A Good Cost Estimate
The foundation for the art and science of pricing

By Jerry Buonanno

Good pricing isn't just a good idea, it's essential to every successful proposal. Not only do you need a good price to win but you also need one to have a successful program after you win, no matter how you define "successful." While not every program needs to make huge profits, there are some things that you do need to be successful. When it comes to your price, you need to know: 1) Does it cover enough of your costs so that you can "keep the lights on" tomorrow? 2) Does it help you meet the normal corporate objectives of improving productivity, increasing market share, and achieving technological leadership that help ensure long term survival and growth?

Setting a program's price so that you can be confident about meeting both of these objectives is a combination of art and science. It is a science in that there are certain basic ingredients that you need to ensure a good price; these inputs vary little from proposal to proposal. It is also a science because good pricing follows a repeatable process: you take the same types of actions at generally the same times in every proposal. But while lots of factual data and quantitative analysis are essential, there are also many subjective elements that cannot be quantified. It requires experience to know how to apply the "science" to any given proposal. It also involves a lot judgment to know what is really important, why, and what to do with it. This is the "art" aspect of good pricing, and it is the combination of art and science that can make pricing hard. Sometimes much harder than it has to be.

The foundation of both the art and science of good pricing is a good cost estimate. Without one, *any* price you come up with is probably just a guess and without understanding your costs, you may adversely affect your profit but not find out until it is too late.. So how do you go about building a solid foundation for your proposal pricing? The answer, like a lot to do with proposals, isn't magic. But it does take some effort.

Start before the RFP comes out

The time to gather any information that will help you establish a winning price is before an RFP is released. You should begin by establishing a relationship with the future client and by gathering marketing intelligence. This is an easy task if this is an existing contract and you are the incumbent, because you should have been doing this throughout the life of the current contract. If you are not the incumbent, the task is not quite as easy but still doable. If it's a government job, you need to start with the appropriate buying command, determine what projects will turn into RFPs, and then begin developing a relationship with the future customer. You will be obtaining answers to the same questions that the incumbent will ask (or may already know), but from a different perspective.

Regardless of the type of job, however, some of the things you ought to find out almost always include the following:

- If this is an existing contract, has the incumbent contained contract costs within original budget or have there been cost overruns or schedule slips?

- Is the customer generally pleased with the incumbent's performance?

- Are the specs and requirements firm or is there a potential for redesign?

- Is the current design complex?

- Is there a possibility of parts obsolescence?

- Are there unique packaging requirements?

- Is the client happy with the management team?

- If this is an existing contract that has been won several times by the same company, does the customer think there has been "profit creep"? (Profit creep is where a company might bid a low fee during the first contract and then "get well" by increasing profit rates during subsequent contracts.)

- Does the customer think that the incumbent has become too complacent? A complacent contractor believes he knows the product and the mission better than the customer could ever know it and therefore begins to ignore or minimize customer concerns. (My engines don't stall; it must be your pilots!) Has the incumbent contractor become arrogant?

- Would the customer be interested in "switching horses"?

- Prior to the RFP, you should also try to determine the customer's budget. The amount of money in the budget will help you determine if the customer will be able to fund the mission objectives. If he cannot, this may lead you to other pricing strategies.

If you have established a good working relationship with the customer, you should be able to find out the customer's projected target cost. You will eventually need to determine if you can hit the target and still make a profit, if that is essential to your overall corporate strategy for the program.

All of this information can and must be obtained in advance of the RFP, and it is essential when trying to establish a price. Once the RFP is issued most customers are required to end individual discussions.

Assess customer requirements

After the RFP is released, the first step in determining a sound cost estimate should be an obvious one: you must *read the RFP*. The RFP identifies the product or service the customer is seeking. If you have done a good job of characterizing your customer's concerns before the RFP comes out, you will have a great basis for understanding some of the typically cryptic statements found in even the best RFPs.

Once you have read the RFP, prepare a job description of the product or service (henceforth "product" will mean either products and or services). The job description should contain, at a minimum, a Work Breakdown Structure (WBS), a WBS dictionary, product definition or statement of work (SOW), a SOW/WBS cross reference, a CLIN/WBS cross reference, proposal instructions and assumptions, a responsibility assignment matrix (RAM), and cost bogies. This job description and the RFP should be reviewed by the cost estimating lead, the technical lead, the project manager, and the Capture Manager to ensure that there are no omissions or mistakes.

Find a "similar-to" product or service

The cost estimating lead and the technical lead then compare the job description to the company's existing products and pick the one that most closely matches the job description. This can be a difficult concept for some to grasp. In an ideal situation, you would find a product that is an identical match. In the real world, the ideal rarely occurs.

