



MEASURING PROFITS AND COSTS ACROSS

The Internet is shifting power from the seller to the buyer.
Sellers enable this shift by providing more and more information
about their products via their web sites.

THE SUPPLY CHAIN FOR COLLABORATION

GARY COKINS

The Internet is irreversibly shifting power from sellers to buyers. Because search engines and increased data access are available for purchasing agents, the pressure on a supplier's pricing is immense. How can suppliers counter this power shift? The more savvy suppliers have been able to truly develop robust customer profitability reporting, thus giving them visibility to contribution profit margins by type of customer, type of sales channel, and type of distribution channel for the various products and services each customer purchased. Equipped with that information, suppliers can reengineer processes and rationalize their offerings.

Collaboration has been heralded as key to successful supply chain management, but many believe that due to centuries of mistrust, collaboration between sellers and buyers is more talk than action. Genuine collaboration can be stimulated when suppliers share open-book profit and cost data. In addition, even the savvy suppliers need powerful "what-if" predictive order acceptance test tools to know whether winning a customer order is "economically" prof-

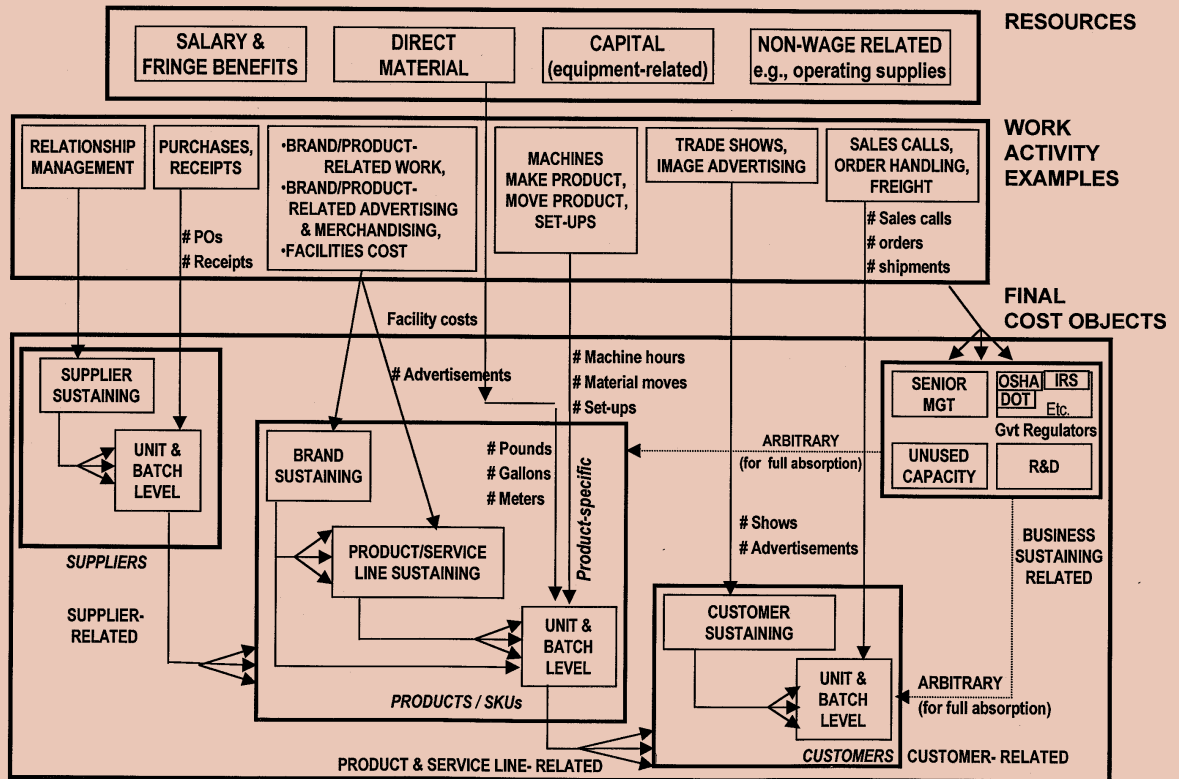
itable. There are other tough questions, such as, Do we expand the warehouse 25 percent or simply ship direct? The supplier's financial analysts are not as capable at getting the right answers as are operating managers and employee teams. This article describes how managerial accounting is morphing into managerial economics for better decision making.

