Purchasing

Using the SAP R/3 System is a major step towards optimizing the purchasing function. All routine tasks– from the entry of requisitions to the generation of purchase orders – are handled automatically, without significant user intervention. The buyer or user needs to act only in exceptional situations.

Since inventory management and other departments have common access to existing data, the work involved in creating and processing purchase orders is minimized.

Purchasing documents, such as purchase requisitions, purchase orders, or contracts, can be created by referencing data that already exists in the system. This simplifies the process considerably, while at the same time preventing errors by copying data that might otherwise require data entry.

Fig. 5-1: The Procurement Cycle

As Figure 5-1 shows, requirements for materials or services are determined within user departments, or through material requirements planning.

The source of supply can either be determined by the system or entered by you. If no sources are immediately available, quotations are solicited throughout the RFQ-processing facility and the appropriate vendors are selected.

To a large extent, purchase orders can be generated automatically by referencing preceding R/3 System documents such as an existing purchase order or contract.

View-at-a-glance listings allow you to check on the status of POs with a minimum of effort.

Reference to the purchase order also simplifies the creation of goods receipts and invoice verifications, again saving time and effort.

The following documents are used in R/3 System purchasing:

❑ Purchase requisition

❑ Request for quotation (RFQ)

❑ Quotation

❑ Purchase order

❑ Contract

❑ Delivery scheduling agreement

Document Structure   Purchasing documents are divided into two parts: the document header and the space where individual items are listed. Each document consists of a header and one or more items (see Figure 5-2).
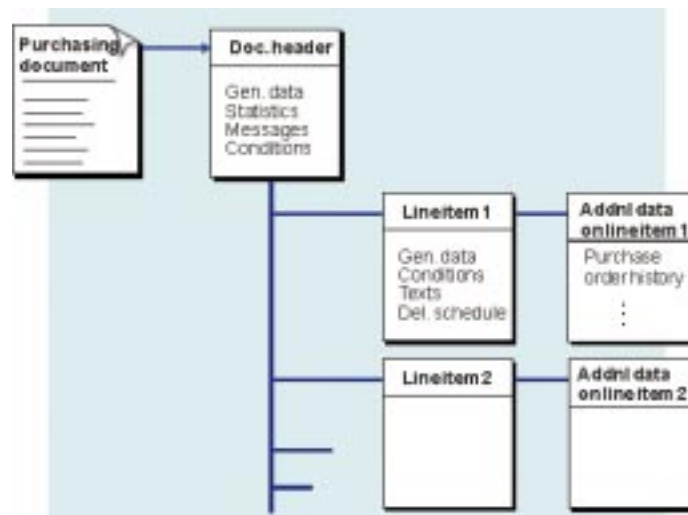

Fig. 5-2: Structure of a Purchasing Document

The document header contains the information that applies to the entire document, whereas the items relate to the materials or services to be procured. In purchase orders, the document number and data relating to the vendor are included in the header, while the individual items specify the material and the order quantity.

Release Procedure for Purchasing Documents   All purchase requisitions and other purchasing documents can be made subject to a release procedure.

When a document is created, a release strategy is automatically assigned based on certain conditions (for example, the value). The release strategy defines which release points are needed to release (approve) the document, and in which order. Release points are individuals, departments, or other organizational units. When all release points have released the document, more processing can take place. This means that a requisition can be converted into a PO or that a service entry sheet is considered accepted, allowing invoices to be entered against it.

The aim of this procedure is to replace written authorization procedures with electronic signatures, while maintaining the dual control principle. The person

responsible processes the relevant document in the system (thereby marking it with an electronic signature) which legitimizes the document.

The link to MM Classification allows you to determine a certain release strategy for a document based on a large number of optional conditions (for example, total value of the document, material group, plant, and so forth). Consequently, release strategies can be set up flexibly.

With purchase requisitions, you can also work with R/3 Business Workflow. The appearance of a work item in an employee's inbox alerts them that a document is awaiting release. Release can then be effected by processing the work item.

In addition, there is a procedure for purchase requisitions only. This works without classification and with a pre-defined number of conditions.

