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Hands-on with SAP ERP and IDES

Carrying out a complete ERP process

C.T. Draijer; D.J. Schenk



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D.J. SCHENK & C.T. DRAIJER

HANDS-ON WITH SAP ERP AND IDES

CARRYING OUT A COMPLETE ERP PROCESS

FOURTH EDITION

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Hands-on with SAP ERP and IDES: Carrying out a complete ERP process
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PREFACE

The material for this module was based on the exercises with the Vulcan project of the University of Würzburg and scenarios as described for SAP's model business IDES.

In June 2000 an upgrade took place of the SAP ERP system and of the course book accompanying the 4.6b version of SAP ERP. In July 2001 the course book was revised and modified as version 4.5.c.

In July 2002 some minor updates were made as result of feedback from users of the syllabus.

We greatly appreciate the cooperation and contribution of Bernhard van Dijk, Sandra de Hoog and Andy Lay. We thank Michael Egmont-Petersen and Johan Versendaal of the Institute of Information and Computing Sciences, Utrecht University, for their contribution to this book.

In July 2006 the material was revised and modified as version SAP ERP 2004 IDES.

In May 2009 the material was extended, revised and modified as version SAP ERP 5.0 IDES.

Spring 2013 a lot chapters have been improved, like human resource management and the more detailed calculation of production costs. We thank Jan van der Belt, VU University, and Colm O'Flynn, HvA. Special thanks go to Arnold Caris as co-author of the previous editions.

Spring 2016 FAQ are added, errors are corrected and an update to SAP GUI 7.4.

Amsterdam, 13 June 2016

Dirk-Jan Schenk
Casper Draijer

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INTRODUCTION

Information within large companies (multinationals) is usually extracted from separate registration systems which support specific business functions such as production planning, warehousing, financial accounting and personnel administration.

Many companies wish to integrate their business processes. Process integration reflects the change from a functional organisation towards a process oriented organisation. The integration is not only within the company, but also beyond the borders of the organisation. The external process integration with customers and vendors uses Customer Relationship Management and Supplier Relationship Management. The cooperation with other companies is done with Supply Chain Management and Product Lifecycle Management.

Enterprise Resource Planning (ERP) integrates logistics, financial and human resources in one system. (See Figure A)

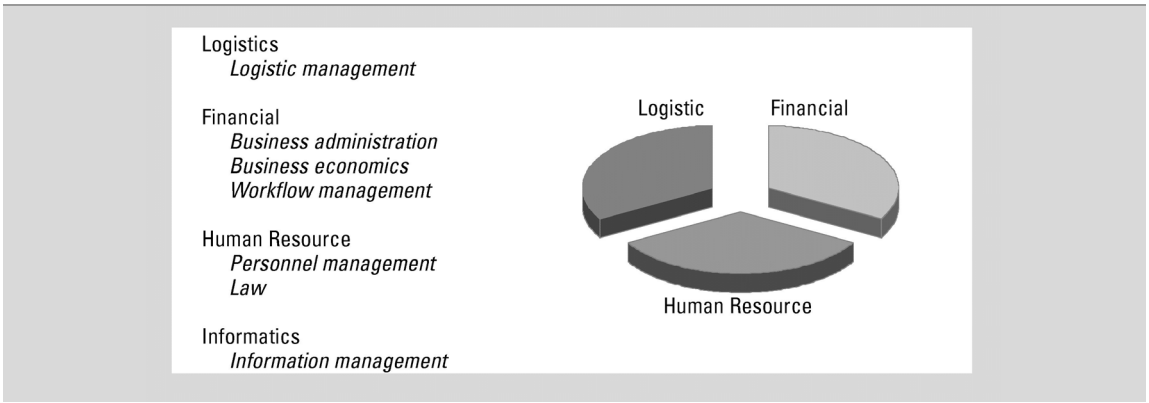

Figure A ERP system and disciplines

SAP ERP is a software system developed by the SAP AG that covers almost all transaction requirements and business functions of a company. For specific branches such as the airline industry, health care, the chemical industry and the retail industry, within SAP ERP the so-called *Industry Solutions* can be activated.

With the introduction of SAP Business Suite the SAP ERP system is extended with a Customer Relations Management system (CRM), Supplier Relationship Management (SRM), Product Lifecycle Management (PLM), Supply Chain Management (SCM), Strategic Enterprise Management (SEM) based on the Business Warehouse (BW). NetWeaver enables the integration between the components and other administration and production control systems. A portal enables users to activate all the systems with a single logon.

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IDES, the International Demonstration and Evaluation System, has been developed by SAP. IDES provides a huge data base which enables the simulation of many different business scenarios within the SAP systems. Many business scenarios are described in the IDES help application. The IDES system is used worldwide by SAP for training purposes.

This course is an introduction to ERP supported by SAP, SAP ERP and IDES.

The method has been developed for use in business schools and universities. Knowledge of the subjects related to ERP is assumed.

The method is not focusing on the different modules of SAP ERP, but on the main characteristic of SAP ERP: the integration of business processes.

The course is divided into three parts:

Part 1 Enterprise Resource Planning and SAP.
Part 2 Carrying out a complete ERP process.
Part 3 Special applications.

Part one, *Enterprise Resource Planning and SAP*, deals with Enterprise Resource Planning and the company, SAP AG, which developed the SAP systems. The technical aspects of the SAP ERP system are illustrated and a description of SAP is given.

Part two focuses on a complete ERP process. The assignments in the chapters deal with logistics, financial and human resources. Each chapter starts with a short introduction and a process outline.

In chapter 14 a sales order-driven process is presented. By means of material requirements planning (MRP I) all steps of the business cycle are carried out and are offering experiences typical for working with ERP and SAP ERP. The data of chapters 9-13 are applied in this ERP process.

In part three, special applications such as fixed assets, controlling, product costing, production on stock with forecast based planning and human resource management are introduced.

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STUDY GUIDE

Indication of hours needed by students to carry out the assignments:
Chapters 9, 10, 11, 12, 13: 1.5 hours per chapter.
Chapter 14: 8 hours.

A next level for **Finance** is in the chapters 15, 16 and 17.
More about **Logistics** can be found in chapter 15.
For **HRM** more details are in chapter 19.

The description of the assignments and carrying them out give answers to all kind of questions regarding the use of an ERP system. For example: How can a product be created? How is a purchase order executed and which financial documents are created? How is a production order created and when will the finished product be delivered? How is a warehouse organized? How are orders delivered to customers? Which master data are necessary to perform an MRP run?

The relevance of the exercises for the different subjects and competences are summarized in Figure A.

The assignments in this book are presented concisely in such a way as to allow this course to be integrated into courses based on various didactical insights: from self-study to theoretical lectures and guided completion of the exercises.

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PART 1
ENTERPRISE RESOURCE PLANNING AND SAP

1. Enterprise Resource Planning
2. The Company: SAP AG
3. SAP ERP
4. Organization depicted in SAP ERP
5. Customizing
6. SAP Business Suite
7. IDES

In part one, *Enterprise Resource Planning and SAP*, chapter 1 contains a description of enterprise resource planning in general.

The company that developed SAP ERP, SAP AG, will be introduced in chapter 2.
In chapter 3 an overview of the functionality of SAP ERP is given.

The depiction of the organization of a company in the system will be explained in chapter 4.
This and other adaptations of SAP ERP to the company can be found at customizing, which can be found in chapter 4.

Chapter 6 deals with the SAP Business Suite.
The IDES environment is described in chapter 6.

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1 ENTERPRISE RESOURCE PLANNING

Enterprise Resource Planning software will be explained in this chapter. Attention is given to the advantages and disadvantages of ERP software. Enterprise Resource Planning can be considered as follow-up development coming out of Material Resource Planning.

The functions of Enterprise Resource Planning are presented in a diagram and are explained in the text. The flow of goods and the transformations they may undergo are explained in paragraph 1.4. In paragraph 1.6 the flow of goods is linked with Enterprise Resource Planning.

1.1 ENTERPRISE RESOURCE PLANNING SOFTWARE

Enterprise Resource Planning software (ERP software) can be defined as software supporting the whole range of operations by processing the information associated with goods flows and financial flows.



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ERP software above all has an important added value since it facilitates integrated recording of information throughout the organization. The information kept on record by an organization is generic to a significant extent and can therefore easily be accommodated within a standard package.

In the past, each department installed its own computer system. The personnel department used a personnel management system, the financial administration an accounting package, while several planning and warehouse systems were in use in the production department. The separate systems often worked to the complete satisfaction of departmental users, but the links between these systems led to many problems, high cost levels and poor flexibility. An integrated ERP package offers a solution to this problem.

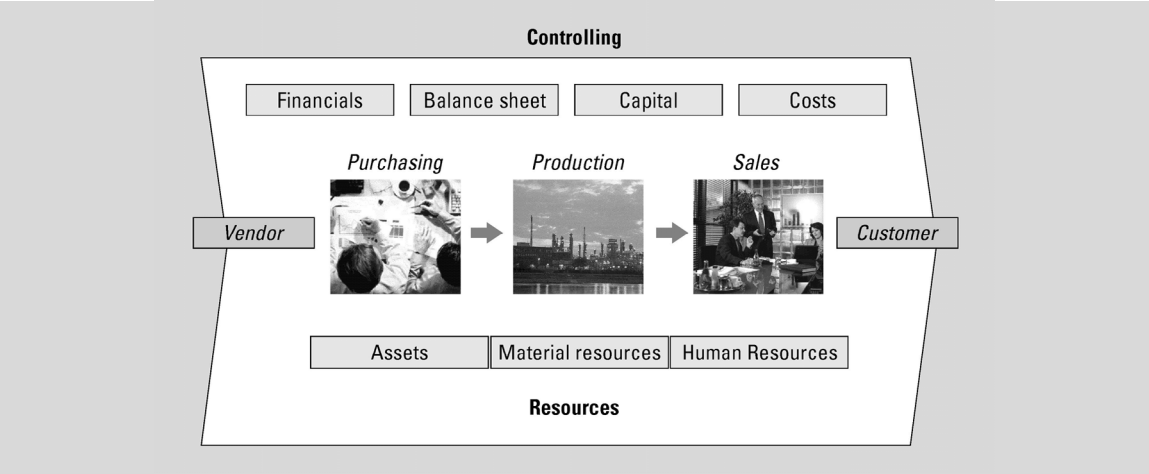

Figure 1.1 Enterprise Resource Planning in SAP ERP

A large production company will be able in general to get by with a system for office automation (e.g. MSOffice), an ERP package (for example SAP ERP) and some highly specialized software in the field of process automation (for example CAD/CAM systems).

The development of ERP software is a booming business. The wealth of advertisements and job recruitment sites like www.monsterboard.nl in publications specializing in computer and information specialist recruitment indicates a great demand for SAP consultants, Baan experts, etc.

SAP (SAP ERP and R/3) was in 2013 with a market share of 26% still the market leader. Oracle, who took over Peoplesoft and JD Edwards, is number two.

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ERP systems attempt to offer a fully integrated solution for the management of financial flows, goods flows and information flows within organizations. Many ERP systems have their roots in production planning. This is sometimes apparent from the fact that the production module is significantly better developed than the other modules. The original nature of the production (discrete vs. process industry) often has a distinct impact over contemporary software. Baan and BPCS for instance come from the discrete industry sector, in which the emphasis lies on bills of materials management and material requisition planning. SAP originally comes from the financial sector and has consequently developed functionality features centred on production and logistics. Nearly all the large players in the market are converging with respect to functionality of the ERP package. Meanwhile SAP and Baan have process modules designed to support the process industry.

1.2 ENTERPRISE RESOURCE PLANNING AS A FOLLOW-UP TO MRP

ERP is also seen as a supplement to MRP II. In the Material Requirements Planning concept (MRP I) a demand forecast is drawn up on the basis of bills of materials, calculated according to range of production orders and purchasing orders expected. Manufacturing Resource Planning (MRP II) was a later extension. This concept represents an expansion of MRP I into a more integrated planning and management concept. MRP II for instance also takes into account the available production capacities. MRP I and MRP II are compatible for use within a single organization. Increasingly far-reaching internationalization means that management must take place 'over the heads of individual plants'. Mutual deliveries between organizational units are included in the concept, for instance. ERP is compatible with this. The functionality of ERP software has been drastically expanded over recent years to include Customer Relation Management (CRM), sales support, supply chain management, workflow management, human resources management, etc. This trend continues; ERP software is further expanding its borders. Nearly all operational functions are now supported.

1.3 ADVANTAGES AND DISADVANTAGES OF ERP

Some of the advantages have already been discussed above. The most important of these are:

- *Integration*: the coherence between processes is seamlessly supported. Island automation is no longer an issue. Integration reduces problems caused by redundancy and errors in the data.
- *Process orientation:* instead of supporting activities in departments, ERP orientates itself towards operational processes that take place throughout the whole of the organization (and outside it), and indeed you see this in so-called Workflow Management solutions that the ERP systems offer. These cater to the support and direction of operational processes.

