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Joel L. Roth

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Too many companies are satisfied with cost control, this author suggests, and neglect true cost reduction techniques. Yet this is the area where really significant savings can occur —

COST REDUCTION BEGINS... WHERE COST CONTROL ENDS

by Joel L. Roth

Industrial Distributors of America, Inc.

FOR MANY YEARS, industrial cost reduction efforts were limited to cyclical efforts by individual companies; generally in a crash, one-shot program that was later abandoned as the crisis passed or the need for publicity disappeared.

But in the last few years there has been a startling transition. Not only companies, but entire domestic industries have become noncompetitive from a cost point of view. Two obvious examples in recent years were consumer electronics and textiles. And, in fact, the problem of cost inefficiency or cost noncompetitiveness has gone beyond the cyclical or occasional stage. It's become a permanent and growing trend. In fact, we're approaching the point where entire nations have become noncompetitive cost-wise. Again, a rather obvious example of this is what has happened in Britain in perhaps the last 10 years or so.

And, in fact, this condition of cost noncompetitiveness has led to many recent economic problems and policies in the U.S., e.g. monetary revaluation, wage-price controls, volatile capital flows, and

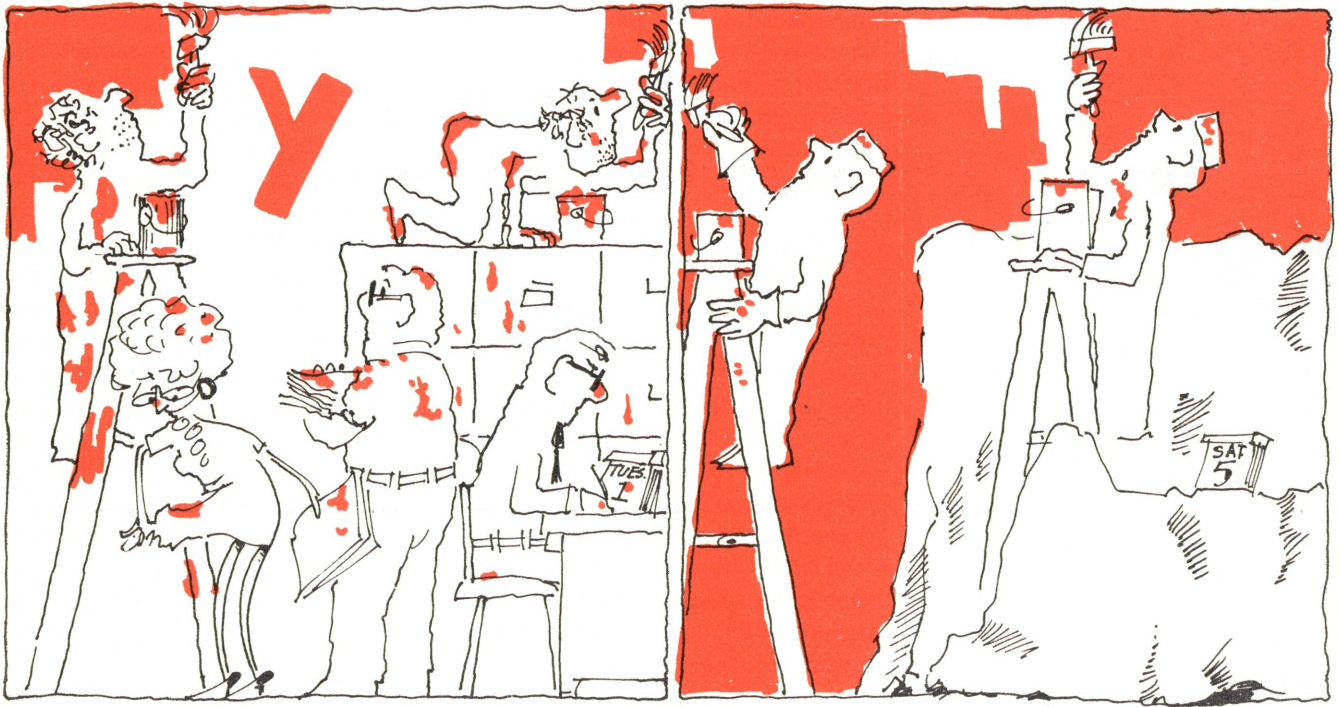
cost-push inflation. So we're talking about more than a one-industry type of problem or a one-company type of program.

