

# LEAN ACCOUNTING AND ACTIVITY-BASED COSTING —

Progressive accountants recognize that there can be two or more coexisting management accounting methods.

## A CHOICE OR A BLEND?

GARY COKINS

**T**he management accounting community has been debating about the most appropriate costing method. While some lean accounting advocates who create value stream maps criticize activity-based costing (ABC), ABC has its own passionate supporters because it provides much greater cost accuracy and visibility to cost drivers than the flawed and misleading costs from traditional cost allocation methods. So who is correct?

To resolve this discussion, we should not ask which method is correct, but rather a different question: How can a company have two or more coexisting management accounting methods? There can be different costs for different purposes used by different types of managers and employee teams.

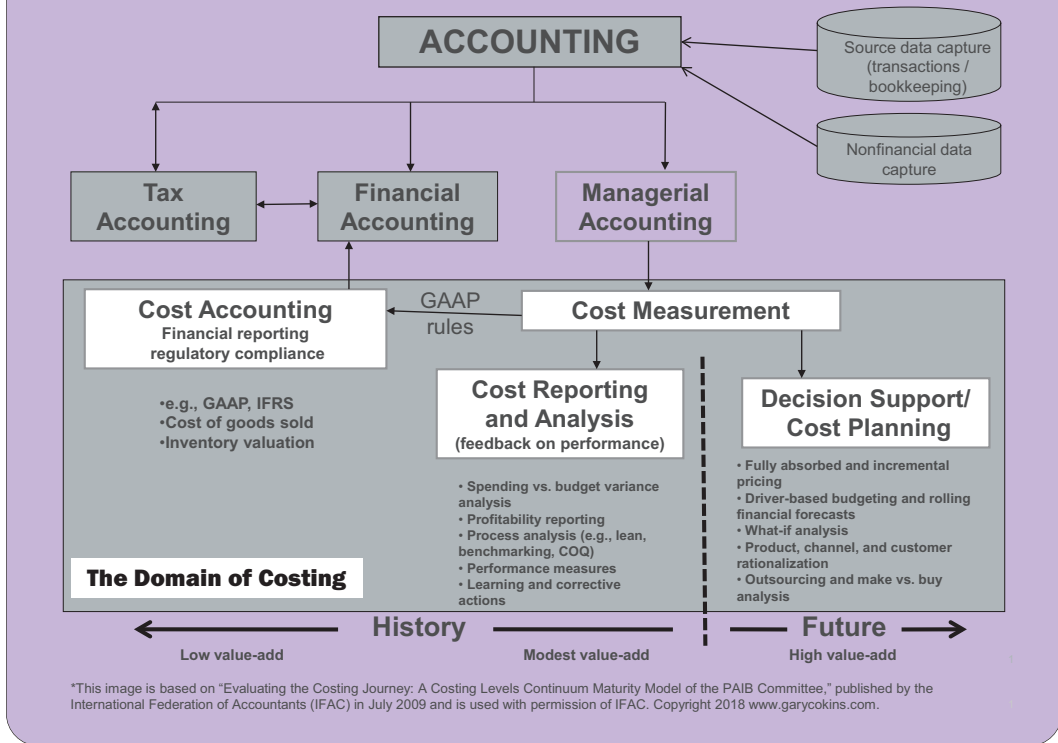
Lean accounting can be used *operationally* by managers to focus on removing waste, reducing throughput cycle time, and improving productivity. ABC can be used *strategically* to better understand the sources of what drives product, service line, distribution channel, and customer profitability. ABC models the linkages of resource expenses through the processes to products and customers and ultimately to the wealth creation of shareholders and owners.

Exhibit 1 displays the three broad categories of accounting: (1) tax accounting; (2) external financial accounting (e.g., GAAP) for regulatory compliance and investors; and (3) internal management accounting to support decision-making. Each type calculates different costs of outputs or products. Progressive accountants

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**EXHIBIT 1** Cokins' Taxonomy of Accounting



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recognize that two or more management accounting methods can coexist.