The Internet is a dream for buyers

The Internet is clearly the revolution of the 21st century. Many compare its future impact on society to be greater than the changes that came from the telephone, highway systems, and even electricity. We are all becoming digital citizens as part of a global networked society. Some e-commerce advocates describe the Internet as the opportunity for people to join communities of common interest without boundaries or borders. A simplistic reduction is that the Internet is shifting power from the seller to the buyer—irreversibly. The ability for the buyer to access incomprehensible amounts of data with search engines to seek out products and services is almost limitless. Buyers will have access to sellers to purchase goods 24 hours a day, seven days a week via their website. Further, the buyers' increasing desire for unique requirements—sometimes called *mass customization*—will likely force suppliers to respond with increasing flexibility, which will add to their own costs.

Cost Management advisory board member GARY COKINS is Director of Industry Relations for The SAS Institute, the worldwide market leader in business intelligence analytical software and services, including activity-based cost management tools. Gary is an internationally recognized speaker and the author of Activity-Based Cost Management: An Executive's Guide. His e-mail is gary.cokins@sas.com and he can be reached at (248) 642-1296.

EXHIBIT 1 ABC/M Contribution Profit Margin Layering



Ironically, suppliers are assisting in the shift of power to buyers. Suppliers are providing increasingly more information about their products and services via their websites. People (from teenagers to adults) will perform exhaustive searches to identify the exact make and model of an item they want, and then they will search for a much cheaper source from which to purchase that item.

Despite all of the dot-com hoopla, the historical pattern has always been that competition will award to consumers long-run savings generated from new technologies in the form of lower prices. Suppliers will no longer be capable of protecting a niche market and enjoying as large or as lasting a profit margin as they had in the past. The Internet is a gift to buyers everywhere.

Pressure on prices— how will suppliers counter?

How can suppliers counter this power shift? Aside from the traditional continuous improvement programs to reduce internal costs, suppliers have two main avenues that involve their trading partners:

1. Understand their customer profitability to rationalize how to deal with each customer or segment. That data is shared with key customers to mutually measure and remove the unnecessary and redundant costs that buyers and sellers create amongst each other.
2. Alter their customers' behavior to minimize the power shift with menu-pricing and service-level options.

Sharing customer profitability analysis with customers. When profits are declining, a supplier's usual reaction has been to raise prices to increase revenues, but in many markets small price increases can lead customers to delay their purchase or to switch to competitors or substitutes. Both outcomes lead to lost sales. Another possibility for the supplier is to abandon unprofitable products, service lines, channels, or customers. However, this action first requires the ability to properly and accurately measure costs in order to determine true profit margins. Measuring revenues is not a problem, but measuring costs is. The activity-based cost management (ABC/M) technique solves that problem. Using its knowledge of profit contribution margins, the organization can determine intelligently what to

change and which business lines or customers to drop or to promote and emphasize.

The unique behavior of customers and suppliers themselves is the source of a much greater amount of work-creation than most people would estimate. For wholesalers and distributors, one can argue that customers cause almost *all* the work. Even when that is understood, traditional accounting systems are ill equipped to trace the costs. What is needed is to first accumulate the costs of the various support work activities for the order fulfillment, then reassign this order fulfillment to the product and customers who cause work to happen in varying amounts, and in proportion to their use.

Traditional financial accounting systems are structurally deficient to accomplish this goal. The ledger account balances must initially be translated into activity costs to even begin to trace or assign those costs in order to segment processes or products and customers. In a simple supply chain structure (i.e., suppliers to intermediaries to customers), some employees of the intermediaries (e.g., wholesalers) are unclear about how the behavior of one supplier can affect the margins of a particular group of customers. Exhibit 1 illustrates the ABC/M cost assignment network for historical spending.

