



## **Integrated Business Processes with SAP ERP**

### **Script 6: Sales Order Management in SAP ERP**

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# 1 Sales Order Management in SAP ERP

This teaching unit aims at giving you an understanding of sales order management in the SAP ERP system. Thereby, the Order to Cash Business Process is discussed in detail.

## Educational objectives in this unit:

At the conclusion of this unit, you will be able to:

- list the master data and organizational levels important to sales order management
- run the order-to-cash business process
- disclose the key integration points with other SAP ERP processes
- identify the reporting and analysis tools used in sales order management

## Scenario for the Case Study

First of all, in the practical application section of this unit, you will create a customer master record and sales conditions for the Speedstarlett.

After entering a sales order, you will perform the materials planning and manufacturing execution processes that you are already familiar with for the Speedstarlett. Production is thereby carried out with reference to the sales order.

After production, you will carry out dispatch handling and delivery of the product to the customer, as well as billing and entering incoming payments. Finally, you will get to know the reporting and analysis tool of the SAP sales and distribution module.

In the subsequent figure, you can see the entire process that you will perform independently using the SAP ERP system. The red highlighted process step of entering incoming payments is part of the SAP FI (financial accounting) module. You will focus on this functional area in a subsequent unit of this course.

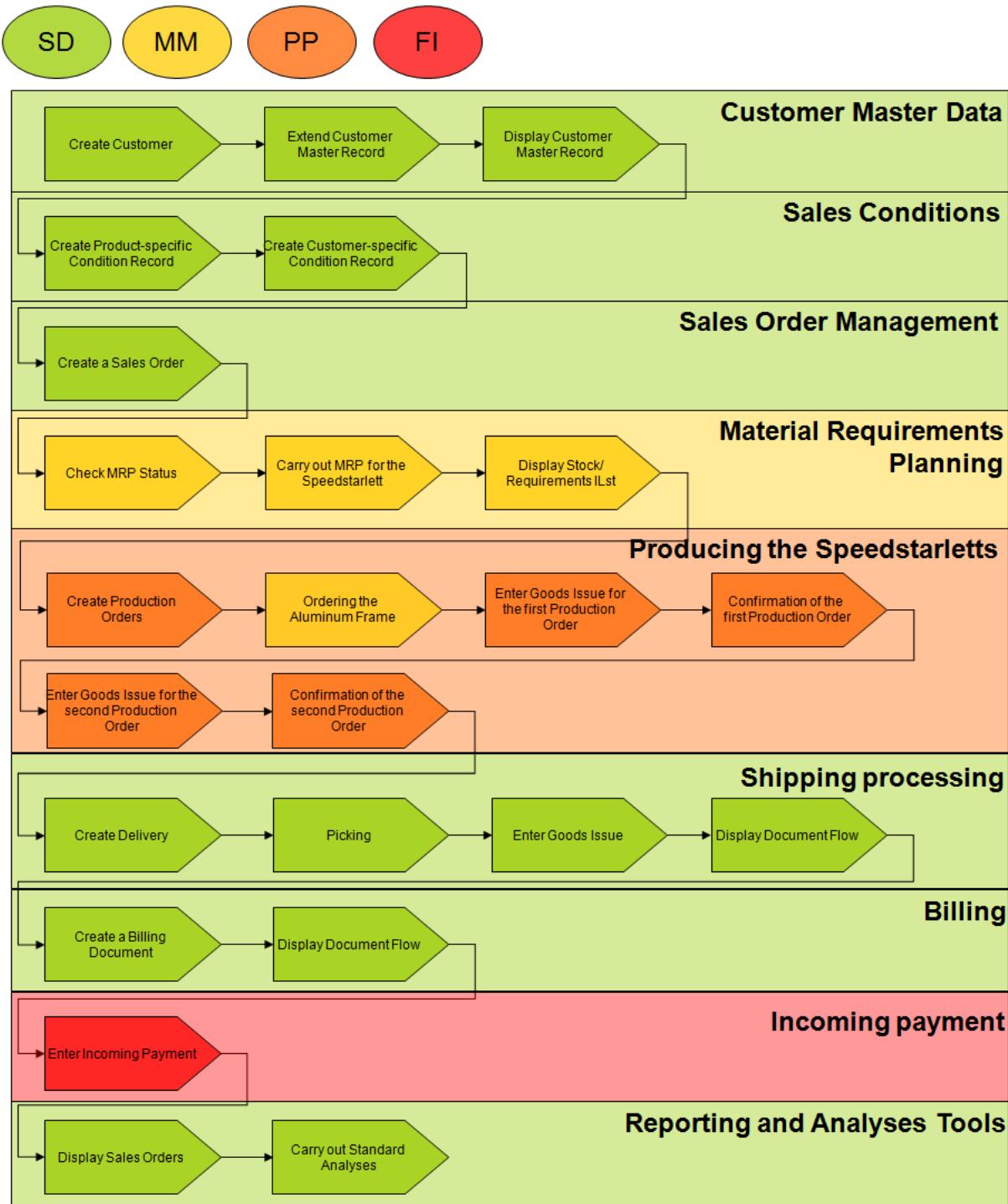


Figure 1: Process Overview: Sales Order Management

## 2 Organizational Levels and Master Data of SAP ERP Sales

This section explains the organizational levels of the SAP ERP system that are relevant for the sales processes. Furthermore, master data of the sales application are introduced.

### 2.1 Theory: Organizational Levels in Sales Order Management



Theory

You have already become acquainted with the main organizational units in SAP ERP. For instance, these were the client, company codes, plants, sales organizations etc. In the following, organizational units that are relevant for the sales order management are introduced. Note that there are organizational units like the client or company code, which are relevant to more than one functional area.

#### 2.1.1 Organizational Levels in Sales Order Management: Overview

Organizational levels of a company correspond to its structure, representing the legal and organizational views of a company. A company's structure can be represented using organizational levels based on the business processes carried out in the company. In the subsequent chapters, you will get to know the most important organizational levels in sales order management.

The **sales and distribution (SAP SD)** application of the SAP ERP system uses several organizational levels that can only represent sales and distribution processes, e.g., ***sales organization, distribution channel, divisions or shipping points***. Other organizational levels such as **company codes** or **plants** are used by the SAP SD application and by other applications as well.

- Company code
- Sales area
  - Sales organization
  - Distribution channel
  - Division
- Plant
- Storage location
- Shipping point

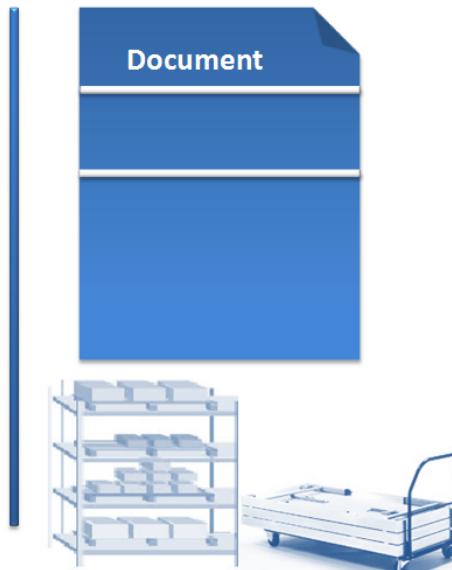


Figure 2: Organizational Levels of Sales Order Management

## 2.1.2 Company Code

You are already familiar with the company code as an organizational level in the SAP ERP system. This organizational level is relevant to all business processes within the SAP system and, thus, relevant to all SAP modules.

A company code can represent a complete independent accounting unit and, thus, represent the smallest organizational level for external accounting. This includes the entry of all accountable transactions and the creation of all proofs for the individual account closings, e.g., balance sheets and profit and loss statements.

Example of a company code: a company within a corporate group or a subsidiary.



- Legal entity and independent accounting unit
- At company code level, you create
  - balance sheets required by law
  - profit and loss statements

Figure 3: Company Code

## 2.1.3 Sales Organization

A **sales organization** is an organizational level in **logistics** (SAP LO as superior application to SAP SD) that groups the company according to **sales** and **distribution requirements**.

A sales organization is responsible for the **distribution** of goods and services. This also includes **liability** for sold products and the responsibility for customers' **rights of recourse**. Additionally, the sales organization is used to group the market, e.g., regionally, nationally, and internationally. Moreover, the negotiation of **sales conditions** is carried out at sales organization level.

A sales organization is **uniquely** assigned to **one company code**. You can assign several sales organizations to one company code. Thereby, the company code manages the correct accounting of sales transaction value flows in SAP FI. If you want to use the SD application in a SAP ERP implementation, you must create at least one sales organization.

A sales organization features individual master data and individual data relevant for SD. In **sales statistics**, a sales organization is the **highest aggregation level** for, e.g., sales order data.

All items listed on an SD document, i.e., all items of a sales order, an outbound delivery or billing document belong to a sales organization.



- Responsible for:
  - distributing goods and services
  - negotiating sales conditions
  - product liability and rights of recourse

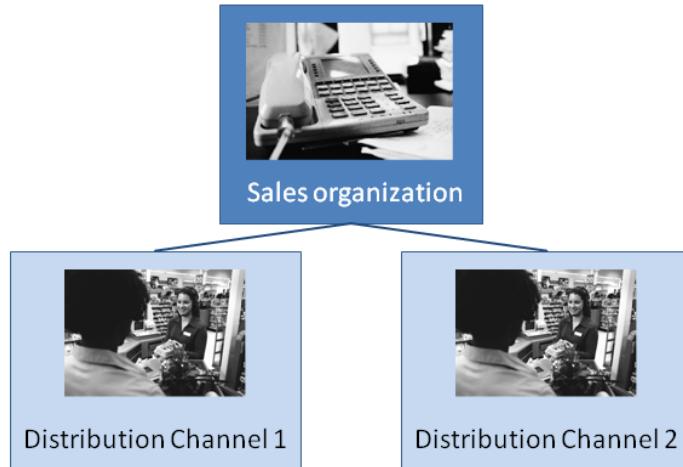
**Figure 4: Sale Organization**

#### **2.1.4 Distribution Channel**

A distribution channel is the channel by which goods or services reach the customer. That is, a distribution channel is the area in which a company does business. At a very basic level it could be thought of as a way to classify customers. For instance, "internet sales" (web shop) is one type of a distribution channel. Other examples for a distribution channel are a factory outlet or a department store.

You can assign several distribution channels to a sales organization. When using the SD application, you need at least one distribution channel. Examples for the usage of distribution channels:

- definition of responsibilities
- achievement of flexible pricing
- differentiation of sales statistics



- Is a means through which sales materials reach the customer
- Represents your strategies to distribute goods and/or services to your customer
- For example: wholesale trade, retail trade, internet trade, ...

Figure 5: Distribution Channel

### 2.1.5 Division

Divisions are used to **group** materials and services. One sales organization can be responsible for multiple divisions, thus, you can assign multiple divisions to one sales organization in customizing. When using the SD module, you need at least one division. By using the division, the system determines the **sales areas** to which a material or a service is assigned to. A division can be, for example, a product group or product line. Thus, you can, for example, limit price agreements with a customer to a particular division. Moreover, you can run statistical analyses according to divisions.



- Represents a product line
- For example: bicycles, motors, services, ...

Figure 6: Division

## 2.1.6 Sales Area

Sales areas are a particularly important organizational unit in SAP ERP. A **sales area**, thereby, is a unique combination of **sales organization**, **distribution channel** and **division**. The sales area defines the distribution channel through which a sales organization sells products from a certain division. Each **sales** and **distribution document** (e.g., sales order) is assigned to exactly one sales area. This assignment **cannot** be changed. That is, when creating a sales document (e.g., sales order), the responsible sales area must be assigned!

A sales area is assigned to **exactly one company code**. This relation is created according to the assignment of the sales organization to the company code in customizing.

When processing sales and distribution documents, the system uses various master data. These master data are accessed according to the sales area. This includes, for example, **customer master data**, **material master data**, **prices** and **discounts**. Moreover, the system carries out various checks regarding the validity of particular entries according to the sales area.



*A simple organizational structure is preferable to a complex one. For example, the update of master data is facilitated in a simple organizational structure. Do not define complex organizational structures in order to get detailed reporting options. Rather use the fields in the master data screen.*

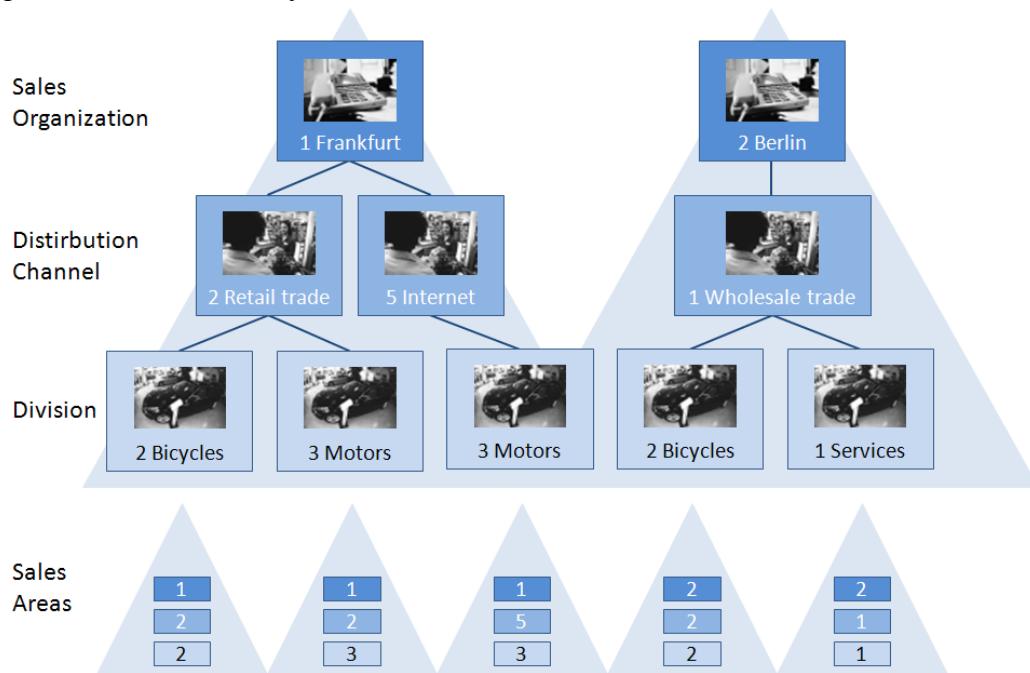


Figure 7: Sales Area

## 2.1.7 Plant and Storage Location

You are already familiar with these two organizational levels as well. Plant and storage location are organizational units for inventory management, in Materials Management (SAP MM). The plant is a location where material stock is kept. Thereby, a plant can, for example, be a production facility or merely a group of geographically close (storage) locations. Plant and storage location are organizational levels that can be used in all areas of logistics.

- In **materials management**, the focus is on material flow. From a materials management point of view, a plant is predominantly a storage location for material stocks.
- From a **production** point of view, a plant is a production facility.
- In **sales and distribution**, the plant is the location from which materials and services are distributed. In a plant, the relevant stocks are stored.
- For services distributed by a company, the plant is the location where services are rendered from (e.g., an office).

In **sales** and **distribution**, the plant has a central function:

- You maintain at least one plant in the SAP ERP system to be able to use the SAP SD application.
- A plant must be uniquely assigned to **one company code**.
- The assignment between sales organization and plants does not need to be unique.
- If a plant is to be used as a **delivering plant**, it must be assigned to a sales organization (and distribution channel) (N:N relationship).
- The plant is required for determining **shipping points** if it is used as delivering plant.

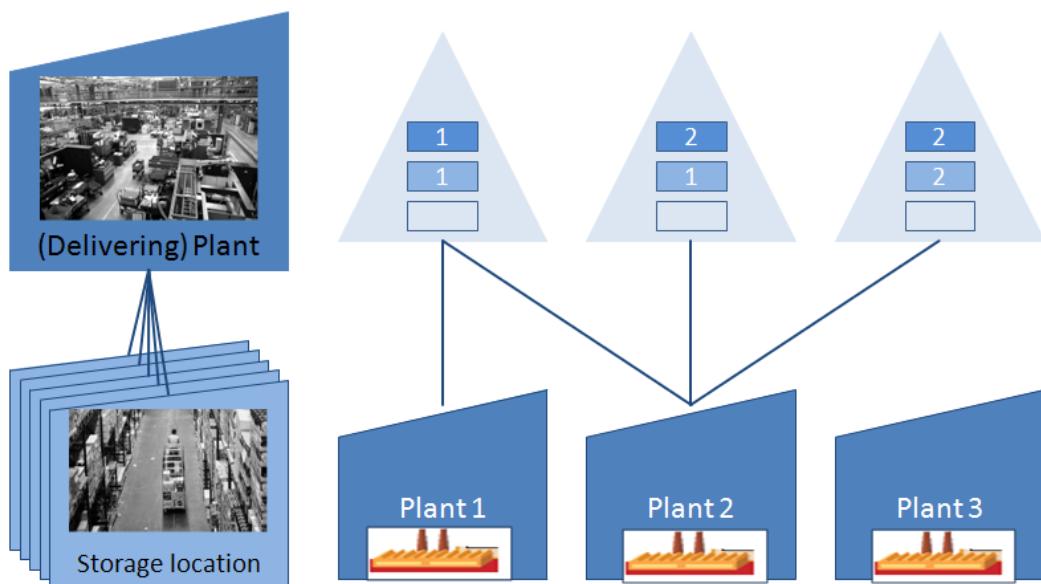


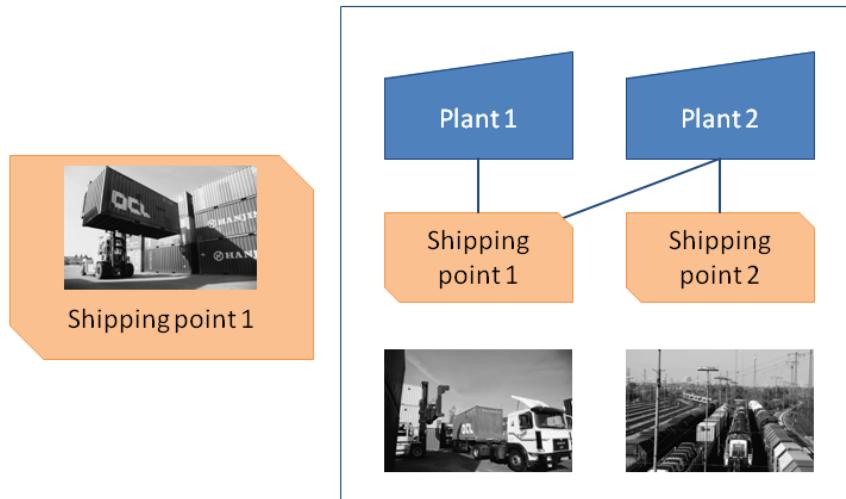
Figure 8: Plant and Storage Location

### 2.1.8 Shipping point

Shipping is a module integrated in the sales and distribution process. The highest organizational level of shipping is the shipping point. The shipping point is responsible for organizing and executing shipping processing. It is assigned to the plant (N:N relationship). For each outbound delivery, a responsible shipping point must be entered, i.e., there can be no delivery without a shipping point.

The shipping point can be a loading ramp, a mail depot or a rail depot. Moreover, the shipping point can consist of a group of employees in charge of organizing (only) urgent deliveries. The organizational assignment of shipping point is carried out at plant level. A shipping point is a physical location and should be close to the delivering plant. You can assign multiple

shipping points to a plant. This can also be appropriate for plants that are geographically close to each other.



**Figure 9: Shipping Point**

## 2.2 Theory: Master Data in Sales Order Management



When entering a sales order into the system, data from different sources can be copied or transferred directly to a sales order or another sales and distribution document. Most of these data are default values that can be overwritten in the sales and distribution document if necessary.

### Theory

These data sources include:

- **customer master data**
- **material master data**
- **condition master data** (These master data are created and maintained in the sales and distribution master data for automatic pricing, e.g., this can be a material price or a customer-specific discount.)
- **output** is information that is sent to the customer via different media types such as mail, EDI, or fax. Examples: Printout of an offer or an order confirmation, order confirmations via EDI or invoices via fax.

**Control tables:** These tables can be created and maintained in customizing. According to the table settings, default values of several data can be controlled in sales and distribution documents.

A sales and distribution document can be the data source for another sales and distribution document. A quotation already containing customer data can transfer data to a sales order for this quotation. Thus, a sales and distribution document (quotation) can be a data source for another sales and distribution document (sales order) as well.

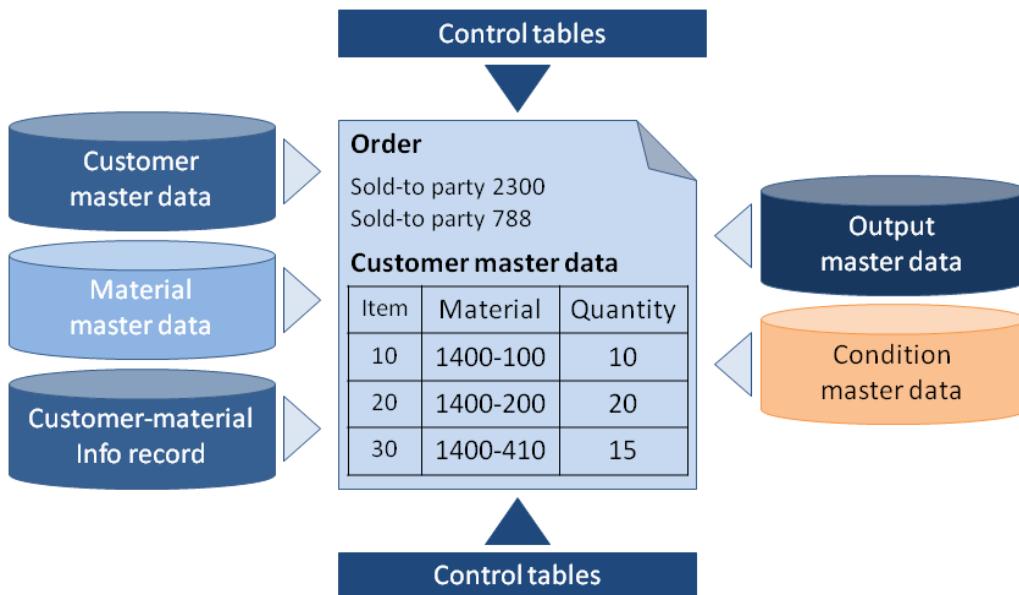


Figure 10: Master Data

### 2.2.1 Customer Master

The customer master (analogously to the vendor master) groups data into the following categories: **general data, sales area data** and **company code data**.

**General data** are relevant to sales and distribution and for accounting purposes. They are stored centrally (client-specific) to avoid data redundancies. They are valid for all organizational units of a client. The general area includes, for example, the customer's name, address, language, and telephone data.

**Sales area data** are relevant to sales and distribution. They are valid for a respective sales area (sales organization, distribution channel and division). Data that is stored in this area includes, for example, data on order processing, shipping, and billing.

**Company code data** are relevant to accounting. They are valid for a respective company code for which a client is created. Company code data includes, for example, the reconciliation account number, terms of payment, and dunning procedure.

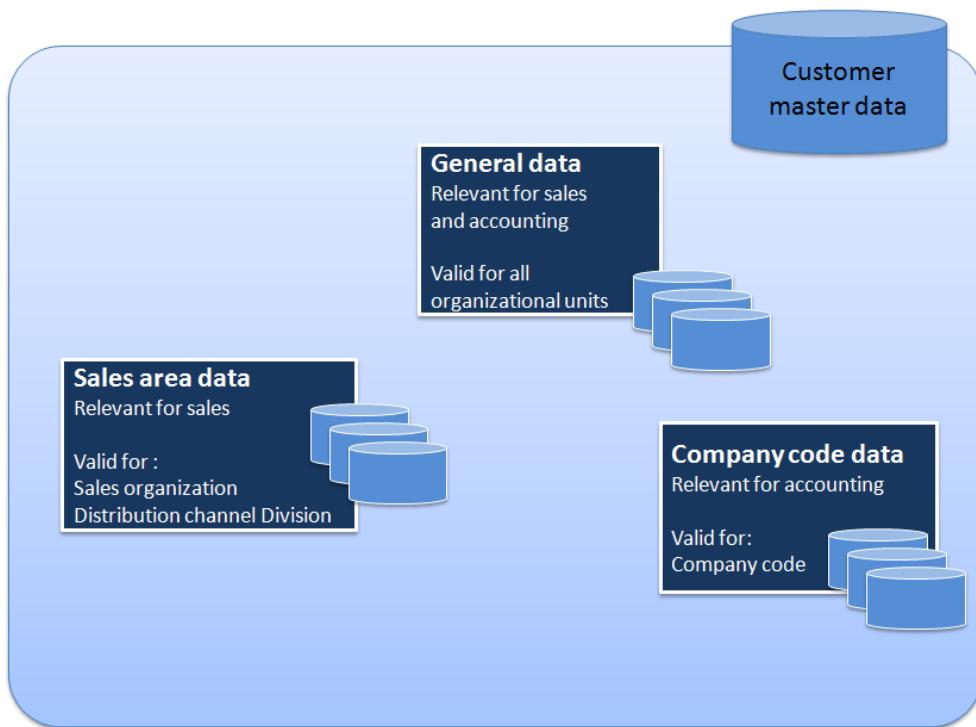


Figure 11: Customer Master Data

### Partner Functions for the Customer Master

You use partner functions to define the rights and responsibilities of each business partner in a business transaction. You assign partner functions if you create a master record for a business partner. Thereby, you enter partner functions in the customer master's sales area data (*partner functions* tab). When entering sales orders in sales order processing, they are copied as default values to the respective documents.

For sales order processing, the partner functions **sold-to-party**, **ship-to-party** and **bill-to-party** are mandatory. During sales order processing, they may differ or be identical.

- **sold-to-party:** contains data on sales such as the assignment to a sales office or a valid price list
- **ship-to-party:** contains data for shipping such as unloading point and goods receiving hours

- **bill-to-party**: contains the address and data on document printing and electronic communication
- **payer**: contains data on billing schedules and bank details

Other partner functions such as contact person or forwarding agent are not absolutely mandatory for sales order processing.

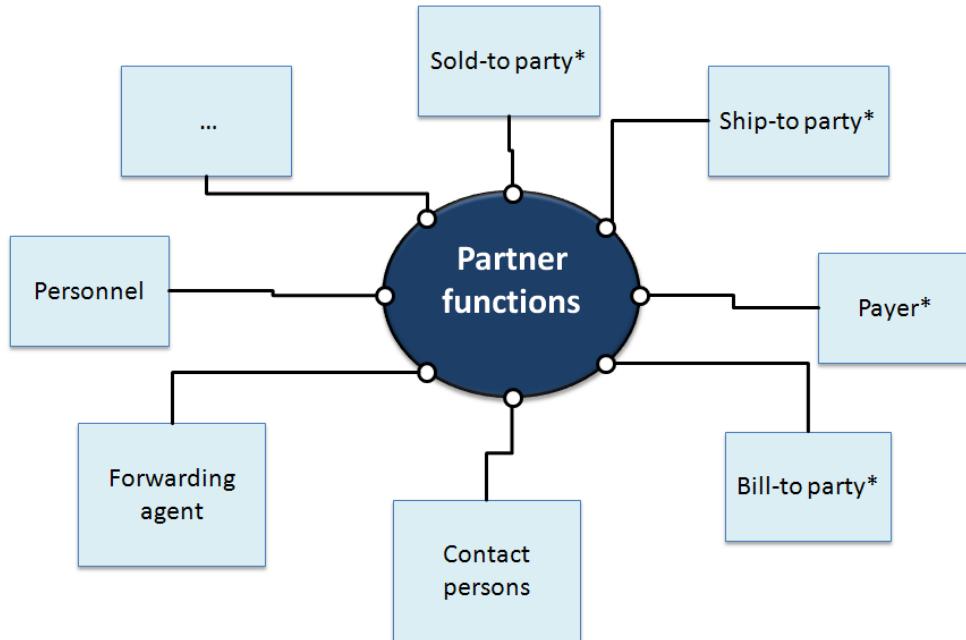


Figure 12: Partner Functions for the Customer Master

### 2.2.2 Material Master

**Basic data** in a material master are relevant for all areas. They are valid for all organizational units of a client.

**Sales organization data** are relevant for sales and distribution. They are valid for a particular sales organization and distribution channel.

**Sales plant data** are relevant for sales and distribution as well. They are valid for a particular delivery plant.

Other data relevant for different organizational units are available for diverse other areas.

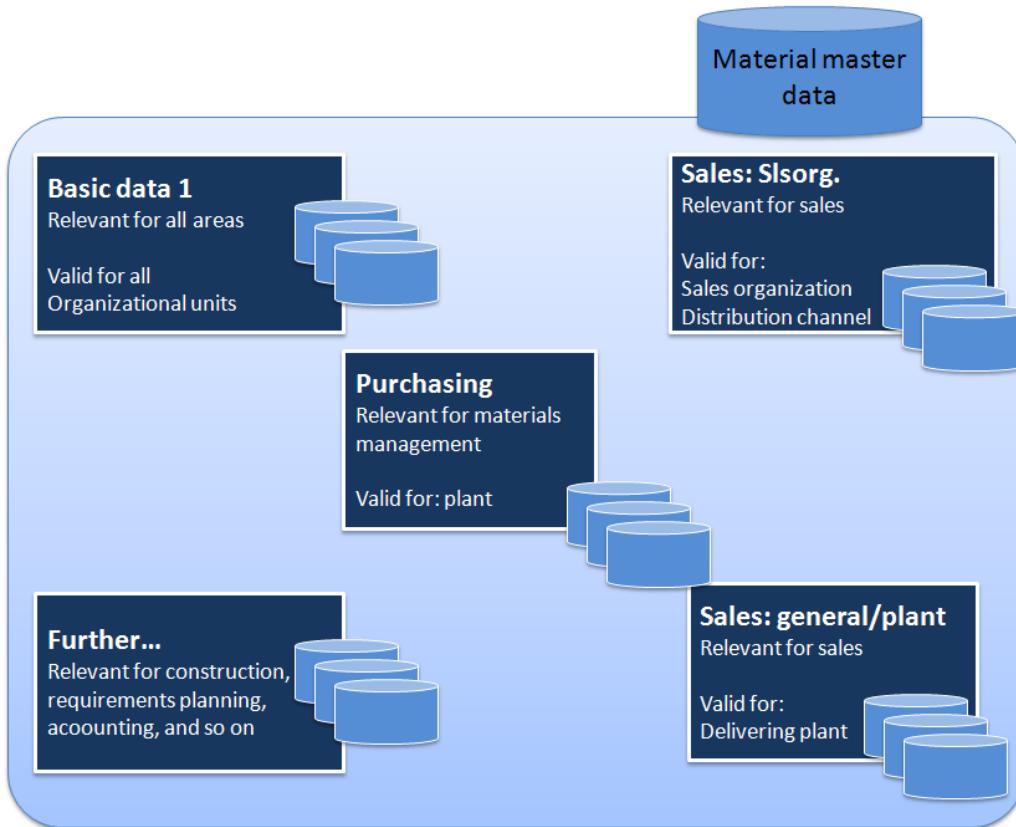


Figure 13: Material Master

### 2.2.3 Customer-Material Information Record

Using the **customer-material information record**, you can record data for a combination of particular customers and materials.

If a customer-material information record is available for a customer and a material, these values are preferred to the values of customer master and material master when processing documents (order, delivery).

The following data can be maintained in a customer-material information record:

- A link from your material number to a material number of the customer and to the material description of the customer.
- Specific shipping information for a particular customer and material (e.g., tolerances, information whether customer accepts partial deliveries, or the default delivery plant).

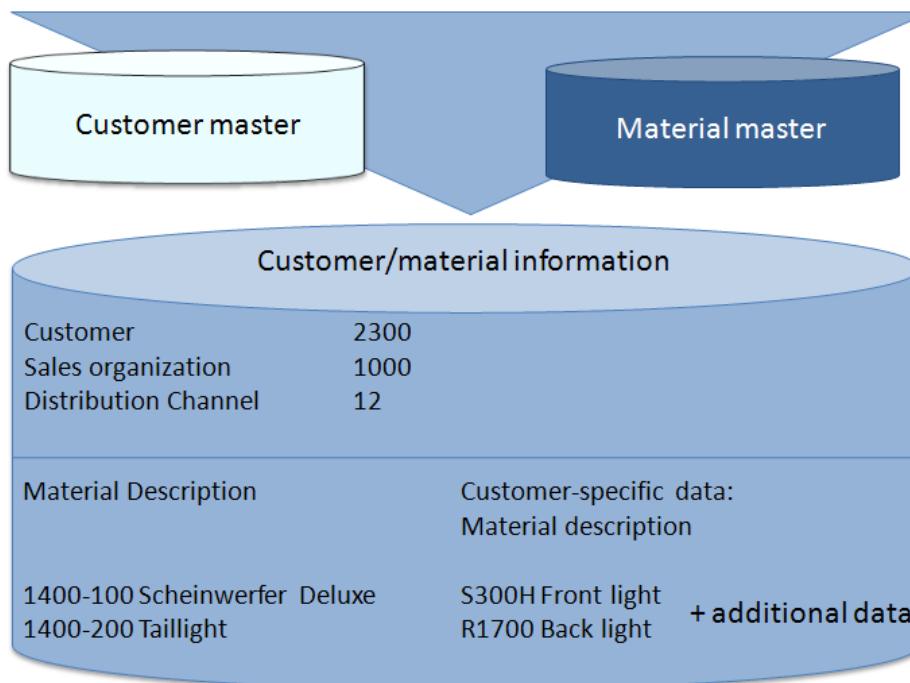


Figure 14: Customer-Material Information Record

## 2.2.4 Output

Output represents information that can be sent to the customer via different media such as mail, EDI, or fax. Examples are the printout of a quotation or an order confirmation, order confirmations via EDI or invoices via fax.

Like for pricing functionalities, output determination uses the condition techniques of SAP ERP. The output can be sent for various sales and distribution documents (order, delivery, and billing). In the output master data, transmission medium, time, and partner functions for an output type are defined.

**Examples of output types:** quotation, order confirmation, invoices.

**Examples of partner functions:** sold-to-party, ship-to-party, and bill-to-party.

**Examples of transmission media:** printer, telex, fax, mail, EDI.

**Examples of times** at which output can be sent: immediately after saving or with a regularly run standard program (RSNAST00).

Output layout is defined by a SAP form. The form is then assigned to an output type.

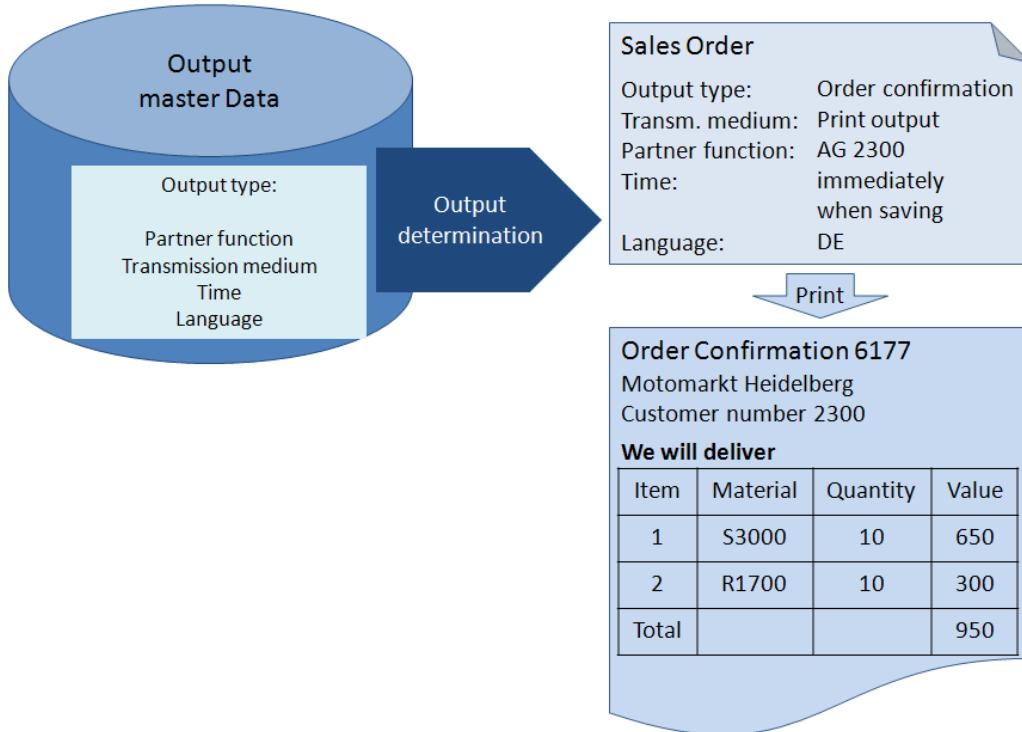


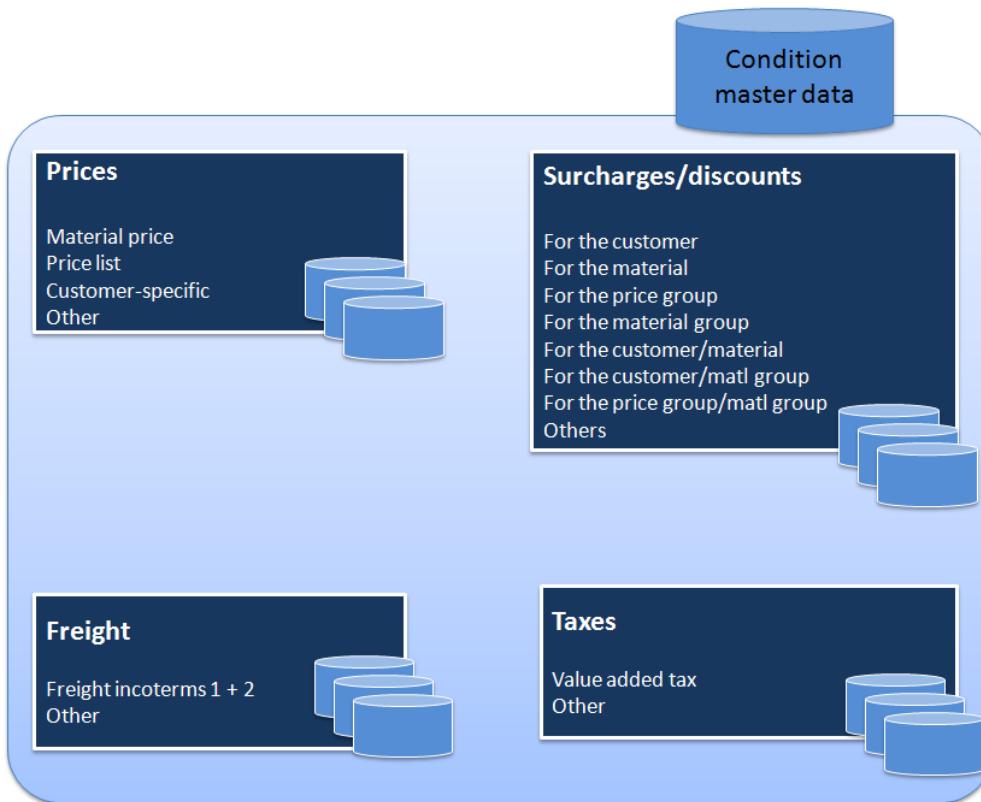
Figure 15: Output

## 2.2.5 Condition Master

The term **pricing** is used broadly for describing the calculation of prices (for external use by customers or vendors) as well as for costs (for internal purposes, such as cost accounting). Conditions represent a set of circumstances that apply when a price is calculated. For example, a particular customer orders a certain quantity of a particular product on a certain day. The variable factors (the customer, the product, the order quantity, the date) determine the final price the customer gets. The information about each of these factors can be stored in the system as master data. This master data is stored in the form of *condition records*.

