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A RECOVERING COST ACCOUNTANT REMINISCES

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A Recovering Cost Accountant Reminisces

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Introduction

As an accountant, I believed firmly in my early years that numbers shape reality and that quantitative abstractions explain what matters in the business world. Today, some forty years later, I see the world quite differently. I now believe that businesses cannot use financial data either to perceive or to achieve what really matters.

The story of how I came to reject accounting as a meaningful source of information for making business decisions sheds useful light, I think, on present-day concerns about the ability of accounting information to portray the economic health of a business. My reservations about the value of accounting information pertain especially to cost information.

I first expressed misgivings about cost and other management accounting information in *Relevance Lost: The Rise and Fall of Management Accounting*, a 1987 book I co-authored with Robert S. Kaplan (Harvard Business School) that was subsequently named by *Harvard Business Review* as one of the fourteen most influential business books of the twentieth century. The book's success derived largely from its coverage of a novel approach to cost accounting that became known as "activity-based costing," or ABC.

Cost accounting can create undesirable distortions

The chief concern of traditional cost accounting was to trace overhead costs (indirect costs) to products or other cost objects. For decades, accountants simply prorated or allocated overhead costs in proportion to each product's share of the direct labor or machine hours incurred each period. While sufficient to carry out bookkeeping tasks, the practice of prorating overhead costs over labor or machine hours tended to distort product cost and gross margin information because direct labor and machines, increasingly after the 1950s, caused proportionately less of the overhead costs each year. Over time, growing varieties and volumes of complex products and processes caused companies to expend work and resources on overhead activities required by increasingly complicated and prolonged material flows. The volume of these activities bore no necessary relationship to direct labor or machine hours.

ABC—a better answer to the wrong question

Activity-based costing was designed to assign each different product its proper share of costs from overhead activities caused by increasingly complex technologies, shorter product life cycles, and proliferating product varieties. To trace overhead costs to products, ABC uses data about the underlying activities that cause the consumption of specific overhead resources, not just the consumption of direct labor

ABC—a better answer to the wrong question, continued

or machine resources. Thus, in addition to using direct labor and machine hour "drivers" to apportion overhead costs where that is appropriate, ABC systems also trace overhead costs among products using additional "drivers" such as number of inspections, dollars of inventory stored, distances material moves on the floor, number of machine setups, number of parts ordered (some products have large numbers of part numbers and some have only a few), and types of machines used (some products use automated equipment and others use manual equipment). The point is to charge each different product with the costs of resources actually consumed to make it, not with average costs incurred to make a wide variety of products, using widely different resources.

In retrospect, ABC probably did improve the accuracy of product cost information. But I now realize that more accurate costing was merely a better answer to the wrong question. ABC was simply an accounting solution to an accounting problem.

The right question—how to organize work so you won't need to push cost cutting so much

The real problem—the right question, from a management viewpoint—was *how to avoid the ever-rising overhead costs* that prompted accountants' concerns about distorted product cost information in the first place. Because all my prior training and experience had emphasized accounting and economics, not operations, I did not fully appreciate the depth of that question when it was first posed to me in the late 1980s by Richard Schonberger and Robert Hall, two renowned manufacturing authorities, and W. Edwards Deming, the world-famous authority on quality management. They suggested to me that overhead costs and the need for ABC systems would largely evaporate if companies organized work to meet customer requirements and spent less time striving to cut costs. When I asked them to explain how a different way of organizing work would essentially eliminate manufacturing overhead costs, they said, "Study Toyota."

Customer-focused activity management

It was a while before I grasped the full implications of what Schonberger, Hall, and Deming meant when they said that companies should strive less to cut costs and, instead, strive to eliminate overhead activities by organizing work to meet customer requirements. I understood better after I encountered the Toyota system face to face. In the meantime, I told people as early as 1987 that a more useful role for ABC information than better product and process costs might be to identify and eliminate the resources consumed by overhead activities. I coined the phrases "activity management" and "customer-focused activity management" to describe this concept. The nub of the idea was to find ways to eliminate or reduce the time spent on certain kinds of work such as changing over, inspecting, storage, parts handling, material transport, rework, new model introductions, and much more.