Purchase Requisition

A purchase requisition is a request or instruction to the purchasing department to procure a certain quantity of a material or service on or by a certain date.
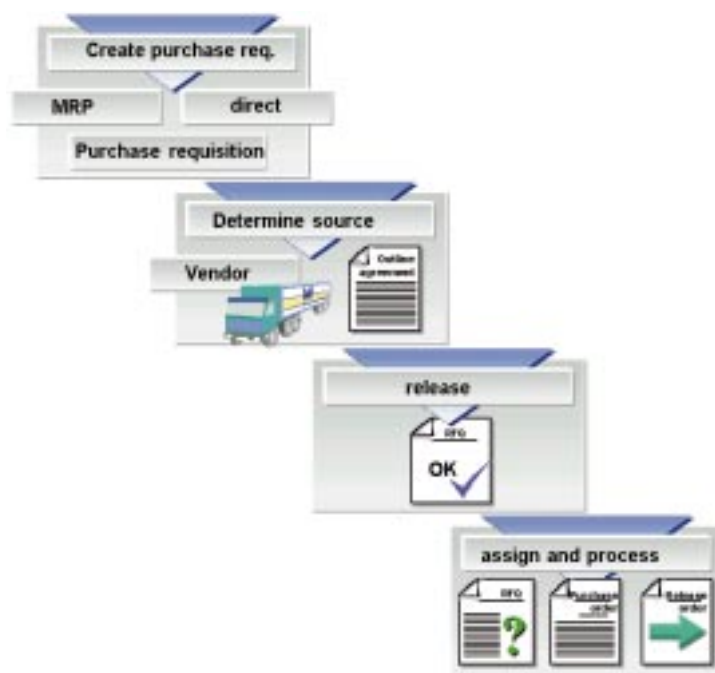

Fig. 5-3: Requisition Processing

Purchase requisitions are entered manually (using reference documents) by the requesting department or generated automatically by material requirements planning (see Figure 5-3).

Automatic Source Determination

If sources of supply exist for the requested material within the system, they can be found automatically and are assigned to the appropriate purchase requisition. Assigned requisitions can be processed more quickly by purchasing since the source is already known. The R/3 System treats the following as sources of supply:

❑ Fixed vendor

❑ Outline (longer-term) purchase agreement

❑ Purchasing info record

Assignment and Processing

Buyers can generate their own lists of purchase requisitions. The next step is to choose the desired source and generate the relevant POs, release orders, or vendor schedules.

If you can not allocate the requisition to a source, it can be selected for RFQ processing.

Automatic Generation of Purchase Orders

The system can automatically convert requisitions to which a source has already been assigned into purchase orders.

What central functions does the purchase requisition have?

❑ It defines the quantity and date for a material or service.

❑ It constitutes the basis for further processing (approval procedure, source determination, issue of POs).

Request for Quotation (RFQ) and Quotation

Quotations are solicited from vendors by issuing RFQs. A quotation contains a vendor's prices and conditions for the specified materials or services. It may also include additional information.

RFQs can be generated from a requisition or entered manually. RFQs are sent to a number of different vendors. Data from incoming quotations is entered into the individual RFQs stored in the system. Consequently, an RFQ and quotation constitute a unit.

Fig. 5-4: Processing of RFQs and Quotations

You can perform a comparative analysis of quoted prices and conditions using the price comparison list — a tool that determines the most favorable quotation. This data is automatically stored in a purchasing info record. Rejection letters are generated for vendors whose quotations were judged unsatisfactory.

> What are the key features of the RFQ and quotation?
>
> ❑ Easy-to-use referencing functions allow you to generate RFQs directly from purchase requisitions.
>
> ❑ Data from the vendor's quotation is entered in the RFQ.
>
> ❑ Quotations form the basis for generating pricing rules.

Purchase Order

In the ordering phase, the buyer's goal is to process purchase orders with a minimum of time and effort. For this reason, when creating POs, you reference data that already exists in the system. Referencing means that you take an existing document, such as a purchase order, copy it, and change it to create your new PO with relatively little effort. Not only do you benefit from reduced data entry, but SAP referencing functions minimize the likelihood of errors and ensure data consistency.

