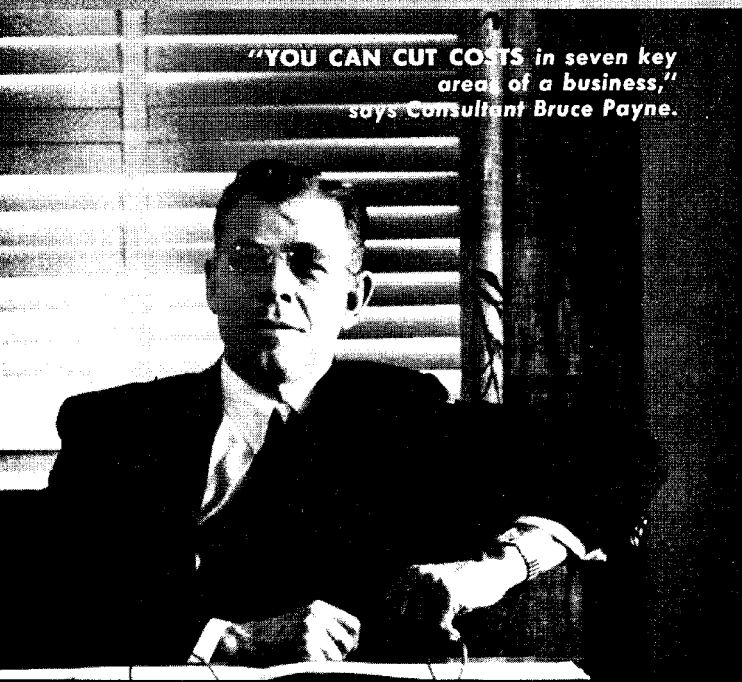


# MANAGEMENT METHODS

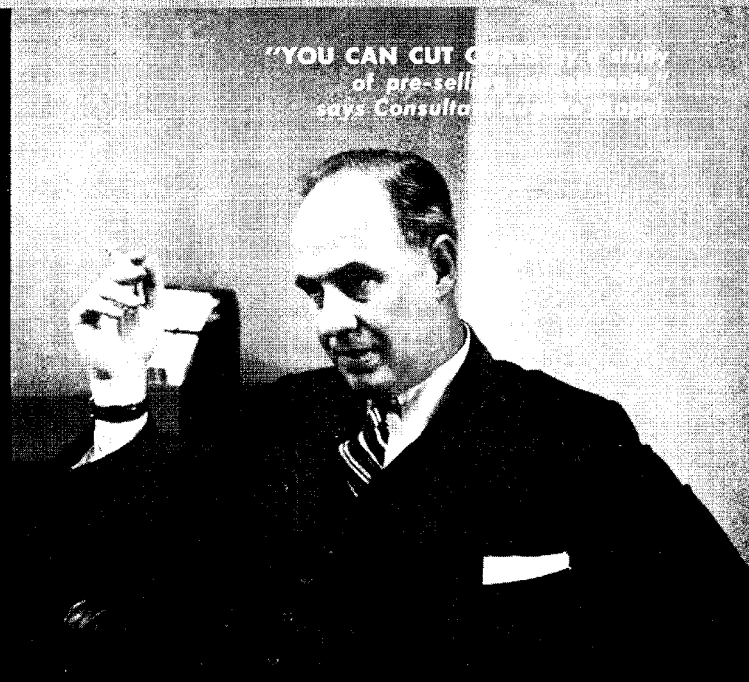
JUNE 1958

PRACTICAL SOLUTIONS TO ADMINISTRATIVE PROBLEMS

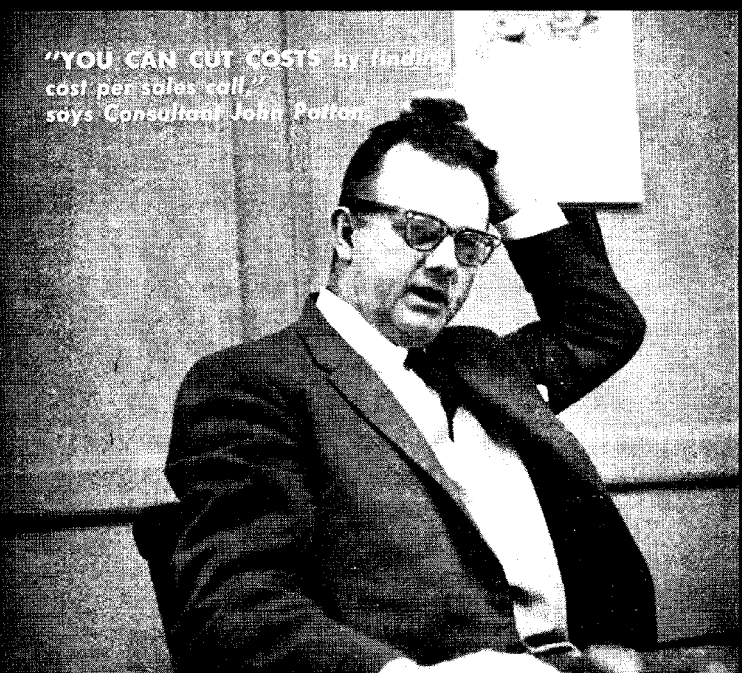
**"YOU CAN CUT COSTS** in seven key areas of a business," says Consultant Bruce Payne.



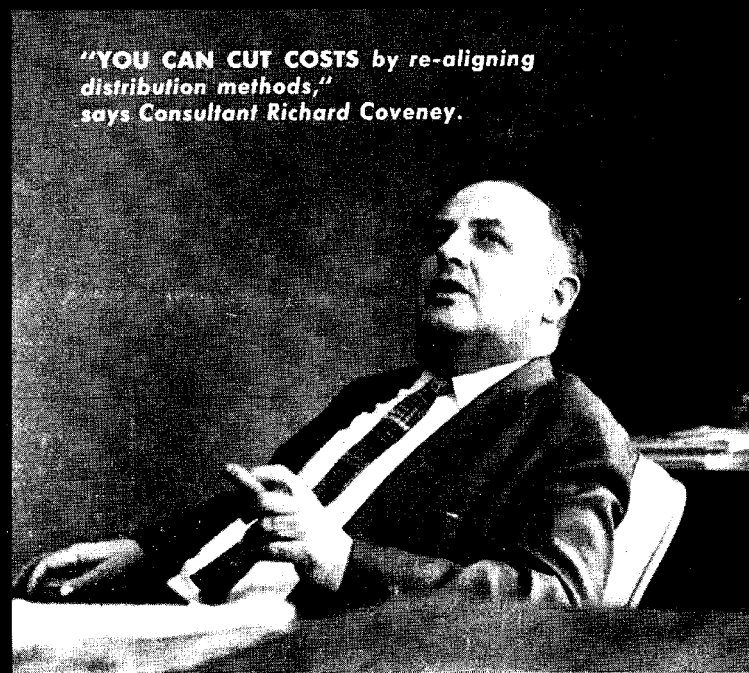
