Integrated ABC in R/3

This chapter clarifies the concept of integrated Activity-Based Costing (ABC) in the SAP system and its implementation in the R/3 CO component.

The Integrated ABC in the SAP Business Framework

The SAP Business Framework, which is shown in its simple form in Figure 2-1, includes the R/3 system with its application components; these are namely Financial Accounting (FI), Controlling (CO), and logistical applications such as Production Planning (PP) or Sales and Delivery (SD). There are new SAP products, which are not part of the R/3 core system. Nevertheless, these are integrated with the R/3 system through interfaces. These products include the Business Information Warehouse (BW) and Strategic Enterprise Management (SEM). The importance of ABC for these products is clarified in the initial chapter.

Important for ABC is the fact that components FI and CO are integrated. This means that the type and value of expenses posted in FI appear in CO as well. Thus, the controlling component always compiles from current, operational cost data. Integrated ABC works out of the CO component and uses all of its applications (CO-OM, CO-ABC, CO-PC and CO-PA), which are briefly described in the first chapter.

Cost Center Accounting (CO-OM-CCA) normally dispenses all costs of a firm’s resources to cost centers, which are structured according to areas of responsibility. The remaining CO applications build on CO-OM-CCA.
CO-ABC offers the business process as a complete controlling object that can be allocated to cost objects as well as to market segments.

CO-ABC provides the business processes that can also be applied across cost centers. This means that a business process can utilize several resources from different cost centers simultaneously. Business processes can also be debited with costs directly from financial accounting. However, this approach can make the accountability for such costs unclear within the organization. This might be a sensible approach for some costs, like operating materials or supplies (lubricants for a maintenance process), that a business process consumes. Product related business process costs can be accurately assigned to products or jobs, like orders or projects. This occurs through the Product Costing application (CO-PC). Thereby, process costs flow like material or direct production costs into the manufacturing costs of the product. This makes it possible to identify the process costs within the manufacturing costs, and therefore to include process costs in stock valuations. Business processes not related to production are assigned to the relevant market segments through the Profitability Analysis (CO-PA) application, where you can find the corresponding revenue figures. Process costs that are a part of production costs are automatically released to CO-PA, as direct costs are.

**Master Data and Structures**

Following is an overview of the master data and structures, which are important for ABC, as well as their essential characteristics.

**Cost Centers and Activity Types (CO-OM-CCA)**

**Resources**

Different resources from a cost center (which can be similar to a department) are defined through various cost center activity types. The resources provided by a cost center are utilized through the consumption of activity types from one cost center by other cost centers, orders or processes. The quantity utilized is priced retroactively from rates based on existing costing policies. This allows the system to accurately assign costs to the responsible processes depending on the resources actually consumed.
Below are examples of activity types for cost centers from various branches:

- Production: drilling hours, wages hours, and so on.
- Service: plant maintenance hours, inspections hours, and so on.
- Administration: clerical hours, sales hours, and so on.

It is important that the activity quantity of an activity type be linked to a cost center. An view across cost centers is not possible with activity types.

**Business Processes (CO-ABC)**

Business processes represent cross-functional procedures within an enterprise (for example, material procurement). Usually multiple cost centers participate in the execution of a business process. Business processes utilize various resources, which are made available by cost centers (for example, clerical hours in the purchasing and quality management cost centers, as well as wage hours of stock workers from the stock/inventory cost center).

As with a cost center, a business process is defined within a controlling area for a particular company code (which is assigned to the aforementioned controlling area). This ensures that the process assignments reconcile with financial accounting.

You can classify your business processes through particular process attributes, which are specified in master data. For example, order processing can be partitioned into price quoting, order validation and shipping. These are labeled with different grades of value added as appropriate. You may create as many attributes as necessary.

The following attributes are delivered with the standard package. The values that these attributes can assume are set in customizing.

- **External Value-Added:**
  External value-added specifies how much a process raises the product value externally (for example, for a customer). A possible classification is low, middle, and high value-added. An example of an external value added process is the delivery of goods to the customers that one could give a high classification to in a Just-In-Time industry.