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- *Openness:* ERP systems can communicate with other systems; this means that the Supply Chain concept, a far-reaching chain integration into the industrial process, can be utilized. ERP systems can also communicate with other systems, such as Customer Relationship Management software (CRM).
- *State-of-the-art:* the research being carried out by ERP suppliers is sufficiently comprehensive to ensure that a company using an ERP system can be confident that the functionality will both continue to be available and continue to be expanded. Associations of users often have some influence on aspects of functionality earmarked for expansion or improvement.
- *Industrial sector orientation*: ERP suppliers ensure that their software supports various sectors of industry. This support (called Industry Solutions) is constantly being expanded.
- *Internationalization*: ERP can be used supra-locational, supra-organizational and beyond national borders. This is an ideal solution for multinationals, since data taken from all their subsidiaries needs to be consolidated.

ERP is not a universal panacea. Naturally there are some disadvantages to the introduction of a system such as this. You might like to consider the following, for instance:

- *High costs*: the price of the software license is fairly high. The consultancy costs involved in the implementation of an ERP package exceed the license cost by a factor of approximately 2–4. A Dutch theme park, for instance, recently implemented an ERP system at a cost of about €3.5 million, of which €0.5 million was for the software license.
- *Lengthy implementation*: the time taken for making enhancements, customizing and the implementation often exceeds a year. Accelerated implementation techniques, Accelerated SAP, are available however, under which a selection is made of best practices in the implementation, where the need for labour-intensive fine tuning of the software is partly eliminated. In this case processes in the organization (as regards its operational processes) are adapted to the software. A solution like this is welcomed particularly by smaller organizations. In the case of medium and small companies, an implementation of this kind takes something in the order of 3 to 6 months, depending on the complexity involved.
- *No tailor-made solution*: ERP remains a standard solution: the user may have to modify his expectations as far as his package of requirements is concerned. Tailor-made systems are generally much more expensive than standard software. Modifications made to standard software are costly and can cause problems with upgrades. For that reason it becomes the policy of some companies to avoid modifications during the implementation.

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Since the 1990s we have seen more organizations transferring to standard software. On the one hand, each company is individually aware of its own unique operational processes, yet these unique points are often remnants from the past. There is something to be said for taking a look to see whether the best practice options, which ERP systems offer, are not in fact better than one's own solutions. Why should my organization differ from the many other companies in my sector that have already been studied? Moreover, are my (unique) deviations from the general pattern as regards operational processes really as necessary as I think they are?

The employee learning period for new functionality in an ERP package is, as a matter of fact, generally much shorter than in cases where a totally new software package is acquired.

1.4 FUNCTIONS OF ENTERPRISE RESOURCE PLANNING

Figure 1.2 shows the most important functions that can be used by an ERP system in corporate operations. In this overview, the supporting functions are grouped around the logistics, the primary processes. The central feature is the flow of goods from the supplier to the customer: procurement results in the receipt and storage of raw materials (triangle), the various raw materials are processed during production into finished product units; these are subsequently delivered to the customer from stock. The way in which content is given to the primary processes of procurement, sales, stock control, shop floor control and manufacturing, is market and product specific. The flow of goods from the supplier to the customer is counterbalanced by a cash flow in the opposite direction: from the customer to the supplier. Recording of this cash flow takes place in the accounts receivable (AR) and accounts payable (AP) sub-administrations and in the ledger administration (general ledger).

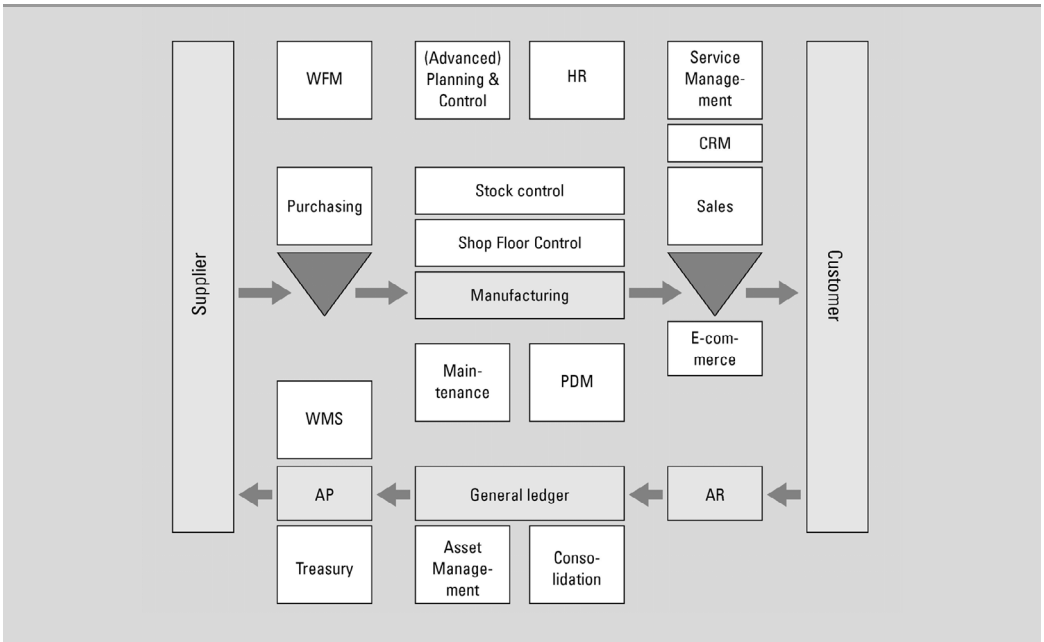

Figure 1.2 Enterprise Resource Planning

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The relationship between the flow of goods and the cash flow constitutes the value cycle of an organization. The non-shaded functions form the secondary, supporting activities. Treasury, asset management and consolidation support the management and planning of financial resources over the short and long term. Workflow management, planning and control, human resources, service management and customer relations management support the logistics processes.

In Figure 1.3 the central focus is on the flow of goods. The planning levels and logistic modules are shown.

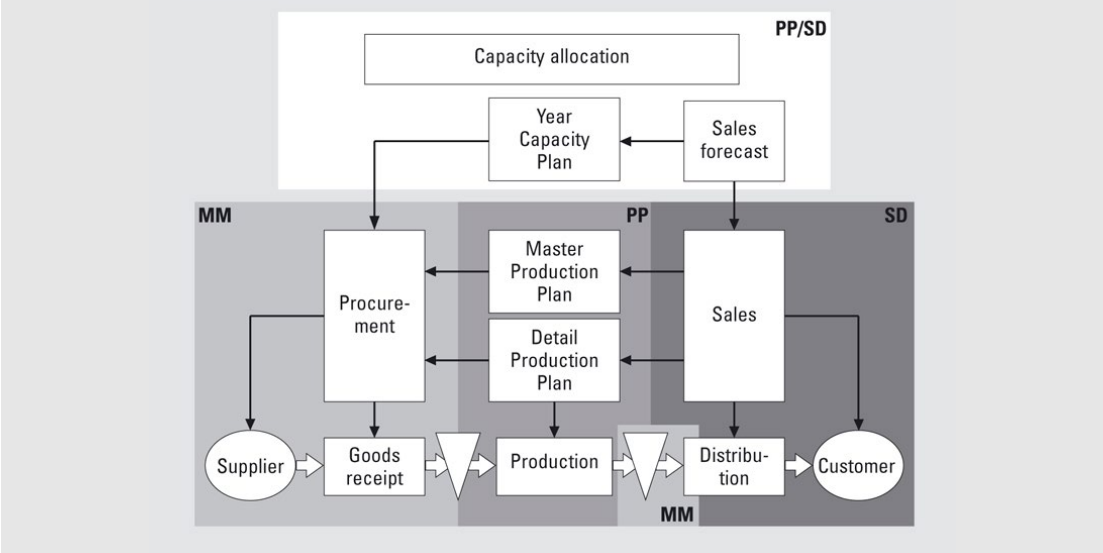

Figure 1.3 Integrated planning

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In sales and distribution (SD) the sales statistics for the previous year form the basis for establishing a sales forecast for the coming year. This sales forecast makes up the demand for production capacity. By gearing the availability of capacity to sales demand, provision is made for the necessary capacity within the production planning (PP) by establishing both the nominative capacity and the expected annual capacity (year capacity plan and capacity allocation). The planning of the annual capacity constitutes the basis for establishing the main production plan within PP, as well as the basis for setting up the necessary procurement within Materials Management (MM). The master production plan has a planning horizon of one year and consists of production objectives relating to product units per period. The master production plan thereby creates a procurement requirement for raw materials/components. This requirement is met by establishing a procurement plan. The master production plan is converted into a detailed production plan, with a planning horizon of less than one year. The planning quantities are the number of units to be produced and the number of production orders. Even at this level, sales figures are coordinated according to production objectives and procurement. The planned production orders are converted into actual production orders, raw materials/components are issued and processed into finished products. The finished products are made available for delivery to the customer by MM. The planning for distribution to customers, which is also factored into this, takes place from within sales and distribution, SD.

The *Supply Chain concept* is central in SAP ERP: the chain from the original supplier to the final consumer has to be managed. By bringing optimum co-ordination to the flow of information, the flow of goods and the cash flow, a maximum customer response is achieved at minimum cost according to SAP. It is possible for a customer, to gain information from the Internet regarding the products of a particular company, to adapt your own products accordingly and to place an order. This order then automatically ends up in SAP ERP; where necessary, this package automatically generates orders to suppliers (multi-company planning) and even initiates the necessary processes within the organization of a company. In this way, open systems can be linked to each other and transactions extended over various individual companies.

1.5 SUPPLY CHAIN MANAGEMENT

The *Supply Chain* comprises all activities that have to do with the flow of goods and the transformations they may undergo, all the way from raw materials through to the end user, complete with the associated information flows (see Figure 1.4).

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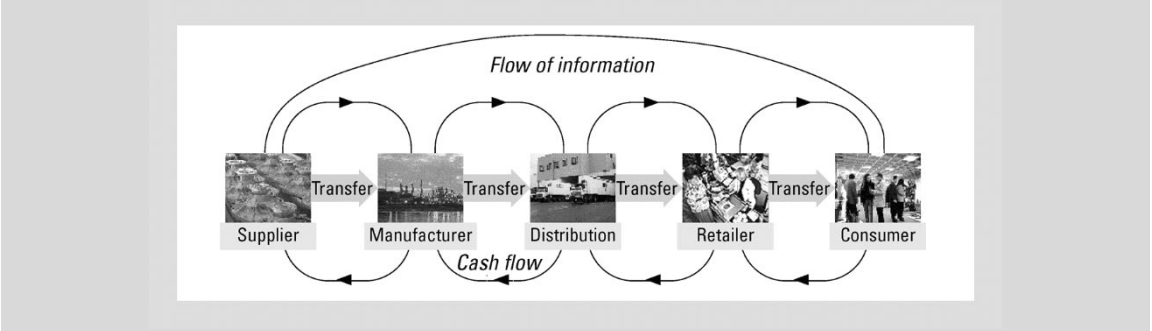

Figure 1.4 Chain from supplier to consumer

We are concerned here in fact with the activities that take place within the manufacturing process. In the case of simple products, this supply chain can readily be identified and surveyed, but when you think of the automobile industry, for instance, the situation is very complex.

Supply Chain Management (SCM) is therefore the control and integration of these activities by making use of all kinds of cross connections and networks in order to achieve a significant competitive advantage. The chain goes *upstream* in a *supplier network* and *downstream* in a *distribution network* (customers). The supplier network consists of all the companies that provide an input in any way whatsoever; these inputs could be physical raw materials, but they could also be information, for instance. In the case of the automobile industry, this chain would represent a supplier network of thousands of companies supplying goods ranging from steel and plastics, but also including complete gearboxes, brake systems, car radios and similar. Even the production of these gearboxes etc. is part of the supply chain. Some authors say that when looking for the start of a supply chain you always come back to Mother Earth. The main point, however, is that each supply chain consists of a (generally large) series of linked suppliers and customers; each customer becomes a supplier in the next link of the supply chain until the product reaches the end user.

Seen from within an individual company, you can say that the three SCM perspectives are:

1. internal functions (transforming inputs into outputs);
2. upstream supplier functions;
3. downstream customer functions.

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The *management challenge* is that coordination takes place between these three aspects in such a way that the company maintains its right to exist within the supply chain.

1. ***Internal functions***
   Where the *internal functions* are concerned, these relate to various operational processes, including the *transformation processes* of raw materials or semimanufactures into finished products. These raw materials or semi-manufactures are supplied by the suppliers and the finished products are supplied to the distribution channel (the dealer organization in the case of the automobile industry). Orders from purchasers of automobiles must be translated into production orders. It is easy to imagine for instance that in the case of large freight lorries (as with DAF), this takes place on a one-to-one basis. Each customer order = one production order = one freight lorry. Even with private vehicles, things are beginning to move in the direction of production on demand. On deciding to purchase a new car, for instance, you can now specify the version, the colour and whether it should have air-conditioning, etc. The influence of the final consumer over the production is steadily increasing.

