The Rise and Fall of Management Accounting [2]
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By H. Thomas Johnson and Robert S. Kaplan

Driven by the procedures and cycle of the organization’s financial reporting system, management accounting information is produced too late, too aggregated, and too distorted to be relevant for managers’ planning and control decisions. With increased emphasis on meeting quarterly or annual earnings targets, internal accounting systems focus too narrowly on producing a monthly earnings report. And despite the considerable resources devoted to computing a monthly or quarterly income figure, this figure fails to measure the actual increase or decrease in economic value that has occurred during this period. Consequently:

Management accounting reports are of little help to operating managers attempting to reduce costs and improve productivity. Frequently, the reports decrease productivity because they require operating managers to spend time trying to understand and explain reported variances that have little to do with the economic and technological reality of their operations. Management accounting systems do not provide timely and detailed information on process efficiencies, or they focus too narrowly on inputs, such as direct labor, that are relatively insignificant in today’s production environment. Thus, the system not only fails to provide relevant information to managers, but it also distracts them from noticing the key factors important for production efficiencies.

The management accounting system fails to provide accurate product costs. Costs get distributed to products by simplistic measures, usually direct-labor based, that do not represent the demands made by each product on the firm’s resources. While simplistic and aggregate product costing methods are adequate for financial reporting requirements—the methods yield values for inventory and for cost of goods sold that satisfy external reporting and auditing requirements—these methods systemically bias and distort product costs at the individual product level. The standard product cost systems, which are typical of most organizations, usually lead to enormous cross-subsidies across products. When such distorted standard product cost information represents the only available data on “product costs,” a dangerous opportunity exists for misguided decisions on product pricing, product sourcing, product mix, and responses to rival products. Many firms seem to be falling victim to this trap.

Managers’ horizons contract to the short-term cycle of their monthly profit and loss statement. The financial accounting system treats many cash outlays as expenses of the period in which they are made even though these outlays will benefit future periods. Discretionary cash outlays for new products and improved processes, for preventive maintenance, for long-term marketing positioning, for employee training and morale, and for developing new systems all can produce substantial cash inflows for future periods. Managers under pressure to meet short-term profit goals, on occasion, can achieve these goals by reducing their expenditures on such discretionary investments. Thus, short-term profit pressures can lead to a decrease in investment for the long-run. Monthly accounting statements, using practices mandated for external reporting, can signal increased profits even when the long-term economic health of the firm has been compromised.

There could be many valid short-term measures that would be appropriate for motivating and evaluating managerial performance. It is unlikely, however, that monthly or quarterly profits, especially when based on the practices mandated and used for external constituencies, would be one of these.

Today’s management accounting systems provide a misleading target for managerial attention. They fail to provide the relevant set of measures that appropriately reflect the technology, products, processes, and competitive environment in which the organization operates. Originally designed earlier in this century to help coordinate the diverse activities of emerging vertically integrated enterprises, financial measures such as return on investment (ROI) have become for many organizations the only measure of success. Financial managers, relying exclusively on periodic financial statements for their view of the firm, get isolated from the real value-creating operations of the organization and fail to recognize when the accounting numbers are no longer providing relevant or appropriate measures of the organization’s operations.

The Challenge

Vigorous global competition, rapid progress in product and process technology, and wide fluctuations in currency exchange rates and raw material prices demand excellence from corporate management accounting systems. An organization’s management accounting system must provide timely and accurate information to facilitate efforts to control costs, to measure and improve productivity, and to devise improved production...
processes. The management accounting system also needs to report accurate product costs so that pricing decisions, introductions of new products, abandonments of obsolete products, and responses to the appearance of rival products can be made with the best possible information on product resource demands. Finally, large decentralized organizations require systems to motivate and evaluate the performance of their managers. These systems should provide appropriate incentives and signals to managers working in different functions, with diverse products and processes, amid globally dispersed operations.

The organization’s management accounting system serves as a vital two-way communication link between senior and subordinate managers. It is the means by which senior executives communicate to subordinate and decentralized managers the goals and objectives of the organization. In the reverse direction, the management accounting system is the channel by which information about the firm’s product performance and production efficiencies get reported to upper levels of management. Further, managerial compensation and promotion decisions are usually based on the numbers reported by management accounting system.

