

A fast way to decide if your cost system gives you bad information

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You Need a New Cost System When...

by Robin Cooper

By now it's well publicized—if not obvious—that many companies' cost accounting systems are falling down on the job. They give managers incorrect product costing information, or they inundate managers with irrelevant cost information, or they fail to measure the things that really count. Strategies may be conceptually brilliant, but if they are based on faulty information about the cost of a product, they are likely to fail in the marketplace. Many have.

But redesigning a cost system is expensive and time consuming. Do you really have to do it? There are two ways of finding out.

An obsolete cost system sends many signals, so one way to discover if you need a new system is to learn how to read those signals. (See the insert for a definition of an obsolete cost system.)

Cost systems don't become obsolete overnight. They gradually outlive their usefulness as they fail to adapt to change. So a second way to tell if your system has deteriorated is to analyze the changes that have occurred in your organization and in its environment since you first implemented the system.

It's Time to Redesign Your System If You Notice That...

...functional managers want to drop seemingly profitable lines. Production managers know when a product is troublesome. And marketing managers

know when a product isn't priced competitively. You can use their knowledge to test your cost system. Ask them to list the ten established products they would most like to drop. If there is nothing special about those items, and yet they still show high profits, the cost system may be failing to capture their true complexity.

...profit margins are hard to explain. Managers should be able to give simple explanations of profit margins: "We have the best production technologies"; "We have lower production volumes"; "Nobody else makes that product"; or "We set the standard and make a premium for doing so." In one company, the production manager was under constant pressure to make a certain new product more cheaply. He couldn't explain the high costs. He was confident that he was doing a good job and believed the product should be competitive. Years later a revised cost system showed that because the product used more direct labor than any other, it was being charged too much overhead. It was in fact the company's most profitable line. Unfortunately, by then, competitors had introduced similar products and the opportunity was lost.

...hard-to-make products show big profits. A good test of a cost system is an item that's harder to make or requires more inspection or rework than others.

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What Is an Obsolete Cost System?

A cost system shouldn't necessarily measure absolutely everything down to the finest degree. Taking infinitesimal measurements of each bit of material and each second of direct labor can be expensive and time consuming. The expense is necessary only when the consequences of relying on inaccurate information are severe. When, for instance, margins are paper thin and

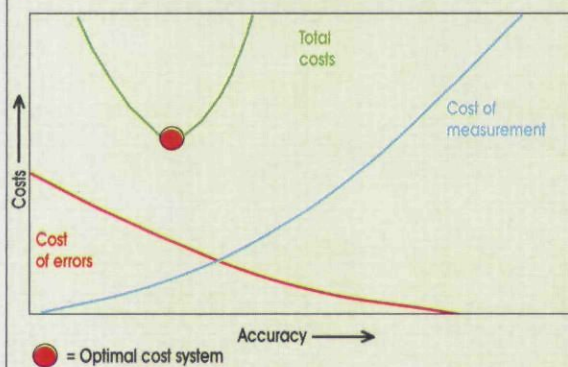
the market moves quickly, basing decisions on inaccurate cost data can put a company out of business in a hurry. In other situations, highly accurate numbers are less important, and the company shouldn't spend a lot of money to get them.

A good cost system trades off the cost of measurement and the cost of errors from inaccurate information in a way that minimizes total cost (see accompanying graphs). As an economist would put it, the optimal system exists at the point where the marginal cost of improving the system's accuracy exactly equals the marginal benefit.

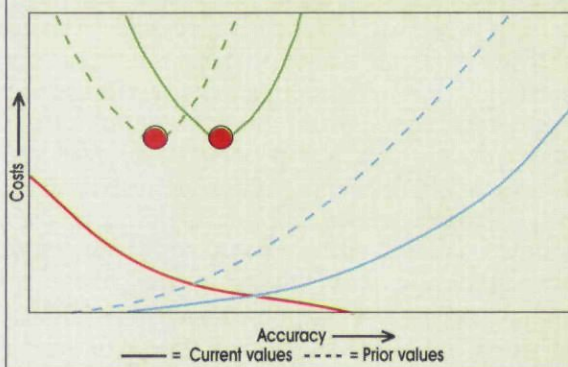
An optimal cost system is a moving target. Competitive conditions are dynamic, so the cost of errors changes. Similarly, as information-processing technology changes, so does the cost of measurement.

It is important to remember that product diversity has a great deal to do with accuracy. As diversity increases—as high volume is mixed with low volume, or labor intensity is mixed with automation—costs are more likely to be skewed. To achieve the same level of accuracy, companies will have to spend more on measurements than when products were more homogeneous. If they don't, their cost systems will be obsolete.

