The management accounting system
of Johnson and Kaplan
in the light of the
Integrated Target Commitment Planning (ICP)

Eckart Zwicker
Technische Universität Berlin,
Fachgebiet Unternehmensrechnung und Controlling
Berlin 2003

Abstract

Johnson and Kaplan propagate in their work „ Relevance Lost - The Rise and Fall of Management Accounting" a new conception of a management-accounting-system.
They postulate the development of four separate cost accounting systems. These systems are described and compared with the planning and control system of the Integrated Target Commitment Planning (ICP)
It is shown that all purposes of these four cost accounting systems can be realized with the (single) ICP-System.
In addition to Kaplan's and Johnson's purposes of a management accounting system ICP enables a consistent top management planning and control.
Therefore an (equation) model is generated with a configuration system. It connects the corporate top goals with the commitment goals (base goals) of all operational units .The achievement of the top goals is realised by a procedure causing that the operational units are made responsible for the achievement of a set of their commitment goals, which are parameters of the planning model.

Keywords: management accounting systems; operational planning and control; top management planning; management by objectives; cost accounting systems

1. Introduction

Robert S. Kaplan is regarded as the most renowned American representative in the field of management accounting. Some consider him to be *"one of the most revolutionary business thinkers of our time."* [1]
His contribution to the area of the management accounting becomes evident last but not least by a publication, in which he rigorously criticizes the contemporary concepts of current management accounting and, based on this criticism, he propagates a new approach. This publication describing this approach has the title: "Relevance Lost – The Rise and Fall of Management Accounting". [2] Kaplans contribution which was published together with Johnson achieved an *"enourmous amount of publicity"* [3] and played an *"important role in contemporary research and teaching in management accounting".* [4] Ezzamel points out: this book „*has been greeted as one of the most significant monographs on the history of accounting published to date*". [5] It is characterized as "*the radical contribution*" by Kilger, Pampel and Vikas. [6] Scapens points out "The claims of Professors Johnson and Kaplan … has created an atmosphere of crisis in management accounting circles" (Scapens, 1991, p. XIII) [7]

Kaplan and Johnson describe the history of the management accounting in the United States in the first part of their work. [8] They develop the concept of an *"entirely new Management Accounting System". (p. XIII)* Their goal is to *"provide a conceptual framework for the development of managerially relevant procedures to enhance process control, compute product costs and evaluate periodic performance". (p. XIII)*
The suggestions of the authors for the development of a complete new Management

Accounting System shall be analysed in the light of the Integrated Target Commitment Planning (ICP). ICP also claims to represent a new planning and control system (or Management Accounting System).

2. Structure of existing management accounting systems

Cost accounting systems form the core of each management accounting system. In the chapter "The 1980s: The Obsolescence of Management Accounting Systems" the authors describe the incompleteness of cost accounting systems of American corporations.

„For the most part, companies are continuing to use the same cost systems that existed twenty or thirty years ago." (p. 183) „The cost systems incorporated many simplifying assumptions. Overhead costs were combined into large, frequently plant-wide, overhead pools. The large overhead pools were then allocated to cost centers in different ways. Some factories simply allocated all costs directly to cost centers based on estimated direct labor hours or dollars. Others were somewhat more scientific. For each overhead pool, they chose some measure for allocating the pool to individual cost centers. For example, building expenses such as depreciation, property taxes, insurance, factory utilities (heat, light), and housekeeping would be allocated by floor space (for example, square feet occupied by each cost center); electricity by rated machine capacity; indirect labor by direct labor; equipment maintenance perhaps by machine book value; and so on.

However overhead costs were distributed to cost centers, virtually all companies, in a second allocation step, allocated cost center costs to products based on direct labor. That is, after all overhead costs were allocated to each cost center, the costs were then divided by the direct labor hours expected to be worked in the cost center during the next year – based on a forecast of estimated production – to derive a cost center rate per direct labor hour." (p. 184)

Johnson and Kaplans <u>first</u> point of criticism concerns the lack of transparency in existing cost accounting systems and their insufficiency. They state:

„Because 'Material' cost at the final stage includes labor and overhead costs from all previous stages, it is impossible to make any estimate of direct or prime costs, much less to make even a crude separation into fixed and variable costs. Companies that wished to understand the 'value added' of their production process, for pricing or productivity analyses, would have to perform special studies. Their cost accounting system would be useless for such purposes." (p. 186)

The cost accounting systems described by the authors represent a one-level full-cost system. In such systems the full cost rate of the final products is calculated. Such a calculation does not permit a measurement of the composition of the primary costs within full cost rates. Further it is not possible to determine the cost rate of intermediate products. Using the configuration of the ICP system it will be possible to generate a multi-step full cost accounting system which is able *„to understand the 'value added' of*

their production process." (p. 187) as demanded by Johnson and Kaplan. With the help of the primary cost analysis realized in the program ICP the primary cost composition of the cost rates of every product can be analysed.

Johnson and Kaplan complain that existing systems do not even recognize a "crude separation" into variable and fixed article costs. If the program system of ICP is used, the marginal and full cost rates of the final and intermediate products of a (one or multi-step) cost accounting system can be calculated using both the full and marginal costs versions. The full cost version delivers the full cost rates of the final products while the marginal cost version calculates variable costs of the final products. Such a modelling instrument is able to remove the lack of transparency of American cost accounting systems criticized by Johnson and Kaplan. The CO module of the R/3 system of SAP offers the same results.

The <u>second</u> criticism point of Johnson and Kaplan of American cost accounting systems refers to the allocation of the overhead costs. They observed that costs incurred service cost centers are usually allocated on the basis of labour hours or cost to production cost centers or directly to finished products.