The resource expenses, which are defined as exchanges of currency with third parties and employees, are converted into “calculated” costs based on their proportional demands on work. Focus on the bottom module in Exhibit 1, the final cost objects and note how various final cost objects consume *other* final cost objects. The metaphor for this cost consumption chain is the “predator food chain” of the animal kingdom, in which large mammals eat small mammals and small mammals eat plants. In short, supplier-related costs are consumed by products; and customers consume product-related costs, channel-related costs (not shown), and direct costs-to-serve. However, each cost reflects its own unique and proportionate draw on work activities and capacity. Calculating costs with ABC/M allows one to reassemble and track cost assignments for all the work activity costs to reflect how each customer, channel, and market segment consumes the costs of being served and satisfied.

With ABC/M, the reporting format of the traditional profit and loss (P&L) income statement changes; it becomes more like the layers of an onion-skin. The sequence of margin-layering matters. As customers consume (i.e., purchase) their unique quantities of the mix of products and service

lines (where, at the product level, some products may be stand-alone profitable and some not), the “costs-to-serve” customer-related costs are combined to calculate the next contribution profit margin layer. Many customer-specific “costs-to-serve” work activities traditionally are hidden in the customer support, marketing, and sales functions, but they are uniquely traceable to customers (e.g., customer service costs, selling and marketing costs, etc.).

An ABC/M system operates as a reassignment system, resource expenses into costs. The ABC/M system’s structure is the key to revealing the profit margin layers for each customer and to generating customer-specific P&L statements. As costs flow from one final cost object to another final cost object, each flow will consume the unique mix of the upstream cost object—that is, an individual customer’s total costs (*apart from* its direct costs-to-serve) are inclusive of only the product quantities and mix that it purchased.

Exhibit 2 is an example of an individual customer profitability statement. Using ABC/M, there can now be a valid P&L statement for *each* customer (as well as for logical segments or groupings of customers). A tremendous amount

**THE ABC/M CUSTOMER
P&L REPORT
QUANTIFIES WHAT
EVERYONE ALREADY
SUSPECTED:
ALL CUSTOMERS ARE
NOT THE SAME.**

of detail lies below and within each of these reports. For example, the individual products and service lines purchased can be examined in greater detail; they comprise a mix of high and low margins based on their own unit costs and prices. In other words, in a customer-specific P&L summary, the product or service line is reported as a composite average, but details about the mix are viewable. In addition, within each product or service line the user can further drill down to examine the content and cost of the work activities and materials (“the bill of costs”) for each product and service line.

ABC/M users refer to this data mining and navigating as “multidimensional reporting,” and they use online analytical processing (OLAP) software tools for viewing the output from the ABC/M calculation engine. This is powerful information. The sum of all the customer P&L statements for this type of report will be the entire business’s enterprise-wide profit (or loss)—that is, the sum can be reconciled with the company’s official books. In short, customers use a supplier’s resources differently; thus, customer costs vary among customers.

EXHIBIT 2 ABC/M Customer Profit & Loss Statement

CUSTOMER: XYZ CORPORATION (CUSTOMER #1270)

Sales	\$\$\$	Margin \$ (Sales—∑ Costs)	Margin % of Sales
Product-Related			
Supplier-Related Costs (TCO)	\$xxx	\$xxx	98%
Direct Material	xxx	xxx	50%
Brand Sustaining	xxx	xxx	48%
Product Sustaining	xxx	xxx	46%
Unit, Batch*	xxx	xxx	30%
Distribution-Related			
Outbound Freight Type*	xxx	xxx	28%
Order Type*	xxx	xxx	26%
Channel Type*	xxx	xxx	24%
Customer-Related			
Customer-Sustaining	xxx	xxx	22%
Unit-Batch*	xxx	xxx	10%
Business Sustaining	xxx	xxx	8%
			8% Operating Profit
Capital Charge** (inventories receivables)	xxx	xxx	2%
			6% Economic Profit (for EVA)

*Activity Cost Driver Assignments use measurable quantity volume of Activity Output
(Other Activity Assignments traced based on informed [subjective] percentages)

**Capital charges can also be directly charged as imputed interest to products and customers

ABC/M detects the variations; traditional cost allocations do not.

