.”

While not as originally sceptical as his cost engineer, Pruijsen, too, is sold on SEER-MFG’s advantages. “I can point out many examples of how cost estimation makes a big difference in the price level you pay. It also has a big impact on early design phases. If it were up to me, I’d have 10 people involved in cost estimation to cover both the design and purchasing aspects.”

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