How ABM got started

The cost management community, concerned at that time to implement the new ABC practices as widely as possible, transformed "activity management" into "activity-based management," or ABM, a concept that quickly became identified

How ABM got started, continued

with the “reengineering” movement. In that context ABM focused attention on eliminating “non-value activity,” a concept with which I grew increasingly disenchanted as I learned more about Toyota’s approach to organizing work.

Overhead cost and non-value-added cost are virtually synonymous

Shigeo Shingo, the legendary teacher of Toyota methods, when asked once what he would do to eliminate non-value activity in a company, supposedly said that the answer should come from those employees in the company who would identify themselves as performing non-value work. I have always thought that Shingo’s remark says all that needs to be said about ABM, reengineering, and all the other attempts to reduce overhead costs by eliminating non-value activity. Indeed, I would argue that overhead cost and non-value-adding cost are virtually synonymous. Efforts to reduce one by eliminating the other resemble a squirrel chasing its tail in a cage. A great deal of energy is expended, but to no avail.

Work flow should be the primary focus, not cost reduction

A more productive exercise would begin by recognizing that the fundamental problem is not “cost.” Rather, the problem is a failure to organize work so that everything needed to satisfy customer expectations is part of one continuous, self-organizing stream of activity. To the extent that it is necessary to perform activity outside of that stream, more resources are consumed, and costs are greater than would be the case if all work were integrated in a continuous flow. Experts in ABM, reengineering, and other modes of overhead-cost containment have never understood that work is the issue, not cost. That is what Schonberger, Hall, and Deming were telling me, and that is what Toyota teaches us. But it took me a few years to discover just what they meant.

Minimizing unit costs does not produce the most cost-efficient system

I started on the road to discovering what they meant around 1988 when I began to gradually shift my attention from accounting and economics to the study of how companies organize work—“operations management,” if you will—with particular emphasis on the Toyota Production System. Along this road I learned that the main cause of overhead cost in most manufacturing companies is the belief that the total operating cost is kept to a minimum by minimizing the unit costs of output produced in every individual process. In other words, total cost is assumed to be the sum of individual costs in all the parts. Thus, the strategy for achieving minimum total cost is to produce as much output as fast as possible in each and every part of the organization. Minimizing the cost per unit of output from every individual operation presumably ensures the lowest total cost for the products assembled from that output.

Unintended consequence of a cost minimization strategy

An inevitable but usually overlooked consequence of this cost minimization strategy is that it requires a company to produce more output in every period. The usual rationalization for requiring more output to achieve lower unit costs is the concept of scale economies. As every MBA student trained since the 1950s has been taught, bigger scale and faster throughput are the *sine qua non* of low product costs.

Unintended consequence of a cost minimization strategy, continued

Unfortunately, most American manufacturers who followed this approach to reducing costs in the 1960s and 1970s failed to connect their larger scale and higher throughput rates with deteriorating product quality and increasing lead times. Their customers, of course, complained about poor quality and missed delivery promises. However, companies tended to address these quality and lead-time problems by adding inspectors, training expeditors, and automating storage and delivery systems. They did not question the strategy of reducing overall costs by producing more output, faster.

Boosting output to reduce costs fails

The drive to lower costs by boosting output ultimately fails because of the usual means companies use to achieve increased output. With steady growth in the varieties and complexity of products turned out, companies after 1960 increased output by pushing material in larger and larger batches though increasingly separated and departmentalized processes. However, materials that flow in batches tend to lurch, bog down, and carve out redundant pathways, like the flow of blood through sclerotic arteries. The increased cost of handling these ever more complicated and round-about material flows might have impeded the growth of product variety and complexity had it not been for the emergence in the 1960s of computer-based scheduling and production control systems, most notably the MRP system that programmers at IBM developed. Computers made it seem possible to seamlessly coordinate demand forecasts, shop-floor schedules, and inventory controls. By making batch and departmental production systems seem feasible, the computer, with MRP, gave new life to the strategy of reducing unit costs by steadily increasing the output of growing varieties of ever more complex products.