   The sales order data are very detailed: quotation prices, latest possible delivery dates, delivery scenarios, etc. Production planning is also extremely important. Use can be made of MRP here.

2. ***Upstream supplier functions***
   This refers to functions that take place outside the individual organization. Upstream is the procurement function. You think here of the selection of suppliers who can meet our requirements and wishes and who are reliable when it comes to delivery. The maintenance of good relations with suppliers is extremely important. In SCM, you see contacts with suppliers fanning out into the product development, commercial office, warehouse and administration departments and so on.

   In this situation, there is close contact with the suppliers from within the internal operational processes.

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3. ***Downstream customer functions***
   These functions comprise all distribution channels and processes used in facilitating the flow of products to the final customer. In most cases, it involves matters such as storage, transport, and sales activities.

   SCM is orientated towards the control between various components in the supply chain. Five levels of integration are identified within SCM:

   1. standardization of master financial data;
   2. standardization of master logistics data;
   3. exchange of time-dependent data;
   4. standardization of planning and control procedures;
   5. supply chain planning.

The fifth level can only be reached after the preceding levels have been completed.

Supply Chain Management can (and also will) lead to a curtailment of the number of links in the industrial column. This is clarified in figure 1.4.



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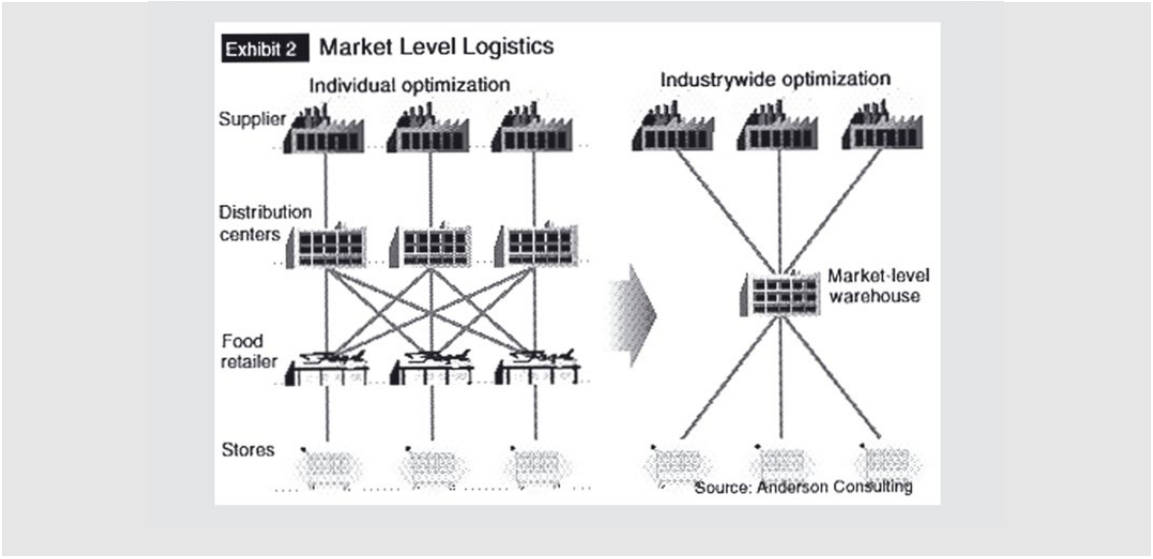

Figure 1.5 Supply chain planning

It is naturally the business of a particular company to ensure that it is not pushed out of the supply chain.

1.6 SUPPLY CHAIN MANAGEMENT AND ENTERPRISE RESOURCE PLANNING

Supply Chain Management has primarily to do with the building up and maintenance of close ties with suppliers and customers. You see that this is made possible by developments in ICT (Information and Communication Technology). SCM is therefore both *relationship-based* and *technology-driven*, to use a few words of 'newspeak'. A combination of ERP and Internet (E-Business/E-Commerce) provides many options for the successful use of SCM. The advent of these technologies even makes a worldwide supply chain possible. As an example you can take the *DOW Chemical Company,* an industrial undertaking with branches in 168 countries and an annual turnover of more than $50 billion in something like 3,100 products in the chemicals, plastics and agricultural sectors. The company employs 45,000 people and has 150 production locations in 35 countries. The most important aspect of SCM for DOW is that the company tries to offer consumers what they want at an acceptable cost (an acceptable price). The company has a *Supply Chain Technology Center* (based at Terneuzen in the Netherlands and at other locations worldwide) that will be responsible for cross-pollination between best practices and new technologies. The Center also scans for best practices and new technologies which DOW can also make use of. The deployment of ERP and a strong focus on operational processes is an important outcome of the Center's activities.

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Modern ERP systems integrate the planning, control and monitoring of processes within an organization. Because the internal flow of information between important departments within a company is integrally coordinated by ERP, it is possible to bring products to the market quicker, reduce costs and guarantee the loyalty of customers and suppliers. Using the right ERP system, a company can expand its ability to monitor its activities to the whole of the supply chain. The initiative of SAP in relation to Supply Chain Management (SAP SCM), for instance, covers all aspects of supply chain integration.

SCM solutions are on hand within SAP in the form of APO, Advanced Planner and Optimizer, and LES, Logistics Execution System. APO is responsible for improved demand forecasting and increased efficiency in production processes. LES facilitates more efficient, rapid and accurate flow of goods in the supply chain.

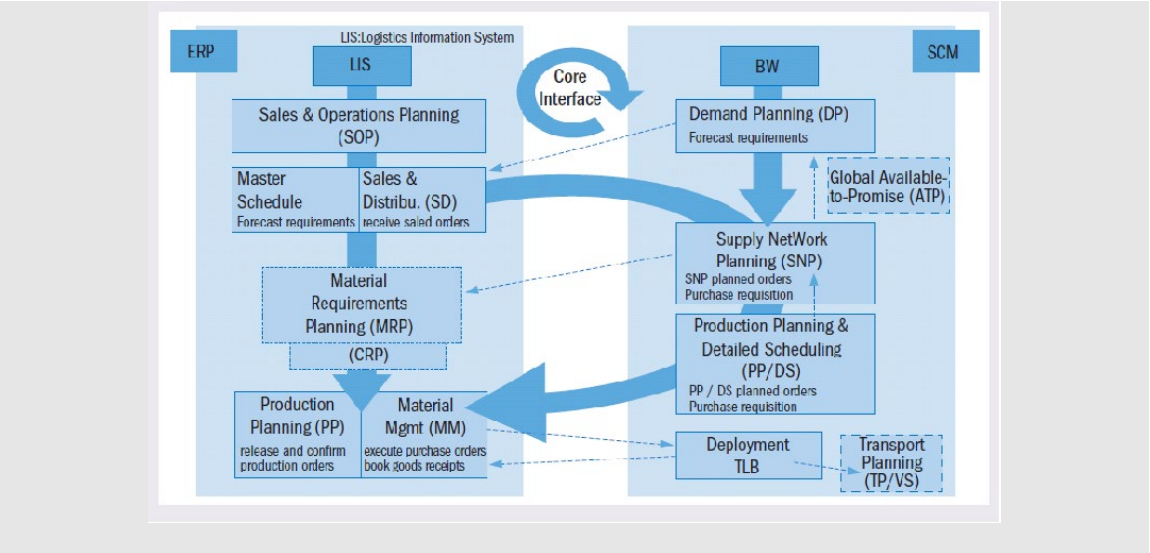

Figure 1.6 Supply chain planning

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2 THE COMPANY: SAP AG

In this chapter the company that developed SAP ERP and SAP is introduced and the products made by SAP AG are mentioned.

2.1 THE COMPANY: SAP AG

SAP AG is market leader in the area of inter-enterprise solutions whereby the internal processes and processes between companies and their vendors, customers and partners integrate.

The revenue of SAP AG was more than €10 million in 2006. SAP employed more than 50,000 people in 2007.

SAP stands for Systems, Applications and Products. Some of SAP's clients are Bayer, Honda, Audi, KLM Air France, Nokia, Nestlé, Deutsche Bank, Siemens, Osram, Heineken, Quaker, Shell, Microsoft, Akzo Nobel, Rabobank, DSM, Mars and Waterland Hospital.

In 2008 SAP took over Business Objects. The products of Business Objects will be integrated with the SAP products.

In 2010 SAP took over Sybase, a large database developer. Sybase provides also the technology to distribute software from desktops to mobile devices.

2.2 PRODUCTS OF SAP AG

SAP offers at the moment three main products. Big companies will use the *SAP Business suite*. SAP ERP, SAP CRM, SAP PLM, SAP SRM and SAP SCM are parts of my SAP Business suite.

SAP ERP is the successor of SAP R/3 and is an important step forwards, because this is the first service-oriented business application based on SAP Net Weaver.

SAP Net Weaver makes Enterprise Services Architecture possible which enables us to lift our applications and infrastructure to a next level.

Business Objects adds the following solutions to the portfolio of SAP.

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Solutions for Large Enterprises:

- Intelligence platform: leverage a single platform to connect all people to all information, providing a unified view of the business.
- SAP BusinessObjects governance, risk, and compliance solutions: promote corporate accountability by unifying corporate strategy, control initiatives, opportunity discovery, and loss mitigation across the extended enterprise.
- SAP BusinessObjects enterprise performance management solutions: capitalize on the value of your corporate data, enabling your organization to become more agile and competitive by providing organizational alignment, visibility, and greater confidence.

Solutions for Small Businesses and Midsize Companies:

- SAP BusinessObjects Edge BI: benefit from a connected, interactive, and open business intelligence solution for midsize companies.
- Crystal Reports: leverage a complete report management solution for small companies.
- C4A or Lumira: leverage dynamic and customizable data visualization software.

SAP HANA (High-Performance Analytic Appliance) software is based on a in-memory database, is able to process huge amounts of data in real-time in the central memory. Complex queries on over 450 billion records can be performed in seconds. The processing of these 450 billion records used less than 3 Terabyte of physical memory. This database will be placed under SAP ERP. Reports can be up to 9,000 times faster with HANA than with a conventional relational database.

SAP Fiori and Screen Personas to personalize and simplify the user experience (UX) for your SAP applications. Using modern UX design principles, SAP Fiori delivers a role-based, consumer-grade user experience across all lines of business, tasks, and devices. Use SAP Fiori apps, or take advantage of solutions that natively incorporate the UX – such as SAP S/4HANA, Ariba Mobile, and SAP Hybris Cloud for Customer.

SAP S/4HANA is the next generation ERP. S/4HANA includes ERP, SCM, SRM, CRM and PLM. The database HANA and the interface will be Fiori.

Midsized companies will be using the *SAP All-in-One* or *Business ByDesign*.

For companies, which demand an extended functionality in a flexible and scalable application, these applications are an excellent solution.

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Every SAP All-in-One application consist of a predefined and industry specific version of SAP ERP, which enables a quick and easy management of financials, human resources, supply chain, customer relationship management and other important business processes. *Business ByDesign* is a cloud solution from SAP, a complete on demand ERP system for midsized companies. The customer pays a fixed fee per user.

For smaller companies the *SAP Business One* application has been developed.

For customers, who want a simple but strong application which supplies support of their most important processes, Business One is the solution.

This relative cheap, fully integrated software gives companies access to the information, application and services which are needed to enlarge their revenues, to control the costs and to stimulate their growth. SAP Business One integrates easily with other systems such as SAP Business Suite.

There is more information about SAP on www.sap.com. In the Netherlands there is an active users association, the VNSG (Association of Dutch-speaking SAP users). There is more information about the VNSG on www.vnsg.nl.

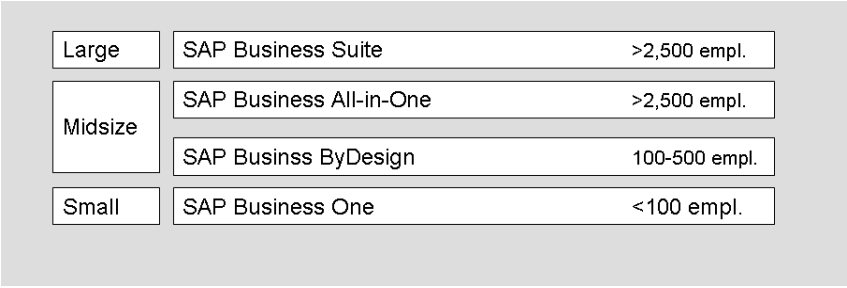

Figure 2.1 SAP product portfolio

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3 SAP ERP

In this chapter the structure of SAP ERP is explained and extensive attention is paid to the various solutions of the SAP ERP system.