The ABC/M customer P&L report quantifies what everyone already suspected: All customers are not the same. Some customers may be more or less profitable based strictly on how demanding their behavior is. Although customer satisfaction is important, a longer-term goal is to increase customer and corporate profitability. There must always be a balance between managing the level of customer service to earn customer satisfaction and the impact that doing that will have on shareholder wealth. The best solution is to increase customer satisfaction profitably. Because increasingly more customers will expect and demand customization rather than standard products, services, and orders, understanding this balance will be important.

ABC/M data facilitate discussions about arriving at that balance. Many managers are unwilling to take any actions until presented with the facts.

Exhibit 3 combines the two key margin layers of Exhibit 2: for each customer, the product

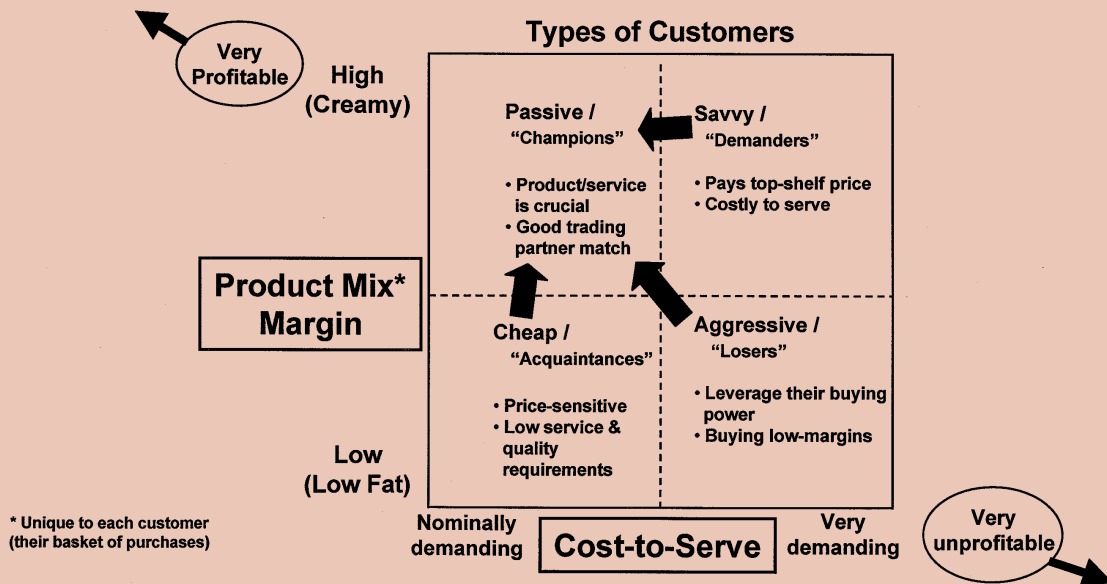
margin mix and the “costs-to-serve.” Any single customer (or cluster of customers) can be located at an intersection. Exhibit 3 provides a two-axis view of types of customers with regard to the two layers just described, the “composite margin” of what each purchases (reflecting net prices to the customer) and its “costs-to-serve.” Each quadrant of the matrix represents a zone in which four different types of customers can exist. Exhibit 3 debunks the myth that customers with the highest sales must also generate the highest profits. The objective is to make all customers more profitable, represented by driving them to the upper-left corner. Although this is a partial list, one or more of the following can accomplish making customers more profitable:

- Managing each customer’s “costs-to-serve” to a lower level (e.g., helping these customers understand the value they receive for the prices they pay—possibly modifying the customers’ behavior to reduce their drivers of cost)
- Establishing a surcharge for or repricing expensive “costs-to-serve” activities (e.g., a

EXHIBIT 3 ABC/M Customer Profitability Matrix

Customers with high sales volume are not necessarily highly profitable.

Customer profitability levels depend on whether the net revenues recover the customer-specific costs-to-serve.