The underlying and unquestioned assumption that economies of scale is valid

There was, however, a downside to this strategy, even with computers: the time path of costs and returns grew increasingly unstable over successive waves of the business cycle. Pushing more output out the door seemed a surefire way to hold costs down when demand for product was booming, as in the upswing of a business cycle. But when demand cycles turned south, costs and returns moved even more dramatically in a negative direction. Answers to the increasing volatility of this cycle often turned on ways to improve MRP demand forecasts or inventory controls. Few people questioned the assumption that scale economies made it rational to control costs by boosting output. Most businesses remained committed, like addicts, to the quest for better computer programs and bigger batches. And like addicts, few dwelled on the damage to the total system caused by “one more fix” of increased output.

How Toyota achieves low cost

But a few people did question the scale-economy assumption and the use of computers to justify large-batch material flows. Of note were those who suggested in the late 1980s that I should examine how Toyota maintained low costs and produced increasing varieties of automotive products without pushing large batches of material through specialized departments. What I discovered, eventually, is that Toyota achieves low cost by designing a production system that motivates everyone in every

How Toyota achieves low cost, continued

step to consume just enough to fill the next order, and pass it on. One feature of Toyota's system is the virtual absence of the overhead costs that so dominated the attention of American manufacturers since the 1950s, and provided livelihoods for armies of consultants and others who peddled ABC, ABM, reengineering, and the like. Indeed, it is not an exaggeration to say that Toyota Motor Corporation produces output with only the minimum resources needed to fill each order, one at a time, to customer expectations and on time. Even machinery and capital resources are scaled as much as possible to the amount needed to fill one order at a time, and no more. It is difficult to imagine how one could produce output at any lower cost.

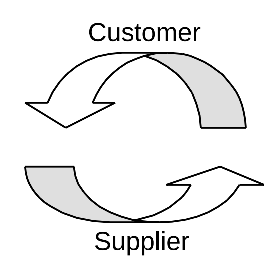
Producing "just enough," not "more" leads to lower cost at Toyota

The usual explanations of how Toyota delivers large varieties of high quality output in a short time, and at exceptionally low costs, tend to stress many unique practices at Toyota, such as kanban replenishment, automatic error detection systems, "five S" housekeeping practices, and kaizen training. None stress the point I make here; namely, that Toyota does not view low cost as a consequence of producing more, only as a consequence of consuming just enough to meet each customer's expectations, and no more. In short, Toyota's approach to cost minimization stresses "enough," not "more," and it focuses attention on resources consumed, not on output produced.

Toyota's focus is on how resources are used

Perhaps it is because they do not use accounting cost information to motivate or to direct work that Toyota's approach to controlling cost has always focused on how resources are consumed, and not on the amount of output produced. Instead of being asked to focus on cost targets, Toyota employees are expected to concentrate on how well their work satisfies the needs of downstream users. Moreover, the Toyota system organizes and connects all work so that it is easy for anyone to know and to react, at any moment, if something downstream is not just as it should be. Toyota's system thereby embodies the notion that the purpose of the business is to enable people to serve people—specifically, to enable suppliers (employees et al.) to serve customers. In a sense, every step embodies the relationship between customer and supplier such as that portrayed in Figure 1.

Figure 1. One Segment of a Stream.



The diagram illustrates a relationship and is just one segment of a continuous stream that may contain thousands of interconnected elements in an actual work setting. A key to understanding Toyota's system is that every person's work, in every step, reflects both sides of this relationship. In every step of the work, at any moment, each person is both a supplier to a downstream customer and a customer to an upstream supplier. The connections linking each supplier's capabilities with

Toyota's focus is on how resources are used, continued

each customer's wants provide all the information that is needed to move material along its path. No person's work is directed by signals or targets from a source external to the connections that comprise the work itself.

