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Common-Sense Approach to Cost Control

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Cost control methods applied to raw materials and direct labor can only work well if the men on the line, the supervisors, are aware of costs and the relative efficiency of their operations. Here the five main points of good cost control are given —

A COMMON-SENSE APPROACH TO COST CONTROL

by Thomas S. Dudick
Ernst & Ernst

A professor of management with some experience as a consultant once said that he had never encountered a situation in which someone with a fresh point of view and common sense couldn't suggest one or more ways of reducing cost.

However, the job can be done much better by a systematic approach, so organized as to make sure that none of the applicable cost reduction techniques is overlooked. A further objective should be to refine the company's reporting system so that opportunities for additional cost saving will be brought quickly to the attention of supervisors as well as top management and so that appropriate information will be provided to each group.

Cost-saving openings

The purpose of this article is to outline cost-saving opportunities in three major areas. The context is that of a management services engagement, but the approach should be equally applicable to a special study by internal auditors. None of the points made in this article will be new to experienced accountants, but they represent a kind of organized common sense that is all too often missing in business practice.

Basic steps

There are three basic ways to improve return on investment. To

illustrate what they are, let's start with a typical income statement prepared for top management:

Sales	$25,000,000	100%
Less Cost of Sales	17,500,000	70
Gross Profit	7,500,000	30
Selling and Administrative Expense	5,500,000	12
Pre-tax Profit	2,000,000	8%
After-tax Profit	1,000,000	4%

The statement shows that the company made an after-tax profit of 4 per cent on sales—a good return in some industries, a poor one in others. What the statement does not show is the return on the money invested in the company.

Suppose, for example, that the company has assets—that is, a current investment — of $20,000,000 divided equally between inventory and fixed assets (plant, machinery, and the like). The company's after-tax profit would represent a return of 5 per cent on assets. That's obviously not enough; money would earn interest of that amount in a savings bank. Assuming the company doesn't have unusual growth possibilities, who would want to risk loss by investing in it when he could do as well or better by putting his money in a bank?

What, then, can be done to increase this unsatisfactory rate of return on assets? The company can do one or more of the following:

1. Reduce the amount of investment, thereby increasing the percentage of return.
2. Increase sales volume and profit contribution without increasing the investment.
3. Increase profits by reducing costs.

Let's consider each of those three courses.

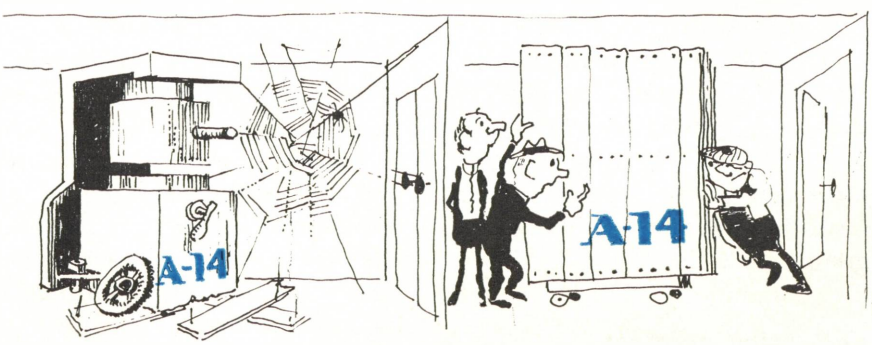
Reducing the investment

Inventory usually makes up a large share of the assets. In our example, it comes to $10,000,000. This inventory has an annual turnover rate of 1.75 (determined by dividing the cost of sales by inventory—$17,500,000 by $10,000,000). If the rate of turnover could be increased to, say, 3.5, the investment in inventory could drop to $5,000,000. This would mean a total assets figure of $15,000,000 instead of $20,000,000. Thus, all other things being equal, the return on investment would increase to almost 7 per cent from the present 5 per cent.

But how can the inventory be reduced? Here are some ways:

1. Establish good inventory records so that the amounts of each item in stock can be readily ascertained. Effective inventory records require development of a good classification and coding system to avoid duplications.
2. Establish and maintain good methods of housekeeping and auditing. Proper housekeeping assures that an item can be found when needed. Proper auditing assures the accuracy of records. (A case in point: One company's division, which transferred its test equipment to another division, did not learn until after an audit six months later that $40,000 in electronic tubes for this equipment was still being carried in its own stock. Meanwhile, the other division had purchased an equivalent new stock of such tubes.)
3. Standardize insofar as possible the component elements of product lines so that the number of different items in the inventory can be reduced.
4. Shorten the manufacturing cycle, for example, by improved production techniques, so as to speed the turnover of inventory material. Schedule the delivery of major items needed for production to as near as possible to the time when they are actually needed.

