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Cost-Cutting that Works

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Cost reduction is the order of the day in many businesses today—but unplanned and reckless cost-cutting can drive expenses higher than ever. Here's a plea for intelligent and well-thought-out-

COST-CUTTING THAT WORKS

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THE PROBLEMS facing today's decision maker are more complex and of broader scope than ever before. Furthermore, the economy has experienced some rather severe shocks during the past year and a half. Executives are faced with ever increasing costs and slumping profits. They are searching for more effective ways to cope with mounting financial problems. As one remedy, many executives, many companies, have instituted cost reduction programs.

How does one evaluate the effectiveness of cost reduction programs? Have the intended savings actually been achieved, or are the projected savings lost in the shuffle of frantic change?

If, in fact, a cost reduction program is really beneficial and results in savings, how can we quantify, or measure, such savings—especially since the benefits can be not only economic but also psychological and sociological?

In this article, we shall examine these questions, and discuss how one can evaluate the effectiveness of cost reduction programs.

This past winter, we were all offered, via television, a smorgasbord of professional football games. For each contest, each team developed a predetermined "game plan"—a plan for scoring more than its opponent. But, alas, all too often, finding themselves seriously behind and trying desperately to catch up, many teams abandoned their plans and went to the long pass. Many such passes, anticipated by the defense, became desperation throws and proved ineffective (i.e., incomplete) or costly (e.g., interceptions).

So it is with cost reduction programs. When such programs are launched *without* a sound plan, or when prior plans are set aside, cost reduction programs usually become ineffective, often costly, desperation moves.

Cost-cutting procedures must be

part of a well-conceived, well-executed plan. Further, such planning must consider not only likely or desired conditions—but must also include plans for emergency conditions, such as those which create the very need for cost-cutting.

To illustrate—for many years, the frozen orange concentrate industry planned only for processing a *full* crop since, it was reasoned, the industry could not predict the specific timing and severity of crop-damaging freezing weather. It waited until a freeze occurred; then it obtained revised estimates of crop yield and developed new plans for that season—but usually only after a substantial lapse of time.

To achieve a sound plan—including contingency measures—we need to be able to answer a wide variety of 'what if?' questions; that is, questions that ask what would happen if certain contingencies were to arise. Such questions are best answered—and corresponding plans best developed—by means of simulation models and other mathematical representations of the system.

A plan for all seasons

Now, however, at least one major processor plans for the full spectrum of possible crop yields—and develops corresponding plans for each level of yield. Then, if and when a freeze occurs, it is fairly easy to get a revised estimate of the yield and quickly shift into the correct, previously designed, revised plan. Appropriate reductions in labor force, in materials, in transportation facilities, and the like are then all smoothly carried out according to the predetermined plan.

And, so, a sound, well-conceived, well-executed plan is not only highly desirable for cost reductions—it is virtually essential if such cost reductions are to be effective.

Such a plan requires that the objectives and goals of the organization be spelled out in an operationally meaningful sense; that corresponding measures of effectiveness are specified; that appropriate standards, targets, or budgets exist; and that evaluation procedures are established *in advance*.

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Thus, through mathematical models, cost reduction measures—such as cutting back on inventories—can be carried out according to sound plan rather than on an indiscriminate, or arbitrary, basis. Otherwise, inventories will undoubtedly be out of balance, customer service will be far worse than anticipated, expediting of rush orders will increase significantly, production costs will increase substantially, and, in brief, hoped-for cost reductions will end up as substantial cost increases.

Stated another way, through mathematical models, we can determine how best to achieve the desired end results.

Thus, for example, for one manufacturer, the usual inventory study failed to achieve much. However, with the help of a consultant, he then found that, by offering discounts based on the amount of delivery time given by the customer (instead of the usual quantity discounts), the resulting orders permitted substantial manufacturing economies and also allowed inventories to be reduced by 55 per cent without any reduction in customer service.

More generally, through mathematical models which consider many factors and interactions throughout the system, we can determine unprofitable or low-margin products, customers, territories, offices, warehouses, production lines, distribution methods, and so forth. Thus, once again, conditions requiring cost reductions can be anticipated and, if and when these conditions are encountered, the ap-

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propriate cost reductions can be carried out in a sound and effective manner.

As an illustration, consider a company which sought to reduce clearly excessive inventories. For this company, only 15 per cent of the products were directly profitable and accounted for 86 per cent of total sales. On the other hand, 35 per cent of the products accounted for only 0.8 per cent of total sales. An apparent inventory control, or inventory reduction, problem was really a problem of appropriately reducing the product line. In fact, the initial reduction of the product line by only 10 per cent resulted in benefits approximately four times greater than would have been expected from a near-perfect inventory control system. Also, substantial reductions in inventory resulted automatically.

The example just cited also shows that, in evaluating the effectiveness of cost reduction programs, one must consider lost opportunities. Thus, a direct attack on inventories would have meant the loss of the far greater benefits achieved through reducing the product line.

Of course, while espousing the use of mathematical models, it should be emphasized that unless such models result in plans, decision rules, and procedures (1) which are implemented, (2) which really work, and (3) which are cost-effective, our efforts are *not* successful.

Furthermore, the plans and mathematical models used to develop cost reduction programs can also be used to evaluate the effectiveness of these programs. In fact, such an evaluation is an essential part of the analysis—in which the various alternatives are evaluated and the best ones are selected for implementation.

In evaluating the effectiveness of cost reduction programs, one must also consider the long-run implications of emergency measures, for example, those taken during a business downturn. Otherwise, short-run gains may very well cost much more in the long run.