- **Internal Value-Added:**
  Internal value-added processes bring marginal satisfaction to the customer, but are crucial for internal operations. The logistics required to prepare materials for production would be one instance.

- **Business Process Type:**
  The business process type specifies to which area of the enterprise the process is assigned; for example, sales, development or production.

- **Cost Behavior:**
  The cost behavior indicates from what the process costs are dependent (for example, the number of lots or batches, or the volume of production).

- **Attribute 1 and Attribute 2:**
  The firm can set these attributes completely separately.

Business process attributes can provide important information on how to optimize processes. For example, one can make a broad attempt to eliminate processes that add only marginal value.
**Integrated ABC in R/3**

### Products and Jobs (CO-PC, CO-OM)

**Material Master Record**

Products are normally defined in the material master record of the R/3 system. This master record contains numerous control parameters for logistics. This is how parameters are defined in the master record; these parameters determine the method used to calculate the overhead cost assignment for the respective product. The master record also contains the calculation results in the form of standard costs for the product. These standard costs are used to determine stock levels, among other things.

**Cost Objects**

The R/3 system represents tasks as cost objects (for example, production orders, customer orders, internal orders, and others). You can couple a cost object with a product (for example, production order for a specific product), or a certain job description, which is independent of a product (for example, a trade fair order). Plan costs are recorded on cost objects, and periodically compared with incurred actual or target costs. This makes job costing possible at the cost object level.

### Market Segments, Characteristics and Value Fields (CO-PA)

**Multi-Dimensional Market Segments**

To analyze corporate performance, it is not enough to implement job costing at the product level. Of more interest are multi-dimensional market segments that distinguish themselves through a myriad of characteristics. You can analyze the profitability of a product in a specific region, customer group and distribution channel simultaneously. This multi-dimensionality is especially meaningful for the service industries, which often see their products as much more than one-dimensional.

**Multi-Level Contribution Margin Accounting**

You can log revenues, sales deductions, discounts and returns, and costs of any kind as well as quantity key figures for each market segment in the respective value field. You can build up information for multi-level contribution margin accounting through the proper structuring of profitability reports according to value field.

### Statistical Key Figures (CO)

**Resources and Process Drivers**

Statistical key figures are used in CO to generally characterize cost centers or processes. They also enable the entry of driver quantity data. They can serve as resource or process drivers. The resource driver describes the amount of resources utilized, and the process driver gives the number of process executions (for example, number of orders, palette movements, and more).

### Information Structures in the Logistic Information System (LIS)

**Automatic Recording of Driver Quantities**

A large number of processes would make the periodic updating of driver quantity calculations very labor intensive. The Logistic Information System (LIS) makes it possible to record numerous drivers automatically. The update of driver quantities occurs during the execution of R/3 transactions in the LIS information structure. For instance, this allows the R/3 system to calculate the number of configurable order items when a customer order is created, and to save this in an appropriate information structure at the level of “Customer, Product, Distribution Channel” as a LIS key figure. This information can later be used by CO-ABC to assign process “Product Configuration” to the corresponding market segments. This functionality is especially important for an efficient ABC solution.
Methods of Integrated ABC

In general, there are two techniques for assigning cost center resources to business processes (via resource drivers), and assigning business processes to the corresponding receiver objects (via process drivers). We refer to these methods as push and pull respectively, and describe them below. Deciding for one of the two approaches has far reaching consequences regarding the capacity of ABC as a management tool in your organization. In principle, it is possible to apply both methods in parallel in one ABC model. Management will use the pull approach, which offers more capacity, or the other based on its needs.

The Push Approach

The push approach is one of “simple cost distribution”. Costs from the cost center resources are distributed over the business processes based on the resource driver. The resulting process costs are then assigned to the respective products, customers, or other objects, in a second step (see Figure 2-3). The process driver in the push approach is used solely as a tracing factor to distribute costs to the receiver objects, such as cost objects, market segments, and others. To implement the push approach, the R/3 system offers assessment and distribution, which are described below. The assessment posts costs under a secondary cost element, and is thus suited to clarify what costs are used for, when assigned through the assessment. On the other hand, the originating primary cost elements (for example, wages, salary, and raw material) are preserved by the receiver during the distribution. It is useful when the origins of costs are more interesting than their causes. As of release 4.5, it is also possible to layer costs under several cost elements when using the assessment technology. This enables the user to regroup primary cost elements into a few meaningful secondary cost elements.