When creating a purchase order, you can reference a requisition. You can select requisitions from a list and generate PO items. Existing purchase orders can also be referenced this way.

Referencing

If a contract (longer-term buying arrangement) exists for the requested material, you can reference the contract item to create a release order. With a release order, only the order quantity and delivery date need be entered. Other details, such as texts, prices, and conditions are copied from the contract. Figure 5-5 shows the documents that can be referenced in creating purchase orders.
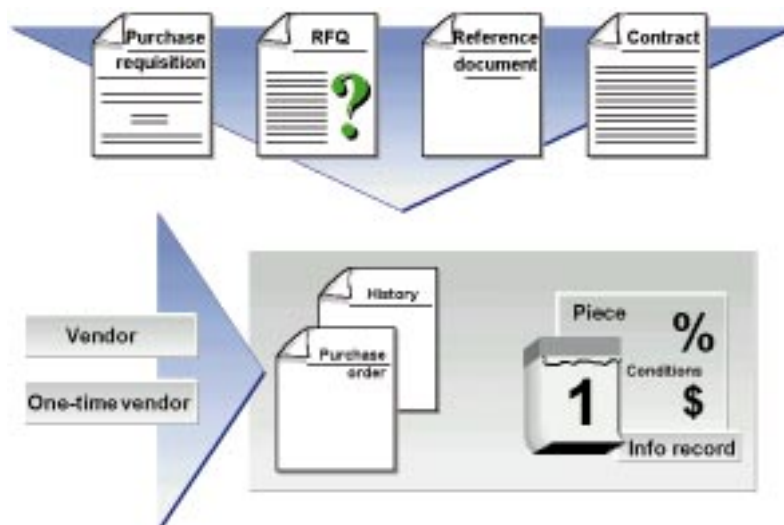

Fig. 5-5: Creation of POs Using the Referencing Technique

Purchasing Info Record

The purchasing info record establishes the relationship between a vendor and a material or service. It contains data such as a vendor's material prices and conditions and is an important source of information for purchasing.

The purchasing info record can be updated when you create a purchase order. When a PO item is created, data (such as valid conditions) is copied from the info record. It is only necessary to enter the material number, order quantity, and delivery date.

Generating Purchase Orders

Purchase orders can be generated automatically from the list of requisitions to be processed by the buyer. You can generate RFQs and delivery schedules this way.

Fast Entry

The item overview contains the most important data required for the creation of a document item. This data includes the material number, PO quantity and price, as well as the plant and storage location. Consequently, you can enter many items very quickly on one screen.

Creating a Purchase Order: Option

A number of options are available to you when creating a PO. These options are as follows (see Figure 5-6):

❑ Vendor known

You choose this procedure if the vendor from whom materials are to be ordered is known.

❑ Vendor unknown

This procedure is used if you do not know from which vendor the materials are to be ordered. After you have entered the items to be ordered, the system determines and suggests possible vendors. The PO items only have to be assigned to the chosen vendors, after which purchase orders can be generated.

❑ Assigned purchase requisitions exist

You can use this procedure to list all purchase requisitions for your purchasing group that have already been assigned to a source of supply. POs can be generated from this list.