Most sizable companies today probably devote considerable time and effort to cost accounting and cost control. But, unfortunately, in today's business climate, the ability to reduce costs and not just control them has become absolutely essential in order to prolong product life and to maintain existing markets as well as to achieve new ones. For example, without the element of cost reduction, there probably would be no color TV market as we know it today. And the initial success of the Ford automobile undoubtedly resulted from Henry Ford's ability to bring unit costs down to a level affordable by a large number of families. Similarly, convenience alone would not have caused housewives in recent years to switch from cloth napkins and cloth towels to disposable paper ones, unless the cost had been reduced to make paper an attractive alternative. (It is noteworthy that recently escalating costs of such

products may eventually reverse the trend for the same reasons.)

In order to clearly distinguish between the two terms—cost control and cost reduction—I'd like to redefine them. In classic terms, "control," according to the standard textbook definition, is the measurement and correction of the performance of subordinates to assure the accomplishment of your organization's or department's directives and plans. This control implies the existence of goals and plans. In the case of "cost control," the plans are the operating budgets or cost standards. The measurement starts with the accumulation of cost data through timekeeping records, vouchers, and so on. The measurement also includes the comparison of operating costs against budget or, in other words, the generation of variance reports. That is the classic control definition that most of you are quite familiar with.

Ideally control is forward looking. And the best kind of managerial control anticipates deviations before they occur. If that is not possible, the next best method is to detect variations as they occur and



One obvious cost reduction: A maintenance department crew of nine painters was replaced by an outside contractor's team and two men. Overall costs were reduced sharply, and the new crew would work evenings and weekends, so disturbance was minimized.

take immediate corrective action.

Cost control is concerned with reducing costs to the level of established standards. Dynamic cost reduction is concerned with lowering established cost standards. It challenges all the standards and endeavors to reduce them continuously.

Secondly, the standards in the case of cost control are targets to shoot at. But in cost reduction the standards are suspect. Cost control emphasizes the past and present, but cost reduction emphasizes the present and the future. We usually limit cost control efforts to items which have standards or budgets. But in cost reduction we apply our efforts to every section of the business, whether or not standards exist.

In cost control we seek to attain the lowest possible cost under existing conditions. But in cost reduction we recognize no condition as permanent, since a change in conditions can result in a lower cost. (For instance, coal is once again becoming cost-competitive with oil and natural gas.)

In both cases, in cost control and in cost reduction, we have a state of mind. In this respect they're similar, although we're talking about a different attitude. And finally, cost control is never finished. It is a continuing function; however, cost reduction can be considered as complete for the time being in a particular area because it's essentially a project-type approach.

These, then, are some of the common distinctions between cost control and cost reductions.

Example of cost-reduction

A hypothetical company engineer uses only MTA (motion time analysis) to set a standard for an eyelet press operation of three hours per thousand pieces at a base wage at that time of \$2.50 per hour. Under the cost control approach, as long as the direct labor costs for this particular operation, do not exceed \$7.50 per thousand pieces, the operation is considered to be under satisfactory control. Once the engineer takes methods into consideration to have a cost reduc-

tion approach, on the other hand, he might suggest a change in the machine speed, manning, tooling, tolerances, or materials, to permit the standard to be reduced to 2½ hours per thousand pieces or \$6.25 per thousand. We now have a lower standard and we are apt to stop there unless the time study expert is also trained in methods analysis. As long as only time study is used the cost accounting department, having adjusted the standard cost sheets, will remain quite satisfied as long as the direct labor costs of the operation do not exceed \$6.25 per thousand pieces.

