0 Introduction: Marginal Costing as a Management Accounting Tool

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0.1 Marginal Costing as a Costing System

This book,[1] on the current state of standard costing, focuses on the methodology of Marginal Costing. Marginal Costing[1B] is a type of flexible standard costing that separates fixed costs from proportional costs in relation to the output quantity of the objects.[2] In particular, Marginal Costing is a comprehensive and sophisticated method of planning and monitoring costs based on resource drivers. Selecting the resource drivers and separating the costs into fixed and proportional components ensures that cost fluctuations caused by changes in operating levels, as defined by marginal analysis, are accurately predicted as changes in authorized costs[2B] and incorporated into variance analysis.

This form of internal management accounting has become widely accepted in business practice[3] over the last 50 years. During this time, however, the demands placed on costing systems by cost management requirements have changed radically. For this reason, we first need to look at how Marginal Costing is currently integrated into management accounting.

0.2 The Transformation of Management Accounting

Cost management concepts in management theory can be divided into two groups: *management concepts that support profitability objectives* and *meta-management concepts based on universal objectives*; in both cases the task of coordination takes on central importance.[4] In the first group, the focus is on results and on specific aspects of the management system.[5] Here management accounting comprises result- and value-oriented planning and monitoring as a meta-management function, as well as

coordinating the information supply system. This approach focuses on more than just short-term profitability, for it includes corporate value or shareholder value as long-term management accounting objectives. Through meta-management concepts[6]—the second group—management accounting supports company management in planning and monitoring company activities but without replacing the coordination responsibilities of company management. Management accounting supports this coordination function both by establishing suitable coordination structures and processes in the planning and control system (system-centric coordination) and by furthering the diffusion of information (system-integration coordination).[7]

Management accounting in practice has undergone great changes in the recent past. Management accountants increasingly see themselves in a proactive role, participating in the strategic decision-making process at an early stage. In contrast, routine operational management accounting activities are losing their significance. Furthermore, management accounting tasks are no longer perceived as the exclusive domain of central corporate departments. Instead, management accounting is increasingly being incorporated into decentralized business processes.[8]

In many companies, production costing has lost its dominant position as the main application of cost accounting tools. This is partly because of the increasing levels of computer-controlled automation in modern production facilities, which mean fewer variances and consequently a loss of relevance for measuring costs based on plan-authorized-actual comparisons. Another factor is the increasing significance of outsourcing resulting from integration in more holistic value networks, which is lowering the relative significance of individual companies' production processes for cost control.[9] The inflexibility of highly sophisticated cost accounting structures tends to hamper the ability of the production organization and production control to adjust to these/such new situations. While the classical application of management accounting in manufacturing is losing its relevance, the services sector in general and the indirect areas of conventional manufacturing companies still harbor significant potential for expansion.

0.3 Marginal Costing as a Management Accounting Tool

1. Marginal Costing[10] is clearly the core aspect of traditional management accounting.[3] Some of the classical applications of management accounting, however, have begun to lose their significance. The question thus arises: What is the current role of Marginal Costing in modern management accounting?

2. Businesses today frequently voice their disapproval of the traditional cost accounting approaches. At the beginning of the 1990s, these criticisms were taken up by researchers involved with the applications of cost accounting concepts.[11] The main thrust of the dissatisfaction with conventional cost accounting methods is that they are too highly developed and too complex, and furthermore are no longer needed in their current form since other tools are now available.[12] Calls for increased use of cost management tools, investment analyses, and value-based tool concepts are frequently associated with criticism of the functionality of current cost accounting approaches as management tools.[13] This line of criticism sees little relevance in traditional cost accounting tasks such as monitoring the economic production process or assigning the costs of internal activities. At their current level of detail, such tasks are neither necessary[14] nor does their perceived pseudo accuracy further the goals of management.

The viewpoint of the present author is that cost accounting has by no means lost its right to exist, for it is an easily overlooked fact that the data structure required by the new tools is already present in traditional cost accounting.

3. To assess the present-day value of Marginal Costing, the changes occurring in the business world must be analyzed more closely. We need first to look at how the purposes of cost accounting[15] are shifting before we can determine its significance.

First, cost planning takes precedence over cost control. The effort involved in planning and monitoring costs is increasingly being seen as excessive. The charge levied against traditional cost accounting—that its complex cost allocations merely generate a kind of pseudo precision—lends further credence to this assessment. An alternative increasingly being called for is to control costs through direct activity/process information

(quantities, times, quality) for cost management at local, decentralized levels instead of relying on delayed and distorted cost data. In particular, empirical U.S. research on appropriate variables for performance measurement, in the context of continuous improvement and modern managerial concepts, is based on this view.[16] The need for exact cost planning for profitability management is thus touched on *ex ante*.

Second, cost accounting must be employed as a tool for cost control at an early stage. The relative significance of traditional cost accounting as a management accounting tool will decline as it is applied mainly to fields where costs cannot be heavily influenced. More significant than influencing the current costs of production with cost center controlling and authorized-actual comparisons of the cost of goods manufactured is timely and market-based authorized cost management. The greatest scope for influencing costs is at the early product development phase and when setting up the production processes. At the same time, this is the stage where cost information is most urgently needed since the time and quantity standards as defined by Bills of Materials (BOMs) and production routings are still lacking. This requires different methods of cost planning than those normally provided by Marginal Costing.

Third, the behavioral effect of cost information is starting to be recognized. There is a strong current of accounting research in the U.S. that takes human psychological factors into consideration.[17] This is resulting in an extension of cost theory beyond its pure microeconomic basis.[18] Results of theoretical and empirical research based, for example, on the principal-agent theory indicate that knowledge of the "relevant" costs does not always lead to the optimization of overall enterprise profitability. Hence, the perspective that formed the basis for the absorption costing issue[19] has changed. Theories according to which cost allocations can contain information and increase the efficiency of the use of available capacity, or where future allocations can influence ex-ante decisions, require empirical research.[20]

4. The shift in the purposes of cost accounting is being accompanied by a shift in the main applications of standard costing. Costing solutions for market-oriented profitability management and life-cycle-based planning and monitoring should be developed further. They should be implemented both in indirect areas and at the corporate level. In addition, cost accounting must be integrated into performance measurement.

Competitive dynamics are giving rise to an increasing differentiation of market-based profitability controlling.[21] This applies to the management of the profitability of products and product lines, as well as distribution channels and increasingly customers, customer groups, and markets. The information required for this purpose can only be supplied by multilevel and multidimensional marketing segment accounting based on contribution margin accounting.

Long-term cost planning based on the idea of life-cycle costing is gaining in prominence compared with short-term standard costing. Product decisions are increasingly based on more than just the cost of goods manufactured and sales costs and now tend to include pre-production costs (such as development costs) and phasing-out costs (such as disposal costs). Product decisions are viewed strategically. Whether or not a product is successful is determined by the amortization of its overall cost. Furthermore, the cost and revenue trend forecasts should be more dynamic to support the life-cycle pricing policy. This shift in cost and revenue planning is moving cost and revenue accounting in the direction of investment-related calculations.

As management accounting is increasingly applied to the growing share of the costs of indirect areas, the tool requirements increase.[22] After J. G. Miller's and T. E. Vollmann's discovery of the "hidden factory" as an area whose costs are neglected by conventional production costing in the U.S.,[23] it was only a small step to the identification of the lost relevance of conventional cost accounting by H. T. Johnson and R. S. Kaplan[24] and their call to develop accounting systems separated into "process control, product costing, and financial reporting," which eventually led to activity-based costing.[25] Improving the cost transparency of indirect activity areas through Marginal Costing requires a thorough understanding of the output processes. Analysis frequently shows that even many support activities have a wide range of repetitive processes for which planning and cost allocation using drivers is worthwhile, providing the cost-volume is large enough. For this purpose, the different operations in the cost centers must be

identified, for which resource consumption is then planned and tracked. The number of these operations is used as the driver.[26] This process of costing operations using proportional costs competes with the attempt to achieve better cost transparency in indirect areas with process costing[27] tools to also improve the planning and control of costs that were previously budgeted only as a lump sum.

Industrial production and marketing are increasingly being handled by groups of affiliated companies. To plan and monitor the costs of these activities calls for the establishment of independent group cost accounting.[28] This necessity results mainly from the requirements of inventory valuation, the costing basis of transfer prices, and to further the consistency of corporate cost accounting. Group cost accounting leads to the definition of independent group cost categories.[29] Marginal Costing and its tools have been developed for individual companies and are the suitable platform for this expansion.

Performance measures are gaining increasing prominence in decentralized management accounting. Standard U.S. management books devote a great deal of space to performance measurement in the broad sense of the word.[30] The concept is broad for the reason that performance measurement is accompanied by the provision of decision-support information, the management of business units, and the use of incentive systems. Using modeling and empirical research, the exponents of this area are developing the idea that monetary factors are not the only possible components of performance measurement.[31]

Since the 1980s there has been a growing consciousness of the significance of continuously improving the performance capabilities of the company, resulting in the increased importance of nonmonetary indicators.[32] The recent literature on performance measurement has focused on problems in the following areas:

- The usability of performance information for managers,[33]
- The assessment of teamwork,[34]
- The motivational effects[35] of performance measurement,
- The strategic dimension.[36]

The tenor of the recent investigations into performance measurement reflects the general criticism of management accounting voiced by Johnson and Kaplan in *Relevance Lost*.[37] It was recognized that short-term accounting information is insufficient to evaluate and control company activities effectively. In particular, it was acknowledged that the use of standard costs does not adequately take performance improvements into consideration.[38] Moreover, the conventional allocation approach based on the operating rate encourages high utilization of capacity at any cost,[39] underestimates the problem of increasing numbers of variants,[40] uses the wrong overhead allocation base, and fails to appreciate interdepartmental interrelationships.[41,42]

While top management benefits most from financial success indicators that it examines in monthly or longer intervals and that can consist of multidimensional aggregate figures, lower management must necessarily be concerned mainly with nonfinancial, operational, and very short-term data at the day or shift level.[43] In concrete terms, measures in the categories of time, quantity, and quality—such as equipment downtime, lead time, response time, degree of utilization (ratio of actual output quantity to planned output quantity), sales orders, and error rate—are becoming increasingly significant for controlling business processes.[44]

In the strategic dimension, the Balanced Scorecard developed by Kaplan and Norton—which links financial and nonfinancial indicators from different strategically relevant perspectives including cause-effect chains—is the main proposal under consideration for performance measurement.[45] The Balanced Scorecard links strategic contingencies to financial measures, incorporates success factors of the future, and explicitly includes monetary and nonmonetary parameters.[46] The Balanced Scorecard therefore provides a framework for systematic mapping and control of the critical success factors for an enterprise. A Balanced Scorecard is a system that defines objectives, measures, targets, and initiatives for each of the four perspectives[47] of *financial*, *customer*, *internal business process*, and *learning and growth*. Further analyses and experience in measuring performance can enable identification and assessment of cause-effect relationships within the four perspectives (such as the effect of delivery time on customer satisfaction) and between the perspectives (such as the

effect of customer satisfaction on profitability). The knowledge so gained may eventually lead to a reformulation of strategy.

In the context of comprehensive performance measurement, even short-term costs and financial results can serve as control instruments for strategic enterprise management, such as a lower authorized cost of goods manufactured as a benchmark. Concrete planned costs and planned results must be rigorously derived from higher-level target factors so that specific requirements can be derived in turn when they are broken down into smaller organizational units for the time and quantity standards.