The authors state: *„the use of only one activity measure, direct labor hours, reduces the ability of the cost system to predict the variation in cost with changes in the volume and mix of actual production."* (p. 191) They see it as *„the most important feature"* to find out something about how *"to allocate overhead costs to products."* (p. 192)
Finding a linear relation between the sales volumes and the costs of the overhead cost centers will have the effect that the fixed costs of the overhead cost centers will be partly changed into sales volume proportional costs.
The question is how the cost accounting systems of American companies described by Johnson and Kaplan can be reconstructed as cost models of the ICP.
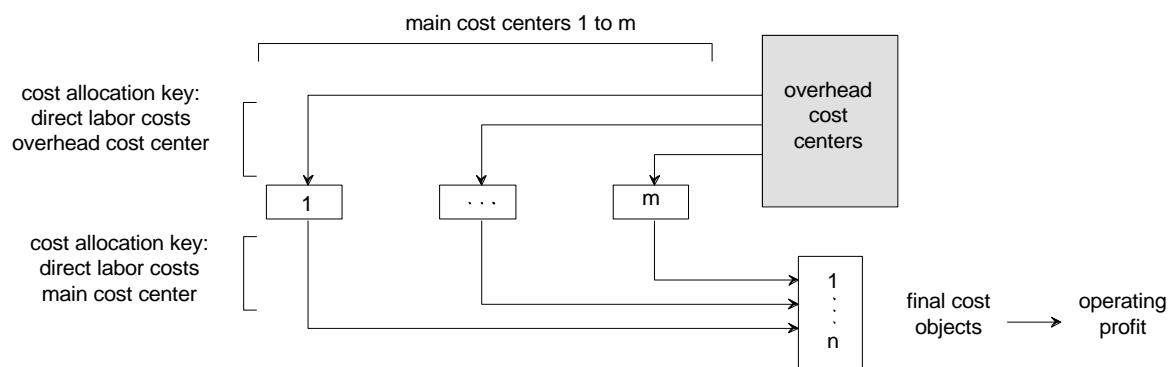

Fig. 1: Schematic diagram of the cost accounting systems described by Johnson and Kaplan

Fig. 1 shows the structure of the cost accounting system described by Johnson and Kaplan. Overhead cost centers are allocated on some basis (mostly direct labour costs) to the main cost centers. In this case allocations between the overhead cost centers

which are service departments is ignored. This method is described as the Direct Method.[9]

The main cost centers which are involved directly in the production of the final products allocate their costs (including the overhead costs already allocated on them) to the final cost objects (final products). The direct labor costs of the final cost objects (mostly) serve as basis. Such cost accounting systems which can be generated within ICP are very simple.

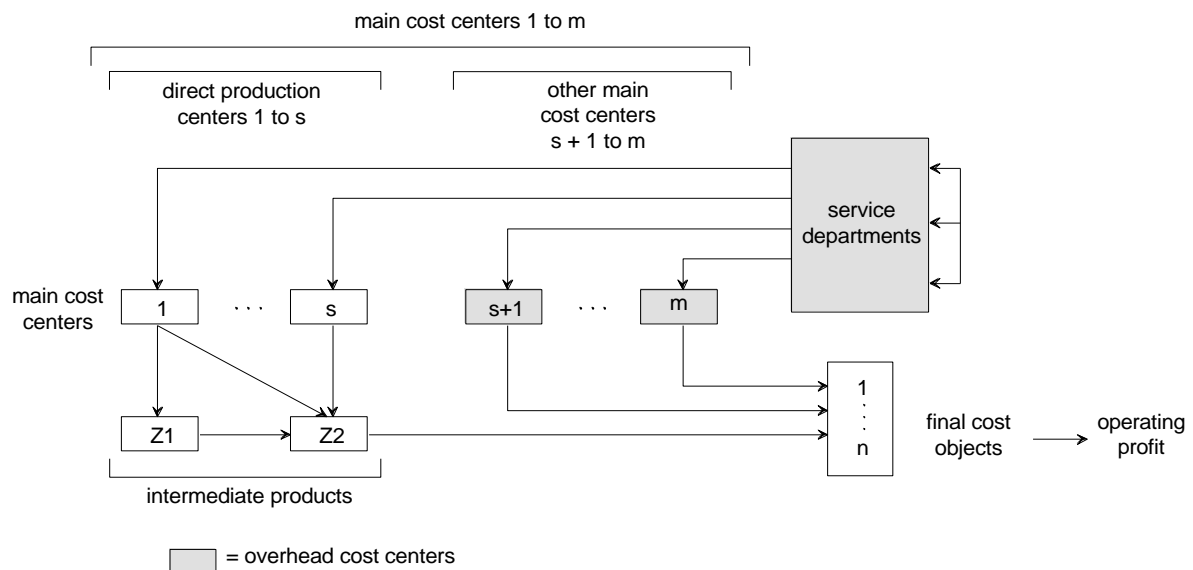Fig. 2 shows the cost ICP system of a multi-stage product costing which can be generated with ICP.

Fig. 2: Schematic representation of a multi-stage product cost system

The service departments such as power generation, transport pool etc. performs services which are allocated among each other but all costs incurred in the service departments are finally allocated to the main cost centers. The allocation is being done on an input basis.

In a one-stage cost system all main cost centers allocate their costs directly to the final products (s. Fig. 1). In the case of a multi-stage product cost system (see Fig. 2) the direct production centers charge their costs directly to intermediate products which charge their costs to further intermediate products (e.g. Z1 on Z2) finally all costs (in the case of a full cost system) will be allocated on the final products. Such a multi-stage product cost system can be generated by using ICP. The configuration has a special feature: In addition to the full costs version the ICP generates an additional marginal costs version automatically so that the numerical (identical) operating profit can be calculated with two (parallel-) models. Both cost accounting models of a multi-stage product cost system have the same quantity structure; however, show a different allocation of the costs within the individual production stages.

