GERMAN *vs.* UNITED STATES

COST MANAGEMENT

WHAT INSIGHTS DOES GERMAN COST MANAGEMENT HAVE FOR U.S. COMPANIES?

By David E. Keys, CMA, CPA, and Anton van der Merwe

EXECUTIVE SUMMARY

German cost management systems are more detailed and comprehensive than American systems. This analysis of how the systems work highlights their advantages and disadvantages.

GERMANY'S ECONOMIC SUCCESS, before reunification, rivaled Japan's, and a significant contributor to this achievement is German cost management. An integral part of overall German competitiveness and economic success, German cost management has been widely adopted outside of Germany—in Switzerland, Sweden, Norway, Austria, France, The Netherlands, Namibia, and South Africa.

What are the advantages and disadvantages of German cost management relative to United States cost management? The cost management advantages can be divided into seven areas. U.S. organizations may want to adopt some or all of these approaches if the advantages outweigh the disadvantages.

German cost management:

1. Uses a more comprehensive approach,
2. Uses a different approach to cost drivers,
3. Has a more detailed approach to cost control,
4. Assumes a greater willingness to make estimates,
5. Has a more accurate assignment of costs to the right year,
6. Has better use of different costs for different purposes, and
7. Makes a clear conceptual separation between financial accounting and management accounting.

A More Comprehensive Approach

The German cost management system (CMS) is more comprehensive than the typical U.S. CMS because of the levels of organizational planning and control that are involved, the assignment method of selling and administrative costs, and the planning process. The German CMS includes the three levels of the organizational planning and control process: strategic, tactical, and operational. The purpose is to provide managers with all of the information that they need for short-term and long-term time horizons, for planning and control, and for strategic, tactical, and operational decisions. Some U.S. companies do not have all three systems, and if U.S. companies do have all three systems, the three systems generally are not integrated.

Additionally, selling and administrative costs are assigned to the products or services in German CMSs. In U.S. activity-based costing applications, selling and administrative costs are often not assigned to the products and services. Therefore, German CMSs provide a more comprehensive product cost than typical U.S. ABC applications.

German CMSs also include the analytical cost planning process (ACPP) which is illustrated in Figure 1.[1] Cost rates for drivers are planned each year during the ACPP. Direct and indirect, fixed and proportional, as well as primary and secondary (explained below) costs are included in the ACPP. Primary costs originate in the cost center under consideration, while secondary costs originate in other cost centers. One goal of the ACPP is to direct the organization's focus toward the future in a consistent manner with organizational goals. Also, the ACPP uses a zero-based approach to justify costs. U.S. CMSs have no formal process that includes all of these costs and the zero-based approach.

Once cost rates are calculated in the ACPP, a detailed analysis of the plan is conducted. Cost rates are formally compared with historical rates, with similar cost rates within the organization, and with market rates. Also, the supply of resource output is reconciled with the demand for resource output for capacity planning purposes.

A Different Approach

Cost drivers in German CMSs are different from the resource cost and activity cost drivers used in U.S. CMSs. In a German CMS, a clear distinction is drawn between a resource cost driver and an activity/process driver. Resource cost drivers are preferred because of their usefulness for resource and capacity management as well as transfer pricing (charge-out function). It is also possible in German CMSs to use resource and activity/process drivers in tandem.

Resource management touches on issues such as efficiency, outsourcing, resource replacement, investment in new technology, the marketing of excess capacity, and the cost of excess/idle capacity. Resource cost drivers are measures of the capacity provided by the fixed resource costs. Since resource cost drivers accurately measure capacity, they have more of a linear relationship with total cost than U.S. cost drivers. For example, while the number of setups will be a common cost driver in the United States, it would be considered inappropriate in German CMSs. Not all setups require equal time and effort. Therefore, German CMSs would include setup hours instead of the number of setups as the cost driver.

Fixed resource costs are also treated differently than in U.S. CMSs. German fixed costs are costs that do not fluctuate over a long-run period of time. For example, straight-line depreciation on an asset would be classified as fixed because it does not change over the life of that asset. A one-year time horizon is used for the classification of U.S. fixed costs. Moreover, this one-year time horizon is abandoned in U.S. ABC, and all costs are viewed as variable.