0.4 Relationship of Marginal Costing to Riebel's Direct Costing and Contribution Margin Accounting

1. The dispute that raged in the 1960s and 1970s between the proponents of Marginal Costing on the one hand and Riebel's Direct Costing and Contribution Margin Accounting on the other has since been settled. The objection raised against the direct cost approach—that it is infeasible in practice because the required data structures would be too complex—has been solved by modern database technologies. The proponents of direct costing and contribution margin accounting are no longer so adamant about avoiding all costing approaches that go beyond simply assigning relative direct costs to reference objects.[48] In addition to the dominance of production-based Marginal Costing, multilevel and multidimensional contribution margin accounting approaches have, in fact, become accepted in practice, particularly for profitability and sales accounting.[3] In these approaches, however, cost assignments to a wide variety of profitability segments are supplemented by assignment methods such as driver-based costing or Process Costing/ABC, methods which, in principle, are unrelated to direct costing and contribution margin accounting. Thus accounting methods are merging.

2. In addition to the profitability of products, of increasing significance is the differentiation of customer profit margins resulting from different revenues and costs due to differing distribution channels and service requirements.[49] The satisfaction of key account management requirements, in particular, dictates the calculation of these margins.[50]

Also along these lines are proposals in the literature for integrating alternative cost assignments to include overhead costs as contribution amounts for pricing purposes on the basis of contribution margin accounting.[51] Although controversial,[52] the combination of contribution analysis and the allocation methods of Process Costing/ABC have begun to be practiced[53] in profitability and sales accounting.

0.5 Relationship Between Marginal Costing and Process Costing/ABC

1. Process Costing/ABC has often been contrasted with standard costing and contribution margin accounting.[3] The verdict depends on whether Process Costing/ABC is viewed from the angle of absorption costing or variable costing.[54] For this reason, an objective appraisal of Process Costing/ABC must take into account the objective it aims to fulfill.[55] Below, Process Costing/ABC is analyzed with respect to its objectives and procedure, the use of cost drivers, the cost categories, and the meaningfulness of its results.

2. Process Costing/ABC is characterized by specific objectives and a special procedure. Its origins in the United States as activity-based costing were prompted by the declining proportion of costs driven by volume, which motivated companies to search for other cost drivers.[56] The German adoption is likewise explained by the increase in fixed costs.[57] The objectives of Process Costing/ABC can be divided into the areas of costing and cost management. Process Costing/ABC is not more capable of transforming fixed overhead into variable direct costs than any other method. On the contrary, allocating these costs leads to full absorption costing and all its attendant dangers. The assignment of costs to cost drivers for cost management purposes appears less problematic and is geared more to the view of long-term influence. A distinction must be made here between the contributions of process analysis (which precedes implementation of Process Costing/ABC) and operational Process Costing/ABC based on optimized process structures.

Process Costing/ABC is useful mainly in the analysis phase by indicating starting points for process optimiza-

tion, which makes it an organizational tool.[58] This enables enhanced resource allocation.

Operational Process Costing/ABC affects cost policies due to the following factors:

- Increased opportunities for control in areas previously managed on the basis of aggregate costs,
- Representation of cost drivers with effects on multiple cost centers,[59]
- Determination of the costs of nonvalue-adding processes,
- Transparency of long-term cost-influencing relationships,
- Creation of cost pressures and the establishment of supply-demand relationships for internal support activities (process costing only),
- Costing support for management of target costing.

Cost information is needed in the early phases of product development when neither the facilities nor the capacity of the cost centers is known. Under such conditions, information on the cost effects of product attributes that have not been finalized, and consequently the requirements for activity output, can only be gained through process standards which are valued.

Process Costing/ABC consists of the following steps:[59B]

- Analysis of the range of activities performed by the company's departments,
- Identification of cost drivers,
- Structuring of main processes and subprocesses,
- Entry (and planning) of process quantities,
- Definition of process rates/prices,
- Costing the cost objects based on process utilization.

3. Marginal Costing is based on the use of resource drivers for cost planning, cost control and analysis, and cost assignment.[60] To meet this requirement, only one resource driver per cost center is usually insufficient. Instead, a stronger differentiation of the cost centers and/or multiple resource pools is frequently necessary. This ensures that the main goal of Marginal Costing—monitoring efficiency with an emphasis on proportional resource consumption—can be optimally achieved by the cost centers. Within a consistent Marginal Costing system, however, the scope of these drivers may be inhibitive. Especially for support activities, the use of indirect (value-based) drivers is often the only alternative. As a result, increased demand for Marginal Costing in service areas and support activities[61] with high fixed costs would usually be accompanied by an unavoidable undermining of the marginal principle as a cost assignment method—unless one has no interest in explaining the low proportions of costs that depend on the level of output in these areas. In practice, the price often paid for this theoretical restriction is a broad, pragmatic interpretation of the variability/proportionality of costs and a liberal application of the scope of the resource drivers in indirect activity areas. This usually forces further development of resource-driver-based assignments.

More or less as an alternative, adherents of Process Costing/ABC argue for acceptance of a different interpretation of cost assignment that will be discussed in more detail below. This implies that the Process Costing/ABC methodology in accounting in general has a supplementary function to cost management and should not necessarily be incorporated into the results of financial accounting. On the other hand, the methodology of Process Costing/ABC influences modern standard costing in that the results of process analysis lead to an even greater focus on activities in cost accounting.[62] Process analysis thus also identifies processes and cost drivers that enable improvements in planning, allocation, and cost control for variable costs that were not previously captured by the cost accounting system. In addition, the activity relationships revealed by process analysis corroborate the explanation of variances and particularly their association with multiple cost centers. In this sense, then, the relationship between Marginal Costing and Process Costing/ABC as cost allocation models is not only one of competition but also complementary.

Compared with extending the application of cost assignment to support activities using resource drivers as in Marginal Costing, which is achieved mainly by moving away from the use of purely time-based allocation bases,[63] a closer look at the use of Process Costing/ABC tools reveals additional methodological differences. These differences include a different definition of output measures in the form of process/activity cost drivers that are not necessarily volume-based and different cost categories compared to Marginal Costing.

The concept of ABC cost drivers can be understood

as "a measure or measures of the cause of costs, or more precisely of the usage of resources, as well as a measure or measures of output."[64] The cost drivers therefore have a specified relationship to resource usage (in hours, for example) and to the activity quantity. This definition makes a valuable point by calling into question the approach of treating the cause of costs as the sole cost allocation principle. The cost drivers are only partially dependent on the volume, which means that other cost determinants could be identified and valuated as well. ABC literature groups cost drivers into different categories. For example:

- Volume-dependent and volume-independent cost drivers (R. Cooper),[65]
- Process factors that depend on volume, complexity, and efficiency (G. Foster),[66]
- Process-dependent, complexity-dependent, and order-specific cost drivers (A. Renner).[67]

In Process Costing/ABC, the processes are essentially an additional level between cost center accounting and job order cost accounting in Marginal Costing. The German version of Process Costing/ABC as defined by P. Horváth and R. Mayer takes the additional step of grouping together the subprocesses from the cost centers into main processes. An important innovation of process costing is thus its systematization and structuring of the activity network.

In the United States, grouping subprocesses into main processes is not a particularly important concern because U.S. companies do not have such a differentiated cost center structure. The identification of cost drivers is not bound to the rigors of sophisticated driver-based accounting (such as Marginal Costing), and process/activity cost drivers remain problematic because the cost drivers of the main processes are not the same as the measures of the subprocesses (e.g., different allocation levels, such as the number of purchase orders for the main process *Order Material*).[68] The selection of appropriate cost drivers therefore requires considerable creativity and must be done with great care.[69] The penetration of different activity areas can be clarified by a systematic approach that differentiates the various processes.[70] W. Männel's comprehensive classification[71] of processes based on their proximity to production differentiates between production-related activities, setup operations, planning and control processes, preliminary activities, service activities to maintain internal capabilities, and administrative activities.[72]

The attempt to measure the extent to which processes create customer benefits, and are thus value adding, frequently provides particularly valuable information for cost management by identifying the costs of nonvalue-adding processes.[73] This, however, should not distract from the fact that this requires one to first define what "value-added" entails and then analyze the value-add of each individual process on that basis.

4. The second basic aspect of Process Costing is defining the cost categories. These cost categories are based on the process dependency of cost center costs, typically using the following classification:[74]

- Output-volume-related process cost,
- Output-volume-neutral process cost,
- Costs unrelated to the process.

The division of costs in ABC can also be recognized in this classification, although cost theory must necessarily alter this division in the decision systems. By defining a category of costs unrelated to the process, the proponents of process costing take into account the fact that a cost center can incur costs that have no relationship to any processes (such as the costs of backup facilities). The output-volume-neutral process costs are incurred for resources that are required to execute processes but that do not vary with the number of executed processes (such as the cost of office space). Process costing attempts to allocate as much of the resources consumed as possible to output-volume-related process costs. To achieve this, subprocesses are defined in the cost centers that at least explain the origin of the costs through the resources consumed. For example, a typical analysis will indicate the extent to which a process consumes personnel resources. On this basis, personnel costs are assigned to the processes and apportioned.

The process cost rate is usually calculated by dividing the output-volume-related and the output-volume-neutral process costs by the process driver quantity. It should be noted that the output-volume-related costs, however, are neither direct costs nor variable/proportional costs in the traditional decision-oriented accounting sense but are based on a different cost

assignment principle.

It should also be noted that process costing theory does not envisage a full allocation of costs to individual products but, rather, an assignment of costs in accordance with the following different allocation levels:[74B]

- Individual product units,
- Orders,
- Particular product types,
- Entire departments.[75]

5. In any event, even P. Horváth and R. Mayer believe that product costing should receive only the costs of those processes "that are directly related to material procurement, material logistics, or order planning and fulfillment."[76]

The meaningfulness of Process Costing/ABC unit product cost information is, however, frowned upon. From the perspective of decision-based cost theory, the overstatement of the variability of cost and the allocation of costs within Process Costing/ABC is criticized on a number of levels:[77]

- Within the cost centers, personnel costs are distributed to the subprocesses based on the proportion of time required (i.e., FTEs).
- Other costs are frequently assessed based on these personnel costs.
- In process costing the output-volume-neutral process costs are distributed proportionally to the output-volume-related processes costs (which corresponds to a traditional costing method of overhead cost burdening/spreading).
- Process costs are allocated to the process units by establishing process consumption ratios.
- The process quantities are assigned to the product units based on ratios.