### My aha moment about lean accounting

Over 10 years ago, I was suspicious of lean accounting. I did not know what it was. How could it be different from standard costing or ABC for product costing? But then I attended a conference and learned from a large manufacturing company's presentation about their successful implementation of lean accounting. The presenter began by saying that prior to implementing the lean accounting system, the company surveyed the level of knowledge of financial statements among factory workers and shop floor supervisors. Very few knew much about these financial statements. As part of the implementation process, factory workers were provided value stream income statements for their respective areas and made operational changes based on that new information. The cost improvements were measured each quarter with the lean accounting system, and workers were paid a cash bonus for a portion of the cost savings. This incentive led to greater future cost

savings. After a year, the company retested the workers' knowledge and found that almost everyone understood the financial statements. That was proof to me that lean accounting had its own benefits.

After the presentation, I asked the presenter, "Your lean accounting system measures process costs but not your variety of individual product costs. How do you know the level of product gross profit margins?"

He replied, "Oh, the accounting department operates an ABC system for that. It's used for strategic product rationalization and by the marketing, sales, and R&D staff."

I then realized that two (or more) costing systems can, in fact, successfully coexist.

### Strategic versus operational ABC

Let's first discuss ABC before moving on to lean accounting. There is a common misconception that organizations must use a single enterprise-wide ABC system. However, multiple ABC systems can be constructed for a single organization. There are two main users and decision-makers of ABC data: strategic and operational managers.

**EXHIBIT 2** The General Ledger View Is Structurally Deficient for Decision Analysis

**From: General Ledger**

Chart-of-accounts view			
Claims processing department			
	Actual	Plan	Favorable/ (unfavorable)
Salaries	\$621,400	\$600,000	\$(21,400)
Equipment	161,200	150,000	(11,200)
Travel expenses	58,000	60,000	2,000
Supplies	43,900	40,000	(3,900)
Use and occupancy	30,000	30,000	—
<b>Total</b>	<b>\$914,500</b>	<b>\$880,000</b>	<b>\$(34,500)</b>

**To: ABC Database**

Activity-based view	
Claims processing dept.	
Key/scan claims	\$ 31,500
Analyze claims	121,000
Suspend claims	32,500
Receive provider inquiries	101,500
Resolve member problems	83,400
Process batches	45,000
Determine eligibility	119,000
Make copies	145,500
Write correspondence	77,100
Attend training	158,000
<b>Total</b>	<b>\$914,500</b>

Activity cost drivers

# of  
# of  
# of  
# of  
# of  
# of  
# of  
# of  
# of  
# of

Products / Customers

\$914,500

**When managers get this kind of report, they are either happy or sad, but they are rarely any smarter!**

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In fact, there are two types of ABC model designs that serve each type of user, but they both follow the same expenses-to-costs assignment design to calculate costs based on costing's causality principle. The difference between the two types of ABC models are the inclusion or exclusion of pricing or revenue data for calculating profit margins and the scope of expenses included in each model.

Strategic ABC is enterprise-wide in scope. It is about first "doing the right things" before "doing them well." That is, first ensure that the company is selling profitable products and services to customers who are also profitable. Strategic ABC is about enhancing revenues and earning higher profits based on (1) the products' or services' value to justify good prices and (2) consideration of varying levels of demand of different types of customers.

Operational ABC is not enterprise-wide, but rather addresses individual functions, departments, or business processes. Its intent is not about analyzing profit margins; instead, it focuses on improving processes, managing process costs more efficiently,

removing waste, and optimizing asset utilization.

In short, the difference in ABC model design can be summarized as follows:

- Strategic ABC includes all of the enterprise expenses and then subtracts the traceable costs (to products, service lines, distribution channels, and customers) from sold line items (i.e., pricing and revenues) to compute the profit margins.
- Operational ABC includes only those expenses that are mainly involved in a function, department, or process. It focuses on analyzing the work to remove waste, manage unused capacity, increase productivity, and improve asset utilization.