Prices, surcharges and discounts, freights and taxes are condition master data.

Condition master data (condition records) can be defined depending on various data. You have, for example, the possibility to enter a customer-specific material price or a discount depending on the customer and the material pricing group.



**Figure 16: Condition Master**

## 2.3 Practice: Maintain Master Data in SAP ERP Sales



### Practice

A new customer orders products from your company. The customer is interested in 500 units of the Speedstarlett.

Sales orders contain customer data, product data and delivery schedule data.

These data are used by customer service employees to inform customers about prices and delivery dates prior to order confirmation. Additionally, they answer customer queries using these data.

After receiving the order, the products are picked (all variances from the order quantity are recorded) and the delivery documents are printed out. When the delivery is released (goods are taken out of stock) to the customer, the stock quantities need to be reduced and the general ledger needs to be updated. After shipping goods to the customer, an invoice needs to be created. Unpaid customer items are checked periodically by the accounting department and payment receipts for customers that have paid are posted.

You, being a member of the project team, need to understand the sales order management cycle and the most important sales and distribution functions in this cycle.



### Note

*In the material planning unit of this course, you already created a sales order using a customer (1000) that was already present in the SAP system. Thereby, the focus was on understanding MRP in SAP ERP and on setting planned independent requirements off against actual requirements from sales orders.*

*At this point, you are supposed to understand the entire process of order-to-cash and include a new customer in this process. This order-to-cash process is primarily located in the sales and distribution (SD) module. The SD module is part of the SAP logistics (LO) component. Other modules of LO are MM (materials management: procurement) and PP (production planning; materials planning, manufacturing execution) that you are already familiar with.*

*Interfaces of the order-to-cash process to other modules are as follows:*

- MM: procure materials for the production of the Speedstarlett
- PP: materials planning, MRP and manufacturing execution
- FI: customer pays an invoice
- CO: posting production and procurement costs (is carried out automatically by the SAP system)

You will now enter the new customer and maintain conditions for your products in the system.

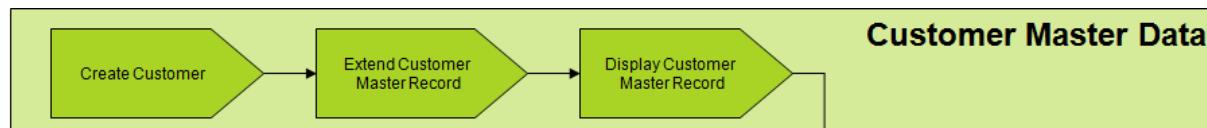


Figure 17: Process Overview: Customer Master Data

### 2.3.1 Create Customer Master

Start with the **customer master record**.

Customer master data in the ERP system are used by the FI and SD functional areas:

- **SD**: pricing group, delivery priority, ship-to-party, etc.
- **FI**: account processing, cash discount period, dunning procedures, etc.

The customer master is separated in three different views for these diverse purposes. In actual business processes, the various views are maintained by the respective departments.

#### Definition: Customer

A customer is a business partner of your company for whom receivables are present for an occurred delivery or a transferred right.

#### 2.3.1.1 Create Customer

Choose the following transaction:

**Logistics → Sales and Distribution → Master Data → Business Partners → Customer → Create → Complete (XD01)**

Enter the following data on the **Customer Create: Initial Screen**:

- |                                |                           |
|--------------------------------|---------------------------|
| 1. Account group               | <b>0001 sold-to-party</b> |
| 2. Customer                    | <b>5xxyy</b>              |
| 3. Company code                | <b>1000</b>               |
| 4. Sales organization          | <b>1000</b>               |
| 5. Distribution channel        | <b>10</b>                 |
| 6. Division                    | <b>00</b>                 |
| 7. Confirm with <i>Enter</i> . |                           |

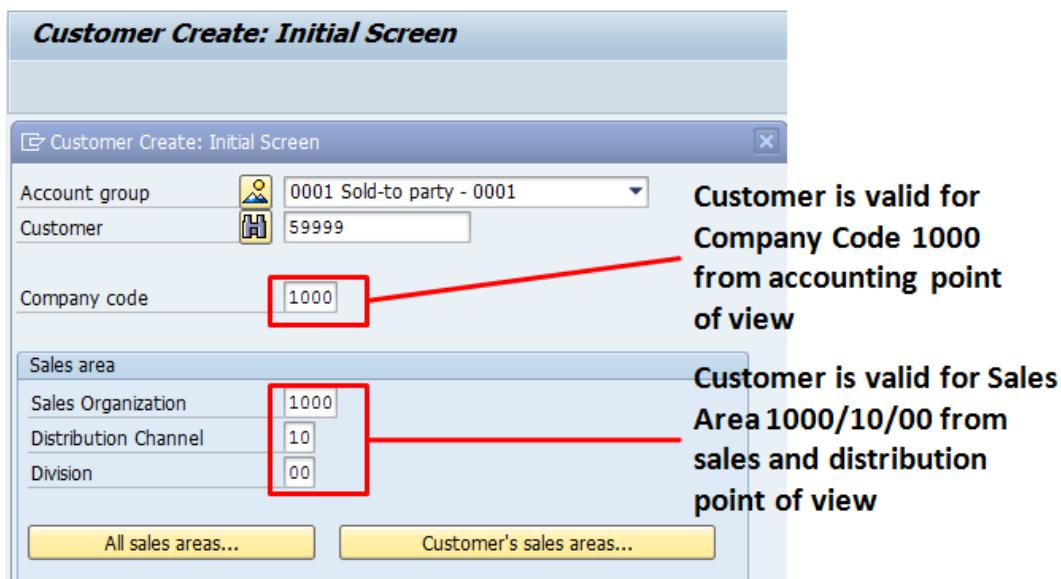


Figure 18: Create Customer: SAP-System-Screenshot

The system displays multiple screens (tabs) with reference to the creation of the customer master record. Due to time restrictions, you will only enter necessary data. Take a look at each view and enter the required data. Also explore fields not used in this scenario (F1- and F4-help). Go to the next view by using the *display next tab* (↗) symbol or **F8**. When prompted to do so, **save**.

### Address tab

1. Name *your name*
2. Search term *Customer-xxyy*
3. City *Stuttgart*
4. Country *DE (Germany)*
5. Transportation zone *0000000001*
6. Language *German*
7. Press *Enter*.
8. Press ↗

The screenshot shows the SAP interface for creating a customer. At the top, there are two tabs: "Accounting/Company Code specific data" and "Sales and Distribution/Sales Area specific data". A red arrow points from the text "Tabs of the general data view" to the "Next Tab" button on the right. Below the tabs, a navigation bar contains several tabs: "Address", "Control Data", "Payment Transactions", "Marketing", "Unloading Points", "Export Data", and "Contact Person". Another red arrow points from the text "Tabs of the general data view" to this navigation bar. The main area contains several input fields and dropdown menus. A red box highlights the "Company Code Data" tab in the top navigation bar. Red arrows also point from the text "Tabs of the general data view" to the "Address" tab in the navigation bar and to the "Name" field in the "Name" section.

**Create Customer: General Data**

Accounting/Company Code specific data	Sales and Distribution/Sales Area specific data	Next Tab
Other Customer	Company Code Data	Additional Data, Empties
Customer	59999	Khatami Taymaz
Stuttgart		
<input checked="" type="checkbox"/> Address <input type="checkbox"/> Control Data <input type="checkbox"/> Payment Transactions <input type="checkbox"/> Marketing <input type="checkbox"/> Unloading Points <input type="checkbox"/> Export Data <input type="checkbox"/> Contact Person		
<input type="button"/> Preview <input type="button"/> Internat. versions		
<b>Name</b> Title: <input type="text"/> Name: Khatami Taymaz		
<b>Search Terms</b> Search term 1/2: CUSTOMER-9999		
<b>Street Address</b> Street/House number: <input type="text"/> Postal Code/City: Stuttgart Country: DE   Germany   Region: <input type="text"/> Time zone: CET Transportation zone: 0000000001   Region north		
<b>PO Box Address</b> PO Box: <input type="text"/> Postal code: <input type="text"/>		
<b>Communication</b> Language: DE German <input type="button"/> Other communication... Telephone: <input type="text"/>		

Figure 19: Create Customer - General Data: SAP-System-Screenshot

### Control data tab

1. No entries.
2. Press .

### Payment transaction tab

1. No entries.
2. Press .

### Marketing tab

1. No entries.
2. Press .

### Unloading point tab

1. No entries.
2. Press .

### Export data tab

1. No entries.
2. Press .

### Contact person tab

1. No entries.
2. Press .

Select the **Company Code Data** button.

### Account management tab

1. Reconciliation account **140000**
2. Press .

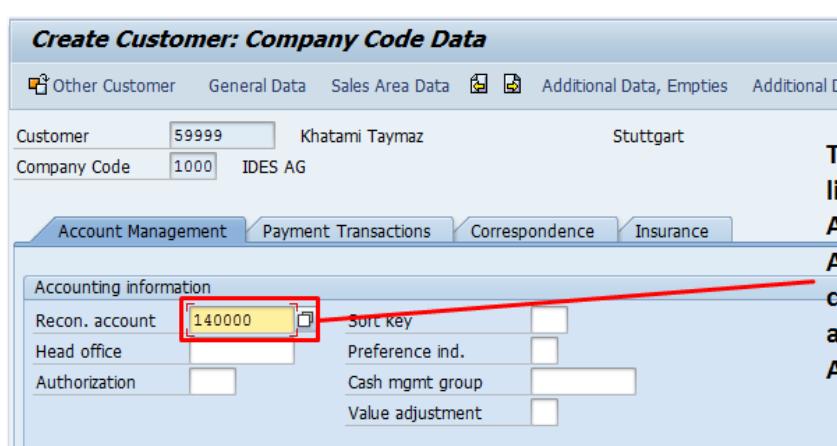


Figure 20: Create Customer - Reconciliation Account: SAP-System-Screenshot

### Payment transaction tab

1. No entries.
2. Press .

### Correspondence tab

1. No entries.
2. Press .

### Insurance tab

1. No entries.
2. Press .

Choose the **Sales Area Data** button.

### Sales tab

1. Sales district **000002**
2. Press .

### Shipping tab

1. Shipping conditions **02 (Standard)**
2. Delivering plant **1000**
3. Press .

### Billing Documents tab

1. Incoterms **EXW (Ex Works)**
2. Terms of Payment **0001 (immediately payable without deductions)**
3. Tax classification **1 (assessable)**
4. Press .

### Partner functions tab

1. No entries
2. Press .

Save the customer master record and leave the transaction.

### 2.3.1.2 Extend Customer Master Record

Extend your customer master record so that you can use it in sales area 1000/12/00 as well. Use the data from sales area 1000/10/00 as reference. Call up the following transaction:

**Logistics → Sales and Distribution → Master Data → Business Partners → Customer → Create → Sales and Distribution (VD01)**

On the **Create customer: initial screen** enter the following data:

- |                         |                      |
|-------------------------|----------------------|
| 1. Account group        | <b>sold-to-party</b> |
| 2. Customer             | <b>5xxyy</b>         |
| 3. Sales organization   | <b>1000</b>          |
| 4. Distribution channel | <b>12 (!)</b>        |
| 5. Division             | <b>00</b>            |

In the **mandatory template fields**, enter the following data:

- |                         |               |
|-------------------------|---------------|
| 1. Customer             | <b>5xxyy</b>  |
| 2. Sales organization   | <b>1000</b>   |
| 3. Distribution channel | <b>10 (!)</b> |
| 4. Division             | <b>00</b>     |

Choose **Enter**.

Note that there is no field for Company Code. The transaction **VD01** is used for Sales and Distribution application only. In contrast to that, transaction **XD01** also contains the Company Code field, since **XD01** is used both in application SAP SD and SAP FI.

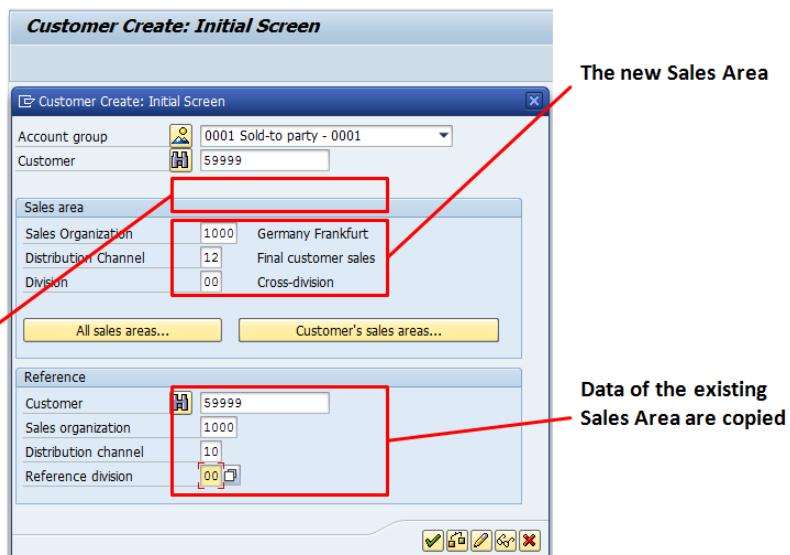


Figure 21: Extend Customer Master Data - New Sales Area SAP-System-Screenshot

You can see that the **company code data** button is missing. This is because transaction **VD01** (sales and distribution) includes only sales organization views in contrast to transaction **XD01** (complete). Save the customer. Thus, the customer master is extended by the distribution channel **sold for resale (12)**.

### 2.3.1.3 Display Customer Master Record

Display the created customer master record (50xyy) and answer the following questions. Therefore, call up

**Logistics → Sales and Distribution → Master Data → Business Partners → Customer → Display → Complete (XD03)**

In the **Display customer: initial screen** enter the following data:

- |                 |              |
|-----------------|--------------|
| 1. Customer     | <b>5xxyy</b> |
| 2. Company code | <b>1000</b>  |

3. Sales organization	<b>1000</b>
4. Distribution channel	<b>12 (!)</b>
5. Division	<b>00</b>

Choose **Enter** and answer the following questions. List the answers on your data sheet.

1. Select the **sales tab (sales area data)**. How is a **customer group** defined? How did you get this information?
2. Select the **billing document tab (sales area data)**. What is the purpose of **Terms of payment**?
3. Select the **account management tab (company code data)**. What is the purpose of the **reconciliation account**?

Leave the transaction.

### 2.3.2 Create Conditions

Your finished products Speedstar and Speedstarlett do not feature a sales price as you could see in the material planning unit (you were required to manually enter a sales price of 3000 € resp. 2500 €). Since there will be an order for the Speedstarlett in this case study, maintain the sales conditions for the Speedstarlett.

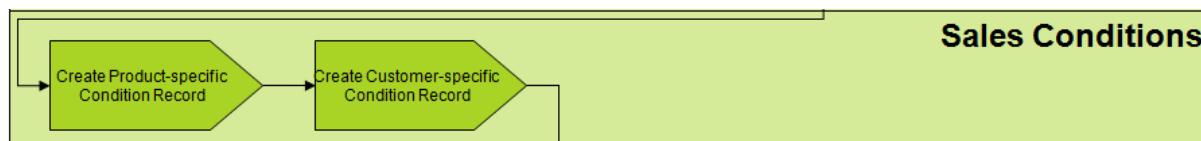


Figure 22: Process overview: Condition records

#### Definition: Sales Condition

A sales condition is an agreement regarding prices, surcharges/discounts, taxes and so on that is valid within a defined period of time depending on selected factors such as customer group, customer and material type.

#### 2.3.2.1 Create Product-specific Condition Record

The condition PR00 (price) is mandatory and must, therefore, be maintained. It can be created for each sales organization and distribution channel. If not done yet, set the division in the material master to 00 (cross-company). Choose

**Logistics → Sales and Distribution → Master Data → Products → Material → Other Material → Change (MM02)**

1. Enter your material **Speedstarlett-xxyy** and confirm with **Enter**.
2. Select the **Sales: Sales Org. Data 1** view. Confirm with **Enter**.

3. Enter plant **1000**, sales organization **1000** and distribution channel **10** and confirm with *Enter*.
4. If the division is not set yet, enter **00** in the specific field.
5. Click the **Conditions** button.
6. Define the following for the **Speedstarlett**: from *the current date* to **31.12.9999**, and from a sales quantity of one, a price of 2500€ is applicable. From a sales quantity of 500, a sales price of 2300€ per unit is applicable.
  - Enter **1** in the first line of the **fixed-scale quantities** column and **2500** in the **amount** column.
  - In the second row, enter the fixed-scale quantity **500** and an amount of **2300**.
  - Choose **Enter** and **save** the modification.

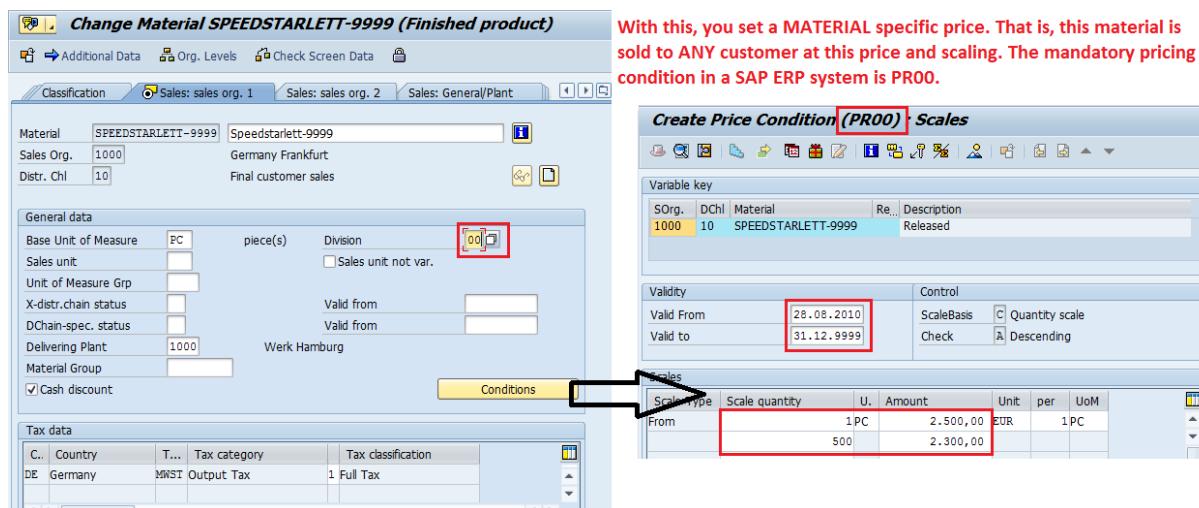


Figure 23: Create Material-specific Condition Record: SAP-System-Screenshot

You maintained the sales price with the respective fixed-scale quantities for the Speedstarlett with the condition type **PR00** (price condition). This condition record is applicable to all Speedstarletts with the distribution channel 10 (final customer sales), sales organization 1000 and company code 1000.

When creating a new sales order and you choose, for example, distribution channel 12, this condition is not valid, since you did not maintain it for Sales area 1000/12/00. In that case, you would be prompted to enter a sales price as in the material planning teaching unit. Thus, it is ensured that this condition is only applicable to distribution channel 10 (Sales area 1000/10/00).

### 2.3.2.2 Create Customer-specific Condition Record

Your new customer negotiated special conditions with the SD department. They agreed on a price per unit of only 2400 € and from a sales quantity of 500 units, on a sales price of 2200€ per unit. Maintain the customer-specific condition. Choose

**Logistics → Sales and Distribution → Master Data → Conditions → Create (VK31)**

1. In the left-hand menu, select **Prices → Individual Prices** with a double-click.

2. Now double-click the line **CnTy SOrg. DChl Customer Material**.
3. Enter **Sales organization Germany Frankfurt (1000)**, **distribution channel final customer sales (10)** and your new **customer 5xxyy**.
4. Enter the following data:
 

- Condition type	<b>PR00 (price)</b>
- Material	<b>Speedstarlett-xxyy</b>
- Amount	<b>2400</b>
- Unit	<b>EUR</b>
- per	<b>1</b>
- Unit	<b>PC</b>
- Valid from	<b>the current date</b>
- Valid to	<b>31.12.9999</b>
- Confirm with <i>Enter</i> .	

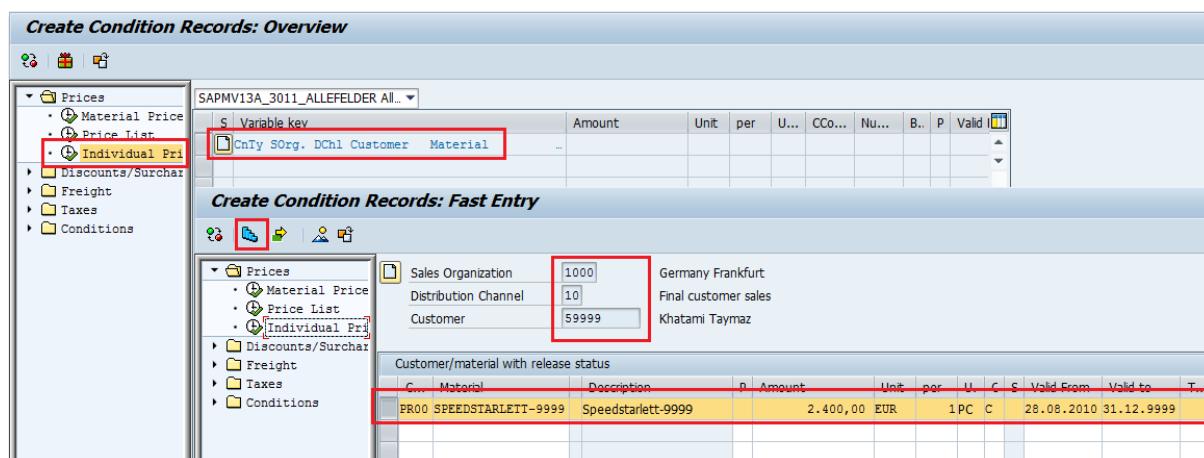


Figure 24: Create Customer-individual Condition Record: SAP-System-Screenshot

5. Select the row and click the symbol (**scales**) on the top left side of the screen. Arrange the condition so that the **price** is **2400 €** from a **scales quantity** of **one** unit and from a **scales quantity** of **500**, the **price** is **2200 €**.

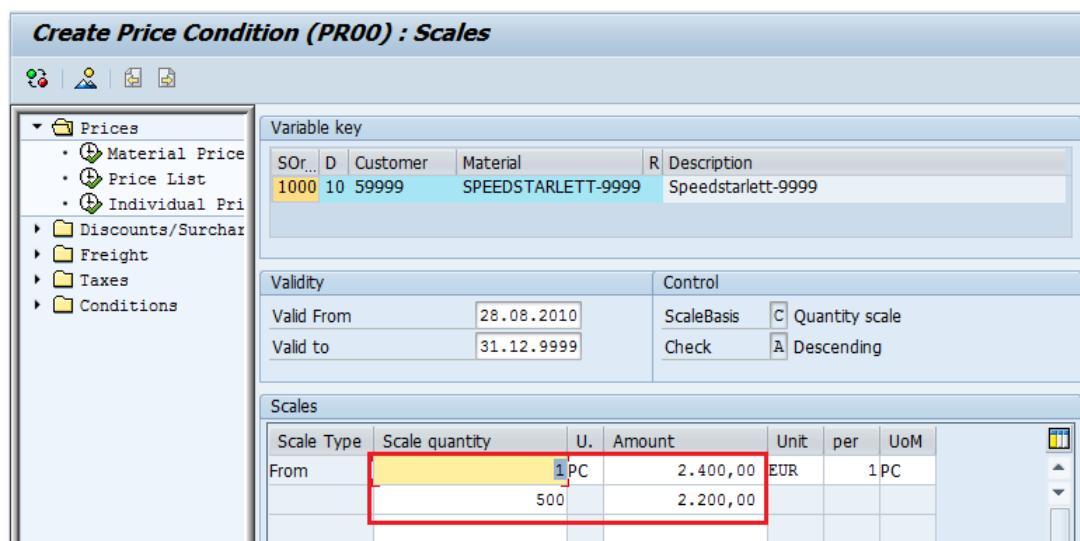


Figure 25: Maintain Scales: SAP-System-Screenshot

**6. Save your entries.**

Thus, all relevant master data (customer master record, conditions) are maintained from a SD point of view.

You have created a customer who is valid for

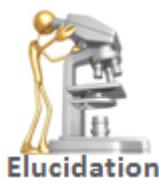
- Company Code 1000
- Sales Area 1000/10/00
- Sales Area 1000/12/00

You have created two condition records for the Speedstarlett:

- PRODUCT-specific sales price (PR00) valid for Sales Area 1000/10/00 and ANY customer
- CUSTOMER-specific sales price (PR00) valid for Sales Areas 1000/10/00 and customer 5xxxx.

Next, take a look at the SD process (order-to-cash process).

## 2.4 Elucidation



### What have we learned so far?

The major outcome of this section was to give you an overview over the organizational levels that are relevant for the sales process in SAP ERP and the different types of master data that are used in SAP Sales and Distribution (SAP SD).

### 2.4.1 Organizational Levels in Sales Order Management

You have already become acquainted with the main organizational units in SAP ERP. The following organizational levels are relevant in the Sales and Distribution application but not exclusively:

#### Company Code:

- Is relevant to all business processes.
- Can represent a complete independent accounting unit and, thus, represent the smallest organizational level for external accounting (balance sheets and profit and loss statements).

#### Plant/Storage Location:

- Is a location where material stock is kept (production facility, a group of geographically close (storage) locations).
- Plant and storage location are organizational levels that can be used in all areas of logistics.
- In **sales** and **distribution**, the plant has the following central functions:
  - o At least one plant must be defined in SAP ERP for SAP SD application.
  - o A plant is assigned to exactly **one company code**.
  - o A plant can be assigned to multiple sales organizations, a sales organization can be assigned to multiple plants.
  - o If a plant is to be used as a **delivering plant**, it must be assigned to a sales organization (and distribution channel) (N:N relationship).
  - o A plant is required to determine responsible **shipping points**.

The following organizational levels are used exclusively in the Sales and Distribution application:

#### Sales Organization:

- A sales organization groups the company according to sales and distribution requirements.
- A sales organization is responsible for the distribution of goods and services. This also includes liability for sold products and the responsibility for customers' rights of recourse.
- A sales organization is used to group the market (e.g., regionally, nationally, and internationally).

- Sales conditions are defined on sales organization level.
- A sales organization is assigned to exactly **one company code**. One company code can have multiple sales organizations assigned.
- One sales organization must at least be defined in SAP ERP if you want to use the SD application.
- A sales organization features individual master data and individual data that are relevant for SD.
- In sales statistics, a sales organization is the highest aggregation level
- All items listed on a SD document belong to a sales organization.

#### **Distribution Channel:**

- A distribution channel is the channel by which goods or services reach the customer. Examples of distribution channels are direct, whole sale, internet, end consumer etc. For instance, if you select distribution channel whole sale for a product, then this product is sold by using intermediary sales channels (external partner), like grocery store. In that case, your company does not have direct contact with the customer at point of sales.
- You can assign several distribution channels to a sales organization. When using the SD application, you need at least one distribution channel.
- Examples for the usage of distribution channels:
  - o definition of responsibilities
  - o achievement of flexible pricing
  - o differentiation of sales statistics

#### **Divisions:**

- Divisions are used to group materials and services.
- Multiple divisions can be assigned to one sales organization.
- One division must be defined at least if you want to use the SD module.
- When the system determines the sales areas to which a material or a service is assigned to, it uses the division stated in the material master.
- Example of divisions: Bicycle could be defined as division in your company. In that case, you could assign this division in the material master to your Speedstar and Speedstarlett. Thus, you can, for example, limit price agreements with a customer to a particular division. Moreover, you can run statistical analyses according to divisions.

#### **Sales Area:**

- A sales area is a combination of *sales organization*, *distribution channel* and *division*.
- The sales area defines the distribution channel through which a sales organization sells products from a certain division.
- Example:
  - o When creating the Speedstar, you first selected Sales Organization **Frankfurt (1000)** and the distribution channel **Final Customer (10)** as organizational units. That is, in customizing this combination is defined, allowing for sales organization 1000 to sell products to Final Customers.

- Then, in the master data views of Basic Data and/or Sales, you entered the Division 00 (cross-division). That is, the combination of sales organization 1000, distribution channel 10 and division 00 is also defined in customizing (1000/10/00). This combination is called sales area and states that cross-division products can be sold from Frankfurt to Final Customers.
- You can define multiple of these combinations. For instance, the sales area 1000/01/00 also exists as well as 1000/10/02.
- Sales areas are important in that way that each sales and distribution document (e.g., sales order, delivery) is assigned to exactly one sales area. This assignment cannot be changed after creating the SD document.
- A sales area is assigned to exactly one company code. This relation is stated in the already mandatory assignment of the sales organization to the company code. For instance, the sales organization 1000 is assigned to company code 1000 (Germany), thus the sales area 1000/10/00 is assigned to company code 1000.
- When processing sales and distribution documents, the system uses various master data. These master data are accessed according to the sales area. This includes, for example, customer master data, material master data, prices and discounts. Moreover, the system carries out various checks regarding the validity of particular entries according to the sales area. For instance, if you enter a customer in a sales order, the system checks the sales areas a customer is assigned to and fills in the organizational units in the sales order or presents alternatives you can choose from (if there are several sales areas assigned).

#### **Shipping points:**

- The highest organizational level of shipping is the **shipping point**.
- The shipping point manages shipping operations in SAP ERP. That is, there can be no delivery without a shipping point.
- Examples of shipping points: loading ramp, a mail depot, a rail depot, a group of employees in charge of organizing (only) urgent deliveries etc.
- Shipping points are assigned to plants. Multiple shipping points can be assigned to a plant.

#### **2.4.2 Master Data in Sales Order Management**

The SAP ERP system integrates many master data records in a SD document. That is, when you, e.g., create a sales order, data from customer, material, pricing conditions, organizational units etc. are copied or transferred directly to the document. Most of these data are default values that can be overwritten in the sales and distribution document if necessary.

Master data for SD application that are relevant in our context are:

##### **Customer Master**

- Customer master data (analogously to the vendor master) contains all data relevant for customer processes. These data are grouped as follows:
  - **General data** are valid client-wide and are relevant for sales and distribution as well as for accounting purposes.

- **Sales area data** are relevant to sales and distribution only and, thus, are only valid for a respective sales area (sales organization, distribution channel, and division). That is, if you create a customer for sales area 1000/10/00 and you want to use this customer in sales area 2000/10/00, you need to extend its master data.
  - **Company code data** are relevant to accounting and, thus, are defined for a specific company code. That is, if you create a customer for company code 1000 and you want to use this customer in sales area 2000/10/00 you need to extend its master data to company code 2000, since sales organization 2000 is assigned to company code 2000.
- **Partner Functions for the Customer Master**
- Partner functions are used to identify and include business partners (e.g., customer) in a sales process.
  - On the partner functions tab in the customer's master sales area data, you can enter diverse partner functions for one customer. In a sales process **sold-to-party**, **ship-to-party** and **bill-to-party** are mandatory. Other partner functions are, e.g., payer, sales employee, contact etc.
  - Example: You sell a product to a customer, but deliver it to a different person. In that case, sold-to-party and ship-to-party are different. This is stated in the sales order document. The subsequent delivery document uses the field ship-to-party to retrieve the shipping address of the person the product is to be delivered to.

## Material Master

Material Master Views **exclusively** relevant to SD application are:

- **Sales: Sales Org. Data 1 and 2:** The data stored here are relevant for sales and distribution. They are valid for a particular sales organization and distribution channel. Again, if you have created the material master for, e.g., sales area 1000/10/00, you only can sell this product in this sales area.
- **Sales: General/Plant Data:** The data stored here are relevant for sales and distribution as well. They are valid for a particular delivery plant and state from which plant a material is delivered from.

## Customer-Material Information Record

- This master data is used to link a **customer** with **materials**.
- If the customer uses a different identifier than the one you use for the material, you can include this information in a customer-material info record. You can also include in this record specific shipping details, such as minimum delivery quantity and partial delivery conditions.
- If a customer-material information record is available for a customer and a material, these values are preferred to the values of customer master and material master when processing documents (order, delivery).

## Output

- Every sales and distribution document can generate outputs.

- Outputs are information that can be sent to the customer, e.g., order confirmation, or quotation.
- You can use different media to send the output, e. g., via e-mail, EDI or fax.
- What output is generated from a particular sales document is based on conditions to be fulfilled. For that reason outputs use, like pricing functionalities in a sales document, the condition techniques of SAP ERP.
- Example for condition technique: You create a quotation for a customer. As a standard process in your company, the customer receives a printout of the quotation via mail. For this, you define in customizing of the sales quotation that an action is executed, which prints out the sales quotation and initiates the mail delivery, when the condition "document saved" is fulfilled. In your process, when you save the quotation, this action is executed.
- In the output master data, you define transmission medium, time and partner functions for an output type.
- Output layout is defined by a SAP form. The form is then assigned to an output type. A form is a pre-defined standard form in which you can enter data manually or the system generates the data according to the sales process.

### **Condition Master**

- Conditions are used in SAP ERP to define, e.g., prices at which a product is sold to a customer.
- You can create condition records for prices, surcharges, discounts, freight costs and taxes.
- Condition records can be defined depending on various data. You have, for example, the possibility to enter a customer-specific material price or a discount depending on the customer and the material pricing group. That is, you can define that customer X1 has to pay 100 € for product Y, whereas customer X2 pays 110 € but receives a discount of 10 if he buys 10 units.

## 3 Order to Cash Business Process

The following section focuses on the sales process in SAP ERP.

### 3.1 Theory: Order to Cash Business Process



To be able to process sales orders effectively, it is necessary that all activities to fulfill customer requirements are integrated in a series of processes. The application component sales and distribution allows for an integrated approach to sales order management. The individual steps of the sales process are represented by documents in SAP ERP that are linked with each other.

#### 3.1.1 Order-to-Cash Business Process

The Order to Cash business process consists of several steps. It begins with establishing and maintaining customer relationships and ends with invoicing for delivery of goods or service provided to the customer. Posting the customer incoming payments is part of the application component Financial Accounting. The following figure displays how the sales process could look like and what process steps it contains.