Fig. 2-3: The Push Approach

Costs originate from cost centers and are distributed to business processes through resource drivers, and later to products, customers or other objects through process drivers.
Resource Consumption

Both methods can be used to assign cost center resources to processes. The tracing factor represents the resource driver in the assessment and distribution cycles in both cases (see Figure 2-4). For example, the resource driver can appear as a statistical key figure of a business process representing a measurement for the resource consumption. This statistical key figure can be taken, when necessary, from the Logistics Information System (LIS) by establishing a link between the LIS key figure relevant to the resource driver, and the statistical key figure of the business process. As an example, the “Number of Purchase Orders” can be logged automatically in a LIS information structure whenever the relevant transaction is executed. You can also assign resources to business processes using fixed percentages or some other distribution key. The push approach is unable to identify variable cost components in a business process.

Fig. 2-4: Cost Center Assessment and Distribution

Resources from the cost center Quality Management can be assessed or distributed to the respective business processes through the resource driver labor hours.

Business Process Assessment

To assign business processes to receiver objects, the R/3 System offers the assessment method because in ABC the cause of consumption costs for the receiver is normally the dominant issue. Process drivers appear as tracing factors in the assessment cycle just like the resource drivers do. The LIS can thereby serve as a source of relevant cost driver information for process drivers, as it did for resource drivers in the scenario described above. If you make a process assessment directly on to the profitability segments in the Profitability Analysis component (CO-PA), the value fields in the operating concern serve as the tracing factors. In order to create a causal relationship between profitability segment and process consumption, you can transfer the cost driver information from the LIS to the corresponding value fields (see Figure 2-5). For process costs taken from the assessment, no variable cost portions are identified in the receiver object.
Process costs from the purchasing process are directly assessed onto the corresponding profitability segments by means of the process driver "Number of Orders". The system automatically logs the process driver quantity in the LIS originally.

The cost center distribution, cost center assessment and the process assessment are purely value calculations that ultimately completely credit the sender object. Assessments are also made in order to transport cost center or processes variances to the profitability analysis.

The push approach is easy to implement, but allows for limited analysis. The push approach “method” of value calculation merely allocates costs from sender to receiver. The driver used in the assignments are not posted. The assignment of fixed and variable costs is not possible because the quantity flow is not measured. Fully absorbed costs are allocated in each case. The operating rate and capacity utilization of the sender object cannot be identified through the sender object. You could carry out a variance analysis in this case only through a plan / actual comparison at the cost element level.

This relatively imprecise method is used often because it is easy to implement also in non-integrated systems.

**The Pull Approach**

Highly integrated systems support the more precise quantity based cost assignment. It provides the basis for the pull approach. The underlying quantity flow is an objective measure for the activities performed for the various cost perspectives of the enterprise, independent of the valuation of quantities. The term pull emphasizes that this method calculates quantities utilized retroactively, and does not distribute or push costs forwards. Quantities are actively pulled by the receiver objects and evaluated with costs in a second step. The following example of an enterprise planning cycle clarifies this method. However, it is valid for the assignment of actual quantities and costs as well.
Fig. 2-6: The Pull Approach.
Starting with the sales plan, process and resource quantities to be made available are “pulled” based on a causal driver relationship. Primary cost planning occurs in cost centers on this foundation. The resulting price calculation for resources and processes valuates the entire quantity structure with costs.

Building a Quantity Structure

The pull approach begins at the end of the value adding chain (see Figure 2-6). Operations and sales plans make up the foundation. Process driver relationships describe the causal relationship between the planned sales quantity for various market segments and the process quantities to be utilized. If after executing the planned process quantity assignment, the planned process quantities are known, the system uses these to calculate the resource quantities. Normally, resource driver relationships are used in the form of average quantities for the resource consumption per process execution. A realistic primary cost plan is now possible through the known resource quantities. From this point, a continuous plan quantity structure exists for the firm.