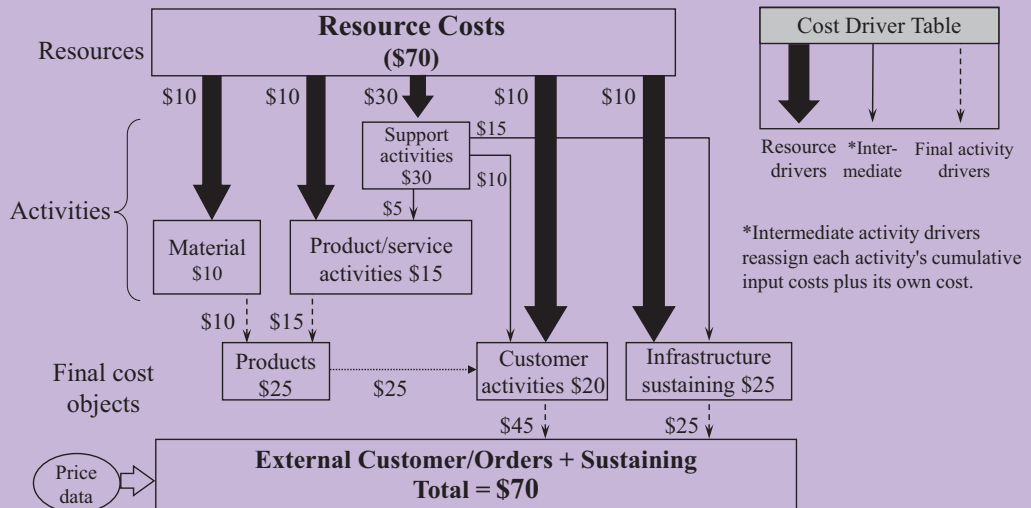
One of the values of commercial ABC software is that it can consolidate multiple *operational* ABC models into a single companywide *strategic* ABC model.

### ABC model design

Some accountants continue to preserve the status quo by defending their simplistic

### EXHIBIT 3 Multilevel Cost Flowing: The Math

ABC as an enterprise system. This example begins with \$70. It then reassigns and accumulates the costs into the final cost objects (outputs) without double counting.



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and arbitrary cost allocations as adequate for product and service line costing. That costing may have been adequate in the past. However, the use of volume-based cost allocations (e.g., number of direct labor hours or dollars, number of units produced, sales amounts, department headcount) provides reasonably accurate calculated costs only when the following conditions are present:

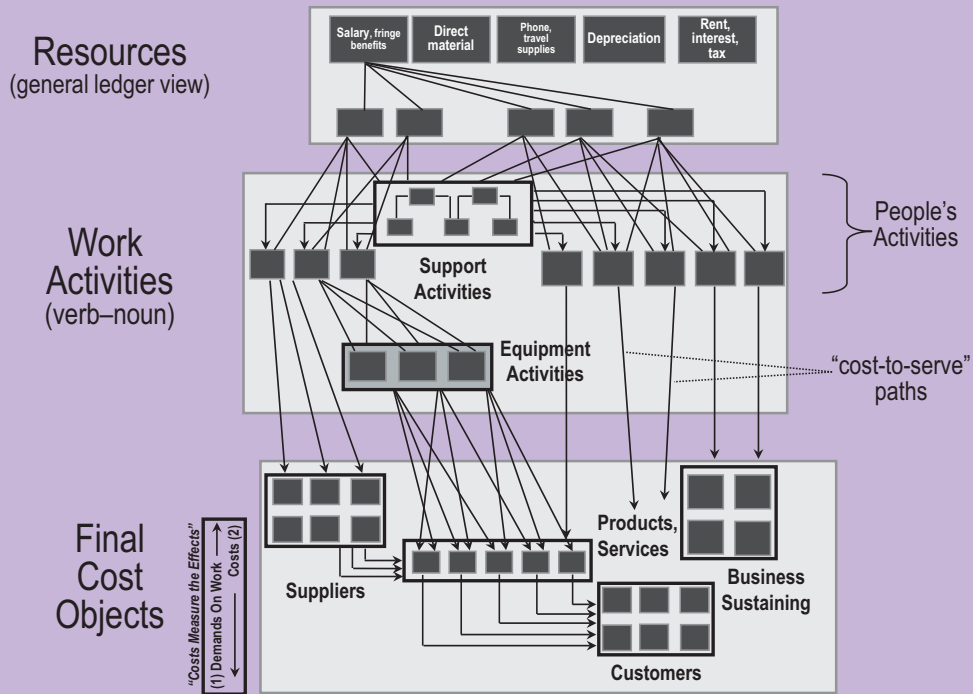
- few and very similar product and service lines;
- low indirect expenses (i.e., overhead);
- homogeneous conversion processes;
- homogeneous distribution channels, customer demand, and customers;
- low selling, distribution, and administrative expenses; and
- very high profit margins.