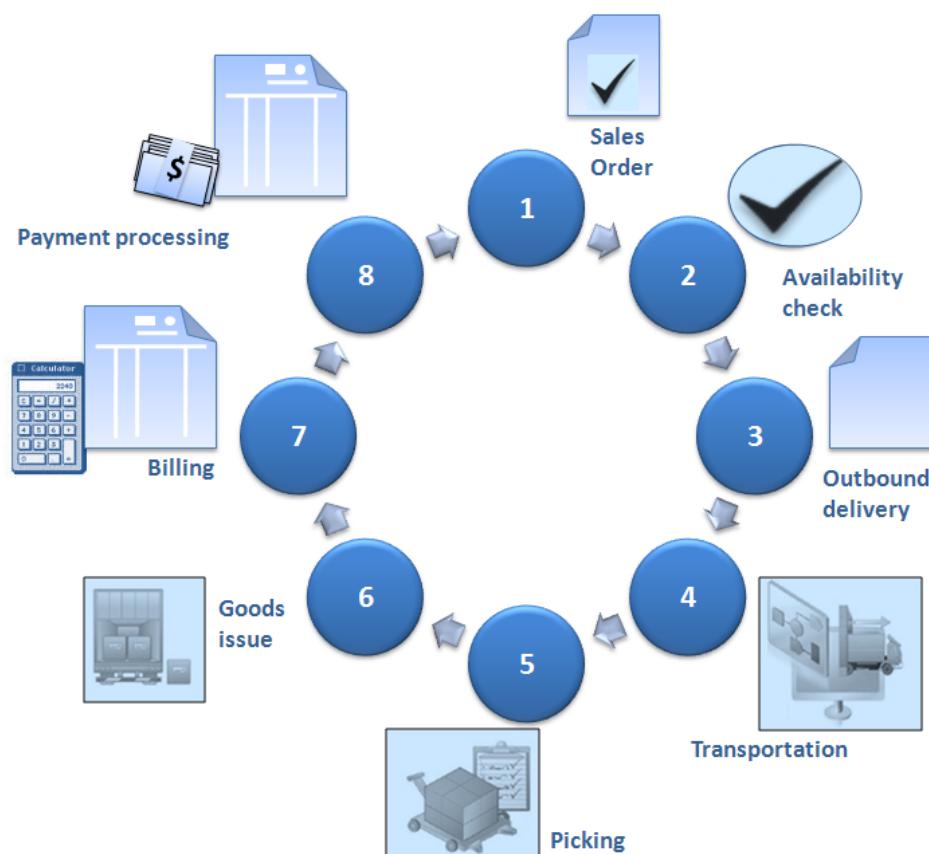


Figure 26: Order-to-Cash Business Process

### 3.1.2 Documents in Sales and Distribution

The order-to-cash process affects multiple applications and functions of the SAP ERP system. The following figure looks at this process from a document point of view. For each of the different process steps, the documents that the system creates are listed. It also shows some integration points to other application within SAP ERP.

The blocks in the following figure represent, from top to bottom, the standard sequence of the events in the sales and distribution process. The boxes within the blocks represent sales and financial accounting documents. Not all mentioned process steps must be carried out. For example, you can create a sales order without a previously stated inquiry.

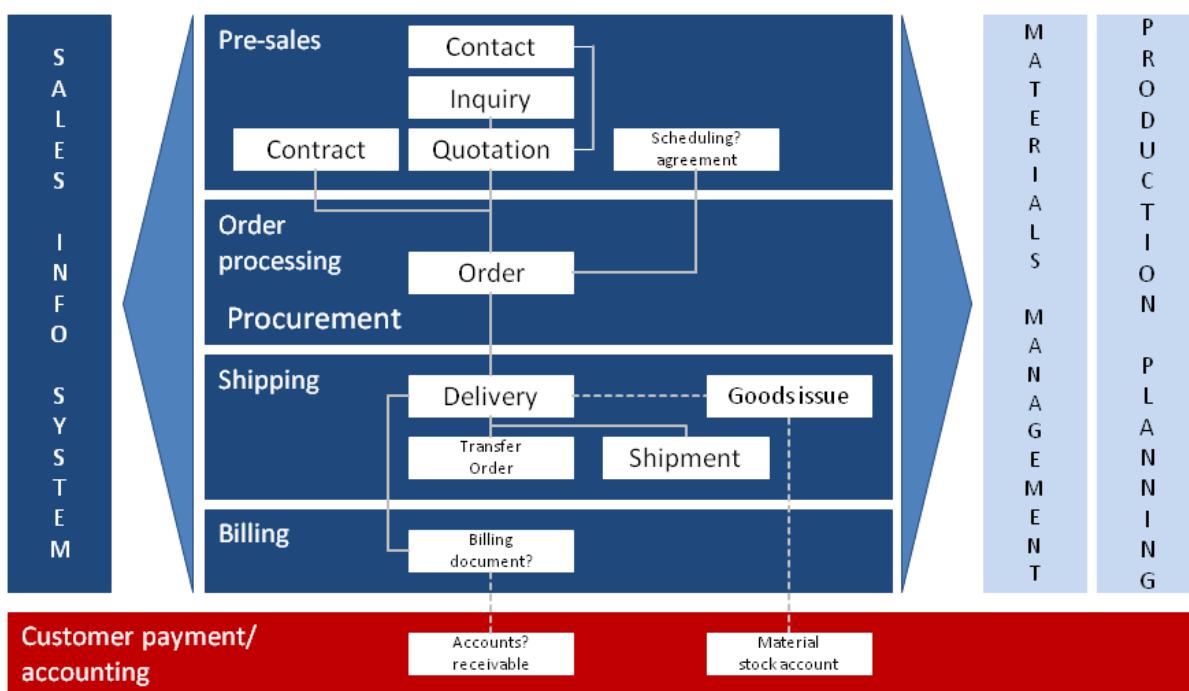


Figure 27: Documents in Sales and Distribution

#### Pre-sales Activities:

Sales order management usually starts with setting up and maintaining customer relationships. This step includes mail advertisement, campaigns, and creating customer data bases with customer contact data. Based on this data a customer inquiry can be captured or quotations send to the customer.

The process shown in the figure above starts with entering a customer **contact** or with a **customer inquiry** in which the customer asks for a particular product. When a company creates a quotation in accordance to this inquiry, information from the inquiry document (customer data, material/product, quantities, conditions, delivery date) is copied to the **quotation**. Thus, data redundancies are avoided and data do not need to be entered again.

Pre-Sales Activities encompasses (brackets state the application in which and what type of data is created):

- Mailing
- Campaigns
- Contacts (SAP SD: customer master data)

- Inquiries (SAP SD: inquiry document)
- Quotations (SAP SD: quotation document)

### Sales Order Processing:

The central part of **sales order processing** is the creation of the sales document. Inquiries, quotations or sales orders are different examples of sales documents in the SAP ERP system. These documents derive all data necessary for processing the customer's demand for a product from the appropriate master data in the system.

If the customer accepts the quotation, the quotation document is transferred into a **sales order document**. A sales order, e.g., copies the customer data, product data, the pricing data etc. from the preceding document (the quotation). All documents created with the whole process are linked to each other and facilitate the transfer of data.

Sales Order Processing encompasses:

- Customer (SAP SD: master data) and Material data (SAP SD: master data sales views)
- Prices and Conditions (SAP SD: master data)
- Schedule Lines (Info for outbound delivery)
- Info for Billing

### Procurement/ Inventory Sourcing:

To provide a customer with the product ordered, it might be necessary to purchase materials for, e.g., production. In **procurement**, which is a functional area of materials management (purchasing), the ERP system determines a vendor according to data stored in the system (e.g., material, purchasing info records, conditions, vendor master data). Thereby, the following questions can be important:

- Is delivery carried out from one of your delivery plants?
- If this is true, which plant is it?
- Is the vendor a third-party vendor?
- If this is true, which third-party vendor is it?

After processing the sales order (product is procured or produced), the requested goods can be delivered.

Procurement / Inventory Sourcing encompasses:

- Availability check
- Goods issue from stock (SAP MM: material document)
- External procurement (SAP MM: planned order, purchase requisition and purchase order)
- In-house production (SAP PP: planned order, production order)

### Shipping:

When a product is ready to be delivered to the customer, shipping of the good must be organized. Organization and processing of **delivery** is part of the **shipping process**. The SAP system allows for transferring data from the sales order to the **delivery document** as well. After creating the **shipping document** and fulfilling all goods transportation requirements (creating

transfer order, picking, packing) goods can be delivered and the goods issue can be posted. With the goods issue posting a material document is created, which reduces the material quantity on stock, and an accounting document, which posts the material valued to the material stock account.

#### Shipping encompasses

- Outbound Delivery (SAP SD: delivery document)
- Picking (SAP LE: transfer order document)
- Packing (SAP SD: delivery document)
- Transportation and Shipment (SAP LE: shipment document)
- Goods Issue: Stock Posting (SAP MM: material document, SAP FI: Accounting Document)

#### Billing:

The billing process regularly starts when the product that has been ordered by the customer has been delivered. In the billing component, a **billing document** is created out with reference to the delivery or sales order document. The billing document creates receivables on the customer account with the amount of the material quantity delivered multiplied by the sales price. The invoice is created and all required data are transferred to financial accounting. Sales order management is terminated with invoicing of delivered goods or of provided services.

#### Billing encompasses

- Invoice (SAP SD: billing document)
- Credit Memo and Debit Memo (SAP FI: accounting document)
- Transfer to Financial Accounting

#### Payment:

Part of **handling payments** is the check of open items and the posting of incoming payments. Posting incoming payments of a customer is part of the application component financial accounting (SAP FI) and it is carried out outside of the sales and distribution component (SAP SD). When the customer pays the invoice, the customer account is cleared.

#### Payment (SAP FI) encompasses

- Posting Incoming Payments (SAP FI: accounting clearing document)
- Review of Differences

### 3.1.3 Pre-Sales Activities

To increase sales figures of a company, specific marketing activities such as direct mailing campaigns, internet campaigns, trade fair sales activities or telephone campaigns can be used. These activities can trigger sales processes, resulting in non-binding customer inquiries or quotations. Inquiries and quotations enhance determining important sales data and can be stored in documents. When the customer then places an order, you can access these data. For

example, data from a quotation can be transferred to a sales order directly. Thus, you do not need to enter these data once again.

Information gained from pre-sales activities can be used for planning and evaluating marketing and sales strategies. This information can then be the basis of the long-term creation of customer relations. For example, by:

- tracking lost sales
- recording pre-sales data to facilitate the negotiation of important contracts
- sell goods and services to large companies that require the documentation of the entire sales process

- Establishing and maintaining customer relationships
- Pre-Sales activities may include:
  - Creating and tracking customer contacts
  - Mailing campaigns
  - Answering customer questions received by e-mail, fax, etc.
  - Inquiries
  - Quotations



Figure 28: Pre-Sales Activities

### 3.1.4 Sales Order Processing

When a customer orders goods or services, the SAP system records the customer's request in a sales order. The sales order is an electronic document and contains all information for sales order processing in sales order management. Thereby, the sales component automatically suggests data from previously entered master records and control tables. This facilitates entering sales order data, since customer-specific data from the customer master record or price information from previously stored conditions can be transferred to the sales order. Additionally, input errors and entering redundant data are avoided.

You can also enter a sales order with several items by using a single screen. Moreover, sales orders can be created via the internet or via messages received from business partners.

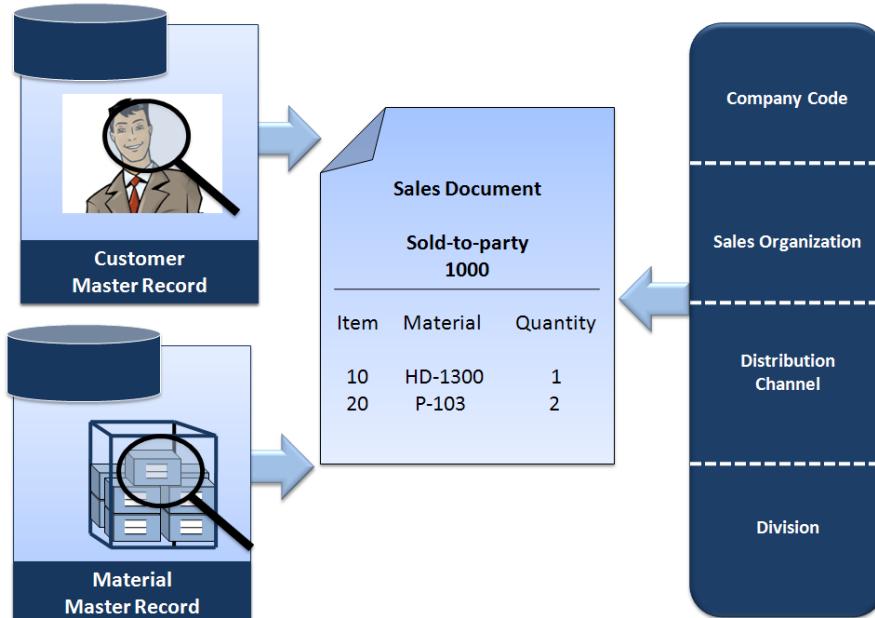


Figure 29: Sales Order

### 3.1.4.1 Creating an Order

The creation of sales documents (inquiry, quotation, order, etc.) is carried out in the *sales area*. Sales documents can refer to business transactions that are already entered in the system. For example, you can create an order with reference to an existent quotation. Data relevant for the sales order document (customer, material, quantity, price etc.) can be transferred from the quotation to the sales order without the need to enter them again.

From a quotation, you can also create several sales orders. This allows you, for instance, to group all the quotations for one customer.

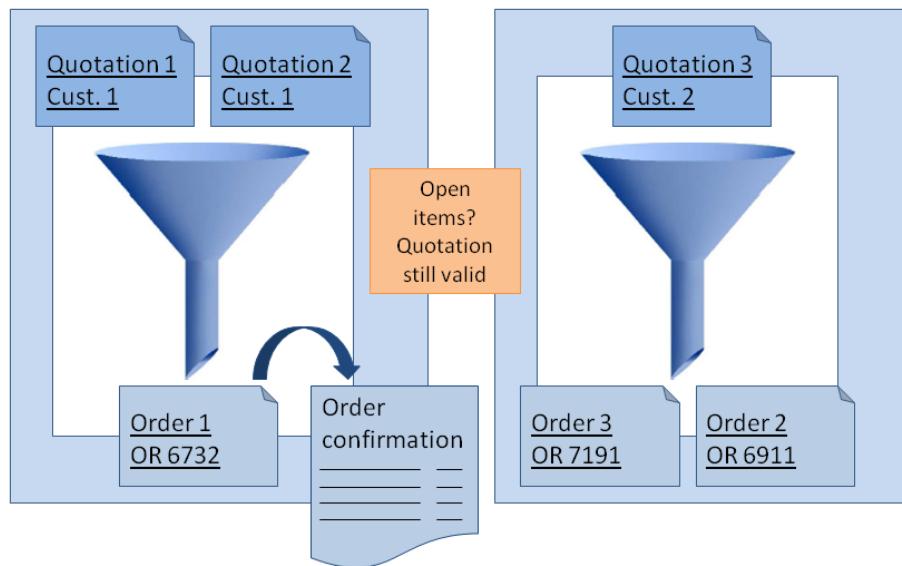


Figure 30: Sales Order Creation

You can set a sales order in a way that specific functions are automatically executed, depending on the business transaction. These functions are activated or deactivated directly or indi-

rectly through the sales document type. The following figure displays functions that can be automated or deactivated in a sales order document.

### Examples:

- In a normal sales process (transaction type OR), you want the system to automatically determine the time your customer receives the ordered goods. In that case, you activate the shipment scheduling and availability check functions. However, these functions are not necessary for credit memo requests.
- You want to process a sales order for a delivery that is free of charge. Thus, you deactivate the pricing function.
- You define a group of messages (output) relevant for sales order processing and an additional group of messages for contracts. Depending on the transaction type, different outputs are generated. An output is information exchanged between business partners. For example, an order confirmation, a billing form, an electronic message to one of your colleagues etc.

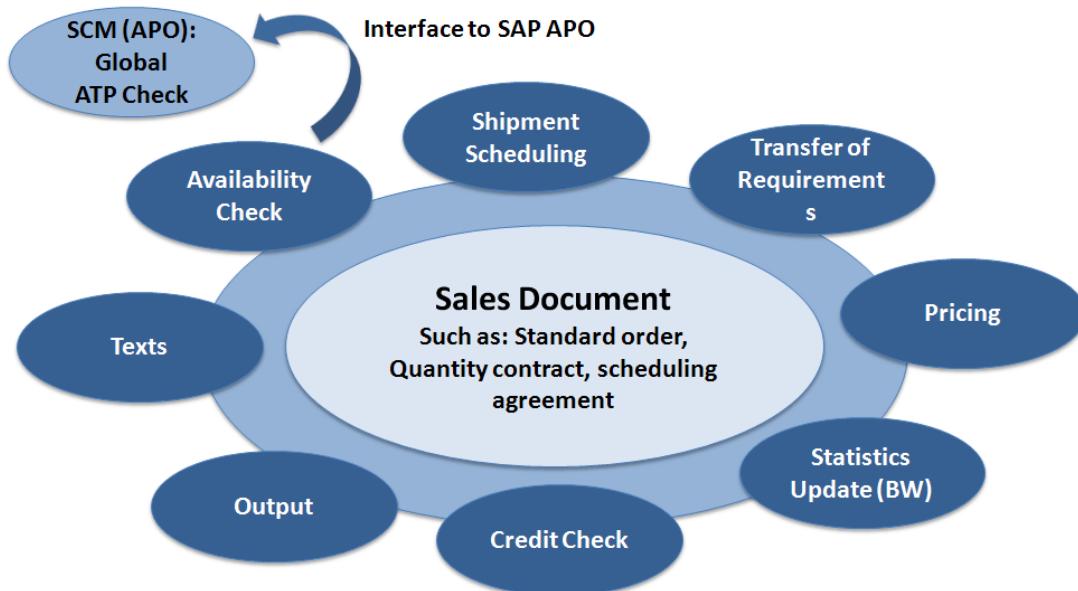


Figure 31: Roles of the Sales Document

#### 3.1.4.2 Sales Document Structure

A sales document consists of three levels: header, item and schedule line. Data is distributed on these levels as follows:

- **Header:** Data in the header of a sales document are applicable to the entire document. This includes, e.g., customer-related data.
- **Items:** Each item of a sales document contains its own data. This includes, for example, material data and order quantities. Each sales document can contain multiple items, while each individual item can be processed differently. Examples are material items, service items, free-of-charge items or text items.
- **Item Schedule lines:** Schedule lines contain delivery quantities and delivery dates. Schedule lines are uniquely assigned to exactly one item. Each item, which in the subsequent process must be delivered by using an outbound delivery, must have at least

one schedule line. An item can have several schedule lines, e.g., when ordered quantities are partially delivered at different dates.

For efficient processing of sales documents, data can be displayed and maintained in different views. Views are grouped into overview, header and item screens. A new sales document is entered on an overview screen.

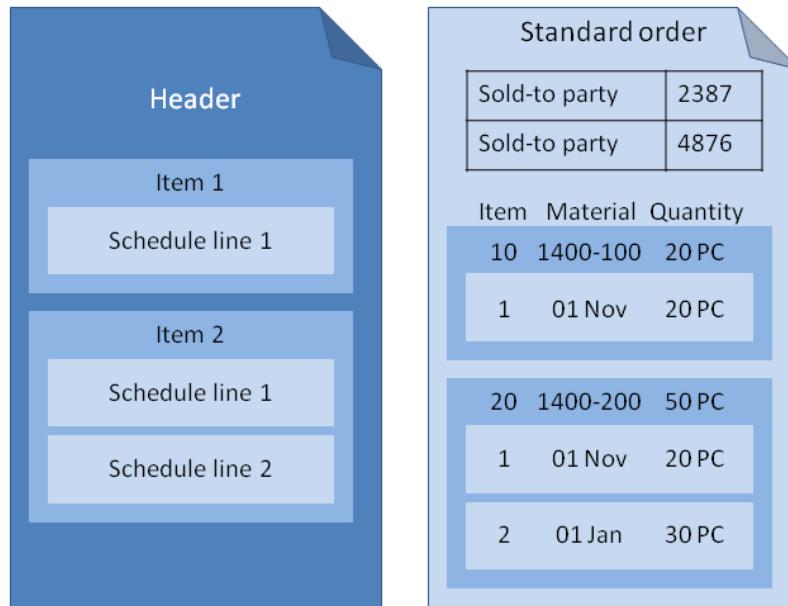


Figure 32: Sales Document Structure

### 3.1.4.3 Delivery Scheduling

During delivery scheduling, all activities that must be carried out before the goods can be delivered to the customer are considered. That is, the system calculates loading, picking, and packing time and determines the material availability deadline and the loading deadline.

Based on the requested date by the customer, the material availability date and the transportation lead-time are determined using **backward scheduling**. If backward scheduling determines a date in the past as the date on which a schedule line becomes due for shipping or if the material will not be available on the date calculated, the system automatically carries out **forward scheduling** to determine the earliest possible shipping deadline.

The goal of shipment and transportation scheduling is to confirm a delivery date for a material requested by a customer. For backwards scheduling, the customer's requested delivery date is used to calculate **the pick/pack time** and the transportation lead time. The delivery must be created on the earliest of the two dates (selection date for outbound delivery).

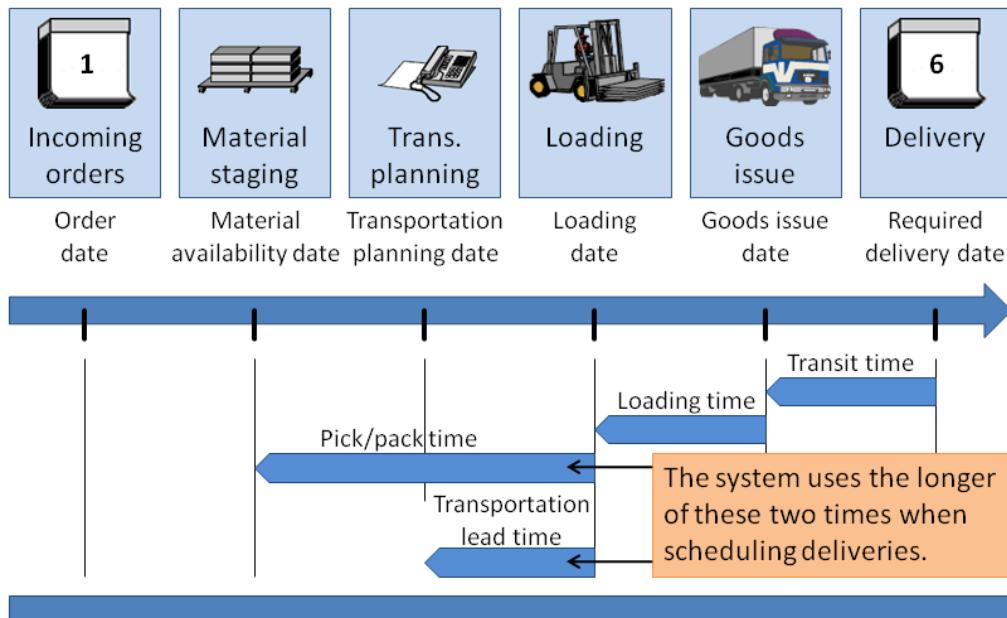


Figure 33: Backward Scheduling

#### 3.1.4.4 Incompletion Log

Each sales document contains data relevant to the document and to further processing. The fields required for further processing a sales document are checked at the time of entering. The system determines the required (mandatory) fields that the user did not fill and displays them in the incompleteness log.

The incompleteness log is displayed automatically when a sales document is saved incompletely. The incompleteness log can be called up manually as well. Therefore, you need to select *edit → incompleteness log* from the menu.

You can determine in customizing, which fields are included in the incompleteness log. The functions for the incompleteness log are available in the sales order and in delivery.

The following figure shows examples of missing data. The incompleteness log is, for example, displayed when payment conditions are missing in a sales order. This is usually due to incomplete customer master data maintenance, since this is where payment conditions are entered.

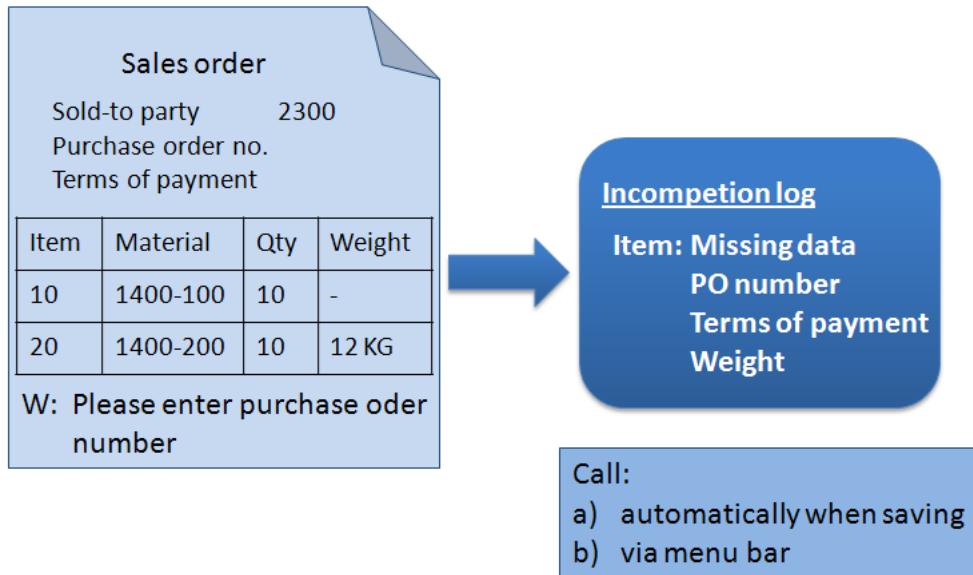


Figure 34: Incompletion Log

### 3.1.5 Procurement and Inventory Sourcing

It is the responsibility of the procurement (SAP MM) and warehouse management (SAP LE) department to ensure that the production (SAP PP) and purchasing departments (SAP MM) are advised of inadequate stock quantities and, thus, ensure that goods can either be produced or ordered on time.

#### 3.1.5.1 Transfer of Requirements

The integration between sales and distribution and procurement is carried out via requirements. The sales department (SAP SD) creates the sales orders and, thus, generates requirements for production and purchasing. The material for this order can originate from in-house production or from external procurement. The information on materials to be ordered or produced are transferred as requirements to material requirements planning. The transfer of requirements informs production that goods must be produced, or advises purchasing that purchase requisitions have been created. Purchase requisitions must be turned into purchase orders by the responsible purchasing department and sent to the suppliers. Transfer of requirements can effect availability checks.

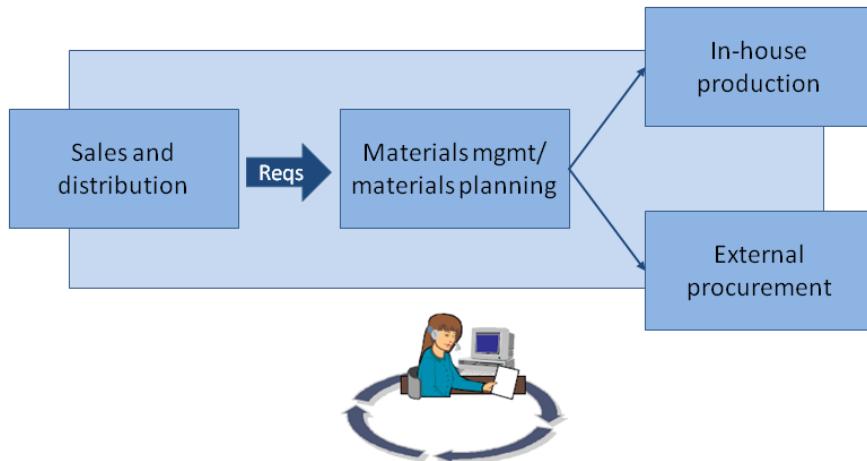


Figure 35: Transfer of Requirements

### 3.1.5.2 Availability Checks in a Sales Order

When you create an order, the system determines the required material availability date on the basis of the customer's requested delivery date. On this date (material availability date), you must begin picking, packing, labeling, and loading the goods so that the product can be delivered to the customer on time. Therefore, this is the date of significance for requirements planning on which the availability should be checked.

In the material master on the sales and distribution tab (**Gen./Plant**), you can set the availability check type for this material in the **availability check** field. Availability checks are carried out during order processing to determine whether a material is available and customer demands can be fulfilled or if the material needs to be procured externally or produced in-house, respectively. For finished products, it is usually individual requirement (02). In customizing, you can access several tables on which availability checks dependent.

Via the availability check screen, you can access available to promise (ATP) quantities, the scope of check for determining available quantities, and the other plants that might have stored the materials.

### The availability check can be based on:

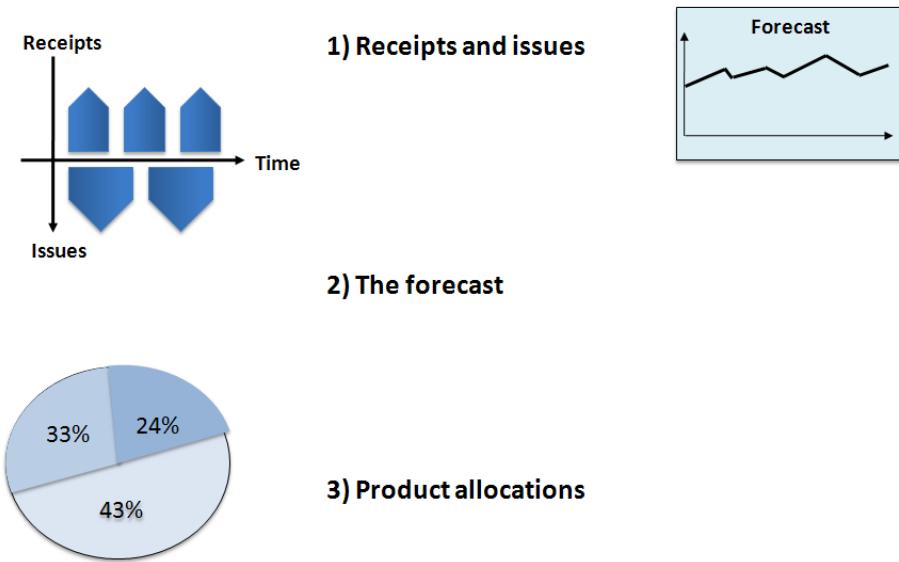


Figure 36: Availability Checks in a Sales Order

### 3.1.6 Shipping

Shipping processes begin with the creation of the **delivery document**. This is the first step of the shipping cycle. The delivery document controls, supports and monitors multiple subprocesses for shipping, some of which are:

- (optional) picking and confirming (transfer requests)
- (optional) packing
- (optional) planning and monitoring of transport (shipment document)
- Goods issue posting (goods issue documents)

When creating a delivery document, information from the sales order such as materials and quantities are transferred to the delivery document.

In turn, data from the delivery document are copied to the transfer order for processing within the storage location. **Transfer orders** are important documents for monitoring goods movements in a storage location. Transfer orders are based on a simple principle: from where in the warehouse are goods transferred to which other location within the warehouse? Each transfer order contains a source location and a destination location.

Posting **goods issues** can lead to both a quantity change and a value change in stock. Changes on quantity basis are recorded on the relevant balance sheet accounts and stock change accounts in financial accounting.

- Shipping processing supports
  - Creating outbound deliveries
  - Picking (by creating transfer orders)
  - Packing
  - Posting the goods issue



Figure 37: Shipping

### 3.1.6.1 Creating an Outbound Delivery

You can create an outbound delivery for orders that are due to delivery in a shipping point. Data that are relevant to delivery are copied by the SAP system from the sales order to the outbound delivery.

Based on a sales order, one or multiple outbound deliveries can be created. It is also possible to combine items from different sales orders to one outbound delivery. To combine several sales orders in one outbound delivery, all orders must contain the same characteristics important to delivers, i.e.:

- shipping point
- due date
- ship-to-address

Deliveries can be created in the SAP system either online or in the background at times of less data transmissions.

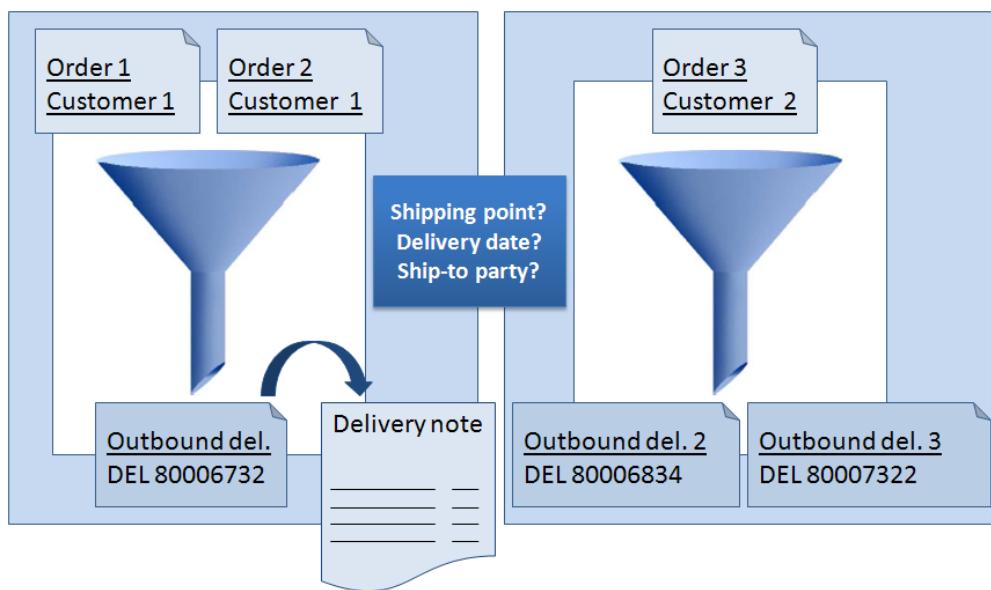


Figure 38: Creating an Outbound Delivery

### 3.1.6.2 Structure of a Delivery Document

A delivery document contains these two levels: header and item. Data are assigned to the levels as follows:

- **Header:** Header data are applicable to the entire document. This includes, for example, the ship-to-party and the schedules for shipping processing.
- **Item:** Each item in the delivery document contains its own data. This includes, for example, material data, quantities, weights and stock information. Each delivery document can contain multiple items that can be controlled differently. Examples are material items, free-of-charge items or text items.

Schedule lines are not included in delivery documents, since schedule lines in the sales document can become an item of a delivery document.

For the efficient processing of delivery document, data can be displayed and maintained in different views. The several views are grouped into overview, header and item screen.

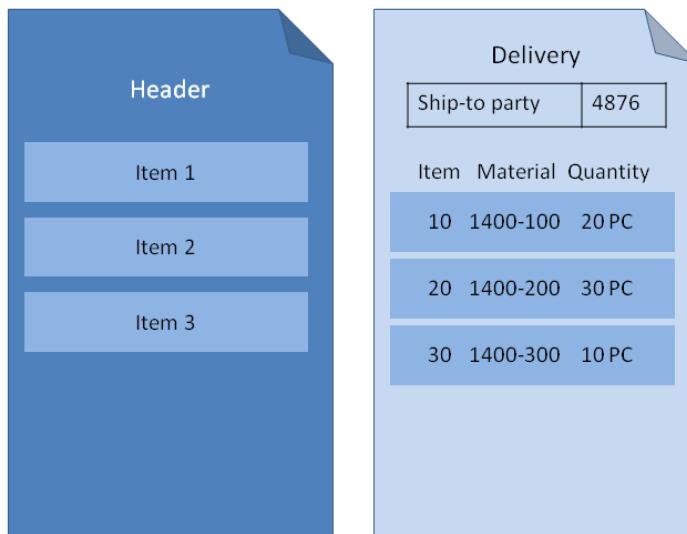


Figure 39: Structure of a Delivery Document

### 3.1.6.3 Roles of Outbound Delivery

The **outbound delivery document** monitors specific activities within the shipping process. The document is used to store and update the individual statuses. The **goods issue** for the outbound delivery can only be posted when all activities, such as picking and, possibly, packing the goods have been completed. Therefore, the outbound delivery does not represent a delivery note that is created.

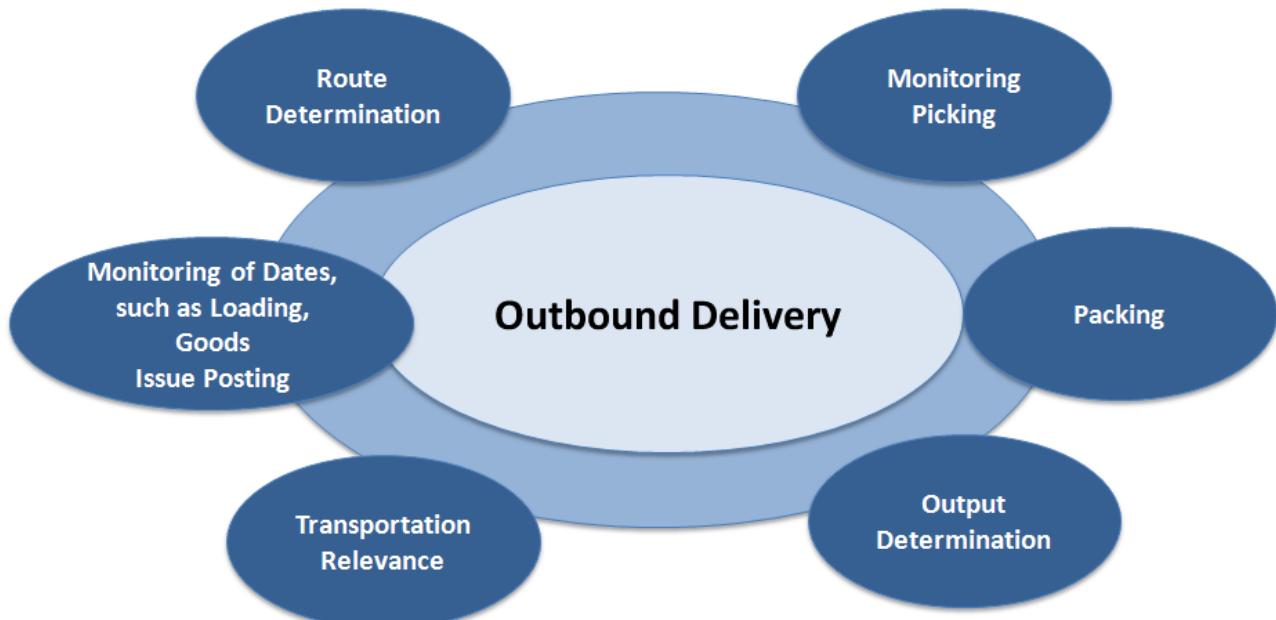


Figure 40: Roles of Outbound Delivery

#### 3.1.6.4 Picking

Using the **Warehouse Management System** (full WM or lean WM) picking of materials that need to be delivered is accomplished through creation of a **transfer order** (TO). A **transfer order** is a document that is used to initiate and monitor movements within a warehouse complex. You create a **transfer order** for an outbound delivery. The creation of transfer orders is carried out with reference to a **warehouse number**. In this process, only those deliveries are taken into account, which need to be **picked**. Data relevant to picking are copied by the system from the delivery document into the transfer order. Depending on storage relationships, one or more transfer orders are created based on the items in an outbound delivery to be picked using WM.