3.1 STRUCTURE OF SAP ERP

SAP ERP delivers functionality for business analytics, financials, human capital management, business performance and business services. Above that it gives support on the area of system management such as users maintenance, configuration maintenance and management of Web-services. SAP NetWeaver is used here as the technology platform.

SAP ERP includes four individual solutions that support key functional areas, which together form the foundation for the business processes:

- SAP ERP Financials
- SAP Human Capital Management
- SAP ERP Operations:
  - Procurement and Logistics Execution
  - Product Development en Manufacturing
- SAP ERP Corporate Services:
  - Sales and Service
  - Corporate Services

The different possibilities of SAP will be explained with the help of the Solution Map in figure 3.1.

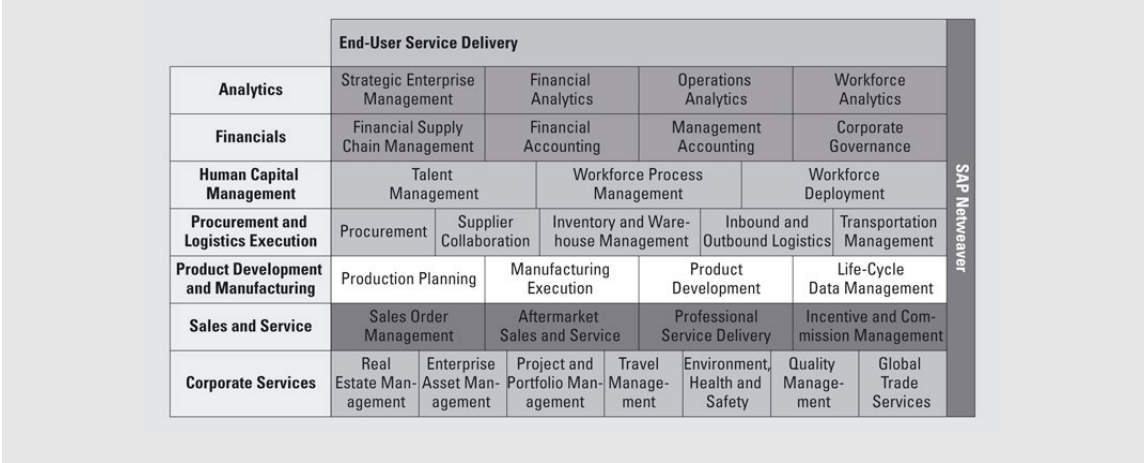

Figure 3.1 Solution Map

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3.2 ANALYTICS

SAP ERP is also a complete integrated solution for analyses and business intelligence, including strategic enterprise management (SEM) and financial, operational and personnel analyses. It enables companies to understand the links between profit and strategic and operational performances. The Business Balanced Scorecard is one of the analytical possibilities which are offered by SEM.

Financial analytics enables you to define financial targets, develop a realistic business plan, and monitor costs and revenue during execution.

Operational analytics enables you to compile detailed operations reports and support informed operational decision making.

Workforce analytics support human capital management policy development and decision making.

Figure 3.2 describes the possibilities of the various forms of Analytics.

End-User Service Delivery	Strategic Enterprise Management	Financial Analytics	Operations Analytics	Workforce Analytics
• Employee Interaction Center • SAP Roles • Express Planning • Office-Integration Mendocino	• Legal and Management Consolidation • Balanced Scorecard • Risk Management • Management - Cockpit • Value-Based Management • Strategic Planning • Financial Statement Planning • Internal Investment Planning • Corporate Investment Management	• Financial and Management Reporting • Financial Planning, Budgeting and Forecasting • Profitability Analytics • Product and Service Cost Analytics • Overhead Cost and ABC/M Analytics • Payment Behavior Analytics • Working Capital and Cash Flow Management	• Sales Planning • Procurement Analytics • Inventory and Warehouse Management Analytics • Manufacturing Analytics • Transportation Analytics • Sales Analytics • Customer Service Analytics • Program and Project Management Analytics • Quality Management Analytics • Asset Analytics & Performance Optimization	• Workforce Planning • Workforce Cost Planning & Simulation • Workforce Benchmarking • Workforce Process Analytics & Measurement • Talent Management Analytics & Measurement • Strategic Alignment

Figure 3.2 Analytics

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3.3 FINANCIALS

SAP ERP Financials provides a complete financial management solution for a broad range of industries. The solution offers depth of functionality in accounting, reporting, analysis, financial supply chain, corporate governance and treasury management. In the new concept within SAP ERP is profit centre accounting, determination of the costs of goods sold, special valuation accounts and consolidation accounts integrated. This integration supports the need for the multi-dimensional valuation and reports from various points of view, such as the Generally Accepted Accounting Principles (GAAP) international versus local, Sarbanes-Oxley compliance (SOX) and supports the reporting according to International Financial Reporting Standards (IFRS). The solution gives depth of the functionality in accounting, reporting, analyses, financial supply chain and treasury management. Financial and management reporting plus internal controls and documentation make possible a good level of business analytics.

Figure 3.3 describes the various possibilities of the financials.

Financial Supply Chain Management	Financial Accounting	Management Accounting	Corporate Governance
• Credit Management • Electronic Bill Presentment and Payment • Collections Management • Dispute Management • In-house Cash • Cash and Liquidity Management • Treasury and Risk Management • Bank Relationship Management	• General Ledger • Accounts Receivable • Accounts Payable • Contract Accounts Receivable and Payable • Fixed Assets Accounting • Bank Accounting • Cash Journal Accounting • Inventory Accounting • Tax Accounting • Accrual Accounting • Local Close • Financial Statements	• Profit Center Accounting • Cost Center and Internal Order Accounting • Project Accounting • Investment Management • Product Cost Accounting • Profitability Accounting • Transfer Pricing	• Audit Information System • Management of Internal Controls • Risk Management • Whistle Blower Complaints • Segregation of Duties

Figure 3.3 Financials

3.4 HUMAN CAPITAL MANAGEMENT

To meet the demands of today's knowledge-based economy, companies must maximize the potential and productivity of their employees. Maximizing the investment in the organization's human capital is crucial to business success. This requires transforming the HR function from an administration department into a strategic contributor of human capital management strategies. Modern HR departments must deliver a contribution to improve the efficiency and productivity of the employees.

Figure 3.4 describes the possibilities of the various forms of Human Capital.

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Talent Management	Workforce Process Management	Workforce Deployment
• Recruiting • Career Management • Succession Management • Enterprise Learning • Employee Performance Management • Compensation Management	• Employee Administration • Organizational Management • Global Employee Management • Benefits Management • Time and Attendance • Payroll and Legal Reporting	• Project Resource Planning • Resource and Program Management • Call Center Staffing • Retail Scheduling

Figure 3.4 Human Capital Management

3.5 PROCUREMENT AND LOGISTICS EXECUTION

With SAP ERP Operations, you can manage end-to-end logistics for complete business cycles, such as warehouse management. The procurement will be accomplished in collaboration with the vendor. There are different ways to co-operate with the vendor (collaboration). It is very important to manage the flow of goods very well inside the company (inbound logistics), but also those outside the company (outbound logistics).

Figure 3.5 describes the possibilities of the various forms of the Procurement and Logistics Execution.

Procurement	Supplier Collaboration	Inventory and Warehouse Management	Inbound and Outbound Logistics	Transportation Management
• Requisitioning • Purchase Request Processing • Trading Contract Management • Purchase Order Processing • Receiving • Financial Settlement • Managing Catalog Content • Compliance Management	• Development Collaboration • Purchase Order Collaboration • Confirmation of Goods and Services • Invoice Processing	• Cross Docking • Warehousing and Storage • Physical Inventory	• Inbound Processing • Outbound Processing • Product Classification • Duty Calculation • Customs Communication Service • Trade Document Service • Trade Preference Processing	• Transportation Execution • Freight Costing

Figure 3.5 Procurement and Logistics Execution

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3.6 PRODUCT DEVELOPMENT AND MANUFACTURING

With this application it is possible to manage engineering and design, create relevant product data, and plan and execute your manufacturing operations.

This solution enables connectivity to shop floor systems with special quality requirements. With help from Life-Cycle Data Management you can manage production processes, bill of materials, routings, recipes, etc.

Figure 3.6 describes the possibilities of the various forms of Product Development and Manufacturing.

Production Planning	Manufacturing Execution	Product Development	Life-Cycle Data Management
• Production Planning	• Manufacturing Execution • Shop Floor Integration with xMII • Supervision and Control	• Product Development • Development Collaboration	• Document Management • Product Structure Management • Recipe Management • Specification Management • Change and Configuration Management

Figure 3.6 Product Development and Manufacturing



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3.7 SALES AND SERVICE

Sales and Service supports a broad scale of activities from presales and sales until after sales. The order processes can be managed. The after sales and service elements provide for good customer relations, through customer relationship management. The complete sales can be managed professionally.

Figure 3.7 describes the possibilities of the various forms of Sales and Service.

Sales Order Management	After Sales and Service	Professional-Service Delivery	Incentive and Commission Management
• Account Processing • Internet Sales • Managing Auctions • Inquiry Processing • Quotation Processing • Trading Contract Management • Sales Order Processing • Mobile Sales • Inbound Telesales • Contract Processing • Billing • Returnable Packaging Management • Consignment	• Phase-In Equipment • Phase-Out Equipment • Asset Scrapping • Product and Warranty Registration • Warranty Claim Processing • Service Contract Processing • Service Plan Processing • Mobile Measurement and Counter Reading • Service Employee Resource Planning • Service Notification Processing • Service Order Processing • Billing • Returns Processing • In-House Repair Processing	• Project Planning and Scoping • Resource and Time Management • Quotation Processing • Sales Order Processing • Project Execution • Time and Attendance • Managing Employee Time and Attendance • Travel Expense Management • Project Accounting • Resource-Related Billing • Resource-Related Intercompany Billing • Billing	• Incentive Business Configuration • Incentive Plan Maintenance • Incentive Processing

Figure 3.7 Sales and Service

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3.8 CORPORATE SERVICES

SAP ERP Corporate Services supports and streamlines the administrative processes that are standard to most businesses. Those business-critical support processes must happen with maximum efficiency and control.

The following areas can be managed with Corporate Services:

- Real-estate management.
- Enterprise Asset Management etc.

Figure 3.8 describes the possibilities of the various forms of corporate services.

Real Estate Management	Enterprise Asset Management	Project and Portfolio Management	Travel Management	Environment, Health and Safety	Quality Management	Global Trade Services
• Property acquisition and Disposal • Portfolio • Management • Property Management • Technical • Management • Support Processes	• Investment Planning & Design • Procurement & Construction • Maintenance & Operations • Decommission & Disposal	• Project Planning • Resource and Time Management • Project Execution • Project Accounting • Prototyping and Ramp-Up • Development Collaboration	• Travel Request and Pre-trip approval • Travel Planning - Online Booking • Travel and Expense Management • Global Travel Policy Compliance • Travel and Expense Analytics	• Product Safety • Hazardous Substance Management • Dangerous Goods Management • Waste Management • Industrial Hygiene and Safety • Occupational Health • Emissions Management	• Quality Engineering • Quality Assurance/ Control • Quality Improvement • Audit Management	• Sanctioned Party List Screening • Export Control • Product Classification • Duty Calculation • Customs communication Service • Trade Document Service • Trade Preference Processing • Restitution Handling • Letter of Credit • Periodic Declarations

Figure 3.8 Corporate Services

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4 ORGANIZATION DEPICTED IN SAP ERP

There are a number of concepts that form the basic framework of SAP. These concepts, like the corporate structure, are important. All the information within the system is grouped according to this structure. The concepts are explained in this chapter.

The sorts of data in SAP are distinguished first. Next the organizational structure used in SAP ERP is described, and the hierarchy that functions as a backbone in SAP ERP is illustrated. You will use entity relation diagrams (ERD) to depict the relations and links between the different concepts.

4.1 SORTS OF DATA

You can distinguish two sorts of data, namely transaction data and master data.

Transaction data register the daily business transactions. Think in terms of regular sales orders, purchase orders, invoices, production orders and suchlike. SAP gives every document pertaining to a transaction a document number. With transaction data, there are usually a number of related documents, which together register a particular process. A sales process may, for example, involve a quotation, followed by an order, a delivery and a payment.

Master data

Master data are relatively fixed data within a system. In SAP ERP client files, staff files, material files, routings and account schemes are examples of master data. Master data usually have different aspects; these are called views or infotypes. A material always has master data, but storage and accounting data about a particular material can also be stored. You then add views to the ma-terial. A member of staff has an address, but also a particular salary and maybe family members. In SAP, these are called infotypes included in employee master data.

4.2 ORGANIZATION STRUCTURE PROJECTED IN SAP ERP

By defining clients, the administration of several concerns can be conducted within one installation of SAP. With clients, a distinction can be made between the actual business and test or practice businesses that are used to test a new module or to train the work force. By constructing a 'practice client', members of staff can practice with the business data to their hearts' content without influencing the actual business operation.