Valuating Quantity Structures

The plan prices for the various resources (activity types) can now be automatically calculated based on capacity or planned quantity. Manually set prices are also possible to allow management to valuate activities as it sees appropriate. The method chosen to calculate prices basically determines how powerful ABC will be as an information tool. The consequences are discussed in another section. Resource quantities used by the processes are valuated with the prices. This influences the cost flow from cost centers to processes. The process cost and quantity make up the process price, which valuates the quantities utilized by the market segments or products. This makes the assignment of costs to the receiver accurate. The price calculation and valuation of the quantity structure is an iterative process that guarantees the correct handling of circular relationships in this structure. For the valu-
ation of the actual quantity structure, the system uses the plan prices. The actual activity price calculation, based on posted actual costs and quantities supports the calculation of prices at period end, and completely credits the cost centers. Thus, while seasonal price changes are normally accepted, this is not the case from the perspective of ABC.

Resource Consumption

The methods supported by the R/3 system to assign resources to processes based on quantities are the direct and indirect activity allocations, the target=actual assignment as well as the structured process.

With direct activity allocation, the resource driver is manifested by an activity type that represents the output produced by a cost center resource (such as employee hours or kilowatt-hours, among others). This form of resource assignment is the most accurate approach, but at the same time the most time-consuming because you must measure and enter the exact quantities of resource outputs consumed. This usually occurs as a manual confirmation of quantities on both the sender and the receiver sides. If a manual time confirmation of resources is set through CATS (Cross Application Time Sheet), the system carries out a corresponding direct activity allocation in the background. The process is thus one of the possible receivers in CATS. Data from other systems can also be posted in the R/3 for driver quantity entries as direct activity allocations through BAPI’s (Business Application Programming Interface) or through the batch input method. All validations of the direct activity allocations go through this automatic allocation in the background.

Fig. 2-7: Direct Activity Allocation.

The resource quantities utilized are either manually or automatically allocated to the processes, and then valuated with the corresponding price.
The indirect activity allocation uses the tracing factor of a corresponding cycle as resource driver, as it does with both push approaches. The difference, however, lies in the fact that the resource driver is not used for cost distribution, but rather as the basis for assignments of quantities. Indirect activity allocation can be applied in two variations. With the manual variant, you assign the known resource quantities from the cost center to the business processes in relation to the resource drivers (tracing factors). With the retroactive variant, the resource driver quantity (for example, number of orders) is multiplied with the standard quantity (for example, 2 min. per order); this ultimately determines the resource quantity utilized by the process. The total of all resource quantities consumed by business processes equals the total output of the resource by the cost center (see Figure 2-8).

Fig. 2-8: Inverse Indirect Activity Allocation.
The driver quantities for the number of orders are known for both purchasing processes. On average, each inland order takes 0.1 clerk hours (the sender value of the cost center/activity type). An international order is twice as expensive, which comes to a receiver weight factor of 2. Both processes require a total of 1,400 clerk hours from the purchasing cost center. This represents 84,000 in resource costs. This gives a price of 60/hr that is used to value the quantities consumed by the respective processes.

Target=Actual
The target=actual allocation also uses an inverse approach to determine resource consumption, but returns actual quantities only. The R/3 System uses individually confirmed actual process quantities and considers the corresponding plan quantities to calculate an operating rate. If resource outputs are difficult to measure, plan quantities consumed by processes are multiplied by the operating rate to calculate target quantities. Assuming that the execution of individual processes can be standardized, and that the relationship between the planned resource consumption and process quantities are realistic, then the target quantities determined beforehand are set as the actual quantities.
Structured processes offer the greatest flexibility to assign output quantities of the cost center resources to business processes. The template, or process template, which is attached to the master record of a process, explicitly describes the structure of this process. Similar to a routing for direct activities, the template describes the indirect activities that occur during each execution of a business process. It defines which cost center resources are consumed by the business process and in which quantities. The template is a highly flexible tool because it allows you to determine what resources are consumed and calculates consumed quantities dynamically. This means you can model complex resource drivers by means of functions and formulas. The template also allows you to distinguish between variable and fixed quantities consumed (see Figure 2-9, Process Order Configuration). The variable quantity factor represents an average quantity for each business process execution, which when multiplied by the process output equals the variable output quantity of the resource consumed by the process. The fixed resource quantity utilized is independent of the process output and can therefore be compared with a "stand-by" resource. The process uses this, even when it is not carried out. The costs consumed with the structured process approach can be divided into fixed and variable portions.