The transfer order is then **printed** either manually or automatically (depends on system settings).

To improve the picking process, you can create **picking lists** containing materials from different outbound deliveries. To facilitate the work for the picker, the list can be sorted according to storage bin and material. As an alternative to printing the transfer order as a picking list, you can display the transfer order data by using the SAP **Radio Frequency Solution** on a mobile data-entry device or transfer the data to a warehouse control unit (WCU).

When you **confirm the transfer order**, you confirm the quantities withdrawn from the warehouse.

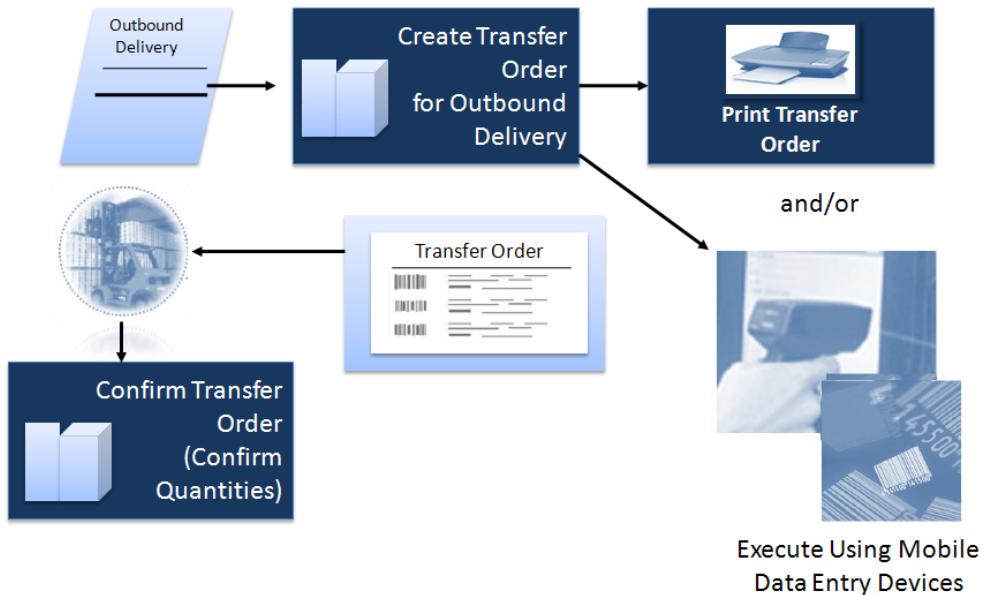


Figure 41: Picking

### Picking in the Shipping Process

Picking is carried out via transfer orders with Lean WM. Customers do not need to use the complete WM for this! Transfer orders can be created individually or by using collective processing (e.g., picking list). Although picking occurs in most cases of outbound deliveries, it is an optional step.

In the SAP ERP system, you can determine that for an item of a delivery picking that is required. Picking is carried out by creating transfer requests leading to warehouse movements and monitoring them. Items of transfer requests contain the materials and quantities to be picked corresponding to the delivery quantities. Delivery quantities and picking quantities are transferred into the outbound delivery at the same time.

The respective picking list can be printed out from the transfer request for use in the warehouse. Picking confirmation can either be automatic or can be carried out in a separate processing step.

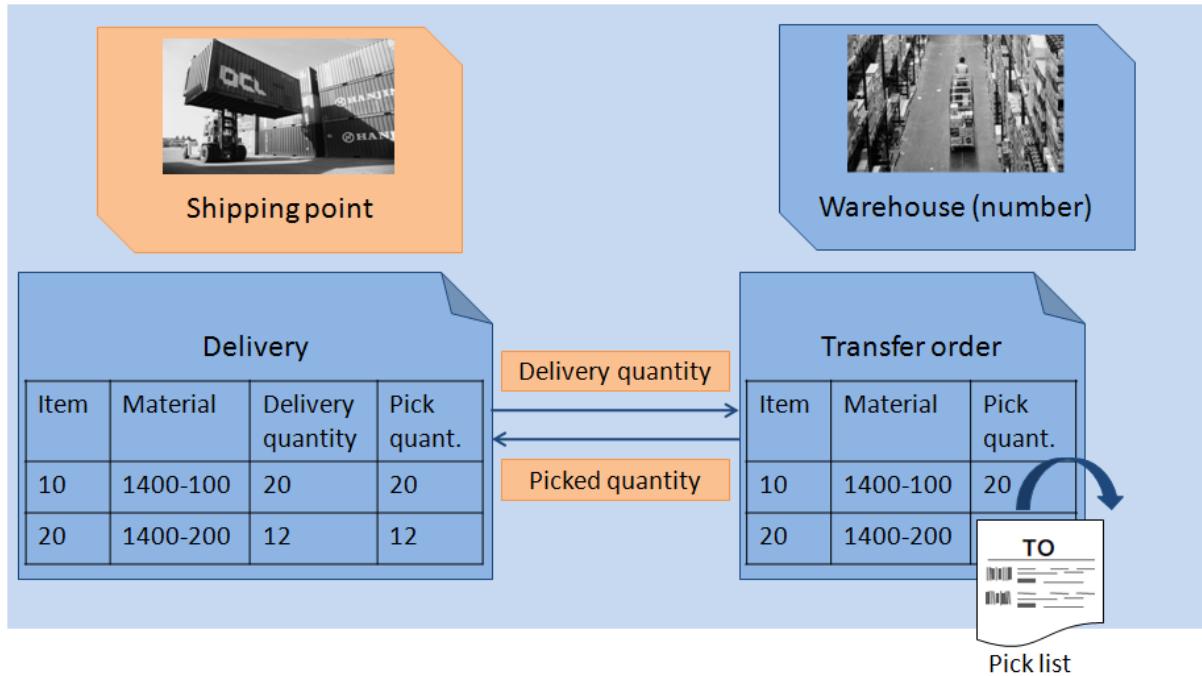


Figure 42: Picking in the Shipping Process

### 3.1.6.5 Packing

During packing, delivery items can be combined and packed in different shipping units. The items to be packed can be selected in the delivery and can then be assigned to shipping units. A shipping unit can also be packed in another shipping unit. For example, the shipping units SU 1 and SU 2 are packed in SU 5.

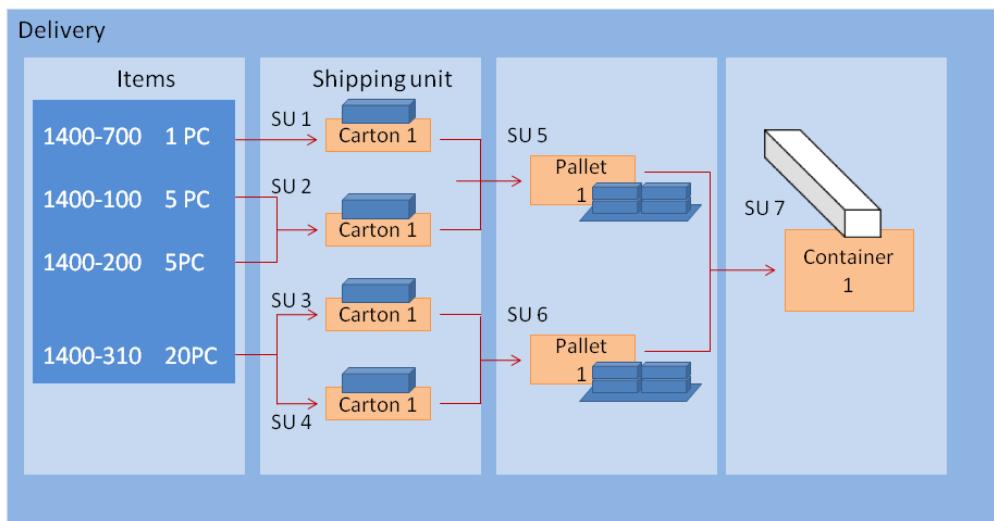


Figure 43: Packing

### 3.1.6.6 Posting a Goods Issue

The delivery process is completed with the posting of the goods issue. When posting a goods issue, the following steps are completed automatically:

- Quantities in inventory management and delivery requirements are updated in Materials requirements planning.
- The value change is posted for inventory accounting to the balance sheet accounts (the postings from the relevant accounting documents are based on the material costs).
- Further accounting documents for, e.g., controlling are created.
- The billing due list is created.
- The status of all relevant sales documents is updated.

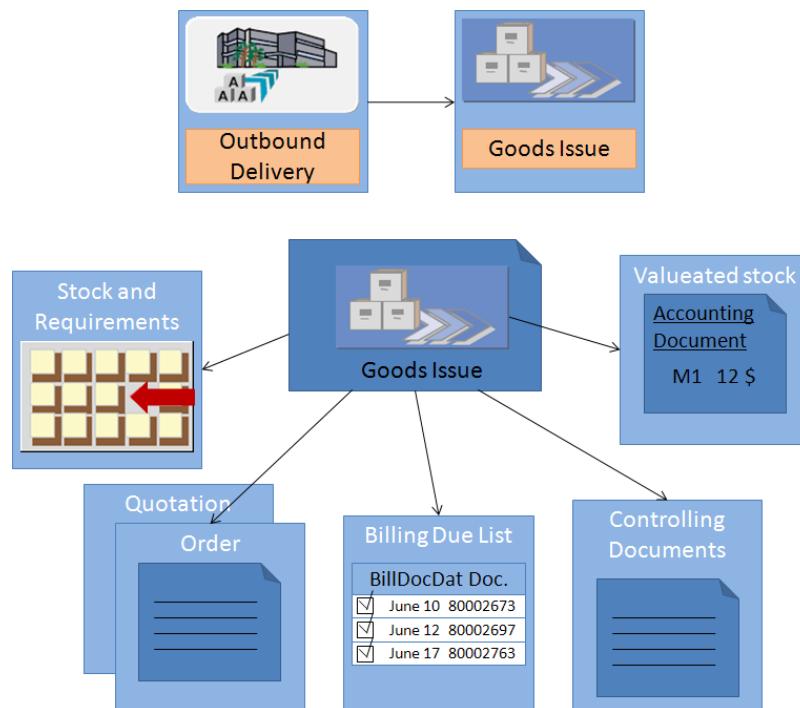


Figure 44: Posting a Goods Issue

### 3.1.7 Billing

After the goods issue posting, the shipping activities are completed and the customer can finally be billed. Once the goods issue is completed, no further activities can be performed in the outbound delivery document.

Billing represents the final processing stage for a business transaction in Sales and Distribution. Information on billing is available at every stage of order processing and delivery processing.

Data from the sales order and the delivery document are copied to a billing document as soon as you create a billing document. Delivery items and order items (e.g., services) can be references for the billing document.

The billing document has several important functions:

- It helps you to generate invoices.
- The billing document is the data source for financial accounting (FI) regarding monitoring and processing of incoming payments.

When creating a billing document, General Ledger (G/L) accounts are usually updated automatically. During this operation, the system completes the following steps. It creates:

- a debit posting to the customer receivables account
- a credit posting to revenue account

• **Billing supports:**

- Creating invoices for goods and services
- Creating credit and debit memos
- Canceling previously posted billing documents
- Automatically transferring billing document data to accounting



Figure 45: Billing

#### 3.1.7.1 Creating a Billing Document

You can create an invoice for a delivery or for an order. Invoices can be grouped according to selection criteria such as customers, billing date or destination country.

As with deliveries and orders, you can combine multiple deliveries in one billing document as well. Prerequisite for this is that several invoice characteristics are shared. This includes:

- payer (customer)
- billing date
- destination country

Invoices can be created in the SAP ERP system either online or in the background in times of less data traffic.

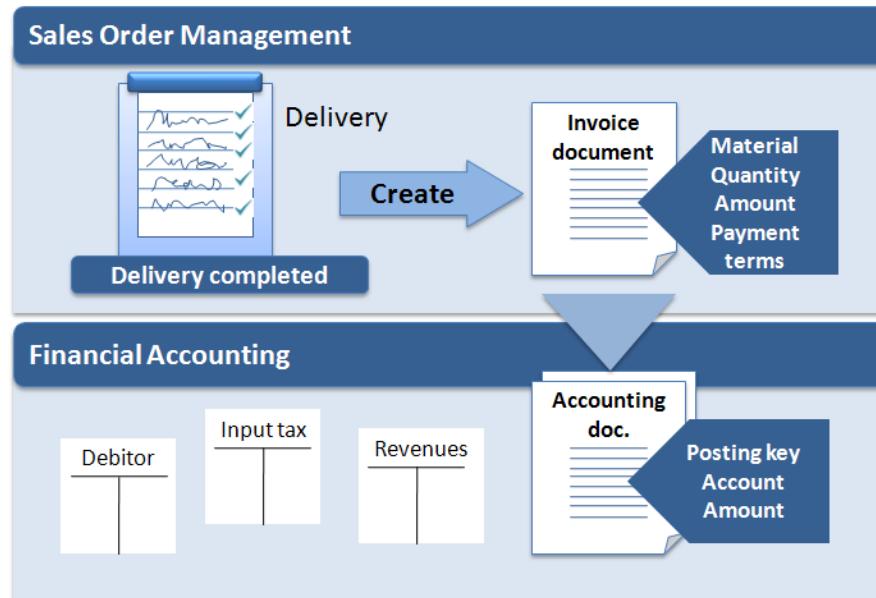


Figure 46: Creating a Billing Document

### 3.1.7.2 Structure of a Billing Document

The billing document consists of two levels: header and items. The data are assigned as follows:

- **Header:** Header data are valid for the entire billing document. This includes, for example, information about the payer and the billing date.
- **Items:** Each item in the billing document contains data. This includes, for example, material details, calculated quantities and net values for items. Each billing document can contain multiple items.

For the efficient processing of billing documents, data are displayed in different views. The views are grouped in overview, header and item screens.

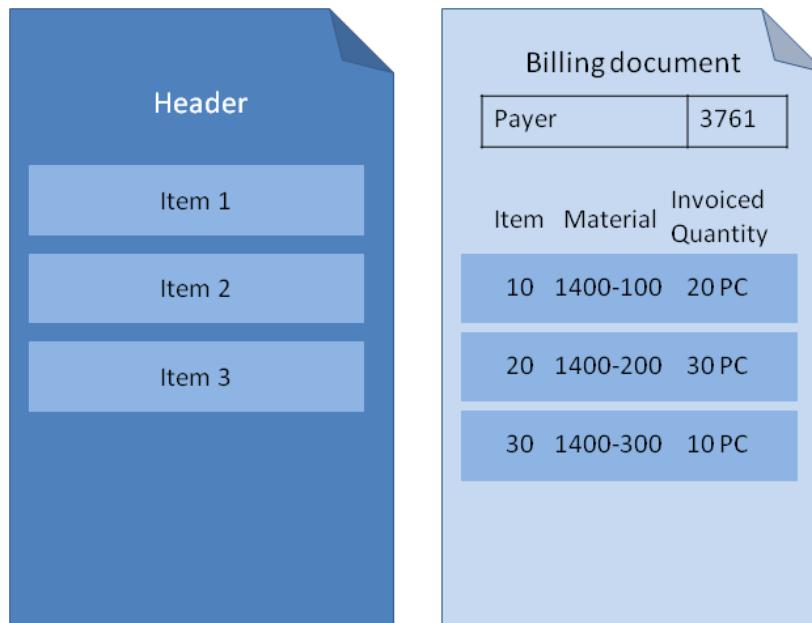


Figure 47: Structure of a Billing Document

### 3.1.7.3 Effects of a Billing Document

When saving a billing document, the system automatically creates all documents required for accounting. The system carries out a debit posting on the customer receivables account as well as a credit posting on the revenue account.

In the accounting document, all completed postings of financial accounting are recorded that refer to pricing in sales and distribution. For example, receivables on the customer account or the obtained net sales and taxes on the respective G/L accounts.

When creating the billing document, the system can create further documents for accounting automatically, e.g., for components controlling (SAP CO), profitability analysis, market segment analysis (CO-PA) or consolidation (FI-LC).

When posting the billing document, the following updates are carried out:

- the status in all related sales, delivery, and billing documents
- statistics in the sales information system
- the customer's credit account

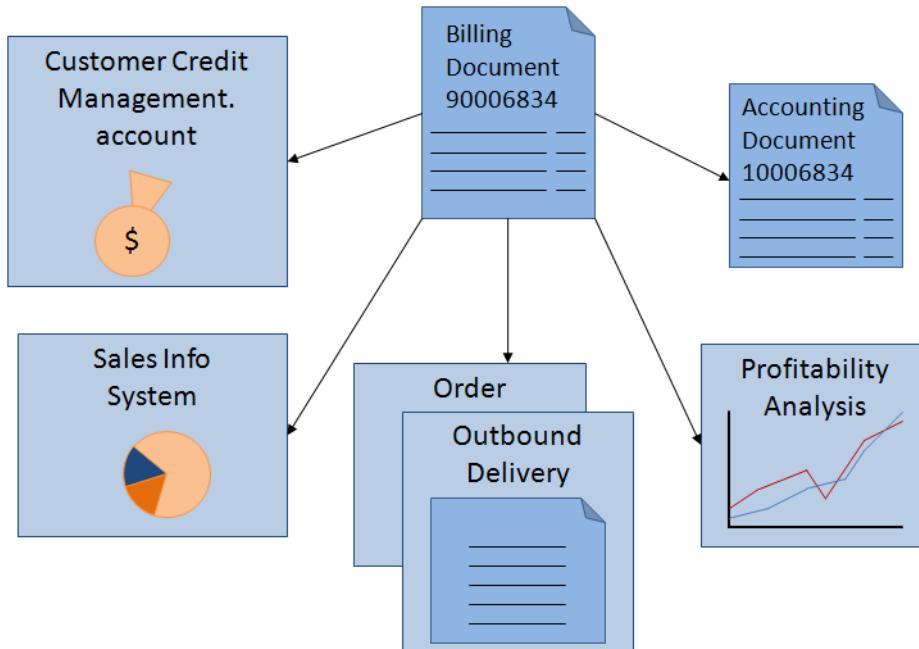


Figure 48: Effects of a Billing Document

### 3.1.8 Payment

Payment is the last step in the order to cash business process. Payment is initiated through the billing document and carried out in SAP FI. This states an integration point between SAP SD and SAP FI.

In case of an incoming payment (from a customer), the amount is posted in the SAP system and the respective G/L account is updated. During this operation, the system completes the following steps, it creates:

- a debit posting to the cash account
  - a credit memo to the customer receivables account
- Payment is a process that is part of the application module Financial Accounting
  - Payment supports:
    - Posting payments against invoices
    - Reviewing differences



Figure 49: Payment

### 3.1.9 Integration of the SAP Sales Process

The SAP sales process is fully integrated. That means that besides the master data, all process data is integrated in the document flow. Furthermore, several other SAP ERP applications are integrated with the SAP SD application.

#### 3.1.9.1 Document Flow in the SAP System

The document flow shows how far the sales document has been processed and creates a business transaction out of consecutive documents in the system.

All documents of a sales process are linked via document flow. The document flow of an ideal sales process contains the sales order, the delivery, the billing and the invoice. Document flow allows for accessing the current status and the history of a sales process at any time.

The document flow can be displayed as a list, containing all linked documents. Depending on which document from this list is called up, all previous and following documents are displayed.

This list allows for displaying the respective documents or status overviews of documents. Thus, you constantly have an overview of the development of the sales process. Consequently, you can answer customer queries timely and reliably.

Document flow is updated on **header** level and on **item** level.

Only sales documents contain **schedule lines**. Since each schedule line contains an own delivery date, each deliverable schedule line equals an item in a delivery document. Thus, schedule lines are not required for delivery and billing documents.

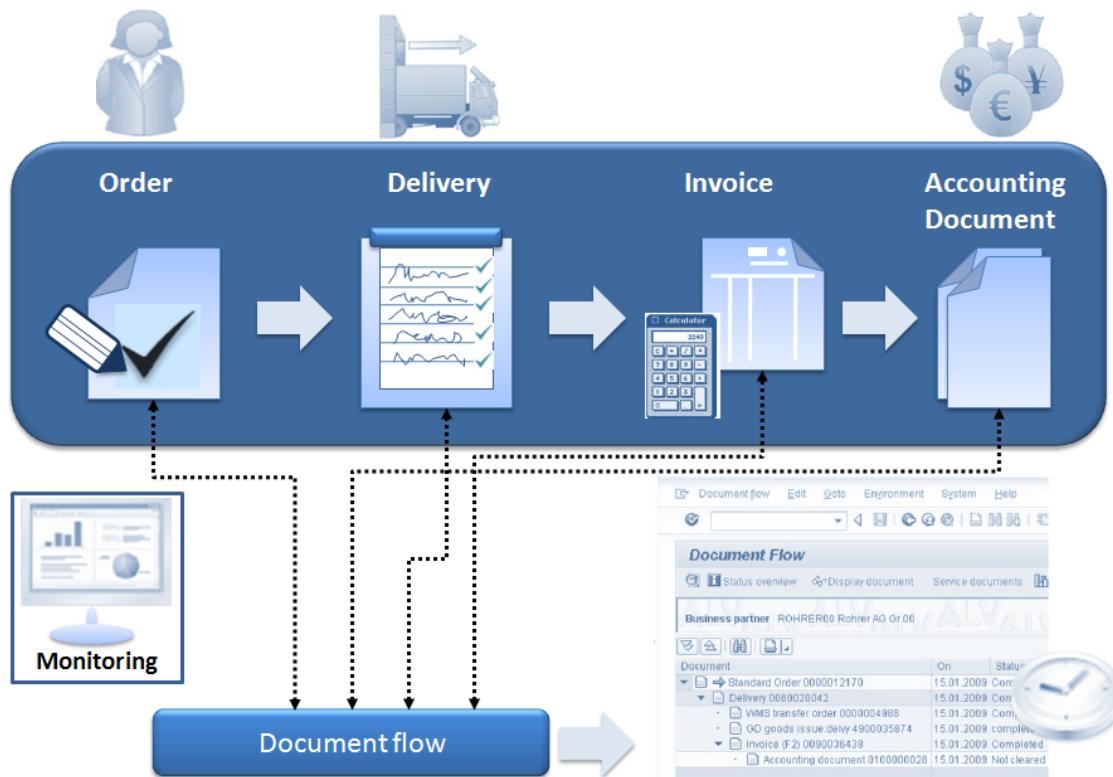


Figure 50: Document Flow in the SAP System

### 3.1.9.2 Sales and Distribution: Integration

The integration with other applications of the SAP ERP system is vital for the sales and distribution module. In the SAP ERP system, sales orders are managed from the first query until the receipt of incoming payments in the customer order management cycle.

This customer order management cycle begins with entering the sales order. A sales order contains customer and product information as well as delivery schedules. The employee in charge of order entry in SAP SD uses this information to inform customers about prices and delivery dates prior to order confirmation.

To determine the planned delivery dates, the SAP SD department carries out availability checks. Therefore, SAP SD is integrated with **materials management**.

To produce a product according to customer requirements, SAP SD is integrated with **production planning** for make-to-order purposes.

Delivery and billing are both integrated with **project systems**.

After sales order entry, sales orders are scheduled and organized in a company to ensure optimal delivery. The product is packed in the warehouse management application (variances from the ordered quantity are recorded here). Based on that, delivery documents are created. When the delivery is released (truck leaves the dock), inventory quantities must be reduced and the general ledger needs to be updated. For this purpose, the SAP SD application is integrated with **materials management**, **financial accounting** and possibly **controlling**.

After the product is delivered, an invoice needs to be created and a corresponding posting to the general ledger needs to be carried out. In **financial accounting**, customers' open items are checked periodically and incoming payments are posted when received.

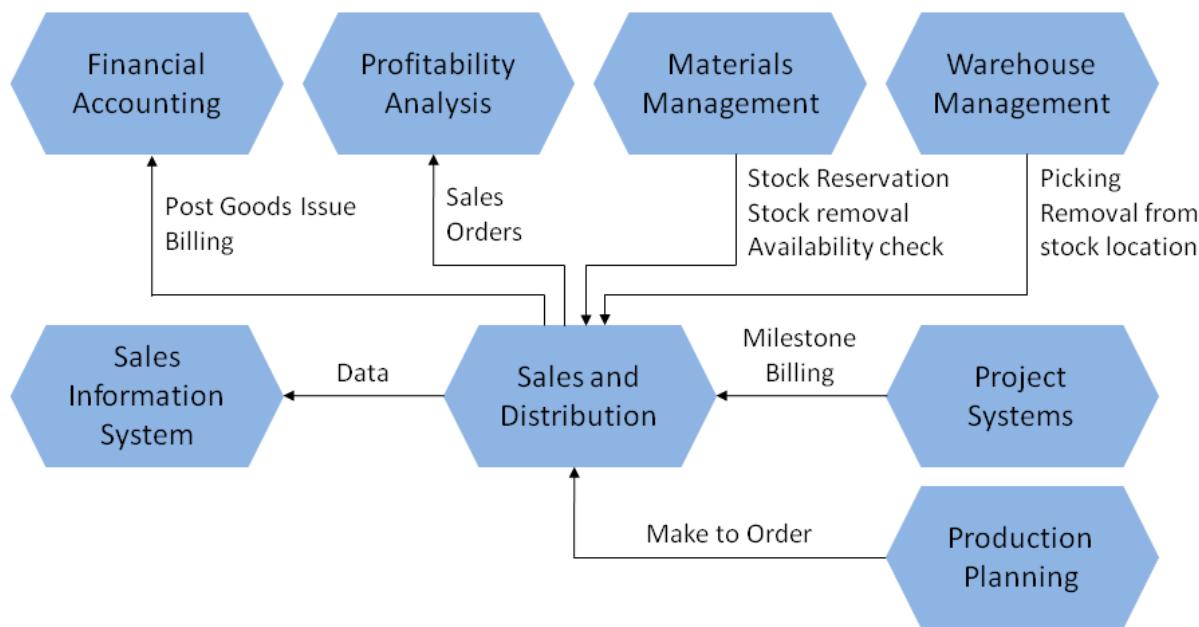


Figure 51: Sales and Distribution: Integration

## 3.2 Practice: Accomplish Sales Order Process



Your new customer requests 500 Speedstarletts. Complete the entire order to cash process. Start with creating the sales order.



Figure 52: Process Overview: Sales Order Management

### 3.2.1 Create a Sales Order

To enter a sales order for your customer, call up the following transaction:

**Logistics → Sales and Distribution → Sales → Order → Create (VA01)**

1. Enter **order type standard order (OR)**.
2. **Clear all other fields (Sales Organization, Distribution Channel, and Division)!**
3. Confirm with *Enter*.
4. On the Create Standard Order: Overview page enter **Sold-to-party** is the newly created **customer (5xxyy)**. Enter the **PO number** starting **xxyy-Order**. List this number.

**PO number:** \_\_\_\_\_

Press *Enter*.

5. A new window pops up. You are prompted to select a Sales area, since the reference to a Sales area is mandatory in a sales document. Select Sales area 1000/10/00.

- You have created the customer master data for two Sales Areas
- EVERY Sales document is created with reference to a Sales Area
- You have not specified the Sales Area for this Sales Order yet (you canceled the specific fields in the initial screen of VA01)
- Thus, the system proposes all Sales Areas to choose from

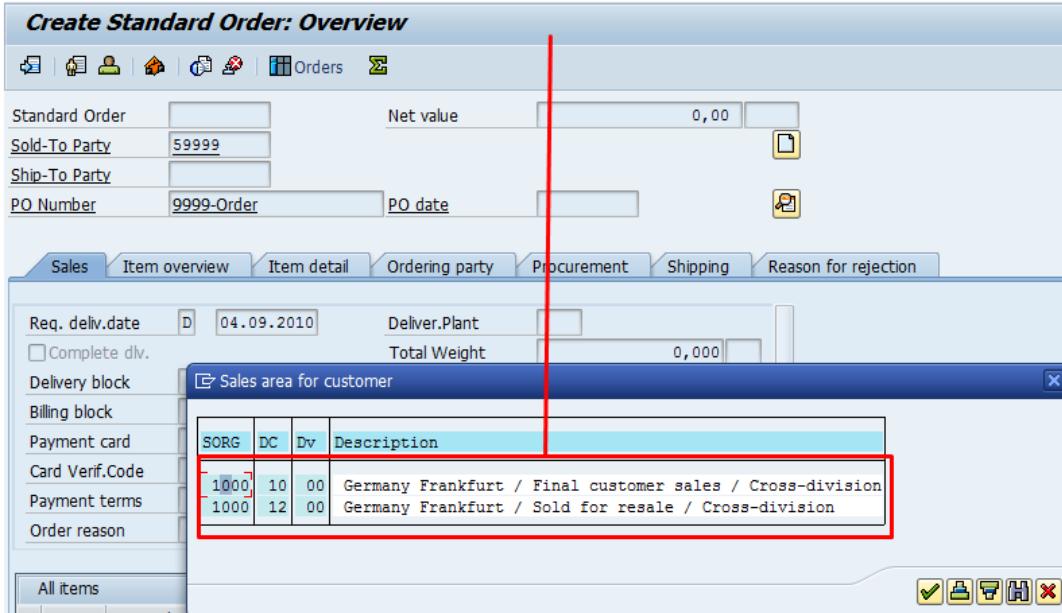


Figure 53: Create Sales Order - Select Sales Area: SAP-System-Screenshot

6. Now enter the following data:

- Req. deliv.date      **today's date + 2 month**
- Material              **Speedstarlett-xxyy**
- Order quantity      **500 pieces**
- Confirm with **Enter** and skip the following notifications with **Enter**.

The system fills in several additional data. The following figure illustrates the interactions between customer master, material master, and sales conditions using a fictive example.

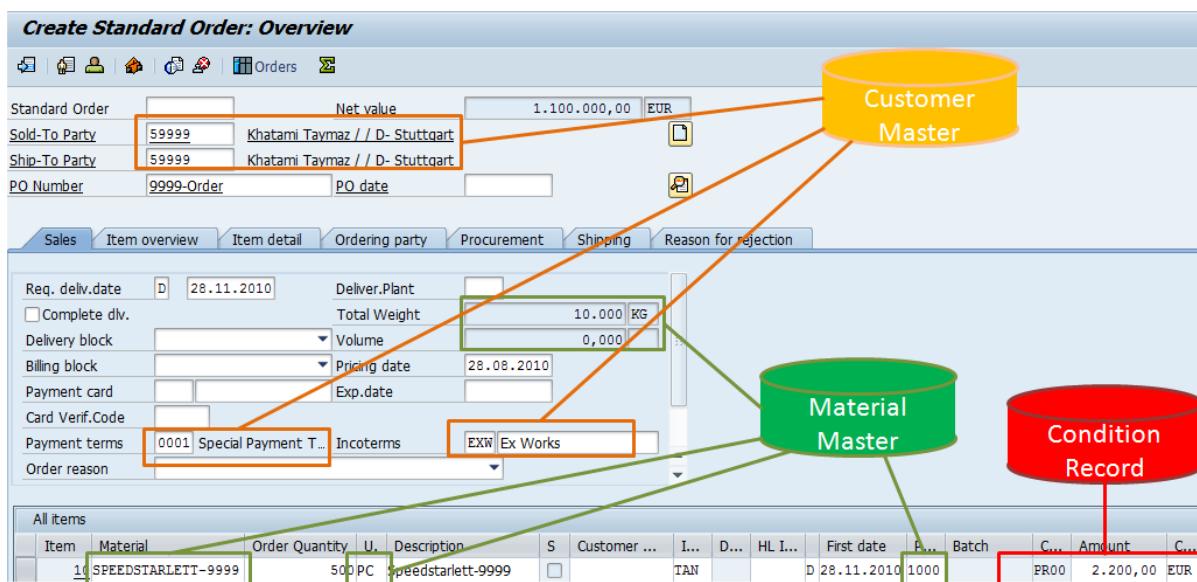
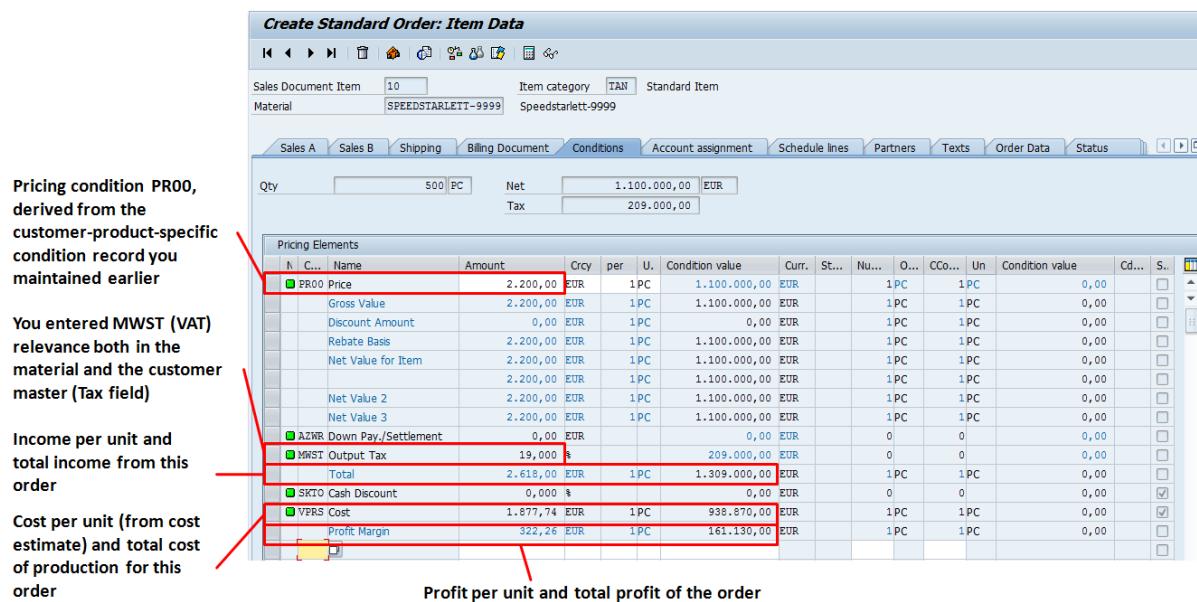


Figure 54: Master Data Interaction: SAP-System-Screenshot

7. Select the entered row (**position 10**) and choose the  symbol.
8. You can see details for pricing. The system should display the price you created in the first row (**2200 EUR per unit**). Choose the  button to go back to the overview screen.

### For comparison:

The following figure shows item data of the sales order, created by the participant with US-ER-number 9999.



N	C...	Name	Amount	Ccy	per	U.	Condition value	Curr.	St...	Nu...	O...	CCo...	Un	Condition value	Cd...	S...
		PR00 Price	2.200,00	EUR	1	PC	1.100.000,00	EUR		1	PC	1	PC	0,00		
		Gross Value	2.200,00	EUR	1	PC	1.100.000,00	EUR		1	PC	1	PC	0,00		
		Discount Amount	0,00	EUR	1	PC	0,00	EUR		1	PC	1	PC	0,00		
		Rebate Basis	2.200,00	EUR	1	PC	1.100.000,00	EUR		1	PC	1	PC	0,00		
		Net Value for Item	2.200,00	EUR	1	PC	1.100.000,00	EUR		1	PC	1	PC	0,00		
			2.200,00	EUR	1	PC	1.100.000,00	EUR		1	PC	1	PC	0,00		
		Net Value 2	2.200,00	EUR	1	PC	1.100.000,00	EUR		1	PC	1	PC	0,00		
		Net Value 3	2.200,00	EUR	1	PC	1.100.000,00	EUR		1	PC	1	PC	0,00		
		AZNR Down Pay./Settlement	0,00	EUR			0,00	EUR		0		0		0,00		
		MWST Output Tax	19,000	%			209.000,00	EUR		0		0		0,00		
		Total	2.618,00	EUR	1	PC	1.309.000,00	EUR		1	PC	1	PC	0,00		
		SKTO Cash Discount	0,000	%			0,00	EUR		0		0		0,00	<input checked="" type="checkbox"/>	
		VERS Cost	1.877,74	EUR	1	PC	938.870,00	EUR		1	PC	1	PC	0,00	<input checked="" type="checkbox"/>	
		Profit Margin	322,26	EUR	1	PC	161.130,00	EUR		1	PC	1	PC	0,00	<input type="checkbox"/>	

Figure 0-1: Create sales order: item data screen 1: SAP-System-Screenshot

9. Save the sales order and list the sales order number on your data sheet.

Sales order number: \_\_\_\_\_

### 3.2.2 MRP for the Speedstarlett

After entering the sales order, you want to start production. Check which materials are required for the production of the Speedstarlett to carry out required orders.