**"YOU CAN CUT COSTS** by a study of pre-selling arrangements," says Consultant George Poppel.



**"YOU CAN CUT COSTS** by finding cost per sales call," says Consultant John Patton.



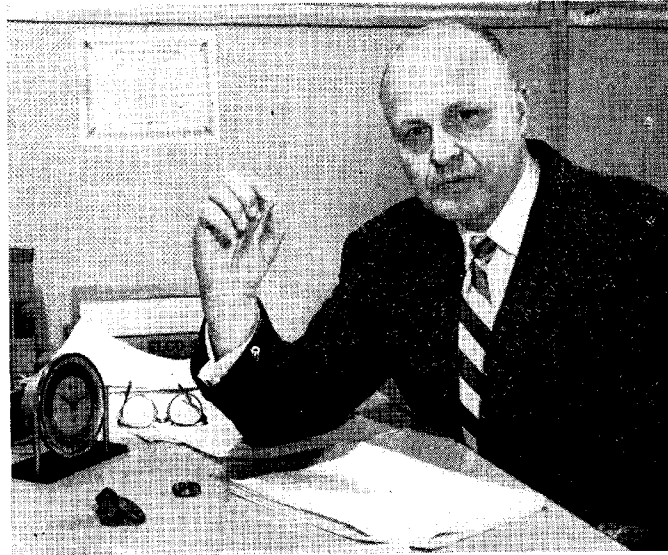
**"YOU CAN CUT COSTS** by re-aligning distribution methods," says Consultant Richard Coveney.



