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PW Principles of value analysis

Secondary function

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Last month we introduced the concept of secondary functions. Secondary functions are not lesser important functions which the user would like to have. They make no contributions to the useful or aesthetic functions wanted. Instead, secondary functions are functions which are necessary to achieving the basic, wanted function.

For instance, a buyer purchases a tractor because he wants power at the drawbar or the pulley. He gets a large package of secondary functions, which he couldn't care less about, and which have added a lot of cost to the tractor.

The oiling and lubricating system is one such secondary function. It performs no service for the user, but is essential in order to allow the engine to run. Another is the plating or paint on the iron parts. Since we have chosen iron to help achieve the basic function, we have the added cost of a secondary function—plating—which keeps the iron from rusting away. Had bronze or monel or aluminum been chosen to help achieve the basic function, the cost for a secondary function "protect material" would not be needed.

It can be seen at once that the methods for accomplishing secondary functions and the costs involved are open game for the purchasing value analyst. Since the use to the purchaser is in no way affected, approvals for change are readily forthcoming. Of course, there can be no quality degradation. Secondary functions accomplished by different means at lower costs must be 100% comparable in quality.

The buyer who achieves large earnings improvements for his employer has learned where to look for secondary function costs. Ringing in his mind is the question: "Does this part of the cost buy something which directly accomplishes the function for which the user is securing the product?" By answering that question, secondary functions become relatively easy to separate, and function buying yields greater returns.

One effective means of locating secondary functions and determining their cost is illustrated by the following example.

A passivated stainless steel spring used in an electric switch was bought in quantities of 100,000/year at a cost of $34/thousand.

The buyer, reasoning that the property of springiness performed the wanted function, concluded that the extra cost of stainless steel over spring steel had to be for the secondary function "protect the metal." Next he determined to find out how much that secondary function cost.

The savings spring free

The buyer secured a quotation on the springs made from spring steel, which was $5/thousand—making the cost of the secondary function $29/thousand, or $2,900/year. He decided the project was worth a little work.

He explained the situation to some of his spring vendors without divulging exact costs to them, and asked for their best suggestions. With their expertise and experience, how could the steel be protected and at what cost. One of them suggested changing from the passivated stainless which was being used to type 302 plain finish stainless. The cost became $13/thousand for a net earnings improvement of $2,100/year.

It's not so frequent now, but in years past in this type of case, someone would point a finger at the design engineer, saying, "he specified the wrong material. He should have known the proper material and put it on the drawing."

Today we know better. The design engineer has no chance of knowing the limits of expertise in materials and new equipment that all vendors have developed. These kinds of contributions have to be made by the buyer, or the potential earnings stay in the expense column. That's why the difference nowadays between just breaking even and having a good earnings picture often is the quality of the buying.

Examples of money spent for secondary functions are everywhere. In this next example, the name of the order gave the buyer the clue: "buy 5,000 steel counterweights."

The specification for these 40¢ items was as follows: From ⅛ in. steel plate, 1 ft. wide, stamp out flanges which will be 12 in. OD and 10 in. ID. Cut these into 12 segments, each approximately 3 in. long. Drill two ½ in. holes in each for mounting.

The buyer confirmed with the engineer that the sole purpose of the item was for counterbalance. The basic function, then, was to "provide weight."

The same weight of steel obtained from ⅛ in. bar stock would cost between 1¢ and 2¢. Estimating 5¢ for the cutoff operation and punching the holes in the steel pieces, and all the costs for accomplishing the basic function were covered. That left 35¢ each for the secondary function cost; cost which made no contribution to the user's wants and needs, unless the particular shape also brought the user another basic function. It did not. Ultimately, the counterweights were purchased for 4¢ each instead of the 40¢ they had been costing. Contribution to earnings from this one small item alone was $1,600.

One more example and I'm sure you'll get the message. The same buyer referred to last month who contributed $40,000 to profits by changing a transformer reasoned that the spool must accomplish only a secondary function on all transformers, and could be eliminated. This is not true, but he looked at another, quite different one. It measured about 1 in. square by ½ in. long. It was a molded plastic product, with some finish work needed, and called for small holes on the ends for threading in wires. Total cost for the spool was $6,000/year.

Again vendors were asked what they could do. One of them pointed out that after an initial tooling cost of $500, the part could be made for 3¢ each. The result was, after a one time payment of $500, the annual cost for the part became $450 instead of $6,000. Here, although the secondary function could not be eliminated, the cost was made considerably lower.