Altogether, then, the information content of unit-based process/activity costs must be regarded critically,[78] and the purposes undergirding this costing methodology must be kept in mind.[79] The proponents of process costing regard it as valid over the long term by speaking of "strategic costing" as reflecting the long-term influencing ability by capturing the relationship between products and resource usage. The example of personnel cost assignment illustrates this point quite clearly.[80] This type of cost assignment can only be logically implemented if one accepts new cost categories or introduces a new cost assignment principle, which we call the principle of resource usage.[81] R.S. Kaplan and R. Cooper speak of a "model of resource usage, not spending"[82] even in the case of activity-based costing. During the debate of absorption costing versus variable costing, the literature early on designated the method of assigning costs based on capacity[83] as the "principle of proportional consumption"[84] and controversially discussed this approach long before the advent of Process Costing/ABC.[85]

In Process Costing/ABC the cost of capacity (cost center) is allocated to the completed or planned processes. The justification and interpretation of cost assignment based on capacity thus proves to be valuable for process costing. Allocation of fixed costs based on the proportional utilization of capacity, as incorporated in the proposals for process costing, can only be built on a cost-effect relationship.[86] The cause-effect principle as commonly understood is thus neither justified for Process Costing/ABC, as understood here, nor required for its main purposes in cost management. It is surprising that there is little or no discussion of this point other than in the quoted exceptions—even though as far back as 1961 Schneider came to the conclusion that "there can be no unified cost allocation principle. The only generally applicable concept is that the accounting purpose determines the allocation principle and consequently the contents of accounting."[87]

6. It would seem to be the logical next step to use the activity-based cost assignments of the defined processes for capacity planning as well. In the traditional approach, capacity requirements are determined from the required process quantities and the defined resource usage.[88] The knowledge gained is chiefly directed at the possibilities for identifying overcapacity: Capacity management, "with its renewed focus on idle capacity as the key to eliminating waste in organizations, will have a significant impact on the design and use of an activity-based management (ABM) system."[89]

At a basic calculation level, the equation "cost of activity supplied = cost of activity used + cost of unused activity"[90] is proposed. This requires a decision on the allocation principle—that is, the question regarding the capacity-based denominator to be used in process costing. It must be decided which capacity volume to use as

a basis for determining the potential process volume for apportioning the capacity costs to the individual processes. Kaplan proposes using the planned or scheduled capacity (the actual capacity provided).[91] Following E. Gutenberg's distinction between idle-capacity cost and used-capacity cost, this enables an extension of process costing variance analysis to include idle-capacity analysis.[92] Brühl calls for a distinction to be made here between fixed and variable process costs and that, with the latter, a further differentiation by resources of different volume-adjustment capability be undertaken in order to provide a clear breakdown of the capacity utilization variances.[93] In contrast, the U.S. approach starts from costs that do not vary directly with the operating level and attempts to analyze the cost pool in a way that provides useful information on the cost drivers.[94] Both this approach and Brühl's, however, assume that only one process per cost pool or cost center[95] is possible.

The correct application of this methodology depends on the interpretation of idle-capacity costs. If process costing is primarily seen as a tool for measuring the usage of resources,[96] then the interpretation is much less challenging![97] As early as 1965, W. Lücke proposed using idle-capacity costs as a measure for capacity harmonization and optimizing idle-capacity costs in the case of bottlenecks to establish product mix.[98]

But the meaningfulness of reported idle-capacity costs is viewed here no less critically. With an appropriate design of resource-driver-based allocation, the idle capacity can be quantified directly in time and quantity. This also appears to be easier for management to interpret. If, however, one wants to measure the costs of the different cost center outputs (the effect of current resources on profitability revealed by this approach is an argument in its favor), then it would be better to report unused capacity explicitly rather than simply allocating it to process/activity output.

In conclusion, we have seen that process costing and Marginal Costing are fully complementary approaches to cost management. The use of cost allocation methodologies that go beyond those of Marginal Costing requires, however, a new interpretation of the reported costs. This requirement becomes even more significant the more closely the Marginal Costing elements of an integrated cost accounting solution adhere to the theoretical basis.

0.6 Prerequisites for Effective and Efficient Use of Marginal Costing

1. An empirical study in Germany found that Marginal Costing is used by 49% of small companies, 65% of mid-sized companies, and 61% of large companies and that 42% of all companies use marginal costs in short-term operational accounting.[99] These results show that Marginal Costing is being used at a higher rate than that measured by earlier studies,[100] although the study also indicates that more than half of all companies surveyed are costing with full costs at the same time and are thus deploying Marginal Costing as a parallel costing system.[101] Marginal Costing has thus retained its dominant position in German-speaking countries, being employed chiefly in its conventional application area of production, and continues to have great significance as a basic core methodology for planning and control of costs generally. Indirect activity areas continue to be pervaded by the Marginal Costing approach, but this is usually accompanied by convergence with the principles of process costing. This widespread usage of Marginal Costing seems to support the conclusion that it still effectively supports companies' goals in practice. The question arises, however, as to how a flexible standard costing system should be designed to ensure maximum efficiency.

2. Internationally, and particularly in the United States, standard costing was never very highly developed. Consequently, modern cost management—and especially ABC—has moved toward a new cost accounting approach as a replacement for standard costing. In the United States, activity-based costing has often been able to make the costs of support activities transparent for the first time, including support activities in production.

3. In contrast, German-speaking countries had by the 1960s already implemented a cost accounting approach that ensured significantly more transparency for planning and control of costs in the different departments. The Marginal Costing approach developed by H.G. Plaut and W. Kilger is based not only on a particular methodology but, as a cost-accounting reporting system, includes a variety of conceptual provisions. The theoretical-methodological rationale for these provisions continues to hold its validity. Yet practice has not always followed theory in every detail. The current tendency is

toward a simplification of cost accounting as illustrated in the following points.

0.61 The Concept of Benefit-Based Costs[101B]

The concept of benefit-based costs has found widespread acceptance, and not only in Marginal Costing.[3] It must be kept in mind, however, that this concept is only needed for highly specialized cost accounting purposes.[102] This is the basis of decisions under certain assumptions, such as for company sustainability in the context of the target system or for the purposes of intercompany comparisons when factors such as different financing structures must be eliminated. While the reasoning behind such imputed costs for depreciation, interest, or risks is often doubtful with regard to the investment assumptions and their actual decision relevancy, more critical are the disadvantages of this approach for profitability management. On the one hand, management of profitability based on internal and external results is not consistent due to differing expense and cost information; on the other, the expected tax effects of decisions are frequently inaccurate because the internal result is less profitable than the financial accounting result due to the additional imputed costs.[103] Therefore, a higher level of accounting uniformity is called for—especially with regard to imputed depreciation and imputed interest—when an integrated accounting system is required.[104]

As a starting point for eliminating divergence, the following design recommendations of W. Männel should be considered:[105] If one wants to avoid excessively high imputed depreciation in cost accounting, one must do without the use of replacement values. To avoid interpreting profits as costs, interest costs are calculated using only the interest on outside capital. To the authors, a more purposeful approach would be to exclude interest costs from the operating result completely and leave that aspect to the calculation of financial income. This also ensures better compatibility with the tools of value-based management. Similarly, reporting purely imputed costs as components of the imputed profit should be dispensed with. As far as possible, all cost elements should be taken over from monthly expense accounting within financial accounting. Divergences can further be avoided through a uniform monthly accrual of sales deductions and sales costs in internal and external accounting.

Consequently, the magnitude of a reconciliation is determined by the degree to which the specific costing purposes of cost accounting require divergences from the financial accounting systems. Even the proponents of tighter integration see limits in reducing divergence.[106] Better opportunities are envisioned in the increasing internationalization of external accounting.[107] If one follows the majority of recommendations, particularly in textbooks, a considerable degree of divergence is implied just by the established definition of the benefit-based cost concept.[108] Also, in this current discussion, the necessity of a separate cost accounting system is justified, for example, by the need to provide for opportunity costs appropriate to the costing purpose at hand.[109]

It is recommended, however, that at least in individual cases an investigation be made into whether the advantages of pursuing specific purposes in the cost accounting system outweigh the negative consequences of the divergences with respect to transparency and additional effort in accounting. Of course, for the definition of such a cost category for one-time special costing purposes, costing-specific determinations are only limited by cost-benefit considerations.

0.62 Marginal Cost Principles and the Time Scale of Cost Planning

In analyzing actual practice in the field, one notices that marginal costs or proportional costs are normally defined very broadly. For example, despite all reasons to the contrary, personnel costs are frequently defined as proportional costs. Consistent with the reporting system of Marginal Costing, this practice can be justified by the time scale used in cost planning and particularly cost differentiation. It is a well-known fact that the longer the chosen time scale, the more avoidable costs become.

Since the increasing level of automation in modern production systems and better computer support for administrative processes are reducing the significance of short-term authorized-actual variances, the focus is moving more and more toward assessing efficiency based on how resources are adjusted in the medium term. For

example, production management's primary objective is no longer to determine that a lower operating level does not automatically reduce the authorized costs by an amount equal to the fixed personnel costs, but instead is interested in how management is able to implement all options for adjusting personnel costs through overtime reductions, vacation, or internal transfers.

0.63 Transfer Prices and Behavior Orientation

The conventional approach to assigning the costs of internal activities in decision-based accounting, for example by using complex equations, has received heavy criticism both from practitioners in industry and from theorists.[110] This topic is concerned with methodological mastery on the one hand and with the ability to influence behavior on the other.

The problem of the methodological deployment of cost accounting has generally been solved through the use of modern off-the-shelf software. The spread of computer-supported administration systems enables provision of the required data, which, in turn, enables automation of the processes by integrating the output data and related cost information in the cost accounting software. In addition, the growing tendency towards a lower complexity of internal activities through outsourcing and the integration of support activities reduces demands on the assignment of support costs.[111] The integration of support activities such as maintenance tasks, performed by production teams, often means there is no separate assignment of such activities. This applies to both period-based and cumulative cost assignments, as well as to settlement/liquidation of individual activities for internal orders/jobs.

As described above under the purposes of cost accounting, the ideas behind a behavioral cost accounting approach are particularly relevant for determining transfer prices. Institutional-economic considerations transcend the conventional Marginal Costing principles of transfer prices. Whether practical recommendations can be derived from these theoretical elements remains to be seen, however. But at least research in this area is starting to summon up more understanding for the fact that transfer prices higher than the proportional costs are common in practice.

0.64 Cost Center Accounting

The opportunities for simplifying cost accounting stem from the changes in organizational structures prompted by efforts in recent years to implement lean manufacturing.[112] The consequent increases in outsourcing (particularly in the support activities) that enable greater focus on core competencies diminish the proportion of secondary costs in companies' overall pool of cost elements. This, in turn, reduces the complexity across all levels of cost accounting.

A simplification of cost center accounting can be realized in a number of ways. A greater reliance on outsourcing results in a direct reduction in the number of cost centers. If company organization is based on integrated value chains, a differentiation of cost centers for cost assignment purposes is not needed because even the costs of large cost centers can be assigned on a product basis. The number of different workplaces can be reduced by procuring identical facilities and equipment, which reduces complexity and thus homogenizes the capacity structures.

0.65 The Resource Driver Methodology

The methodology around resource drivers pioneered by Kilger still attracts interest today, and its basic design concept remains the state of the art.[113] Due to the strong interest in improved application of cost accounting in support activities, the application of direct resource drivers has received more attention in recent years. In this regard, one of the influences of process costing has been a movement toward using the number of defined processes rather than measuring drivers in quantities and times only. But ongoing improvements in automatic data capture through better data processing support for all business processes mean that more and more activities are becoming economically measurable for which it was previously infeasible to plan and control costs with direct drivers.

0.66 Variances in Cost Center Controlling

The decreasing significance of proportional costs and variances due to higher levels of automation and improved planning is enabling more and more companies to dispense with comprehensive variance analy-

sis.[114] In place of often untimely and excessively aggregated cost variance information, daily or even shift-based information on performance variances in the categories of time, quantity, and quality are becoming more widespread. A full rollup of the cost variances of service cost centers to primary cost centers is being supplanted by cost management based on the variances in the service cost centers alone. In such cases, it is sufficient to allocate activity costs standardized during the fiscal year to control activity consumption in the receiving cost centers.[115]

This leads to the idea of reducing the frequency and level of detailed variance analysis. Integrated production facilities, in particular, can be controlled by tracking and allocating costs at summarized levels because it is possible to trace variances back to individual elements by means of technical analyses, and, in any case, an hourly rate for the system as a whole is sufficient for costing purposes. The cost variances detected by cost controlling are then transferred directly to the operating result.

0.67 Variances in Authorized-Actual Comparisons for the Cost of Goods Manufactured

As Riebel's Direct Costing and Contribution Margin Accounting began to merge with Marginal Costing, sales accounting became more sophisticated in practice.[116] The greater transparency of relationships among resources, processes, and products achieved by means of value chains simplifies costing almost automatically. An additional factor is that the growth in outsourcing increases the percentage of direct product costs that pose no difficulties in assigning. A reduced number of variants lowers the percentage of costs that are not directly product related because process costs less closely represent overhead for individual product variants. Reducing product complexity through the use of modular designs and nonvariable parts also leads to a structural simplification of costing functions.