Four top consultants tell you how to cut your costs

You can slash costs by 25% with value analysis

**Looking for  
cost savings?**



## You can slash costs by 25% with value analysis

Take any component you make or buy. Apply value analysis to it and you'll probably reduce its cost by 15% to 25%. Any company can use this promising new scientific method to turn costs into profits. Here a pioneer in value analysis tells you how.

### *An interview with*

#### **Lawrence D. Miles**

Manager of Value Analysis Service  
General Electric Co.  
Schenectady, New York

**Q.** Briefly, Mr. Miles, what is this cost saving method you call value analysis?

**A.** Value analysis is a scientific method of getting the same performance from a product at lower cost—usually vastly lower cost. It is a concentrated effort to improve the value of a product—any product—by seeking out and eliminating unnecessary costs wherever they may exist in the entire cycle of product design and manufacture.

Here's how value analysis works in practice. The value analyst, whoever he may be in a given company, follows a step-by-step procedure to scrutinize every part and every operation in the manufacture of a product. He learns the function each part must perform. He asks such basic questions as: *Does the use of this part make the*

*product work better or sell better? Is its cost proportionate to its usefulness? Does it need all of its features? If we make it, is it cheaper to buy it—or vice versa? If we buy it, could another dependable supplier provide it for less?*

The value specialist talks to scientists and engineers to learn what new, low-cost material can be substituted without sacrificing quality. He enlists the ideas of specialty vendors or gives them suggestions on how to reduce their own production costs. He meets with manufacturing men to investigate new tools and processes, and to make sure that the improvements he is proposing are practicable from a manufacturing standpoint.

**Q.** Well, what does value analysis do that ordinary cost reduction work doesn't do?

## MM ASKS THE EXPERT

Lawrence D. Miles is the country's recognized authority on value analysis. The tiny pin he holds here represents one of his first value analysis projects for General Electric. The part was used in quantity for Telechron clock motors. Despite strong evidence that its unit cost of one-third cent could not be reduced, value analysis brought the price to only one-fifth cent. Annual saving: \$112,000.

Mr. Miles joined GE as an electrical engineer in 1931. Later he transferred to the purchasing department, serving during World War II as purchasing agent for GE's Locke Insulator Division in Baltimore. Recalled to Schenectady following the war, he organized an activity that would bring better value on a wide scale into the use of materials. This

activity, in its formalized form, was called value analysis. With a small group of GE engineers, Mr. Miles has developed methods and techniques of value analysis that have resulted in eliminating millions of dollars of unnecessary cost from the company's products. In recognition of this achievement, GE in 1949 presented him its highest award for extra achievement, the Charles A. Coffin Award, given in memory of GE's first president. Earlier this year, the Navy conferred on Mr. Miles its highest civilian honor, the Distinguished Public Service Award, for his work in assisting the Bureau of Ships to establish its Office of Value Engineering, the functions of which have resulted in sizeable dollar savings for the Navy.

A. Ordinary cost reduction work is essential and should continue as a strong and vital function of a department. But, where cost reduction is a part-time activity of many individuals, the value analysis is an intense, professional approach by good caliber people specially trained in methods that bring a large fund of new information into each decision area. Such information is not normally provided by the cost reduction system.

Value analysis is not a substitute for engineering and manufacturing cost reduction work; rather, it is a supplement to it. After the best job that can be done in design and manufacture, value analysis can usually take out from 15% to 25% of shop costs. Actually, the value specialist aims at removing 50%—and he often succeeds in doing so.

### **Q. Where is value analysis being used and with what results?**

A. We frequently read about companies that are using various parts or all of the value analysis program but offhand I would be unable to list them. The Bureau of Ships has a value program that is producing sizable dollar savings for the Navy, and other defense areas are making considerable progress.

As for results, I can speak factually only of my own company. In General Electric experience has shown that when good engineering, manufacturing and purchasing practices are supplemented by the

specialized techniques developed and taught in a value analysis program, it isn't difficult to remove 25% of the cost of a product which has been refined for a number of years. With new products, involving new technology and rush schedules, it isn't unusual to get a yield of 50% in cost reduction.