American companies rely on external information sources, quotas, and financial abstractions

In American companies, by contrast, workers and managers for many decades have relied on external information sources such as MRP schedules or standard cost performance budgets to direct and evaluate their work. The connection between customer and supplier shown in Figure 1 is not a primary feature of the American work scene. Instead, the primary focus of the American workers' and managers' attention is the quota or the target.

Not all observers of the American business scene have applauded that focus. Indeed, many years ago, Dr. Deming's Fourteen Points and his list of Deadly Diseases inveighed against the use of quotas and targets to direct and motivate people's work. However, the prevailing habit among American businesses has been to view the purpose of business through the lens of financial abstractions such as profitability, cost, return on investment, or share values.

Top management reward system is tied to financial abstractions, rather than customer service

Top executives, with their compensation usually tied in some way to those abstractions, focus everyone's attention on quotas and targets, usually reached in one way or another by growth of output and revenue. This creates, of course, an addictive pattern that has inevitably adverse consequences no different than the consequences we associated above with companies' efforts to chase lower costs by producing more and more output.

To manage well, focus on getting the means right

The solution to this dilemma that I perceive now, after observing and studying Toyota for many years, is what I call "management by means," or MBM. The task of managers is to stop treating business results as a target one reaches by aiming better. Instead, business results are an outcome that emerges spontaneously from mastering practices that harmonize with the patterns inherent in the system itself. In other words, manage the *means*, not the results.

The purpose of the workplace

Work must provide everyone in an organization with a proper livelihood, in a healthy community, and a robust natural environment. The immediate means to that end, in the workplace, is to organize every step of the work so that it creates a connection between a customer and a supplier that is designed to enhance the supplier's ability to meet downstream customers' expectations, without consuming any more resources than necessary. Ideally, the downstream customer includes not only the downstream "internal customer" who is next to receive one's work, but all subsequent "internal customers," the final consumer who "pays the bills," the community affected by the company's work practices and its products, and the natural environment that ultimately sustains the company's people and their community.

Current world pressures call for a move to MBM

While it is not customary for businesses to articulate the connections between “supplier and customer” this broadly, increasing social, political, and environmental pressures are making it necessary for them to do so. MBM—what I like to call “a next step beyond Toyota’s system”—offers a framework for articulating those connections in the broadest sense.

Reality cannot be reduced to and driven by quantitative abstractions

In businesses that move toward MBM, much less the Toyota system, management behavior will undoubtedly reflect a different worldview than the one that underlies traditional management practices observed in most organizations today. Traditional business behavior reflects the view that reality is reducible to quantitative abstractions, and management’s job is to achieve financial targets by manipulating presumably independent pieces of the business through, for example, acquisitions, divestitures, layoffs, outsourcing, downsizing, and so forth, in the belief that the whole is an additive sum of parts. In this context, cost is viewed as a quantitative measure on an absolute scale that attaches to each resource or activity as if it were an independent object in the universe. Hence, any cost accounting system, whether it is ABC or otherwise, will show an identical cost for a product made in two identically equipped plants, even though the plants are run by two different companies that connect those resources in entirely different ways. The point is that accounting systems are opaque to the relationship patterns that connect resources and activities in an organization. For accountants, and managers who think like accountants, any differences in cost are attributable wholly to differences in activities or resources, never to the way work connecting those activities and resources is organized.