If a source has already been assigned, the system can automatically convert requisitions into purchase orders.
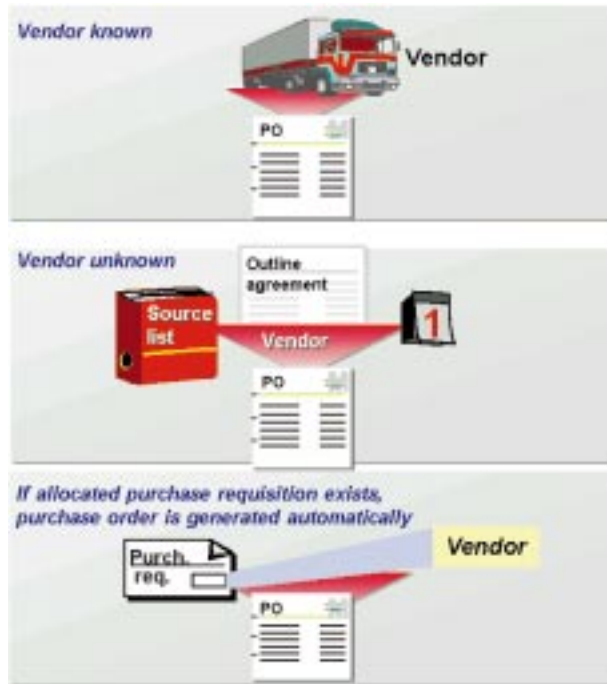
Fig. 5-6: Ways of creating a Purchase order

Account assignment is a term given to data that enables the system to autom atically determine the accounts to be posted when the ordered goods are delivered. When the account assignment is entered, the system performs an internal check and proposes the account number.

Account Assignment

The PO item can require the entry of several account assignments. An example is where it is necessary to apportion costs to different cost objects such as cost centers or projects. The net order value can be apportioned, or allocated, to the individual cost objects on a percentage or quantity basis (for example, 10% to cost center 1 and 20% to cost center 2).

Multiple Account Assignment

The account assignment can also be specified in purchase requisitions or contracts. It is automatically copied into any purchase orders created by referencing these documents.

Vendor confirmations (such as order acknowledgments or shipping notifications) can be entered against purchase orders. Within the period between the date of the PO and the desired delivery date, the vendor usually provides information regarding quantities of materials and the likely date of arrival. MRP uses this kind of up-to-date information to improve the precision of its planning data.

Confirmations

At the time of goods receipt (GR), the quantity confirmed by the vendor in the shipping notification can be used by the system as the default GR value.

What are the advantages of the SAP Purchase order processing functions?

❑ Referencing and fast-entry functions contribute to efficient purchasing operations.

❑ An automatic source-determination option is available.

❑ Purchase requisitions already assigned to a source of supply can be converted into purchase orders automatically.

❑ Within the PO item, an account assignment can be entered by you or proposed by the system.

Outline Purchase Agreement

An outline agreement is a longer-term purchasing arrangement with a vendor (external supplier) concerning the supply of materials or rendering of services subject to specified conditions. The conditions apply to:

❑ A defined period of time

❑ A defined total quantity

❑ A certain total value of goods/services to be supplied

The date for the delivery of materials (or for work to be performed or services rendered) must be specified in a separate process. This is done by the subsequent issue of release orders or delivery schedules referring to the basic agreement. There are two types of outline agreement in the R/3 System — contracts and scheduling agreements.
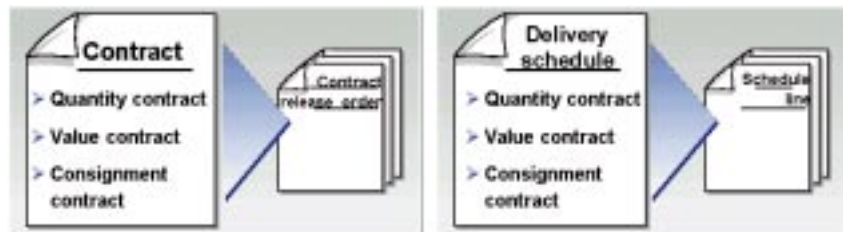

Fig. 5-7: Types of Outline Agreements

Contracts
: Contracts can take one of two basic forms — the value contract and the quantity contract. (Note that this concept is referred to by a wide variety of different terms in the literature and in practice, including blanket order, blanket contract, period contract, bulk contract, and master agreement/contract.)

Value Contract
: With the value contract, the purchase of goods or services up to a certain total value is agreed upon.

Quantity Contract
: With the quantity contract, the purchase of a certain total quantity of goods or services is agreed upon.