Costing effort declines significantly when similar costing objects can be grouped together.[117] Instead of costing a large number of variants, it is often sufficient to cost only one reference product and then either apply the costing result to all variants or allow for a special modification to reflect a significant cost difference. In particular, separate costing of variants that have low cost significance should be avoided.[118]

0.68 Elaboration of Contribution Margin Accounting

Profitability analysis can be simplified if the cost model is designed such that assignable fixed costs can be recorded directly on profitability segments. This increases the transparency of profitability reporting. Moreover, companies with tightly integrated and highly streamlined internal value chains can plan profitability more reliably because there are fewer interdependencies, which ensures that management at all levels focuses on particular profitability objects.

For existing production and product portfolio components, standard cost estimates are frequently sufficient for profitability management during the fiscal year—that is, products in repetitive manufacturing and mass production are costed only once a year to determine order profitability or valuate inventory changes.[119] Here, too, it is clear that the better the preliminary cost estimate and the costing preparation and planning,[120] the lower the actual cost variances against the target costs calculated at standard cost. These variances flow directly into the operating result. The standard cost estimates and contribution margin cost estimates should be retained as long as possible for this purpose.[121]

Concentrating the sophistication of profitability analysis on dimensions that are relevant to profitability management leads to a simplification of the profitability management system.[122] Not all possible characteristics of profitability segments must be managed and analyzed, but only those that are significant for effective profitability management, such as product, market/customer, distribution channel, or sales region. It must not be forgotten, however, that modern software conveniently supports the linkage of sales data to cost and revenue information for individual orders and that databases can easily manage the corresponding volume of data. IT support for simulations and for generating detailed plans by means of data manipulation increases the feasibility of increased sophistication of multidimensional and multilevel market segment calculations, but it is easy to overlook the costs associated with such

information for the users of these systems. Furthermore, there is a temptation to experiment intensively in order to cast one's own position in a more favorable light. For this reason, standardized reports lead to more transparency even in interactive information systems. This remains the case even when modern MIS concepts are used to support the analysis and with the generation of reports or when automated data mining routines are employed to support profitability analysis.

On the other hand, evaluation of the information is also becoming more specialized. In industry and retail as well as services, the changing nature of consumer and purchaser behavior is heightening the importance of partner relationships, meaning that focusing on the profitability of individual products can result in suboptimal decisions on product mix.[123] Since affiliation modeling (such as with cross-elasticities) has not been accepted in practice, new approaches are needed that focus directly on mix optimization.[124]

0.69 Integrating Marginal Costing into Management Accounting

1. To improve competitiveness and enable sustainable attainment of company goals, management accounting must be involved in product development early on so that it can shape product costs during the design process, as called for in the extensive cost management literature.[125] Realizing sustainability through life-cycle-based product costing, eliminating nonvalue-adding processes, reducing the process volume, and avoiding over-dimensioned resources requires new cost management tools. Cost management can be understood as a systematic approach to influencing the cost levels, cost structure, cost behavior, and cost transparency of a system of relationships among products, processes, and resources.[126] Of particular importance in cost management is cost information on cross-functional aspects such as innovation, logistics, and quality. These process areas need to be defined, identified, and differentiated from each other,[127] making it necessary to plan and track costs across cost center boundaries. The structures of Process Costing/ABC are valuable in this regard. Individual activity/process amounts can, however, also be costed using the methodology of Marginal Costing.

2. Cost management and management accounting can influence the company's level of performance and serve to control the company's output of goods and services. In principle, management accounting also supports cost management as a subtask of management. Conversely, cost management changes the starting situation of management accounting by influencing costs from the early stages of planning onward, introducing new cost accounting tools, and enhancing the general awareness of costs in the company. The new tools of cost management are frequently highly pragmatic in concept, comprising relatively unrestricted but proven methodologies. The cost information they generate serves the purposes of strategic planning in different phases (particularly analysis, determination of alternatives, implementation of strategies, and strategic control)[128] and must therefore fulfill other requirements than those of short-term accounting for operational planning and control.

3. The principal tools of cost management are the following:

- Target costing,
- Concurrent costing,
- Life-cycle costing,
- Process Costing/ABC,
- Benchmark costing,
- Resource-driver-based assignments.

Each of these techniques has a vast literature behind it that cannot be discussed here.[129] In the following, we will look at how the concepts of strategic cost management can be integrated into cost accounting for planning and control purposes. While integration would have organizational and efficiency advantages, it would also entail the risk of suboptimal appropriateness for strategic analysis.[130]

Target costing is a customer-centric method of optimizing costs, functionality, and quality while the product is being designed. If one follows the proposals in the literature, one is soon faced with complex procedures for determining the exact customer requirements.[131] Particularly problematic is the weighting of the multidimensional product requirements that are needed as a basis for setting target costs based on the ability to pay. For this reason, this tool is only practical on a case-by-case basis when the cost-volume can be influenced accordingly, or in highly pragmatic simplification. Even

the automotive industry often costs out a new model using only the standard price class for that segment, deriving from it the maximum allowable production cost as a lump sum and then roughly distributing the target costs among the components based on the cost structure of the previous model.

If cost accounting is to better support cost control efforts in the early stages of product development, cost estimates are needed that do not use the costing basis of Marginal Costing such as BOMs and routings (**concurrent costing**)[132] and that include estimation methods that attempt to capture cost relationships through the establishment of neural networks with test data due to lack of previous analytical exposure.[133] Furthermore, since all costs can be influenced to a greater or lesser extent during the early stages of product design, the long-term marginal costs coincide with the full costs. Initial indications as to how costs might be distributed can nevertheless be established at this point—for example, based on the planned machine usage. For this reason, it is worth preparing the basic data at an early stage when the first rough estimates are compiled so that as the product design is finalized these estimates can be used later in cost estimates for flexible standing costing.

Life-cycle costing is a central source of information for product cost management, helping to determine the efficiency of the general decision about the product and the integrated profit planning process that includes all pre- and post-production costs. It also serves as a control instrument, providing project cost accounting information throughout the entire production and marketing cycle. The focus is not on repeatedly calculating the historical costs of the product but, rather, optimizing the remaining marketing and follow-up phases. Periodic contribution margins are then used mainly for sales management and production planning. Decisions about the life cycle itself, however, should in principle be based on investment accounting, meaning that life-cycle cost accounting must also merge into life-cycle calculations based on investment accounting.[134]

The central focus of much scrutinizing in cost management results from **Process Costing/ABC** discussed above. Here it should suffice to note that this methodology entails a fundamental enhancement of the output measures for cost assignments in cost accounting. In principle, this should benefit cost accounting by promoting adherence to the causality principle and improve transparency in support areas. But as part of financial accounting, Process Costing/ABC should be applied from an optimized and representationally simplified process structure. Moreover, complex process analyses should only serve an existing organizational design. Detailed costing of these processes serves mainly to estimate cost reduction potential as a goal of reorganization, and to do this must represent resource consumption as absorption costing. Another important component of process cost management is the continuous improvement of processes. And this is only partially attained by cost management of the processes as described above—it is mainly achieved by direct monitoring of critical process parameters. To enable dynamic changes to the analysis and the determination of corresponding target parameters, both the half-life concept and experience curves have been proposed, the latter of which supports estimation of cost trends in future periods.[135] To the extent that process costs are used in product cost estimates, a significant increase in meaningfulness, compared with assessment and overhead allocation, can usually be achieved by utilizing a few standardized processes and standard process cost rates in cost accounting.

Benchmark costing, a particularly flexible procedure, is only worthwhile in specific cases where the levels of total cost correspond. The point is to be able to compare the costs of an object—whether a product or a business process—with the costs of a similar object, which exhibits more efficiency. The chief advantage of this type of comparison is that it helps allay reservations about the fairness of cost targets. And since the data is usually based on noncompetitors that are not fully comparable, the precision of cost information is less important than identifying opportunities for increased competitiveness through better business processes in the company's own industry.

Comprehensive **resource-driver-based assignment** helps improve the exploitation of resource potential and enhance capacity utilization.[136] This type of resource-driver-based assignments initially provides information about resource capabilities in order to support the opti-

mum design of capacity. An important component is a key figure analysis, which measures effective capacity utilization.[137] Key figure analysis captures important planning data that also describes the avoidability of resource costs. According to M. Layer, forecasting fixed costs—which is gaining in significance in cost planning—should be based on a dynamic investment function, differentiate between avoidable and unavoidable costs, and be incorporated in a corresponding authorized Marginal Costing system.[138] Resource-driver-based assignments also indicate the possibilities of capacity utilization for direct control purposes. At the same time, it improves the variance analysis functions in cost center accounting.[139]

0.610 Marginal Costing as a Foundation for Value-Based Management Accounting

1. A new challenge for management accounting is the movement in many companies towards emphasizing shareholder value[140]—whether the purpose is to better account for the interests of investors or to protect company interests in the face of the increasing significance of capital markets and their players in the evaluation of the performance of the company and whether it should continue to exist as an independent entity. Focusing on the concepts of shareholder value further entrenches the need for management accounting by means of the traditional external and internal periodic accounting approach. The implementation of value-based management[141] nevertheless requires integration into all of accounting. On the one hand, data from internal accounting is needed in order to provide data for value-based calculations, as is the case with investment accounting tools. On the other hand, the categories and drivers of value-enhancing strategies must be broken down to the operational level and operationalized for continuous monitoring. The parameters of Marginal Costing and contribution margin accounting continue to be suitable for this purpose.

2. Küpper early on developed a proposal to base cost accounting on investment theory[142] and to replace the categories of costs and revenues with discounted payments. Internal accounting information is by nature less restricted.[143] Consequently, it is admissible to interpret costs and revenues as future discounted changes in payment flows. While it may seem advisable to avoid misunderstandings in practice by means of terminology that distinguishes calculations based on investment theory from conventional cost and revenue accounting, the requirements of benefit-based management accounting have nevertheless recently prompted a resurgence of the idea of integrating investment accounting and cost accounting. Investment accounting and cost accounting are more closely related than is typically assumed. Since investment budgets are not available, the incoming and outgoing payment flows must be determined by means of forecasts. Cost and revenue accounting and profitability analysis provide a good starting point for this purpose, as they are based on concrete time and quantity standards. This is particularly the case when payment-related/cash-flow performance data is available. This basic connection can be exploited more easily the better cost accounting and investment accounting are integrated, as is more and more frequently demanded.[144]

3. The task of value-based management accounting is to analyze the strategies selected by the enterprise to determine how these help create competitive advantages and consequently increase the value of the enterprise. What is evaluated is the capability of the enterprise to develop, produce, use, and market its products—in the present and in the future. The valuation of the enterprise must therefore express its future potential value,[145] represented by the methods of enterprise valuation, based on its earning power. The literature discusses different methods of defining such suitable potential measures (e.g., earnings or various types of cash flow methods).[146] For the integration of internal profitability analysis and value-based profitability management, we will only examine one particularly suitable discounted-cash-flow method.