Figure 1. A SUPPORT FUNCTION RESOURCE DRIVER BUDGET

Cost Center Name: Site Maintenance — **Output Quantity:** Planned 12,000

Resource Driver: Maintenance Labor Hours

Primary Expenses

Account Number	Account Description	Unit of Measure	Fixed Quantity Consumed	Proportional Quantity Consumed	Planned Fixed Cost	Planned Proportional Cost	Total Planned Costs
500010	Wages: Productive Time	Hours	—	12,000	$ 0.00	$180,000.00	$180,000.00
500011	Wages: Unproductive Time	Hours	4,000	—	$60,000.00	$ 0.00	$ 60,000.00
520110	Fringe Benefits (Calculated as 20% of Wages)	—	—	—	$12,000.00	$ 36,000.00	$ 48,000.00
550120	Uniforms and Clothing	—	—	—	$ 3,760.00	$ 0.00	$ 3,760.00

Secondary Expenses

Charge Account	Service	Resource/ Process Driver	Unit of Measure	Driver Unit Rate: Fixed	Driver Unit Rate: Proportional	Driver Quantity Consumed: Fixed	Driver Quantity Consumed: Proportional			
620050	Facilities	Square Feet	Sq. Feet	$24.00	$0.05	1,800	0	$ 43,200.00	$ 0.00	$ 43,200.00
620070	Utilities	Kilowatt-hours	Hours	$ 0.02	$0.06	0	50,000	$ 1,000.00	$ 3,000.00	$ 4,000.00
							Total Driver Costs:	$119,960.00	$219,000.00	$338,960.00
							Resource Driver Unit Rates:	$ 10.00	$ 18.25	$ 28.25

Note: Secondary Expenses are calculated as follows:
Planned Fixed Costs = (Driver Quantity Consumed: Fixed x (Driver Unit Rate: Fixed + Driver Unit Rate: Proportional)) + (Driver Quantity Consumed: Proportional x Driver Unit Rate: Fixed)
Planned Proportional Costs = Driver Quantity Consumed: Proportional x Driver Unit Rate: Proportional

The level of the resource cost driver in German CMSs is normally the maximum achievable capacity rather than the level of capacity that is expected to be utilized. In the United States, the latter is used with the resultant lack of idle capacity information. As a result, U.S. ABC systems are not used for capacity management. If a formal capacity management system is present, it is separate and independent from the ABC system. Also, if idle capacity is present, the U.S. approach will charge idle capacity costs to current production. If these costs are used for pricing, prices will be set at higher amounts. As a result, sales volume will be lower. As sales volume decreases, the level of cost drivers will be further decreased. The German approach avoids this problem by assigning idle capacity costs to a variance and not to current production.

Also, because costs are originally assigned to cost centers, the resource drivers are used to charge internal users for the cost of services provided. This charge-out or transfer pricing function is a standard feature of German CMSs. Since internal users are charged for services consumed, they have more of an incentive to efficiently use these resources.

In addition, both resource and activity drivers in German CMSs are identified at a disaggregated level within cost centers. While some U.S. companies have followed a similar procedure, this information is not always used for functional planning and control.[2]

A More Detailed Approach

The focus for overhead cost control in German cost management is the cost center. While cost centers in U.S. organizations are those that generally have control of costs, in German cost management, cost centers are defined more precisely. These cost centers must meet the following five criteria:[3]

1. The subunit of the organization must have a homogeneous cost structure.
2. The subunit must have only one person responsible for it.
3. The subunit must not be geographically dispersed.
4. The subunit must have only one technology per cost driver.
5. The capability of actual data recording and planning must be possible in the subunit.

Many subunits that are considered cost centers in U.S. organizations would not meet these criteria.