How many organizations possess these characteristics? Hardly any do today. Perhaps simple cost allocations worked when Henry Ford was producing thousands of Model-T automobiles, all black, with minimal indirect expenses — but not anymore. The design and architecture of the ABC cost assignment network provides the solution when there is complexity and substantial diversity and variation of products (e.g., different sizes, colors, and ranges) and service lines.

Exhibit 2 illustrates ABC. I explain this exhibit in simple terms: The right side is good because the left side is bad! Now, I do not mean that the general ledger cost center reporting on the left side is a bad thing. In fact, just the opposite: The general ledger is a wonderful instrument for what it is designed to do — accumulate spending transactions into their expense accounts for each cost center. The problem is that the data in that format are structurally deficient for decision support for anything other than the most primitive form of control — actual to budget variance reporting. Translating the ledger expense accounts equivalently into the language of work activities' calculated costs (the right side in the exhibit) corrects this deficiency. Therefore, when managers receive their monthly cost center report, they are either happy or sad depending on their actual to budget cost variances, but they are rarely any smarter! ABC makes them smarter.

Exhibit 3 illustrates in basic terms the arterial structure of an ABC assignment network. It demonstrates full absorption costing where the \$70 of resource expenses traces through the work activities and piles

**EXHIBIT 4 ABC/M Cost Assignment Network**



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up in the final cost objects. Note that \$30 of support activities goes in three directions. The \$30 represents *intermediate* activities that are consumed by other activities, not by final cost objects.

If the \$30 were improperly assigned by disregarding and violating costing's causality principle, the result would overcost and undercost both the product costs and the customer costs, thus reporting flawed and misleading cost data. ABC uses multiple stages to trace and segment all the resource expenses as calculated costs through a network of cost assignments into the final cost objects. ABC facilitates more accurate reporting because it honors the costing property of proportional *traceability* — not broadly averaged cost allocation factors without causality.

In complex support-intensive organizations, there can be a substantial chain of indirect activities preceding the direct work activities that eventually trace into the final cost objects. These chains result in activity-to-activity cost assignments and rely on intermediate activity drivers in the same way that final cost objects rely on activity

drivers to reassign costs to them based on their diversity and variation.

Given the existence of commercial ABC software, the direct costing of indirect costs is no longer an insurmountable problem. ABC allows intermediate direct costing to a local process or to an internal department customer that causes the demand for work. That is, ABC cost flow networks no longer have to “hit the wall” of limited spreadsheet software restricted by columns-to-rows math that is racked and stacked. In contrast, ABC software is arterial in design. It flows costs flexibly. Eventually, via this expense assignment and tracing network, ABC reassigns 100 percent of the resource expenses into the final products, service lines, distribution channels, customers, and business-sustaining costs. In short, ABC connects customers to the unique resources they consume — and in proportion to their consumption — as if ABC were an optical fiber network. Visibility is provided everywhere throughout the cost assignment network.

With ABC, the demands on work are communicated via activity drivers and their driver unit-level cost consumption rates.

Activity driver cost rates can be thought of as “very local burden rates.” They reassign expenses into costs at a more granular level than in traditional standard costing systems, and with arterial flow streams, not the accountant’s rigid step-down cost allocation method that reduces costing accuracy.

### The multistage ABC model design

Examine the ABC cost assignment network in Exhibit 4, which consists of three modules connected by cost assignment paths. Imagine the cost assignment paths as pipes and straws, where the diameter of each path reflects the amount of cost flowing. ABC is not a process flow. It is a cost reassignment network. The inputs (i.e., resource expenses) exactly equal the outputs (i.e., costs of the final cost objects), which comforts accountants because the expenses exactly reconcile with the items being costed. The power of an ABC model is that the cost assignment paths and destinations provide traceability to segment costs from beginning to end — from resource expenditures to each type of (or each specific) customer, the origin of all costs and expenses.

