By Kristin Lewotsky

Getting Specific /Specification Specifics/Specifying Specifications

Understanding the applications and soliciting customer/supplier feedback are key to specifying an optimal system.

- Understanding the application is critical

- Spec sheets help

- Dialog is important

- Which parameters are most valuable?

If you want to tell someone where to meet, use a map. If you want to know where you're going, use a map. If you want to show people where you are, use a map.

In a sense, specifications operate as the maps of the high tech world. You write specifications for your suppliers and customers so that you're all clear on deliverables, you write a specification to define a project goal, and, of course, you write a spec on a standard product to show what it does.

WHERE TO MEET

A grad school friend of mine who builds femtosecond lasers once traveled to Japan to install a system for a chemist. The laser as built actually beat spec and my friend was justly proud, having supplied his customer with pulses even shorter than promised. Unfortunately, the shorter the pulse, the broader the bandwidth, which in this case negatively impacted the customer's research. The moral of the story is that understanding the application is paramount.

"It's all about meeting customer expectations," said Chris Calling, president of scientific imaging and spectroscopy specialist Andor USA (South Windsor, Conn.). "If we build something that fulfills the idea of what we think it's supposed to but it's different from what the customer expects, at the end of the day it's a bad thing."

As with using a map to get both parties to the same place, you can use a spec sheet to be sure that both parties in a sales transaction are in agreement as to the expectations for the product or services being delivered. This is not as simple as it sounds – there can be a wide gulf between what a customer wants and what is actually needed to perform the work. To deliver optimal performance while controlling cost, Andor sends in an application specialist to work with the customer

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to understand their application and how best to address it. Once that part of the process is complete, they confirm with manufacturing that they can deliver.

It's an effective process, but even it is not foolproof. "Inevitably," said Calling, "there are occasions where either the application has changed, the direction of what is wanted has changed or assumptions on their part that weren't clear." Consider the astronomer who bought a system without ever mentioning he planned to use it with a special astronomical imaging package with unusual file formats – or the fact that he would need to save some 10,000 files. "We were only able to save 9,500 or something," Calling said wryly. "This was just a feature that was not really ever discussed."

Sometimes, the manufacturing philosophy itself is unspoken. Andor sells to both scientific customers and to OEMs; the two, Calling said, are very different birds. "If we sell 100 cameras of the same type to the research community, all 100 need to meet a minimum specification.

If we sell 100 cameras to one [OEM] customer, they want them all to meet the same specification." To the manufacturer hoping to net a big sale, it's an important distinction; to the OEM customer hoping to minimize elapsed time between delivery and sales, it's critical to make the expectations clear.

WHERE YOU'RE GOING

Product development is a tricky process. You want to include the necessary features but you don't want to get bogged down in an unrealistically ambitious cycle. You want everybody to be clear on the goals and priorities. In all good project management, specifying the project is one of the first – and most important – steps (see Advanced Imaging, January 2006, p. 30). The specification sheet is the

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tool that helps you do that.

Garbage in, garbage out, goes the old programming saw. If you want to sell a product, then you'd better turn to your customers for input to develop it. That's the approach of imaging supplier DALSA's Corp. (Waterloo, Ontario, Canada). "The main thing you attempt to do when you talk to these customers is really try to determine which specification has the

most value to the product in the end," said Mark Butler, product manager for area cameras. "Those are the ones you will take back to engineering."

Andor also relies on customer input; indeed, their work with the research community allows them to enhance their standard product platforms. "That's the primary reason we still participate so heavily in the R&D community," Calling said. "Those requirements that come in from multiple university or government labs end up being a very good crystal ball for OEM applications three years down the road."

In DALSA's case, the informal customer focus group information yields a specification sheet that defines the product goals and ensures that the technical group and the marketing group, which now represents the customer base, are in agreement before the product development work ever begins. This is the time to make tradeoffs, to determine what is really possible – and what isn't. If the result is too far from the desired performance, it may be better to halt development then to spend money developing a product that doesn't meet customer requirements.

The biggest mistake in defining specs through customer feedback, Butler said, is failing to question and look deeper. "You will get certain customers who say that they need various things, and even if you go back and present some of the tradeoffs of it, they say, 'I don't care, I still need this.' You need to have the ability to look at the application yourself and try to assess what you think would add value."

Among other things, this assessment needs to consider the other elements of the vision chain, or else your product may include unnecessary cost and unrealizable performance. "We can make a product that is blazing fast, but the camera cannot exist in isolation," said Bassam Estaitieh, DALSA's product manager for line-scan cameras and TDI. "Other products, like lighting, lenses, and framegrabbers need to operate at similarly high performance levels to achieve full system benefits."

WHERE YOU ARE

No discussion of specifications would be complete without a discussion of product data sheets. Here, philosophies differ, but sources agree that it's important to understand customer need. "[Ours are] based on feedback from the customer saying, 'We never even look at that specification,' or, 'Why don't you have this spec in there?'" Calling said. "I would say that there's an overage of information provided in the generic spec sheet just so we're sure we cover more bases than not."

Butler adheres to the 'less is more' school of thought. "To some degree, you don't want to put all the answers there because you may not ever hear from the customer," he said. "You want them to say, 'This is an interesting product. I want to find out more,' so we can start a dialog with them."

Ultimately, that's what every conversation about spec sheets came down to – start a dialog with your customers, or suppliers. If you listen and you're clear about the needs of the application, then the resultant specification sheet can be a powerful tool, whether you're trying to figure out where to meet, where you're going, or where you are. **AI**

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