At this point you might want to give up and begin guessing at a cost estimate. Don't. Guessing will always create problems later. There is almost always some other product that is similar in some way to what you are bidding now. If not the entire product, then you must dissect the product into its component pieces or modules. Once this is done, you will begin to discover similarities. For example, a radar system designed to perform different functions will still have similar components (say, a similar receiver or transponder) and in most cases be assembled in the same manner. If you are bidding on a product, there is a strong probability that there are similarities in one of your products. The team must look for them carefully. Here's another example of similarity: Your customer might be looking for 4-inch round widgets made from titanium; widgets that are made in 2 pieces, hollow, are sandwiched together and held in place with rivets. Your company makes a 6-inch round widgets that perform the same function for another customer. Your product is round, made from titanium, is hollow, but is made through a high tech injection molding process that allows you to make it in one piece and eliminate the riveting. The products are not identical, but close enough to use as a basis for creating an estimate.

Obtain good data

Once you have decided on your similar-to product, you must obtain the data needed to create a supportable estimate. The best source of data is the company's historical database. Take those similar-to products (or elements of the product) and determine their historical cost. Using your best judgment, decide if the historical cost is representative and repeatable or if adjustments for unusual past circumstances are required. Unless the products and historical circumstances are identical in every way to the product being estimated, you must separate labor and material. Each will require a different method for projecting the new cost.

Take the individual components from our widget example and determine the cost:

- Both products have titanium. What is the historical cost of the titanium? Create a relationship from the quantity in your product to the quantity needed in the bid product.

- What is the cost of making the 6-inch round hollow widget? The labor cost to make a similar 4-inch round widget is probably the same.

- If you take the material cost and add it to the labor cost, chances are you have a pretty good estimate.

- Don't just ignore the fact that the RFP asked for 2-piece widget. If you learn that the customer really doesn't care whether you make it in two pieces or one, propose it as a single piece. But if you cannot get an answer, you will have to estimate the requested item and give your 1-piece solution as an alternate.

Project the data forward

Once you have identified the appropriate raw cost data, you can then project the estimate for the new product to the appropriate period of performance. There are several quantitative methods used to predict future costs based on historical costs but I use two more frequently than the rest. One is a weighted average of historical cost and the other is a learning curve. Both are appropriate under the correct circumstance. I use learning curves when product manufacturing is affected by a repetitive process. An example is building bicycles. The first bicycle takes what seems like forever. But the more bicycles you build, the faster you can build them. I normally use weighted averages when I believe all the learning is out of the assembly process. For bicycle building, this might happen after about the 100th or 1000th bike. After that many you probably have learned just about all you can and would be unable to significantly improve the process except through radical reengineering.

Assess the competition

When you are trying to turn "cost" into "price," it is essential to know your customer, yourself, and your competitors. It is very rare for there to be no competition on a solicitation. Once you have determined that there is competition, you need to identify them and obtain as much marketing intelligence as humanly (and legally!) possible. You should determine the size of the competition, their financial status, their qualifications for performing the mission objective, their industry experience and their current backlog. Do they have other contracts? Is this a do-or-die win for the competition?

There are numerous ways to obtain information on the competition before the RFP release and throughout the proposal cycle. You should try to use as many as possible. If the competition is traded publicly, you can obtain annual reports. If not, you may obtain company capabilities statements, Dunn & Bradstreet reports, government reports, trade magazines and newspapers, source selection debriefings, Internet searches and competition databases. You can also pick up brochures and pamphlets from trade shows or industry events.

Other questions you might try to answer include: How does the competition compare to your company in performance, technical capability, management, and ability to price competitively? What do you bring to the party? Why should the customer want you? Do you have a unique technical or low risk solution?

Organize the Information

Once you've asked all the right questions and gathered and organized the information, you have everything you need to create a good price. Based on your solid relationship with the customer, you know his budget, target cost, and other key facts. You've probed your own capabilities and history to know your costs to make the product or provide the service. You have studied the competition and know them as well as you know your company. You know what they are likely to bid and why.

But you are not quite done with your foundation yet. The last step in building your pricing foundation is to organize the information. Each bit of data by itself only tells part of the story. Like a good painting or a good story, you have to appreciate all elements of the foundation to know how to proceed in building your price. You have to see how the various bits of cost estimating data relate to each other and to the overall pricing objective. Only then can you proceed to the "art" part of good pricing—taking the accumulated facts and turning them into a price that can win. There are lots of ways to go about practicing this art, but one thing is certain. If you don't have the foundation of a good cost estimate, your "art of pricing" will be more like child's finger painting than the masterful strokes of a Van Gogh or Rembrandt.