![Figure 2-9: Templates for Structured Processes](image-url)

<table>
<thead>
<tr>
<th>Object</th>
<th>Fix Qty</th>
<th>Var. Qty. Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales/Clerk Hrs</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Info. Sys./CPU min</td>
<td>Formula 2</td>
<td></td>
</tr>
</tbody>
</table>
Process models with several layers can be implemented through the structured process since sub-processes can be included in the template next to the tasks/jobs at the cost center level; these portions of processes can in turn have a structure (template) (see Figure 2-9, process order processing). With multi-step business process models, note that you must ensure a causal relationship between the process drivers of the main business process and the process drivers of the sub-processes as well as the resource drivers at the task level. Only if you ensure proportionality between the drivers at the various levels will the allocations of the resulting resource inputs make sense solely via the cost driver of the primary business process.

**Tasks**

Tasks represent a link between cost center accounting and ABC because they make up the base of both functional and process oriented structures. On the one hand, tasks represent the lowest level of the process segmentation. On the other hand, they correspond to the activity types of the cost centers (see Figure 2-10). The relationship between the activity types and the task produces a task catalog containing the average quantity of an activity type that is required when executing a task. The resources consumed by tasks are valued through the utilization of activity types; here, the cost center is credited, and the process or sub-process is debited. No costs are assigned at the tasks level because these are known through the activity type price and standard activity type quantity for the task.

![Fig. 2-10: Tasks as Links between Functional and Process Oriented Structures](image)

**Process Consumption**

In order to assign business processes to receiver objects based on quantities, you can use all the described methods of quantity assignment for resource consumption. Instead of resource drivers, the process driver serves as the measurement for consumption of overhead business processes by the receivers. The methods of direct and indirect process allocation, and target=actual allocation will therefore not be described in detail here.
In addition to the structured processes, the dynamic process allocation is another method that supports the use of the template. With this method, processes are equitably assigned to cost objects or market segments over the appropriate process driver. The functionality for processes introduced below is also available for the activity types of the cost centers.

**Template for Cost Objects**

The template can dynamically (automatically) ascertain the processes relevant for a cost object. The R/3 System automatically calculates the process quantities utilized at the time of costing using process driver relevant data in the environment of the cost object (see Figure 2-11). A wide spectrum of functions, as well as user-defined formulas, allows you to model complex process drivers. The process quantities consumed by the cost objects are posted differently to allow the process costs accepted by the cost object to include both variable and fixed amounts. The process costs of a cost object can also be identified in aggregate form in the profit analysis through the cost component split.

![Fig. 2-11: Template for Product/Cost Object](image.png)

*Fig. 2-11: Template for Product/Cost Object*

*Through functions, the templates access process driver relevant information from the cost object environment. User defined formulas allow a dynamic calculation of the quantities pulled by the cost object, and valuated with the process price.*
The template represents a general description of processes and process quantities independent of the costing object. You can use the template to determine quantity-based utilization of business processes by cost objects. It consists mainly of four columns: the object (process), the driver quantity, the activation, and the allocation event (see Figure 2-12). The individual columns answer the questions: which process, under which conditions and with what quantity is assigned to the cost object at what time. The following example concerning material movement processes underscores the high flexibility of the template in determining driver quantities. This flexibility and the resulting high degree of automation for quantity based assignments makes the template a key tool for the pull approach.

**Fig. 2-12: Format of the Template for Cost Objects**

The template can identify the utilized processes during the calculation. A user defined approach to find a material movement process can be structured around the following logic. An enterprise is made up of several plants. Each plant has a materials movement process that supplies the necessary stock materials for the production line. For this process, each plant uses various resources, resulting in various process prices at the separate plants. Each process carries with it an organizational attribute containing the plant. All materials movement processes are summarized in a process group. The costed product in question here is produced in plant A. The user-defined approach automatically identifies all material movement processes from the process group that match the plant attributes of production plant A.