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Client

The client is the highest organizational level (Figure 4.1). There is usually only one client for the entire organization/concern. Several clients could be used for different organizations using the same SAP ERP installation, or for testing and training. Clients have separate and unrelated data.

Company

Each client can contain a number of companies. A company is often used for the subsidiary companies within a concern. Each company is identified as unique by an alphanumeric code of four characters, and is intended as an organizationally and legally independent entity, with its own balance and revenue accountability. SAP makes automatic consolidation possible of the financial accounting for all businesses that have a client. It is also possible to consolidate several clients by using the 'legal consolidation' module.

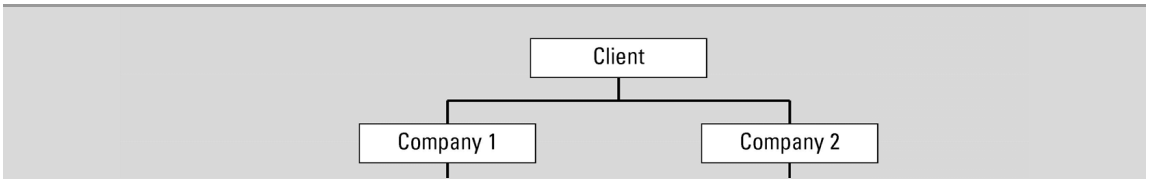

Figure 4.1 Organization structure financial

Controlling area

A controlling area is an organizational unit within a company, used to represent a closed system for cost accounting purposes. A controlling area may include single or multiple company codes that may use different currencies. These company codes must use the same operative chart of accounts. All internal allocations refer exclusively to objects in the same controlling area.

Operating concern

Operating concerns are the accountability areas within a business that are used for the allocation of costs to cost centers. Each cost center is allocated to an operating concern. Each operating concern can represent more than one company.

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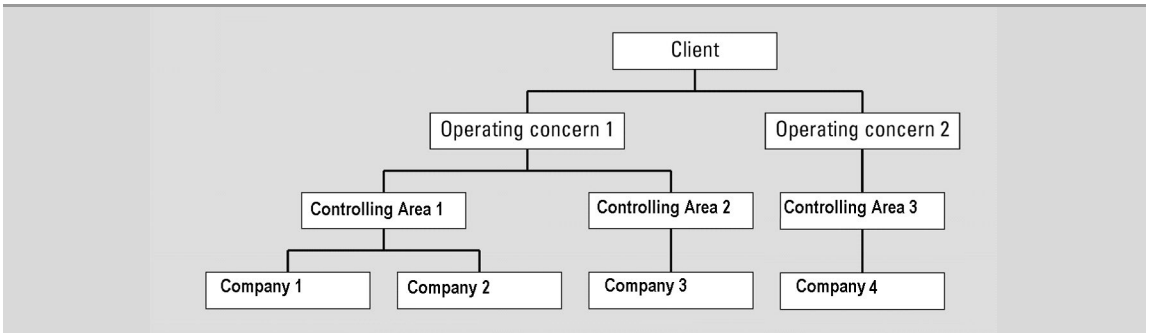

Figure 4.2 Organization structure controlling

Plant

Businesses can also be subdivided into operational facilities called plants, which are used in the logistic module. Various storage locations can be allocated to each plant. Plants and business areas are not mutually exclusive. For example, a plant can make various products, which are paid for in different business areas. In the same way, a business area can handle products from various plants.

Storage location

The organizational unit storage location can consist of various storage areas. Storage locations allow the differentiation between the various stocks of a material in a plant. The units are important for the valuation (FI) and planning (PP).

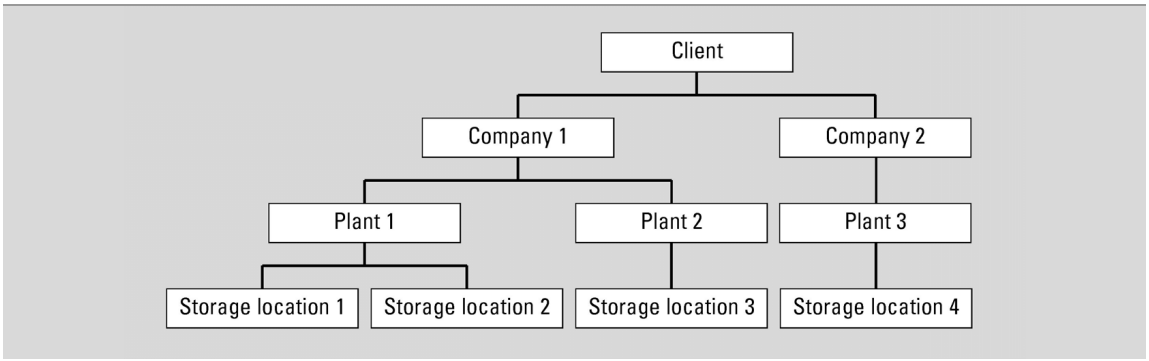

Figure 4.3 Organization structure logistics

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4.3 PROJECTING THE BUSINESS STRUCTURE IN SAP ERP

Usually, there is more than one way of depicting the concepts/departments as they exist in the enterprise. The different possible representations will, however, have certain consequences. If a particular alternative is simpler to implement, the result of this will frequently be that certain information needed in the longer term cannot be obtained from the system. Conversely, a more complex alternative will have the consequence that more information can be obtained from the system, but the users will need more training to use the system properly and to interpret the information correctly.

Example 4.1

A university has decided that each faculty be depicted in SAP as a company with a company code, instead of having one company code for the whole university.

Once a particular set-up has been chosen, it may be difficult to change it. Due consideration should therefore be given to this set-up: it is important not only to look at current information needs, but also the information that the system may be required to process in the future.

4.4 SAP HIERARCHY

Within SAP, there are a number of concepts which can be considered as the framework of the system. They form the so-called 'corporate structure' or organizational structure. These concepts are important because all information that is registered in the system is linked to these concepts. Many of these concepts will be explained in this chapter. In the first place, the SAP hierarchy is explained; this can be considered to serve as the backbone for the concepts. Then the concepts of the most important modules will be illustrated. In doing this you will use ERDs (Entity-Relation-Diagrams) to clarify the relation /allocations between the separate concepts. In the ERD there is an indication of which concepts are related to each other and whether there are any 'n-on-m' relations.

Client

The highest level distinguished is that of the client. On logging in, this must be instantiated. Each client is a detached, individual work environment. Frequently, within one enterprise use is made of a production environment (the actual system), a training environment and a test environment.

Nearly all customizing activities are related to one client. In other words, an activity only affects the client in which a user is working.

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Company code

The most important concept within a client is the company code. A company code represents an independent legal entity with fiscal obligations. All data relating to the flow of funds are linked to the company code (see Figure 4.4). All separate financial concepts should ultimately lead to one balance sheet and one profit and loss statement, which is sent to the tax authorities (and the shareholders).

The most important data that are recorded are the following:

1. Chart of Accounts (general ledger accounting)
2. Currency
3. Address

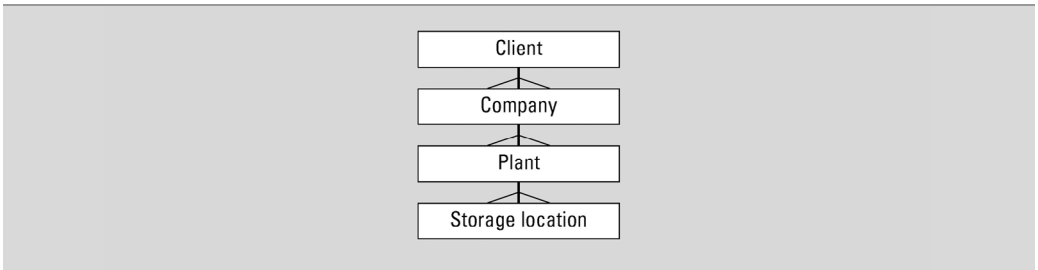

Figure 4.4 SAP hierarchy

Plant

The plant is the concept to which logistical data are linked. As Figure 4.4 shows, there is an allocation from the plant to the company code. This means that the financial consequences of a logistical process can be passed on directly (provided they have been implemented) to the financial modules.

In setting up a plant, only the address must be entered. At a later stage, all sorts of control parameters will be linked to the plant. Control data are data that determine how the system reacts in different situations.

Example 4.2

Various sorts of materials will be entered in various general ledger accounts in the accounts scheme. This takes place by means of control parameters.

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Storage location

Storage locations are used for the stock registration of materials. With a storage location, only a code and a specification are recorded. The reason that no address is recorded is that it is assumed that the storage location is situated in the same place as the plant.

Storage locations are important in SAP for very complicated stock registrations, production planning (PP) and requirement planning. The modules concerned will not be discussed in this chapter.

4.5 FINANCIAL (FI)

The organization structures in Financial can be subdivided into:

- Group company
- Controlling area
- Profit centre

Group company

If a company has a number of subsidiary companies, it is also obliged to issue consolidated annual accounts. By way of the group company SAP provides the possibility of having this consolidation executed entirely by the system.

Naturally, adjustments will have to be made here too (for example, to exclude reciprocal deliveries between parent company and subsidiary etc.). These adjustments are linked to the group company.

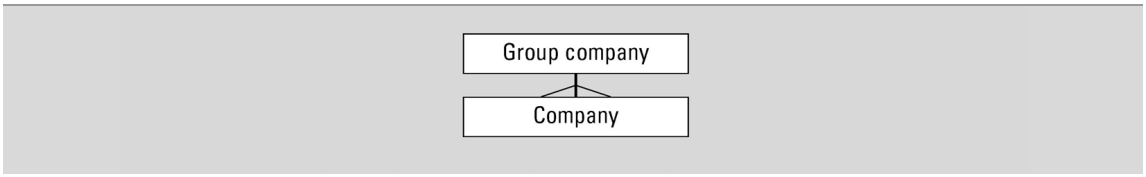

Figure 4.5 Group company

Controlling area

An organizational unit within a company, used to represent a closed system for cost accounting purposes. A controlling area may include single or multiple company codes that may use different currencies. These company codes must use the same operative chart of accounts. All internal allocations refer exclusively to objects in the same controlling area.

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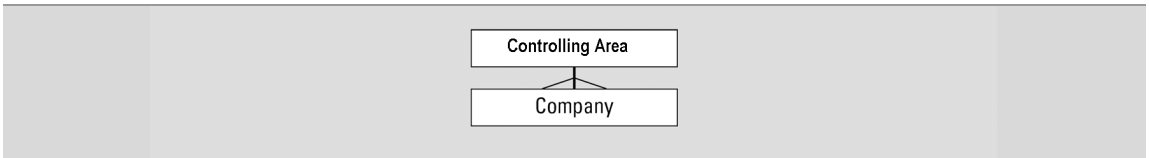

Figure 4.6 Controlling area

Example 4.3

A international enterprise has several subsidiaries in the Netherlands. Cost can be analysed per country with the use of a controlling area for the Netherlands.

Profit center

As can be seen from Figure 4.7, the profit center is an unrelated concept, not linked to any other concept. A profit center is used to produce balances and Profit and Loss accounts. The profit center is not an independent legal entity. It does not therefore have to comply with the legal requirements for external accounting.

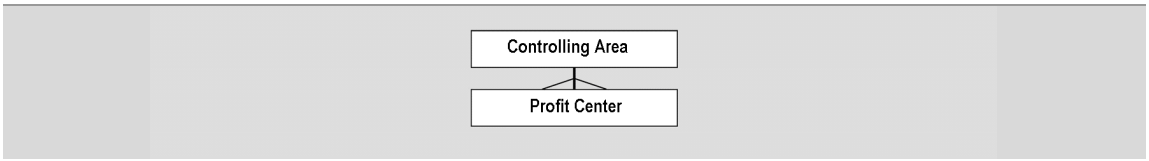

Figure 4.7 Profit center

In a company, it is often standard practice to assign some profit accountability to departments. This profit is generated by the services/products that they deliver to other departments or customers. By using profit centers this can be registered in SAP.

Example 4.4

An international enterprise can analyze the costs and revenues per product group by creating within the controlling area the next profit centers: Printers, Desktops and Laptops.

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4.6 MATERIAL MANAGEMENT (MM)

Purchasing organization

All data relating to suppliers, delivery addresses and conditions of payment are allocated to the purchasing organization. Figure 4.8 shows that there is an allocation both with the financial concepts and with the logistical concepts. In the case of procurement and suppliers, both financial and logistical information is recorded. Of course, a purchasing organization can only be allocated one company code. The conditions of payment and receipt of goods are accordingly entered in one account scheme. A company may have several purchasing organizations. The subdivision into several purchasing organizations may, for example, be based on location or on the sort of products that are being purchased.