Rappaport's Shareholder Value Analysis (SVA)[147] elevates the discounted free cash flow as the central performance criterion. Value creation starts with five value generators: sales growth rate, operating income margin, income tax rate, investments in net working capital and fixed assets, and the cost of capital.[148] Only with this breakdown does the DCF method become manageable and does it merge strategic and financial management.[149] The elements evaluated are strategic business

units, synergy effects, product mix decisions, the performance of managers, and acquisitions.[150] Shareholder value in Rappaport's sense is the value of the enterprise less the fair market value of outside capital; the value of the enterprise is the sum of the present value of the operating cash flow during the forecast period plus the residual value and fair market value of its stock exchange securities.[151] The free cash flow (FCF) as the relevant part of the operational cash flow can be defined as "that part of the incoming payment surplus [...] resulting from the operational activities which is available for distribution to investors or for reinvestment after deducting the investments in fixed assets and net working capital and payment-related income taxes of the planning period."[152] The free cash flow is therefore the difference between the operational incoming and outgoing payments before interest on outside capital and after taxes and net investment to fixed assets and working capital. Both the cash flows and the residual value are to be discounted to the present value for the planning time frame.

4. Although the future benefit of the free cash flow may be convincing to a potential investor for value determination, it is difficult to calculate. In order to reach a reasonably reliable valuation, it is essential to back up the forecast of the payment flows with appropriate instruments. Suitably sophisticated financial budgets that may be available are more of an exception here. As a rule, therefore, the required cash-flow information must be derived specifically for individual situations. The detailed determination of cash flows requires improved capture of the activity dependencies in quantities, times, and qualities.[153] Estimation of the cash flow forces the planning of concrete resources, capacities, processes, and products in the same way as is required in Marginal Costing.

The literature proposes deriving the required free cash flow from the internal operating result.[154] For this purpose, the operating result is determined as follows:

Operating result
+ Depreciation stated in operating result
+ Cost of capital stated in operating result
+ (if applicable) other imputed costs in operating result
+ Increase (less write-off) of longer-term reserves
= Gross cash flow
– Investments to fixed assets (less disinvestments)
– Increase (less reduction) of working capital
– Tax payments
= Free cash flow

A significant factor for obtaining value-oriented calculations from profitability analysis[154B] is the divergence or convergence between the values of the external and internal accounting systems. This is because the increasing distance of the operating income statement from the categories of expense and revenue (which more closely represent cash flows) makes the reconciliation more complicated or less able to provide meaningful information. This supports the argument for a greater convergence between external and internal accounting. The latter is by no means a contradiction of the principles of cost accounting to plan the costs and revenues of future periods on the basis of the forecast time and quantity standards. The accuracy should be acceptable compared with other methods utilized for investment accounting purposes. In an immediate estimation of payment flows, the detailed questions of financing (such as the exact day on which a large invoice will be paid) are those we are least able to predict, while factors such as energy consumption can be foreseen with relative accuracy provided the production and sales forecasts hold true. The period results determined by cost accounting can then be converted to cash flows and discounted using the DCF method.

0.7 Marginal Costing as the Nucleus of Management Accounting

In conclusion, cost accounting on the basis of Marginal Costing supplemented by process-centric methods of cost accounting and embedded in a sophisticated contribution margin accounting system forms the core element of management accounting. Only by linking the categories of decision-based standard costing with time and quantity standards can company performance be planned and controlled. Moreover, the information basis that this creates builds the foundation for operational investment accounting and benefit-based calculations.

Marginal Costing remains indispensable, and the reporting system for flexible standard costing and contribution margin accounting developed by Kilger is still

up-to-date. Consequently, we can conclude this introduction with the same words as in the last edition edited by W. Kilger: "This book describes the development of cost accounting starting with the various designs of actual costing and normal costing and finally leading to Marginal Costing and Contribution Margin Accounting. The costing theory on which this procedure is based will then be presented. The remaining parts of the book are a theoretically grounded and practice-oriented presentation of flexible standard costing as developed into Marginal Costing and Contribution Margin Accounting."[155] ■

Footnotes

1 Translator note: Wolfgang Kilger, Jochen Pampel, and Kurt Vikas, *Flexible Plankostenrechnung und Deckungsbeitragsrechnung*, 11th edition, Wiesbaden: Gabler, 2002.

2 For an introduction to the development and state of the art of Marginal Costing, see K. Vikas, *Grenzplankostenrechnung* [Marginal Costing], 2002.

2B Translator note: The term "authorized" (as in authorized costs or authorized profit) is used to translate the German term "soll-." "Sollkosten" in GPK reflects target or allowed costs that are calculated for all departments (direct and indirect) based on actual output levels for comparison with actual costs incurred. In U.S. vernacular, a flex-budget; "sollkosten," however, is calculated using GPK's sophisticated cost modeling technique.

3 Translator note: in German-speaking Europe.

4 The coordination function of cost management is particularly emphasized in H.U. Küpper, *Controlling* [Management Accounting], 2001, pp. 13–29.

5 For details, cf. D. Hahn, *Controlling in Deutschland* [Management Accounting in Germany], 1997, pp. 16 ff.

6 Cf. J. Weber, *Einführung in das Controlling* [Introduction to Management Accounting], 1995, p. 49.

7 For more on this distinction, see P. Horváth, *Controlling* [Management Accounting], 1996, pp. 117 ff.

8 See also A. Klein, K. Vikas, *Überblick über das prozessorientierte Controlling* [Overview of Process-Oriented Management Accounting], 1999, p. 83 f.

9 J. Weber, *Change Management für die Kostenrechnung* [Change Management for Cost Accounting], 1990, p. 121 f.

10 Translator note: The terms *Marginal Costing*, *Standard Costing*, *Flexible Standard Costing*, and/or *Contribution Margin Accounting* are used to refer to GPK/Grenzplankostenrechnung, an advanced form of Standard Costing predicated on extensive use of resource drivers in direct and indirect cost areas.

11 J. Weber, *Change Management für die Kostenrechnung* [Change Management for Cost Accounting], 1990, J. Weber, *Entfeinerung der Kostenrechnung* [Simplification of Cost Accounting], 1992; J. Weber, *Kostenrechnung im System der Unternehmensführung* [Cost Accounting in the System of Enterprise Management], 1993; J. Weber, *Selektives Rechnungswesen* [Selective Accounting], 1996; W. Männel, *Schlanke Konzepte und Methoden* [Lean Concepts and Methods], 1995; and D. Pfaff, J. Weber, *Zweck der Kostenrechnung?* [Purpose of Cost Accounting?], 1998.

12 J. Weber, *Entfeinerung der Kostenrechnung* [Simplification of Cost Accounting], 1992, pp. 176–179; W. Männel, *Schlanke Konzepte und Methoden* [Lean Concepts and Methods], 1995, pp. 194–195.

13 J. Weber, *Change Management für die Kostenrechnung* [Change Management for Cost Accounting], 1990, pp. 122–124; J. Weber, *Entfeinerung der Kostenrechnung* [Simplification of Cost Accounting], 1992, pp. 179–182; J. Weber, *Selektives Rechnungswesen* [Selective Accounting], 1996, p. 928 f.; H-U. *Küpper*; *Marktwertorientierung* [Market Value Orientation], 1998, pp. 533–536.

14 W. Männel, *Schlanke Konzepte und Methoden* [Lean Concepts and Methods], 1995, p. 192.

15 While the German literature usually first discusses the range of cost accounting purposes and then selects the most appropriate cost accounting system for all purposes, in the U.S. literature the description of cost accounting is strongly influenced by the different purposes. This is particularly the case in C. T. Horngren, G. L. Sundem, W. O. Stratton, *Introduction to Management Accounting*, 1999.

16 See, for example, K. Cross, R. Lynch, *Accounting for Competitive Performance*, 1989, pp. 20–28; I. Lessner, *Performance Measurement*, 1989, pp. 22–28; R. S. Kaplan, *Limitations of Cost Accounting*, 1990, pp. 15–38. On this estimation, cf. N. Klingebiel, *Leistungsrechnung/Performance Measurement*, 1996, p. 79.

17 For an overview, see J. G. Birnberg, *Current Trends in Behavioral Accounting Research*, 1993, pp. 5–25.

18 See D. Pfaff, *Fix- und Gemeinkostenallokationen im Lichte der ökonomischen Theorie* [Allocation of Fixed Costs and Overhead in the Light of Economic Theory], 1994, pp. 185 ff.

19 The phenomenon that practice goes against the recommendations of theory and always makes decisions on the basis of full costs as well is described by H. Wiese as the "theory/practice paradox of cost accounting," which can be explained with decision theory analysis; see S. Wiese, *Theorie-Praxis-Paradox der Kostenrechnung* [The Theory/Practice Paradox of Cost Accounting], 1994, p. 525.

20 See J. P. Krahnen, *Kostenschlüsselung und Investitionsentscheidung* [Cost Assignments and Investment Decisions], 1994, p. 190 f.

21 W. Männel, *Anpassung der Kostenrechnung* [Adaptation of Cost Accounting], 1992, p. 115 f.

22 J. Weber, *Selektives Rechnungswesen* [Selective Accounting], 1996, p. 929.

23 See J. G. Miller, T. E. Vollmann, *The Hidden Factory*, 1985, pp. 143–146.

24 Cf. H. T. Johnson, R. S. Kaplan, *Relevance Lost*, 1987, pp. 125–151.

25 Cf. H. T. Johnson, R. S. Kaplan, *Relevance Lost*, 1987, p. 250.

26 For information on the method described here of costing operations in indirect areas and in the service sector, see K. Vikas, *Dienstleistungskalkulation* [Service Costing], 2001, p. 193 ff.

27 Translator note: *Process Costing* is used to distinguish German Prozesskosternrechnung—an approach similar to ABC—from ABC as practiced in the USA, which will be designated as ABC. The term Process Costing/ABC will be used when both methods are implied.

28 For more on the requirements of group cost accounting, see H. Müller, *Operative Unternehmenssteuerung global agierender Unternehmen und Konzerne* [Operative Management of Global Companies and Groups], 1999, pp. 384-421394; K. Küting,

M. Dusemond, *Konzernkostenrechnung* [Group Costing], 1994, pp. 245–251.

29 See H. Müller, *Anforderungen an das interne Rechungswesen für die operative Unternehmenssteuerung global agierender Unternehmen und Konzerne* [Requirements on Internal Accounting for the Operative Management of Global Companies and Groups], 1999, pp. 394-396; K. Küting, M. Dusemond, *Konzernkostenrechnung* [Group Costing], 1994, pp. 245–251.

30 Cf. N. Klingebiel, *Leistungsrechnung/Performance Measurement*, 1996, p. 77.

31 Thus "modern" performance measurement cannot simply be equated with performance measurement based on the output of goods and services, as suggested by N. Klingebiel, *Leistungsrechnung/Performance Measurement*, 1996, for example (especially p. 81), even though it appears there as a result of a sequence of development steps. See ibidem, p. 79. In the practical literature, the use of nonfinancial measures is still regarded as an innovation; J. Fisher, *Use of Nonfinancial Performance Measures*, 1994, p. 31. On the theoretical basis of Performance Measurements, see also R. Gleich, *Das System des Performance Measurement* [The System of Performance Measurement], 2001, pp. 21-43, and, for an overview, see R. Gleich, *Performance Measurement als Controllinginstrument* [Performance Measurement as a Management Accounting Tool], 2001, pp. 47–49.

32 See, for example, K. Cross, R. Lynch, *Accounting for Competitive Performance*, 1989, pp. 20–28, or J. Lessner, *Performance Measurement*, pp. 22–28. On this assessment, cf. also N. Klingebiel, *Leistungsrechnung/Performance Measurement*, 1996, p. 79.

33 See W. J. Bruns, Jr., S. M. McKinnon, *Performance Evaluation and Managers Description of Tasks and Activities*, 1992, pp. 17–36.