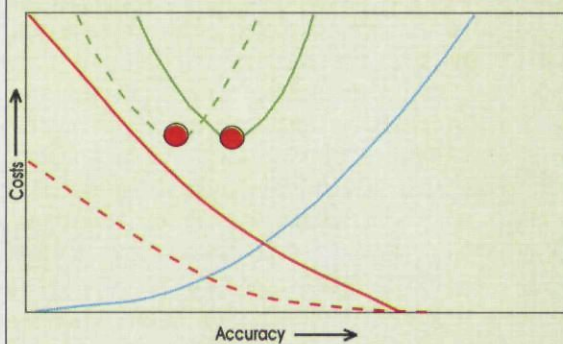
The optimal cost system minimizes total costs and ...



... changes when information technology improves ...



... or when errors become more costly.



Such products will have higher than average costs and, unless they are priced at a premium, will have low margins. If they are not premium priced but appear to be highly profitable, the cost system is failing to report their true cost.

...departments have their own cost systems. When functional managers have completely lost faith in the official cost system, they may develop

systems of their own. Personal computers make it fairly easy to do. The design engineers in an electronics company didn't trust the numbers the cost system produced. Bad or complex designs came out looking like big profit makers, while products the engineers knew to be well designed appeared to be losers. The engineering department responded by developing its own system for costing products.

Where the official system used direct labor to allocate costs, the private system used a number of different bases. Also, the engineers tracked costs they considered to be product related but that the official system treated as period expenses. The department ignored the official system and used its private system to steer design work.

...the accounting department spends a lot of time on special projects. Some decisions require more accurate information than others. A decision on outsourcing a high-volume product, for example, is important enough to warrant more detailed and accurate cost data. Accounting departments often set up special teams to study such situations. But the cost system—if it's doing its job—should provide

Managers can quickly diagnose an obsolete cost system by checking the symptoms.

managers with much of the information they need. If its failure to do so makes lengthy special studies routine, the cost system is probably obsolete. This was the case at one company, where half of the accounting staff was working on special projects, some of which took more than six months to complete.

...you have a high-margin niche all to yourself. Unless barriers to entry exist, companies should expect competition. If there is none, the cost system may be reporting fictitious margins. One company found that as its niche expanded, overall margins fell. A redesigned cost system showed that products the company thought were earning high profits were actually losing money. Another company discovered that a competitor was buying its products and then repackaging and selling them. The company's selling price, based on faulty cost information, was lower than the competitor's production cost.

...competitors' prices are unrealistically low. When other successful companies, especially smaller ones, charge less for items you produce in high volume, your cost system is suspect. It is likely the system averages product costs among your high- and low-volume items. The smaller company probably makes products whose production volumes are similar, so averaging creates less cost distortion.

...customers don't mind price increases. Customers will certainly never ask for price increases. But if they aren't surprised when increases come, they may know more about your costs than you. Even if they

complain, they may think, "It's about time" and pay the higher prices willingly. After all, they may have explored making the product themselves or have information on competitors' costs. When one company sensed that its prices were too low, it raised them by 25%. The market didn't flinch. Customers paid the higher prices without complaint; sales volume dropped off only slightly. The market confirmed management's intuition that the cost information was wrong.

...the results of bids are hard to explain. Unless the market is chaotic, managers should be able to estimate the competitiveness of their bids. In particular, they should be able to set high bids for business they don't really want and low bids for business that's important to them. But a company's bids are often based on the cost information it gets internally. If that information is faulty, the company will have no idea how its bid compares with competitors'. When one cutting-tool manufacturer kept winning high bids and losing low bids, the president suspected that the cost system was the culprit. A new cost system solved the problem.

...vendor bids are lower than expected. Companies that are considering outsourcing can compare vendors' bids with their own costs to tell if their cost system is working well. If the bid price varies widely from the cost of making the product, the cost system may be at fault. In one case, the vendor bid was below the variable cost of the product, yet there were no indications that the vendor was that much more efficient. A special team looked into the matter and found that the product could in fact be made more cheaply in-house—despite the cost system's message to the contrary.

...reported costs change because of new financial accounting regulations. Systems designed with one goal in mind generally don't do a good job of meeting others.¹ A system that aims to meet financial reporting requirements probably distorts costs. If a new GAAP regulation changes your costs even when materials prices and manufacturing costs are constant, chances are you tailored your system to meet financial reporting requirements—not to provide accurate cost information.

Your System May Be Obsolete If You've Experienced...