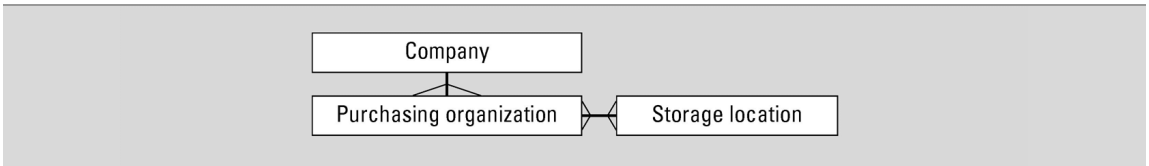
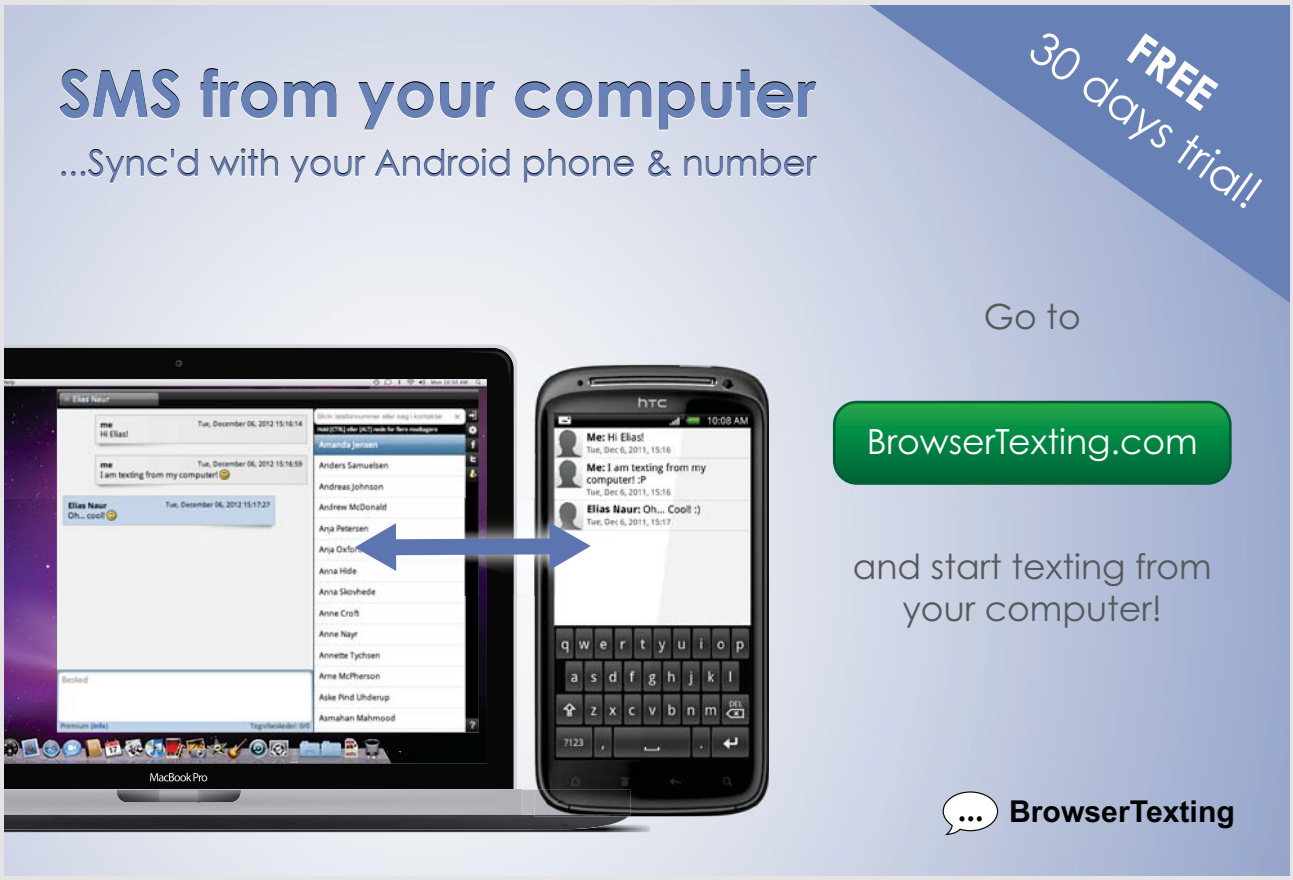


Figure 4.8 Purchasing organization



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Furthermore, it is possible to make purchases for several plants. It can also occur that a plant can be served by several purchasing organizations. Although it is not indicated in the ERD in Figure 4.8 that there is a relationship between the plant and the company code, nevertheless, it does exist. The fact is that the purchasing organization can only be linked to the plants that fall under the same company code. If that were not the case, the system would not know under which company code which part of the profit should be entered.

Example 4.5

A wholesaler supplies car components (batteries, towbars and tires) to repair companies. It has three distribution centers for this in Amsterdam, Rotterdam and Eindhoven, where the purchasing department is located. Its activities are subdivided into batteries, towbars and tires. In SAP, this is realized by using three plants (= three logistical streams), one for each distribution center. In addition, three purchasing organizations have been set up which are subdivided into the various product groups. Each purchasing organization is linked to each plant, so that each distribution center can be furnished with the various product groups.

4.7 SALES AND DISTRIBUTION (SD)

The organization structures in Sales and Distribution can be subdivided into three groups:

- Externally oriented sales organization
- Internally oriented sales organization
- Distribution

4.6.1 EXTERNALLY ORIENTED SALES ORGANIZATION

The concepts concerned here describe the market and the possibilities which are offered to customers relating to deliveries, price conditions etc. This includes the following four entities:

- Sales organization
- Distribution channel
- Product area
- Sales area

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Sales organization

This is an organization unit that is responsible for the sale of particular products or services. This sales unit also has legal liability in relation to damages. A complete sales transaction takes place within one sales organization. (This sales translation consists of quotation ⇒ order ⇒ delivery ⇒ invoice). Often, sales organizations mirror the division of a particular market geographically.

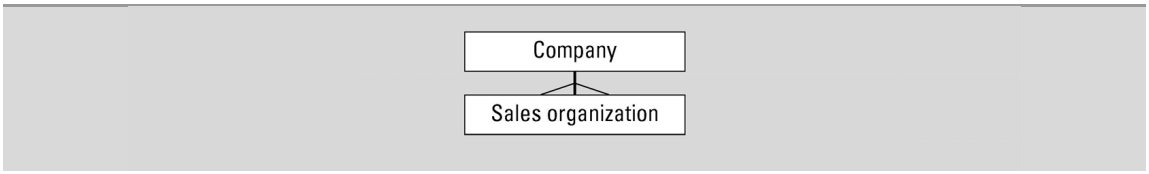

Figure 4.9 Sales organization

Example 4.6

The wholesaler mentioned before supplies his products to car repair companies located all over the Netherlands. For this purpose, there are three sales organizations operating in the northern, central and southern Netherlands, respectively.

Distribution channels

A distribution channel denotes the manner in which products or services arrive at the customer. A more usual term for distribution channel is sales route. As the diagram shows, one distribution channel can be used in several sales organizations. A sales organization can make use of several distribution channels.

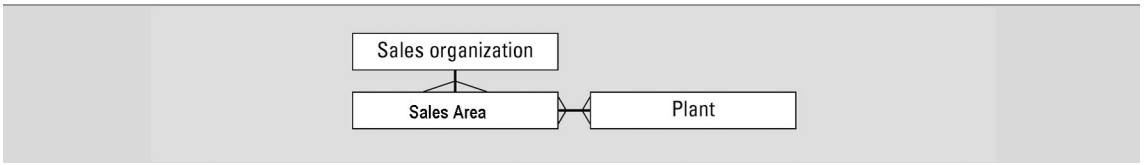

Figure 4.10 Distribution channel

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Example 4.7

The wholesaler makes use of three different distribution channels:

- Internet
- Franchise chains
- Other garages

All three sales organizations use the channel franchise chains and other garages. Sales organization central Netherlands also delivers via the Internet.

A Distribution channel also has an allocation with a Plant. Each sales organization is free to determine Distribution channels, through which the plants can be supplied. For the combination of Distribution channel and sales organization it can therefore be established from which plant (or plants) supplies can be provided. A Distribution channel can get supplies from several plants, and a plant can have several Distribution channels allocated to it.

Example 4.8

Central Netherlands supplies by Internet from Rotterdam or Eindhoven. The necessary assignments are:

- Internet – Central Netherlands – Rotterdam
- Internet – Central Netherlands – Eindhoven

Division

A division is used to group materials, products or services. A material is grouped in one division. Price agreements with a particular client can be allocated to these groupings. In addition, sales statistics can be generated per division. Divisions can be used in several sales organizations, while within one sales organization products from several divisions can be sold.

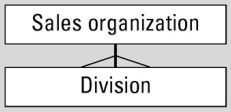

Figure 4.11 Division

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Example 4.9

The products are divided into three divisions: Batteries, Tow bars and Tires (these are the same divisions as in the Purchasing department). Tires are sold in each sales organization. Batteries are not sold in Southern Netherlands, tow bars are not sold in Northern Netherlands.

Sales area

The sales area diverges from the three concepts named above. In fact, in the case of a sales organization, distribution channel and a division, a code and a description are established. With a sales area this is not established. A sales area is understood to be the combination of one sales organization, one Distribution channel and one division. This consists therefore of one allocation. With the sales area it is established through which distribution channels a group of materials (division) can be delivered. In view of the fact that this can vary per sales organization, it is established per sales organization.

The distribution channels and divisions are already allocated to the sales organization. The allocation of the distribution channel and the division within the sales organization can thus only be effected with the distribution channels and the divisions that are allocated to the sales organization concerned.

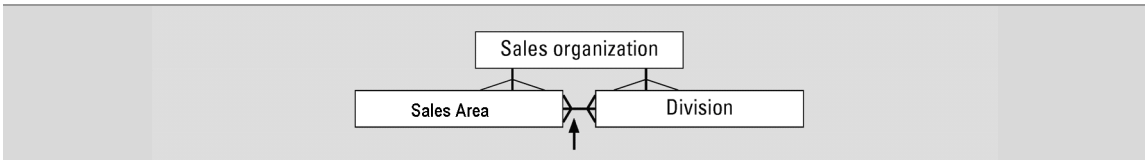

Figure 4.12 Sales area

Example 4.10

For the Central Netherlands sales organization you have the following distribution channels (see the examples above): Internet, Franchise chains and other garages. Furthermore, there are the following divisions: Batteries, Tow bars, Tires.

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The following sales areas have been assigned:

- Central Netherlands – Internet – Batteries
- Central Netherlands – Internet – Tires
- Central Netherlands – Franchise chains – Batteries
- Central Netherlands – Franchise chains – Tow bars
- Central Netherlands – Franchise chains – Tires
- Etc.

4.6.2 INTERNALLY ORIENTED SALES ORGANIZATION

These concepts describe how the sales department can be organized within the company (with respect to accountability etc.):

- Sales office
- Sales group

Sales office

The sales office is the department of the company that is responsible for the sale of particular products through a particular distribution channel.

As Figure 4.13 shows, several sales areas can be allocated to a sales office. A sales area can be used by several sales offices. As the sales office is allocated to the sales area, it is therefore also allocated to the sales organization. The sales organization is in its turn allocated to the company code, so that the results can be automatically entered into the financial modules.

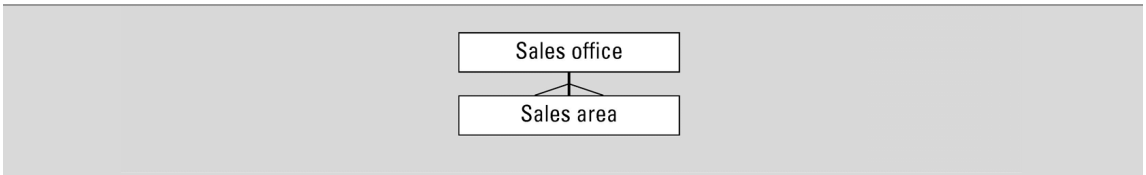

Figure 4.13 Sales office

Example 4.11

In the northern Netherlands there are two sales offices – one for sales through the route run and one for the express run. It would also have been possible to subdivide the sales offices into the various product groups or sorts of clients.

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Sales group

This category makes it possible to group together the sales assistants who are involved in the same sales activities. A sales group can perform sales activities for several sales offices. Several sales groups can be operative in one sales office. These sales groups make it possible for various accountability areas to be defined within the sales office.