Within this traditional cost control framework we're content to aim at this existing standard based on the past and present production method, namely the eyelet press. But in applying the cost reduction approach, we find that by putting the part on an automatic screw machine, we can reduce our direct labor cost to \$4.75 per thousand. Again, the cost accounting department changes its standard cost sheets. However, those cost reducers never quit, and they're

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back for another look this year. Now they find that the $\pm .0005$ in. tolerance on this part is over-designed. It's tighter than required for product reliability. So we change the specs to $\pm .005$ in. and direct labor cost becomes \$4.00 per thousand.

Never-ending search

Going further still, the cost reducers look for another lower cost solution. They find that the part can be made of plastic and injection molded in the company's plastics department. This will definitely lower material costs and may also lower labor costs. Let's suppose at this point that somebody fails to notify the cost accounting department—which happens. They are not aware of the change in method, and their standard cost remains at the old figure. Every week the plant variance report shows a favorable (or plus) variance against the recorded standard. And manufacturing supervision is happy. But the cost reduction team takes another look at the part, and finds it can be purchased from an outside supplier at a delivered price of \$2.00 per thousand. Now, we could continue this example ad infinitum (and possibly design the part out of existence), but the point is already evident. From a cost control viewpoint, we would have been satisfied with a direct labor cost of \$7.50 per thousand pieces. But the cost reduction approach did not accept that standard. And the cost was materially reduced.

It's ironic that management has devoted considerable attention and resources to the problem of cost control. Such common corporate activities as general accounting, budgeting, cost accounting, industrial engineering, and even data processing to some extent, have been devoted to cost control methods and techniques. But in many organizations, comparatively little effort has been expended on cost reduction, particularly on a continuing full-time basis. Yet as we have illustrated, even the best cost

accounting and cost control system can do no more than maintain the status quo. In today's economy, the status quo is just not enough.

In other words, a company with good cost control is not necessarily cost efficient. Starting with that premise, how do you determine where to concentrate your cost reduction efforts? Let's assume you have a given level of financing requirement—\$2 million. Let's suppose, however, that you can find a way to squeeze some excess cash out of your operations. Even though the interest rate at this given date is a constant amount in the marketplace, you can reduce your interest costs by reducing your financing requirement.

Identify essential areas

I have seen cost reduction successfully achieved in virtually every phase of business—from taxes to direct labor—from selling expenses to utility costs. However, the amount of cost reduction that can be achieved is related to the characteristics of the given cost, and to the amount of management effort devoted. Accordingly, a point of diminishing returns can be reached where the cost of additional effort outweighs the potential savings. It's obviously unwise to concentrate on a relatively minor cost element while excessive major costs go unchecked. Therefore, it becomes essential to identify those areas where cost reduction efforts should be concentrated.

Now I'm going to discuss briefly a dozen cost techniques that I



JOEL L. ROTH is president and chief executive officer of Industrial Distributors of America, Inc., Atlanta, Ga. Before joining the company, he was a vice president of Gulf & Western Industries and a manager with Ernst & Ernst. He received his

bachelor of science in chemical engineering from Case Institute of Technology and his master of business administration from New York University. He is a member of several professional societies including the National Society of Professional Engineers and the Association for Corporate Growth.

found to be quite useful over the years. This is not to say that these are the only cost reduction techniques, or even necessarily the best ones.

Spotting cost reductions

Major versus minor costs—Any business organization, whether it be manufacturing, extractive, financial, or commercial has a distinctive cost structure or cost profile. Such a cost profile commonly expresses every cost element as a percentage of sales dollars or cost of sales. It's obvious that where we have labor and raw material costs aggregating two-thirds of the total factory cost, it's rather fruitless to concentrate efforts—let's say on insurance, which is 0.1 per cent of factory cost. The emphasis should logically be on manpower and raw materials. Many companies spend a lot of time and effort on minor items while excluding major cost areas.