It may be useful to mentally reverse all the arrowheads in Exhibit 4 to go in the opposite direction — from bottom to top. This switch reveals that all expenses originate with a demand-pull from customers, and the calculated costs simply measure the effect. The ABC network is basically a snapshot view of the business conducted during a specific time period.

Resources, at the top of the ABC cost assignment network in Exhibit 4, represent the capacity to perform work because they provide all the available means that work activities can draw on. Resources can be thought of as the organization’s checkbook. This is where all the period’s expenditure transactions are accumulated into buckets of spending. Examples of resource expenses include salaries, operating supplies, or electrical power. These are the period’s cash outlays and amortized cash outlays, such as for depreciation, from a prior period. It is during this step that the applicable resource drivers are developed to convert resource expenses into activity costs. A popular basis for tracing or assigning resource expenses is the time (e.g., number of minutes) that

people or equipment spend performing activities. Percentage splits of time among activities are also popular.

The middle module in Exhibit 4 — the activity module — is where work is performed. This is where resources are converted into some type of work by employees or equipment assets. The activity cost assignment step contains the structure to assign activity costs to cost objects (or to other activities), utilizing activity drivers as the mechanism to accomplish this process. Later in this article, we will see that the activity costs can be displayed sequentially for lean accounting’s process view of costs as a value stream map.

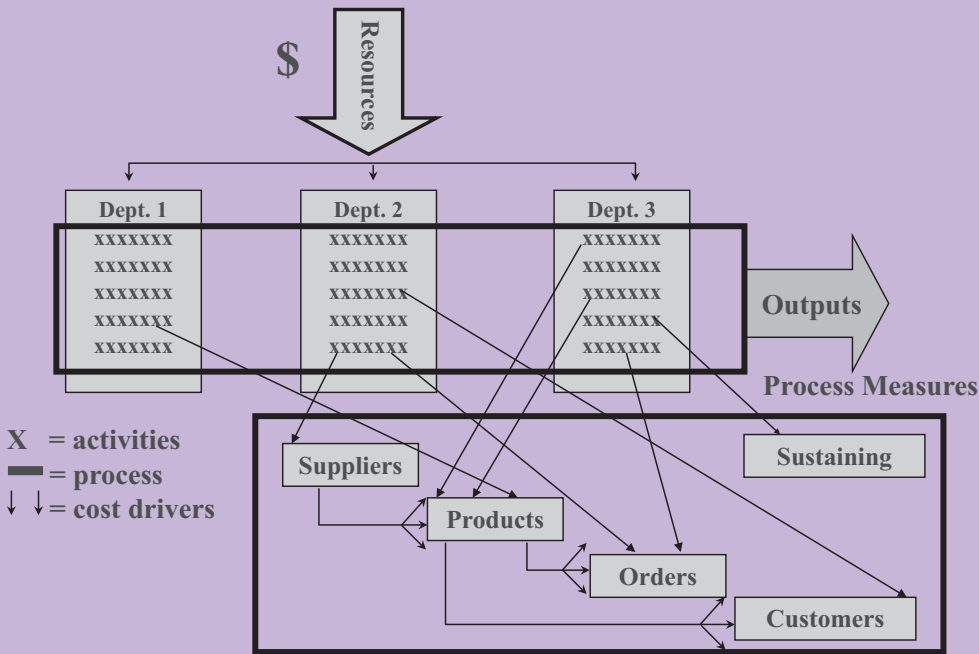
The cost objects module, at the bottom of the ABC cost assignment network in Exhibit 4, represents the broad variety of outputs and services where costs ultimately accumulate. The customers are the *final-final cost objects*. The existence of customers creates the need for an expense and cost structure in the first place. Cost objects are the persons or things that benefit from incurring work activities. Examples of cost objects are products, service lines, types of customer orders, distribution channels, customers, and outputs of internal processes. Cost objects can be thought of as the “what” or “for whom” work is done.