For example, as noted earlier, short-term inventory reductions can very easily result in out-of-balance stocks, greatly reduced customer service, increased expediting, much higher production costs, and, eventually, lost customer sales.

To cite another illustration, a company instituted emergency cost reductions so indiscriminately as to result in severe negative employee reaction, production slowdowns, and bitter negotiations with respect to the next union contract. Temporary savings were wiped out and significant added costs were incurred.

Or, consider what can be called the "airline syndrome." Substantial losses have been accompanied by reductions in service (a type of cost reduction) and by round after round of rate increases . . . thus leading to less-than-anticipated passenger mileage and still further losses . . . and so on.

In all cost reduction programs, one must also consider— and evaluate—the effect of such programs on the rest of the organization. Otherwise, gains will be localized, often at the disproportionate expense of other parts of the organization. Some illustrations—for example, inventory reduction—have already been cited. Let us cite one other example here.

A metal producer noted that its interplant shipments cost $12 million per year. Quoting the old saw —"If we can reduce these costs by just 10 per cent, we will save $1,200,000 per year,"—they proceeded to apply the mathematical technique of linear programing to minimize interplant transportation costs. To their chagrin, the indicated savings were only $67,000 per year. A consultant was then called in—and he pointed out that they were attempting to solve much too narrow a problem. In fact, the solution yielding the $67,000 per year savings in transportation costs would have resulted in added production costs of $4,000,000 per year. It might also be noted that by minimizing *total* relevant costs —including those of materials and

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production as well as transportation —an $8 million annual saving was then achieved.

Incidentally, one common fallacy is assuming that cost reductions will continue ad infinitum. This, of course, is unwarranted, even if one compromises by calculating the present value of such assumed lifelong savings.

Up to now, we have been discussing cost reduction programs. Actually, in most cases, we really should be looking at profit improvement. This is certainly true for most computer applications and also for most so-called management information systems. Too many have been directed toward the almost universal myth of cost reduction, instead of to profit improvement!

Too many cost reduction programs have been devoted to doing something more efficiently rather than more effectively. Too many programs have been devoted to discovering how to do it cheaper—rather than to asking, "Why do it?" and "What *should* we do?" Thus, a cost reduction approach can, in effect, result in our asking, "How do we make a cheaper buggy whip?" rather than asking, for example, "How can we better serve the transportation market?"

Returning to our inventory examples—perhaps, instead of reducing inventories, we should be looking at ways to effectively balance, and perhaps even increase, inventories, so as to provide improvements in manufacturing costs, better customer service, improved deliveries, less expediting, less crash procurement of materials, and so forth . . . thus resulting in more business and better profits. Which approach we take depends, of course, on corporate objectives—but the proper approach can be determined and taken in a sound manner.

More specifically, consider a Midwestern machine tool manufacturer operating a job shop that produced almost entirely to customer order. He switched from producing parts in job lot quantities to producing economic order quantities of parts based on a forecast of customer demand for each type of machine. As a result, inventories increased, as did the amount of scrap or obsolete inventory.

Is this bad?

No; and that's the point. Overall, direct manufacturing costs were reduced in excess of 20 per cent. In addition, delivery lead times were greatly reduced, customer satisfaction was increased, and many more orders were received—resulting in substantially increased profits!

Summary

In summary, cost reduction programs and, often more appropriately, profit improvement programs can best be designed through the development of sound, overall plans ——where these plans include provisions and procedures for anticipating and responding to emergency conditions. Without such plans, cost reduction programs will generally be ineffective and often damaging.

Such plans can be developed through the use of mathematical models and simulation models designed to answer a wide variety of "what if?"-type questions.

Such plans and models incorporate and respond to operationally meaningful definitions of corporate objectives and goals; corresponding measures of effectiveness; and appropriate standards, targets, and budgets. Thus, evaluation procedures can be (and must be) established in advance. Consequently, the very same plans and models used to *develop* cost reduction programs can also be used to *evaluate* the effectiveness of these programs.

As also noted, in evaluating the effectiveness of cost reduction programs, one should:

1. Consider the long-run implications of emergency measures,
2. Consider the effect of any cost reduction on the rest of the organization,
3. Consider lost opportunities, and, finally, one must always
4. Compare the benefits of cost reduction with those to be achieved through profit improvement.

As noted at the beginning, the problems (and opportunities) facing today's decision maker are more complex and broader in scope than ever before. Managers are faced with endeavoring to achieve simultaneously a wide variety of objectives, many of which are in conflict. Resources are limited and must be used effectively. Uncertainties are ever-present—with respect to the market, economic conditions, competition, costs, etc. There is always a risk involved. (Note that we all talk about taking "calculated risks," but few of us ever really calculate them. The risks must be calculated—and *can* be calculated through quantitative methods.)

Hence, today's decision maker is engaged in what might be called a gigantic "corporate crapshoot." However, while the rules are usually well-known (e.g., in dice—when to pay and when to collect after a roll of "7"), very few executives really understand the odds, and the tactics and the strategies that should be used.

So it is with cost reduction programs. Many executives know the "rules," but all too few understand the odds and have insight into the best tactics and strategies. Application of mathematical models (and quantitative methods) is one important key to providing this understanding . . . and to providing sound, effective cost reduction and profit improvement programs.

The sophisticated executive will use planning and mathematical models to supplement and augment that which has made him a manager—his knowledge; his skills; his perceptiveness; and his feel for opportunities, situations, people, and timing.

As a result, far more decisions—far more cost reductions and profit improvements—will be made in an atmosphere of informed judgment, rather than on a crash basis in an atmosphere of crisis.