An excellent management accounting system will not by itself guarantee success in today’s economy. Ultimately, success depends on products that meet customers’ needs, on efficient production and distribution systems for these products, and on effective marketing efforts. However, an ineffective management accounting system can undermine even the best efforts in product development, process improvement, and marketing policy. With an ineffective management accounting system, the best outcome occurs when managers understand the irrelevance of their system and bypass it by developing personalized information systems. But danger lurks if managers do not recognize the inadequacies in their management accounting system and erroneously rely on it for managerial control information and product decisions.

The Opportunity

Fortunately, the increased demands for excellent management accounting systems occur at a time when the costs for collecting, processing, analyzing, and reporting information have been decreasing. With many production processes under direct control of digital computers, information can be recorded in real time for analysis of operating performance. In highly automated environments, virtually every transaction can be captured for subsequent analysis. Automated parts recognition and tracking systems combined with Local Area Network technology can provide continual status reports on work-in-process. Thus, extensive systems now can accurately measure and attribute the resource demands made by each product in a diverse product line. Timely and relevant managerial performance measures can be computed and disseminated throughout the organization.

Today’s designers of management accounting systems can use sophisticated electronic technology to devise reporting and control systems that are more accurate, more timely, and, hence, more effective than those designed by their predecessors. Simplified and aggregate procedures that were adopted in earlier decades because more relevant and timely procedures would have been too costly or even infeasible no longer need to be tolerated. The computing revolution of the past two decades has so reduced information collection and processing costs that it has removed virtually all barriers to the design and implementation of effective management accounting systems.

Management Accounting’s Roots

Historians have demonstrated that accounting reports have been prepared for thousands of years. Bookkeeping records, dating back to ancient civilizations, have been found engraved in stone tablets. Five hundred years ago, a Venetian monk, Fra Pacioli, described the basics for a well-functioning, double-entry bookkeeping system. Thus, the demand to record information on commercial transactions has existed for as long as people traded with each other in market exchanges.

But the demand for management accounting information, for information about transactions occurring within organizations, is a much more recent phenomenon. Before the early 19th century, virtually all exchange transactions occurred between an owner/entrepreneur and individuals who were not part of the organization: raw material suppliers, labor paid by piece-work, and customers. There were no “levels of management,” nor were there long-term salaried employees of the organization. Transactions occurred in the
market and measures of success were easily obtained. The owner/entrepreneur needed to collect more cash from sales to customers than was paid out to suppliers of the input factors of production, primarily labor and material.

As a consequence of the Industrial Revolution and the ability to achieve gain through economies of scale, it became efficient for 19th century enterprise owners to commit significant sums of capital to their production processes. In order to gain maximum efficiency from their capital investment, owners hired workers on a long-term basis, rather than bearing the costs and risks of continual spot contracting in the labor market. The long-term viability and success of these “managed” organizations revealed the gains that could be earned by managing a hierarchical organization, as opposed to conducting all business through market transactions. Examples of such successful, hierarchical organizations are the textile mills founded in the first half of the 19th century, the railroads formed around mid-century, and the steel companies created in the second half of that century.

The emergence, more than 150 years ago, of managed, hierarchical organizations created a new demand for accounting information. As conversion processes, which formerly were supplied at a price through market exchanges, became performed within organizations, a demand arose for measures to determine the “price” of output from internal operations. Lacking price information on the conversion processes occurring within their organizations, owners devised measures to summarize the efficiency by which labor and material were converted to finished products. These measures also served to motivate and evaluate the managers who supervised the conversion process. Such measures were especially important because frequently, the factories were located a considerable distance away from the central office of the owners. Thus, management accounting developed to support the profit-seeking activities of entrepreneurs for whom multi-process, hierarchical, managed enterprises were more efficient than managing conversion processes through continual transactions in the marketplace.

The early management accounting measures were simple but seemed to serve well the needs of owners and managers. They focused on conversion costs and produced summary measures, such as cost per hour or cost per pound produced, for each process and for each worker. The measured costs included labor and material and involved some attribution of overhead costs. The goal of these systems was to identify the costs for the intermediate and final products of the firm, and to provide a benchmark to measure the efficiency of the conversion process. In effect, the management accounting information provided a substitute or a surrogate for the market prices that were absent in managed enterprises.