### **Q. Will value analysis work in any company?**

A. Yes—its principles are universally applicable. It doesn't matter whether a business is large or small, whether the volume is high or low, whether the product is massive or tiny, shipped in a box or as a liquid—the same thinking identifies unnecessary costs and makes it possible to eliminate them. For instance, the normal approach is to examine any item of expenditure by asking such basic questions as: *What function is provided by this expenditure? To whom do these 10 copies go? Is this close tolerance necessary?* Effective value analysis in any company is clear thinking about the function purchased for each expenditure, and about alternate means for obtaining that function.

### **Q. How can the average company organize a value analysis activity?**

A. First let me say that when management becomes sold on a new idea the usual reaction is: "We want this to be our way of life—we want everyone to use this type of thinking at all times." I

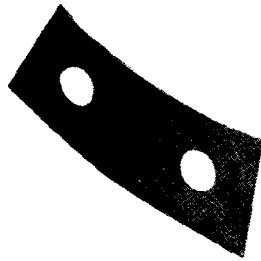
have no quarrel with this wish. The problem is one of implementation. In value analysis we have found that some qualified persons must become especially skillful and must be charged with constantly increasing the understanding of value analysis on the part of all other personnel in the group. Therefore, we firmly believe that it must be the job of one man (or two or three, depending on the size of the organization) to *specialize* in value analysis skills and to teach them through formal and informal means to others in the company.

There are various ways in which value analysis can be organized and at least one of them can be adapted to an existing organizational structure. Actually, value analysis has such a broad scope that there are logical reasons for putting it in any one of several different departments. It might come under purchasing or engineering or manufacturing. The main thing is—put it in a place where it will accomplish the most.

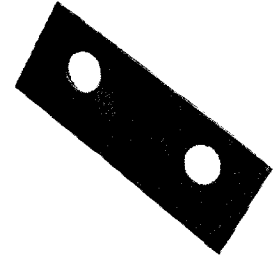
The value specialist should be in a spot where he's not subject to interruptions on day-to-day problems. He can work most effectively if he's loosely attached to one department but with ready access to others. In his work he needs many different sources of information. Each value analysis project is different from the last and the greater the availability of special skills, the more likely it is that a cost saving

## HOW VALUE ANALYSIS SLASHES COSTS

Weights mounted on a rotor ring were curved to match the ring curve. Did it need this feature? No. Using a straight piece, the cost dropped from 40¢ to 4¢.

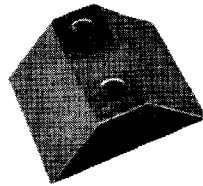


40¢

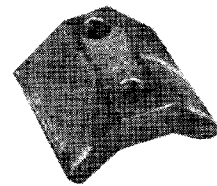


4¢

Field coil supports were machined from stock, but the original design blended nicely into a casting operation. The change resulted in lowering the cost from \$1.72 to 36¢ each.



\$1.72



36¢

This brass plug was originally forged. The cost was slightly over 79½¢ each. After value analysis, the unit was made by a shell molding. Cost per unit using the new method: 26¢.



79½¢

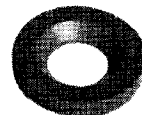


26¢

This insulating washer was made from laminated phenolic resin and fiber. Machined from individual pieces of material, it cost \$1.23. A supplier with specialty equipment now fly-cuts the parts, nesting them on full sheets, at 24¢ each.

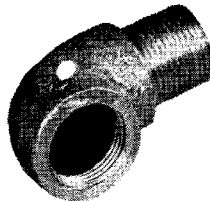


\$1.23

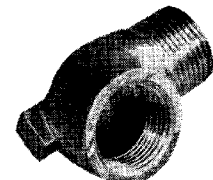


24¢

Standard nipple and elbow required special machining to fit a totally enclosed motor. Casting a special street "L" with a lug eliminated machining and a special assembly jig. The cost dropped from 63¢ to 38¢.



63¢



38¢

An insulator costing \$4.56 was originally porcelain, leaded extra heavy. Now molded from polyester and glass, it is lighter and virtually indestructible. New cost: \$3.25.



\$4.56



\$3.25

will be made. You can't hire analysts with years of specialized training in everything.

A typical value analysis group in a big company might include three or four specialists, with one in charge, and a secretary. But even if there are only two or three people in an entire department, value analysis is still feasible; it's possible to settle for a full-time, or even part-time, specialist.