**Business-sustaining final cost objects.** Some activities in an organization do not directly contribute to customer value, responsiveness, and quality. That does not mean those activities can be eliminated or even reduced without harming the business. For example, preparing required regulatory reports certainly does not add to the value of any cost object or to the satisfaction of the customer. However, that work activity does have value to the organization because it enables it to function in a legal manner. These types of activity costs are usually traced to a sustaining cost object group commonly called *business-sustaining costs*. This separates the business-sustaining costs from costs involved with making or delivering a product or serving a customer. Business-sustaining costs still need to be recovered for the company to be profitable,

**THE POWER OF AN ABC MODEL IS THAT THE COST ASSIGNMENT PATHS AND DESTINATIONS PROVIDE TRACEABILITY TO SEGMENT COSTS FROM BEGINNING TO END.**



**EXHIBIT 5** The Vertical View of Assigning Costs



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but they should not be allocated to products or customers because they do not cause those type of expenses.

Although some people are initially intimidated by Exhibit 4, it makes more sense the more you work with ABC. The message is that costing is modeling, not T-accounts in a general ledger accounting system. Also, the ABC cost assignment network is related to an observation that has become known as Metcalfe’s Law: The value of a network increases as the number of nodes increases.

The key to a good ABC system is the design and architecture of its cost assignment network. The majority of cost accuracy is derived from the cause-and-effect relationships in the network. ABC tolerates estimates from managers in place of extractions of data from source systems because cost reassignments must normalize to 100 percent. Otherwise the cost model will not perfectly reconcile expense inputs with the cost outputs. The nodes are the sources and destinations through which all the expenses are reassigned to costs. Their configuration helps deliver the utility and value of the data for decision-making.

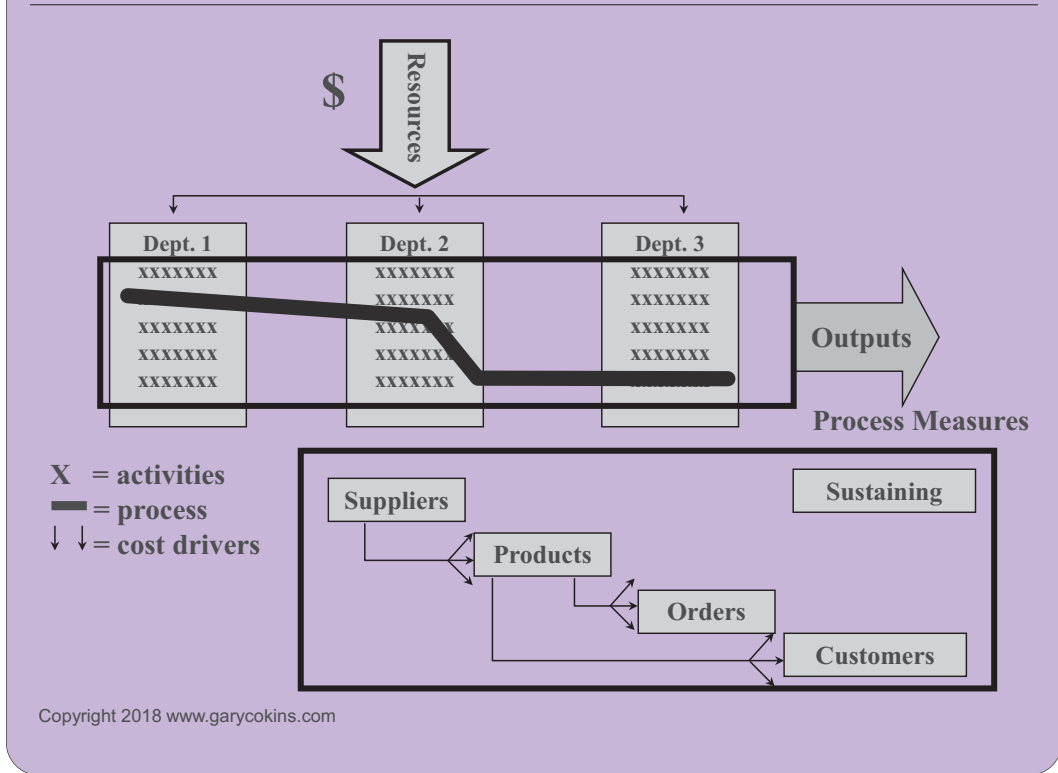
### The process view: Lean management

Managing with a process view has created a growing need for better managerial accounting information. This is where lean management and lean accounting fit in. Managing end-to-end processes and managing the work activities that compose these processes go together. By defining a business process as comprising two or more logically related work activities intended to serve end customers, integrating processes, outputs, and measured costs becomes even more important for managers and teams. Money is the language of business.