By the middle of the 19th century, great advances in transportation and communication, especially the invention of the railroad and the tele-

Is Management Accounting Irrelevant?

In Relevance Lost: The Rise and Fall of Management Accounting, Professors Tom Johnson and Bob Kaplan state that contemporary trends in competition, technology, and management demand major changes in the way organizations measure and manage costs and in how they evaluate short- and long-term performance. They conclude that if companies fail to make modifications in their management accounting systems, their ability to be effective and efficient global competitors will be inhibited. Recently, we asked Professors Johnson and Kaplan questions on some of the issues raised in their soon-to-be released book.

When and how did you become aware that management accounting systems were failing to provide relevant information for management planning and control decisions?

Around 1981 I began meeting regularly with corporate financial executives to discover “real-life” material that would enliven my university courses in management accounting. To my surprise, these executives concentrated their attention on problems that did not relate directly to topics that we customarily teach in the classroom. The problems that these managers considered very important were not even broached in the usual management accounting curriculum. For example, problems such as managing overhead costs or managing product quality. Moreover, conversations with these executives revealed that the information supplied by their accounting depart-

ments—often resembling the information that we ask management accounting students to analyze—does not solve the problems that mattered to them. (Johnson)

My personal journey started about four years ago when I became aware of the major changes occurring in the organization and technology of manufacturing operations: zero defect total quality control systems, just-in-time inventory systems, and computer-integrated manufacturing, for example. It seemed to me that such radical changes undermined the intellectual basis of almost all we teach and research in management accounting. During the next two years, I attempted to study how innovative organizations were adapting their management accounting systems to the new competitive and operating environment. I found, first, that the accounting systems were lagging far behind the manufacturing process changes being implemented by innovating companies in manufacturing and in deregulated service industries. But more importantly, I found that even companies with traditional manufacturing technologies, who had not made major changes in their operations and equipment, also had management accounting systems that were completely inadequate for cost control and for product planning decisions. That’s when the obsolescence of virtually all companies’ management accounting systems became apparent to me. (Kaplan)

How do you think management accountants in industry and academe will respond to your book?

I expect management accountants in industry to respond favorably to the book. The book discusses problems and solutions to problems with which people in real-life industrial organizations can
graph, provided further opportunities for gain to large, hierarchical organizations. These enterprises could now coordinate the acquisition of raw materials and the distribution of final products over much larger geographical areas than had previously been possible. But without a corresponding increase in the quantity and quality of management accounting information, these organizations would not have been able to capture the full potential gains from increased scale of operations. In fact, effective management accounting systems were necessary to coordinate, efficiently, the logistical, conversion, and distribution activities of these enterprises and to provide summary measures of performance for decentralized and dispersed managers.

Perhaps the best examples of effective management accounting systems could be found in the railroad corporations of the mid-19th century. At the time, they were the largest enterprises ever created by man. To oversee their diverse and dispersed operations, new procedures were invented just to control the receipt and disbursement of cash. In addition to these significant financial recording or bookkeeping innovations, however, the railroads also developed extensive summaries of their internal operations and performance. Measures such as cost-per-ton-mile were created and reported for each major segment of operations. The operating ratio, the ratio of revenues to operating costs, was developed, both to measure the profitability of various segments of business—passenger vs. freight, region by region—and to evaluate the performance of managers.

Improved transportation and communication combined with economies of scale also permitted the growth of large distribution enterprises, particularly retail store chains such as Marshall Field, Sears, and Woolworth. These retailers developed their own measures of internal performance to support their managerial planning and control activities. Obviously, measures of conversion costs, such as cost per hour or cost per pound, or the operating measures of the railroads, the cost-per-ton mile, were not relevant for these distribution enterprises. These organizations required information on the effectiveness and efficiency of their purchasing, pricing, and retailing activities. For these activities, measures such as gross margin by department—selling revenues less purchases and operating costs—and inventory stockturn were created.