While certain steps can be taken to reduce inventory, little can be done about reducing assets of a fixed nature—those represented by capital investment in land, buildings, and manufacturing equipment. (Of course, excess capacity in fixed assets can be sold either outright or through a lease-back arrangement, but that does not concern us here.) In discussing the next step for improving the company's position, let's assume that fixed assets remain fixed and that other elements in the total assets figure of $20,000,000 remain unchanged.



Poor plant housekeeping can lead to situations where one division buys expensive new equipment only to find that it has duplicated machinery idle in an adjacent company unit.

Increasing sales volume

Consider the following table:

	A	B
	(in millions of dollars)	
Sales	$25	$40
Profit (4%)	1	1.6
Investment	20	20
ROI	5%	8%

Column A gives the same figures we used at the outset of this article. Column B shows how the

percentage return on investment would increase if the sales rose to $40,000,000 from $25,000,000.

The company's marketing department bears responsibility for increasing the sales. Nevertheless, it's up to the first-line supervisor to promote the manufacturing efficiency that makes added sales possible. To do this he would:

1. Minimize downtime of equipment by a good program of preventive maintenance.
2. Set methods for careful first-piece checks so as to make sure that equipment is not running bad production.
3. Group and schedule those machines being operated by a single workman so that the workman can conveniently handle them all.
4. Schedule material flow between departments in such a way as to eliminate the downtime that results when one department must wait for a part from the department preceding it in the production cycle.
5. Provide adequate storage space so that tools not in use can be readily found when needed. Tools being returned to stock should be in good repair to enable them to be used promptly when needed.

Reducing costs

Usually the largest expense on an income statement is cost of sales. It is composed of three elements: material, direct labor, and overhead cost of the product.

These three elements vary in their proportions from company to company, depending on the nature of the product and the processes used for its manufacture. Typical differences are highlighted by the following table:

	T	RT	Y
Material	80%	28%	59%
Direct Labor	6	27	5
Overhead	14	45	36
Total Cost	100%	100%	100%

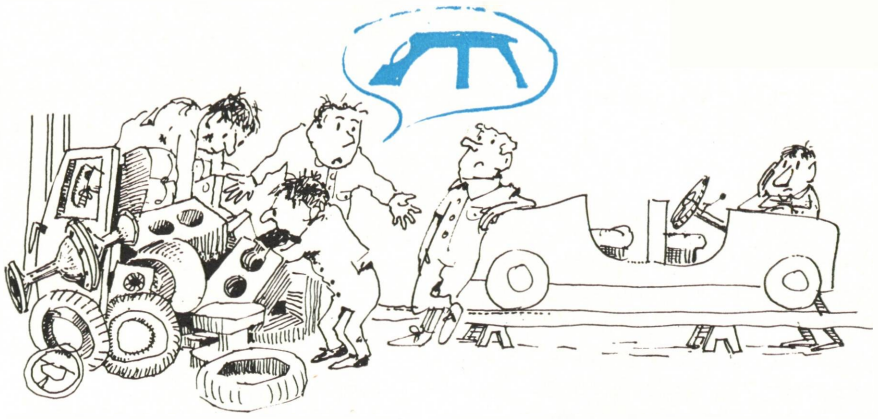
Column T gives the breakdown for a manufacturer of radio and television sets. Here the material figure is high because many components of the product are purchased and then merely assembled. Obviously, this company should give primary attention to material in an effort to cut costs. Yet, it's not unusual to find such companies devoting much more attention to monitoring direct labor, even though this element represents less than 10 per cent of the value of the material in the product.

A company like RT shows a more even distribution of cost elements. But the direct labor figure here runs far higher than for the other two companies in the table. This suggests that RT might realize savings not only by efficiency controls but also by mechanizing to reduce labor cost.

Company Y illustrates a highly mechanized operation. By monitoring the productivity of the machines and assuring that they operate at optimum levels, this company can maximize its efficiency and profits.

A cost breakdown like that in the table tells the busy supervisor where he should start his economy efforts. If he starts with a major element of cost, rather than randomly, his chances of realizing substantial savings will be greater.