...increased automation. When direct labor is used as an allocation base, the introduction of automated production processes such as flexible machining systems can cause the system to fail. The new machin-

1. See Robert S. Kaplan, "One Cost System Isn't Enough," HBR January-February 1988, p.61.

ery uses less direct labor but usually requires more support for programming and engineering. Products made through automation tend not to be charged enough overhead, while products manufactured conventionally are charged too much.

One company had completely revamped its production process to move from machines that required continuous direct-labor supervision to machines that required virtually no operator attendance. The direct-labor-based system failed to capture the economics of the new production process because it didn't allocate overhead to products made on the new machines. A system based on machine hours corrected the problem. Reported costs of some products changed by as much as 30%.

It's time for a new cost system when engineering develops one of its own.

An integrated-circuit manufacturer introduced a new line of chips, which was a good strategic fit but did not fit well with the cost system. Production of the new product was highly automated, so when it came time to allocate overhead, as always, on the basis of direct labor hours, the new product got off easy. The system didn't reflect the new line's more intensive use of the costly automated machines. The cost system was distorted. Even worse, the existing products were charged with too much overhead and appeared unprofitable. Subsequently, the company moved their production offshore.

...changes in the use of support functions. If a new product requires different kinds of support from existing lines—more detailed inspection, for example, or longer setups—the amount of overhead allocated to it will likely be incorrect. These distortions can creep in slowly. For example, one company introduced a new line of plastic products to complement its sheet metal business. Initially, volume was relatively low, so little distortion arose from allocating the overhead needed only for metal fabrication to both plastic and metal products. Over time, however, sales of the plastic products increased dramatically, and the distortion became serious.

...changes in product market strategy. The decision to market in a low-volume niche means smaller production volume. In contrast, the decision to move from experimental parts to production parts means higher volume. Most cost systems are designed with one type of production in mind and don't differentiate well between the overhead consumed by high- and low-volume products. When production vol-

umes vary widely in the same company, cost distortion arises. If production volumes are fairly similar—say, volume of one product is no more than five times that of any other—product costs will probably be accurate. Accuracy falls off rapidly as the range grows to more than 10 to 1.²

One company produced some products in batches of under 50 and others in batches of more than 1,000. Its traditional direct-labor-based cost system grossly undercosted the low-volume products and made them appear more profitable than they were. The company thought its product strategy—trying to be everything to everybody—was working, but the economics were misleading. Year after year, profits fell, and the company was eventually taken over.

In contrast, another company was forced to adopt the strategy of producing low-volume, customized products because competitors had an overwhelming labor cost advantage. To ensure that the orders it accepted for low-volume items were truly profitable, the company introduced a new cost system that more appropriately traced overhead to high- and low-volume products. The new cost system helped the company implement its new strategy successfully.

...simplification of manufacturing processes. Changes in the production environment don't necessarily require more complex cost systems. The introduction of new and simpler production philosophies, such as just-in-time (JIT) or cellular manufacturing, can make a needlessly complex system obsolete. In one company, the cost system measured the value of work in process at every inventory stage, requiring hundreds of thousands of measurements a year. But the introduction of JIT reduced inventory levels so much that those measurements were no longer important.

Cellular manufacturing has the same effect on old cost systems. This manufacturing approach creates a series of mini-factories, each specializing in similar items. Companies should be able to trace overhead directly to the mini-factories and then spread those costs evenly over all the units they produce. A cost system that traces costs to individual products is probably obsolete.

...intensified competition. When competition heats up, so does the chance that a competitor will take advantage of a poor pricing decision. The increased risk associated with poor cost information can make a system obsolete. When a product is overcosted, its profit margin will look deceptively unattractive. If a competitor gives chase to the product, the company may mistakenly decide not to defend its position. Alternatively, prices set too high because

2. See Robin Cooper and Robert S. Kaplan, "Measure Costs Right: Make the Right Decisions," HBR September-October 1988, p. 96.

they're overcosted might attract competitors that would otherwise have faced a higher barrier to entry. One company redesigned its cost system and discovered that a particular product line was considerably more profitable than it had thought. To avoid attracting competition, the company increased the discount, added more field support, and increased advertising spending.

When companies earn a reasonable overall margin, they often don't worry about the margins individual products make. In the face of stiffer competition, though, management needs reliable cost information to act confidently. Executives must know how much leeway they have in underpricing the competition and at what point a product line is not worth saving.

One manufacturing company introduced a new system just in the nick of time. Its old system had been generating huge year-end variances, so the president astutely targeted the cost system for redesign. Soon after, the industry went into a slump and prices fell dramatically. The company, with its new knowledge of product costs, was able to cut prices more

aggressively than other players. It picked up the business of several failed competitors and in certain product lines increased its market share permanently by as much as 300%.