These examples reveal that management accounting information was developed to expedite the management of process-type industries such as textile and steel conversion, transportation, and distribution. The management accounting measures were designed to motivate and evaluate the efficiency of internal processes. There was little concern with measuring the overall "profit" of the enterprise. These organizations really had only one activity they had to do well: convert raw materials into a single final product such as cloth or steel, move passengers or freight, or re-sell purchased goods. If this basic activity were per-

identify. It is more difficult to predict how management accountants in academe will respond to the book. I hope it will be embraced by those academics who view management accounting as a vital management tool that can be understood only in the context of the organizations that use it. However, I am not optimistic about the reception the book will receive from these academics who view management accounting information solely in the context of economic decision theory. (Johnson)

That's an interesting question because I predict the reaction will be quite different by the two audiences you ask about. I find virtually no resistance from industry management accountants to the message being made in the book. They know that their current systems are inadequate for today's and tomorrow's environment. They may not know what the systems were designed for, or by how much the systems are influenced by financial reporting requirements and cycles, but they understand that the systems do a poor job of computing product costs and are too late and too aggregate for being helpful for measuring production performance. I sense a real interest in looking for new approaches for design of their systems. Perhaps the most convincing evidence of this occurred at the NAA Conference, Cost Accounting for the '90s. We had two full days of new ideas and directions for management accounting systems. The message was enthusiastically received; not one of the more than 250 in attendance spoke up to defend existing systems or to declare that the speakers were advocating change from a system that was not broken.

The academic response has been quite different. For one thing, most of our academic colleagues are not staying abreast of the radical changes occurring in contemporary organizations. They tend not to appreciate how the simple models and procedures they are teaching produce distorted product costs and dysfunctional performance incentives when applied to complex production processes in companies producing hundreds and thousands of different products. Thus, they are more skeptical than we about the need for rethinking the traditional approach to management accounting teaching and research. (Kaplan)

Is it a controversial book?

Yes, we hope so; for a number of reasons. We are challenging a number of conventions and assumptions that have gone unchallenged for many years, if not decades. For one, we show that management accounting systems worked better for their organizations in the nineteenth century than they do today. Many probably feel that with all the knowledge produced during the past century, with more than 65,000 MBAs and more than 200,000 undergraduates in business graduating each year, and with the great gains in information technology, that our organizations should be better managed than organizations operating 60 to 100 years ago. We show, that at least along the important dimension of how well management accounting systems function in organizations, this belief is unfounded. In effect, we are saying that the emperor has no clothes. All these computerized cost accounting systems are producing highly distorted, dysfunctional information. The management accounting systems used by railroads in the 1860s, in the Carnegie Steel company in the 1880s, and in Du Pont and General Motors earlier in this century served their owners-managers much better than most systems in existence today. We also
Financial managers often fail to recognize when the accounting numbers are no longer providing relevant or appropriate measures of operations.

formed efficiently, then the organization could be confident that it would be profitable in the long run. Thus, the management accounting system was created to promote efficiency in the key operating activity of the organization. There could be an alternative, transactions-based, system that recorded receipts and expenditures and produced periodic, probably annual, financial statements for the owners and creditors of the firm. But these two systems, management and financial, operated independently of each other.

Further advances in the technology of management accounting systems were made in conjunction with the scientific management movement. This movement started in metal fabricating companies during the last two decades of the 19th century. While the goal of the scientific management engineers, such as Frederick Taylor, was to improve the efficiency and utilization of labor and materials, the physical standards they developed, such as labor grade and labor hours per unit, and material quantities per unit, were easily converted into standards for labor and material costs. Eventually, these labor and material costs, often combined with an allocation of indirect or overhead costs, were aggregated together into a finished product unit cost that could be used for pricing decisions. With fluctuations in the price paid for labor and materials, the standards were frequently updated to reflect the most recent purchases. Thus, finished product standard costs were often closer to what we now call replacement cost than to any measure of historic cost. As with the measures of conversion efficiency developed earlier in process industries, finished product unit costs were calculated to aid managerial decisions (pricing in this case), and not to produce external financial statements. Therefore, there was little demand for having the unit cost information be "consistent" with the books of transactions used to prepare summary financial statements.

The final developments in management accounting systems occurred in the early decades of the 20th century to support the growth of multiactivity, diversified corporations. The DuPont Powder Company, formed in 1903 as a combination of previously separate family-run or independent companies, was the prototype of this new organizational form. The managers of the new DuPont Company faced the problem of coordinating the diverse activities of a vertically integrated manufacturing and marketing organization and of deciding on the most profitable allocation of capital to these different activities. Before DuPont, organizations engaged in only a single type of activity. The only important capital choice was whether to expand the scale of one homogeneous operation, not which of several diverse operations should be expanded.