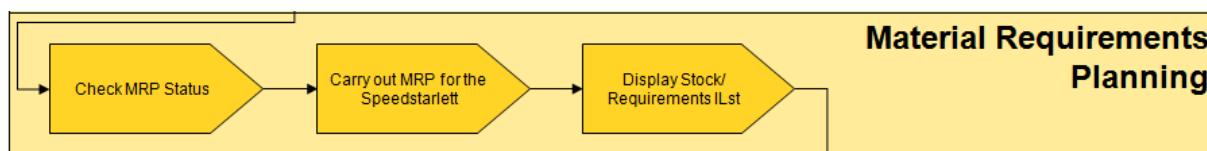


Figure 55: Process Overview: MRP

### 3.2.2.1 Check MRP Status

Briefly check the MRP status. You are already familiar with MRP in SAP ERP from the **material planning** case study. At this point, you will only check which materials are in stock and whether there are material shortfalls or not. To check the MRP status, call up the following transaction:

**Logistics → Materials Management → Inventory Management → Environment → Stock → Stock/Requirements List (MD04)**

1. Enter your material **Speedstarlett (Speedstarlett-xxyy)** and plant **Hamburg (1000)**. Confirm with **Enter**.
2. You are already familiar with this screen from the **material planning unit**. You can see the individual planned orders (PlOrd.) created by the MRP run. You can also see the new sales order of 500 units.

Stock/Requirements List as of 20:10 hrs									
<input type="checkbox"/> Show Overview Tree									
Material	SPEEDSTARLETT-9999		Speedstarlett-9999						
MRP area	1000	Hamburg	Plant	1000	MRP type	PI	Material Type	FERT	Unit
	A	Date	MR...	MRP element data	Resched...	E	Receipt/Reqmt	Available Qty	S...
		28.08.2010	Stock					914	914 0001
		01.10.2010	PlOrd.	0000036819/Stck			914-	500	
		01.10.2010	IndReq	VSF			414-		
<b>Order from this teaching unit</b>		26.10.2010	Order	0000013325/000010/0...			500-	0	
<b>Order from teaching unit 2</b>		02.11.2010	PlOrd.	0000036820/Stck			471	471 0001	
		02.11.2010	IndReq	VSF			471-	0	
		10.11.2010	PlOrd.	0000036843/Stck			100	100 0001	
		10.11.2010	Order	0000013324/000020/0...			100-	0	
		01.12.2010	PlOrd.	0000036821/Stck			366	366 0001	

Figure 56: Sales Order in Stock/Requirements List: SAP-System-Screenshot

3. Also check the quantities in stock for the **Basis-module2-xxyy**. The following figure shows the dependent requirements regarding **Basis-module2** merely for the old sales order and old planned orders. You **cannot** find the dependent requirement of 500 units for Basis-module2 in this figure.

There is no Dependent Requirement for the current sales order; Only dependent requirements from the planning

Stock/Requirements List as of 20:16 hrs									
Show Overview Tree									
Material		BASIS-MODULE2-9999		Basis-Module2-9999					
MRP area		1000 Hamburg		Plant		MRP type		HALB Unit	
A Date		MR...		MRP element data		Resched...		E Receipt/Reqmt	
28.08.2010 Stock		914		914		914		914	
24.09.2010 PIOrd.		0000036825/Stck		914		914		914	
24.09.2010 DepReq		SPEEDSTARLETT-9999		014		014		0001	
25.10.2010 PIOrd.		0000036826/Stck		471		471		471	
25.10.2010 DepReq		SPEEDSTARLETT-9999		471-		471-		0001	
03.11.2010 PIOrd.		0000036844/Stck		100		100		100	
03.11.2010 DepReq		SPEEDSTARLETT-9999		100-		100-		0001	
24.11.2010 PIOrd.		0000036827/Stck		366		366		366	

Figure 57: No Dependent Requirement (1): SAP-System-Screenshot

4. Also check the components **gearing-xxxx**, **wheel-xxxx**, **chain-xxxx**, **alu-frame-xxxx**. You can see the planned orders that cover the dependent requirements (DepReq). For the components (except for ALU-Frame), you can see that materials are already in stock. They were already ordered in the **manufacturing execution** case study. The other materials (breaks, pedals, handlebar, and saddle) are in stock in large quantities. You can also see that **no** planned orders and **no** reservations were carried out **by the new sales order (with reference to the new sales order)**. Therefore, you need to carry out MRP once again to update the stock/requirements list.

However, except of the ALU-FRAME, which you did not purchase in case study 4, all other components should be on stock in sufficient quantity.									
Material GEARING-9999 Gearing-9999									
MRP area 1000 Hamburg									
Plant 1000 MRP type  Material Type HALB Unit  PC									
A Date MR... MRP element data Resched... E Receipt/Reqmt Available Qty S...									
28.08.2010 Stock 914									
21.09.2010 DepReq BASIS-MODULE2-9999 914-									
20.10.2010 PIOrd. 0000036804/ExtP 1.228									
20.10.2010 DepReq BASIS-MODULE2-9999 757-									
20.10.2010 PIOrd. 0000036841/ExtP 200									
28.10.2010 DepReq BASIS-MODULE2-9999 100-									
28.10.2010 PIOrd. 0000036805/ExtP 916									
Material WHEEL-9999 Wheel-9999									
MRP area 1000 Hamburg									
Plant 1000 MRP type  Material Type ROH Unit  PC									
A Date MR... MRP element data Resched... E Receipt/Reqmt Available Qty S...									
28.08.2010 Stock 1.828									
21.09.2010 PIOrd. 0000036810/ExtP 2.456									
20.10.2010 DepReq BASIS-MODULE2-9999 942									
20.10.2010 PIOrd. 0000036812/ExtP 400									
28.10.2010 DepReq BASIS-MODULE2-9999 200									
28.10.2010 PIOrd. 0000036811/ExtP 1.100									
19.11.2010 PIOrd. 0000036811/ExtP 732									
19.11.2010 DepReq BASIS-MODULE2-9999 3.188									
22.12.2010 PIOrd. 0000036812/ExtP 1.912									
Material CHAIN-9999 Chain-9999									
MRP area 1000 Hamburg									
Plant 1000 MRP type  Material Type ROH Unit  PC									
A Date MR... MRP element data Resched... E Receipt/Reqmt Available Qty S...									
28.08.2010 Stock 914									
21.09.2010 PIOrd. 0000036804/ExtP 1.228									
20.10.2010 DepReq BASIS-MODULE2-9999 757									
20.10.2010 PIOrd. 0000036840/ExtP 200									
28.10.2010 DepReq BASIS-MODULE2-9999 100									
28.10.2010 PIOrd. 0000036840/ExtP 100									
28.10.2010 DepReq BASIS-MODULE2-9999 916									
Material ALU-FRAME-9999 Alu-Frame-9999									
MRP area 1000 Hamburg									
Plant 1000 MRP type  Material Type ROH Unit  PC									
A Date MR... MRP element data Resched... E Receipt/Reqmt Available Qty S...									
28.08.2010 Stock 0									
21.09.2010 PIOrd. 0000036831/ExtP 914									
21.09.2010 DepReq BASIS-MODULE2-9999 914-									
20.10.2010 PIOrd. 0000036832/ExtP 471									
20.10.2010 PIOrd. 0000036831/ExtP 471-									
28.10.2010 DepReq BASIS-MODULE2-9999 100									
28.10.2010 PIOrd. 0000036840/ExtP 100									
28.10.2010 DepReq BASIS-MODULE2-9999 366									
19.11.2010 PIOrd. 0000036833/ExtP 366-									
22.12.2010 PIOrd. 0000036834/ExtP 638									

There is neither any Dependent Requirement originating from the current sales order for the components;  
Only dependent requirements from the planning

Figure 58: No Dependent Requirement (2): SAP-System-Screenshot

### 3.2.2.2 Carry out MRP for the Speedstarlett

Carry out MRP for the entire BOM of the product *Speedstarlett-xxyy* in plant **1000**. Choose

***Logistics → Production → MRP → Planning → Single-Item, Multi-Level (MD02)***

Use the following data:

1. Processing key	<b>NETCH</b>
2. Create pur.req.	<b>3 (!)</b>
3. Schedule lines	<b>3</b>
4. Create MRP list	<b>1</b>
5. Planning mode	<b>3 (!)</b>
6. Scheduling	<b>1</b>
7. Plan unchanged components	<i>do not select</i>
8. Display results before saving	<i>do not select</i>
9. Display matl. list	<i>do not select</i>
10. Simulation mode	<i>do not select</i>

Choose **Enter** and skip the message by pressing **Enter** once again.

### 3.2.2.3 Display Stock/Requirements List

Display the stock/requirements list for the Speedstarlett-xxyy in plant 1000 once again.

***Logistics → Materials Management → Inventory Management → Environment → Stock → Stock/Requirements List (MD04)***

Now you can see that the sales order created a new planned order and that the planned order for the planned independent requirements was reduced exactly by the quantity of the sales order requirements. In this scenario, the planned order with the amount of 914 was reduced to 414 and a new planned order with 500 was created.

*Thus, it is ensured that planned independent requirements, which are used to forecast sales orders, are set off against these sales orders when they actually occur.*

Stock/Requirements List as of 21:58 hrs								Also note that the Sales Order consumes the existing Independent Requirements and Planned Orders.			
Material	SPEEDSTARLETT-9999	MRP area	1000	Plant	1000	MRP type	PD	Material Type	FERT	Unit	PC
A	Date	MR...	MRP element data	Resched...	E	Receipt/Reqmt	Available Qty	St...			
	28.08.2010	Stock					0				
	01.10.2010	PIOrd.	0000036919/Stck			414	414	0001			
	01.10.2010	IndReq	VSF			414-	0				
	26.10.2010	PIOrd.	0000036920/Stck			500	500	0001			
	26.10.2010	Order	0000013325/000010/0...			500-	0				
	02.11.2010	PIOrd.	0000036921/Stck			471	471	0001			
	02.11.2010	IndReq	VSF			471-	0				
	10.11.2010	PIOrd.	0000036922/Stck			100	100	0001			
	10.11.2010	Order	0000013324/000020/0...			100-	0				

Figure 59: Planned Orders in Stock/Requirements List: SAP-System-Screenshot

Next, create the two production orders (**Basis-module 2** and **Speedstarlett**).

### 3.2.3 Producing the Speedstarletts

In the last steps, you noticed that you do not have sufficient finished products in stock to cover the planned independent requirements. Consequently, you must produce the required number of racing bicycles. **Therefore, create a production order.**

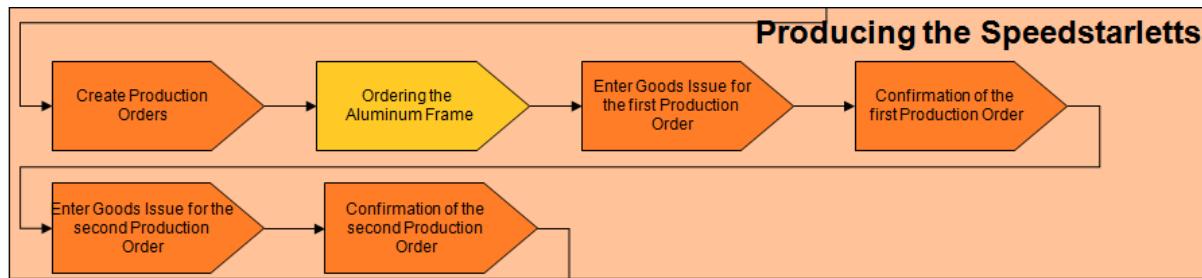


Figure 60: Process Overview: Manufacturing Execution

The planned order already contains all necessary information, e.g., the materials to be produced, the BOM, the routing and important dates. Now you need to transform the planned order into a production order.

#### 3.2.3.1 Create Production Orders

Start with the Basis-module 2 and choose the following transaction:

**Logistics → Materials Management → Inventory Management → Environment → Stock → Stock/Requirements List (MD04)**

1. Select material **Basis-module2-xxyy** and plant **Hamburg (1000)**. Choose **Enter**.
2. Double-click the row containing the planned order (**PIOrd**) with **500** units.
3. The screen **Additional data for MRP** is displayed. Click the **→ Prod.ord** button (**convert planned order in production order**).

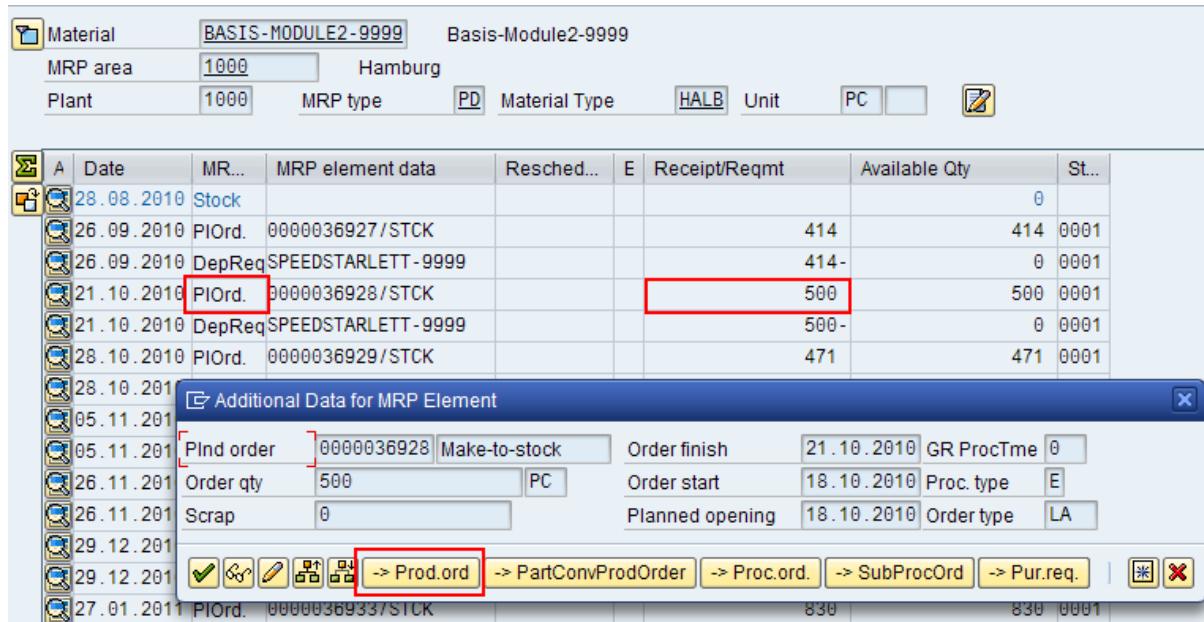


Figure 61: MRP Basis-Module2: SAP-System-Screenshot

4. The system transfers the data from the planned order to create a new production order. Check the availability of the required items by clicking the symbol (**material**).
5. Click the **missing parts overview** button. You can see that only the stock of aluminum frames is not sufficient. Select the button to return to the **create production order: header** screen.

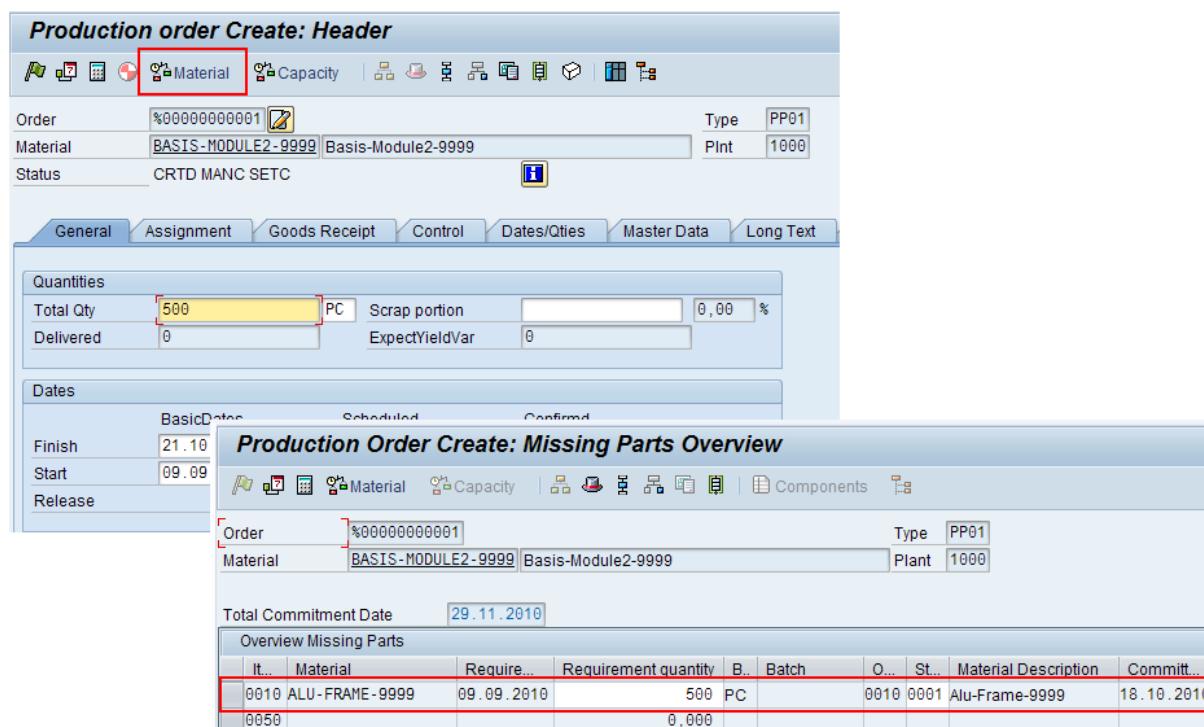


Figure 62: Missing Part Overview for Basis-Module2: SAP-System-Screenshot

6. Release the order (the **status** of the order is currently **CRTD** - created), by clicking the  symbol. The system confirms the order release in the status bar. The status of the order changes to **REL** (released).
  7. Save the production order and list its number:

**Production order 1 (Basis-Module2):** \_\_\_\_\_

8. Go back to the **Stock/requirements List** screen. Update the list by clicking the  symbol. Instead of the planned order, the system should display the production order (**PrdOrd.**).

Material	BASIS-MODULE2-9999		Basis-Module2-9999						
MRP area	1000	Hamburg							
Plant	1000	MRP type	PD	Material Type	HALB	Unit	PC		
S	A	Date	MR...	MRP element data	Resched...	E	Receipt/Reqmt	Available Qty	St...
		28.08.2010	Stock						0
		26.09.2010	PIOOrd.	0000036927/Stck			414		414 0001
		26.09.2010	DepReq	SPEEDSTARLETT-9999			414-		0 0001
		21.10.2010	PrdOrd	000060003507/PP01/Re			500		500 0001
		21.10.2010	DepReq	SPEEDSTARLETT-9999			500-		0 0001
		28.10.2010	PIOOrd.	0000036929/Stck			471		471 0001
		28.10.2010	DepReq	SPEEDSTARLETT-9999			471-		0 0001
		05.11.2010	PIOOrd.	0000036930/Stck			100		100 0001
		05.11.2010	DepReq	SPEEDSTARLETT-9999			100-		0 0001

**Figure 63: Production Order for Basis-Module2: SAP-System-Screenshot**

Next, create the second production order. Again, this refers back to the first planned order created for the Speedstarlett. Choose again the following transaction:

**Logistics → Materials Management → Inventory Management → Environment → Stock → Stock/Requirements List (MD04)**

1. Select **material Speedstarlett-xxyy** and **plant Hamburg (1000)**. Choose **Enter**.
  2. Double-click the row containing the planned order (**PlOrd**) for your new sales order.
  3. The screen **additional data for MRP** is displayed. Click the **→ Prod.ord** button (**convert planned order in production order**). Skip a possible message regarding the document Speedstarlett-xxyy with “**Yes**”.

Material	SPEEDSTARLETT-9999	Speedstarlett-9999							
MRP area	1000	Hamburg							
Plant	1000	MRP type	PD	Material Type	FERT	Unit	PC		
	A Date MR... MRP element data Resched... E Receipt/Reqmt Available Qty St...								
	28.08.2010 Stock							0	
	01.10.2010 PIOrd. 0000036919/STCK					414	414	0001	
	01.10.2010 IndReq VSF					414-	0		
	26.10.2010 PIOrd. 0000036920/STCK					500	500	0001	
	26.10.2010 Order 0000013325/000010/0...					500-	0		
	02.11.2010 PIOrd.								
	02.11.2010 IndReq								
	10.11.2010 PIOrd. Plnd order 0000036920 Make-to-stock					Order finish 26.10.2010 GR ProcTime 0			
	10.11.2010 Order Order qty 500 PC					Order start 21.10.2010 Proc. type E			
	01.12.2010 PIOrd. Scrap 0					Planned opening 21.10.2010 Order type LA			
	01.12.2010 IndReq								
	03.01.2011 PIOrd.								
	03.01.2011 IndReq VSF								

Additional Data for MRP Element  
 Plnd order 0000036920 Make-to-stock Order finish 26.10.2010 GR ProcTime 0  
 Order qty 500 PC Order start 21.10.2010 Proc. type E  
 Scrap 0 Planned opening 21.10.2010 Order type LA

Figure 64: Planned Order for the Speedstarlett: SAP-System-Screenshot

4. The system transfers the data from the planned order and creates a new production order. You can see that the status of this order is CRTD, that the quantity was transferred from the planned order and that a finish date is stated.
6. Release the order by clicking the symbol.
7. Save the production order and list its number:

**Production order 2 (Speedstarlett): \_\_\_\_\_**

8. Go back to the **Stock/Requirements list** screen. Update the list by clicking the symbol. Instead of the planned order, the system should display the production order (**PrdOrd.**).

Material	SPEEDSTARLETT-9999	Speedstarlett-9999							
MRP area	1000	Hamburg							
Plant	1000	MRP type	PD	Material Type	FERT	Unit	PC		
	A Date MR... MRP element data Resched... E Receipt/Reqmt Available Qty St...								
	28.08.2010 Stock						0		
	01.10.2010 PIOrd. 0000036919/Stck					414	414	0001	
	01.10.2010 IndReq VSF					414-	0		
	26.10.2010 PrdOrd 000060003508/PP01/Re					500	500	0001	
	26.10.2010 Order 0000013325/000010/000					500-	0		
	02.11.2010 PIOrd. 0000036921/Stck					471	471	0001	
	02.11.2010 IndReq VSF					471-	0		
	10.11.2010 PIOrd. 0000036922/Stck					100	100	0001	
	10.11.2010 Order 0000013324/000020/0...					100-	0		

Figure 65: Production Order for the Speedstarlett: SAP-System-Screenshot

### 3.2.3.2 Ordering the Aluminum Frame

For the production of the Speedstarlett, the only item missing is the aluminum frame because if you completed case study 4 properly, a sufficient quantity of all other materials was ordered

already. First, create a purchasing info record and then, create a purchase order for the aluminum frame.

### Create Purchasing Info records and Conditions

Create a purchasing info record and a condition record for the aluminum frame. Therefore, choose:

**Logistics → Materials Management → Purchasing → Master data → Info Record → Create (ME11)**

1. Enter the **number** of your vendor from the procurement case study in the **vendor** field. **Material** is the aluminum frame (*alu-frame-xxxx*), **purchasing organization** is **IDES Germany (1000)** and **plant** is **Hamburg (1000)**. Confirm with *Enter*.
2. You see the *Create Info Record: General Data* screen. Some data were already transferred from the material master. You do not need to change them. Click the **Purch. Org. Data 1** symbol.
3. Enter a **Standard quantity** of **100 pieces** and a **Net price** of **250 EUR** per unit. Click the **Conditions** symbol.
4. Select the line containing **condition type PB00** and click the **symbol (scales)**.
5. Configure the condition so that the **price** is **250 EUR** from a **scales quantity** of **1 piece** and that from a **sales quantity** of **500**, the **price** is **200 EUR**.

C...	Name	Amount
PB00	Gross Price	250,00

Scale Type	Scale quantity	U	Amount	Unit	per	UoM	PricActive
From	1 PC		250,00	EUR		1 PC	
	500		200,00				

Figure 66: Create Condition Record for Alu-Frame: SAP-System-Screenshot

- Save your entries and list the number of the info record.

Purchasing info record (aluminum frame): \_\_\_\_\_

### Create purchase orders

To create the orders, call up:

**Logistics → Materials Management → Inventory Management → Environment → Stock → Stock/Requirements List (MD04)**

- Select material **aluminum frame (alu-frame-xxyy)** and plant **Hamburg (1000)**. Confirm with **Enter**.
- Double-click the line containing the planned order with the quantity **500**.
- The screen **additional data for MRP** appears. Click the **Pur.Req.** (Purchase requisition) button () to create a purchase requisition.

Double-click on the planned order with 500 pc. If you don't have a planned order with 500 pc you can select another planned order and change the quantity on the next screen

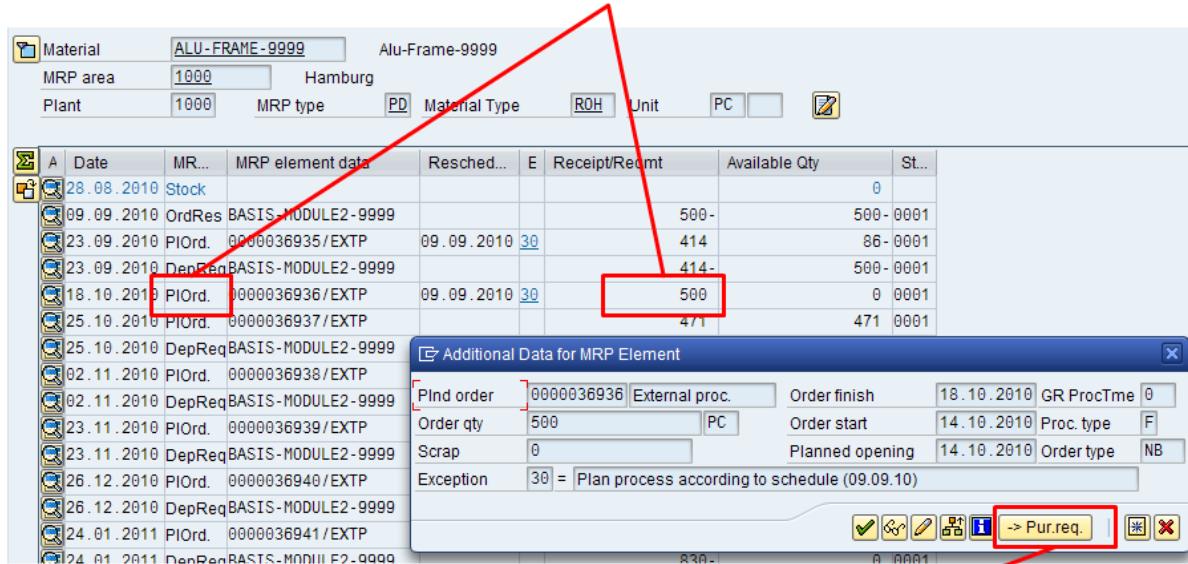


Figure 67: Create Purchase Requisitions: SAP-System-Screenshot

- You can see that the purchase requisition already contains the vendor data. In the field **Converted quantity** you should have **500** pc. If not, change it to 500. Confirm with **Enter**.
- Confirm the purchase requisition by clicking **Save**. List the number of the purchase requisition on your data sheet.

Purchase requisition aluminum frame: \_\_\_\_\_

6. Select the button to update the Stock/Requirements list. You can see that the planned order was converted into a *purchase requisition*.
7. Double-click the purchase requisition and select the **Purchase order** button ( ) to convert the purchase requisition into a purchase order.

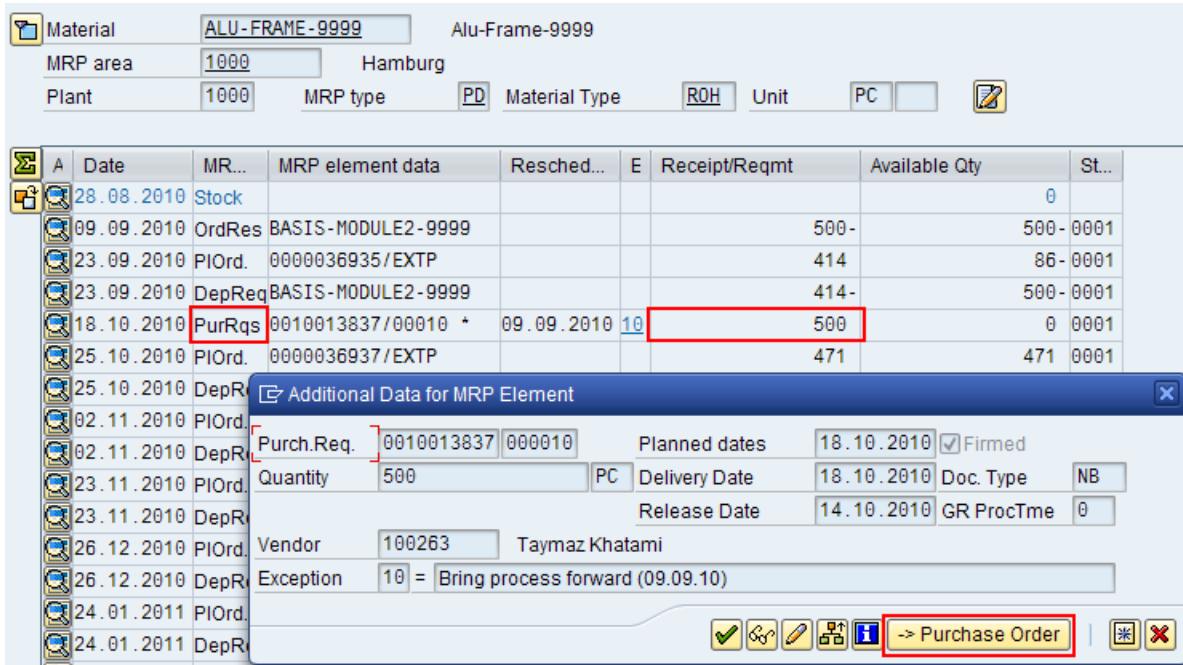


Figure 68: Create Purchase order (1): SAP-System-Screenshot

8. Now you are in the **Create Purchase Order** dialog. In the left frame (Vendor/source/category etc.) you can see a purchase requisition for your vendor. You can also maximize the left window to increase clarity. In the **create purchase order** dialog, select the number of the open purchase requisition (on the left hand side, under the document overview window) and click on the button in the left frame (**transfer**). Thus, the detail data from the purchase requisition are copied to a new **purchase order**.

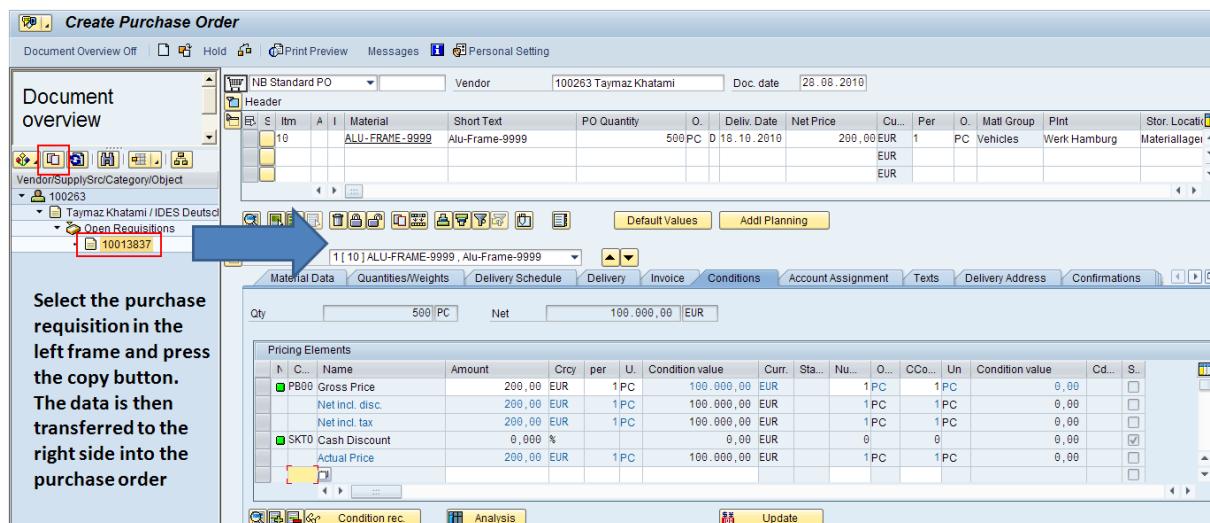


Figure 69: Create Purchase Order (2): SAP-System-Screenshot

- Save the order and skip a possible message regarding occurred messages by saving.  
List the number on your data sheet.

Purchase order for aluminum frame: \_\_\_\_\_

- Update the list by clicking the symbol. The purchase requisition (PurReq.) is transformed into a purchase order delivery schedule line item (PchOrd). Click the button.

Figure 70: Create Purchase Order (3): SAP-System-Screenshot

### Posting the Goods Receipt for a Purchase Order

To facilitate the case study, we assume that the vendor delivers the goods at the same day.



*In case you missed out listing your order numbers, you can find them out by using the MD04 transaction and entering the material name. You find the number in the row of your Purchase Order (PchOrd) in the column MRP element data.*

Therefore, call up the following transaction:

**Logistics → Materials Management → Inventory Management → Goods Movement → Goods Receipt → For Purchase Order → PO Number Known (MIGO)**

- Select **A01 goods receipt** from the left drop-down menu on the upper part of the screen and select **R01 purchase order** from the right drop down menu.
- Enter your **order number** for the aluminum frame purchase order in the field on the right hand side of the drop-down menu. Press **Enter**.
- The system proposes goods receipt quantities according to the purchase order. Enter \* in the **delivery note** field. Select the **position ok** field on the bottom of the screen to mark the goods receipt document as checked. **Save**.

4. List the document number goods receipt.

**Material document for aluminum frame:** \_\_\_\_\_



**Caution**

*Check carefully (MD04), whether a sufficient quantity of chain-xxxx, gearing-xxxx, and wheel-xxxx for production is available in unrestricted-use stock for the manufacturing of 500 Speedstarletts (or Basis-Module2, respectively). Just consider that you need more than 500 chains, 500 gearings and 1000 wheels on stock for the production process! If this is not the case, you need to re-order the respective components.*

Material	ALU-FRAME-9999	Alu-Frame-9999							
MRP area	1000	Hamburg							
Plant	1000	MRP type	PD	Material Type	ROH	Unit	PC		
	A	Date	MR...	MRP element data	Resched...	E	Receipt/Reqmt	Available Qty	St...
	28.08.2010	Stock						500	
	09.09.2010	OrdRes	BASIS-MODULE2-9999			500-		0	0001
	23.09.2010	PIOrd.	0000036935/ExtP			414		414	0001
	23.09.2010	DepReq	BASIS-MODULE2-9999			414-		0	0001
	25.10.2010	PIOrd.	0000036937/ExtP			471		471	0001
	25.10.2010	DepReq	BASIS-MODULE2-9999			471-		0	0001

Figure 71: Available Quantity of Alu-Frame: SAP-System-Screenshot

### 3.2.3.3 Enter Goods Issue for the first Production Order (Basis-module 2)

Next, post the goods issue for the production order. This is to make materials required for the production of the Basis-module available to the production center. Call up the following transaction:

**Logistics → Materials Management → Inventory Management → Goods Movement → Goods Issue (transaction code: MB1A)**

1. Click the symbol (**To Order**).
2. Enter the **number of the first production order (Basis-module 2)** in the **order column**. Confirm with *Enter*.
3. The system proposes the four correct material positions. Save and list the document number.