Let's review the three elements of cost—material, direct labor, and overhead—in more detail, with an eye to enhancing profits.



Good housekeeping also dictates that tools or parts can be readily found and will be in good condition.

Material

Material is probably the most difficult cost element to account for. Many companies do not really know how much material they have used until they take a physical inventory, which is expensive and time-consuming. Because of the expense, most companies take inventories only periodically and thus reckon financial results for only a period.

Yet, despite the problems in accounting for material use, the case for control is by no means hopeless. A small number of items usually makes up the bulk of the cost. Thus, if a company is selective in taking inventories, it can do so more often—say, weekly—and thereby achieve a good measure of control, as demonstrated in the case of Part No. 98986:

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On factory floor	8,820
New issues from stock	69,000
Returns	(11,000)
Actually used	66,820
Should have used	24,066
% Efficiency	36%

The table shows that 8,820 units were on the factory floor at the end of the previous week. For the current week's production, 69,000 units were newly issued from stock. Of this number, 11,000 were returned to stock because they were defective, not having been fabricated properly by another department. If we assume that at the end of the week's production no units were left on the factory floor, then 66,820 units were used. If we further assume that finished production for that week indicated that only 24,066 units should have been used, then the material efficiency for the item was 36 per cent.

This low efficiency is due mainly to poor fabrication of Part No. 98986 by another department, a deficiency that meant excessive use not only of parts but also of labor. Evidently the plant was meeting a rush order that had to be satisfied and was too pressed for time to rework the defective parts to the standard they should have met in the first place.

From such a table as we have given for Part 98986, the first-line supervisor has a control report that spots trouble areas. Whether he is plagued by defective parts, poor workmanship of his own employees, or some other factor, he can tell from such reports where a greater degree of action is required.

Let's look at another table, this one a report on a highly automated operation like plastics molding. Here we shall consider the running hours of the machine and the pounds of material (in this example, powder) that were consumed.

Machine hours	7,343
Good units produced	13,705,000
Production should have been	14,761,094
% Efficiency	93%
Powder actually used	221,690
Should have used	203,891
% Efficiency	92%

In most companies, some variation of either this report or the one for Part 98986 can be used as signals to control costs of material. In general, the larger the share of the overall costs that is borne by material the more sophisticated should be the methods for controlling it.

Direct labor

As automation increases under the competitive conditions of modern industry, the element of direct labor becomes smaller in relation to material and overhead. You often find direct labor to be less than 10 per cent of manufacturing cost. Still, for many companies, direct labor represents a major cost factor, whose efficiency should be carefully rated. The following table illustrates a conventional approach to calculating this rating:

Operator	#809
Quantity of units produced	44
Standard hours/ per unit	.1053
Standard hours allowed (44 units)	4.63
Actual hours spent in production	5.85
% Efficiency	79%

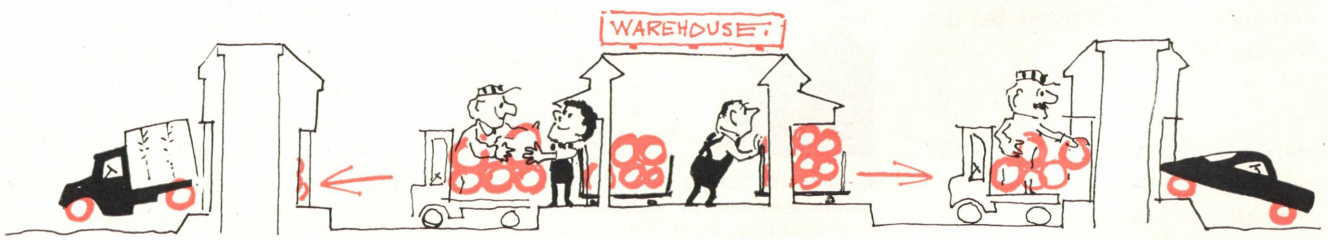
Such information enables the first-line supervisor to evaluate the performance of his operators and to see where efficiency should be improved.

If a company has highly automated equipment, so that direct labor employees perform more as machine attendants than as machine operators, direct labor costs should be expressed as so much per machine hour. Then, dividing the number of goods produced during any period by the allowed machine hours will give insights into the direct labor cost and the percentage of efficiency.