A number of important operating and budgeting activities were devised by the senior managers of DuPont to coordinate the activities of their diverse operating groups. But the most important and the most enduring management accounting

are exposing the degree to which financial accounting practices have come to dominate the design and implementation of the organization's internal accounting system. And we also are challenging the academic accountants' use of single product, single process models for illustrating cost accounting concepts in their teaching and research. So there are many opportunities for controversy to arise from the messages in the book. (Kaplan)

What should management accountants do to facilitate the creation of relevant management accounting and control systems? And, why is it important that engineers and operating managers work with accountants in modifying management accounting and control systems?

As in any crisis, the first step is awareness and overcoming defensiveness and denial. After that, and assuming that senior management enthusiastically supports their efforts—a necessary condition to implement any major organizational change—management accountants will need to talk with operating personnel, with marketing people, with product managers having profit responsibility, and with general managers to learn what factors are critical to their success. They need to understand that management accounting systems exist to promote operating efficiency, encourage efficient product designs, and provide insight on where profits are being earned and where losses are being incurred in the organization. The use of cost accounting information to value inventory for financial statements is a detail that can be handled by relatively simple systems, and should not be the driving force in the design of cost systems. The management accounting system has to track, support, and encourage the value-adding activities of the organization.

The environment for effective product design and process technology has changed radically during the past decade and will continue to evolve rapidly in the years ahead. Management accountants have to understand the impact of their systems on the product design activities of engineers, of the payoffs that accrue from investment in flexible automated process technology (CIM), and the change in local performance measures that arise when organizations move to zero defect and zero inventory production systems. These changes are occurring today in most organizations. Management accountants who leave their offices will not find it difficult to discover where these changes are occurring in their organizations and the engineers who are in the forefront of implementing these changes. The big intellectual step management accountants have to make is recognition: recognition that the old way of counting the beans and keeping score is inadequate in today's organizations.

Our book also documents that innovative ideas in management accounting were made by engineers, not professionally trained accountants. People like Andrew Carnegie, Alexander Hamilton Church, Alfred Sloan, and Donaldson Brown had great insights into the design of effective management accounting systems. Somehow, in the past 60 years, the growth of the "accounting profession" with its emphasis on external reporting demands, has prevented ideas from outside the profession from influencing the design of internal accounting systems. We need to again learn from engineers how to design more effective internal measurement systems. (Kaplan)

In your book you chronicle the history of management accounting.

What can management accountants learn from their "roots" that will help them create relevant management accounting systems?

The ultimate purpose of historical writing is to describe the past and to explain the conditions that made things as they were. Historians don't study the past in order to prescribe solutions for the present. However, astute individuals realize that knowledge about the past provides important insight into the options that we face in the pre-
innovation was the return-on-investment (ROI) measure. Return-on-investment provided an overall measure of the commercial success of each operating unit and of the entire organization. Because capital allocation remained a central management function in the early DuPont company, departmental managers were not held responsible for ROI performance. These managers took their scale of operations as given and concentrated solely on promoting efficiencies in their internally-managed processes, just as their 19th century counterparts had done. Only top managers used ROI, to help direct their allocations of capital and to evaluate the performance of the operating department (which could be different from the performance of the manager of that department). Donaldson Brown, the chief financial officer of DuPont, decomposed the ROI measure into its component parts and demonstrated that the ROI measure could be viewed as a combination of two efficiency measures—the operating ratio (return on sales) and stock turn (sales to assets)—used by single activity organizations.

Use of the ROI measure was expanded in the 1920s as the multidivisional form of organization evolved in the DuPont and the newly reorganized General Motors corporation. The decentralized, multidivisional corporation developed to capture economies of scope—the gains from sharing common organizational functions across a broad spectrum of products. But the enormous diversity in the product markets served by these giant corporations required new systems and measures to coordinate dispersed and decentralized activities. Division managers were responsible for the profitability and return on capital employed in their divisions and had authority to generate capital requests. It was no longer possible for the corporate-level departments of marketing, purchasing, and finance to have the requisite information to function effectively or efficiently in all the markets being served by their organization. Decentralization was necessary and each operating division required its own staff functions to support its activities. Thus, central managers were now in the position of providing capital to diverse operating units and attempting to coordinate, motivate, and evaluate the performance of their divisional managers. The ROI measure played a key role in permitting this internal market for managers and for capital to function.