In German CMSs, overhead cost control is based on the principle of responsibility accounting. For this purpose, costs are divided into primary and secondary costs. There is no equivalent of these terms in U.S. cost management. Primary costs are costs that are initially incurred in a cost center. Therefore, the cost center has primary control of these costs. Secondary costs are costs charged to a cost center through an extensive

Figure 2A. A MULTIPLE MARGIN REPORT USING ABC — GERMAN STYLE

Enterprise Operating Result:

	Marginal		Full Cost	
	Standard	Actual	Standard	Actual
Total Divisional Contribution Margins	881,020	930,690	480,970	306,580
Corporate Overheads	—	—	80,500	105,870
Contribution Margin	881,020	930,690	—	—
Operating Result	—	—	400,470	200,710

Route: Rome

Route: Frankfurt

Route: Paris

	Marginal		Full Cost	
	Standard	Actual	Standard	Actual
Total Flight Margins	291,830	279,940	71,700	68,260
Lounge Costs	2,500	2,900	8,500	9,000
Route Sales and Marketing	15,000	13,080	19,000	18,075
Route Overheads	—	—	24,250	33,630
Route Contribution Margin	274,330	263,960	—	—
Route O/U Absorption	—	—	—	9,040
Route Gross Margin	—	—	19,950	(1,485)