The multi-stage product costing is a method with permits considerably more differentiated allocation the costs to the final products. The demand of the authors to find out the 'value added' of the production process can be assured in a multi-stage product cost system. Such system calculates the values of intermediate products and changes in the inventory of the intermediate products.

3. Johnsons and Kaplans concept of a management accounting system

The new concept of a Management Accounting System of Johnson and Kaplan will eliminate the described deficits and provide additional desirable features.

Johnson and Kaplan postulate that a cost accounting system shall serve four goals: (p. 228)

1.   *Allocate costs for periodic financial statements*
2.   *Facilitate process control*
3.   *Compute product costs*
4.   *Support Special study*

The goal of tying a cost accounting system into an ICP is to assist management in attaining the top goals of a corporation as demanded by ICP is not mentioned.

Johnson and Kaplan decided to concentrate their further examinations only on the first three goals. In their judgment these goals can be realized with the installation of three cost accounting systems. These are *„process control, product costing and financial reporting.“* (p. 250) The three systems are not connected to each other: *„While all three systems may process information from a common, integrated data base, it seems unlikely that a single system can be designed, at least in the near future, to serve these three diverse functions.“* (p. 250)

In the following the three systems are discussed separately. We will show how the desired goals of these systems can be realized with the program of ICP. Contrary to the three separate systems required by Johnson and Kaplan we will show that the goals demanded by them can be realized with one single system, i.e. ICP. Furthermore ICP allows the implementation of top management oriented total corporate planning and control (and that is its main objective). This is a goal which was not considered by Johnson and Kaplan.

3.1. The financial reporting system

The financial reporting system is hardly mentioned by the authors. According to the authors its principal objective is a monthly profit and loss statements.

The authors may use the term "financial reporting system" in a confusing manner. For a reporting system is not a cost accounting system per se. A cost accounting system consists of a cost model, which calculates certain costs and an <u>attached</u> reporting system. This reporting system regulates, which reports are provided, to whom, and in which form. The 'financial reporting' as one of the three cost accounting systems

therefore contains a financial <u>modelling</u> system whose results are made available to the top management by using a financial <u>reporting system</u>. The authors make only a few notes on the construction of the financial modelling system. They point out *"that the 'official' cost accounting system has been designed by accountants mainly to satisfy the apparent demand by senior management for a monthly profit and loss statement."* (p. 194) It is one goal of this cost accounting system to *"allocate costs for periodic financial statements."* (p. 228)
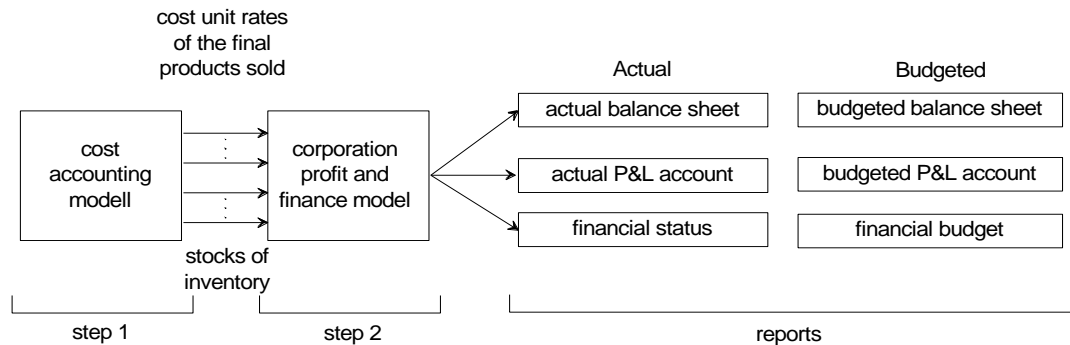

Fig. 3: Reconstruction of a 'financial reporting systems' as a two-step procedure of an Integrated Target Commitment Planning

The product costing in the "financial reporting" consists apparently in providing the actual product cost rates for a corporation´s financial statements using the cost of sales method. Whether monthly planning can be accomplished with this model system is not mentioned by the authors.

In the light of the ICP a model of the product costing is used as a submodel of the total corporation planning procedure. It is the goal of this submodel to determine the cost rates of final products and their sales volumes. These represent the input quantities for the corporation profit and finance model which leads to the determination of the balance sheets, income statements and cash-flow statements.

ICP permits, as shown in Fig. 3, realisation of a two-step complete corporate accounting model. A model can also be generated which calculates the planning and actual values from cost centers up to the balance sheet, i.e. a total corporate accounting in one step. With this one or two-step total corporate accounting of the ICP inclusions of goals will be possible as desired by Johnson and Kaplan. Johnson and Kaplan did not consider, that the actual and the budgeting version of a total corporation model permits planning of top goals (e.g. the equity capital profitability or EVA). Furthermore they did not consider, that a top goal variance analysis can be and should be done with the actual and the planning model. This procedure decomposes the variance between planned and actual values of the top goal into components. For many of these components responsibility centers can be made responsible if their planned basis goals had not been achieved. Other components can be classified as non controllable. Examples are exchange rate variations for which normaly no area can be made responsible. Such a

control procedure are not mentioned by Johnson and Kaplan, but they could be valuable within a "Financial Reporting System".

3.2. The product cost system

The product cost system is the second cost accounting system considered necessary by the authors. It can be divided into a short term and a long-term product cost system. Since these two systems shall be independent of each other, Johnson and Kaplan require the installation not only of three but of <u>four</u> cost accounting systems.