Lost Relevance

By 1925, virtually all management accounting practices that are practiced today had been developed: cost accounts for labor, material, and overhead; budgets for cash, income, and capital; flexible budgets, sales forecasts, standard costs, variance analysis, transfer prices, and divisional performance measures. These practices had evolved to serve the informational and control needs of the managers of increasingly complex and diverse organizations. But the pace of innovation seemed to stop in the mid-1920s. Perhaps

sent. For instance, knowledge about the historic conditions that prompted manufacturing managers to account for unit direct labor cost of products may help us evaluate the relevance of that type of accounting information under present-day conditions. If the technological and market conditions no longer exist that made managing direct labor a strategic source of profits, then perhaps it is time to create new information that is more relevant to new strategies. Understanding their “roots” will help management accountants consider carefully the conditions that make particular systems relevant. If systems that management accountants currently use are relevant to technological and market conditions that no longer exist, it may be time to ask what might be more relevant to current conditions. But history can only help management accountants raise that question; it can’t help them answer it. The answer requires them to go where no one has been before. (Johnson)

Any time you are advocating major organizational changes, as we are in this book, you need to understand how we acquired the systems and procedures in use today. After all, the people running our organizations are not foolish, unmotivated individuals. It would be a normal and correct response to initially deny the claims by a couple of academics that a system is fundamental to the organization as the management accounting system could be as inadequate as we claim. The value of tracing the roots of today’s systems is to show that these systems were eminently sensible and useful for the environment in which they were designed: an era of high direct labor content, relatively limited product lines, simple production flow processes, and, most importantly, expensive information processing technology. We can then see that these factors are not valid today. And when we add in the impact of today’s global economy, with rapid technology transfer to factories in less developed nations, with worldwide capital markets, and extremely efficient bulk transportation and communications around the globe, it should not take a genius to recognize that perhaps new systems for measuring product costs and motivating performance may be called for. (Kaplan)

What are some typical examples of problems caused by the failure of management accounting systems to provide relevant data for management planning and control decisions?

A partial list of the most serious problems includes the following: misdirected marketing efforts that result from poor information about the profitability of a company’s diverse products; inability to manage “overhead” costs; a misplaced emphasis on cost-cutting programs as the way to increase productivity; the use of modern flexible machining systems to produce standard parts in high volume, not custom parts in small lots; and underinvestment by manufacturers who fail to consider the full strategic consequences of investments in computer-aided production systems. (Johnson)

There are a number of problems that arise from the failure of management accounting systems. Perhaps most basic is that virtually no multiproduct organization today knows the costs of each of its products. The cost accounting system is the only system for estimating product costs. Today’s systems do a miserable job of tracing the consumption of indirect or overhead resources to products. Large cost categories, such as marketing, distribution, and engineering support may not even be attributed to products or product lines.

The systems also provide misleading targets for manufacturing managers. We see in many organizations, operating managers producing products in excessively large batch sizes so that they can have favorable volume variances and high labor and machine utilization measures. That they are producing inventory that is not easily stored or sold is not evaluated. Nor is the lack of customer respon-

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Ironically, as management accounting systems became less relevant to corporate operations and strategy, many firms began to be dominated by executives who liked to run the firm 'by the numbers.'

There was little incentive to continue to develop innovative management accounting procedures because the corporate organizational forms developed by companies such as DuPont and General Motors proved to be the model for many corporations for the next half-century.

Even without significant innovations in organizational forms, however, the diversity of products and complexity of manufacturing processes continued to increase in the decades after 1920. Thus, the need for accurate product costs and effective process control should have imposed new demands on organizations' management accounting systems. Yet the evolution of management accounting systems after 1920 did not keep pace with the improvement in corporations' product and process technologies. This lag eventually led to today's problems: distorted product costs, delayed and overly aggregated process control information, and short-term performance measures that do not reflect the increases or decreases in the organization's economic position.