Pareto's principle—The second thing I find useful to keep in mind is the vital few versus the trivial many, more formally known as Pareto's Principle of Maldistribution, but which we commonly call the 80:20 rule. The economist Pareto observed at one point that wealth is distributed through society in such a way that a small percentage of the population controls a very large proportion of wealth. This principle can also be applied to a business organization in many different ways. For example, a small percentage of products accounts for a large percentage of revenues. A small number of customers account for a large percentage of sales. The same concept can be extended into virtually every department or operation. For example, most substandard work can be attributed to a few operators, or a few machines. Most equipment maintenance can be attributed to a few machines. Most purchasing dollars can be attributed to a few materials, and so on.

Controllable versus non-controllable costs—At any given level of

an organization the manager has control over certain costs, but no influence at all over other costs. Accordingly, he has to learn to distinguish the controllable costs and concentrate on reducing those, rather than wasting his efforts on cost factors that he cannot influence.

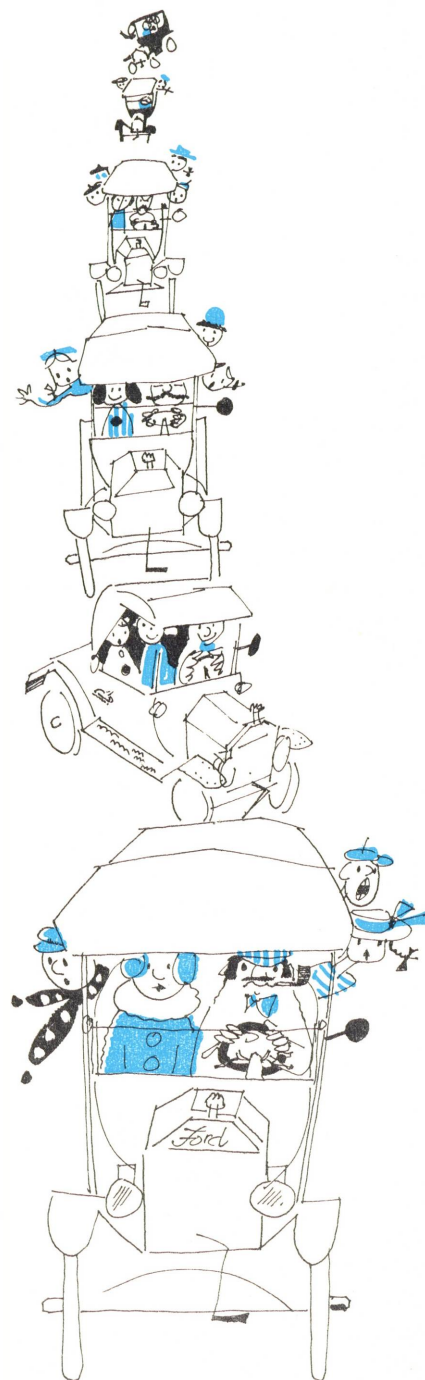
I'm not suggesting that some costs are non-controllable, and, therefore, must be tolerated at their existing level. *It is axiomatic that every single cost element is controllable at some level of the organization.* This is always true over a sufficient time span, but not always true for the near term.

If the cost is not controllable by a manager at one level, then it's controllable by someone up the line. For example, a foreman can control and reduce downtime in his department, but he has virtually no influence over personal property taxes. But the controller or the treasurer has substantial impact over personal property taxes, but probably very little impact, if any, on building occupancy expense. The president can make an impact on building occupancy expense by deciding to relocate the plant to a lower cost area, or through some other similar management decision.

Every cost is controllable at some level of the organization, and it becomes important to direct management's attention at that level to the costs that it can control.

Fixed versus variable costs—The fourth technique is recognition of cost behavior—fixed versus variable expenses. Managers generally think of variable expenses as controllable and fixed expenses as non-controllable, and, therefore, they think of variable expenses as susceptible to cost reduction and fixed expenses as relatively irreducible. Actually, expenses in the fixed categories which generally are regarded as not susceptible to cost reduction, can, in fact, be made to behave like variable expenses from the viewpoint of cost reduction.

Let's take three examples of expenses that you would normally



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Even in office payroll, a fixed cost can be reduced to a variable one . . .

consider fixed, and see how they can be converted into controllable, reducible costs. Building depreciation is generally included in factory overhead, and regarded as fixed at a given location. However, this expense can be regarded as reducible with geography. The cost or occupancy cost for a given size building can vary by as much as 50 per cent between different locations.

