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PW Principles of value analysis

Buy function—not materials or services

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Every dollar spent by a buyer goes to buy function. You don't buy a nail, you buy a fastening function. You don't buy an automobile, you buy a transportation function. Or, as one analyst told me, you don't buy a drill, you buy a hole. But requisitioners usually do not call for function. Rather, they ask for one means of achieving it.

Purchasing VA techniques help bridge the gap between an item specified and the function needed. They help the buyer learn what function is needed, so that, with that extra knowledge, he can use his purchasing expertise to buy exactly what is required.

How function is bought

Let's dig a little deeper into the "how to" of buying functions. Last month we talked about a manufacturing engineer who asked for help lowering the costs of an appliance temperature control. Here's the list of functions, and their present and required costs he gave the buyer: (1) sense temperature, present cost \$1, required cost 60¢; (2) actuate contacts, now \$1.50, should be 80¢; (3) interrupt circuit, now \$1, needed for 50¢; (4) provide adjustment, now \$1, can stay \$1; (5) mount and protect, presently costs \$4.50, should be only \$2.10.

Take a closer look at the "sense temperature" function. Now, expand and deepen the function thinking. Exactly what does it do? It senses temperature changes, communicates it 24 inches into a member which receives it and converts it to useful mechanical mo-

tion, which opens or closes electrical contacts in the control.

Now we are down to the nitty gritty. As can be seen, the "sense temperature" function actually contains three sub-functions which must be performed. But now they are mind sized, that is, each is a separate, studiable, comparable function with differing means of accomplishment. Let's list them:

- (1) Sense temperature change in a 40 degree range. This is done by a gas contained in a bulb.
- (2) Communicate the temperature change 24 inches. This is done with a 1/8 in. diameter copper tube.
- (3) React with mechanical movement. This is done with a bellows.

For function #1 the buyer selected three suppliers who seemed to lead the industry in gasses with specialized properties, gave them the story, and asked what they could offer.

For function #2 he selected two fabricators of similar items who had shown ingenuity and competence.

For the third function he selected two fabricators of specialized miniature instrument parts.

Notice that the buyer used his area of expertise—knowledge of the supplier market—to accomplish this. During the studies, any engineering matters which came up were immediately referred to the engineers who wanted the work done, and handled by direct communications between them and the vendors. The buyer did not try to handle that for which he was not qualified to deal with.

Offerings to accomplish the functions, together with a description of the material which would do it, and quotations, were provided by the vendors.

For function #1 a gas was provided which changed its pressure/volume much more rapidly in the 40 degree range than the previous gas. For function #3 an ingenious and reliable miniature hollow "button" with a snap diaphragm was provided. The button was much more sensitive than the bellows and operated dependably on a much lower quantity of gas. And being so much smaller, it reduced other costs of enclosing, protecting, etc. Because of the benefits in functions 1 and 3, the task of #2 was greatly reduced. It was performed with a 1/16 in. diameter tube with no bulb on it.

The buyer involved bought function, and as a result the cost of the materials was a little less than half the original cost for a more reliable product. Had the quantities been 100,000/year, he would have saved his company \$50,000. Actual quantities, however, were 2-million/year. You can figure the savings for yourself—and then start achieving some of your own.

In retrospect, what happened in this case can be repeated time and time again. There were five simple steps involved.

- (1) The buyer knew how to determine function, and to group or divide it into manageable parts.
- (2) The buyer knew how to buy function, rather than materials, and he set out to do just that.
- (3) Professional personnel in the environment had learned he could do it, and knew they needed his help.
- (4) Simple, repeatable, step-by-step VA techniques were used to determine the needed functions.
- (5) Straight forward good purchasing practices were used to develop the quotations on the functions.

The other function

Until now we have been talking about use function. Use function does something, performs some task. There is one other type of function—aesthetic.

Aesthetic function pleases the user, helps him conform to the customs of his culture, to enjoy, to "feel right." Let no one, in error, believe that VA techniques tend to lessen aesthetic function. Not in the least. The techniques identify each function for what it is, and buy it—without degrading it—for the lowest available cost.

While the amount of use function is often determined by engineering and marketing people in contact with the user, aesthetic function is usually established by an artist, stylist, or industrial designer based on his appraisal of the customer's wishes. The purchasing value analyst's task is to determine exactly what aesthetic functions are required, secure quotations on alternative means for achieving those functions, and make it possible for the industrial designer to select an equivalent and lower cost approach. In other words, he treats aesthetic function no differently from use function.