34 See C. Meyer, *How the Right Measures Help Teams Excel*, 1994, pp. 95–103.

35 See K. J. Murphy, *Performance Measurement and Appraisal*, 1992, pp. 37–62.

36 See, for example, A. J. Nanni, Jr., J. R. Dixon, T. E. Vollmann, *Strategic Control and Performance Measurement*, 1990, issue 2, pp. 33-42.

37 H. T. Johnson, R. S. Kaplan, *Relevance Lost*, 1987.

38 Johnson emphasizes this point as well: "Traditional cost accounting systems impede performance because traditional cost accounting data do not track sources of competitiveness such as quality, flexibility, dependability, and service in the global economy."; T. H. Johnson, *Performance Measurement for Competitive Excellence*, 1990, p. 63.

39 R. S. Kaplan, *Limitations of Cost Accounting*, 1990, p. 18 f.

40 R. S. Kaplan, *Limitations of Cost Accounting*, 1990, p. 20 f.

41 R. S. Kaplan, *Limitations of Cost Accounting*, 1990, p. 21 f. D. G. Dhavale's criticism is similar: "Financial performance measures inappropriate at operations level. Many performance measurement systems use financial measurements that are too abstract because they are too hard to relate to activities taking place on the shop floor. Financial measurements often fail to provide information that is useful for decision making"; D. G. Dhavale, *Problems with Existing Manufacturing Performance Measures*, 1995-1996, p. 50. For a similar list of deficiencies as those by Kaplan mentioned above, see ibidem, pp. 50–52.

42 Translator note: referring to U.S. standard costing.

43 D. G. Dhavale, *Problems with Existing Manufacturing Performance Measures*, 1995-1996, p. 54.

44 See M. Günther, J. R. Pampel, *Implementierung eines Konzepts zur Kapazitätsrechnung* [Implementing a Concept of Capacity Accounting], 2000, pp. 300-306.

45 See, for example, J. Hoffecker, C. Goldenberg, *Using the Balanced Scorecard to Develop Companywide Performance Measures*, 1994, pp. 5–17.

46 Cf. R. S. Kaplan, D. P. Norton, *The Balanced Scorecard*, 1996, p. 8.

47 Cf. R. S. Kaplan, D. P. Norton, *The Balanced Scorecard*, 1996, p. 43 ff.

48 See W. Männel, *Entwicklungsperspektiven der Kostenrechnung* [Development Perspectives of Cost Accounting], 1999, p. 96.

49 Cf. Foster, G., Gupta, M., Sjoblom, L., *Customer Profitability Analysis*, 1996, p. 5 f.

50 On the requirements, see Haag, J, *Kundendeckungsbeitragsrechnungen* [Customer Contribution Margin Accounting], 1992, p. 25 ff.

51 See R. Fischer, M. Rogalski, *Preispolitik auf Grundlage eines entscheidungsorientierten Kosten- und Erlöscontrolling* [Price Policy on the Basis of Decision-Oriented Management Accounting], 1993a, pp. 240–249.

52 Cf. K. Kornagel, *Preispolitik auf Grundlage eines entscheidungsorientierten Kosten- und Erlöscontrolling* [Price Policy on the Basis of Decision-Based Management Accounting], 1993, pp. 917–920; R. Fischer, M. Rogalski, *Preispolitik auf Grundlage eines entscheidungsorientierten Kosten- und Erlöscontrolling* [Price Policy on the Basis of Decision-Based Management Accounting], 1993b.

53 For a good example of a practical application, see A. Jerger, *Marktorientierte Ergebnisrechnung* [Market-Based Profitability Analysis], 1995, pp. 107–114. For a more comprehensive treatment, see E. Herzog, K. Zehetner, *Prozessorientiertes Controlling des Vertriebs* [Process-Oriented Management Accounting in Sales and Distribution], 1999, pp. 288–293.

54 For an example, see K.P. Franz, *Die Prozesskostenrechnung* [Process Costing], 1990, p. 134 and K.P. Franz, *Die Prozesskostenrechnung im Vergleich mit der Grenzplankosten- und Deckungsbeitragsrechnung* [Process Costing vs. Marginal Costing and Contribution Margin Accounting], 1990, p. 195–209. See also H.C. Pfohl, W. Stölzle, *Anwendungsbedingungen, Verfahren und Beurteilung der Prozesskostenrechnung in industriellen Unternehmen* [Application Requirements, Methods, and Assessment of Process Costing in Industrial Enterprises], 1991, p. 1298 f.; H. Müller, *Prozesskostenrechnung* [Process Costing], 1992, p. 70 f.; O. Fröhling, *Thesen zur Prozesskostenrechnung* [Theses on Process Costing], 1992, p. 723 ff.; U. Götze, J. C. Meyerhoff, *Die Prozesskostenrechnung* [Process Costing], 1993, p. 84 ff.; and P. Horváth, M. Kieninger, R. Mayer, C. Schimank, *Prozesskostenrechnung — oder wie die Praxis die Theorie überholt* [Process Costing — Or How Practice Is Overtaking Theory]. *Kritik und Gegenkritik* [Criticism and Counter Criticism], 1993, pp. 617–623.

55 This also corresponds more to the fact that Process Costing/ABC in the United States stems from a new (additional) orientation of cost accounting; on this origin see R. S. Kaplan, *One Cost System Isn't Enough*, 1988, pp. 61–66. A similarly sophisticated assessment regarding the suitability of Process Costing for planning in the context of different time horizons and general conditions is arrived at by U. Schiller, S. Lengsfeld, *Planung mit Prozesskostenrechnung* [Planning with Process Costing], 1998, p. 525.

56 See the argument for Activity-Based Costing by P. F. Druck-

er, *The Information Executives Truly Need*, 1995, passim, and the contribution of ABC Management Accounting by R. S. Kaplan, *Das neue Rollenverständnis für den Controller* [The New Role of the Management Accountant], 1995, pp. 60–70.

57 See K. Backhaus, S. Funke, *Auf dem Weg zur fixkostenintensiven Unternehmung* [On the Way to the Fixed-Cost-Intensive Enterprise], 1996, pp. 109–124; S. Funke, *Eignung der Vollkostenrechnung für die Zwecke der Kosten- und Leistungsrechnung bei hohen Fixkostenanteilen* [The Suitability of Absorption Costing for Cost Accounting with High Fixed Costs], 1994, p. 324. This view even holds when empirical research in recent years shows that no serious increase in fixed costs has taken place; for an example of such research, see M. Schumann, M. Beinhauer, *Empirische Analysen zur Kostenentwicklung des administrativen Bereichs* [Empirical Analysis of Cost Trends in Administration], 1994, pp. 297–305.

58 For a comprehensive treatment, see A. Ripperger, A Zwirner, *Prozessoptimierung. Ein Weg zur Steigerung der Wettbewerbsfähigkeit* [Process Optimization: A Method of Enhancing Competitiveness], 1995, pp. 72–80, and S. Niemand, M. Fröhlich, *Prozesskostenrechnung als Instrument zur Organisationsgestaltung* [Process Costing as an Organizational Tool], 1994, pp. 267–276.

59 Translator note: a cross-functional view.

59B Translator note: In this list consider "process" and "activity" to be synonymous.

60 On the use of resource drivers in different costing systems, see J. R. Pampel, *Bezugsgrößen* [Resource Drivers], 2002.

61 Vikas calls this procedure "Vorgangskalkulation" (transaction costing); see K. Vikas, *Controlling im Dienstleistungsbereich mit Grenzplankostenrechnung* [Management Accounting in the Service Sector with Marginal Costing], 1988, pp. 147 ff.

62 Adherents consequently emphasize that Marginal Costing is process conforming because of the assignment of costs through performance-based drivers. This is particularly clear in H. Müller, *Prozesskonforme Plankostenrechnung* [Process-Conforming Standard Costing/GPK], 1995. Adherents of Marginal Costing who are active in consulting practice in the Plaut Group, in particular, therefore see Marginal Costing interpreted and implemented in this sense as a tool of "modern cost management"; see also the collection of different contributions of the Plaut Group in W. Männel, H. Müller, *Modernes Kostenmanagement* [Modern Cost Management], 1995, pp. 91–162.

63 See R. Cooper, Activity-Based Costing, 1992, p. 361.

64 P. Horváth, R. Mayer, *Prozesskostenrechnung* [Process Costing], 1993, p. 18.

65 Cf. R. Cooper, *Activity-Based Costing*, 1992, p. 361.

66 Cf. G. Foster, M. Gupta, *Activity Accounting: An Electronics Industry Implementation*, 1990, p. 246.

67 Cf. A. Renner, *Kostenorientierte Produktionssteuerung* [Cost-Oriented Production Control], 1991, p. 107.

68 M. Reckenfelderbäumer, *Entwicklungsstand und Perspektiven der Prozesskostenrechnung* [Development Status and Perspectives of Process Costing], 1994, p. 63.

69 See A. G. Coenenberg, T. M. Fischer, *Prozesskostenrechnung* [Process Costing], 1991, p. 26. Models are already being developed in the literature that are designed to help optimize the selection of cost drivers; cf. Y. M. Babad, B. V. Balachandran, *Cost Driver Optimization in Activity-Based Costing*, 1993, pp. 583–575; R. Mayer, L. Kaufmann, *Prozesskostenrechnung* [Process Costing], 2000, pp. 298–301. On empirical research, see also A. Brokemper, R. Gleich, *Empirische Analysen von Gemeinkostenprozessen zur Herleitung eines branchenspezifischen Prozess(kosten-)modells* [Empirical Analyses of Overhead Cost Processes to Derive an Industry-Specific Process Costing Model], 1999, pp. 76–89; C. Homburg, K. Zirnmer, *Optimale Auswahl von Kostentreibern in der Prozesskostenrechnung* [Optimum Selection of Cost Drivers in Process Costing], 1999, pp. 1042–1055.

70 Horváth/Mayer differentiate among advance processes (administrative planning activities in the product development phase), service activities (activities that are always required for any product, part, supplier, or customer), and fulfillment processes (all logistical and administrative activities needed to procure materials and parts, produce parts, assemblies and products, and process sales orders); see P. Horváth, R. Mayer, *Prozesskostenrechnung* [Process Costing], 1993, p. 18.

71 Translator note: in Process Costing.

72 Cf. W. Männel, *Entwicklungslinien der Kostenrechnung* [Development Directions in Cost Accounting], 1999, p. 134 f.

73 For examples of such approaches, see W. W. Hubbell, *Combining Economic Value Added and Activity-Based Management*, 1996, pp. 18–29; M. R. Ostrenga, F. R. Probst, *Process Value Analysis*, 1992, pp. 4–13.

74 This approach, originally introduced into Process Costing by P. Horváth and R. Mayer in Germany, to break down processes (measures) into output-volume-neutral and output-volume-related process costs (P. Horváth, R. Mayer, *Prozesskostenrechnung* [Process Costing], 1989, p. 216 f.) was soon applied to the costs themselves in the discussion, resulting in practice being used in different ways.

74B This approach in German Process Costing differs from the typical approach in ABC, particularly earlier applications of ABC.

75 On this classification of the allocation levels, understood as a hierarchy of the allocatability of processes to products, see R. Cooper, R. S. Kaplan, L. S. Maisel, E. Morissey, R. M. Oehrn, *Implementing Activity-Based Cost Management*, 1992, p. 20.

76 Cf. P. Horváth, R. Mayer, *Prozesskostenrechnung* [Process Costing], 1993, p. 24.

77 Cf. H. Glaser, *Prozesskostenrechnung als Kontroll- und Entscheidungsinstrument* [Process Costing as a Control and Decision Tool], 1991, p. 238, and H. Glaser, *Zur Bedeutung der Prozesskostenrechnung* [On the Significance of Process Costing], 1991, p. 301. H. Glaser also developed general considerations for capturing cost distortions in process-oriented costing; cf. H. Glaser, *Prozesskostenrechnung und Kahkulationsgenauigkeit* [Process Costing and Costing Accuracy], 1996, pp. 28–34.