There are two ways to organize and analyze ABC work activity cost data: The *horizontal* process view sequences and additively builds up costs, whereas the *vertical* cost assignment view, as previously described, transforms resource expenses into output costs by continuously reassigning costs based on cause-and-effect tracing (i.e., cost allocations).

Using traditional general ledger accounting systems, managers are usually denied visibility of many of the costs that belong to the end-to-end business processes. This is because multiple cost centers may be doing similar work together. The cost centers

**EXHIBIT 6** The Horizontal View of Sequencing Costs



are silos with barriers to viewing the end-to-end processes across the cost centers. This is particularly apparent in the stocking, distribution, marketing, and selling expenses that the traditional accounting expenses to the month's period. With traditional cost allocations, these sales, general, and administrative expenses are not proportionately traced to the costs of the unique products, containers, services, distribution channels, or customers that cause those costs to occur.

**The two views of costs: The assignment view versus the process view**

There is substantial confusion between process view costing and vertical view output costing (e.g., product costs), even by accountants! Let's clarify the differences.

As mentioned previously, ABC supports two separate costing structures: (1) the horizontal process cost view governed by the time sequence of activity costs that belong to the various processes, and (2) the vertical cost reassignment scheme governed by the variation and diversity of the cost objects. In effect, think of the vertical

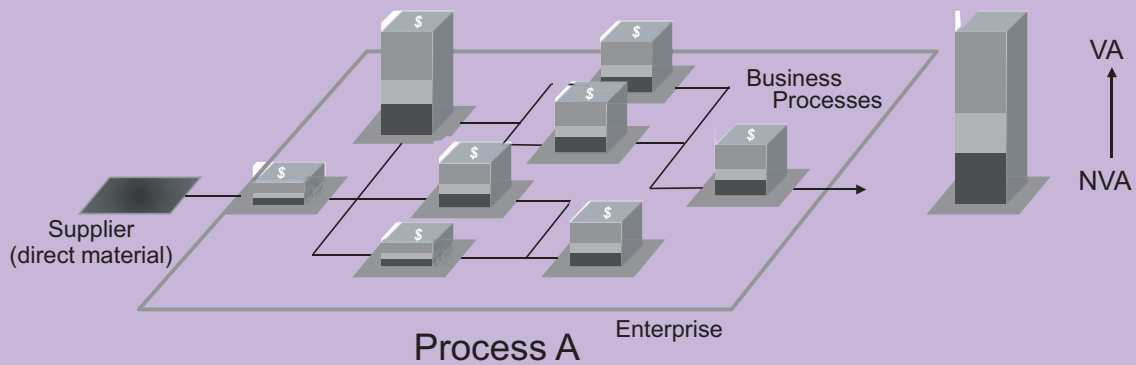
ABC cost assignment view as being *time-blind*. It does not care if a work activity comes before or after another work activity. In contrast, the process costing view, at the activity stage, is *output mix-blind*. It reflects how the diversity and variation of products uniquely consume the activity costs. Cost assignment and business process costing are two different views of the same resource expenses and activity costs; they are equivalent in amount, but the display of the information is radically different.

**Vertical axis.** The vertical axis, as illustrated in Exhibit 5, reflects costs as they are sensitive to demands from all forms of product, channel, and customer diversity and variety. The work activities consume the resources, and the products and customer services consume the work activities. The ABC cost assignment view is a cost consumption network chain. When each cost is traced based on its unique quantity or proportion of its driver, all the resource expenses are eventually reagggregated into the final cost objects. This is 100 percent expenses-to-costs reconciliation, which provides much more accurate measures of



**EXHIBIT 7** Processes: Six Sigma, Lean Management, and Value Stream Mapping

Processes include activities that have high to low *value-adding* content.



ABC also provides per unit costs of outputs for cost visibility and benchmarking.