Johnson and Kaplan say very little on the structure of a <u>short-term product cost system</u>. It should help making *„short-term product decisions"* (p. 233) and should *"reveal the products' physical demand on the organizations' scarce or capacity resources."* (p. 233) We assume that for the solution of this short term product decision a model must be used. For lack of further information about this model mentioned by Johnson and Kaplan we can only discuss the question how short-term product decisions can be handled in the system of the ICP.
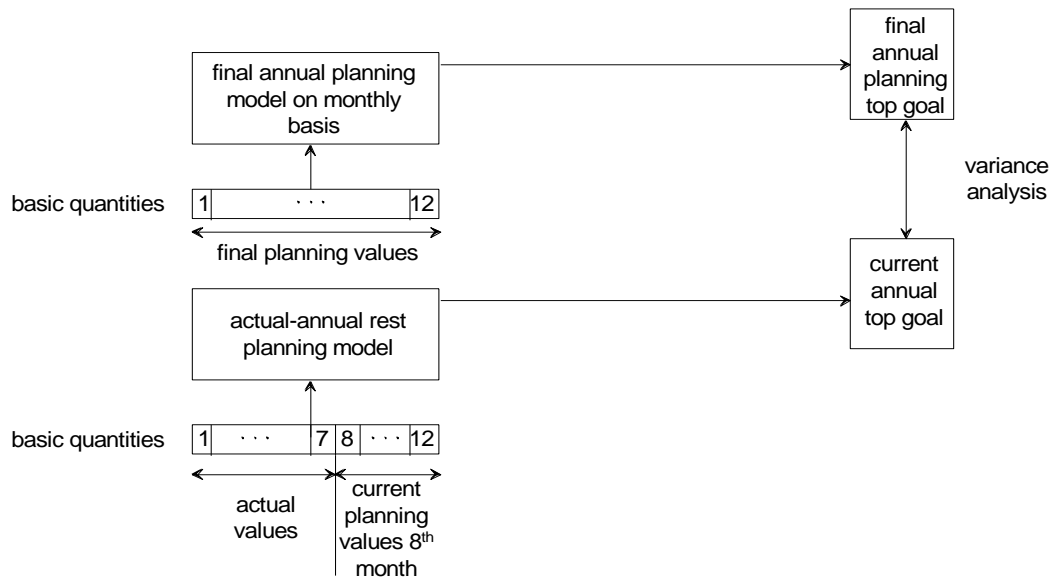

Fig. 4: Sub-year planning and variance analysis in the system of the Integrated Target Commitment Planning (ICP)

Short-term product decisions whose decision variables do not have for the dimension of a monthly interval cannot be handled in a production cost model whose flow rate parameters have the unit "quantity/month". For example models of sequential planning offer their services for daily decisions in the context of production planning systems. The measures of such daily or weekly decisions should not be formally tied to the basic monthly quantities of the planning model. When decisions are to be made for the planning period of a month they should be carried out with assistances of the so-called up-to-the-year planning of the ICP.

This planning method and its relation to the complete planning system of the ICP is shown in Fig. 4. Annual planning which is developed in the context of the planning triad of an ICP leads to a set of final annual planning values. These can be goal commitments (e.g. sales volumes) but also uncontrollable variables (e.g. exchange rates) and decision parameters (e.g. sales prices). The results of this goal commitment planning must be disaggregated on a monthly level and lead to an annual planning model on a monthly basis.

This model is specified in the upper part of the Fig. 4. For all basic quantities the monthly values should be entered (1 to 12). The model calculates the monthly variables like product costs, sales, gross margins and operating profit and also their accumulated values (e.g. accumulated sales).

The final annual planning model on monthly basis is compared with the actual-annual rest planning model. This model is also an annual model on monthly basis which calculates the annual top goal. With this model the respectively "most current value" of the annual top goal will be calculated based on the "latest information".

The numeric assignment of the basic quantities changes from month to month. It is assumed in Fig. 4 that the seventh month of the plan year has passed. The base quantity values of the first seven months are therefore actual values. For the upcoming months 8 to 12 the "current planning values" have to be chosen respectively. These are not the final monthly plan values derived from the annual planning. Rather values which have the greatest probability (latest-estimate values) have to be estimated by the person responsible for the specification of the decision parameter, uncontrolled parameter or base goal. If decision variables, however, would be under the basic quantities (model parameters), then it would be unreasonable to simply estimate them. They should rather be determined through optimization with regard to the annual top goal. The "short term product decisions" of Johnson and Kaplan for the next month (in the example the 8th month) should therefore be calculated with the annual up-to-year planning model on monthly basis. The planning should occur with decision variables described in this model and which are decision variables of these "product decisions". Johnson and Kaplan do not inform us which decision variables are parts of such product decisions. The author claims that such annual up-to-the-year models which are in use in the practice are hardly ever used for short term product decisions (on monthly basis). This is due to the fact that these models do not include any decision variables for product decisions. Goal commitments (base goals) like consumption amounts, supply rates, defect rates and other productivity indicators rather act as base commitments of the production units. These are not (full controllable) decision variables. If such decision variables, however, can be modelled, then their determination can be done in the context of the annual up-to-year planning model. The goal which is to be maximized is the operating profit of the remaining months (8 to 12 in Fig. 4). If there is no relevant relation between the monthly decision variables it is possible to optimize only the top goal (e.g. operating profit) of the next month (the 8th month in Fig. 4).

As Fig. 4 points out, the difference between the current value of the annual top goal and

its final planning value can be analysed with the help of a (top goal-) variance analysis. If the plan year has passed, this current value is the actual value of the top goal. The variance analysis tries to refer the respective current variance to the not adhered promises of the responsibility centers or other circumstances (e.g. exchange rate variances). This goal of a top management control, i.e. the dissection of the top goal variance to certain causes, does not seem to be a goal of Johnsons and Kaplans concept of a management accounting system. For it is not propagated by them. For the ICP, in contrast, it is an important feature of top management planning and control system.