Flight: AZ997

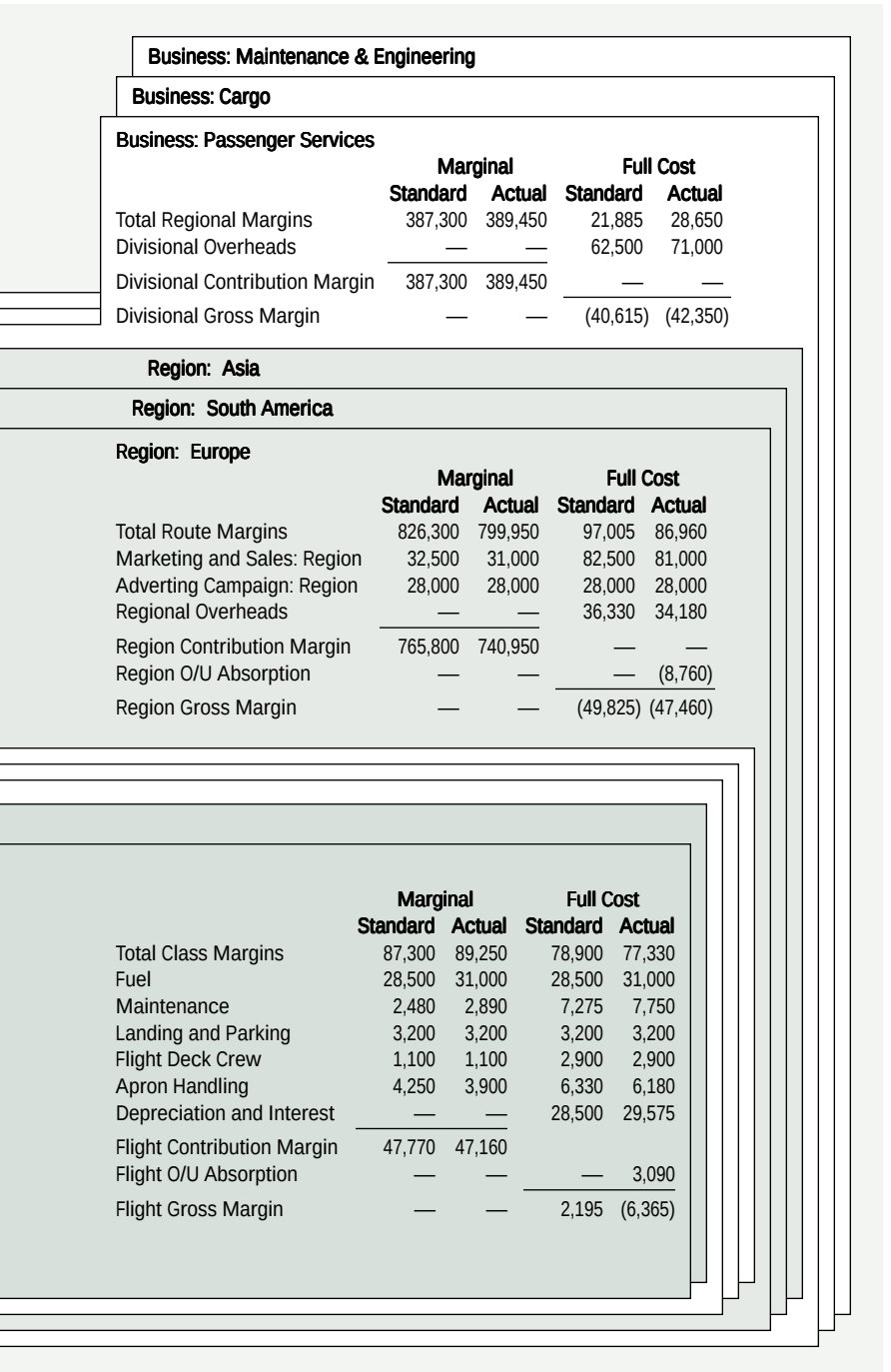
Flight: AZ999

Economy Class

Business Class

First Class

	Marginal		Full Cost	
	Standard	Actual	Standard	Actual
Passenger Revenue	30,000	28,700	30,000	28,700
Inflight Expenses	2,800	2,500	4,100	4,000
Passenger Handling	780	790	1,300	1,380
Cabin Crew	1,900	1,900	3,100	3,100
Product Insurance	480	480	480	480
Class Contribution Margin	24,040	23,030	—	—
Class O/U Absorption	—	—	—	400
Class Gross Margin	—	—	21,020	19,340



Business: Maintenance & Engineering

Business: Cargo

Business: Passenger Services

	Marginal		Full Cost	
	Standard	Actual	Standard	Actual
Total Regional Margins	387,300	389,450	21,885	28,650
Divisional Overheads	—	—	62,500	71,000
Divisional Contribution Margin	387,300	389,450	—	—
Divisional Gross Margin	—	—	(40,615)	(42,350)

Region: Asia

Region: South America

Region: Europe

	Marginal		Full Cost	
	Standard	Actual	Standard	Actual
Total Route Margins	826,300	799,950	97,005	86,960
Marketing and Sales: Region	32,500	31,000	82,500	81,000
Adverting Campaign: Region	28,000	28,000	28,000	28,000
Regional Overheads	—	—	36,330	34,180
Region Contribution Margin	765,800	740,950	—	—
Region O/U Absorption	—	—	—	(8,760)
Region Gross Margin	—	—	(49,825)	(47,460)

	Marginal		Full Cost	
	Standard	Actual	Standard	Actual
Total Class Margins	87,300	89,250	78,900	77,330
Fuel	28,500	31,000	28,500	31,000
Maintenance	2,480	2,890	7,275	7,750
Landing and Parking	3,200	3,200	3,200	3,200
Flight Deck Crew	1,100	1,100	2,900	2,900
Apron Handling	4,250	3,900	6,330	6,180
Depreciation and Interest	—	—	28,500	29,575
Flight Contribution Margin	47,770	47,160		
Flight O/U Absorption	—	—	—	3,090
Flight Gross Margin	—	—	2,195	(6,365)

charge-out or transfer pricing system. The consuming cost center has secondary control over these costs. The quantity of service demanded from the supplying cost center is under the control of the consuming cost center. However, the price or rate per unit is not. This distinction enables managers to be held responsible for what can be controlled in their cost centers. Therefore, it is less likely that upper management will hold someone responsible for costs or quantities that the individual cannot control, such as arbitrary allocations.

Most costs are available for online, real-time control and analysis in German CMSs. Some U.S. companies have adopted this approach; however, most do not have this capability.

German CMSs calculate driver rates using the iterative method as opposed to the typical step-down method commonly used in the United States. The iterative method, apart from being minutely accurate, also results in a real difference in rates, especially where overhead and support costs make up large portions of an organization's budget or where planned idle/excess capacity exists.