**Q. What qualifications are required in a value specialist?**

A. I would list the following:

1. Engineering or methods and planning experience or equivalent supported by a general understanding of the properties of materials and their uses.

2. A good creative imagination.

3. Enough initiative, self-organization and self-drive to start and complete his work with little or no supervision.

4. An appreciation of the importance of value.

5. A mature, stable personality, one not easily discouraged.

6. The ability and the desire to work well with others.

7. From three to 30 years of work experience. Value analysis is based upon realism, not theory, and actual experience best qualifies a man to grow in this work.

**Q. What will a value analysis program cost?**

A. The salaries of the personnel must be such that they will attract highly competent men. The value specialists must have available to them directories, indexes and clerical help. Traveling expense must be considered because the essence of value analysis work is gathering essential information from a variety of sources. This means that the value specialist should attend conventions and trade association meetings and should visit other plants, both within and outside his own company.

Considering all this, you have to figure on paying out about three times a man's salary. But the return is high. We have found that a man correctly selected and trained will in general return from \$10 to \$15 for each dollar of his cost.

**"With value analysis, it isn't difficult to remove 25% of the cost of a product—even one which has been refined for a number of years."**

**MILES**

**Q. In a small company can value analysis be a part-time job?**

A. If no other arrangement can be made, yes. Some value analysis activity is better than none at all. The difficulty is this: When a man has two jobs, one of which is hourly-demanding and generates constant pressures, while the other requires thoughtful planning and creative study but no immediate deadline—it's easy to see which one gets the attention. The other job should be of the same nature, or safeguards should be set for value analysis work.

As a matter of fact, because a value specialist is undertaking to teach people a new philosophy, he is likely to be in a "belittled" position—and this condition can become a destroyer to anyone. In order to sustain the enthusiasm and

confidence of good men, we like to have two or three in a group, or to arrange for periodic consultations with creative men in other functions.

**Q. How will value analysis affect others in the organization?**

A. Value analysis relationships carelessly handled can be irritating at every contact. The results of evaluation are constantly proving that there is a better way of doing things today than yesterday, and yet it is human nature to defend "the way we've always done it."

However, a good value specialist is skilled in dealing with people harmoniously, and he isn't easily discouraged. Properly handled, value analysis will receive enthusiasm and support from the people who are most perceptive, crea-



Training seminars on value analysis are held throughout GE. Engineering, manufacturing and purchasing men team up to work on actual projects. This group analyzed a watt-hour meter (that had already been carefully engineered), and found ways to save a potential \$296,210 annually.

**"We have found that a value analyst correctly selected and trained will in general return from \$10 to \$15 for each dollar of his cost."**

**MILES**



Million dollar annual savings are represented by the "before and after" examples of value analysis shown on the board. They represent only a fraction of GE's savings through its value analysis program.

tive and capable. This group comprises about 25% of the average organization. Another 25% will feel some degree of irritation against value analysis, while the remaining 50% will be unaffected emotionally.

It must be clearly understood by everyone in the organization that the value specialist acts only in an advisory capacity. In no case does he make decisions with respect to particular products or processes. His job is to supply information that will lead to more profitable decisions on the part of those responsible for making them. A value specialist must never "claim credit." This is the prerogative of the buyer or the methods engineer or the design engineer who reviews

the evaluation results, does the testing, and makes the decision.

**Q. In your estimation, what's ahead for value analysis, Mr. Miles?**

A. The next step is value *control*. Consider the parallel field of quality control, where it was first necessary through quality analysis to develop a body of information, techniques and skills. Thereafter, using the results of quality analysis, it became practical to provide a system of quality control.

So it is with value control. Through several years of intense analysis and study—learning how value is measured, how it is secured, how it is lost, how it is increased or decreased—a system of control becomes practical. Such a

system includes three phases:

1. In preparation for specific problems, provide engineering and drafting people with specific information establishing the value of components, parts and functions as general reference data.

2. Establish the same information for specific parts or components or functions for immediate use on the design project at hand.

3. Maintain a continuing evaluation service for existing products that periodically reviews these values and suggests specific avenues of profitable redesign.

Some day, managers will have the tools to control the value of products in much the same way that they now control quality, performance, or production. m/m