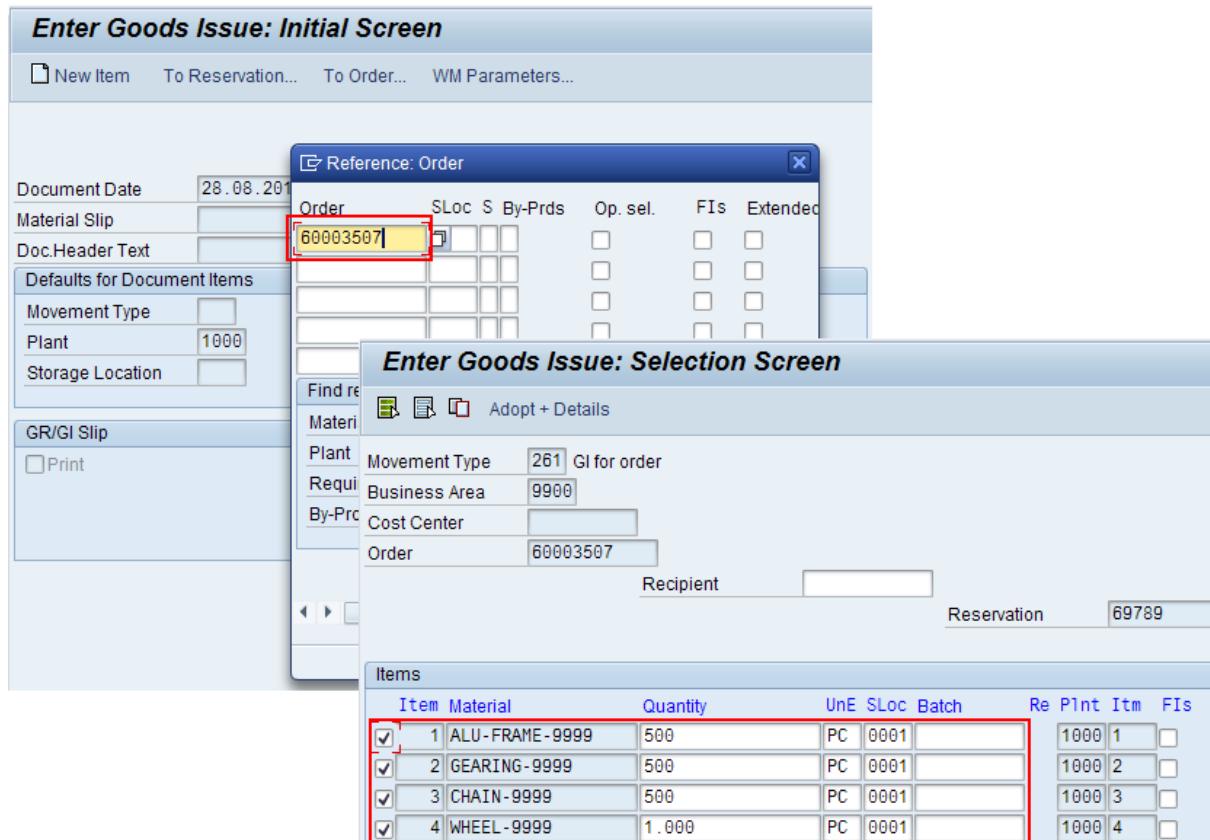


Figure 72: Goods Issue for Basis-Module2 Production Order: SAP-System-Screenshot

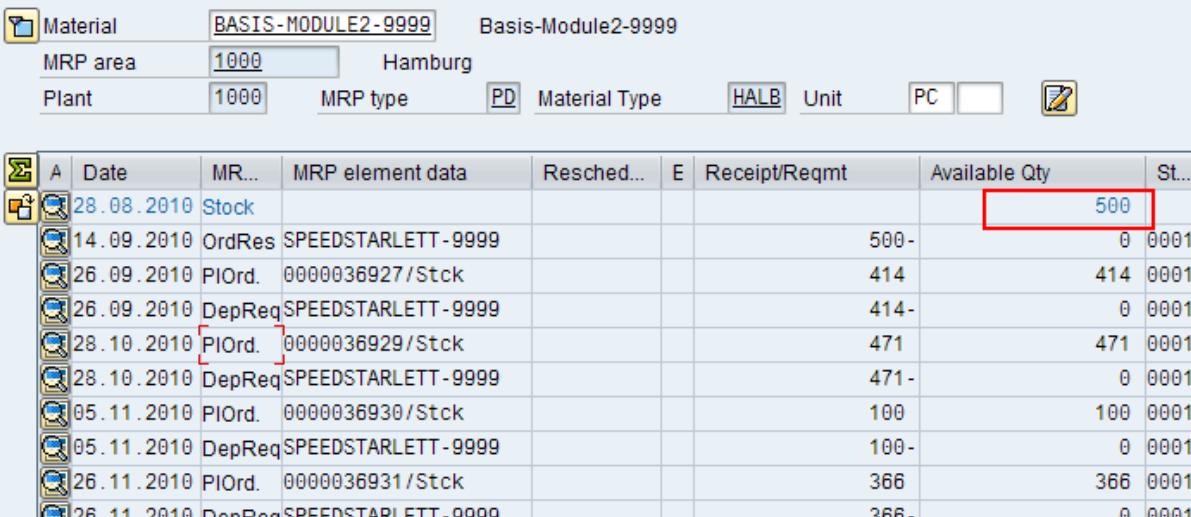
Document (Basis-module 2): \_\_\_\_\_

### 3.2.3.4 Confirmation of the first Production Order (Basis-module 2)

Your next task is to **confirm** the production orders for the Basis-module 2. Therefore, call up the subsequent transaction:

**Logistics → Production → Shop Floor Control → Confirmation → Enter → For Order (CO15)**

1. In the **order** field, enter **the number** of the **first production order** for the **Basis-module 2**. Press **Enter**.
2. Select the confirmation type **final confirmation**.
3. Click the **goods movement** button and make sure that the storage location is **storage 0001**.
4. Since the selected operation is marked in the routing as milestone, this confirmation automatically confirms all previous steps as well and a goods receipt posting to the storage is created. Click the **H** symbol.
5. The system issues a notification that the confirmation was saved. You should see that one goods movement and no errors occurred.
6. Check in transaction MD04 that your Basis-Module2 is now produced and on stock.



The screenshot shows a SAP system interface for material management. At the top, it displays 'Material' and 'BASIS-MODULE2-9999'. Below this, 'MRP area' is set to '1000' and 'Hamburg'. 'Plant' is also '1000'. 'MRP type' is 'PD', 'Material Type' is 'HALB', 'Unit' is 'PC', and there is a save icon. A table below lists various events and their impact on available quantity:

Date	MR...	MRP element data	Resched...	E	Receipt/Reqmt	Available Qty	St...
28.08.2010	Stock					500	
14.09.2010	OrdRes	SPEEDSTARLETT-9999			500-	0	0001
26.09.2010	PIOrd.	0000036927/Stck			414	414	0001
26.09.2010	DepReq	SPEEDSTARLETT-9999			414-	0	0001
28.10.2010	PIOrd.	0000036929/Stck			471	471	0001
28.10.2010	DepReq	SPEEDSTARLETT-9999			471-	0	0001
05.11.2010	PIOrd.	0000036930/Stck			100	100	0001
05.11.2010	DepReq	SPEEDSTARLETT-9999			100-	0	0001
26.11.2010	PIOrd.	0000036931/Stck			366	366	0001
26.11.2010	DepReq	SPEEDSTARLETT-9999			366-	0	0001

Figure 73: Produced Basis-Module2: SAP-System-Screenshot

### 3.2.3.5 Enter Goods Issue for the Second Production Order (Speedstarlett)

Now that the semi-finished product is available from storage location 0001, we can produce our finished product, i.e., the Speedstarlett. We start again with the goods issue of the materials to production. Again, the system will carry this step out automatically.

**Logistics → Materials Management → Inventory Management → Goods Movement → Goods Issue (transaction code: MB1A)**

1. Click the **To Order...** symbol (**for order**).
2. Enter the **number of the second production order (Speedstarlett)** in the **order column**. Confirm with *Enter*.
3. The system proposes the five correct material positions.
4. Save and list the document number.

**Document (Speedstarlett):** \_\_\_\_\_

### 3.2.3.6 Confirmation of the second Production Order (Speedstarlett)

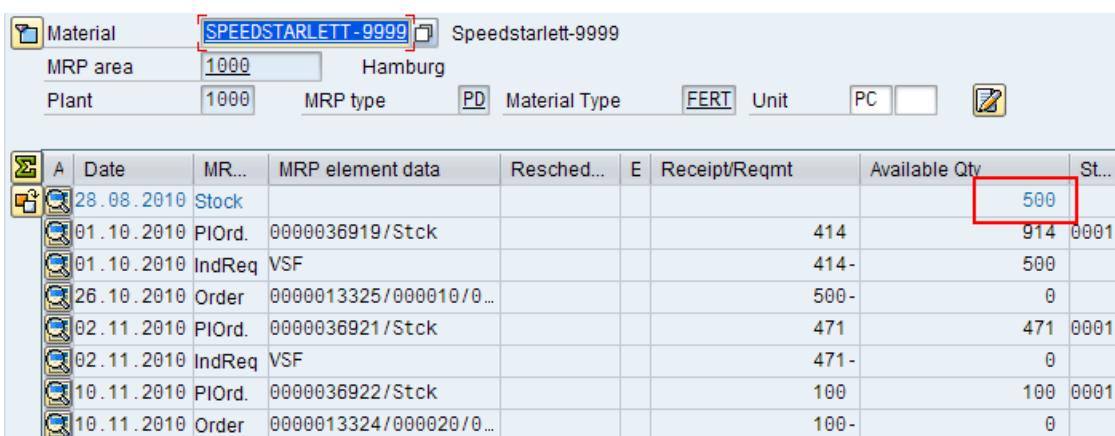
Since all materials are available for production, we can carry out the production process. We assume again, that production is completed very fast so that the only thing left to do is the confirmation. Call up the following transaction:

**Logistics → Production → Shop Floor Control → Confirmation → Enter → For Order (Transaction code: CO15)**

1. In the **order field**, enter **the number of the second production order (Speedstarlett)**. Press *Enter*.
2. Select the confirmation type **final confirmation**.

3. Click the **goods movement** button and make sure that the storage location is **storage 0001**.
4. Since the selected operation is marked in the routing as milestone, this confirmation automatically confirms all previous steps as well and a goods receipt posting to the storage is created. Click the  symbol.
5. The system issues a notification that the confirmation was saved. You should see that one goods movement and no errors occurred.

Finally, check in transaction MD04 that the production of the Speedstarlett is completed and the finished good is available on stock.



The screenshot shows the SAP MD04 transaction interface. At the top, it displays the material number **SPEEDSTARLETT-9999**, MRP area **1000**, and plant **1000**. Below this is a table of historical data entries:

A	Date	MRP...	MRP element data	Resched...	E	Receipt/Reqmt	Available Qty	St...
	28.08.2010	Stock					500	
	01.10.2010	PIOrd.	0000036919/Stck			414	914	0001
	01.10.2010	IndReq	VSF			414-	500	
	26.10.2010	Order	0000013325/000010/0...			500-	0	
	02.11.2010	PIOrd.	0000036921/Stck			471	471	0001
	02.11.2010	IndReq	VSF			471-	0	
	10.11.2010	PIOrd.	0000036922/Stck			100	100	0001
	10.11.2010	Order	0000013324/000020/0...			100-	0	

Figure 74: Produced Speedstarlett: SAP-System-Screenshot

### 3.2.4 Shipping Processing

After completing the order and prior to the delivery date, the delivery process begins. Create a delivery document to initiate the shipping process.

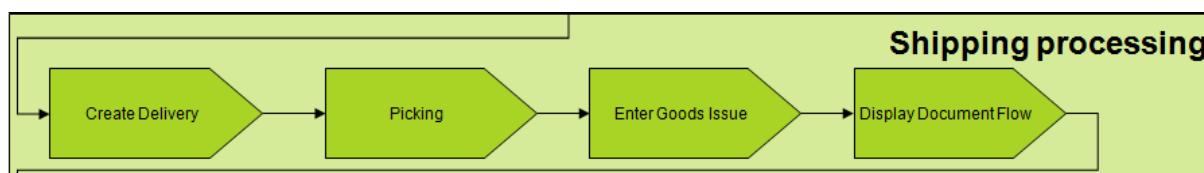


Figure 75: Process Overview: Shipping Process

#### 3.2.4.1 Create Delivery

To create a delivery, choose

**Logistics → Sales and Distribution → Shipping and Transportation → Outbound Delivery → Create → Single Document → With Reference to Sales Order (VL01N)**

1. Enter shipping point **1000**.
2. Enter **the current date** as selection date.
3. Enter your **sales order number** (it should already be entered as default value).

4. Choose **Enter**.
5. Usually, you should get an error message from the system, stating that for the current date no scheduling line is due.

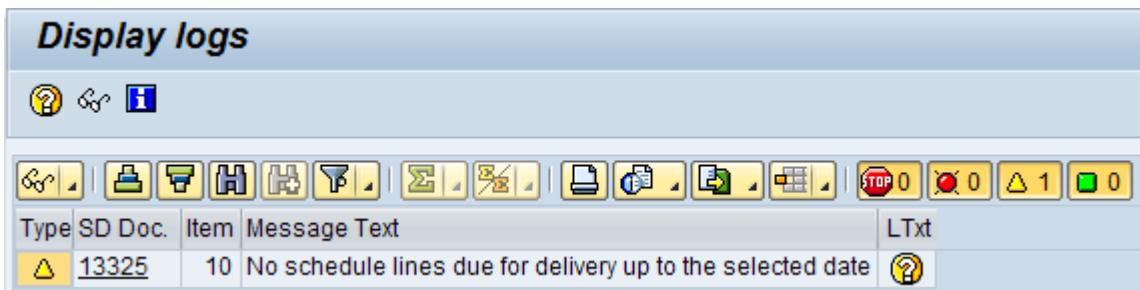


Figure 76: Error Message: SAP-System-Screenshot

6. In the document column, click your **sales order number**. The **display standard order** screen appears.
7. In the menu, select **Sales Document → Change**. With this, you switch to the change mode.
8. Select item line 10 and select **Goto → Item → Schedule Lines** from the menu. Indeed, you can see that in the sales order a schedule line with the requested delivery date was created. However, since you have already completed production and want to deliver timely, overwrite the delivery date field with the **current date**.

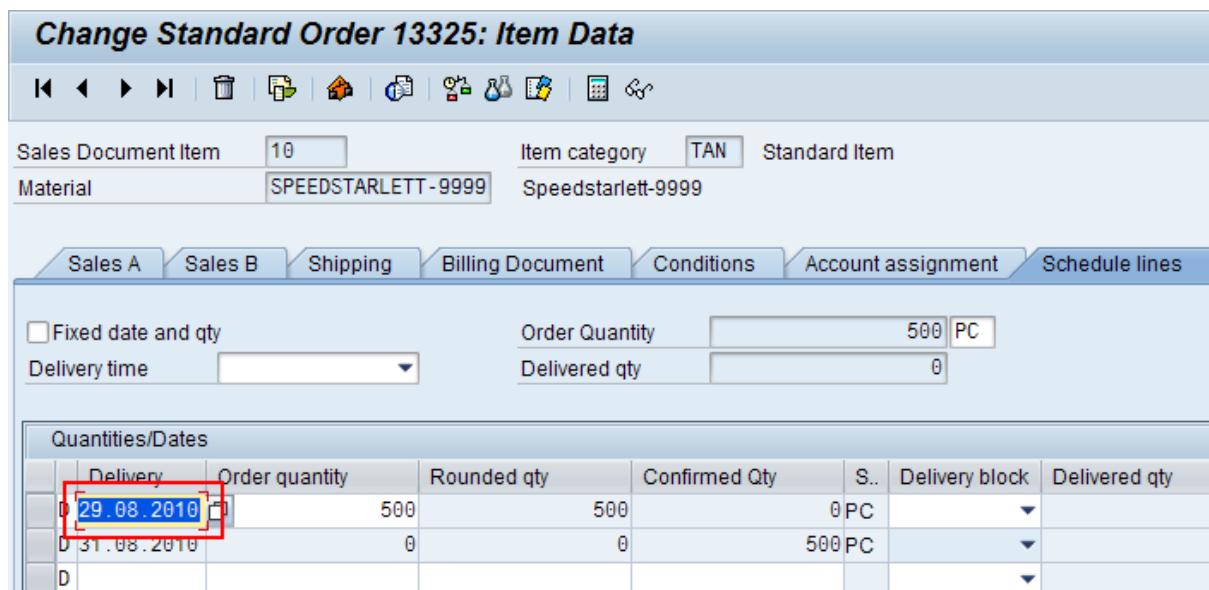


Figure 77: Schedule Line: SAP-System-Screenshot

9. Confirm with **Enter**. The system creates an alternative schedule line. **Save** the document.
10. Call up transaction **VL01N** again.
11. Enter shipping point **1000**.
12. Enter **the current date** as selection date.
13. Enter your **sales order number**. Choose **Enter**. The system now opens a delivery document.

14. Select the **picking tab**. Enter storage location **0001** and **save** the document.
15. List the delivery document number on your data sheet.

Delivery document: \_\_\_\_\_

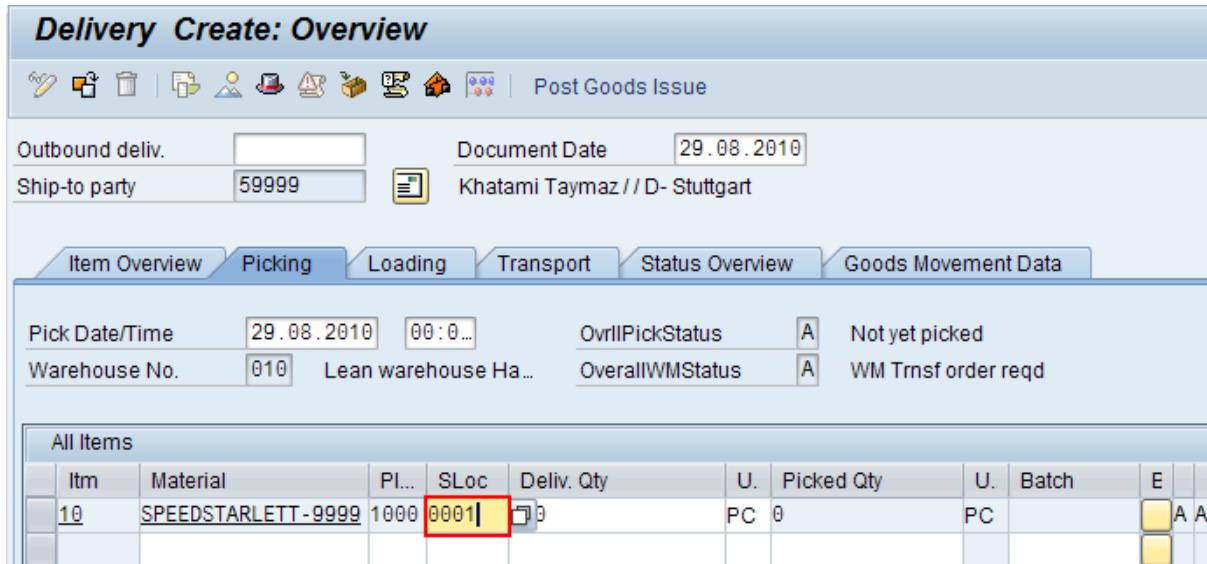


Figure 78: Create Delivery Document: SAP-System-Screenshot

Next, open the newly created delivery in the change mode and answer the following questions. List the answers on your data sheet. Choose

**Logistics → Sales and Distribution → Shipping and Transportation → Outbound Delivery → Change → Single Document (VL02N)**

Enter the number of your delivery document and choose **Enter**.

1. Which **delivery quantity** has the position in your delivery document?
2. Which **picking quantity** has the first item? Can you modify this entry?

Take a look at the **document flow** by clicking the symbol.

3. What is the **status** of the standard order?
4. What is the **status** of the delivery?

Return to the easy access menu.

### 3.2.4.2 Picking

The next step of the shipping process is **picking**. To facilitate picking, we process the transfer order in the lean WM (warehouse management). Create the transfer order as follow-up of your outbound delivery. Therefore, choose

**Logistics → Sales and Distribution → Shipping and Transportation → Picking → Create Transfer Order → Single Document (LT03)**

1. Enter **warehouse number 010**.
2. Check, if the delivery number equals *your delivery number*.
3. Select from the drop-down **Foreground/Background foreground**.
4. Enter **I** in the **adopt picking quantity** field.
5. Choose **Enter**.
6. Choose **Save** and list the **number of the transfer order** on your data sheet.

**Transfer order:** \_\_\_\_\_

### 3.2.4.3 Enter Goods Issue

Now the picking is completed and the product is transferred with the transfer order to the outbound stock area. Now you can deliver the product with an outbound delivery by posting the goods issue. Therefore, choose

**Logistics → Sales and Distribution → Shipping and Transportation → Outbound Delivery → Change → Single Document (VL02N)**

1. Enter the **number** of your **delivery document** and choose **Enter**.
2. Please ensure that the picking quantity and the delivery quantity on the **picking** tab equal each other now.

Item	Material	Pl.	S...	Deliv. Qty	U.	Picked Qty	U.	Batch	E	Stag. Date	Ma...	Val. Type
10	SPEEDSTARLETT-9999	1000	0001	500	PC	500	PC		C C	29.08.2010	00:0...	

Figure 79: Post goods Issue: SAP-System-Screenshot

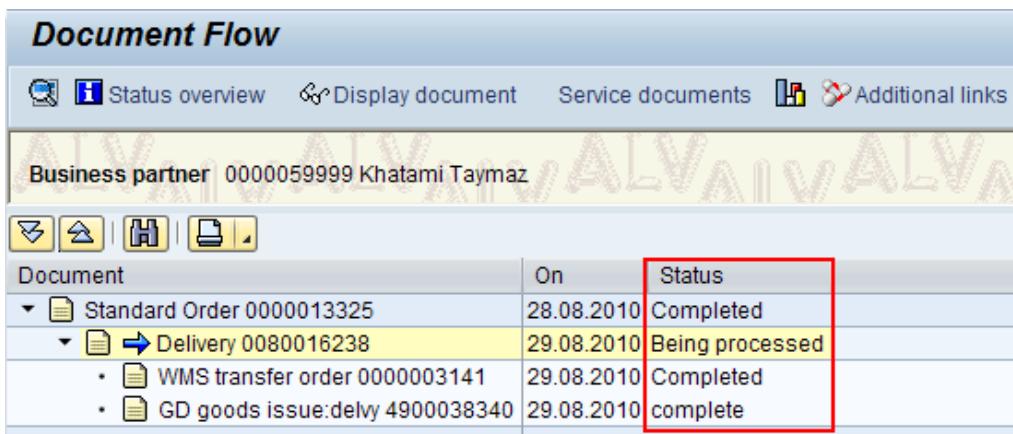
3. Select the **Post Goods Issue** button.
4. You receive the message that the delivery was saved.

### 3.2.4.4 Display Document Flow

Display the document flow once again. Choose

**Logistics → Sales and Distribution → Shipping and Transportation → Outbound Delivery → Display (VL03N)**

1. Enter your ***delivery number*** and select the  symbol.
2. You can see that the status of the delivery is now ***in process***, while sales order, transfer order, and goods issue are already ***completed***.
3. Although delivery is completed physically (the customer received the goods!), the status of the delivery document is not completed, yet. This occurs only when the invoice for the delivery was created and thus, when the process “leaves” the SD module. After that, it is a “problem” of financial accounting.



Document	On	Status
Standard Order 0000013325	28.08.2010	Completed
Delivery 0080016238	29.08.2010	Being processed
WMS transfer order 0000003141	29.08.2010	Completed
GD goods issue:delv 4900038340	29.08.2010	complete

Figure 80: Document Flow Sales Order Process - Delivery: SAP-System-Screenshot

### 3.2.5 Billing

After posting goods issue, you can create an invoice for products that were delivered physically to the customer. Carry out the billing process for your delivery and record the net value of the invoice.

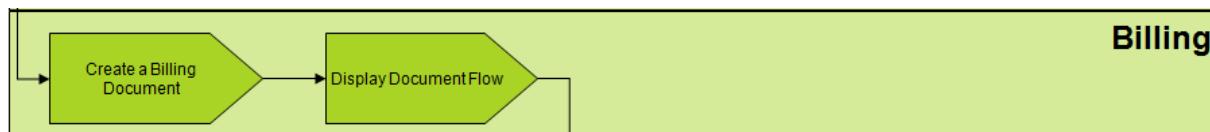


Figure 81: Process overview: Billing

#### 3.2.5.1 Create a Billing Document

Therefore, choose

**Logistics → Sales and Distribution → Billing → Billing Document → Create (VF01)**

1. In the document column, enter ***your delivery number***.
2. Choose **Enter**.
3. List the **net value** of the invoice on your data sheet.

**Net value:** \_\_\_\_\_

4. Choose the  button to display the header data of the ***pricing conditions***.

5. Select the *conditions* tab. List the total amount on the data sheet. What is the profit margin of the order? The profit margin is the difference of the net value (returns from the order) and the variable costs of order handling (transfer price).

**Total amount:** \_\_\_\_\_

**Profit margin:** \_\_\_\_\_

6. *Save* the billing document and list the *invoice number*.

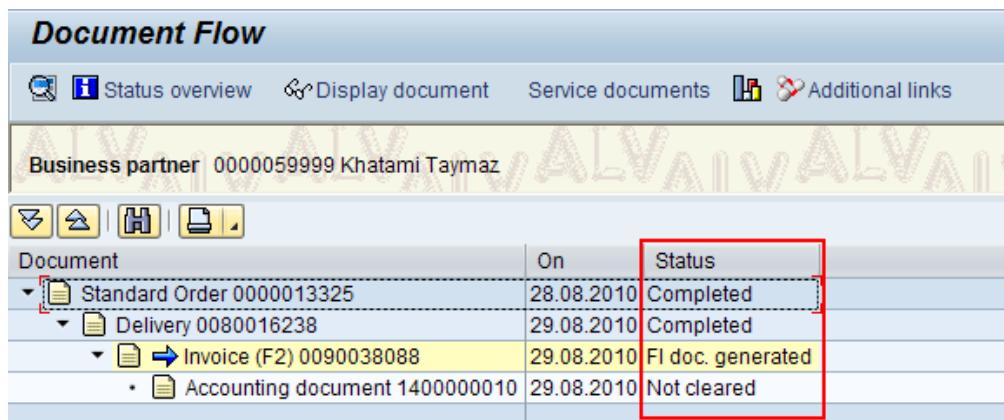
**Billing number:** \_\_\_\_\_

### 3.2.5.2 Display Document Flow

Display the document flow once again. Choose

**Logistics → Sales and Distribution → Billing → Billing Document → Change (VF02)**

1. Enter the number of your billing document.
2. Choose *Enter*.
3. Again, select the  button.
4. You can see that the delivery was completed with billing accomplished. The invoice document is completed as well. Only one accounting document (the “problem” of financial accounting) was created that is not cleared, yet. This step will be completed when the customer pays the invoice.



Document	On	Status
Standard Order 0000013325	28.08.2010	Completed
Delivery 0080016238	29.08.2010	Completed
Invoice (F2) 0090038088	29.08.2010	FI doc. generated
Accounting document 1400000010	29.08.2010	Not cleared

Figure 82: Document Flow Sales Order Process - Billing: SAP-System-Screenshot

### 3.2.6 Enter Incoming Payment

The customer paid the invoice you just processed. Post the payment to the customer account.

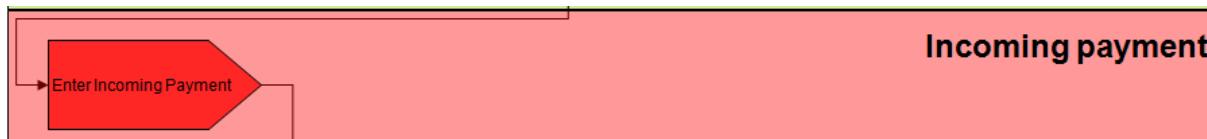


Figure 83: Process Overview: Incoming Payment

Choose

**Accounting → Financial Accounting → Accounts Receivable → Document Entry → Incoming Payment (F-28)**

- On the post *Incoming Payment: Header Data* screen, enter the subsequent data:
 

- Document date	<b>current date</b>
- Bank data: account	<b>113109</b>
- Bank data: amount	<b>the calculated total amount</b>
- Open item selection	<b>5xxyy</b>
- Choose <i>Enter</i> .	

The screenshot shows the SAP interface for "Post Incoming Payments: Header Data". The form is divided into sections:

- Process open items**: Fields include Document Date (29.08.2010), Type (DZ), Company Code (1000), Posting Date (29.08.2010), Period (8), Currency/Rate (EUR), Translatn Date, Cross-CC no., Trading part.BA, and Clearing text.
- Bank data**: Fields include Account (113109), Amount (1309000), Business Area, Amount in LC, LC bank charges, Profit Center, and Assignment.
- Open item selection**: Fields include Account (59999), Account Type (D), Other accounts (unchecked), Special G/L ind, Standard OIs (checked), Pmnt advice no., Distribute by age (unchecked), Automatic search (unchecked), and Additional selections (None selected).

Figure 84: Enter Incoming Payment of the Customer: SAP-System-Screenshot

- Save** the document and list the *accounting document number*.

Accounting document number: \_\_\_\_\_

Display the entire document flow one last time. Choose

**Logistics → Sales and Distribution → Sales → Order → Display (VA03)**

1. Enter *your sales order number*.
2. Choose .
3. You can see that all documents that have been created during the process were completed or cleared, respectively.

Document Flow		
 Status overview  Display document Service documents  Additional links		
Business partner 0000059999 Khatami Taymaz		
Document	On	Status
Standard Order 0000013325	28.08.2010	Completed
Delivery 0080016238	29.08.2010	Completed
Invoice (F2) 0090038088	29.08.2010	FI doc. generated
Accounting document 1400000010	29.08.2010	Cleared

Figure 85: Document Flow Sales Order Process - Payment: SAP-System-Screenshot

With this, the **order to cash process** is completed. Now you can focus on the information systems in sales and distribution.

### 3.3 Elucidation



#### What have we learned so far?

You have learned how a standard sales process in SAP ERP looks like, what elements are involved in it and how master data records are used in a sales process. Furthermore, you have learned how the sales order process is integrated with other applications of SAP ERP.

#### 3.3.1 Order-to-Cash Business Process

The Order-to-Cash business process starts with pre-sales activities and ends with the payment of the customer. All process elements along the way are mapped in the SAP ERP system using documents. These documents are inquiries, quotations, sales orders, deliveries and billings. The documents are integrated with each other through the document flow. That is, a document has a subsequent document and copies all data relevant to the subsequent document. Thus, repetitive entering of data is not necessary. Furthermore, the document flow allows for monitoring the sales process and its status. An order-to-cash process usually has the following stages:

##### 1. Pre-sales Activities:

- setting up and maintaining customer relationships
- example: advertising, sales promotion, marketing etc.
- Outcome might be inquiries from the customer or real sales orders.

##### 2. Sales Order Processing:

- creation of the sales document (inquiries, quotations or sales orders)
- Sales documents contain all data (customer, material, quantities, prices, possible delivery dates) necessary for processing the customers demand for a product.
- All documents are linked to each other and facilitate the transfer of data (document flow).

##### 3. Procurement/ Inventory Sourcing

- After a sales order is created, you check whether you must purchase materials required for production or not
- Procurement (SAP MM) is in charge of identifying vendors and purchasing the materials.
- Therefore, SAP SD creates (independent) requirements upon sales orders that are transferred to SAP MM and are considered in MRP.

##### 4. Shipping:

- Organization and processing of **delivery**, after finished goods are ready for distribution, is part of the **shipping process**.

##### 5. Billing:

- The customer is billed after the product has been delivered
- The invoice is created and all required data are transferred to financial accounting.
- This is the last step accomplished in SAP SD.

6. **Payment:**

- The system checks for open items and posts incoming payments.
- payment is part of SAP FI

### 3.3.2 Documents in Sales and Distribution

#### Standard Sales Process in SAP ERP:

1. **Pre-sales Activities**

- creation of a **contact** (SAP SD: customer master data) or a **customer inquiry** (SAP SD: inquiry document)
- Turn inquiry into a quotation; information from the inquiry document is copied to the **quotation** (SAP SD: quotation document).

2. **Sales Order Processing**

- Customer (SAP SD: Customer master data) accepts the quotation for a material (SAP SD: material master data sales views); quotation document is transferred into a **sales order** (SAP SD: sales order document).
- Schedule lines are determined (quantities, dates, etc.) for delivery.
- Billing details (price, date, etc.) are determined.

3. **Procurement/ Inventory Sourcing**

- Availability check for materials and components leads to requirements creation in SAP MM.
- Goods issue from stock (SAP MM: material document)
- External procurement (SAP MM: planned order, purchase requisition and purchase order)
- In-house production (SAP PP: planned order, production order)

4. **Shipping**

- Product is produced and ready for distribution; sales order data is transferred to the **outbound delivery document** (SAP SD: delivery document).
- Picking (SAP LE: transfer order document)
- Packing (SAP SD: delivery document)
- Transportation and Shipment (SAP LE: shipment document)
- Goods Issue: Stock Posting (SAP MM: material document, SAP FI: accounting document)

5. **Billing**

- Billing document (SAP SD: billing document) is created with reference to the delivery document.
- Credit Memo and Debit Memo (SAP FI: accounting document): The billing document creates receivables on the customer account with the amount of the material quantity delivered multiplied by the sales price.
- Transfer to Financial Accounting

6. **Payment** (not part of SD but SAP FI):

- When the customer pays the invoice, the customer account is cleared (SAP FI: accounting clearing document).
- Review of Differences

The last step might sound a little complicated, but it is pretty much like what you have learned in procurement, only reversed (your company receives money from a customer instead of paying a vendor).

*"Same-same-but-different"* – Part 1:

As you might remember, the same is applicable to vendor master records. Vendor master records represent simultaneously an account in the vendor sub-ledger (accounts payable). For vendors, you also consolidate using a reconciliation account (160000) to the general ledger, so that liabilities to vendors (liabilities to a vendor occur less often, at least concerning good vendors!) affect the financial statement and profit and loss statement.

In the sub-ledger **accounts receivable**, the customer master record (cf. unit financial accounting) represents an account at the same time (customer account).

- For example, you created a customer 5xxx in SAP ERP. This 5xxx represents an account in the sub-ledger accounts receivables.
- Consequently, receivables (that is money you get from a customer) are linked to customer master data. Thus, the SAP system facilitates it to get a list of open items in the system, since unbalanced customer accounts can be queried in the respective information system.
- Using a reconciliation account (in our case account 140000), you can transfer balances of customers to the general ledger (that is relevant to the financial statement and profit and loss statement).
- More details are revealed at the end of this elucidation.

If you made the financial statement (balance sheet etc.) of the company before the customer pays, the 100 € would appear in the credit positions of your financial statement

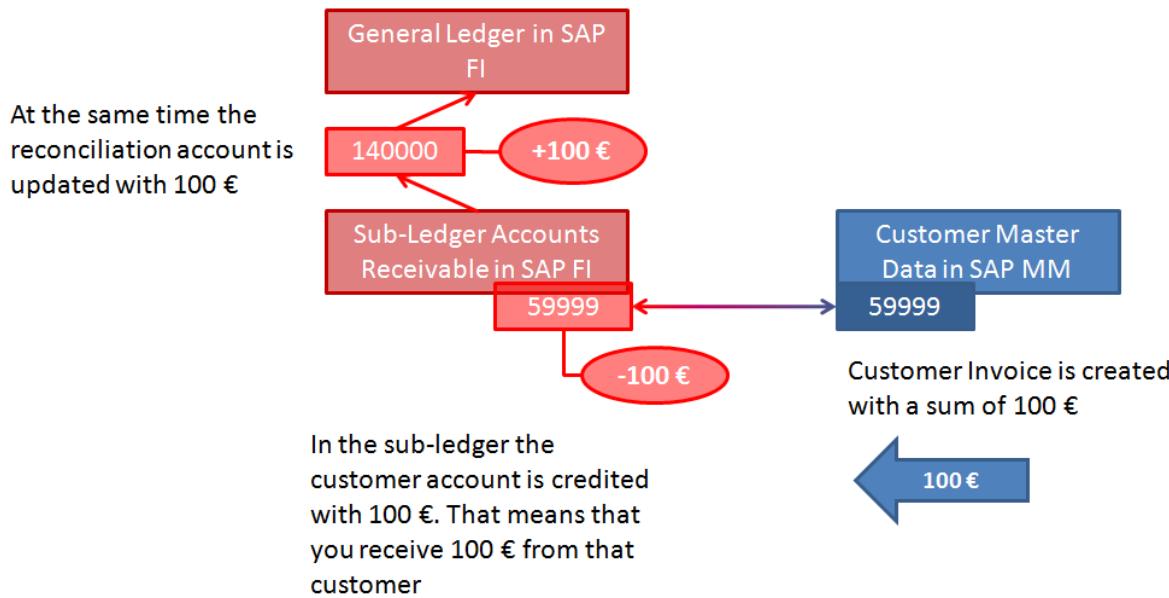


Figure 86: Accounts Receivable and Reconciliation Account: SAP-System-Screenshot

### 3.3.3 Pre-Sales Activities

- Pre-sales activities aim at increasing sales figures of a company.
- Pre-sales activities include specific marketing activities (mailing campaigns, internet campaigns, trade fair sales activities or telephone campaigns).
- Pre-sales activities can trigger sales processes, resulting in non-binding customer inquiries or quotations and enhance determining important sales and contact data.
- Information gained from pre-sales activities can be used for planning and evaluating marketing and sales strategies. This information can then be the basis of the long-term creation of customer relations.

### 3.3.4 Sales Order Processing

- Customer's request for product is recorded in a sales order.
- A sales order is an electronic document and contains all information for sales order processing in sales order management.
- Data from previously entered master records, e.g., customer master data and control tables like condition and price determination procedures are transferred into a sales order upon creation. This reduces input errors and avoids entering redundant data.
- A sales order can contain multiple items (positions), with each item having individual pricing conditions. For instance, on item level of the document you enter Speedstar with price 2500 and Speedstarlett with price 2000. Each position can be controlled independently in terms of delivery, schedule lines, pricing etc.
- The following data is also contained in a sales order:
  - o Delivery dates and quantities
  - o Shipping information
  - o Billing information

#### Creating an Order

- Sales Orders are created per sales area. That is, you have to enter sales organization, distribution channel and division when creating a sales order. If you do not enter this data in the initial screen of transaction va01, the system fills in the data automatically, retrieving it from the customer master data. If the customer's master data is maintained for multiple sales areas, the system displays proposals you have to choose from.
- If a quotation already exists for a customer, the system asks if you want to refer this document in the sales order. You can also set the reference manually.
- When referring an existing quotation, all data relevant for the sales order document (customer, material, quantity, price, etc.) is transferred from the quotation to the sales order without the need to enter them again. However, you can change data manually afterwards.
- You can merge multiple quotations in one sales order or create multiple orders upon one quotation. This allows you to group all the quotations for one customer.