We come to the treatment of the <u>long-term product cost systems</u> to which Johnson and Kaplan direct their special attention. Which planning period shall be used for a long-term product cost system is not defined. In their opinion: only long-term product costs should be used *"for most decisions on product pricing, product introduction, product abandonment, order acceptance, product mix, and make versus buy."* (p. 233)

The question is which structural differences exist between a short and long-term product cost model. The authors claim that more costs are variable in long-term product cost models than into short-term cost models. These increased variable costs of the final products for the long term are apparently relevant for decisions which can be made only with long-term product cost models.
The authors give the determination of product elimination decisions as an only example of such a decision. Johnson and Kaplan report of the introduction of a long-term product cost accounting in a corporation which led in comparison with the up to now practiced short-term cost accounting to dramatic changes of the product profit distribution. The new calculation showed, that *„products actually had gross margins of -400 percent. Products that had been previously thought to have been the most profitable were actually bleeding the division to death through the heavy demands they were making on the plant´s support departments."* (p. 240) The goal *"eliminating all unprofitable products"* (p. 240) is apparently the most important if not the only goal of a long-term product costing.
The term "gross margin" of a product corresponds to the gross margin$_1$ of this product, i.e. the difference between the sales and the variable product costs. While the variable unit costs of a product were lower than the sales price in the short period model of the described corporation and for this reason a positive unit gross margin appeared. Variable unit costs which were four times higher than the sales price added up in the long-term model. One recognizes what considerable variability of the fixed costs has taken place from "short to long" by the transition.
Johnson and Kaplan want to achieve these increased *"long-run variable costs"* (p. 242) by the fact that the fixed costs in the overhead cost centers of a short-term model become variable costs in the corresponding long-term model. This procedure corresponds to the often reported thesis: "In the long term all costs are variable." We regard this thesis as extremely questionable and want to demonstrate this with an example.

We take the costs of a post office cost center in a short-term product cost model. This cost center has only fixed costs in the short-term product cost model. The authors claim to find a cost driver now, i.e. an activity unit with which at least some costs of this post office cost center are (linearly) influenced by the amount of the activity unit. It is assumed that the number of processed letters will be an activity unit (cost driver) in the long-term view which fulfils the proposed relation. The question is whether this restructuring of the post office cost relations leads to higher variable costs of the <u>final products</u>. This is hardly the case. To explain this, possible forms of the further allocation of the costs of the post office cost center on the final products will be discussed.

The first form of the further allocation leads to the use of collective base commitments in the system of the ICP. The number of letters edited in the post office cost center functions as a basic quantity of the model because (as be assumed) the cost centers as orderers of certain parts of the total amount aren't ascertainable. Since for the realization of the total amount of the processed letters only all letter writing cost centers can be held responsible collectively under these circumstances, the total number of the processed letters gets the status of a so-called collective base commitments. Because the costs of the post office cost center, however, must be allocated to the final products in a full cost accounting, the following method is practiced with the appearance of such collective base commitment: A fictitious cost center "orders" the total number of the processed letters at its full cost price. All of the processed letter costs are allocated to this fictitious cost center. Then the costs of the fictitious cost center are allocated after a key, e. g. the number of the secretaries on the letter writing cost centers. These cost centers reallocate their costs after further criteria so that they finally are accounted on the final products but <u>as fixed costs</u>.

If this type of the allocation typical for service centers with cost drivers, then these costs variable with their activity units (process drivers), do <u>not</u> become variable costs of the final products.

We turn to the second possible accounting case of the cost allocation of this post office cost center. In this case it is assumed that the output of the post office cost center, i.e. the number of the finished letters, is ordered directly by a letter writing cost center and a full cost price is charged for this. Then the number of letters written in a cost center would be an obligation size (base goal) of this cost center. These costs finally are allocated to the final products over further keys. But also in this case the cost of the letter processing does not become variable costs of the final products.

In contrast to the scepticism uttered here concerning cost variability Johnson and Kaplan believe that within the scope of a long-term product cost accounting a *‚tracing virtually all costs to products'* (p. 249) is possible. This is valid particularly for *"indirect, overhead and marketing costs" (p. 249)*.

Johnson and Kaplan do not say with what planning horizon a short and long-term product cost accounting shall work. We want to imply in the following that a long-term product cost accounting shall work with a plan period of a year and shall be valid for an

upcoming plan year. In this case their long-term product cost model is identical with a cost accounting model of ICP which shall be used for the upcoming annual planning.

The product elimination decisions of the authors shall be analysed on the basis of this annual model. The authors demand, that the products have to be eliminated whose gross margin$_1$ are negative. This is a too narrow approach from our point of view. For a product elimination decision, which has a long-term effect, the reduction of the fixed costs also has to be included in the consideration. If the period T is queued for realization, it is implied that the fixed costs of a cost center can be reduced in period T + Δt if it is assumed that in T + Δt their output (for the construction of certain final products) is no longer required because the decision is made in T that these final products will not be produced any longer in T + Δt.