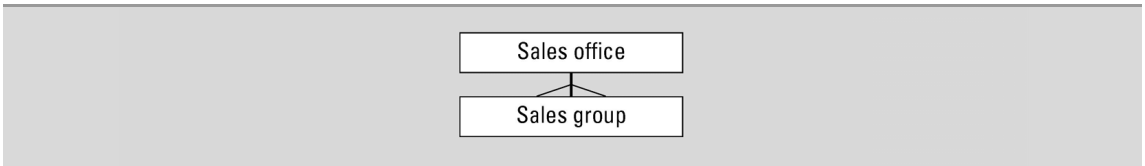

Figure 4.14 Sales group

Example 4.12

Northern Netherlands has three sales groups: route run, express run and representatives. The route run and the express run groups receive all the orders. The representatives visit the most important clients to maintain contacts and to take orders. They can take orders for both the route run and the express run and they are therefore assigned to both sales offices. The route run and express run are only assigned to one sales office (route run office and express run office respectively).

4.6.3 DISTRIBUTION

This paragraph describes basic elements of shipment processing organization. This includes:

- Shipping point
- Loading point

Shipping point

From the shipping point the goods are sent to the customer. This location can be physical (e.g. a collection of loading bays at the storage location), but it is also possible to define a group of employees as a shipping point (a group of employees who are responsible for particular shipping activities). A shipping point can service several plants, while plants can also make use of several shipping points.

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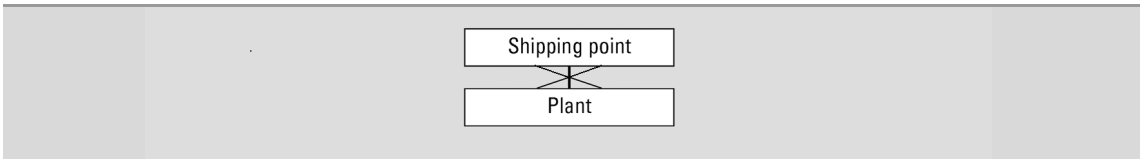

Figure 4.15 Shipping point

Example 4.13

As mentioned earlier, the wholesaler has set up three plants (=three logistical flows) in SAP, with a corresponding storage location. Three shipping points have also been set up – Amsterdam, Rotterdam and Eindhoven.

Loading points

The SD module can also be used if no loading points have been established. If use is to be made of the extensive possibilities relating to stock registration, delivery loading points should be established. As Figure 4.16 shows, a loading point can only be allocated to one shipping point.

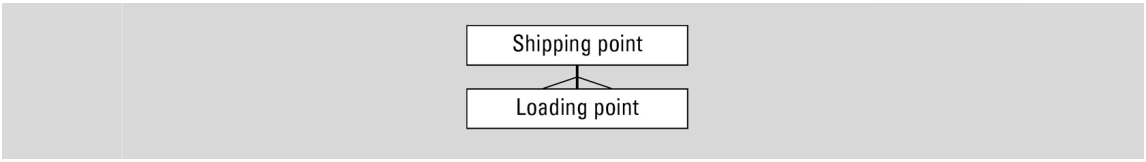

Figure 4.16 Loading point

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5 CUSTOMIZING

Customizing in SAP means the adaptation of the system to meet the wishes and requirements of the organization which is to use SAP. The adaptation is accomplished by means of setting up an enormous number of control parameters, which in turn determine how SAP responds to specific actions.

SAP implementation has the effect of bringing about major changes in the majority of operational processes and in the work procedures used by the majority of the organization's employees. A good deal of consideration and attention has to be given to these issues. In most cases, a special project will be initiated to serve the purposes of the implementation, drawing on the services of external consultants who are able to supply (additional) operational know-how and knowledge of SAP. In this chapter customizing is mentioned.

5.1 SCOPE OF THE IMPLEMENTATION

The scope of the project, i.e. the range of operational processes initially to be covered by SAP, determines the focus of attention of this implementation project.

It is often impossible to make immediate use of all the SAP modules that would be of benefit to the organization, for the following reasons:

1. The project would either take too long as a result, or the number of people working on the project would become so large that the management of the project would be jeopardized.
2. The impact on the organization caused by the implementation would be so extensive that there would be a major likelihood that the system would meet resistance and not be accepted.
3. Another problem would be that employees responsible for the maintenance of the system would lack the knowledge needed to carry out their tasks owing to the sheer complexity of the implementation.

An option frequently adopted is to implement only the financial modules or only the logistics modules, as a first step.

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It is vitally important that the scope of the implementation (defined at the start of the project) is properly monitored. Proposals for improvement, which will almost certainly arise from within the organization during the project, are likely to be phrased in terms like 'Now that you are already working on…', 'Wouldn't it be a good idea to…', etc. If attention is paid to these proposals, both the project's duration and the budget for the project will be under threat.

5.2 THE APPROACH TO THE PROJECT

In an extensive project like the first time implementation of SAP, it is vital that an approach/method should be selected which will provide sound direction for the project as a whole. A standard software development methodology could be used for the purpose, for instance, though a number of the activities, mainly in the functional and technical system development phases, will be superfluous in the implementation of a standard package. It is more worthwhile to make use of a specific RAD (Rapid Application Development) method, since these methods are more suited to prototyping, evaluate the design with a working system.

SAP also offers its own implementation method, i.e. the Procedure Model. This method is supported by the customizing module from version 3 and onwards. The 'implementation partners' also frequently make use of this method. These are the companies that assist with the implementation (e.g. Magnus, Inter Access).

Figure 5.1 shows the Procedure Model. Each phase is divided into a number of 'Working Packages', which are then subdivided into activities.

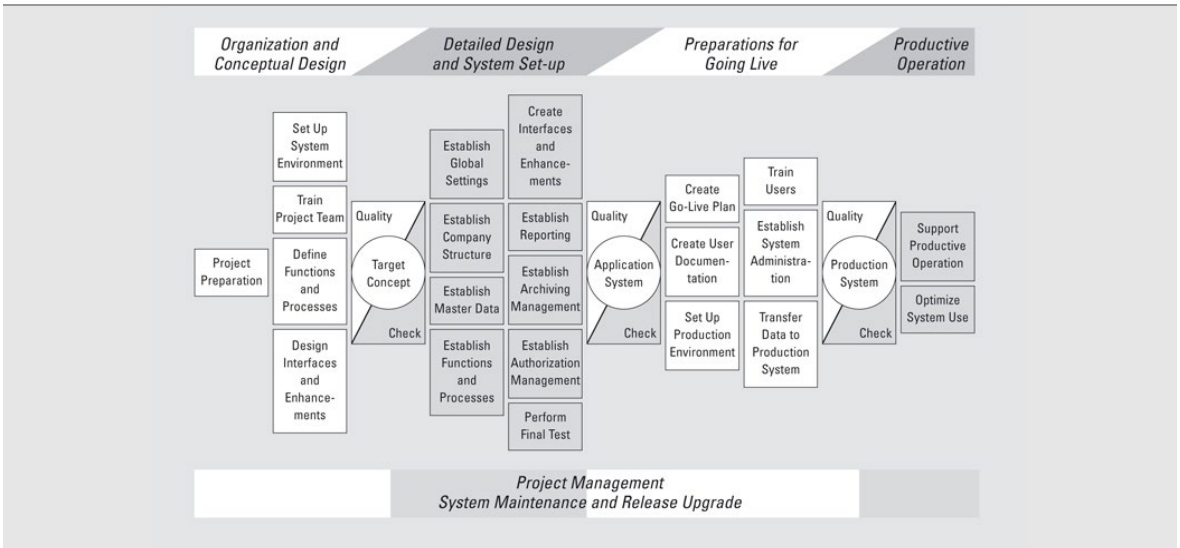

Figure 5.1 Procedure model

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5.3 CONFUSING TERMINOLOGY

There may be some confusion with regard to the difference between Business Process Re-engineering (sometimes referred to as Business Process Redesign), on the one hand, and Business Engineering on the other hand.

Business Process Re-engineering (BPR) is the (partial) redesign of existing operational processes, including the automation of these existing operational processes.

Business Engineering (BE) is the development of radical, new and integral process-orientated operational solutions supported by information technology. BE therefore goes further than BPR.

A number of synonyms are used. This is a tiresome feature from one perspective, though it is a situation you often encounter in practice. Here is a brief survey of terms, which is intended to avoid confusion.

The authors mean the same thing when they use the following concepts:

- Reference model
- Business Blueprint



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5.4 ACCELERATED SAP

An implementation tool has been developed by SAP in order to shorten the implementation time and thereby reduce the costs of the implementation path. This is on the market under the name ASAP and covers the full path from project preparation up to and including the introduction of SAP (going LIVE).

ASAP consists of a roadmap of the implementation work and the associated planning. Five phases are identified by the roadmap:

1. Project Preparation: the initial planning and preparation of the project.
2. Business Blueprint: the definition of the operational processes.
3. Realization: implementation on the basis of the Business Blueprints.
4. Final Preparation: the testing of the system and the training of end users.
5. Go Live & Support: the definitive introduction.

The roadmap incorporates things like input documents, questionnaires, checklists and illustrations. Output documents are generated as a result; these include the Business Blueprint for the SAP processes to be initiated. Implementation quality control is also carried out under ASAP.

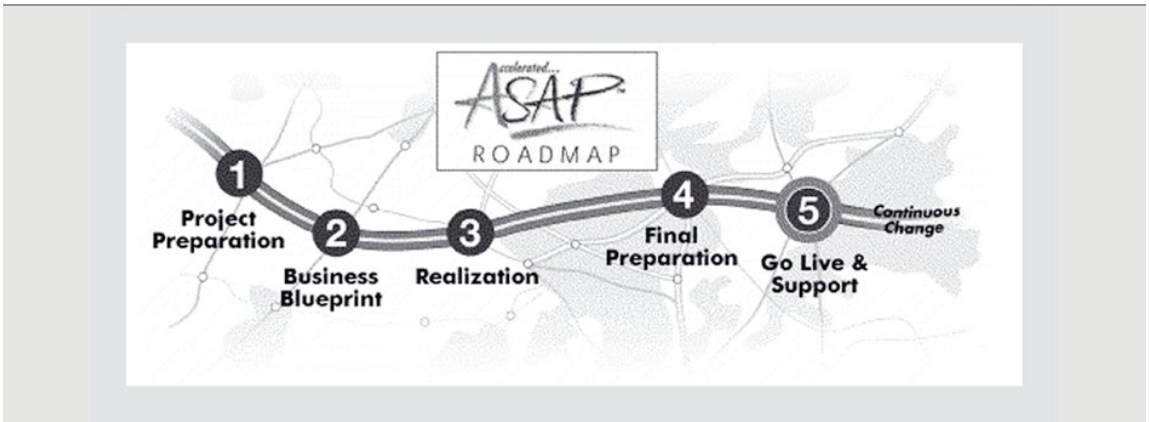

Figure 5.2 ASAP Roadmap

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5.5 CUSTOMIZING

Adaptation or customizing of SAP is not forbidden, but changes to settings can have far-reaching consequences. We kindly but emphatically request you to be very careful with regard to any small adaptations you may make to the system. If in any doubt, please ask the system administrator for permission first. You are not permitted to make any changes to cross-client settings!

You can do almost anything with the system, so deal prudently with this responsibility. Every action you take is recorded, which means it is always possible to find out who entered specific data or made specific changes!

Customizing is carried out using the Implementation Guide (IMG). This contains both texts and illustrations on customizing and lists the customizing options available. You will find the IMG with:

SAP menu →Tools →Customizing →IMG → Project Management

The 'SAP Reference IMG' button brings the guide into view.

A ▷ indicates that there are sub-chapters. If there are no sub-chapters, you will be able to read the text  or carry out the function . It is also possible to search for a specific chapter .

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6 SAP BUSINESS SUITE

Large companies and companies using their systems to collaborate with other companies and customers will need more systems than SAP ERP. The systems from SAP will be mentioned as part of the Business Suite. The integration can be done with NetWeaver. Next the portal is described. The C-Business diagrams will be introduced in the last paragraph.

6.1 SAP BUSINESS SUITE

SAP ERP supports all functionality within the borders of the company. For large companies this is sometimes not enough. Perhaps an extended customer relation management system with a lot of e-commerce functionality might need to be considered. E-commerce requires an integrated access to all partners in the marketplace. This marketplace is an Internet site to connect vendors, partners and customers. The SAP Business Suite supports this.