Scheduling Agreements
: The scheduling agreement is a longer-term purchasing arrangement made between a vendor and a customer. It involves the subsequent creation and regular up dating of schedules (vendor schedules) for delivering materials specified in the agreement. The agreement specifies the total (target) quantities to be supplied during the validity period of the agreement.

Where procurement is carried out based on scheduling agreements, the customer does not subsequently issue individual POs (or release orders) to the vendor. Instead, the vendor receives a delivery schedule, which is periodically updated. Each line of the delivery schedule represents an individual shipment, indicating the quantity to be delivered, the delivery date and, if required, the delivery time (for Just-in-Time (JIT) deliveries). These lines are equivalent to orders which, in turn, can be regarded as firm, semi-firm or planned. This depends on whether the schedule line in question falls within the firm, trade-off, or planning zone of the delivery schedule.

Delivery Schedule (Vendor Schedule)

For each scheduling agreement item, you can generate forecast delivery schedules. Note that this concept corresponds roughly to the "planning schedule with release capability" (ANSI 830) and the "delivery schedule message" (EDIFACT DELFOR).

Forecast Delivery Schedule

A forecast delivery schedule records the status of the individual schedule lines in the delivery — as a rule, the status that is transmitted to the vendor.

The release documentation indicates which schedule lines were transmitted to the vendor and on which date.

Release Documentation

Procurement based on scheduling agreements gives you these important advantages:

❑ Reduced processing time and fewer paper transactions

Delivery schedules can replace a large number of individual POs or release orders.

❑ Stockless or near-stockless purchasing

The option of specifying a precise delivery time facilitates the delivery of ordered goods or materials on the Just-in-Time (JIT) principle.

❑ Shorter vendor lead times for the individual shipments

The vendor does not have to make the total order quantity set out in the agreement available "in one go," but can deliver it bit-by-bit over a time, as scheduled. The vendor is also better able to plan production resources.

What are the features of outline purchase agreements?

❑ Longer-term supply arrangements based on specified conditions

❑ Definite purchase quantities or values over a specified period

❑ Definition of outline agreements as value or quantity contracts, or scheduling agreements

❑ Specific instructions to perform services or supply materials as release orders and delivery schedules

Sources of Supply

A source of supply represents a procurement option for a material and may be either an internal source (that is, a vendor) or an external one (for example, one of a company's own plants).

Purchasing can keep track of internal and external sources of supply using the source list and quota arrangement. Source list records and quota arrangements are used in the process of source determination (that is, establishing who can supply a material).

Source List

The source list gives purchasing the opportunity to manage sources centrally. A source list is a list of available sources of supply for a material, indicating the periods during which procurement from such sources is possible. The source list facilitates the determination of the source (meaning, here, a vendor, an internal plant, or an outline agreement item) that is applicable (effective) at a certain point in time.

The source list contains the preferred or allowed (or disallowed) sources for a material in a plant that are valid for the duration of a specified period. Each source is defined by a source list record in the source list.

The source list gives you the following options:

❑ Definition of a source as fixed (the relevant source is regarded as preferred over a specified period)

❑ Blocking a source, for example, when quality is poor

❑ Determination of effective sources (those that count as preferred sources at a certain point in time).

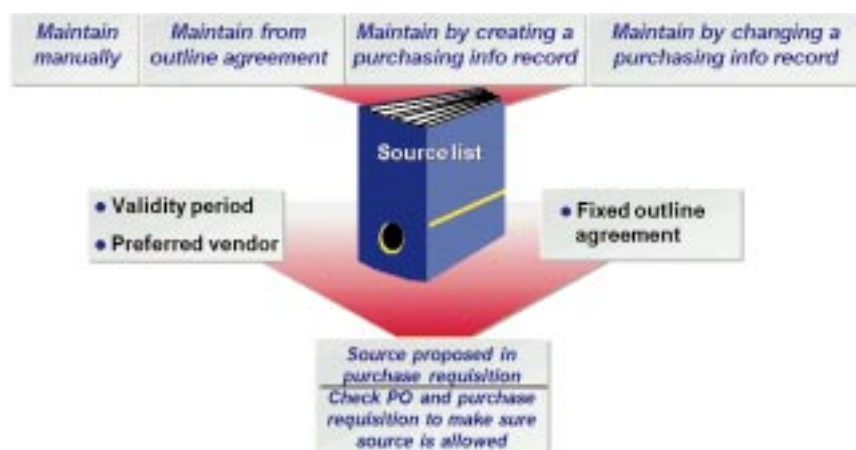Figure 5-8 shows how the source list can be maintained.