...unbundling of products. For many years one company had bundled two products together: apparel fastener machines, which the customer rented, and apparel fasteners, which the customer attached to their products using the machines. The rental fee for the machines was purposely set low to attract customers, who became captive buyers of the fasteners. The price of the fasteners was set high enough to cover their costs as well as the unrecovered costs of the machines. The cost system traced all overhead costs to fasteners and none to the machines.

On the surface, the system worked fine. Customers were happy and loyal. But when the company redesigned the cost system so it separated costs of the two types of products, it became clear that the cost system was actually sending highly distorted signals. Because some of the fasteners were labor intensive, the old system had attributed a disproportionate

amount of overhead (including the cost of the attaching machines) to them. Over the years, the company had put little effort into these product lines and consequently walked away from attractive markets.

...deregulation. Under regulation, a company doesn't set the prices; the regulators do. Companies make profits by controlling overall efficiency. Deregulation increases a company's competitive choices but can make a cost system useless. When companies have new freedom to "cherry pick" products, accurate knowledge of costs is invaluable. One railroad company, for example, when faced with deregulation, introduced a new cost system that for the first time in the company's history reported the cost of a freight-car move from city to city. Its existing cost system reported the cost of each function (switching, locomotive repair, and the like) but not the cost of a move. Knowledge of these costs allowed the railroad to compete more effectively with other railroads and trucking companies.

Some situations mimic the effects of deregulation, like when a captive supplier is allowed or forced to compete on the outside. An internal transfer pricing system, for instance, acts



much like a regulated pricing system. One company that recently began to compete in the open market discovered that because of a faulty cost system, its pricing attracted the business it was least interested in and turned away the business it really wanted. The company secured sales of low-volume, complex products instead of the high-volume, simple products for which its production facility was designed. A new cost system corrected the problem and allowed the company to bid more aggressively on high-volume business.

...technological improvements. Systems can become obsolete if they fail to take advantage of technical improvements that permit more efficient data gathering and analysis. The introduction of a computerized, production floor scheduling system, for example, captures considerably more information about the products. This information can go into the cost system at virtually no cost.

Similarly, numerically controlled equipment, especially when controlled by a central computer, increases the availability of machine-readable information. Setup time and run times can be measured directly at no extra cost. Remote sensing technology, such as bar coding, can also provide lots of new information at little additional cost.

...changes in strategy and behavioral goals. Sometimes management changes its strategy and therefore wants to encourage and reward different behavior. The cost system doesn't always adapt. One

The system is outdated when every decision requires a special accounting team.

company was successful because of its technological innovation. When the market sent signals that cost—not just technical superiority—was important, the company decided to pay more attention to efficient designs. It urged its engineers to stop designing from the ground up and to incorporate some of the parts already in use. The old cost system couldn't track such things as how many part numbers were used, so there was no way to identify expensive products made with low-volume or unique components. The company designed its new system with this important new variable in mind.

Another company's strategy moved toward products with very short life cycles. Designing products that could be manufactured economically in small batches became critical. In particular, the company

needed to compare the cost of inserting different types of components both manually and automatically. A new cost system enabled it to do that.

Another company bought an expensive piece of test equipment to improve product quality. But the old cost system treated the machine as overhead. The work force took advantage of this "free" work center by building complex products on it. A new cost system ensured that workers put the new equipment to best use by making the test area a cost center and charging products an hourly rate for using it.

Is It Time?

The mere presence of symptoms doesn't mean the cost system is obsolete. A product may have inexplicably low profit margins because the cost system is obsolete—or because a competitor has adopted a penetration strategy. It helps to think about the internal and external changes that make a cost system obsolete. They provide more clues to whether your system needs fixing. Checking for symptoms and looking for changes that may have caused them gives a good indication of the effectiveness of your current system. If you find no symptoms, the system is doing fine. If you observe several symptoms and know what probably caused them, it's time for a redesign.

The hard part is when you detect only one or two symptoms. Then the call is more difficult to make. One way to proceed is to set up a pilot cost system for a single product line and compare the numbers with those the existing system produces. If the results differ widely, a redesign is in order.

Remember that because conditions keep changing, managers should evaluate their systems every few years. They don't necessarily have to design a new system that often. Before a company plunges into redesign it should be sure to analyze the investment. The potential savings—the difference between the total costs of the existing system and the total costs of a new one—should exceed the cost of developing and implementing the new one.

A cost system, with modifications along the way, should last about a decade. But at some point, you can no longer patch up and add on to the system. Companies may not want to face up to the fact that their cost systems need to be redesigned, but if they don't, they may face far more severe consequences. A business that doesn't know what its products really cost won't be in business for long. 

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