Take a second illustration: maintenance labor. The maintenance department payroll for craftsmen such as millwrights, tinsmiths, riggers, plumbers, and electricians generally bears little relationship to production volume, yet these costs can be both controlled and reduced. For example, one of our plant managers complained bitterly about the high cost and low productivity of a nine-man painting group in his maintenance department. We found a reliable industrial contractor who was hired only when needed, reducing our painting crew to two men. Not only did we achieve substantial direct economies, but the painting contractor was willing to work on evenings and weekends, thereby removing any disruption from our production and office operations. Therefore, we took a fixed cost, the painting crew, and converted it to a variable expense.

A third example is general office clerical payroll. Office payroll varies even less in relation to production volume than does the maintenance payroll. Yet here again, a fixed cost can be changed to a reducible cost. For instance, in working with one of the insurance companies we instituted an "apron shift" that allowed local housewives to work at clerical jobs on an hourly basis. These women would arrive at 10 or 11 o'clock in the morning and go home at 3 or 4 o'clock in the afternoon, thereby

allowing them to meet their children after school. Not only did the office payroll decline while volume was increasing, but this approach also alleviated problems of a tight labor supply for full-time workers. And, moreover, we found that these hourly workers, because they did work shorter hours, were substantially more productive during their shorter working day; again, a fixed expense was converted to a variable one.

Unit costs—The fifth technique involves unit costs, a phrase you've heard many times over the years. But it's one of the most useful indicators of cost reduction potential. Bear in mind, that the unit fixed cost of a product, that is the fixed portion of the unit cost, is variable inversely with volume. And the variable unit cost is fixed with volume.

The fixed costs, since they are fixed, will vary per unit, depending on the level of volume. The variable costs are constant per unit, by definition. What does that mean? Certainly it means that a very sound cost reduction result is obtained when we can achieve greater volume from an existing production unit, whether it be man, machine, or building, or convert unused productive resources to usable ones. Remember, as production goes up, the fixed unit cost will decline and the variable unit cost will remain the same. Consequently, the total unit cost will also decline.

Let me illustrate it with an example we encountered a few years ago in a gray iron foundry, which had a bottleneck in the molding operations due to a lack of both manpower and space. It's very difficult to get mold-making labor, or any labor, to work in a foundry today. Through an industrial engineering study of the flow and layout of the foundry, we were able

to recover about 15 per cent of the foundry area by storing flasks, molding boards, and other materials outside the building, and by changing pattern storage practices. Through an analysis of product and customer mix, we found that small, intricate castings with a lot of core work took almost exactly twice as much labor as large, simple castings with very little core work. Therefore, by reducing the amount of core work—the number of small, intricate castings—we found that we could convert a great deal of core-making labor and space to mold making. In doing so we freed substantial manpower for mold making, and accomplished two things simultaneously. First, we increased productivity, and, thereby, lowered our fixed unit costs of building and equipment, because we had more revenue going through the building by a factor of almost 2:1. And, secondly, we shifted our product mix toward higher margin business.

Static standards—The sixth technique involves static standards in budgets. A study of existing budgeted standard costs would generally reveal that there are some figures that haven't changed for years, or have changed very little. This often suggests that a particular cost or operation has not been closely scrutinized for some time and, perhaps, should be reevaluated. In one plant not long ago, we found that a material standard on a rather volatile-priced material, had not been changed for five years. Obviously, someone wasn't looking at the standards for that operation.

Budget variance — The seventh point concerns excessive or continuing variances. Variances from standard, as shown in periodic variance reports or operating statements, can be significant indicators of cost reduction potential. For example, a continuing negative labor variance,

... we introduced an "apron shift" that worked from 10 or 11 o'clock until mid-afternoon.

if analyzed properly, can be traced, perhaps, to excessive overtime. This, in turn, may lead to the installation of new equipment, addition of more manpower, or a change in production scheduling techniques. It should be noted that a positive variance, or a gain variance, is just as important to analyze as a negative variance. If an operating manager has found a methods improvement, for example, and lowered his cost, that change may be applicable elsewhere in the company.