Thus far we have dealt with two elements of manufacturing costs, material and direct labor. These can be defined with relative ease.

The bill of materials, for example, spells out how much of each type of material is required to make a finished product. Moreover, many companies purchase competitive brands so as to determine, by rigorous analysis of them, the state of competitive costs.

Direct labor costs can be fairly well determined after time studies



Component elements of product lines should be standardized as far as possible so the number of different items in inventory can be reduced.

have established "standards" and "allowances" for the labor used to actually fabricate or assemble components of the product.

Now let's consider the third element in manufacturing cost.

Overhead

Overhead is usually that element of the manufacturing cost that cannot be directly identified by analyzing individual products. It consists of such factors as the following:

Indirect Labor Costs
- Manufacturing superintendent
- Foremen
- Clerks
- Material handlers
- Maintenance men

Payroll-related Expenses
- Social Security
- Unemployment insurance
- Hospitalization

Indirect Material
- Machine repair parts
- Chemicals
- Small tools

Purchased Services
- Utilities
- Dues and subscriptions
- Guard services

Fixed Charges
- Depreciation
- Real estate taxes
- Fire insurance

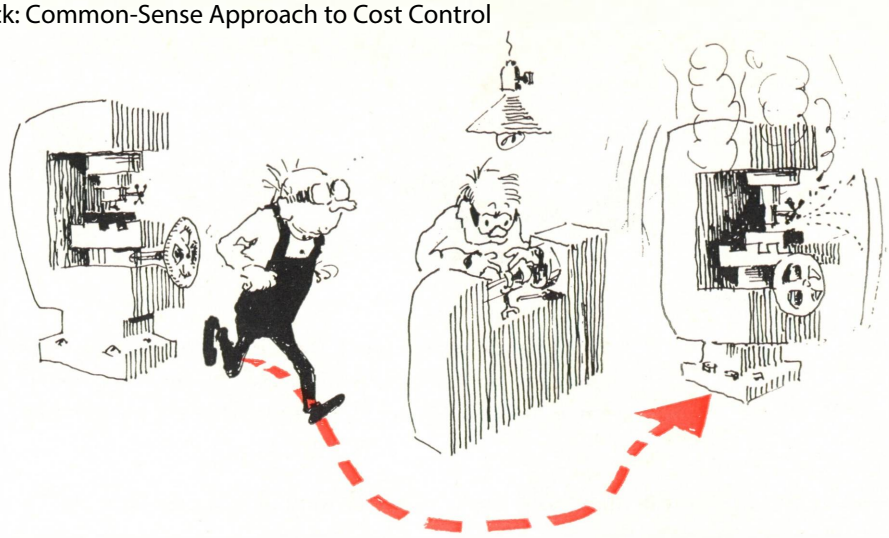
We have listed only a few items as examples; in most companies the list would be much larger. In any event, the question is: With so many different items to consider, how can we monitor overhead costs?

At the outset, we may lay down two guidelines:

1. Certain costs vary with the level of production activity as this is measured by such indicators as direct labor hours, machine hours, and the like.

2. Certain other costs remain more or less fixed within a normal range of production activity.

An example of variable costs is shipping supplies. These usually are used up in direct proportion to the use of production equipment. To assign an allowance figure for shipping supplies, we would first consider their usage over a given period of time, adjusting the figure to eliminate any unusual, nonrepresentative elements. Then this figure would be converted to a factor of so much per machine hour or so much per labor hour. This would give us a yardstick for monitoring one aspect of overhead.



Machines operated by a single workman should be grouped so he can conveniently handle them all.

An example of more or less fixed costs is depreciation or real estate taxes. These remain fairly constant, regardless of the volume of production activity. They would generally be expressed as so much per month and assigned accordingly to the manufacturing cost.

In some instances, an overhead cost is neither wholly variable nor wholly fixed, but rather a mixture of the two. Indirect labor often comes under this category. The problem in such cases is how to segregate the variable from the fixed.