The quantity and activation columns each distinguish plan and actual data. The activation columns contain conditions under which the process is executed. With the previously mentioned example concerning material movement processes, you can check whether the costed product is completely or partially produced in-house. Outsourced products deactivate the process. Usually, an activation condition in plan agrees with that in actual.
However, this does not pertain to driver quantity calculations. Though the process driver in plan and actual are identical (for example, the number of palette movements for a material movement process), the corresponding driver quantities in plan and actual are calculated differently. The calculation of palette movements for a specific production order in plan must comply with a model based on master data values because during the plan calculation, no movement data exists (see Figure 2-13). On the other hand, the number of material movements that in fact occurred can be deduced from the posted material voucher. Of course, you can also use fixed standard quantities, utilized by a cost object (for example, production order), in the respective columns. You can enter an order planning process quantity of 1 in the plan as well as in the actual if this process is always utilized only once per production order.

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**Fig. 2-13: Template Formula for Dynamic Driver Quantity Determination.**

The formulas for the driver quantity determination in the plan can vary from the actual formulas.

With the flexible template functions you can implement in the R/3 system your choice of firm specific driver formulas which are based on R/3 table structures. In our example, we will now see how the calculation of the number of palette movements for the manufacture of one product type with a specific lot size can be effected in the plan through a flexible function (see Figure 2-14). The flexible function used here is from the standard R/3, and runs through all BOM items (BOM table) of the material that is in manufacturing. For each item, the system carries out the user defined algorithms that calculate the number of palette movements for the respective BOM component. The calculated quantity of a component needed is the product of the BOM quantity (standard function) and the production lot size (standard function). This is subsequently divided by the number of components (standard function) contained in a palette (listed in the material master record of the component). Because an entire palette must be moved even when only a portion of its contents is needed, the quotient is rounded to the next whole num-

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**Flexible Functions for Complex Drivers**
ber. To complete the calculation, the flexible function adds the results at the item level and offers the sum of the palette movements for this product as the driver quantity.

**Fig. 2-14: Flexible Function.**

The total number of palette movements for the material consists of the sum of the palette movements corresponding to each component. The values for the components come from the material BOM’s and the material master records of the components.

**When does the allocation occur?**

Because cost objects imply controlling jobs that may exist over various periods, the right time frame to assign the process to the cost object becomes an issue. The column for the allocation event allows you to control events like the start or delivery of an order. The processes are then assigned to the cost objects only within the respective period containing the desired event. This column is therefore only relevant for the assignment of the actual driver quantity. It can play an important role for the WIP calculation. Many functions for the actual quantity calculation automatically supply period relevant results. For such functions, no allocation event control is needed.

**Reusable Template**

A template can be used for many cost objects. The template for the concrete object (product) is automatically identified and valued when the product costing is run. You can use the same template for many, or even all products. The template does not have to be maintained for each product, as is the case with the routing and the BOM. The ability of the template to determine the process and to calculate process quantities dynamically makes it a powerful tool since a single definition can be reused any number of times; for example, the same formula used to calculate the palette movements is valid for all products, but needs defining only once. You can make existing templates subordinate to main ones, and thus extend the usability of these templates even further, and simultaneously reduce the time needed to create or adjust main templates.
The costing of the cost object occurs at various points during its life cycle (see Figure 2-15). This makes job costing comprehensive enough to include process costing. The planning activity for a cost object begins with the non-order-generated product costing which determines the standard price for the product. Opening an order initiates preliminary costing. Actual costs that are entered during production are constantly controlled. At the conclusion of specific periods various milestones or reporting points, actual quantities, material consumption or processes can be confirmed; this helps check the compliance of the cost estimates. The conclusion of an order finalizes the costing, which calculates the actual order costs and compares these with the planned ones; this guarantees the controlling of costs for each order at any time.

**Fig. 2-15: Overview of Costing Methods at Various Times**

**Templates for Market Segments**

Processes not driven by production, but rather by customers, distribution channels, regions or other items, can be assigned directly to the corresponding market segments in the profit analysis according to their quantitative consumption with the help the template The template referenced here and the one used for cost objects differ only marginally.