Fig. 5-8: Maintenance of Source List Records

The manual maintenance of source list records is advisable if numerous changes or new entries in the source list are made. An existing source list can be used as a reference for entry purposes.

The source list can also be maintained when an outline agreement is created or changed. In the process, the outline agreement item is copied in the source list.

You can maintain the source list from the purchasing info record. This means that a vendor can automatically be entered in the source list when a purchasing info record is created or changed.

The source list for a material can also be generated automatically. In this case, the system creates a source list for each info record that has been defined for the material or for each outline agreement item in which the material has been ordered.

The source list incorporates functions for the time-dependent allocation of sources.

Quota Arrangement

If a certain material is to be procured alternately from different sources, each source can be allocated a quota. This indicates what share is to be procured from each source. If a quota arrangement exists for a material, it is considered during the process of source determination.

A quota arrangement is set up for a specific period. For each source of supply, a quota arrangement item is created within the relevant period.

The quota arrangement permits the time-dependent apportionment of material requirements to different sources.

> Which source management options are available to purchasing?
>
> ❑ Management of internal sources (plants from the same organizational structure) and external sources (vendors)
>
> ❑ Source list, for the time-dependent definition of sources
>
> ❑ Quota arrangement for the apportionment of requirements to different sources

Vendor Evaluation

R/3 MM's vendor evaluation feature supports purchasing by optimizing procurement operations. It simplifies the process of source selection and permits the continuous tracking and review of existing supply relationships. It facilitates the selection of sources and the ongoing surveillance of existing supply relationships for both materials and services.

Using the vendor evaluation system ensures more objective ratings. All vendors are evaluated based on uniform criteria and their scores are calculated by the system. Therefore, subjective impressions and judgments of individuals can be removed.

A scoring system, based on a scale of 1 to 100 points, is provided. The performance of your vendors is measured against four main criteria shown below.

Scoring System

The overall score gives the purchasing staff a general idea of how their vendors are performing and permits comparative vendor appraisal.

Main Evaluation Criteria   The main evaluation criteria in the standard system are:

- ❑ Price
- ❑ Quality
- ❑ Delivery
- ❑ Service

If required, up to 99 main criteria can be defined. You can weigh the influence of the individual criteria on the overall score.

Sub-Criteria   Each main criterion can be divided into several sub-criteria. This allows a more differentiated and detailed evaluation.

This standard system provides five sub-criteria, which is generally sufficient for evaluation purposes. In addition, you can define up to twenty sub-criteria of your own.

Calculating Scores for Sub-Criteria   The scores for sub-criteria are calculated in different ways:

- ❑ Automatic calculation
- ❑ Semi-automatic calculation
- ❑ Manual input

Automatic calculation means that scores are determined based on data that already exists in the system. Semi-automatic calculation means that buyers enter individual scores for important materials themselves, from which the system calculates the higher-level score. Manual input means that you enter a vendor's score for a sub-criterion on a global basis.

Purchasing managers can choose to evaluate a vendor on a more detailed basis, or if they prefer, they can opt for a simpler, all-in approach with less expenditure of time and effort.

Fig. 5-9: Function of Vendor Evaluation

Analyses   Reports can be run to analyze the results of vendor evaluations. For example, you can generate ranking lists showing the best vendors based on their overall scores, or ranking lists of vendors supplying a certain material.

Changes involving the evaluations are recorded in logs. Evaluation sheets can be printed out.

> What are the tasks of vendor evaluation?
>
> ❑ Vendor evaluation allows vendors to be rated according to uniform criteria. Vendor evaluation can be performed both automatically and manually.
>
> ❑ These functions support purchasing through optimizing procurement operations by rationalizing and simplifying the selection of suitable sources of supply.