In part, this stagnation can be attributed to the dominance of the external or financial accounting statements during the 20th century. With more widespread public ownership of corporations' securities, the demand for periodic, audited financial statements increased. Auditors, mindful of potential liability to users of financial statements, preferred conservative accounting practices based on objective, verifiable, and realized financial transactions. When measuring cost of goods sold and valuing inventory, auditors insisted on product costs based on the historical transactions recorded in the firms' ledger accounts. Further, they wanted the income statement and balance sheet to "articulate"—that is, the two financial statements had to be based on the same transactions and events. It did not matter for the summary financial statements if the inventory costing procedures distorted or cross-subsidized product costs as long as the total value recorded in the inventory accounts was sufficiently accurate. Thus, simple methods were used to assign direct and period costs to products.

In principle, of course, early 20th-century managers did not have to yield the design of their cost accounting systems to their financial accountants and auditors. They could have maintained separate systems for managerial purposes and for external reporting. But the information technology in the early 20th century may not have made such parallel systems cost effective.

Perhaps the product line of 1920s' organizations was more focused than that of today's organizations so that the distorting effect from using simplistic methods to attach costs to products was not as severe as it has become today. Also the cost of collecting data and providing prompt reports to production managers may have been too high to permit the real-time process control that is now possible. Thus, the decision by managers not to invest in management accounting systems separate from those already mandated by the demands of the market may have been due to the cost that they believed would be incurred.

Siveness caused by keeping labor and machines busy producing unwanted inventory penalized the monthly variance measures produced by typical management accounting systems also arrive too late and are too aggregate to be helpful for operating managers attempting to control their production processes and make productivity improvements.

Finally, monthly and quarterly income figures provide a poor target for the value-creating activities of organizations. Recording product design, process improvement, employee training, and prototype development activities as expenses of the current period completely distorts the value being created by these long-term investments in the organization's knowledge base.

Basically, when complex, diversified organizations do not produce valid information about the effectiveness and efficiency of their internal operations, they become vulnerable to smaller and more focused competitors. Focused enterprises have much simpler information needs, they can become highly efficient in their narrow product segments or range of production processes and will outperform diversified organizations that, because of inadequate management accounting information, cannot assess the relative profitability of their varied activities. Whatever scale economies large diversified enterprises attempt to achieve will be dissipated by their inability to manage complexity and diversity. (Kaplan)

Did you find any innovative organizations developing new and relevant management accounting systems?

Yes. There are a number of organizations in the process of developing and instituting new management accounting systems. We interact with the movers and shakers for these new systems in organizations such as the Association for Manufacturing Excellence (AME) and Computer-Aided-Manufacturing, International (CAM-I).

It's interesting that the professional organizations in the forefront of promoting change in management accounting systems are basically production and engineering organizations, such as AME and CAM-I. They have given up waiting for management accountants to implement change on their own; they are establishing projects under their influence and control to stimulate new ideas in management accounting systems design.

Companies such as Hewlett-Packard, IBM, General Electric, Caterpillar, and Motorola are developing and implementing innovative management accounting systems at least in parts of their organization. Another source of innovation, of course, arises in newly deregulated service industries: banking, transportation, health care, and telecommunications. Given the major changes in their environment, the companies in these industries now worry much more about operating efficiencies and, more importantly, now need to know the cost of each of their major products or services so that they can learn where they are making and where they are losing money. Before, many of these companies earned regulated rates of return on their entire product mix and did not have to be concerned about profit or loss at the individual product level. Thus, many companies in service industries are now developing, for the first time, product costing systems. (Kaplan)

You point out that companies can't be run entirely "by the numbers." What nonfinancial measures should be developed and implemented to improve decision making?

Each organization has to decide for itself those measures that will promote its tactical and strategic goals. It is unlikely that monthly income will be one of these measures. Organizations stressing total quality control and zero defect policies will want to measure yields, the incidence of failures internal and external to the organization,
for audited, periodic financial statements may have been the correct economic decision. The benefits from a more accurate and more responsive management accounting system may not have been worth the cost of maintaining such a separate system.