- two-tiered pricing structure in which high-cost services are priced separately from products)
- Reducing services
- Raising prices
- Increasing costs on activities for which a customer shows a preference
- Shifting the customer's purchase mix through selling toward richer, higher-margin products and service lines
- Discounting to gain more volume with low "costs-to-serve" customers

With this information generated by ABC/M, each trading partner can gain much better insight into the true and relevant costs for their products, SKUs, service lines, freight, channels, and customers from major advances in profit contribution reporting and analysis and margin management.

Open-book sharing of this cost and profit data may be the catalyst needed to foster genuine collaboration at the seller-buyer interface. Many companies do not adequately understand how much of their cost structure is in fact a consequence of the collective suppliers' and customers' demands-on-work. Costs measure effects. The thought of influencing a customer or supplier to behave differently in order to lessen the organization's employee workload is often outside the realm of many organizations' thinking.

Altering trading partner behavior requires trust among suppliers and customers. Businesses have historically been wary of releasing information to trading partners even when that information would aid mutual understanding—and one place where disclosure is needed is regarding an organization's cost structure. Because ABC/M systems are user-friendlier, trading partners are more motivated to collaborate using the data as a form of open-book management.

The second alternative for suppliers to reduce their loss in power resulting from the Internet is to entice or manipulate their customers to select a different service-level option at a different price.

Menu-based pricing and service-level options with activity-based planning (ABP). Suppliers can alter the behavior of their trading partners. Through collaboration, persuasion, or creation of incentives for one's suppliers and/or customers, fewer demands on work can be placed on the organization's employees. The newly freed-up time of employees plus their associated operating expenses can then be used to either serve new customers or to handle increased business from existing customers. (Alternatively, employees can be transferred to where they might be needed elsewhere in the organization. As a last resort, unneeded employees are removed to realize the cost savings.)

Initially, suppliers will exclusively and perhaps selfishly use their ABC/M data for their own private benefit. They will use it for incremental price and cost tradeoff analysis. For example, to entice a customer to reduce its current level of services, they may offer the customer a reduced unbundled price incentive. Presuming that the customer accepts the new arrangement, the supplier must know in advance how much of the resulting costs will be available and realizable for savings. The critical test equation comes from basic economics:

For service reductions, the incremental change in price and revenues must always be superior to the incremental change in cost (and vice-versa for service increases, where changes in revenues must always exceed changes in costs).

If this condition is not satisfied, then the supplier comes out losing, not gaining, profit if the customer elects to select the option. A supplier can attempt to convert an unprofitable customer into a profitable one by reducing both its service level and price to that customer; however, the change in cost must decline more than the change in price and revenues for a positive profit impact. The trade-off of price and cost can go in both directions. The service level can be raised, but presumably the price and resulting revenues will rise even more than the incremental costs to yield incremental profit.

This is a very different and important use for ABC/M data. Note that the data is not used in this application for internal productivity improvement; it is used to influence external demand. The key for the supplier is to somehow alter the behavior of its customers *in harmony* with the supplier's own cost structure. It is brilliant if it can be done. However, the suppliers must have a very good understanding of their own cost structure and how it varies with changes. ABC/M data is essential for this.

Forget the past methods of pricing and quoting. When a customer inquires about the sales or order entry function of a supplier to ask what the price might be for a personalized order with various options and features, the reply from a clerk or telesales person must be quick. It will not be sufficient for a supplier to have a "static" web-catalog that is periodically updated annually or quarterly. A supplier's web-catalog must be dynamic and include product features, options, pricing, and availability data. In some industries, supplier auctioning and reverse-bidding systems will be commonplace to match the buyers' bidding systems. In order to validate an acceptable profit margin, the supplier's host

computer system will require a robust, rule-based predictive cost system relative to the slow and cumbersome methods that suppliers have today. In short, price quoting and customer order acceptance testing can not be a back-of-an-envelope exercise. It must leverage rule-based models that reflect a supplier's cost structure.