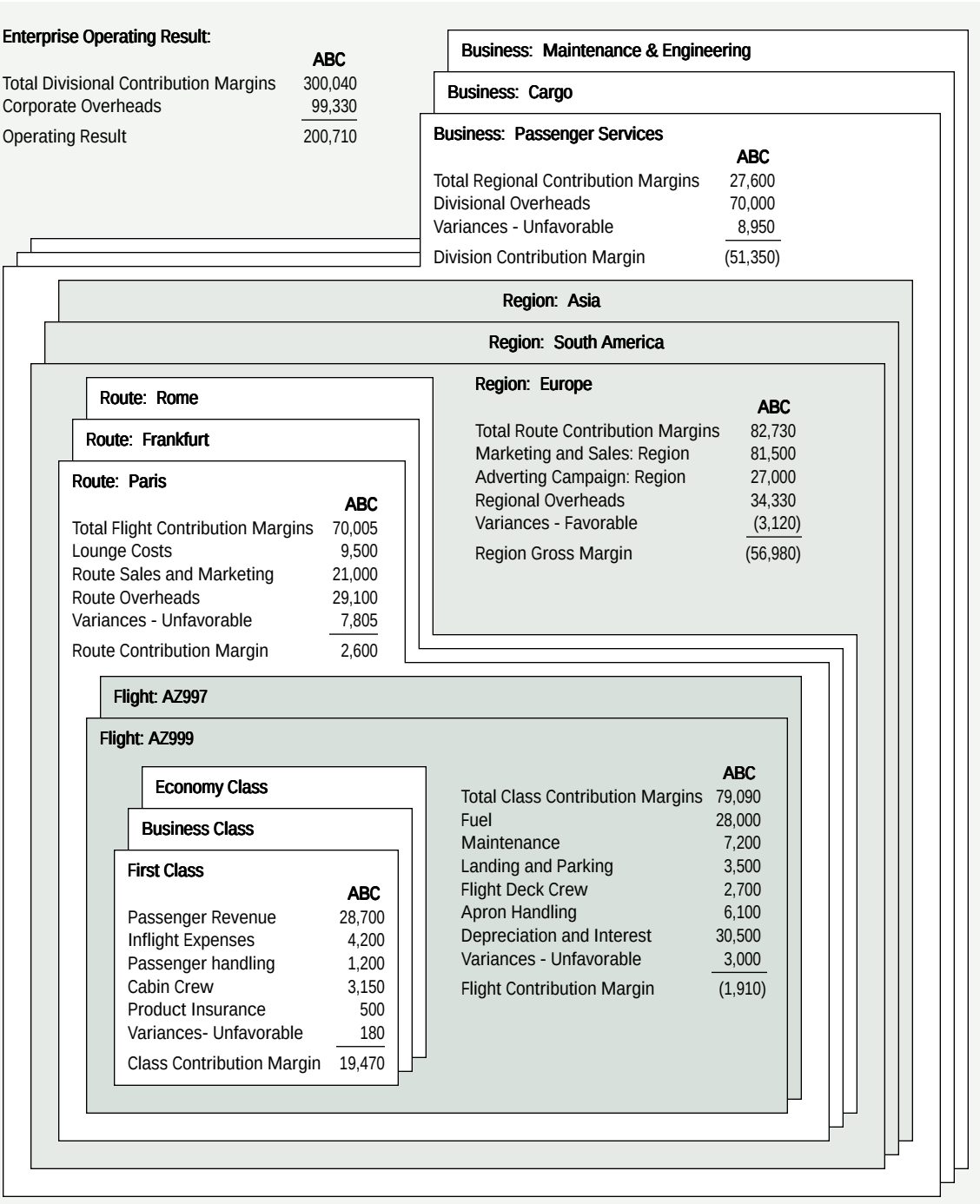
Actual rates are calculated at every month- and year-end. These rates are then compared with the planned rates that were calculated during the ACPP. One of the main reasons for this comparison is to determine if the estimate was inaccurate. Another reason for this comparison is to improve the planning process for future periods. The calculation of actual rates is not usually done in U.S. CMSs.