This assumption of a cost center closure in T + Δt leads to additional product eliminations which consists not only in cancelling products with negative gross margin$_1$ as Johnson and Kaplan intend. For instance all products of a group of articles may have a positive contribution margin$_1$ per unit and nevertheless one may come to the conclusion to eliminate the whole article group because an increase of the operating profit would be the result. This is the case if the article group fixed costs are higher than the sum of all gross margins$_1$ of these articles. To establish an optimal method for the choice of the article groups to be eliminated all article combinations must be checked and their individual fixed costs have to be determined. If these individual fixed costs are higher than the sum of the gross margins$_1$ of the articles in question, then the article group produces a negative gross margin$_2$.[10]

The program system of the ICP procedure can be used which finds the article group whose elimination maximizes the operating profit. This procedure also determines these cost centers which can be shut down because all products are eliminated for which they have generated an output. To realize this procedure, the individual fixed costs of all article combinations have to be found out by a structure analysis of the cost accounting model. Tied to this the combination of articles has to be found out whose elimination maximizes the operating profit. This so-called profit segment optimization is the appropriate selection procedure for a program which has as Johnson and Kaplan say to *„eliminate all unprofitable products"* (p. 240). Johnson and Kaplans goal of a long-term product cost accounting, i.e. the making of optimal product elimination decisions, are therefore feasible with an annual planning model of the ICP.[11]

A potential opponent can point out that a long-term product cost model shall not work with a planning period longer than a year. If the annual planning for the year T is to be done then one could choose a long-term model for the planning period T + Δt with Δt = 1 or 2 years.

Also in such a case one will not be able to change the part of the variable costs of the developed long-term model (for T + Δt) in comparison with the corresponding short-term model (for T) , however. Let us look at the example of the post office cost center again. All costs of the post office cost center turned out to be fixed regarding the sales

volumes in T. How shall these costs be described as a function of the sales volumes in T + Δt be changed in costs, which are influenced by the sales volume in the period T + Δt? The assertion "on the long run all fixed costs are variable" is used by many authors of the cost accounting today. As Hummel remarks "the wrong appearance is suggested as a strange way in the long run the fixed costs would become variable costs as if there would be an automatic transformation from fixed into variable costs over time".[12] Rather fixed costs in the long run are <u>reducable</u> or <u>controllable</u>. In the described approach of product elimination it is assumed that the cost centers whose output is no longer needed can be eliminated in the period T + Δt. This is an acceptable assumption.

The assumption however of a long-run variability of costs by Johnson and Kaplan with which they justify the development of a long-term product cost model is <u>not acceptable</u>. As a result of this the propagated elimination procedure with such a model is not acceptable either. Since the variable costs of the long period version are only little different from those of the short period version and the elimination criterion isn't the article gross margin$_1$ but the gross margin$_2$ of the article groups.

It has to be pointed out that Kaplan has developed the concept the activity-based costing (ABC) after the publication of this work in 1987 together with Cooper. The question arises here whether the activity-based costing can be interpreted as a further development of the long-term product cost accounting. It would be unreasonable if such a further development remained unconsidered.

In the opinion of Cooper and Kaplan *„ABC systems…are not useful for short-term operational decisions and control."*[13] Therefore an ABC-model can be realized as a long-term product cost model. A goal of the activity-based cost accounting is the modelling of activities of the service and marketing department in the context of a long-term product cost model.[14] The described model of a post office cost center can be interpreted as a simple process whose "process driver" represents the number of the processed letters. In this case the process of the letter processing only consists of one activity with one process driver. Cooper and Kaplan demand to model sales and service activities by a two-step system of activities connected to each other by drivers. The authors demand to model connections which structurally correspond to a two-step production process. But the processes to be described stand for the sales and service area. Multi-step production processes can be modelled completely in the context of the configuration system of the ICP. The propositions of Cooper and Kaplan for the ABC modelling of product cost models are therefore covered by the model configuration system of the ICP.

Cooper and Kaplan point out that most "*ABC-systems are retrospective*". In our terminology it is the pronouncement that process cost models are mostly actual models which work with a period of up to one year as Kaplan and Cooper emphasize.[15] Long-term product cost <u>planning</u> models are therefore seldom realized in the context of an ABC modelling. The goals of a long-term product cost modelling propagated by the authors are not changed fundamentally by the additional introduction of an ABC modelling.

3.3. The cost control system

Now we turn to the third cost system which shall serve the goal of process control. About their observations in American corporations the authors notice:

„Monthly data from a few accounts may be relevant for cost control. But most of the production action – for control of labor, materials, machine utilization, quality, inventory levels, utilities, and output – occurs daily. If a problem arises in any of these areas, production managers will need to deal with it immediately; they can not wait until sometime the following month to discover production variances." (p. 193) Johnson and Kaplan draw the consequence: *"Thus, the 'official' cost accounting system produces information too late and at too aggregated a level to be helpful for operational control."* (p. 194)

According to the goals of the ICP, then a cost planning and control system on a monthly level will not serve for the <u>daily</u> control of the performance. The ICP delivers for every production center some monthly goals to be achieved which are derived from the annual total planning. The department heads of these production centers practise a daily control and analysis of course will not wait with their actions till the actual values of the corresponding goal settings at the end of the month are accomplished. However, it is their duty in the context of a commitment planning to carry out this (sub-month) detailed control in such a way that the agreed monthly commitments are <u>achieved</u>.

The monthly review of budgeted against actual figures (planned base goals against actual) does not serve the "*day-today operational control decisions"* of the area managers but it serves the <u>top management</u> which wants through this procedure evaluate the achievement of their top goals. It will show the top management whether the production managers have achieved their commitments in order to achieve the annual top goal (e.g. the operating profit). It apparently is not a goal for Johnson and Kaplan to use a cost accounting system as an instrument of top management control. This is shown by their question: *„If the information is not useful for accurately tracing costs to products ... and is not used by production managers for their day-to-day operational control decisions, what purpose is being served by these systems?"* (p. 194)

The answer from the view of the ICP would be: These systems are useful for top-management control. But their answer is: *„that the, official' cost accounting system has been designed by accountants mainly to satisfy the apparent demand by senior management for a monthly profit and loss statement."* (p. 194) This statement may be the case for existing corporations. But Johnson and Kaplan do not propose the introduction of an goal commitment planning and control system with the help of which the top management could achieve top goals (like the operating profit) by making cost centers responsible for the achievement of base goals like consumption amounts, costs, defect rates etc.).