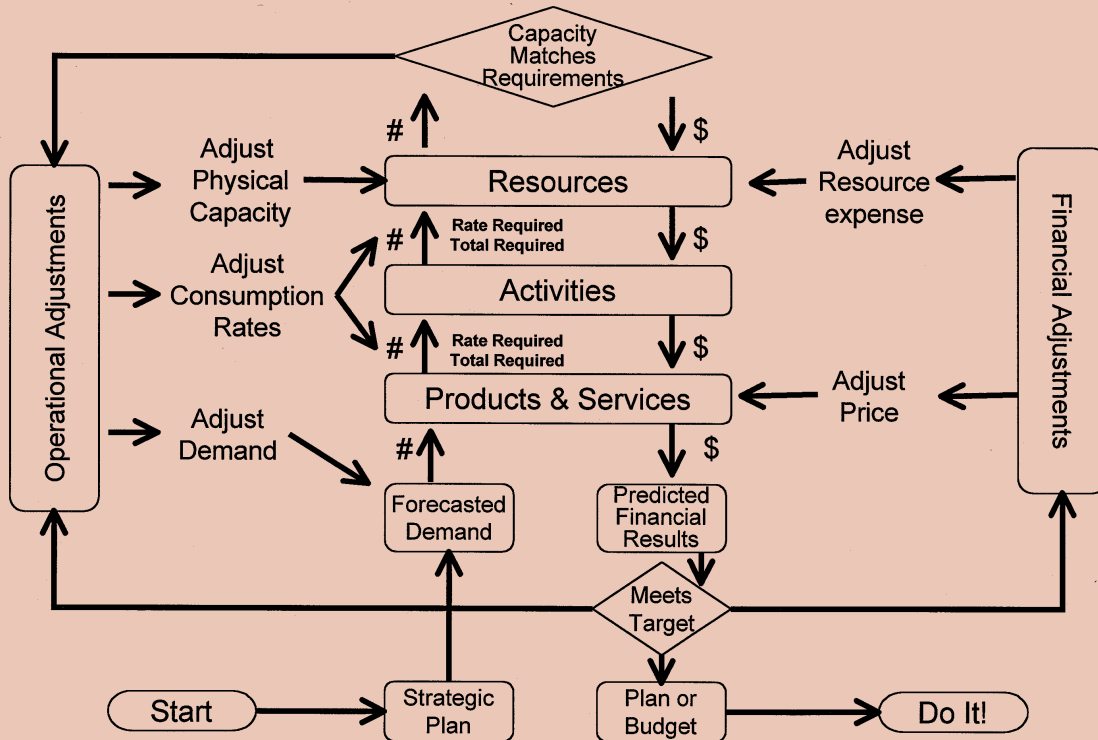
There are some dangers and risks from flawed thinking when customers and their profit contributions are analyzed. One of the risks that the supplier will encounter involves the assumptions it makes about the inclusion or exclusion of certain types of expenses when the supplier is evaluating decisions. Predicting costs is critical and tricky. Most companies extrapolate cost rates based on historical standards. However, if the future reveals a shift in the mix and volume of products, services, and types of customers, then the impact can mean those preset cost rates are much less valid, if not invalid. This is because the impact of mix changes is that the company will have too much of the resources it no longer needs and not enough of the resources it will need. Senior management is sure to add the needed resource expenses or risk service-level erosion. Management will find it difficult to remove the excess resources (capacity), especially in the short term.

Exhibit 4 illustrates how capacity planning is the key to the solution. Planners and budgeters have traditionally focused on the *direct* and recurring resource expenses, not the *indirect* and overhead support expenses. They almost always begin with estimates of future demand in terms of volumes and mix. Then, by relying on standards and averages (such as the product routings and bills-of-material used in manufacturing systems), planners and budgeters calculate the future required levels of manpower and resources. The activity-based planning (ABP) method suggests that this same approach can be applied to the indirect and overhead expense areas as well or to processes where the organization often has a wrong impression that they have no tangible outputs.