Depending on the type of production strategy used, variances are calculated for individual products in German CMSs. In the United States, variances such as the material quantity variances are calculated for all products and are not disaggregated by product. Calculating variances by product allows for more detailed control of the variances.

A Greater Willingness to Make Estimates

Because German managerial accounting places a greater emphasis on the matching principle, there is a greater willingness to estimate costs in German CMSs than in U.S. CMSs. These estimates are a normal part of the CMS rather than a nonroutine occurrence. For example, imputed interest on the

Figure 2B. A MULTIPLE MARGIN REPORT USING ABC — U.S. STYLE



Notes:

1. Although not done as a standard feature of U.S. CMSs, this report assumes that segment margins are shown in ABC. This is done to highlight the differences in approach and actual numbers that can occur due to issues mentioned in the text.
2. Estimated ABC costs will not be equal to German standard costs because estimated ABC costs are not derived by means of a standard setting process.
3. Under ABC all of the costs are considered variable; contribution margins are therefore used instead of gross margins, estimated costs are used rather than actual, and the difference between estimated and actual cost is shown as a variance.

replacement cost of each cost center's assets is charged to the cost center. This calculation requires the interest rate as well as the replacement cost of the assets to be estimated. Interest is estimated because actual interest would be difficult, if not impossible, to determine. The charge of estimated interest to cost centers provides for a greater awareness of interest costs, the full recovery of the cost, and fully burdened product costs. The imputed interest is the cost of capital and not necessarily the actual interest expense for the period.

Future planned maintenance on assets also is forecasted and capitalized to provide for a uniform yearly assignment of maintenance. Some U.S. companies capitalize maintenance costs when they are incurred, but they do not capitalize future maintenance cost. The German approach is more accurate when usage rates of the asset are dependent on the maintenance schedule over the asset's entire life. Thus, the product margin is also more accurately reflected over time. Other examples of estimated costs charged to cost centers include fringe benefits as well as water and electricity when the cost center does not have its own meters.

A More Accurate Assignment of Costs

U.S. CMSs have been criticized for not assigning depreciation as well as research and development costs to the right year.[4] Costs cannot be assigned to the right cost center, activity, or product if they are not assigned to the right year.

German CMSs use replacement cost instead of historical cost to value assets. This procedure eliminates the need for an arbitrary choice among a limited number of depreciation methods (for example, straight line, double-declining balance, and sum-of-the-years'-digits), forecasting the useful life of the asset, and forecasting the salvage value at the end of the asset's life. U.S. organizations have refused to replace historical cost with replacement cost. Moreover, some U.S. companies let tax and financial accounting decisions about depreciation methods, useful lives, and salvage values influence their choices for managerial accounting purposes.

The capitalization of research and development costs, a routine part of German CMSs, is amortized over the period of time that the costs are expected to benefit. The normal approach in U.S. companies is to treat research and development costs as period costs. This not only charges costs to the wrong year, it also allows for the easy manipulation of net income. If necessary research and development costs are cut, net income will go up and long-term benefit of the costs will be lost.

Has a Better Use of Different Costs

A fundamental principle of German cost management, dating back to the late 1940s, specifies that different costs should be used for different purposes.[5] The use of different costs allows profit to be calculated by market segment or any combination of segments. For example, the profit from selling a single product to a single customer can be calculated as well as overall profitability of a product, a customer, or a region. These different costs and profits are a standard feature of German cost management.

Different costs are used for different purposes in what can be translated as Multiple Margin Management (see Figure 2 for an airline example).[6] For example, for a manufacturing company, one margin is revenue minus cost of sales. The next margin is determined by subtracting packaging and transportation. The third margin is determined by subtracting regional sales and storage costs. Next, geographical (for example, country) overhead and distribution costs are subtracted to obtain margin four, and finally headquarters' costs are subtracted. Each of these margins is useful for different decisions. Also, full and marginal costs rates are provided for all product costs (inventoriable and noninventoriable). The full cost rates are used for long-term decisions such as long-term pricing and new product introduction. The marginal cost rates are used for short-term decisions such as short-term pricing and the evaluation of a proposed market penetration strategy.