Which features are proposed by the authors for process control systems? In their opinion a *"good process control system"* (p. 232) should have the following features.

"In summary each cost center needs:
1. *A clear definition of its boundaries,*
2. *An estimate of the time period to accomplish measurable units of output, and*
3. *An understanding of the cost drivers that explain variation in costs (if any) with variation in the activity level in the cost center.*

When we have accomplished these three tasks, we can prepare a flexible budget for the cost center. That is, for a period of interest (which could be hourly for a production center, monthly or semiannually for a department staffed with knowledge workers), we can produce an estimate of expected costs for the cost center and how the costs will vary depending on the actual levels of activity occurring in or accomplished by the cost center. At the completion of the period for which the flexible budget was prepared, we measure the costs actually incurred and the level of activity (the actual measures of the cost drivers) in the cost center. We compare actual to budgeted and investigate any significant variances"(p. 230).

From the remarks of the authors it can be seen that they aspire a flexible budgeting system. The quoted remarks are all they have to say about a „good process control system".

How should these remarks be judged in view of the planning and control system of ICP? The ICP also works with cost functions of cost centers. The target and the actual value of the costs are compared with each other and *"any significant variances" (p. 231)* will be analysed. The target cost function which is described by the authors can be interpreted as an (important) type of a so-called goal obligation function of the ICP. The ICP works with a hyper-structure model for the configuration of cost accounting models of a corporation. The target cost function forms only one of the possible goal obligation functions in the context of this hyper-structure model.

ICP is a top management system for the planning and control of the corporate goals. The authors include this goal by requiring that standard or target cost functions should be used for cost control. Such target cost functions are also used for cost centers as objectives in the context of the planning and control system of the ICP. However, this is only one component of this planning and control method.

In the following the elements of the system of the ICP which go beyond the use of target cost functions shall be briefly specified. None of these elements are mentioned even rudimentarily by Johnson and Kaplan in the context of their new managmenet accounting system.[16]

By parameterization (customizing) a system of general model tableaus and by the connecting of their variables, a special corporation model can be generated. This model has a top goal (e.g. operating profit or EVA) and base commitments (base goals) for whose realization the executing areas are held responsible. The base commitments are the parameters of certain goal obligation functions. The developed model is used in the context of a planning triad (bottom-up, top-down and confrontation planning) which ends with the negotiation of the values of the base commitments between the top

management (or the controllers) and the area management. One type of these base commitments are the parameters of the target cost function described by Johnson and Kaplan. The scope of the (linear) target cost function is negotiated with the cost centers. With the completion of the planning procedure the final value of the top goal is determinded. It is realized if the departments achieve to their base commitments, when the estimated values of the uncontrollable variables (e.g. exchange rates) occur and the planned specification of the decision parameters (e.g. sales prices) is realised.

The negotiated annual values are now subdivided (e.g. for months). The accumulated target values of the monthly goals are compared monthly with their corresponding actual values during the planning year. Furthermore the planning is completed by a rolling up-to-the-year planning which leads to the realized (monthly-) actual values and leads to a rolling calculation of the annual top goal values. When such a planning and control procedure is practiced top management will have for each month up to date information about the variance between the planned accumulated top goal with the top goal to the end of the past month. With a top goal variance analysis the top management is informed about which areas are responsible for the favourable or unfavourable variances.

With the variance of the latest estimate annual final top goal and the annual planning value as well as with the actual and planning values of the past months of the whole year a rolling a (tentative) variance analysis can be done for the whole year.[17]

Purpose of the Integrated Target Commitment Planning (ICP) is: the development of a planning and control procedure which helps top management to achieve its desired top goals by making areas responsible for numbers (base goals). This target is apparently not mentioned and not recognized by Johnson and Kaplan.

Since the work was written by Johnson and Kaplan 1987 the question suggests itself, whether the authors have propagated a revision of their management accounting system in the meantime. The book "Advanced Management Accounting" which is published by Kaplan and Atkinson together is a systematic work, which represents the highest level of Kaplan's contribution. In the third edition of this work *"which provides a comprehensive view of the current state of management accounting"* having been published in 1998 a revised system isn't described or propagated.[18][19]

With that the four cost accounting systems of the new management accounting Systems of Johnson and Kaplan are described.

In a final chapter with the title "*Performance Measurement Systems for the Future*" *(p.253)* Johnson and Kaplan plead for the additional use of "*nonfinancial indicators*" *(p.256)*. The short explanations on three sides can be considered as a first approach contribution to the concept of a balanced scorecard. This is a planning concept which was described by Kaplan and Norton in detail in two monographs.[20] The authors argue, that a new management accounting system *„will not only require entirely new process control and product cost measurement system"*. (p. 259) In addition nonfinancial indicators shall be introduced also *"that provide better targets and predictors for the*

firm´s long-term profitability goals." (p. 259) A theoretical funding of their postulate isn't delivered by the authors. This is then done (more or less) in the cited works of Kaplan and Norton.

