



By Lawrence D. Miles
Certified value specialist

Principles of Value Analysis

Are you buying the right function the wrong way?

It happens, but the smart buyer tries to minimize the number of times he either buys the right function at above competitive prices or buys the right function performed the wrong way. Do these examples sound familiar?

A buyer purchased 100,000 capacitors/year for use in fractional horsepower motors. Each capacitor cost 75¢. Surely, reasoned the buyer, volume purchases offer opportunities for savings.

The buyer began studying the capacitance function and comparing his present capacitor with alternatives. But his studies showed that the capacitors he was already buying were perfectly suitable. They were modern in design, construction, and quality, but at 75¢ each they were priced uncompetitively.

The best approach, the buyer figured, would be to negotiate with his supplier. The negotiations were successful, and the buyer was able to knock 9¢ off the unit cost for an annual savings of \$9,000. The supplier went away satisfied, too, because he got another year's contract.

Clamping down on costs

Another buyer felt he was paying above competitive prices for a gear function. The gear in question was mounted on a high speed, high temperature turbine shaft and drove an oil pump which lubricated the shaft.

The buyer needed 10,000 gears/year. Some were made in-house for \$15.75 each; others were purchased outside for \$17 each. No question the gear was a precision component, but the buyer wondered if he weren't paying too much.

The buyer undertook a search for the "right supplier", and he located a manufacturer who had achieved considerable success in turning out precision gears. The buyer made an onsite visit, liked what he saw, and left an inquiry with drawings and specifications.

A short time later, the manufacturer's quote arrived on the buyer's desk. The quote was for \$6/unit, and the buyer and his technical assistants were astounded. Remember, they had been paying \$15.75 and \$17 for the gears.

Quickly, the buyer dispatched a tool

maker and an inspector to the vendor's plant. They reported that his facilities, equipment, processes, and people were excellent.

The buyer himself then revisited the vendor, double checking all the tolerances, requirements, and specs which he feared the vendor might have overlooked. No, the vendor said, in each case he had noted the requirements and expected to make the gears exactly as specified. But sensing the buyer's concern over his low quote, the vendor increased his unit price from \$6 to \$6.75 to provide a contingent amount for any possible unseen factor. The buyer was satisfied.

The buyer's next step was to place a production order with the vendor, subject to the strict limitation of production-lot release. Initially, 10 gears were released. When they arrived at the buyer's plant, they were found to be the smoothest, most precise gears ever purchased. 100 more gears were released, and they arrived in the same condition as the first batch. 1,000 gears were now ordered, and they were of the same high quality. The vendor was accepted.

The quality of the vendor's manufacturing had an interesting side benefit. Quality control personnel at the buyer's plant found nothing to reject week after week. In fact, the supplier was controlling his quality so well that the buyer's inspection expense dropped 95%. But the real plum was the \$100,000 saved simply by buying the right function at the right price.

Right function, wrong way

Very often the right function is provided, but by the wrong means.

For example, a buyer was purchasing 200,000 dowel pins/year to hold an impeller on the shaft of an appliance. The dowel was a high precision item which, when forced through a precision reamed hole in the shaft, held the impeller on the shaft and assured a pressure fit. But the dowels were expensive: At \$25/thousand, the buyer was spending \$5,000/year on them.

The buyer reasoned that it was basically wrong to make a costly hole to fit the dowel and then to buy a costly dowel to fit the hole. A better solution might be to drill a regular hole through the shaft and then drive in a rollpin made of springy, tempered, rolled steel ribbon. The ribbon would expand into the hole, remain tight, and secure the impeller on

the shaft for the life of the product.

The buyer thought the idea worth pursuing, so he invited a supplier of specialty rollpins to look over the job and give him a quote. To make a long story short, it turned out that the rollpin accomplished the same function but at considerably less cost—\$5/thousand instead of \$25/thousand. Earnings thus increased by \$4,000/year on the pin buying, and there were added savings on the shaft hole honing.

Another buyer, who was in the early stages of learning and applying VA principles, purchased TV parts and materials. Among his purchases were "J" bolts. Each bolt was 8 in. long and made of 3/16 in. steel rod. The bolt had a plain hook on one end and an inch of thread on the other. One bolt cost 11½¢, and the buyer was purchasing 800,000/year. Total cost: \$92,000.

Our young buyer reasoned that if he bought a smaller rod nearer the diameter of the thread root and then rolled the thread to raise the material up to the 3/16 in. thread, he could secure the identical function at less cost.

One of his suppliers who had wire forming and thread rolling equipment said the job was a "natural." His equipment used the smaller diameter rod, rolled the 3/16 in. thread on one end and bent a hook on the other. The supplier quoted 1½¢ for this interchangeable part versus the 11½¢ the buyer had been paying. Annual costs dropped from \$92,000 to \$12,000, and earnings shot up \$80,000.

Moral: Buying the right function is only half the battle; buying it at the right price and in the right way nets the savings. □

Lawrence D. Miles has been practicing and refining value analysis since he originated the techniques as a member of GE's corporate purchasing department almost 30 years ago. He has written and lectured extensively on VA, and has published two books on the subject: "Cutting Costs by Analyzing Values," and "Techniques of Value Analysis and Engineering." He is a Fellow of the Society of American Value Engineers (SAVE), and served as its first president. And he is a holder of the Distinguished Public Service Award—the highest military honor awardable to a civilian—given him for benefits accrued to the U.S. Navy from the use of VA techniques.