For example, full and marginal cost rates are calculated for the replacement cost estimate of depreciation of fixed assets. The fixed portion is based on obsolescence and the passage of time, while the marginal portion is based on usage of the asset.

Moreover, sensitivity analysis capabilities include access to these various types of costs. Therefore, managers can do whatever nonroutine cost analysis they find appropriate. This analysis is done for operational decisions relating to efficiency, middle management decisions relating to effectiveness, and top management decisions relating to strategic planning and control.

Makes a Clear Conceptual Separation

A clear conceptual distinction is drawn between information needs as well as demands for external reporting purposes and those for internal use by management.

The demand for financial information is deeply entrenched in U.S. organizations; the German approach takes into consideration this demand, but formally recognizes the fallacy of this information for running a company.

The key to the success of this dual approach is overcoming the age-old problem of having two separate systems and all the potential problems that this can cause. The solution is state-of-the-art software. The software has two characteristics that contribute to the solution to this dilemma.

First, there is close integration between the managerial and financial accounting modules. This ensures low maintenance cost and validation of all information at the source. A single point of data entry, one transaction that updates both modules, ensures that the financial and managerial accounting modules are always reconcilable. Second, the managerial accounting module supplies information for external reporting purposes and has unique functionalities that provide for the different demands placed on managerial accounting. For example, it is possible to include sales and administration costs in product costs and mark this component cost as not for inventory valuation. Thus, only the allowed costs will be related to inventory and reflected in the balance sheet, but all of the standard product cost will be included for Multiple Margin Management.

Disadvantages of German Cost Management

German cost management is very comprehensive and complex. Some U.S. companies may not have the computer support or the cost management expertise to implement a company-wide German cost management approach. German cost management features a lot of detail and may produce too much information for some managers and organizations. Another disadvantage is that a company-wide implementation would be fairly expensive. These disadvantages can be minimized if the above ideas are implemented one at a time or in a segment of the company rather than company-wide.

The spectrum of U.S. CMSs is broader than German CMSs. On almost any dimension (traditional vs. ABC, number of overhead rates, number of cost centers, etc.), German CMSs are more homogeneous and on the average more complex. Some companies may not need this additional complexity and may prefer simpler CMSs.

Finally, it is critical that managers buy in to the German cost management approach, especially in company-wide implementation, for at least two reasons. First, the analytical planning cost process requires managers to go through a detailed conceptual design phase when German cost management is adopted. During this phase, everyone has to buy in to this process. If this buy-in is not attained, the responsibility accounting that is assumed in German cost management will be undermined. Second, top management must buy in to the German cost management approach. German cost management is so comprehensive that implementation will be jeopardized without aggressive support of top management.

Some U.S. companies are continuously improving their cost management systems. Other U.S. companies may want to reengineer their whole CMS. All of these companies may profit from adopting some or all of the features of German CMSs. ■

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1 Anton van der Merwe, "Plant Activity-Based Costing: An Evaluation of Its Relevance in Multi-Product Companies," Master's Thesis, University of South Africa, p. 7.
2 D. E. Keys and R. LeFevre, "Departmental Activity-Based Management," *Management Accounting*, January 1995, pp. 27-30.
3 Wolfgang Kilger, Flexible Plankostenrechnung und Deckungsbeitragsrechnung, Auflage 9, Wiesbaden, Gabler, 1988, pp. 20-36.
4 D. E. Keys, "Tracing Costs in the Three Stages of ABM," *Journal of Cost Management*, Winter 1994, pp. 30-37.
5 Wolfgang Kilger, Einfuhrung in die Kostenrechnung, Auflage 3, Wiesbaden, Gabler, 1987.
6 For a more detailed discussion see: Anton van der Merwe and C. Jackiw, "Strategic Cost Management in the Airline Industry," *The Handbook of Airline Finance*, New York: Aviation Week, A Division of The McGraw-Hill Companies, 1999, pp. 105-135.

The company information presented in this article is taken from real companies that are using German cost management. The data have been slightly altered, and the company names have not been provided for purposes of confidentiality.