#### Sales Document Structure

A sales document consists of three levels: **header**, **item**, and **schedule line**. Data is distributed on these levels as follows:

- **Header:** Data that are valid for entire document. You enter descriptions, customer data, sales area data etc. on header level.
- **Items:** Items refer to the positions in a sales order. For instance, you can sell several products in one sales order. Each product is then entered as one item. Each item contains its own data (material data, quantities, price, conditions, etc.) and can be processed individually. Examples are material items, service items, free-of-charge items or text items.
- **Schedule lines:** Schedule lines contain delivery quantities and delivery dates. A schedule line is uniquely assigned to exactly one item of the sales order. That is, if you have a position in the sales order for 100 Speedstars, then the document also contains a corresponding position for scheduling (*goto → position → schedule lines*) with 100 Speedstars. The scheduling line contains the dates at which a certain quantity can be delivered. Each item, which in the subsequent process must be delivered by using an outbound delivery, must have at least one schedule line. It is also possible to split delivery. In that case, one sales order item can correspond to multiple schedule lines (e.g., 50 Speedstars in 1 week, 50 Speedstars in 2 weeks).

For efficient processing of sales documents, data can be displayed and maintained in different views. Views are grouped into overview, header, and item screens.

### Delivery Scheduling

- When a sales order is created, the system immediately calculates the possible delivery time. Requested delivery times of the customer are taken into consideration.
- When determining the delivery date, the system uses time data known from the material master (procurement, delivery time) and internal processes (production, loading, picking or transportation lead time) to calculate the date for material availability. Starting with the desired delivery time of the product, the system calculates back in time to retrieve the date at which materials must be available and/or when production of the finished good must start. This data is used in MRP to create planned orders.
- If this **backward scheduling** determines a date in the past as the date on which a schedule line becomes due for shipping or if the material will not be available on the calculated date, the system automatically carries out **forward scheduling** to determine the earliest possible shipping deadline.
- Values for time elements considered in calculating the total delivery time are based on past experience of the shipping department. These values are entered in the system in the form of transit times, loading times, pick/pack times and transportation lead times. The total time for delivery generally includes:
  - o **Transit time:** Time in days that is required to deliver goods from the company to the customer location. It is defined for a route.
  - o **Loading time:** Time in days that is required for loading a delivery item. It is determined from the shipping point, the route and the loading group of the material.

- **Pick/pack time:** Time in days that is required for allocating goods to a delivery as well as the time in days that is required for picking and packing. It is calculated using the shipping point, the route and the weight group of the order item.
- **Transportation lead-time:** Time in days that is needed to organize the shipping of the goods. This might include booking a ship and reserving a truck from a forwarding agent. It is defined for a route.
- The system uses either transportation lead-time or picking/packing time and chooses the longer one when scheduling deliveries.

### Incompletion Log

- In sales documents (and other documents and master data as well) certain fields are mandatory, since they are crucial for the document or further processing. These fields are set mandatory in the systems customizing.
- These fields are checked at the time of entering the data. Fields that are not filled, although they are considered mandatory, are displayed in the incompletion log.
- When saving the document that is not filled completely (referring to the mandatory fields), the system issues a message and displays the incompletion log automatically. The incompletion log can be called up manually when selecting *edit → incompletion log* from the menu.
- Mandatory fields are, e.g., a customer, pricing condition, shipping point etc.
- The functions for the incompletion log are available in the sales order and in delivery.

### 3.3.5 Procurement and Inventory Sourcing

#### Transfer of Requirements

- This integration between SAP SD and SAP MM is carried out via requirements.
- You have already learned in teaching unit 1 and 2 that sales orders generate independent requirements in material management.
- Transfer of requirements can affect availability checks and causes MRP to create planned orders, production orders or purchase orders to fulfill the requirements, in case there is insufficient material available.

#### Availability Checks in a Sales Order

- You can execute an availability check for a product to be sold from the sales order document either manually or the system does it automatically.
- An availability check is performed if the material requires an inventory check (availability check type set in material master) or the availability check is set in customizing for the transaction type (e.g., transaction type Telesales - TA).
- The availability check type for a material is set in the material master on the sales and distribution tab (**Gen./Plant**).
- For finished products, it is usually individual requirement (02). In customizing, you can access several tables on which availability checks dependent.
- Via the availability check screen, you can access
  - available to promise (ATP) quantities

- the scope of check for determining available quantities
- the other plants that might have stored the materials

### 3.3.6 Shipping

- **Delivery document** is created as subsequent document to the sales order. Sales order data like material, quantities, dates, incoterms, etc., are transferred to the delivery.
- Delivery document controls, supports, and monitors sub-processes for shipping like:
  - (optional) picking and confirming (transfer requests)
  - (optional) packing
  - (optional) planning and monitoring of transport (shipment document)
  - Goods issue posting (goods issue documents)
- Data from the delivery document are copied to the transfer order for processing within the warehouse.
- When posting the **goods issues**, the delivery document is completed. The goods issue generally reduces stock quantity and, thus, leads to a value change in stock. These value-based changes are recorded on the relevant balance sheet accounts and stock change accounts in financial accounting.

#### Creating an Outbound Delivery

- You create a delivery document for an outbound delivery in the corresponding shipping point of the plant.
- For a sales order, one or multiple outbound deliveries can be created.
  - That is, if an order can be partially delivered, each schedule line of the order can be processed with an individual outbound delivery. Example: you have sold 1000 Speedstars, 500 Speedstars are finished and the other 500 are still in production. The first schedule line contains 500 confirmed Speedstars. This schedule line can be processed into an outbound delivery.
  - You also can deliver different schedule lines (or sales order items) to different recipients. Example: Your sales order has two positions on item level. The customer is company X. The first position contains 100 Speedstars, the second position contains 100 Speedstars (or Speedstarlettes) as well. As you already know, you can control individual items independently from each other. Thus, you can set as ship-to-party (still remember the partner functions;-)) for item 1 the customers storage location in Berlin and for item 2 the storage location in Munich. Therefore, you create two different outbound deliveries from the schedule lines in the sales order.
- You also can combine multiple sales orders in one delivery. To combine multiple sales order schedule lines in one outbound delivery, the sales orders **must** contain exactly the same characteristics important to delivery, i.e.:
  - shipping point
  - due date
  - ship-to-address
- Deliveries can be created in the SAP system either online or in the background at times of less data transmissions. Performing delivery and goods issue execution as

background/batch job, is basically done to avoid system overloads. At nights, when the regular processes are not performed on the system, those operations are executed automatically. However, this is only done if applicable. That is, if, e.g., the delivery is scheduled for the next day.

### Structure of a Delivery Document

A delivery document contains the two levels: **header** and **item**. Data are assigned to the levels as follows:

- **Header:** Data valid for entire document. Data includes ship-to-party, schedules for shipping processing etc.
- **Item:** Each item in the delivery document contains its own data. Data includes material data, quantities, weights and stock information etc. Each delivery document can contain multiple items that can be controlled differently. Examples are material items, free-of-charge items or text items.

A delivery does not contain any schedule lines, since the schedule lines in a sales order correspond with the items in a delivery.

For the efficient processing of delivery document, data can be displayed and maintained in different views. The several views are grouped into overview, header and item screen.

### Roles of Outbound Delivery

The outbound delivery document monitors specific activities within the shipping process

- Route determination
- Monitoring picking
- Packing
- Output determination
- Transportation relevance
- Monitoring of dates such as loading and goods issue posting

### Picking

- The process of picking covers collecting the good to be delivered from the storage bins in the warehouse and provides this material for the delivery document.
- Generally, items that need to be picked are defined in system customizing via the item category used in the delivery document.

This is how the picking process works (an alternative, many process variant are possible):

1. If an item is supposed to be picked, that is, the item category has the flag "relevant for picking" the system generates a transfer request for this item.
2. To improve the picking process, you can create picking lists, containing materials from different outbound deliveries. The list can be sorted according to storage bin and material. You can also calculate the quantities per material. You can print out the picking list from the transfer requests of a warehouse.
3. The picking process can be carried out either automatically or in a separate process step. That is, you can either create a transfer order manually and directly for the outbound delivery or from an item in the picking list, or you can let the system do all the

work. In that case, the transfer order(s) is/are created from the picking list by the system. Transfer orders are created with reference to a warehouse number. Transfer orders can be created in the system either online or in the background during times with less data traffic.

4. Data relevant to picking are copied from the delivery document into the transfer order.
5. The transfer order is used to process the goods movements and allows to monitor the movement within the warehouse (still remember teaching unit 5 ;-)).
6. Items of transfer orders contain the materials and quantities to be picked corresponding to the delivery quantities. Delivery quantities and picking quantities are transferred into the outbound delivery at the same time. For instance, you have a delivery of 100 Speedstars, and Speedstars need to be picked. When the transfer order is completed and the Speedstars are picked completely, the outbound delivery is updated with
  - 100 Speedstars delivery completed
  - 100 Speedstars picking completed
  - By confirming the transfer order, you confirm that the goods have been brought to the goods issue interim storage area.
7. After picking is completed, you can post the goods issue for the outbound delivery.

### Packing

- In the packing process, items that have to be delivered are combined and packed in different shipping units. A shipping unit could be, e.g., a container or a package.
- The items that have to be packed, can be selected in the delivery and can then be assigned to shipping units.
- A shipping unit can also be packed in another shipping unit.

### Posting a Goods Issue

When posting a goods issue, the following steps are completed automatically:

- Quantities in inventory management and delivery requirements are updated in MRP.
- The value change is posted for inventory accounting to the balance sheet accounts (the postings from the relevant accounting documents are based on the material costs).
- Further documents for financial accounting are created.
- The billing due list is created.
- The status of all relevant sales documents is updated.

### 3.3.7 Billing

- You create a billing document with reference to the order and the delivery document items. Hence, the data of sales and delivery document are copied to a billing document.
- The billing document has several important functions:
  - o It helps you to generate invoices.
  - o The billing document is the data source for financial accounting (FI) regarding monitoring and processing of incoming payments.
- When creating a billing document, General Ledger (G/L) accounts are usually updated automatically:

- a debit posting to the customer receivables account
- a credit posting to revenue account
- Invoices can be grouped according to selection criteria such as customers, billing date or destination country.
- As with deliveries and orders, you can combine multiple deliveries in one billing document as well. Prerequisite for this is that several invoice characteristics are shared. This includes:
  - payer (customer)
  - billing date
  - destination country

Invoices can be created in the SAP ERP system either online or in the background in times of less data traffic.

### Structure of a Billing Document

The billing document consists of two levels: **header** and **items**. The data are assigned as follows:

- **Header:** Header data are valid for the entire billing document. This includes information about the payer, the billing date etc.
- **Items:** Each item in the billing document contains data. This includes, for example, material details, calculated quantities and net values for items. Each billing document can contain multiple items.

For the efficient processing of billing documents, data are displayed in different views. The views are grouped in overview, header and item screens.

### Effects of a Billing Document

- Following actions are performed upon billing document creation:
  - Debit posting on the customer receivables account
  - Credit posting on the revenue account.
  - Accounting document is created and all completed postings of financial accounting are recorded that refer to pricing in sales and distribution. This document displays all the postings referred to the billing document creation:
    - receivables on the customer account
    - obtained net sales
    - taxes on the respective G/L accounts.
  - further documents are created for accounting automatically:
    - controlling (SAP CO)
    - optional: profit center controlling (SAP EC-PCA)
    - optional: profitability analysis and market segment analysis (SAP CO-PA)
    - optional: consolidation (SAP FI-LC)
- the following updates are carried out when creating the billing document:
  - the status in all related sales, delivery, and billing documents
  - statistics in the sales information system

- the customer credit account

### 3.3.8 Payment

- Customer pays the bill.
- Amount is posted in the SAP system on the respective G/L account (bank account).
- The following steps are carried out:
  - a debit posting to the cash account and
  - a credit memo to the customer receivables account

### 3.3.9 Integration of the SAP Sales Process

#### Document Flow in the SAP System

- All consecutive documents of a sales process are linked via document flow
  - Inquiry (optional)
  - Quotation (optional)
  - Sales order
  - Delivery
  - Billing
  - Invoice/Account document (not SAP SD → SAP FI)
- You can access any of these documents of the document flow by selecting one of the documents and press the document flow button. The preceding and consecutive documents are presented.
- The document flow list displays all documents of the process, their status and history.
- Document flow is updated on **header** level and on **item** level.
- Since only sales orders contain **schedule lines**, there is no document flow for schedule lines.

#### Sales and Distribution: Integration

##### Customer order management cycle

1. Sales order creation: A sales order contains customer and product information as well as delivery schedules. The employee in charge of order entry in SAP SD uses this information to inform customers about prices and delivery dates prior to order confirmation.
2. Delivery date determination: To determine the planned delivery dates, the SAP SD department carries out availability checks. Therefore, SAP SD is integrated with **materials management**.
3. Production of goods: To produce a product according to customer requirements, SAP SD is integrated with **production planning** for make-to-order purposes.
4. Delivery and billing: Both are integrated with **project systems** if you use project management for a sales project.
5. Packing: The product is packed in the warehouse management application (variances from the ordered quantity are recorded here). Based on that, delivery documents are

created. Therefore SAP SD is integrated with **warehouse management (SAP MM-WM)**.

6. Shipping: When the delivery is released (truck leaves the dock), inventory quantities must be reduced and the general ledger needs to be updated. For this purpose, the SAP SD application is integrated with **materials management, financial accounting**, and possibly **controlling**.
7. Billing and payment: After the product is delivered, an invoice needs to be created and a corresponding posting to the general ledger needs to be carried out. In **financial accounting**, the customers' open items are checked periodically and incoming payments are posted when received.

### Order-to-Cash-Process Account and Material Documents

"Same-same-but-different" – Part 2:

The following is a look ahead of teaching unit 8. Still it is important in this context if you want to understand how production, goods movement, delivery, billing and payment effect accounting and stock quantities, and which documents are created at what step in the order-to-cash-process.

You can check the following illustrations in the system by yourself, using your entries from your data sheet.

Consider that not all accounts involved, are mentioned here due to simplicity reasons. If you are an accounting expert, you will probably realize that, when it comes to simultaneous booking of P/L and Balance sheet accounts. Except of the stock change account no P/L sub accounts are mentioned here. We pretend that the P/L has only one expenditure and one income account.

#### 1. Production Order Confirmation:

When the production order is confirmed, a **material document for the goods receipt** to stock is created. Along with this material document, an **accounting document** is created. The accounting document debits the P/L Account 895000 (a debit from the accounting document point of view for a Profit/Loss Account is considered as income) and credits the G/L account 792000 for finished goods.

This is what happened: You had a goods receipt from production to your storage location. Thus, you had a stock-based increase for Speedstarletts. This increase also occurs on value-base. The value of the Speedstarletts that were posted to stock is equal to the production costs of these finished goods (938.870 €), since this is what the finished goods are worth, before they are sold to any customer. Thus, in the General Ledger the value-based increase is posted to the account 792000.

In the following figure you see the material document with the corresponding accounting document. You also see the assignment of the production order (60003508) to the account document item.

You can check the material document (Document Speedstarlett) in transaction MB03 and there click on the Accounts Document button to display the corresponding accounting document. However, you can also use transaction MIGO (Display/Material Document) as well.

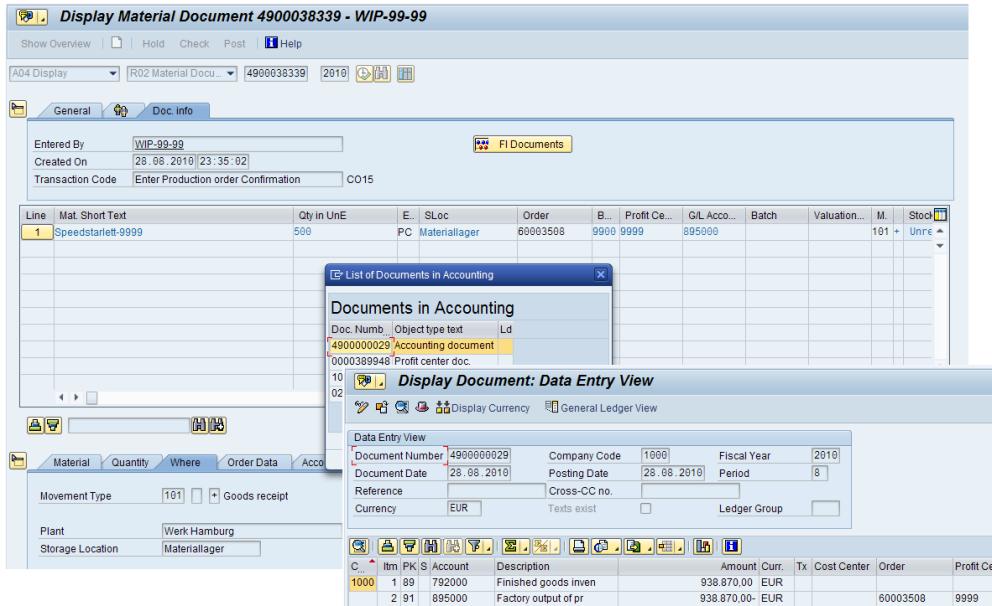


Figure 87: Production Order Confirmation (1): SAP-System-Screenshot

The following figure displays the principle behind the booking of different accounts in Financial Accounting, when confirming the production order. You also see that expenditures (costs of the production order) are posted in divers P/L accounts. From the cost analysis of your production order (transaction CO03), you can see which accounts are debited with costs of production. These are, e.g., account 400000 for all raw material consumptions or account 619000 for activity type 1421 on work center 4210. The costs of production are paid from the company's bank account.

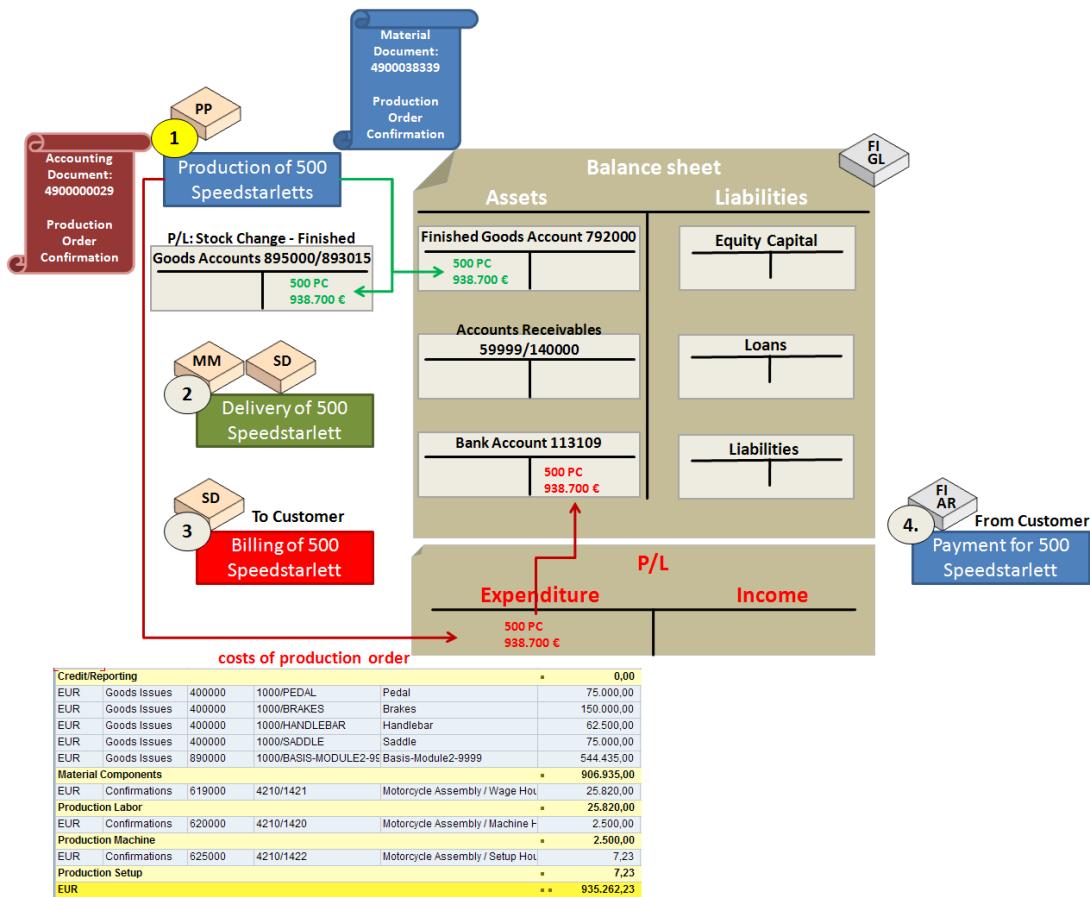


Figure 88: Production Order Confirmation (2)

For simplicity reasons we do not account for variances in production costs here. Just consider that variances are settled to own accounts as well.

## 2. Outbound Delivery:

The outbound delivery also creates a **material document for the goods issue** (you can retrieve the number of the goods issue document from the document flow of the delivery). With the delivery, 500 Speedstarlets are sent to the customer and, thus, leave your company and reduce the stock quantity. Simultaneously, the value of your stock decreases, too. This is accounted on the P/L-account 893015 and on the G/L-account 792000 and documented in an **accounting document**.

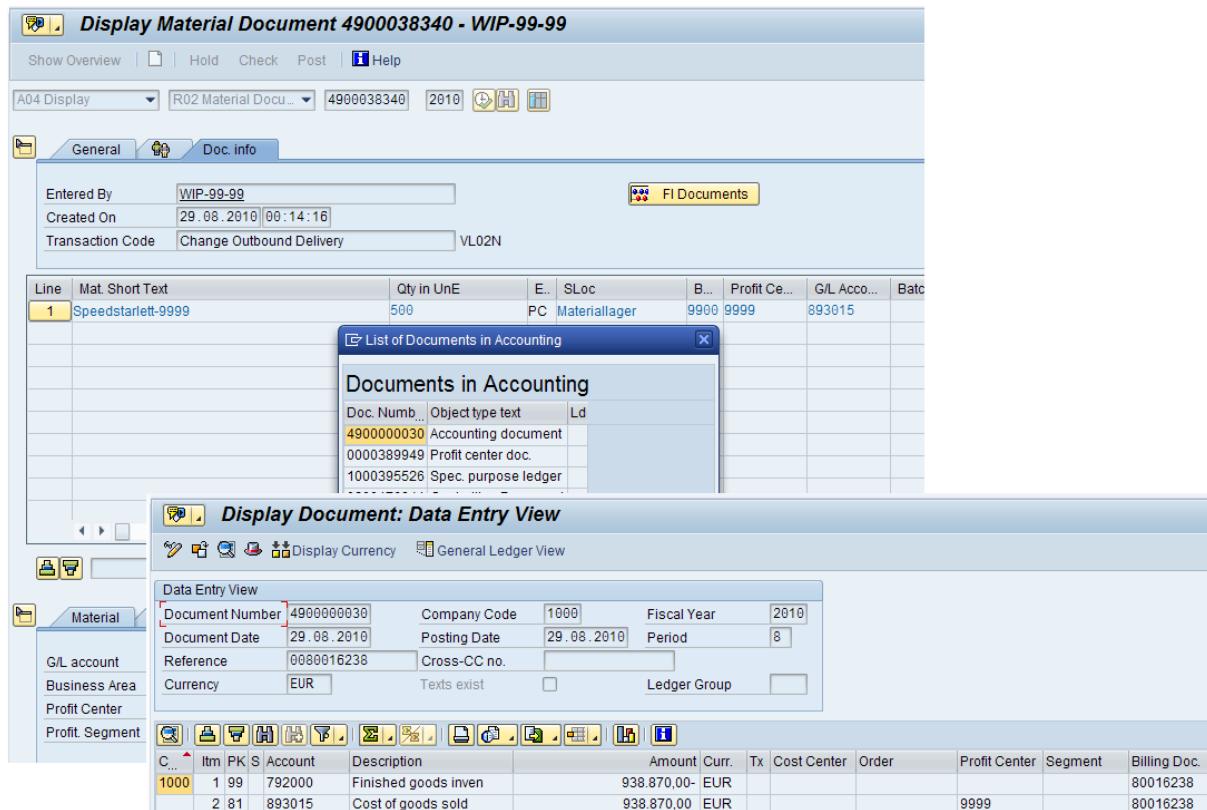


Figure 89: Outbound Delivery/Goods Issue (1): SAP-System-Screenshot

Again, the following figure displays the principle of accounting for the goods issue. After the goods issue is posted, the accounts 792000 and the stock change accounts are balanced out. However, the status of your delivery, as you might remember from the case study, is “in Process”, since you have not billed the customer yet. This is done that way, because the customer account is not debited yet. If the delivery were completed at this point, you would never get your money from your customer. The status of the delivery, even though your customer already received his product, tells you that there is still work to do.

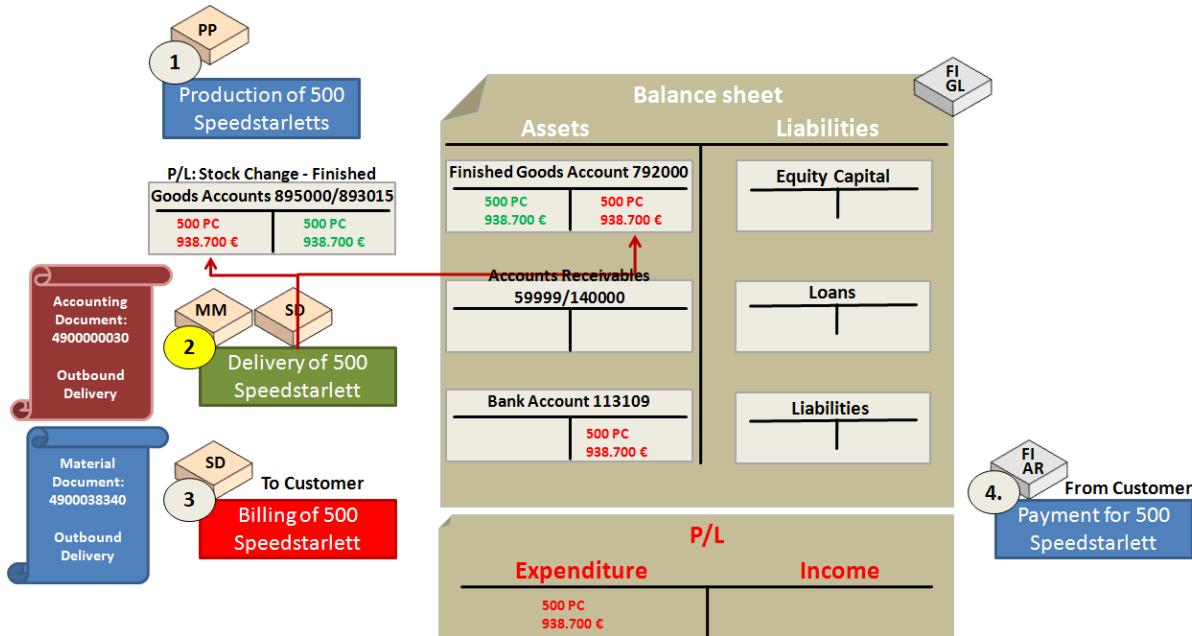


Figure 90: Outbound Delivery/Goods Issue (2)

### 3. Billing:

After the billing document is saved, the outbound delivery is updated and its status is set to “completed”. The billing document creates also an **accounting document** with the full amount of the money the customer has to pay. You can display the following accounting document from your billing document in transaction VF03.

Consider that in the following, again for simplicity reasons, the taxes are not considered in the illustration. Taxes are also (like variances) posted to a special account (e.g., 175000), depending on the type of tax. Taxes are income neutral, since they are transferred to government completely. In the following, we pretend that the customer pays 1.100.000 € instead of 1.309.000 € (+VAT).



Figure 91: Billing (1): SAP-System-Screenshot

The billing document creates a receivable position (accounts receivable to sales revenue) on the customer account 5xxxx. This account is, as you already know, assigned to the reconciliation account 140000 in the General Ledger. This posting tells the system, that you still receive money from the customer. The income of this sales order is already posted on the P/L account (Sales revenue - 800000) but the corresponding ac-

count document, which was generated from the billing document, is not cleared yet. You could see that in the document flow, after you created your own billing document.

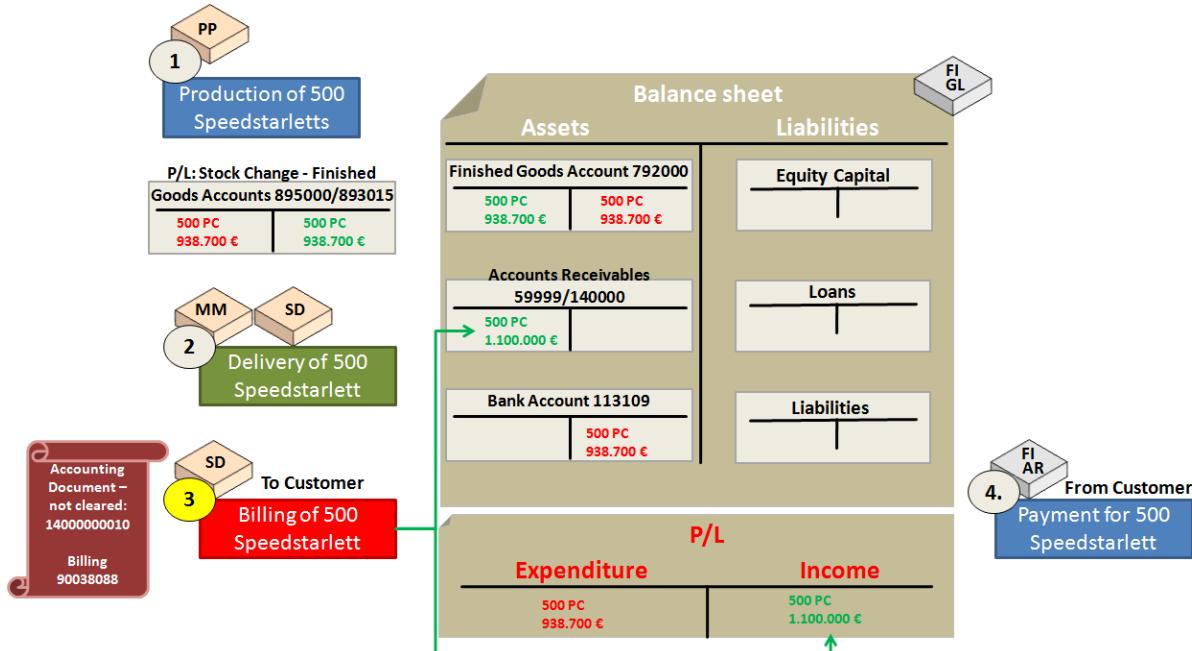


Figure 92: Billing (2): SAP-System-Screenshot

#### 4. Payment:

Now you receive the payment from the customer. With another **accounting document (clearing document)**, the money is posted on your company's bank account and the accounting document to your billing document is **cleared**. The customer account 5xxx and its counterpart (reconciliation account 140000) are balanced out, since the customer paid his outstanding debts (bank to accounts receivable).

Now, all accounts involved in this process are balanced out, except of your bank account of course. Here, you witness a profit of 161.300 €.

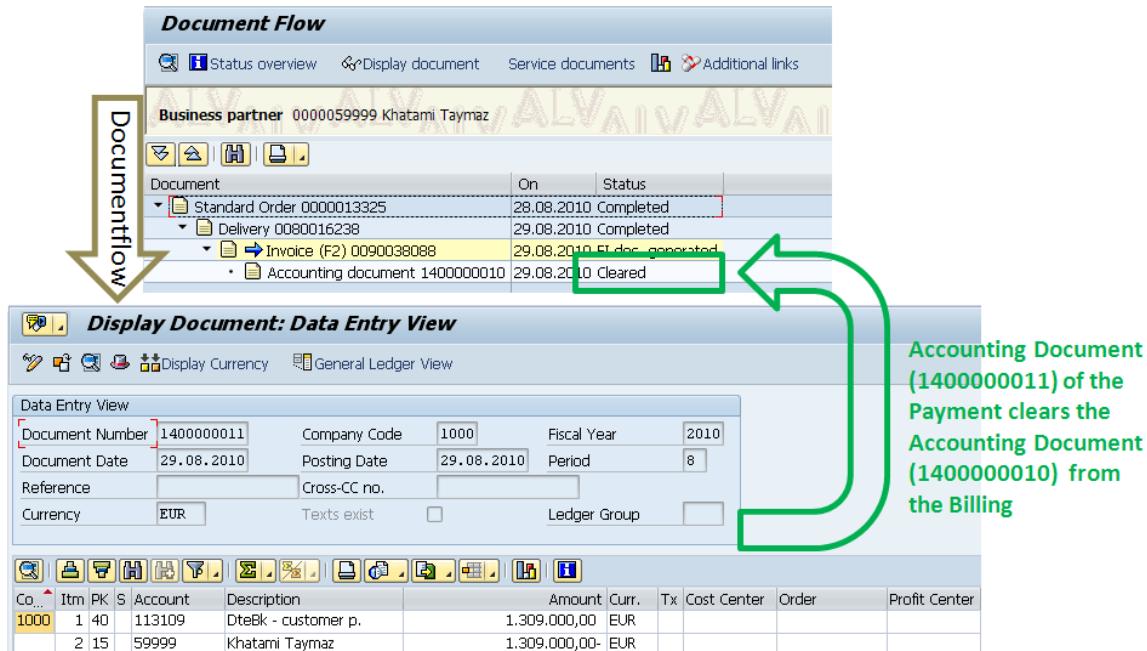


Figure 93: Payment (1): SAP-System-Screenshot

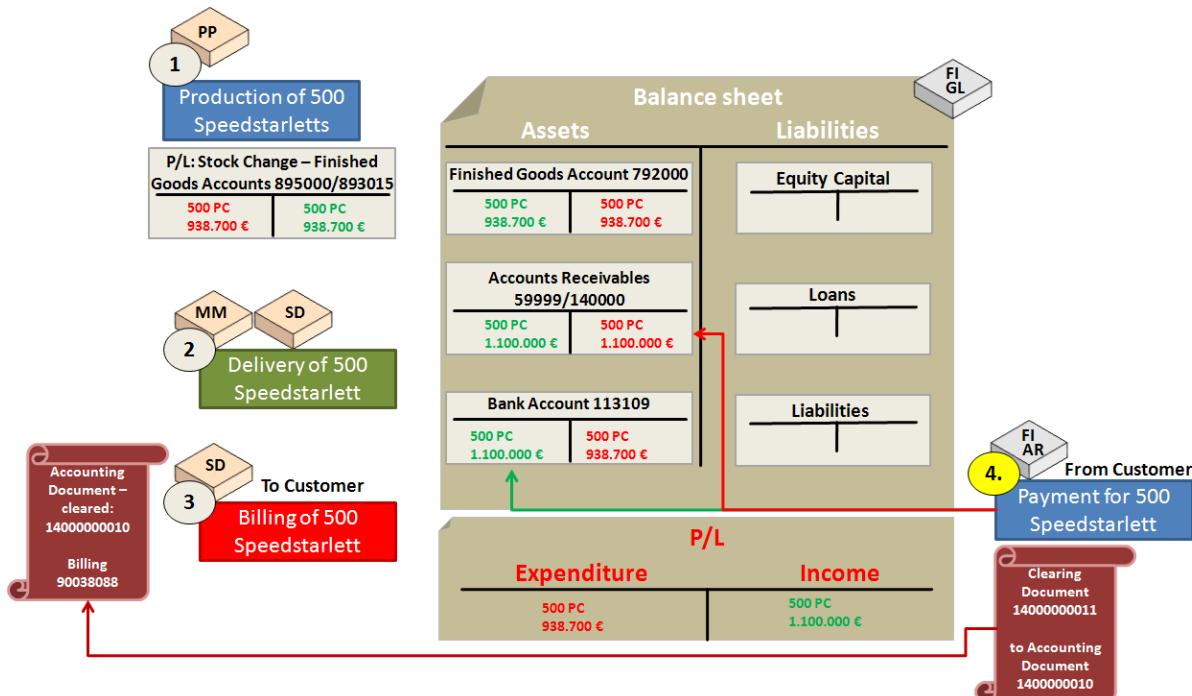


Figure 94: Payment (2)

## 4 Reporting in SAP ERP Sales and Distribution

Reporting in SAP enables the evaluation of business processes. Thereby, each functional area owns individual information systems. In this chapter, you will learn about tools for displaying and formatting information by the means of list display, evaluations and the Sales Information System of SAP ERP.

### 4.1 Theory: Reporting and Analysis Tools in SAP ERP SD

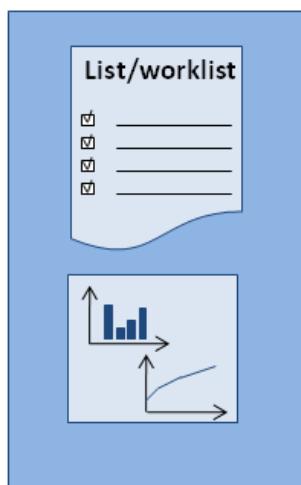


#### Theory

A wide variety of different documents is created during a process in SAP ERP, e.g., a production process. In a production process, for example, sales documents, material documents, invoice documents, and accounting documents are created. These documents are posted in the SAP system and stored in database tables. You can evaluate this information by using standard reports.

The sales and distribution component in the SAP ERP system features several information systems as well. Along with lists and reports as well as standard analyses, a sales information system is available.