78 Cf. W. Männel, *Bedeutung der Prozesskostenrechnung* [Significance of Process Costing], 1993, p. 3.

79 Ultimately, a cost estimate is just a heuristic approach. See R. Gümpel, *Kalkulationsverfahren und Beschaftigung* [Costing Methods and Operating Level], 1981, p. 865.

80 The assertion that "Process Costing is capable of charging the cost objects with the running costs of capital caused by them" (C. Schneeweiss, J. Steinbach, Zur Beurteilung der *Prozesskostenrechnung als Planungsinstrument* [On Assessing Process Costing as a Planning Tool], 1996, p. 471) either ignores the problems of attributing causality or reinterprets the causality principle, which is regarded here as inadvisable.

81 Kloock/Dierkes differentiate systematically between the "used capacity principle," which allows the allocation of fixed output-volume-related costs to processes, from the

causality principle, which restricts allocation to variable output-volume-related costs; cf. J. Kloock, S. Dierkes, *Kostenkontrolle mit der Prozesskostenrechnung* [Cost Control with Process Costing], 1996, p. 108.

82 R.S. Kaplan, R. Cooper, *Cost & Effect*, 1998, p. 125.

83 On this classification, see D. Börner, *Kostenverteilung* [Cost Distribution], 1993, p. 1287.

84 D. Schneider, *Kostentheorie und verursachungsgemäße Kostenrechnung* [Cost Theory and Causality-Based Cost Allocation], 1961, p. 694. K.P. Franz refers to allocation based on used capacity and not just on causality; cf. K.P. Franz, *Kostenverursachung und Kostenzurechnung* [Cost Causality and Cost Allocation], 1993, p. 1287.

85 The causality principle of traditional absorption costing was initially criticized, and a search was initiated for more exact principles in support of decision-oriented cost accounting (see, for example, K. Rummel, *Einheitliche Kostenrechnung* [Unified Cost Accounting], 1949, passim and esp. pp. 15–59 and 192–216.; R. Ehrt, *Die Zurechenbarkeit von Kosten auf Leistungen* [The Attribution of Costs to Output], 1967, esp. pp. 5–7.; P. Riebel, *Die Fragwürdigkeit des Verursachungsprinzips* [The Doubtfulness of the Causality Principle], 1969/1990, pp. 67–75). Soon, however, efforts were made to work out a theoretical basis and develop more advanced cost assignment (such as for production overhead), which led to the formulation of the above allocation principles (see, for example, D. Schneider, *Kostentheorie und verursachungsgemäße Kostenrechnung* [Cost Theory and Causality-Based Cost Accounting], 1961, esp. pp. 683–699; H. Koch, 1965, esp. pp. 181–194).

86 That which caused P. Riebel to reject this allocation approach based on the finality principle (cf. P. Riebel, *Die Fragwürdigkeit des Verursachungsprinzips* [Doubtfulness of the Causality Principle], 1969/1990, p. 74 f.) is raised by H. Koch to the principle of the determination of output-corresponding total cost share numbers (the "output correspondence principle"); see H. Koch, *Das Prinzip der traditionellen Stückkostenrechnung* [The Principle of Traditional Unit Costing], 1965, p. 331 ff.

87 Italics in the original, D. Schneider, *Kostentheorie und verursachungsgemäße Kostenrechnung* [Cost Theory and Causality-Based Cost Allocation], 1961, p. 693.

88 Using a process-costing company model, Schneeweiß/Steinbach systematically investigate Process Costing as an approximating planning accounting approach for the capacity as well, based on different variability assumptions; cf. C. Schneeweiss, J. Steinbach, *Zur Beurteilung der Prozesskostenrechnung als Planungsinstrument* [Assessing Process Costing as a Planning Tool], 1996, p. 462 ff. On corresponding methods that have been at least partially realized in practice, see R. Hardt, *Zielsteuerung und Kapazitätsplanung mit Hilfe der Prozesskostenrechnung* [Target Control and Capacity Planning Using Process Costing], 1995, esp. p. 294.

89 C. J. McNair, *The Hidden Costs of Capacity*, 1994, p. 24.

90 Cf. R. Cooper, R.S. Kaplan, *Activity-Based Systems*, 1992, p. 3. Later R. S. Kaplan and R. Cooper named the equation Cost of Resources Supplied = Cost of Resources Used + Cost of Unused Capacity as "fundamental equation"; R. S. Kaplan, R. Cooper, *Cost & Effect*, 1998, S. 117 f.

91 Cf. R. S. Kaplan, R. Cooper, *Cost & Effect*, 1998, p. 117 f., and R. S. Kaplan, *Das neue Rollenverständnis für die Controller* [The New Role of the Management Accountant], 1995, p. 66. The determination of "excess capacity costs" using the right capacity category had been considered earlier in M. R. Ostrenga, *Identifying Your Excess Capacity Costs*, 1988, p. 40. The identification of the costs of "used and unused capacity" is treated in U.S. textbooks; cf. C. T. Horngren, G. Foster, S. M. Datar, *Cost Accounting*, 1994, pp. 544–546.

92 Other methods of utilization control are proposed as well. See, for example, R. Brühl, *Prozesskostenrechnung als Grundlage der Kostenkontrolle* [Process Costing as a Basis for Cost Control], 1995, p. 77 f.

93 Other methods of utilization control are proposed as well. See, for example, ibidem p. 77. For a similar method with a formulaic representation of cost element specific "capacity cost price variances," see J. Kloock, S. Dierkes, *Kostenkontrolle mit der Prozesskostenrechnung* [Cost Control with Process Costing], 1996, pp. 108–112. Kloock/Dierkes correctly analyze only partial process costs based on cost centers, while Brühl is vague on this point.

94 One sees again and again that Activity-Based Costing starts out as a model and that the practical design (particularly the sophistication) follows from the requirements of the individual case; for clarification, refer again to R. S. Kaplan, *Das neue Rollenverständnis für die Controller* [The New Role of the Management Accountant], 1995, p. 66.

95 On the latter, cf. R. Brühl, *Prozesskostenrechnung als Grundlage der Kostenkontrolle* [Process Costing as a Basis for Cost Control], 1995, p. 78.

96 Translator note: as opposed to resource usage.

97 In contrast, the tendency in German Process Costing to allocate costs based on the actual process volume and thus to cost oneself out of the market (in the classic absorption costing approach) is problematic.

98 Cf. W. Lücke, *Probleme der quantitativen Kapazität in der industriellen Erzeugung* [Problems of Quantitative Capacity in Industrial Production], 1965, p. 368 f.

99 Cf. M. Währisch, *Kostenrechnungspraxis in der deutschen Industrie* [Cost Accounting Practice in German Industry], 1998, p. 91 f.

100 For an overview, see M. Währisch, *Kostenrechnungspraxis in der deutschen Industrie* [Cost Accounting Practice in German Industry], 1998, p. 20.

101 Cf. M. Währisch, *Kostenrechnungspraxis in der deutschen Industrie* [Cost Accounting Practice in German Industry], 1998, p. 92 f.

101B Benefit-based refers to practices in German cost accounting to impute certain costs—cost depreciation (replacement value divided by the assest's economic life) and interest on working capital and fixed assets—to reflect, for example, target returns/earnings in individual margins.

102 Beyond this, C. Schneeweiß shows that the benefit-based and decision-based cost concepts are in a complementary relationship, whereby the former is on a formal level regarding the decisions to be made; cf. C. Schneeweiß, *Kostenbegriffe aus entscheidungstheoretischer Sicht* [Cost Concepts from the Perspective of Decision Theory], 1993, pp. 1031–1039.

103 For a comprehensive treatment, see W. Männel, H. Distler, *Substanzerhaltung durch kalkulatorische Abschreibungen und kalkulatorische Gewinnbestandteile* [Asset Value Maintenance Through Costing-Based Depreciation and Costing-Based Profit Elements], 1997, pp. 43–54; F. Reiners, *Bemessung kalkulatorischer Abschreibungen, Zinsen und Gewinne vor dem Hintergrund des Unternehmenserhaltungszieles* [Measuring Costing-Based Depreciation, Interest, and Profit Against the Background of the Goal of Sustaining the Company], 2000, pp. 98–304. On the practical problems, see J. Pampel, M. Viertelhaus, *Substanzerhaltung und kalkulatorische Abschreibun-*

gen in der Praxis [Asset Value Maintenance and Costing-Based Depreciation in Practice], 1997, pp. 14–23. These concepts remain controversial, however, as demonstrated above all by the continued use of costing-based cost components. Ultimately, the different viewpoints can be traced back to different emphases and interpretations of the purposes of cost accounting. For an overview of the spectrum of opinion, see R. Diedrich, *Tageswert- und anschaffungswertorientierte Preiskalkulation im Spiegel der Meinungen* [Opinions on Current-Value and Procurement-Value-Oriented Pricing], krp 1997, Sonderheft 1/97, pp. 63–65.

104 On the implementation of integrated accounting systems in smaller companies, see W. Männel, *Entwicklungsperspektiven der Kostenrechnung* [Development Perspectives of Cost Accounting], 1999, pp. 11–12. On foregoing a separate cost accounting system in a large company such as Siemens AG, see H. Ziegler, *Neuorientierung des internen Rechnungswesens* [Reorientation of Internal Accounting], 1994, p. 177 ff. H.U. Küpper points out that in a more unified accounting system, accounting becomes a critical link; cf. H.-U. Küpper, *Bedeutung der Buchhaltung für Planungs- und Steuerungszwecke der Untemehmung* [Significance of Accounting in Enterprise Planning and Control], 1999, p. 455. On the higher integration stemming from statutory requirements, particularly in Austria, see A. Egger, *Gestaltung eines integrierten zukunftsbezogenen Rechnungswesen* [Designing an Advanced Integrated Accounting System], 1999, p. 425.

105 Cf. W. Männel, *Harmonisierung des Rechnungswesens* [Harmonization of Accounting], 1999, pp. 17–26.

106 See H.U. Küpper, *Integration der Unternehmensrechnung* [Integration of Management Accounting], 1999, p. l0 f.; Dirrigl, H., *Wertorientierung und Konvergenz in der Unternehmensrechnung* [Value Orientation and Convergence in Management Accounting], 1998, p. 544; and, more skeptically, K. Küting, P. Lorson, *Harmonisierung des Rechnungswesens* [Harmonization of Accounting], 1999, p. 56 f.

107 W. Männel, *Harmonisierung des Rechnungswesens* [Harmonization of Accounting], 1999, p. 15; G. A. Klein, *Konvergenz von internationalem und externem Rechnungswesen* [Convergence of International and External Accounting], 1999, p. 67; E. Low, *Konvergenz von externem und internem Rechnungswesen* [Convergence of External and Internal Accounting], 1999, p. 92.

108 H.U. Küpper, *Integration der Unternehmensrechnung* [Integration of Management Accounting], 1999, p. 5 f.

109 D. Pfaff, *Zur Notwendigkeit einer eigenständigen Kostenrechnung* [On the Necessity of an Independent Cost Accounting System], 1994, pp. 1070–1076.

110 Schneider sees a failure caused by obsolete cost accounting; cf. D. Schneider, *Versagen des Controlling durch eine überholte Kostenrechnung* [The Failure of Management Accounting Due to Obsolete Cost Accounting], 1991, p. 765.

111 Cf. W. Männel, *Schlanke Methoden und Konzepte der Kostenrechnung* [Lean Methods and Concepts of Cost Accounting], 1995, p. 195.