The method of the balanced scorecard does not conflict with the described planning and control system of the ICP which "only" has one or more financial goals (e.g. the operating profit) as top goals. Up to now the top goals of the hyper-structure model are financial goals. Following the postulates of Kaplan and Norton additional nonfinancial top goals should be included in the planning model. In this case the additional nonfinancial top goals would have to be connected with base goals by introducing additional equations. So the initial "financial top goal model" is enlarged by nonfinancial top goals and model equations. The base goals which are necessary to achieve the nonfinancial top goals can be base goals which influence the top goals of the already used financial top-goals. But it is possible that base goals have to be introduced which influence only these (new) nonfinancial top goals (e.g. job satisfaction in area X which influence the top goals total job satisfaction). So the modelling concept and the planning and control procedures of the Integrated Target Commitment Planning is not influenced by introducing nonfinancial top goals. Merely the hyper-structure model has to be enlarged to anticipate the possible nonfinancial top goals and their connections with the base goals and other base quantities (parameters).

4. Conclusion

Johnson and Kaplan have suggested to introduce a system of four separate cost accounting systems to realise the goals of a management accounting in a corporation. In the light of the ICP such separate realization of the goals of a management accounting system is not required. One goal of the cost accounting is not mentioned by Johnson and Kaplan which is the main goal of the concept of Integrated Target Commitment Planning. This (further) goal of a management accounting is the planning and control of the costs and other controllable parameters as an instrument for the planning and control of the corporation top goals by the top management. This goal can be realized by the Integrated Target Commitment Planning.

References:

Cooper, R., Kaplan, R. S., 1999. The Design of Cost Management Systems, New Jersey.

Drury, C., 1990. Lost Relevance - A note on the contribution of management accounting education, *British Accounting Rev*iew, **22**.

Ezzamel, M. et al., 1990. Managing it all by numbers: a review of Johnson and Kaplan´s "Relevance Lost", *Accounting and Business Research,* **20**, 153 – 166.

Fickert, R., 1993. Management accounting – quo vadis, *Die Unternehmung*, 203 – 224.

Holzer, H. P., Nørreklit, H., 1991. Some thoughts on cost accounting developments in the United States, *Management Accounting Research* (2), 3 – 13.

Holzer, H. P., Nørreklit, H., 1992. Management Accounting Status und Trends, *Die Betriebswirtschaft* (2), 249 – 261.

Horngren, C. T. et al., 2000. Cost Accounting – A Managerial Emphasis, 10th edition, New Jersey.

Hummel, S., 1997. Plädoyer für klare und kostenrechnerische Begriffe und Aussagen, in: Becker, W., Weber, J. (Eds.), Kostenrechnung, Wiesbaden.

Johnson, H. T., Kaplan, R. S., 1987. Relevance Lost – The Rise and Fall of Management Accounting, Boston.

Kaplan, R. S., Atkinson, A. A., 1998. Advanced Management Accounting, 3rd edition, London.

Kaplan, R. S., Norton, D. P., 1996. Balanced Scorecard - Translation Strategy into Action, Boston.

Kaplan, R. S., Norton, D. P., 2001. The Strategy-Focused Organization, Boston.

Kilger, W. et al., 2002. Flexible Plankostenrechnung und Deckungsbeitragsrechnung, 11th edition, Wiesbaden.

Nøreen, E., 1987. Commentary on relevance lost, *Accounting Horizons*, December, 110 – 116.

Scapens, R. W., 1991. Management Accounting, A Review of Recent Developments, 2nd Edition, Hampshire.

Sharman, P. A., 2003. The case for management accounting, *Strategic Finance* (10), 42 – 47.

Segovia, J. J., 1990. Relevance lost: the rise and fall of management - T. H. Johnson and R. S. Kaplan, *Contemporary Accounting Research* (2 II).

Zwicker, E., 2001. Gewinnsegmentanalyse (Profit-segment analysis).

Zwicker, E., 2002a. Prozeßkostenrechnung und integrierte Zielverpflichtungsplanung, Technical University Berlin.

Zwicker, E., 2002b. Konzeption und Entwicklung eines operativen Controlling-Systems, in: Weber, J., Hirsch, B. (Eds.), Controlling als akademische Disziplin – Eine Bestandsaufnahme.

Footnotes:

1) British Quality foundation, www.bywaterglobal.com/files/ExecutingStrategy-progr.pdf, 07/03/2002.
2) Johnson, T. H. /Kaplan, R. S. (1987).
3) Drury, C. (1990), p. 123-135.
4) Segovia, J. J. (1990) p. 955 f.
5) Ezzamel, M. et al. (1990), p. 153.
6) Kilger, W. et al. (2002), p. 5.
7) Further statements to this contribution Nøreen (1987), Holzer and Nørreklit (1991) and (1992). To the status of management accounting see Fickert (1993).
8) Primarily, this should have been the main emphasis of Johnson, because he is engaged in the history of accountancy. This is also expressed through his function as President of the Academy of Accounting Historians.
9) Horngren, C. T. et al. (2000), p. 511.
10) Gross margin$_2$ of the article group: Sum of the gross margins$_1$ of the products less individual fixed costs of the article group.
11) For this see Zwicker, E. (2001).
12) See Hummel, S. (1997), p. 261.
13) Cooper, R. / Kaplan, R. S. (1999), p. 492.
14) To the specialties of an ABC-model see in detail Zwicker, E. (2002a).
15) It deals with the so-called stage III activity-based cost systems, Cooper, R., Kaplan, R. S. (1999), p. 493.
16) See to a more detailed description Zwicker (2002b).
17) In this description of the Integrated Target Commitment Planning as a method of the operating profit planning other methods and fields of application like the hierarchical area goal planning, special procedures for a multi-stage profit-center planning and the one- and two-step corporation planning are missing.
18) Kaplan, R. S., Atkinson, A. A. (1998), p. 10.
19) Sharman remarked to the realization of Johnson and Kaplans concept: *„Relevance Lost" was hailed as the beginning of change for the better world of accounting. Sadly the hope for change never occurred."* Sharman (2003, p.45)
20) Kaplan, R. S., Norton, D. P. (1996).