Management needs a worldview based on human relationships, not financial abstractions

Managers who espouse the worldview implicit in MBM or Toyota styles of thinking view reality as relationships, not collections of objects. From this perspective, management’s job is to help people in a business create and nurture patterns of relationships that connect human talents with human needs in a context that provides everyone a proper livelihood while pursuing activities that ensure a healthy community and a robust natural environment. In this context, cost (like any financial measure of business performance) is viewed as an emergent feature of human relationships. Cost is managed by designing and nurturing proper relationships, not by manipulating parts of the business as if they were pieces on a game board. And “proper relationships” is defined by the patterns we observe in the natural systems of the universe from which the human species and human social institutions, such as business, have evolved. Honor those patterns in human economic systems and the results, financial and otherwise, will take care of themselves. Indeed, one of the dominant traits in the sample of very long-lived corporations documented by Arie de Geus of Royal Dutch Shell in his path-breaking book *The Living Company* is that top managers focus little or no attention on achieving financial targets. They focus on what it takes for a natural system to “live well” and the financial results, evidenced by centuries of continuous operation, take care of themselves.

Author information

H. Thomas Johnson is a noted authority on economic history, management accounting, and quality management. His current research focuses on the intersection of systemic thinking, modern physics, and manufacturing system design theory. He is exploring the application of natural living system principles to the design of manufacturing systems that emulate and extend the scope of the Toyota Production System.

Professor Johnson is a past-President of The Academy of Accounting Historians and he has served on the editorial boards of over a dozen major professional journals, including Accounting Review, Business History Review, International Journal of Strategic Cost Management, Journal of Cost Management *and* Quality Management Journal. *He was the Towne Lecturer to the American Society of Mechanical Engineers in 1993 and the Distinguished International Lecturer of the British Accounting Association in 1996.*

He has served on several boards including the Oregon Quality Award Board of Overseers, the RIT/USA TODAY Quality Cup Judges Board, the Core Body of TQM Knowledge Working Council for the Procter & Gamble Quality Forum, the Visteon Production System Council of Visteon Corporation, and the Advisory Board of Maxager Technology, Inc. He is active in the Association for Manufacturing Excellence and the Society for Organizational Learning.

Author or co-author of seven books and over 100 articles and reviews on subjects in accounting, economic history, and management, Johnson has received many honors for his publications, including Harvard Business School's Newcomen Award in Business History, National Association of Accountants' Lybrand Medal, and the American Accounting Association's Wildman Gold Medal. His co-authored book, Profit Beyond Measure: Extraordinary Results through Attention to Work and People *(The Free Press, 2000), received the 2001 Shingo Prize for Excellence in Manufacturing Research. His best-selling* Relevance Lost: The Rise and Fall of Management Accounting *(Harvard Business School Press, 1987 and 1991), co-authored with Robert S. Kaplan, was named by Harvard Business Review in 1997 as one of the most influential management books published in the twentieth century. His controversial and internationally acclaimed sequel to that book,* Relevance Regained: From Top-Down Control to Bottom-Up Empowerment *(The Free Press, 1992), has appeared in four languages. In 1996 Johnson's colleagues at PSU selected him for the Branford Price Millar Award for Faculty Excellence, the university's highest honor for research, service, and teaching.*

Since the mid-1980s Johnson has given hundreds of presentations and workshops to corporate, professional, and academic audiences around the world in scores of major organizations, including Alcoa, AICPA, APICS, Arthur Andersen & Co., the Association for Manufacturing Excellence, BDO Scan/Futura (Denmark), Boeing, British Petroleum, Chrysler, Consultique (South Africa), the Deming Institute, Ericsson Telefon, Ernst & Young, Ford Motor Company, the Institute of Industrial Engineers, the Institute of Management Accountants, Intel, the Japanese Production and Inventory Control Society, the National Bureau of Economic Research, the Ohio Productivity and Quality Forum, Pacific Bell, Scania (Sweden), Schneider Electric (France), Schlumberger (France), Scott Paper, Skandia (Sweden), the Society for Organizational Learning, Sprint, Studio Ambrosetti (Italy), TeleNord (Norway), Toyota Motor Manufacturing USA, Visteon Corporation, Volvo, and Weyerhaeuser.

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