Profitability analysis—Eighth is what I call a "profitability measure" of each business segment. It's continually amazing to me how few business managers demand or receive a regular income statement or return on investment evaluation of the various key components of their business. For example, how many sales vice presidents are there who get a gross income statement by branch, by distributors, by salesman, by product line, by territory, or by customer. My experience is that few get this, or request it. How many plant managers have a balance sheet, or a return-on-investment measure of the major product lines going through their plant where they produce a num-

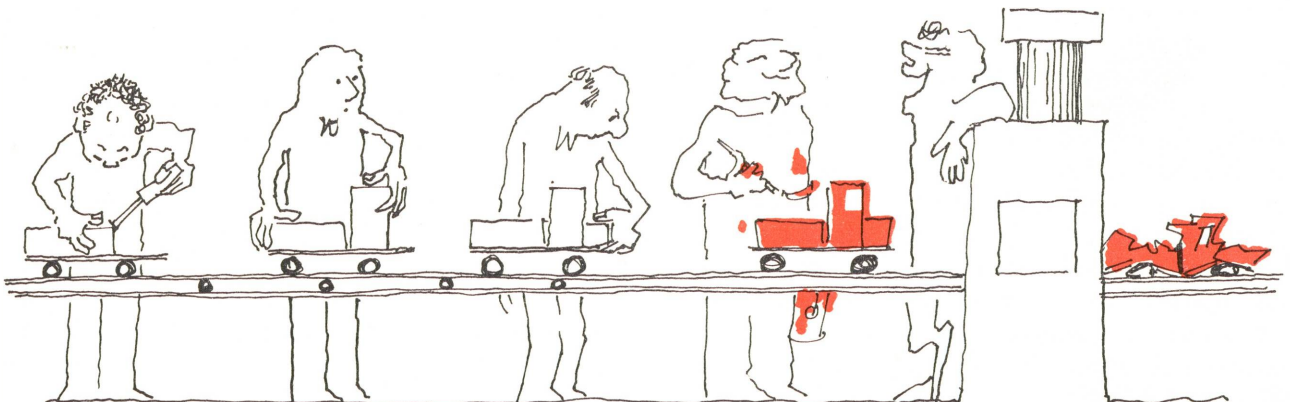
ber of different product lines in the same plant? Again, an amazingly large number do not get or request this kind of information.

Illustrative of this is a forgings manufacturer who produced both standard or stock pipe fittings and non-stock or special pipe fittings. Both product lines were produced in the same plant on essentially the same equipment. We conducted a return-on-investment analysis of the two lines and found that the stock items accounted for over two-thirds of the net investment in that plant, including working capital, partly due to heavy, slow-moving inventories, but less than one-third of the pre-tax income. Conversely, the special items provided more than twice the profit on less than one-half the investment.

In another company that comes to mind, there were five unrelated product lines aggregating \$10,000,000 in annual sales. Although the company did not maintain internal product income statements, an estimate of product line performance was made. We found that one of the five lines had lost an estimated \$3,500,000 over the preceding eight years. It also represented a disproportionately high amount of total investment. It seems to me that if

you want to reduce costs, it's pretty important to know that. And, again, it's amazing how many managers don't have access to such information about their operations.

Make-versus-buy—Although this technique has been very well publicized, many companies just do not avail themselves of it. Too often management attempts to produce everything possible "in-house" in the belief that such a practice will increase burden absorption, when, in fact, it may be more economical to reduce the burden than to absorb it. I've always felt that putting maximum volume through a plant, for example, to maximize burden absorption is a very defensive approach to business. It's really going about the problem backwards. Why not reduce the burden, instead of trying to absorb it. I can think of a manufacturer, for example, of electro-mechanical products who maintained a sizable production machine shop and other fabricating operations, even though his shop operated on an average of about 15 per cent of capacity. He also maintained a sizable parts inventory since the cost of a setup, in some cases, justified three years of production. We found that by having the engineers



Most substandard work can be attributed to a few operators or a few machines.