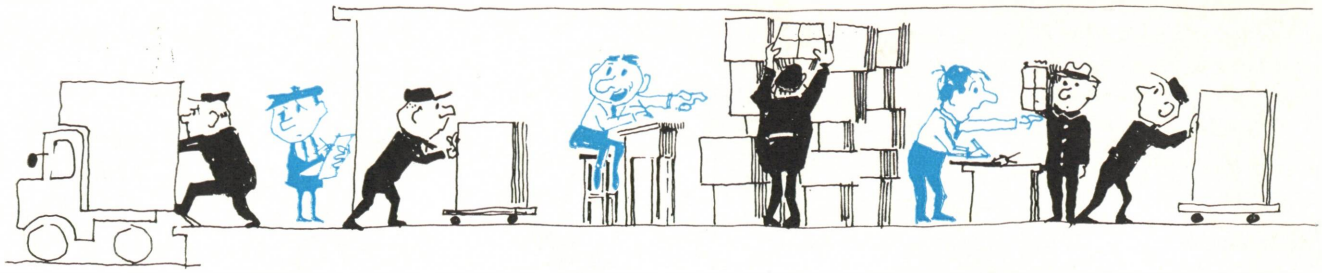
To illustrate, let's use this example of one company's material control department. Its makeup is as follows:

Supervisor	1
Secretary	1
Stock handlers	8
Schedulers	5
Total	15

Payroll per month	$8,000
Activity level per month	300,000 (direct labor hours)

Suppose we want to know what the allowable payroll cost should be for an activity level of 275,000 direct labor hours, or 325,000. Once we identify the variable cost portions in this department, we can adjust these to the appropriate level and add the fixed costs so as

A high incidence of defective parts drives up cost of labor as well as of raw materials.



Stock handlers represent the distinction between fixed and variable costs; company will always need worker at receiving dock, in stockroom, and to move material about plant floor. These are fixed costs; others are variable.

to arrive at a total allowable cost.

We can assume that the supervisor represents a fixed cost, since it would remain regardless of fluctuations in production volume. The same is true of the secretary.

Fixed and variable costs

As for the stock handlers, we must first know the nature of their jobs. One stock handler is stationed full time at the receiving dock, where he receives the material, confirms the quantities, and records the receipt. A second stock handler is permanently assigned to a controlled stockroom where he dispenses supplies, tools, and the like. A third stock handler is responsible for the movement of semi-processed material from one factory work area to another. Because the jobs performed by all three are required regardless of fluctuations in production, they represent fixed costs.

We may consider the remaining five stock handlers as variable costs because their work fluctuates with the volume of material to be moved, and this in turn is governed by the level of production activity.

Shifting between groups

When evaluating the schedulers, we find that three of them are each assigned full time to a product-line group. The remaining two assist when there is an overload in any of the groups. Thus, three may be considered as fixed costs and two as variable.

The breakdown for the department may be calculated as follows:

	Total	Fixed	Variable
Superintendent	1	1	
Secretary	1	1	
Stock handlers	8	3	5
Schedulers	5	2	3
Total	15	7	8
Payroll	$8,000	$5,000	$3,000

We see that the variable costs are $3,000 for an activity level of 300,000 direct labor hours, or $.01 per direct labor hour. Therefore, at the 275,000-direct-labor-hour level, the variable cost allowance would be $2,750; at the 325,000 level, it would be $3,250. The fixed cost allowance would remain at $5,000.

The payroll allowance for the different activity levels is summarized below:

Activity Level (Direct Labor Hours)	Total Payroll	Fixed	Variable
300,000	$8,000	$5,000	$3,000
275,000	7,750	5,000	2,750
325,000	8,250	5,000	3,250

Techniques like those that have been described help to determine overhead allowances and thus to control costs. But it must be borne in mind that fluctuations in production activity cannot always be matched by changes in variable costs. That's because a temporary reduction in volume may not justify laying off personnel who may have to be rehired a month or two later. Meanwhile, the excess cost of retaining such personnel can be equated with the cost of building extra inventory during the low periods of production.

Conclusion

The mere existence of a good accounting system does not guarantee that executives and supervisors will have the control information they need.

In most companies, the primary purpose of the accounting system is to present summary data to the owners or stockholders. Moreover, the form in which these data are gathered and presented does not readily lend itself to use by managers and supervisors, nor does it come with the frequency that their needs require.

It is necessary, therefore, to develop subsidiary reporting procedures to assist lower-level managers and particularly supervisors. This procedure should aim at providing information that is timely and that concentrates on a few major items, not attempting to cover a broad spectrum.

In general, good cost control requirements can be summarized in five points:

1. Report significant data.
2. Include in those data only those items that the manager or supervisor can control.
3. Compare the actual costs with the attainable standards.
4. Be alert to developments in trends.
5. Keep the reports simple.