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**EXHIBIT 8** ABC/M's Attributes Can Suggest Action

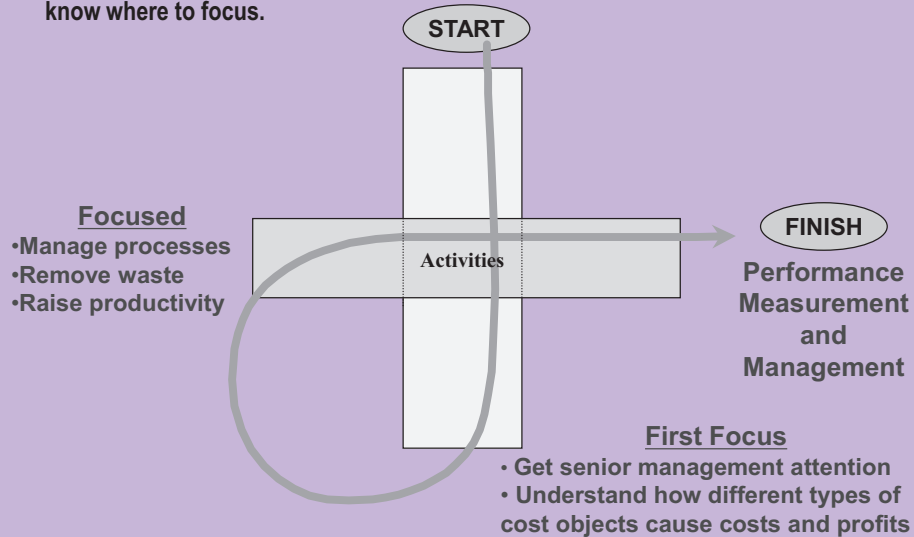
Exceeds expectations	Opportunity Scale back \$	Strength Leverage and create leadership \$
	Perhaps a third party has a better cost structure or skill than you. \$ Outsource	Improve performance immediately \$ Risk
Level of Performance	Postponable	Critical
Below expectations	Level of Importance	

\$ = activity

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## EXHIBIT 9 Time-phasing ABC View into the Process View

By first reporting on the costs of outputs, senior management will be engaged and know where to focus.



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product, service line, distribution channel, and customer costs than the traditional and arbitrary “peanut butter–spreading” cost allocation method.

**Horizontal axis.** The horizontal view of activity costs, as illustrated in Exhibit 6, represents the business process view, or the lean accounting view. A business process can be defined as two or more activities or a network of activities with a common purpose. Activity costs belong to the costs of business processes. Across each process, the activity costs are sequential and additive. In this orientation, activity costs satisfy the requirements for popular flow-charting, process-mapping, and process-modeling techniques. Business process–based thinking, which can be visualized as tipping the organization chart 90 degrees, is now dominating managerial thinking. ABC provides the cost elements for process view costing that are not available from the general ledger, which is restricted by the barriers of cost centers.

In summary, the vertical cost assignment view explains *what specific things cost* and *why things have a cost*. This provides insights into *what causes costs*. The horizontal process view displays *how costs additively build up* over time.

### The process view: Lean accounting

Exhibit 7 illustrates a three-dimensional view of Exhibit 6, which is known as a value stream map. The stacks are the activity costs, and the height of each stack measures the amount of the activity cost. Each activity can be segmented with a third dimension of costs referred to as “attributes.” A popular attribute categorizes activities into value-added or non–value added. This is illustrated in Exhibit 7 with a three-level spectrum.

With ABC software, many types of attributes can be defined. Exhibit 8 displays two attributes that can be combined into a two-axis grid: the level of performance and the level of importance. Each activity in the value stream map can be scored and located at its intersection on the grid. There are suggested actions to take based on where each activity and its cost are located.

### Lean accounting or ABC: A choice or a blend?

Exhibit 9 illustrates how the two costing methods described here can coexist. The exhibit suggests starting with ABC’s vertical view of costs to first understand, for strategic purposes, the true costs of outputs (useful

for benchmarking) and profit margins. ABC serves as a focusing tool here. Then sequence the activity costs in the horizontal process view by “stringing the pearl necklace” of activity costs. This view becomes the value stream map for the purpose of *operational* productivity improvement.

The message here is do both types of costing: lean accounting for productivity improvement, and ABC for understanding profit margin layers and the cost drivers that determine them. It is acceptable to have two (or more) coexisting costing methods. ■