Reporting

Purchasing managers need to have an overview of their vendors and purchasing organizations at all times, to react appropriately to market changes. They need to keep track of purchase orders easily and quickly.

Analyses in R/3 MM's Purchasing component provide you with a wide range of relevant information. It is presented in a manner that satisfies individual requirements. For example, the following information can be generated:

❑ Which purchase orders were issued to a certain vendor within a specified period

❑ How many purchase orders goods have already been received

❑ Whether a vendor has made full or only partial delivery of ordered goods

❑ Whether a vendor delivers on time

❑ Whether ordered goods have been received and correctly invoiced

❑ The average PO value for each purchasing organization or purchasing (buyer) group

You can run different analyses of certain purchasing documents to determine various data. For example, you can determine the order value for a certain material over a specified period, or which purchasing organization has the greatest share of the total order value.
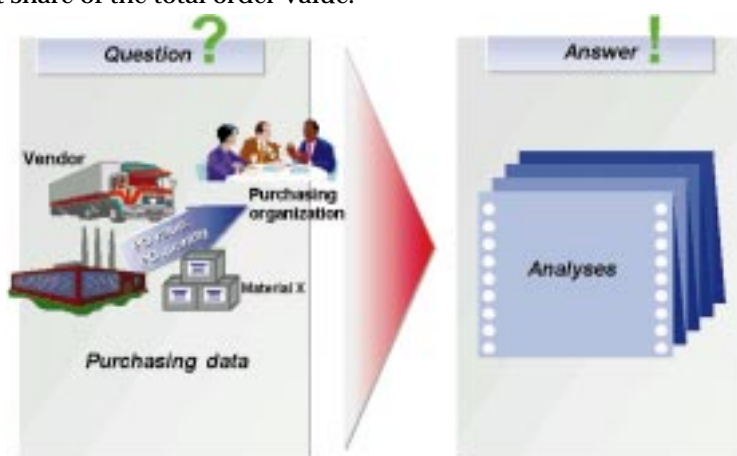
Fig. 5-10: Analyses in Purchasing

You can also determine the layout of analyses.

Order Values   Analysis of order values allows you to keep track of your POs. This kind of analysis can take one of four forms:

❑ Totals analysis

The totals analysis affords an overview of the number and value of existing POs.

❑ ABC analysis

ABC analysis allows you to determine which group of vendors accounts for the highest value of material purchases (A), the group that accounts for an average value of purchases (B), and the one from which the value of purchases is lowest (C).

❑ Analysis with comparison period

This analysis reveals changes in purchasing activities. It can, for instance, be used to determine how much and from which vendors a certain purchasing organization or group of buyers has ordered. It also determines to what extent the value has changed in contrast to the period of comparison.

❑ Frequency analysis

This analysis determines which net order values occur most frequently with which purchasing organization. It can serve as the basis for negotiation with a vendor. For instance, if it is discovered that numerous POs with a high order value have been placed with this vendor, an immediate percentage discount would be more favorable than the end-of-period volume rebate arrangement currently in place.

List Displays   The list displays help you quickly find certain documents and master data among the large volumes of data in the system. A wide range of selection criteria can be entered as individual values or intervals. For example:

❑ All POs issued by a purchasing (buyer) group during a certain week

❑ All purchase requisitions for a material ordered from two particular vendors

❑ All archived purchasing info records for a material in a certain plant

Furthermore, statistics are maintained for each purchase order, documenting all transactions relating to the PO, such as goods receipts and invoice receipts. These statistics are referred to as the PO history. You can access the history from within a list display.

For further information on analyses in purchasing, refer to Chapter 11, Information Systems.

Which analyses are available to purchasing?

❑ General analysis

You can run a variety of general analyses.

❑ Analysis of order values

This analysis allows you to keep track of purchase orders. This type has four variants:

Totals analysis

ABC analysis

Analysis with comparison period

Frequency analysis (sources of supply)

❑ Analysis layout

The layout of the analyses can be determined on an individual basis.