112 See J. Weber, *Entfeinerung der Kostenrechnung?* [Simplification of Cost Accounting?], 1992, p. 176 ff.; J. Weber, *Kostenrechnung im System der Unternehmensführung* [Cost Accounting in the System of Enterprise Management], 1993, p. 63 ff; W. Männel, *Schlanke Methoden und Konzepte der Kostenrechnung* [Lean Methods and Concepts of Cost Accounting], 1995, p. 194 ff.

113 See J. Pampel, *Bezugsgrößen* [Resource Drivers], 2002.

114 Cf. J. Weber, *Kostenrechnung im System der Unternehmensführung* [Cost Accounting in the System of Enterprise Management], 1993, p. 65.

115 Cf. W. Männel, *Schlanke Methoden und Konzepte der Kostenrechnung* [Lean Methods and Concepts of Cost Accounting], 1995, p. 194.

116 On this development, see E. Herzog, W. Jurasek, *Vertriebscontrolling im System der Grenzplankostenrechnung* [Sales Accounting in the System of Marginal Costing], 1993, pp. 288–293.

117 Cf. J. Weber, *Kostenrechnung im System der Unternehmensführung* [Cost Accounting in the System of Enterprise Management], 1993, p. 66.

118 Cf. W. Männel, *Schlanke Methoden und Konzepte der Kostenrechnung* [Lean Methods and Concepts of Cost Accounting], 1995, p. 196 f.

119 Cf. W. Männel, *Schlanke Methoden und Konzepte der Kostenrechnung* [Lean Methods and Concepts of Cost Accounting], 1995, p. 196.

120 See J. Weber, *Kostenrechnung im System der Unternehmensführung* [Cost Accounting in the System of Enterprise Management], 1993, p. 64.

121 Cf. W. Männel, *Schlanke Methoden und Konzepte der Kostenrechnung* [Lean Methods and Concepts of Cost Accounting], 1995, p. 197.

122 Cf. W. Männel, *Schlanke Methoden und Konzepte der Kostenrechnung* [Lean Methods and Concepts of Cost Accounting], 1995.

123 Cf. P. Recht, S. Zeisel, *Unterstützung von verbundorientierten Sortimentsentscheidungen durch eine Sortimentserfolgsrechnung* [Support of Affiliation-Based Product Mix Decisions Through Product Mix Profitability Analysis], 1998, p. 463.

124 On this consideration, see P. Recht, S. Zeisel, *Unterstützung von verbundorientierten Sortimentsentscheidungen durch eine Sortimentserfolgsrechnung* [Support of Affiliation-Based Product Mix Decisions Through Product Mix Profitability Analysis], 1998, pp. 464–471.

125 For an overview, see A. Amaout, S. Niemand, S. v. Wangenheim, *Kostenmanagement* [Cost Management], 1997, pp. 161–200.

126 See M. Reiss, H. Corsten, *Gestaltungsdomänen des Kostenmanagements* [Design Domains of Cost Management], 1992, p. 1480, K. Dellmann, K.P. Franz, *Von der Kostenrechnung zum Kostenmanagement* [From Cost Accounting to Cost Management], 1994, p. 17.

127 This problem has been investigated mainly by the following researchers: on innovation costs, see A. G. Coenenberg, T. Fischer, A. Raffel, *Abweichungsanalyse bei Projekten im F&E-Bereich* [Variance Analysis with Projects in R&D], 1992, pp. 767–877; on logistics costs, see J. Weber, *Logistik-Kostenrechnung* [Cost Accounting for Logistics], Berlin, 1987, J. Weber, *Logistik-Controlling* [Management Accounting for Logistics], 1993, pp. 115–152; on quality costs in a new approach, see H. Wildemann., *Kosten- und Leistungsbeurteilung von Qualitätssicherungssystemen* [Assessing the Costs and Output of Quantity Assurance Systems], 1992, pp. 762–768, A. Kandaouroff, *Qualitätskosten* [Quality Costs], 1994, pp. 765–786, A.K. Tomys, *Kostenorientiertes Qualitätsmanagement. Qualitätscontrolling zur ständigen Verbesserung der Unternehmensprozesse* [Cost-Oriented Quality Management: Quality Management Accounting for Continuous Improvement of Company Processes], Munich 1995, pp. 31–59, A. Sasse, *Systematisierung der Qualitätskosten* [Systematization of Quality Costs], 2000, pp. 43–53.

128 In this regard, see P. Horváth, A. Brokemper, *Strategieorien-*

tiertes Kostenmanagement [Strategy-Oriented Cost Management], ZfB, 1998, pp. 581–604.

129 For an overview instead, see, for example, K. Dellmann, K.P. Franz, Von der Kostenrechnung zum Kostenmanagement [From Cost Accounting to Cost Management], 1994.

130 On this view, see R. Cooper, R. S. Kaplan, *The promise—and peril—of integrated cost systems*, 1998, p. 110. In German-speaking countries, Process Costing was regarded early on as more of an additional tool for short-term cost accounting to be employed in parallel; cf. P. Horváth, M. Kieninger, R. Mayer, C. Schimank, *Prozesskostenrechnung— oder wie die Praxis die Theorie überholt* [Process Costing—Or How Practice Is Overtaking Theory] and *Kritik und Gegenkritik* [Criticism and Counter Criticism], 1993, p. 624 ff. The existing possibilities for integration into standard costing are described by R. Mayer, L. Kaufmann, *Prozesskostenrechnung II* [Process Costing II], 2000, pp. 291–321.

131 On target costing, see, above all, W. Seidenschwarz, *Target Costing*, 1993.

132 For an overview of such approaches, see K. Ehrlenspiel, U. Lindemann, A. Kiewert, M. Steiner, *Konstruktionsbegleitende Kalkulation* [Concurrent Costing], 1996, pp. 63–67; P. Horváth, R. Gleich, K. Scholl, *Kalkulationsmethoden für das kostengünstige Kalkulieren* [Cost-Effective Costing Methods], 1996, pp. 53–62; W. Männel, *Frühzeitige Produktkostenkalkulationen* [Product Costing at an Early Stage], 1996, pp. 1–10.

133 Cf. J. Becker, *DV-Verfahren zur Unterstützung frühzeitiger Kostenschätzungen* [DP Concepts for Supporting Cost Estimates at Early Stages], 1996, p. 84 f.

134 On the consideration of the life cycle in value-based corporate governance, see also T. Siegert, M. Böhme, F. Pfingsten, A. Picot, *Marktwertorientierte Unternehmensführung im Lebenszyklus* [Market-Value-Based Enterprise Management in the Life Cycle], 1997, pp. 471–488.

135 See T. M. Fischer, J. Schmitz, *Messung von Prozessverbesserungen mit dem Half-Life-Konzept* [Measuring Process Improvement with the Half-Life Concept], 1997, pp. 291–310.

136 See J. R. Pampel, *Konzepte und Instrumente für das ressourcenorientierte Management* [Concepts and Tools for Resource-Oriented Management], 1998, p. 228 ff.

137 Cf. J. R. Pampel, *Kapazitätsrechnung für das Ressourcenorientierte Leistungscontrolling* [Capacity Accounting for Resource-Oriented Output Management Accounting], 2001, pp. 44–46.

138 Cf. M. Layer, *Prognose, Planung und Kontrolle fixer Kosten* [Forecasting, Planning, and Controlling Fixed Costs], 1992, pp. 69–76.

139 See M. Günther, J. R. Pampel, *Implementierung eines Konzepts zur Kapazitalsrechnung* [Implementing a Concept of Capacity Accounting], 1999, pp. 301–305.

140 Cf. A. Rappaport, *Shareholder Value*, 1999; T. Copeland, T. Koller, J. Murin, *Unternehmenswert* [Goodwill], 1998.

141 Cf. U. Pape, *Wertorientierte Unternehmensführung und Controlling* [Value-Based Enterprise Management and Management Accounting], 1999; T. Günther, *Unternehmenswertorientiertes Controlling* [Goodwill-Oriented Management Accounting], 1997.

142 On this approach, see H.U. Küpper, *Investitionstheoretische Fundierung der Kostenrechnung* [The Investment Theory Foundation of Cost Accounting], 1985, pp. 26–46.

143 J. Holzwarth, *Differenzrechnungen als Verfahren einer strategischen Kostenrechnung* [Differential Accounting as a Method of Strategic Cost Accounting], 1993, p. 100. For "strategic cost accounting," Holzwarth proposes the assignment of multi-periodic changes in incoming and outgoing payments to decision alternatives; ibidem p. 95 ff.

144 See S. Dierkes, J. Kloock, *Integration von Investitionsrechnung und kalkulatorischer Erfolgsrechnung* [Integration of Preinvestment Analysis and Costing-Based Profit and Loss Statement], 1999, p. 119 ff.; H.U. Küpper, *Integration der Unternehmensrechnung* [Integration of Management Accounting], 1999, p. 9 f.

145 Cf. W. Ballwieser, *Eine neue Lehre der Unternehmensbewertung?* [A New Doctrine of Enterprise Valuation?], 1997, p. 186; V. H. Peemöller, *Stand und Entwicklung der Unternehmensbewertung* [The State and Development of Enterprise Valuation], 1993, p. 409 ff.

146 Cf., for example, J. Baetge, K. Niemeyer, J. Kümmel, *Darstellung der Discounted-Cashflow-Verfahren* [The Discounted Cash Flow Methods], 2001, p. 267 ff.; W. Ballwieser, *Verbindungen von Ertragswert- und Discounted-Cashflow-Verfahren* [Connecting the Earning-Capacity Value and Discounted Cash Flow Method], 2001, p. 363 ff.; J. Drukarczyk, *Unternehmensbewertung* [Enterprise Valuation], 1998, p. 176 ff.; L. Hölscher, *Käuferbezogene Unternehmensbewertung* [Buyer-Based Enterprise Valuation], 1998, p. 81 ff.; U. Pape, *Wertorientierte Unternehmensführung und Controlling* [Value-Based Enterprise Management and Management Accounting], 1999, p. 57 ff.

147 Cf. A. Rappaport, *Shareholder Value*, 1999.

148 Cf. A. Rappaport, *Shareholder Value*, 1999, p. 39.

149 Cf. P. Goniez, *Wertmanagement* [Value Management], 1993, p. 30.

150 Cf. A. Rappaport, *Shareholder Value*, 1999, p. 91 ff.

151 Cf. A. Rappaport, *Shareholder Value*, 1999, p. 40.

152 G. Sieben, *Betriebswirtschaftliche Aspekte eines wertorientierten Versorgungssystems* [Business Aspects of a Value-Oriented Supply System], 1992, p. 348.

153 This basic idea is also argued by H. Koch, *Zur Frage der Vereinheitlichung der Entscheidungsrechnungen* [On the Question of Unifying Decision Calculations], 1999, p. 203. Koch even proposes using costing-based planned profit and loss statements in the form of variable planning periods as the basis for long-term decisions; see ibidem p. 195 ff.

154 Cf. N. Knorren, *Wert-Orientiertes Controlling (WOC)* [Value-Based Management Accounting], 1997, p. 207. On the requirements for the transfer to cost accounting and the role remaining in this interaction for cost accounting, see also Vodrazka, K., *Earning-Capacity-Value-Oriented Enterprise Management and Cost Accounting*, 1999, pp. 481–493.

154B Translator note—profitability information in the cost accounting system in GPK.

155 W. Kilger, *Flexible Plankostenrechnung und Deckungsbeitragsrechnung* [Flexible Standard Costing and Contribution Margin Accounting], 8th edition, Wiesbaden 1981, p. 23.