Template functions can automatically calculate process driver quantities based on the profitability analysis information. The LIS and external systems can also serve as sources for this information (see Figure 2-16). For example, the system calculates the plan driver quantity for process “order taking” based on the sales quantities per customer and product planned in CO-PA. The system can calculate the driver quantity “number of order items taken” by assuming an average order quantity per order item and making the number of order items taken equal the planned sales quantity divided by the average ordered quantity per order item. The LIS can serve as a data source to calculate the corresponding actual driver quantity. The system can automatically log the number of actual order items per customer and product through a LIS information structure. The template directly accesses the corresponding LIS key figure of the information structure whose characteristic values correspond to the market segment, which consumes the process as receiver object.
Fig. 2-16: Templates for Market segments

The driver quantities can be available directly in the value fields of CO-PA as well as in the LIS or external system.

The template for market segments can also be reused. The search approach in this case is tied to characteristics of the market sector. This allows you to assign a template at a high level (for example, to a region), or at a more detailed level (for example, to customer groups or product groups). The higher the defined assignment level is, the more often you can reuse the template because the higher levels encompass all the market segments of the respective detailed levels. It is important that the level of the template assignment be different from that of the process assignment. The assignment can be controlled by all means through the region or the sales organization. The assignment occurs at the customer group / product group levels and even at the customer / product levels.

**Push versus Pull**

The effect that the chosen method has on how the firm is controlled is discussed below.

Pure cost distribution methods make it possible to realistically assign overhead costs to their originating receiver objects with the appropriate driver (such as products and customers), which is not possible with traditional overhead costing. Nevertheless, this is solely an assignment of all occurring costs that does not take the true activity quantities consumed into account. You thus cannot answer questions dealing with the productivity of overhead processes, or with the costs of idle resource capacity. The technique of the pull approach requires more input than that of the value accounting since an analytical plan and a measurement of the actual quantities are necessary. The quality of ABC depends on the quality and measurability of the drivers. The knowledge that the utilization of a procurement process depends on the complexity of the materials to be procured is useless if this complexity is not measurable. The results of a process assignment are questionable if they are based on rough percentages due to a lack of ascertainable measures. Manual measures are normally unfeasible for prolonged ABC use. Many of the necessary measures are already available in the SAP R/3 system in the statistical data. The use of this data in an integrated ABC is facilitated by existing mechanisms, like the template.
An advantage is that now an operating rate can be calculated with the known actual quantity and an underlying planning quantity. This makes it possible to compare the plan with actual and target with actual of costs and quantities. Variances can be analyzed and differentiated according to various categories. Questions regarding the productivity of the overhead processes can thus be addressed.

The pull approach makes it possible to examine a resource quantity or process quantity flow throughout the entire value added chain of an organization. This remains the case as long as the user selects the appropriate resource and cost drivers and makes appropriate assignments of overhead costs to their originating receiver objects (such as products and customers). The advantage of this pull approach is the use of only those quantities actually consumed by the receiver objects. Costs due to unused capacity remain in the cost center when resource prices are calculated based on capacity. The pull approach guarantees fair cost assignments to products and customers since no penalties are made due to unused capacity costs.

Through the inverse method described, the pull approach allows you to transfer plan sales quantities automatically to the existing process and resource quantities of the cost center resources. The R/3 system utilizes the resource and process driver relationship established by the user. For the backflush calculation of the quantity flow it is important to distinguish between fixed and variable quantities. Only variable quantities are adjusted to the changed sales quantities in the integrated planning. The integrated planning supports Activity-Based Budgeting, and helps identify unused or under capacity of the cost center resources. These overhead resources can then be redistributed if necessary.

The user of the integrated ABC in R/3 is not forced to use only one of the approaches. Both approaches can be implemented simultaneously (see Figure 2-17). Depending on the situation in the enterprise, it may still be necessary to apply the more informative pull approach with specific resources and processes.

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**Fair Cost Assignment**

**Activity-Based Budgeting**

**Simultaneous Use of Push and Pull**

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**Fig. 2-17: Simultaneous Use of Push and Pull Approaches in the Integrated ABC**