Over the years, however, as corporations’ product lines expanded, as production technology changed, as product life cycles shortened, as global competitive conditions shifted, and, most importantly, as great advances in information technology occurred, we should have expected a reconsideration of the decision to not invest in a more relevant and more timely management accounting system. But by the time these events unfolded, the spirit and knowledge of management accounting systems design that occurred throughout the hundred-year 1825-1925 period had disappeared. Organizations had fixated on the cost systems and management reporting methods of the 1920s. In fact, when cost systems became automated on digital computers, starting in the mid-1960s, the system designers basically automated the manual systems they found in the factory. Left unquestioned was whether these systems were still sensible given the great expansion in information technology represented by electronic, digital computers.

Academics Led Astray

Why did university-based researchers fail to note the growing obsolescence of organizations' management accounting systems? And, why did they not play a more active or stimulative role to improve the art of management accounting systems design?

We believe academics were led astray by focusing too narrowly on a simplified model of firm behavior. Influenced strongly by economists' one-product, one-production process model of the firm, management accounting academics found little value in the cost allocations imposed on organizations by financial accounting procedures.

Sixty years of literature emerged advocating the separation of costs into fixed and variable components for making good product decisions and for controlling costs. This literature, very persuasive when illustrated in the simple one-product settings used by academic economists and accountants, never fully addressed the question of where fixed costs came from and how these costs needed to be covered by each of the products in the corporations’ repertoire. Nor did the academic researchers attempt to implement their ideas in the environment of actual organizations, with hundreds or thousands of products and with complex, multistage production processes. Thus, the academic literature concentrated on elegant and sophisticated approaches to analyzing costs for single product, single process firms while companies tried to manage with antiquated systems in settings that had little relationship to the simplified model assumed for analytical convenience by researchers.

the percentage of items produced that required no rework, etc. Organizations attempting to implement just-in-time production systems may want measures such as average setup times, days production in inventory, and average travel distances for products. One measure that leading Japanese companies are now stressing is throughput time: how long from the time an item is first started into production until the time it is shipped, or at least ready to be shipped, to the customer. The overall performance of an entire factory is judged by its throughput time. In effect, innovating Japanese companies are now managing time, not costs. This could be a profound change for U.S. management accountants, especially those trained to think only about financial measures.

There are all sorts of nonfinancial measures that can provide much better indicators of a company's success than monthly or quarterly income. Product launch times, percentage of delivery commitments met, product design measures, marketing and distribution performance measures provide superior targets for motivating and measuring short-term performance. We don't think that the financial accounting model for measuring periodic profits was ever designed to measure firm-wide performance during short time periods. Certainly, this was not the intention of DuPont and General Motors executives when they devised return on investment (ROI) measures, earlier in this century.

Many of the most difficult problems faced by the Financial Accounting Standards Board arise from attempting to time the recognition of income and expense or allocate long term costs and benefits to arbitrarily short periods. Whatever the outcome of these deliberations, they are unlikely to be able to capture the outcome of all the wealth creating activities of the organization in a single number, like net income. If we can get this point generally accepted, perhaps the pressures to measure all performance through a measure created by financial accountants will lessen. (Kaplan)

Can you speculate on the characteristics of future management accounting systems?

Future management accounting systems should distinguish clearly between two types of information—strategic profitability information and process control information—that most management accountants today derive from the same system, the financial accounting system. There must be one system to provide information about the strategic variables that create value for an organization. In particular, this system should identify the long-run contribution that each product or service makes to an organization's profitability. This information is virtually non-existent in today's management accounting systems. Second, there must be a system that provides relevant information for controlling an organization's operating processes. Here there must be timely and detailed information about the myriad economic events through which an organization efficiently creates value for the customer. Much of that information, referred to in the previous question, will not come from the accounting system per se.

In the final analysis, the management accounting system must help managers answer one fundamental question: why does this organization exist?

A proper management accounting system should reveal whether an organization conducts its internal economic activities more efficiently than another organization or unaided market exchange might conduct the same activities. That is the ultimate strategic question. A proper management accounting system must be designed to answer that question. (Johnson)
Ironically, as management accounting systems became less relevant and less representative of the organization's operations and strategy, many companies became dominated by senior executives who believed they could run the firm "by the numbers." Early 20th century organizations, such as DuPont, General Motors, and General Electric, for example, managed much of their business by projecting large, multi-year capital investments, and it was not until the late 20th century that the importance of short-term financial planning was recognized. Yet the value of preparing monthly income statements for many of today's organizations not unlike an attempt to allocate the profits of a long venture to every month within that period.