Today's generation of ABC/M software tools have added the necessary functionality to calculate an ABC/M model "in reverse," but using *physical* consumption rates, not *cost* rates. The ABC/M software vendors recognized that ABP begins with the cost objects, such as sales forecasts of products. Demand volume drives activity and resource requirements. ABP is forward-focused, but it uses actual historical performance data to develop baseline con-

WHEN THE FINANCIAL RESULT IS UNACCEPTABLE, MANAGEMENT HAS OPTIONS OTHER THAN TO CONTINUE TO KEEP READJUSTING RESOURCE CAPACITY LEVELS.

EXHIBIT 4 Rough-Cut Capacity Planning



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sumption rates. These consumption rates are used to compute resource requirements.

Activity-based planning (ABP) assesses the quantities of workload demands that are ultimately placed on resources. In step 1 in Exhibit 4, ABP first asks, "How much activity workload is required for *each* output of cost object?" These are the activity requirements. Then ABP asks, "How much resources are needed to meet that activity workload?" In other words, a workload can be measured as the number of units of an activity required to produce a quantity of cost objects. The determination of the required expenses to match the forecasted demand does not occur until after the activity volume has been translated into resource capacity using the physical resource driver rates from the ABC/M model. These rates are regularly expressed in hours, full-time equivalents (FTEs), square feet, pounds, gallons, and so forth.

As a result of step 1, there will always be a difference between the existing resources available and the resources that will be required to satisfy the plan—the resource requirements. At this stage in the ABP planning exercise, organizations usually discover that as previously mentioned, the supplier

may have too much of what they do not need and not enough of what they do need to meet the customers' expected service levels (e.g., to deliver on time). The consequence of having too much implies a cost of unused capacity. The consequence of having too little is a limiting constraint that if not addressed implies erosion in customer service levels.

In step 2, a reasonable balance must be achieved between the operational and financial measures. Now, capacity must be analyzed. One option is for the budgeters, planners, or management accountants to evaluate how much to adjust the shortage and excess of actual resources to respond to the future demand load. Senior management may or may not allow the changes. There is a maximum expense impact that near-term financial targets (and executive compensation plan bonuses) will tolerate. These capacity adjustments represent real resources with real changes in cash outlay expenses if they were to be enacted.

Assume that management agrees to the new level of resources without further analysis or debate. In step 3 of the flow in Exhibit 4, the new level of resource expenditures can be determined and

then translated into the costs of the work centers and eventually into the costs of the products, service lines, channels, and customers. Step 3 is classic ABC/M—but for a future period. Some call this a *pro forma* ABC/M calculation. The quantities of the projected drivers are applied, and new budgeted or planned costs can be calculated for products, service lines, outputs, customers, and service recipients. At this point, however, the financial impact may not be acceptable. It may show too small a financial return—below the company’s acceptable ROI hurdle rate.

When the financial result is unacceptable, management has options other than to continue to keep readjusting resource capacity levels. These other options may not have much impact on expenses. Exhibit 4 reveals five types of adjustments that planners and budgeters can consider for aligning their expected demand with resource expenditures to achieve desired financial results. In addition to adjusting capacity and consumption rates, demand can be throttled, prices cautiously raised or lowered, and suppliers (or employees) can be pressured for lower prices or wage and benefit arrangements. This approach has been called a “closed loop activity-based planning” framework. In summary,

ABP calculations introduce technology that supports the economic thinking behind marginal cost analysis.

Better cost data leads to better decisions

How can suppliers recover any of the power they are losing to buyers due to the Internet? They do have options, but suppliers will need to be savvy. Information technology is their wild card. ABC/M and ABP will be part of the supplier’s solution. However, many suppliers mistrust their own cost data. Most companies operate with a resigned acceptance that their cost accounting data is “a bunch of fictitious lies—but we all agree to it.” Understanding true and actual costs is not the whole solution, but it is a part of the solution to increase interfirm trust along the supply chain and better manage the entire chain’s costs and profit margins.

Information technology is enabling the trading partners along the value-creation chain to better coordinate and collaborate for mutual benefit. However, trading partners will require cost accounting systems, including ABC/M and ABP, that are superior to the conventional accounting systems they all struggle with today. ■