#### Contents:



#### Information sources in Sales Order Management

- Lists and reports
  - Online lists and online reporting
  - Worklists
  - Document flow
- Sales Information System
  - Information structures
  - Standard analyses
  - Flexible analyses

Figure 95: Reports and Analyses for Processes in Sales Order Management

#### 4.1.1 Sources of Sales Order Information

The information system belongs to the SD module is the **sales information system (SIS)**. Using the SIS, you can compress data from sales documents to gain information to support strategic decisions. The SIS contains both standard analyses as well as flexible analyses to evaluate statistical data.

The SAP ERP system features list functions to create worklists in sales, delivery, picking and billing.

The Logistics Information Library (LIL) is a tool, used to help the occasional user locate statistics or reports they need by using a variety of search methods. ABAP queries allow users to

extract data from database tables when the reporting needs are simple. Using the logistics information library, you can integrate standard analyses, flexible analyses and individual reports. The Logistics Information Library can be structured and extended as required.

When the standard reports do not meet the requirements, you can extract information from the database to a report by using ABAP queries.

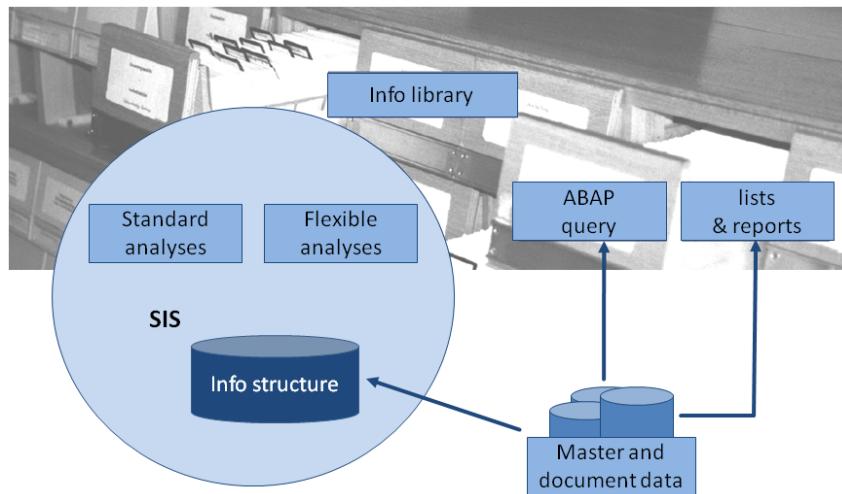


Figure 96: Sources of Sales Order Information

#### 4.1.2 Lists and Reports

The target group for working with online lists is SAP ERP end users. Thereby, SAP ERP users use lists to identify a specific document, documents in a specific status or documents waiting further processing. When generating the online lists, the system reads the information directly from the documents and master records (very performance-intensive).

These lists are practically available for each step of a sales process (e.g., quotation, sales order, outbound delivery, billing document). All lists, no matter which process step, work in the same way. Functions such as sorting, searching, filtering, etc., make it easier to find specific information.

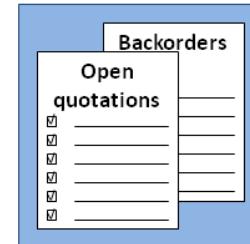
Reporting and analysis can be carried out easily and quickly by using the totaling function (sum sign). As a rule, individual documents can be processed from a list. In some lists, it is possible to select several documents and change them collective, for specific values.

You can categorize lists as follows:

- **Online lists**
  - o Online lists can display, for example, sales, delivery or billing documents for a customer or a material, or a combination of both.
  - o Other online lists display documents with a particular status that requires action (e.g., all documents blocked for delivery).
- **Worklists**
  - o Worklists allow for the selection of particular tasks in the SD module for further processing. An employee can select tasks according to the respective area

of responsibilities and according to relevant selection criteria (e.g., date, organizational element, or customer).

- Online lists
  - provide data from documents
  - display documents, for example
    - for a customer or a material
    - with a specific status
  - allow you to review and change documents



- Worklists
  - display work that needs to be processed
  - allow you to organize tasks into efficient work units

**Figure 97: Lists and Reports**

#### 4.1.2.1 Example: Sales Order List

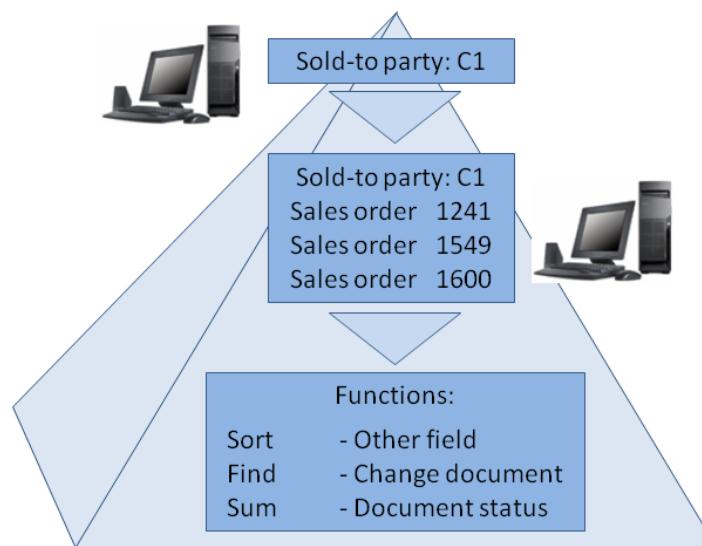
An employee can enter information to restrict the options on the selections screen in the appropriate fields. Then, a list with the respective documents is displayed.

The following options are available to further edit the list:

- filter, sort, and sum up functions
- add or delete fields (columns)

Using the list, you can also

- display or change a sales order and return to the list
- display status information for each document (overall status, delivery status, etc.)



**Figure 98: Example: Sales Order List**

#### 4.1.2.2 Example: Documents with a Specific Status

You can display document lists using the date and some additional selection criteria. For example, you can:

- display lists of the inquiries or quotations, which are to be processed by a specified point in time
- display lists of all sales orders that still have to be delivered
- display lists of the incomplete sales and distribution documents in which important information for the subsequent process steps is missing

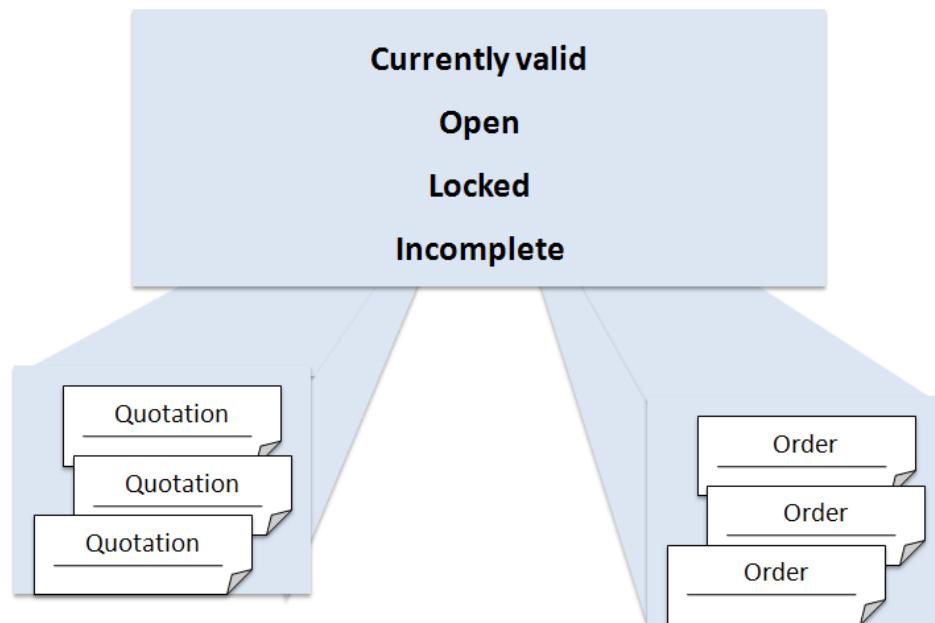


Figure 99: Example: Documents with a Specific Status

#### 4.1.2.3 Worklists

A worklist is a summary of objects, which meet certain criteria and require further processing. Work lists are used to list all the documents that still need processing with a certain subsequent function. This can be purely for information purposes or it can be used to process the documents more efficiently.

The following figure gives an overview of the options available for collective processing in order to support the SD process.

The **delivery worklist** is available for processing many sales documents for deliveries. The creation of transfer orders for picking is executed by the **picking worklist**.

The **goods issue worklist** applies to the outbound delivery of many goods. In this list, transactions that require picking are only considered when picking was completed successfully.

The **billing due worklist** is used to create invoices for deliveries and orders.

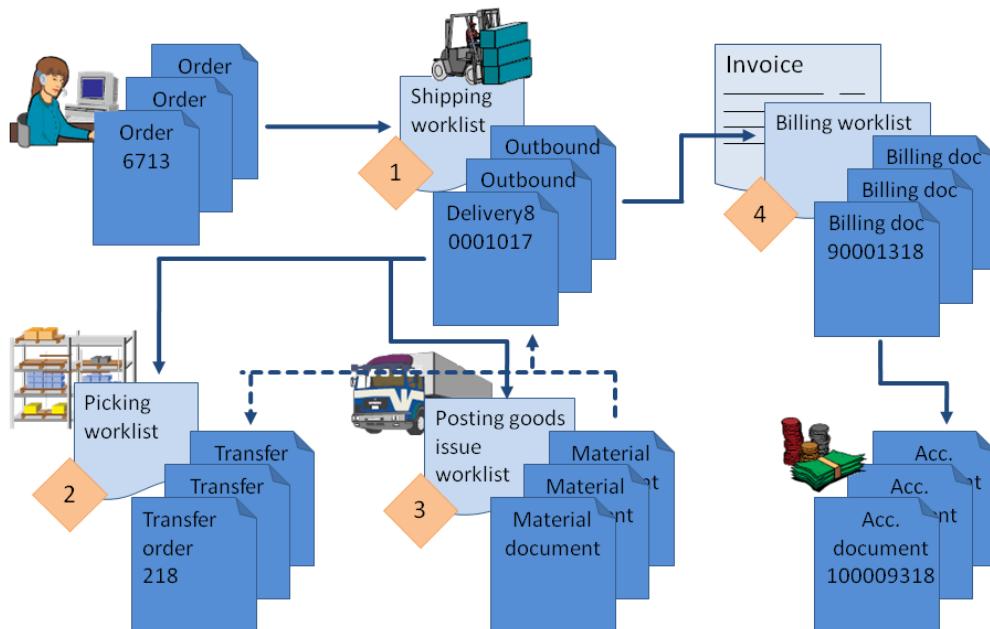


Figure 100: Worklists

#### 4.1.3 Information Structures in Sales Order Management

Information structures define a group of information for aggregation and evaluation. There are 7 different standard information structures available for the SD module (e.g., S001 to S006). These standard analyses allow for data evaluation without additional setting required in customizing.

For internal use, there are additional information structures available in the standard system, for example, for credit management, rebate processing, sales support or for processing contracts.

In customizing, you can also create individual information structures. Therefore, the name range S501 to S999 is available.

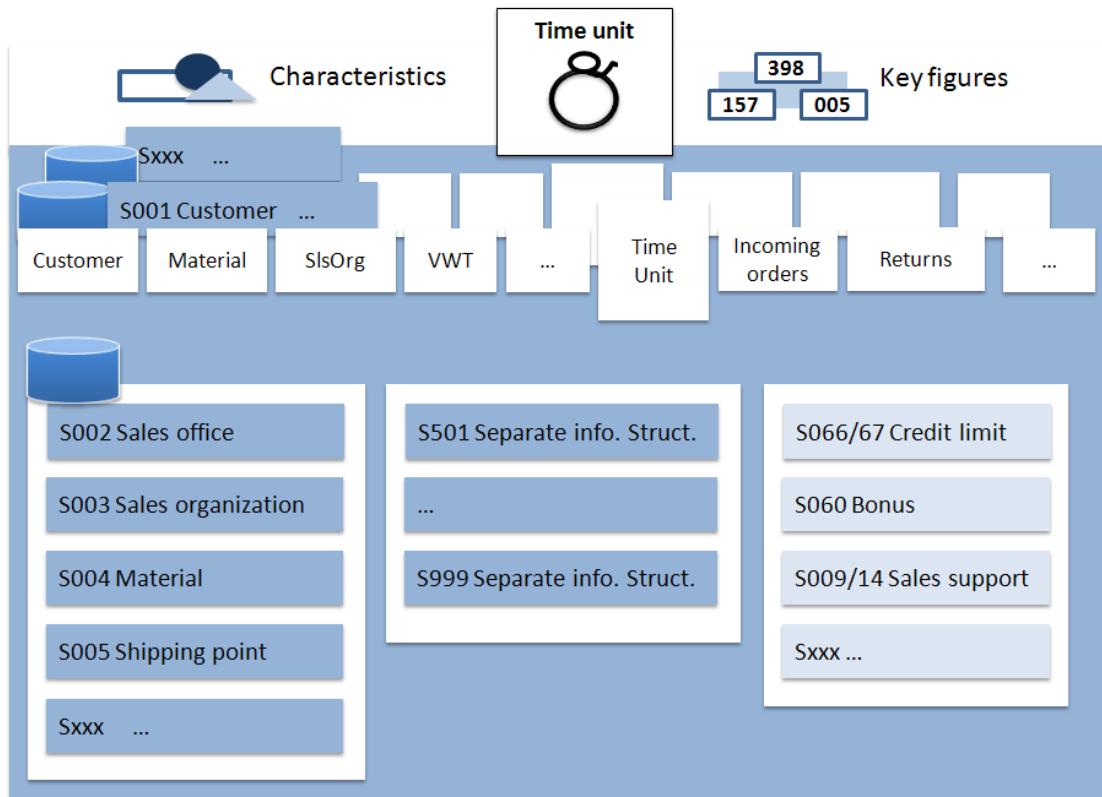


Figure 101: Information Structures in Sales Order Management

#### 4.1.4 Standard Analyses

Standard analyses feature all-encompassing functionality to create complex presentations and data analyses.

The previously described information structures are the basis of the analyses. The first step of processing a standard analysis is to select the required data range. The selection of the data range is based on characteristics and the time range of the information structure. These data are displayed in an initial list. In these lists you have several drill-down functions. The individual analyses can be saved.

You can call up standard transactions from the current analysis directly, e.g., to display master data or document information.

To analyze the selected data and for presentation, there are multiple tools, e.g., frequency curves, ABC analyses, time series, correlation, Top N evaluations and other comparison tools. Finally, you can display the data graphically.

In addition, analyses results can be

- printed
- downloaded as a file to a local PC
- downloaded to a spreadsheet application
- sent to one or more employees using the SAP workplace component

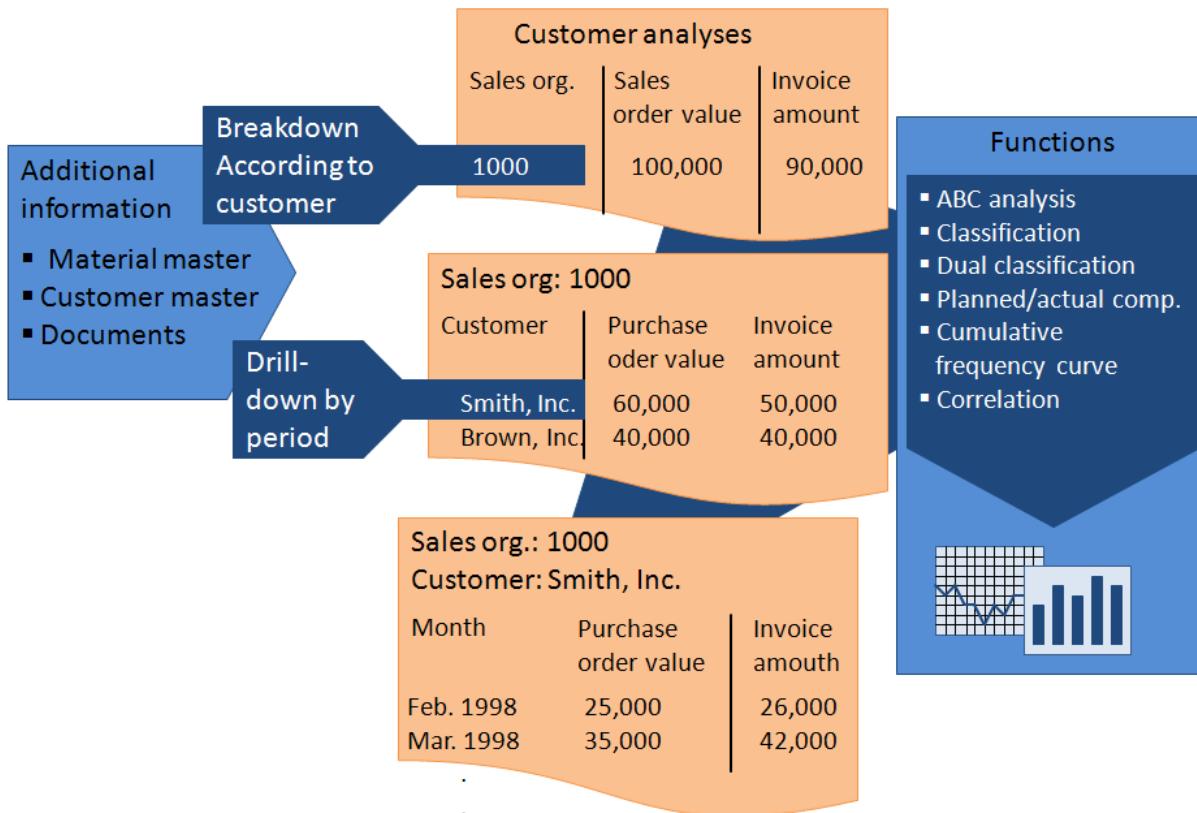


Figure 102: Standard Analyses

## 4.2 Practice: Reporting and Analyses Tools in SAP ERP SD



The sales department needs to carry out reporting and analyses on document level for the current sales processes. You will now learn to handle the list display functions.

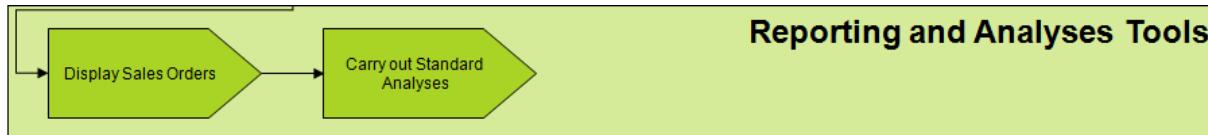


Figure 103: Process Overview: Reporting and Analyses Tools

### 4.2.1 Display Sales Orders

Display a report for all sales orders of your *customer 5xxyy*. Choose

**Logistics → Sales and Distribution → Sales → Information System → Orders → List of Sales Orders (VA05)**

1. On the *List of Sales Orders* screen, enter the number of your **customer (5xxyy)** in the Sold-to-party field and confirm with *Enter*.
2. In case you receive the message that **no worklist was selected** and you are prompted to check your entries, check the organizational data by using the **organizational data button**. It is likely that a sales area was entered by default in which the customer is not active. If this is true, delete distribution channel and division and execute the report only for sales organization **1000**.
3. You receive a trivial list with only one entry, namely the sales document from the previous cash to order process.
4. Insert the **Confirmed quantity**, **Plant** and **Shipping point** data at the end of the list. Therefore, choose the button **current** ( ), select the respective entries from the right table; choose **show selected fields** ( ) and **transfer** ( ). You should receive the following figure.

List of Sales Orders By partner - Schedule lines															
List of Sales Orders By partner - Schedule lines															
Sold-to party 0000059999 Khatami Taymaz Stuttgart Doc. date 30.07.2010 To 29.08.2010															
Delivery Date	SD Do...	Item	Material	Description	Order qty	SU	Σ	Net price	Doc. Date	Name 1	SOrg.	SOff.	ConfirmQty	Plant	ShPt
29.08.2010	13325	10	SPEEDSTARLETT-9999	Speedstarlett-9999	500	PC		2.200,00	28.08.2010	Khatami Taymaz	1000		0	1000	1000
31.08.2010		10	SPEEDSTARLETT-9999	Speedstarlett-9999	500	PC		2.200,00	28.08.2010	Khatami Taymaz	1000		500	1000	1000

Figure 104: Sales Orders List: SAP-System-Screenshot

5. Leave the report.

#### 4.2.2 Carry out Standard Analyses

Your boss asked you to check the sales history per customer for your sales organization by performing a standard customer analysis in the sales information system. Create a top 10 list of customers according to sales and display the data graphically. Since you will carry out this report frequently, save a report version.

Perform a customer analysis in the ***sales information system*** for sales organization **1000**. The analysis is supposed to be carried out in the period from **January 2004** until the ***current date***. Therefore, call up

***Logistics → Sales and Distribution → Sales Information System → Standard Analysis → Customer (MCTA)***

1. On the customer analysis: selection screen, enter the subsequent data:
  - Sale organization **1000**
  - Month from **01. 2004**
  - Month until **current period**
  - **Delete** the entries in all other fields.
  - To save this variant in an ***individual variant***, choose **save**.
  - Enter variant name **Sales-xxyy** and enter **Sales Report xxxyy** in the description field.
  - **Save** again.
  - Execute the report 
2. To display the top 10 customers, click on the column header **Sales** and choose the **Top N...** button. On the next screen, enter frequency **10**.
3. Display **customer ID** and **names** by choosing **Settings → Characteristic Display → Keys and Descriptions** from the menu.
4. Since the column width is not sufficient to display both customer ID and name, adjust the column width. Click the **column header sold-to-party** and select **Settings → Column Width → Characteristic** from the menu. Enter the number **40** for the column width and confirm your entry.
5. Add the key figures billing quantity and open sales order quantity and remove the key figure credit memo. Choose **Edit → Choose Key Figures**. Select the measure **credit memo** on the left hand side of the screen. Select **do not choose** . On the right hand side, select **incoming order quantity** and **open orders quantity**. Press **choose** . Confirm with **Enter**.
6. List the name of your most important customer regarding **Sales** figures on your data sheet.

**Biggest customer:** \_\_\_\_\_

7. **Drill down** to display details for your customer. Drill down until the statistics is displays by period. Therefore, double-click on the ***name*** of your biggest customer.

8. Display the sales statistics for this customer **graphically** by choosing the graphics button ( or F5) and deselecting all entries but **Sales**. Choose *Enter*.
9. You should get to the following screen (or similar).

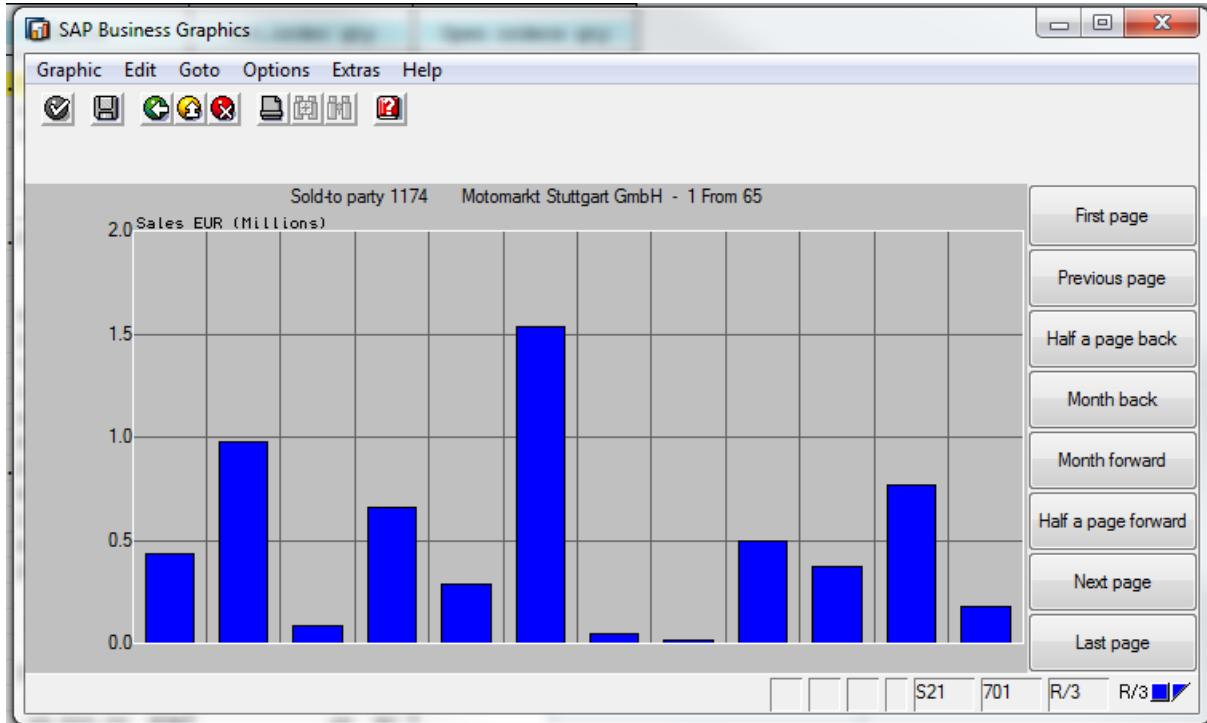


Figure 105: Sales Statistics: SAP-System-Screenshot

10. Leave the report **without** saving.

## 4.3 Elucidation



### What have we learned so far?

In this section you have become acquainted with SAP's Sales Information System. You have learned how to create reports and analyses by using the SIS.

### 4.3.1 Sources of Sales Order Information

The Sales Information System is a flexible tool which allows you to collect, to consolidate and utilize data from Sales and Distribution processing. It can be used at different levels in the decision-making process as a control and planning instrument, enabling you to recognize market developments and economic trends early on and to take appropriate measures. The Sales Information System is a component of the Logistic Information System (LIS), which contains a range of other information systems including those for Purchasing and the Shop Floor. The SIS features:

- Standard analyses and flexible analyses to evaluate statistical data
- List functions to create worklists in sales, delivery, picking and billing
- The logistics information library enables to integrate standard analyses, flexible analyses and individual reports. It can be structured and extended as required.
- Information extraction from the database to a report using ABAP queries (when the standard reports do not meet the requirements)

### 4.3.2 Lists and Reports

Lists are used by employees to identify a specific document, documents in a specific status or documents waiting further processing. When generating the online lists, the system reads the information directly from the documents and master records (very performance-intensive).

These lists are practically available for each step of a sales process (e.g., quotation, sales order, outbound delivery, billing document).

Functions such as sorting, searching, filtering, etc., make it easier to find specific information. Reporting and analyses can be carried out easily and quickly by using the totaling function (sum sign). As a rule, individual documents can be processed from a list. In some lists, it is possible to select several documents and change them collective, for specific values.

You can categorize lists as **Online lists** and **Worklists**.

**Online lists:** This function enables you to call up lists to meet certain criteria such as all the orders for a particular customer within a certain time period, to determine, which orders still need to be processed or which billing documents are blocked for Financial Accounting.

- You display, for example, sales, delivery or billing documents for a customer, a material or a combination of both.
- You can display documents with a particular status that requires action (e.g., all documents blocked for delivery).

Example - *Sales Document List*:

- You use this function to list sales and distribution documents (such as sales orders or billing documents) within a certain time period. You can also specify additional criteria such as:
  - o business partner (e.g., sold-to party, payer)
  - o and/or material
  - o purchase order number
- You can decide whether you want to list all sales documents or just open one. You can also restrict your list to all those sales documents you created by yourself. There are various reasons for setting up a list of sales documents, for example:
  - o You want to obtain information about existing sales orders in response to a customer inquiry.
  - o You want to display all quotations for a certain material or a business partner for analysis.
  - o You want to display all sales orders where data is still incomplete.
- The following options are available to further edit the list:
  - o filter, sort and sum up functions
  - o add or delete fields (columns)
- Using the list, you can also
  - o display or change a sales order and return to the list
  - o display status information for each document (overall status, delivery status, etc.).

**Worklists:** A summary of objects, which meets certain criteria and require further processing. You can use work lists to list all the documents that still need processing with a certain subsequent function. This can be purely for information purposes. Or you can use it to process the documents more efficiently.

- Allow for the selection of particular tasks in the SD module for further processing.
- An employee can select tasks according to the respective area of responsibilities and according to relevant selection criteria (e.g., date, organizational element, or customer).
- Options available for collective processing in order to support the SD process:
  - o **Delivery worklist:** Is available for mass-processing of sales documents for deliveries.
  - o **Picking worklist:** Creation of transfer orders for picking can be executed from this list.
  - o **Goods issue worklist:** Applies to the outbound delivery of many goods. In this list, transactions that require picking are only considered when picking was completed successfully.
  - o **Billing due worklist:** Is used to create invoices for deliveries and orders.

### **4.3.3 Information Structures in Sales Order Management**

You already know from teaching unit 1 (Procurement) what information structures in SAP information systems are. Information structures define a group of information for aggregation and evaluation.

- In the standard system, the following information structures are available in the Sales Information System:
  - o S001 "Customer"
  - o S002 "Sales office"
  - o S003 "Sales organization"
  - o S004 "Material"
  - o S005 "Shipping point"
  - o S006 "Sales employee "
- These information structures form the data basis for the respective standard analyses of the same name.
- These standard analyses allow for data evaluation without additional setting required in customizing.
- There are additional information structures available in the standard system (for credit management, rebate processing, sales support or for processing contracts, etc.)
- In customizing, you can also create individual information structures using name range S501 to S999.

### **4.3.4 Standard Analyses**

Standard analyses contain all functionality that is needed to create complex presentations and data analyses:

- Information structures are the basis of the analyses.
- Executing a standard analysis:
  - o Select the required data range based on characteristics and the time range of the information structure.
  - o Data are displayed in an initial list.
  - o In the lists, you have several drill-down functions.
  - o The individual analyses can be saved.
- You can call up standard transactions from the current analysis directly, e.g., to display master data or document information.
- To analyze the selected data and for presentation, there are multiple tools, e.g.:
  - o Frequency curves
  - o ABC analyses
  - o Time series
  - o Correlation
  - o Top N evaluations
  - o Display data graphically
- In addition, analyses' results can be
  - o printed
  - o downloaded as a file to a local PC

- downloaded to a spreadsheet application
- sent to one or more employees using the SAP workplace component

## 5 Data Sheet

Congratulations! You completed the **sales order management** case study.

The subsequent case studies are based on the results of this case study. In case your data differs from the description in the script, please contact your tutor prior to processing another case study.

Finally, please **submit the carefully completed data sheet** to your tutor (use support email address from the welcome mail) for the case study **sales order management**.

Please comply with the naming rules. Non-compliant data sheets will not be accepted; i.e. rename the document that you downloaded from this course's download area as follows:

**06-sales-xxyy-zzz-surname.doc**

Thereby, you need to replace **xxyy** with your user number **without** the “**WIP**“ and without the hyphen (WIP-xx-yy) and replace **zzz** with the number of the client you are working on.

Example:

Your name is **Max Mustermann**, you are working on **client 901**, and your **user number is WIP-99-99**. Then, name the document as follows:

**06-sales-9999-901-Mustermann.doc**

## 6 Reflexion



Test your knowledge. In this section you are confronted with some question regarding the theoretical chapters of this teaching unit. Try to answer the questions on your own before taking a look at the standard solutions.

### 6.1 Questions

#### Comprehension Questions

1. What are the six business processes within the Sales Order Management cycle?

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2. What tool allows you to quickly view the status of a document?

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3. What are the 3 components or levels of a sales document?

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4. What term is used to define prices and discounts?

---

5. How do you know that payment has been received from the customer for a particular invoice?

---

6. What does the scope of availability check determine?

---

7. How is Sales and Distribution integrated with Material Management and Material Planning?

---

8. What part of LIS is used in Sales and Distribution?

---

9. What documents are created at Invoice?

---

### **Multiple Choice**

10. Which of the following organization units are used to create the Sales Area?

(3 correct answers)

- a. Sales Group
- b. Company Code
- c. Division
- d. Sales Organization
- e. Distribution Channel

11. Which organization unit is used to represent how you distribute goods to the customer?

(1 correct answer)

- a. Sales Organization
- b. Plant
- c. Distribution Channel
- d. Sales Group

12. Customer Master Data is grouped into categories. What are the categories?

(3 correct answers)

- a. Company Code Data
- b. Plant Data
- c. General Data
- d. Basic Data
- e. Sales Area Data

13. Which of the following statements about Sales Order Management are true?

(3 correct answers)

- a. The sales document structure is grouped by Header and Lines only.
- b. One delivery document can be created from multiple sales documents.
- c. An accounting document is created when you post goods issue.
- d. A Sales Order document must reference a quotation.
- e. Sales Document Flow can be displayed for the header or line level.

14. Which of the following defines customer master data?

(3 correct answers)

- a. comes from FI and MM
- b. contains information necessary to post in FI
- c. is valid for a given Sales Area
- d. has data stored at the client level

15. Master Data that is relevant to SD includes?

(4 correct answers)

- a. Customer
- b. Material
- c. Creditor
- d. Conditions
- e. Output

16. Which of the following are integrated with SD?

(4 correct answers)

- a. Warehouse Management
- b. Material Management
- c. Human Resources
- d. Material Planning
- e. Project Systems

17. What kind of master data is for a sales order?

(3 correct answers)

- a. Conditions
- b. Asset Master
- c. Customer Master
- d. Vendor Master
- e. Material Master

18. What is the highest Sales and Distribution unit?

(1 correct answers)

- a. Sales Area
- b. Sales Organization
- c. Distribution Channel
- d. Division
- e. Company Code

19. Which of the following statements are correct regarding Standard Analyses?

(3 correct answers)

- a. provide extensive functions to create sophisticated presentations and analyses for the data
- b. The analyses are based on the information structures.
- c. allows you to use your formulas to calculate new key figures
- d. Output can be downloaded into an Excel.

20. What can you do with standard analyses reports?

(3 correct answers)

- a. download to a file
- b. SAP Mail the report
- c. download to Excel
- d. download as an icon on desktop

## 6.2 Standard Solution

### Comprehension Questions

1. What are the six business processes within the Sales Order Management cycle?

**Pre-sales. Sales, inventory sourcing, delivery, billing and payment**

2. What tool allows you to quickly view the status of a document?

**Document flow**

3. What are the 3 components or levels of a sales document?

**Header, line item, and schedule line**

4. What term is used to define prices and discounts?

**Conditions**

5. How do you know that payment has been received from the customer for a particular invoice?

**The overall processing status of the accounting document changes to ‘Cleared’**

6. What does the scope of availability check determine?

**The scope of check determines the types of current stock as well as inward and outward movements of inventory that are included in the availability check.**

7. How is Sales and Distribution integrated with Material Management and Material Planning?

**Answers:**

**MM - Availability check**

**MP - Create demand**

8. What part of LIS is used in Sales and Distribution?

**Answer: SIS**

9. What documents are created at invoice?

**Answers:**

**Invoice**

**Accounting Document**

### Multiple Choice

10. Which of the following organization units are used to create the Sales Area?

(3 correct answers)

- a. Sales Group
- b. Company Code
- c. Division
- d. Sales Organization
- e. Distribution Channel

**Answers: c, d, e**

11. Which organization unit is used to represent how you distribute goods to the customer?

(1 correct answer)

- a. Sales Organization
- b. Plant
- c. Distribution Channel
- d. Sales Group

**Answer: c**

12. Customer Master Data is grouped into categories. What are the categories?

(3 correct answers)

- a. Company Code Data
- b. Plant Data
- c. General Data
- d. Basic Data
- e. Sales Area Data

**Answers: a, c, e**

13. Which of the following statements about Sales Order Management are true?

(3 correct answers)

- a. The sales document structure is grouped by Header and Lines only.
- b. One delivery document can be created from multiple sales documents.
- c. An accounting document is created when you post goods issue.
- d. A Sales Order document must reference a quotation
- e. Sales Document Flow can be displayed for the header or line level

**Answers: b, c, e**

14. Which of the following defines customer master data?

(3 correct answers)

- a. comes from FI and MM
- b. contains information necessary to post in FI
- c. is valid for a given Sales Area
- d. has data stored at the client level

**Answers:** b, c, d

15. Master Data that is relevant to SD includes?

(4 correct answers)

- a. Customer
- b. Material
- c. Creditor
- d. Conditions
- e. Output

**Answers:** a, b, d, e

16. Which of the following are integrated with SD?

(4 correct answers)

- a. Warehouse Management
- b. Material Management
- c. Human Resources
- d. Material Planning
- e. Project Systems

**Answers:** a, b, d, e

17. What kind of master data is for a sales order?

(3 correct answers)

- a. Conditions
- b. Asset Master
- c. Customer Master
- d. Vendor Master
- e. Material Master

**Answers:** a, c, e

18. What is the highest Sales and Distribution unit?

(1 correct answers)

- a. Sales Area
- b. Sales Organization
- c. Distribution Channel
- d. Division
- e. Company Code

**Answer:** b

19. Which of the following statements are correct regarding Standard Analyses?

(3 correct answers)

- a. provide extensive functions to create sophisticated presentations and analyses for the data
- b. The analyses are based on the information structures.
- c. allows you to use your formulas to calculate new key figures
- d. Output can be downloaded into an Excel.

**Answers: a, b, d**

20. What can you do with standard analyses reports?

(3 correct answers)

- a. download to a file
- b. SAP Mail the report
- c. download to Excel
- d. download as an icon on desktop

**Answers: a, b, c**