Intra-company pricing can transfer loss variances from plants to warehouses

do minor redesign of many of their components to standard industry practices, many of these parts could be purchased directly from suppliers and distributors at lower cost. As a result, the machine shop and the fabricating departments were virtually dismantled, and the parts inventories were cut sharply. Not only were costs lowered, but management is now concentrating on what its business really is—electrical products design, assembly, and marketing—and not trying to run a metal fabricating operation.

Standardization—As in make-versus-buy decisions, the technique of standardization is well-known but not so often practiced. Any company that has numerous lengthy bills of material, for example, is probably a candidate for standardization analysis. One example, perhaps the most dramatic one I can think of on this score, is a machine tool manufacturer whose models were designed from the ground up. This created tremendous burdens in design engineering, in delivery times, in manufacturing setups, in inventory levels, in parts replacement, and so on down the line. But a switch to modular or building-block design concepts, using standardized components and sub-assemblies, obtained dramatic reductions in costs and improvements in service, which was equally important in this case.

In a different framework, a large commercial and consumer finance company negotiated separate automobile purchase loans every time a customer walked into an office. They developed unique contract terms and conditions on each occasion, eventually leading to 84,000 different automobile financing contracts. An analysis of these contracts suggested that every one of them could be handled within one of 12 standard contract conditions or terms. The result is a fantastic potential reduction in paperwork

processing, in clerical labor, and in data processing costs.

Intra-company pricing—The eleventh technique relates to transfer, or intra-company, pricing, otherwise known as “spare the sacred cow.” Numerous companies, in an attempt to use the profit center concept, mislead or distort their internal operating results. Transfer pricing is often based on arbitrary or artificial management policies, resulting in depressed results for efficient profit centers and inflated results for inefficient operations. I can think of a metals mining company, for instance, where all of the mines were treated as a profit center, and all the concentrates from these mines were consumed within the company by its own mills and smelters. Mine revenues were computed on the basis of prevailing, comparable market prices. So long as the mines, in aggregate, showed a profit, management was well satisfied. But investigation showed that four of the mines in this company were extremely costly and inefficient, since the ores could be purchased on the open market far more cheaply than they could be produced in these particular mines.

The management of a fabricated metal products company adopted a practice of selling from its plants to its warehouses at standard cost plus 20 per cent. Thus the loss variances were transferred to the warehouse, and market discounts were taken at the warehouse, effectively insulating the high-cost plants from the blame for their own poor management.

Competitive analysis—The last point I'd like to make in this particular area of cost reduction techniques is about competitive analysis. A great deal of insight can be gained from public and quasi-public information about your industry or competitive companies within your industry. For example, many industry groups prepare operating

ratio statistics and other data, as do the IRS, Robert Morris, and a number of other agencies.

To illustrate, a natural resources firm was spending about \$3,500,000 a year on research and development with less than spectacular results. An analysis of their competitors' financial statements revealed that the company had a much higher ratio of R&D expense to profits than did other more successful companies in the industry. This led to a critical review of the R&D function. As a result, the budget was cut to \$1,500,000 a year—less than 50 per cent. And the efforts of the R&D laboratory were redirected. Perceptible progress in penetrating new markets was evident within a year.

A cosmetics company was losing money steadily. Analysis of the registration statements, prospectuses, 10-Ks, and other data available on some of the more successful companies in the industry quickly revealed that the company's cost of sales were in line with more successful competitors, as were their direct sales and administrative expenses. However, other selling expenses such as promotion, demonstrators' salaries, and other selling costs were double what other companies were experiencing. This led to a pruning of the customer mix, a revision of promotional allowances, and an alteration of trade channels.

Possible techniques unlimited

I don't suggest that these 12 techniques for identifying cost reduction potentials are the only techniques we could discuss. You could perhaps list another 50 to 100 techniques. These are 12 of the common and successful techniques that I have seen applied. However, I believe that the number of techniques available for effective cost reduction is really limited only by your own imagination.