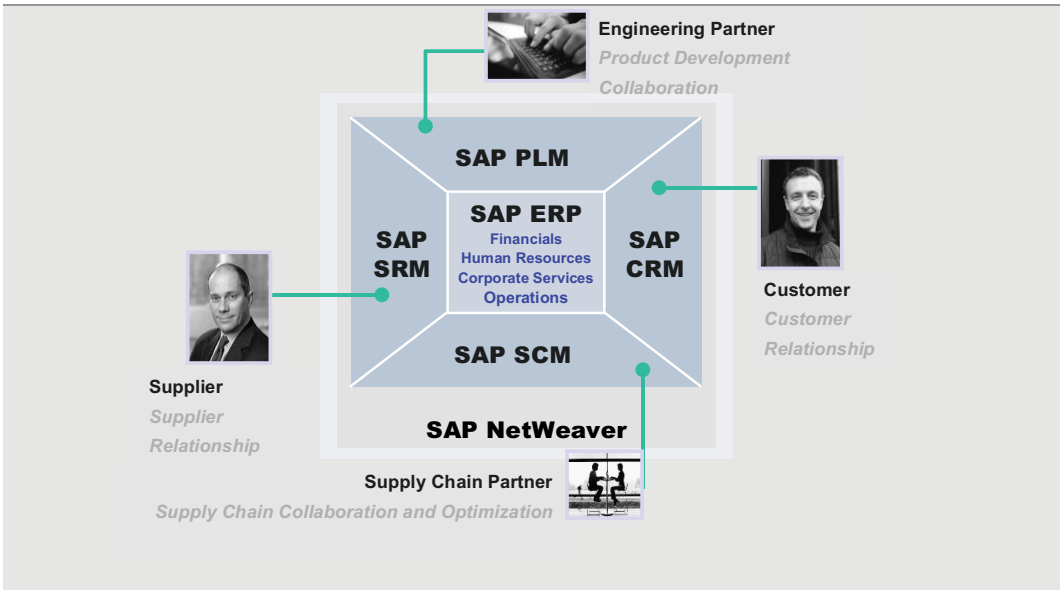

Figure 6.1 Business Suite

The SAP Business Suite consists of the following applications:

- SAP ERP
- SAP Customer Relationship Management (CRM)
- SAP Product Lifecycle Management (PLM)
- SAP Supplier Relationship Management (SRM)
- SAP Supply Chain Management (SCM)

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SAP Business Suite applications are based on the SAP NetWeaver platform, an integration and application platform (see below).

SAP Customer Relationship Management

This CRM solution uses common data from, for example, an ERP system.
SAP Customer Relationship Management (SAP CRM) includes features and functions to support core business processes in the following areas:

- Marketing – Improve the effectiveness of your marketing activities, maximize resource efficiencies, and empower marketers to acquire and develop long-term customer relationships. SAP CRM provides comprehensive support for marketing resource management, segment and list management, campaign management, trade promotion management, lead management, and marketing analytics.
- Sales – Eliminate productivity barriers, enforce consistency across all selling channels, and increase overall performance within your sales organization. SAP CRM empowers sales professionals with comprehensive support for sales planning and forecasting, territory management, account and contact management, lead and opportunity management, quotation and order management, configuration, contract management, incentive and commission management, time and travel management, and sales analytics.
- Service – Transform service into a profitable line of business with a broad range of functionality to enable customer service and support, field service, e-service, service sales and marketing, service-contract management, warranty and claims management, depot repair, channel service, and service analytics.
- E-commerce – Turn the Internet into a profitable sales and interaction channel for both business customers and consumers. SAP CRM delivers broad functionality to enable business processes in the areas of e-marketing, e-selling, e-service, and e-analytics.
- Interaction center operations and management – Enhance the performance of your interaction centre with support for telemarketing, telesales, customer service, e-service, and interaction centre analytics, as well as for the management of interaction centres.
- Channel management – Optimize your indirect channels with support for partner management, channel marketing, channel sales, channel service, channel commerce, and partner and channel analytics.

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SAP Product Lifecycle Management

Product innovation brings new challenges daily – environmental concerns, shorter product life spans, globally distributed sites and project teams. Today manufacturers must deliver high-quality products quickly and cost-effectively – while retaining and building a customer base, reducing service costs, and complying with international regulations.

After using sophisticated systems for design, enterprise resource planning, and customer relationship management, you may still need to get new products to market faster. Critical departments and functions may still operate separately. Suppliers and partners may have challenges getting through your firewalls.

You need an integrated product lifecycle management (PLM) software solution for collaborative engineering, product development, and management of projects, product structures, documents, and quality. That PLM software should provide an information backbone to help you access relevant information anywhere, anytime. You need the SAP Product Lifecycle Management (SAP PLM) application.

The SAP PLM application provides integrated product lifecycle management software. PLM offers a single source of all product-related information needed for collaborating with business partners. PLM supports processes including product innovation, design and engineering, quality and maintenance management, and control of environmental issues.

SAP Supplier Relationship Management

Faced with the business demand for sustained profitability, companies of all sizes are looking to sourcing and procurement – and the bottom-line advantage of managing supplier spend. If you can reduce the cost of purchased goods and services, you can boost profitability – without increasing sales or sacrificing quality.

With the SAP Supplier Relationship Management (SAP SRM) application, you can simplify and automate procurement. The SAP SRM application integrates strategic practices for supplier qualification, negotiation, and contract management more tightly and cost-effectively with other enterprise functions and their suppliers' processes – through a single analytical framework and support for multichannel supplier enablement.

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The SAP SRM application is designed as a long-term foundation to secure the cost and quality advantages of center-led purchasing and broadened supplier involvement for enduring value and long-term results. If you are seeking a low-risk way to prove the value of e-sourcing before investing in the SAP SRM application, you can use a hosted version of the SRM sourcing software for a temporary period.

With SAP SRM, you get a supplier relationship management software application designed to achieve sustainable savings, value-generating supplier relationships, and faster business innovation.

SAP Supply Chain Management

SAP SCM: Software for collaboration, planning, execution, and coordination across the adaptive supply chain network.

In an age of intense competition, supply chain efficiency and adaptability are not just requirements for success. They are necessities for survival.

The SAP Supply Chain Management (SAP SCM) application is software that can help your organization transform a linear supply chain into an adaptive supply chain network, in which communities of customer-centric, demand-driven companies share knowledge, intelligently adapt to changing market conditions, and proactively respond to shorter, less-predictable life cycles.

Many companies across the globe have used the SAP SCM application to improve their business and operations processes. In fact, the SAP SCM application is the only supply chain software application that integrates collaboration, planning, execution, and coordination of the entire supply chain network – an application empowering you to:

- Synchronize supply to demand – Balance push and pull network planning processes. Replenish inventory and execute production based on actual demand.
- Sense and respond with an adaptive supply chain network – Drive distribution, transportation, and logistics processes that are integrated with real-time planning processes.
- Provide network-wide visibility, collaboration, and analytics – Monitor and analyze your extended supply chain.

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Built on the SAP NetWeaver platform, SAP SCM enables adaptive supply chain networks by providing not only planning and execution capabilities to manage enterprise operations, but also visibility, collaboration, and radio frequency identification (RFID) technology to streamline and extend those operations beyond corporate boundaries.

The result: measurable improvements through cost reductions, service-level increases, and productivity gains – ultimately leading to stronger profit margins.

More information on http://www.sap.com.

6.2 NETWEAVER

A comprehensive integration and application platform, SAP NetWeaver works with your existing IT infrastructure to enable and manage change. With SAP NetWeaver, you can flexibly and rapidly design, build, implement, and execute new business strategies and processes. The platform enables you to drive innovation throughout your organization by recomposing existing systems while maintaining a sustainable cost structure. You can also add innovative, industry-specific business processes with reduced risk to existing systems and a strong return on investment.

SAP NetWeaver unifies integration technologies into a single platform and is pre-integrated with business applications, reducing the need for custom integration. The platform is based on industry standards and can be extended with commonly used development tools such as Java 2 Platform, Enterprise Edition (J2EE), Microsoft .NET, and IBM WebSphere.

SAP NetWeaver makes change sustainable by helping you contain costs and reduce risk as you evolve your business. The platform is the technical foundation of SAP Business Suite applications, SAP xApps composite applications, partner solutions, and custom-built applications, including composite applications, providing the best way to integrate all systems running SAP or non-SAP software. It also enables enterprise service-oriented architecture, a blueprint for service-oriented business solutions.

SAP NetWeaver integrates at the next levels:

- User integration
- Information integration
- Process integration
- Application platform

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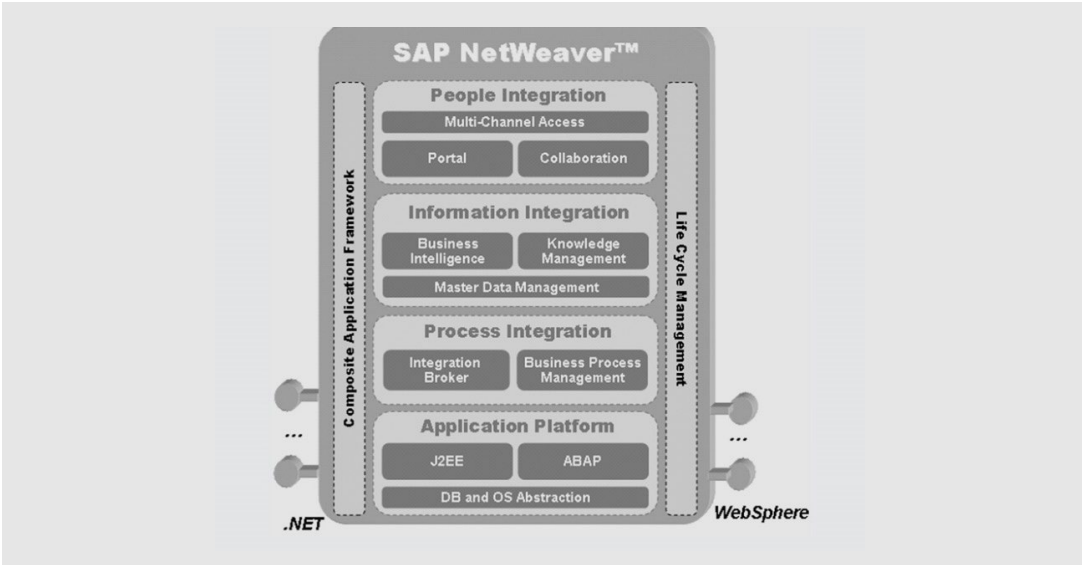

Figure 6.2 NetWeaver

User integration

- Portal infrastructure: gives workers unified, personalized, and role-based access to heterogeneous IT environments. Increases the efficiency of business processes spanning customers, suppliers, partners, and employees.
- Collaboration: promotes dynamic and cost-effective communication among teams and communities. Includes virtual collaboration rooms and real-time collaboration tools such as news, chat, team calendar, application sharing, and document stores.
- Multichannel access: permits access to enterprise systems using mobile devices and voice systems, allowing you to extend your business processes to wherever you conduct your business.

Information integration

- Knowledge management: manages and makes accessible unstructured information such as text files, slide shows, or audio files. Includes integrated search, content management, publishing, classification, and workflow capabilities, as well as an open framework for third-party repositories.
- Business intelligence: enables organizations to integrate, analyze, and disseminate business-critical information. Includes a robust suite of tools for creating and publishing customized, interactive reports and applications, which supports your decision making at every level.
- Master data management: promotes information integrity across the business network in heterogeneous IT environments. Provides services to consolidate, harmonize, and centrally manage your master data, including business partner information, product masters and structures, and technical-asset information.

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Process integration

- Integration broker: enables eXtensible Markup Language (XML) and Simple Object Access Protocol (SOAP) communications between application components from heterogeneous sources. Defines software components, interfaces, mappings, and content-based routing rules based on open standards.
- Business process management: allows the modelling and driving of business processes in a dynamic IT environment. Permits underlying applications to be combined into adaptive, end-to-end processes spanning the entire value chain.

Application platform

- Application platform: supports J2EE and the ABAP programming language in a single environment. Provides independence from existing databases and operating systems, full support for platform-independent Web services and business applications, and an open, standards-based development environment.

6.3 SAP PORTAL

The SAP Portal, formerly called Workplace, is a *web-based environment* in which the information and the tools are readily available. The idea behind this, however, is that staff will do their work better and more quickly because everything is available from every location with a mouse click.

In many companies, you see the network desktop as the center of events: the use of a (Microsoft) Office environment as the suite of PC applications makes it possible to work with digital documents and particularly to exchange them. Once employees are used to the same graphic user interface, it becomes a lot easier to work with. The next step is what are known as portals, a structured manner to present information on the Internet. Portals on the Internet are as it were the input ports for all sorts of information.

SAP has also contributed to these developments with *SAP Portal*. The Portal relates to the entire work environment of an employee, not only the documents lying on his desk, but for example also the tasks that the employee has to carry out, and it also gives access to the information that the employee needs. Furthermore, there are links to the IT systems to which the employee has access.

SAP expresses it as follows: a user's gateway to the IT systems that he or she requires to do a designated job.

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The SAP Portal (see Figure 6.3) consists of three parts:

- Roles: Logical collections of activities and functions which belong to a particular function, such as buyer, planner, business office worker, sales assistant, supervisor, etc. SAP already has 200 predefined roles, which can be used as a template, included in the Portal.
- Launch Pad: Section on the left of the screen enabling users to navigate through the system functions easily and quickly. There can be links to systems, reports, web pages, intranet pages, etc.
- XApps: XApps give the user the information that is applicable to his specific role. For a buyer, for example, that is a list of open purchase orders. The XApps are placed on the right of the screen.



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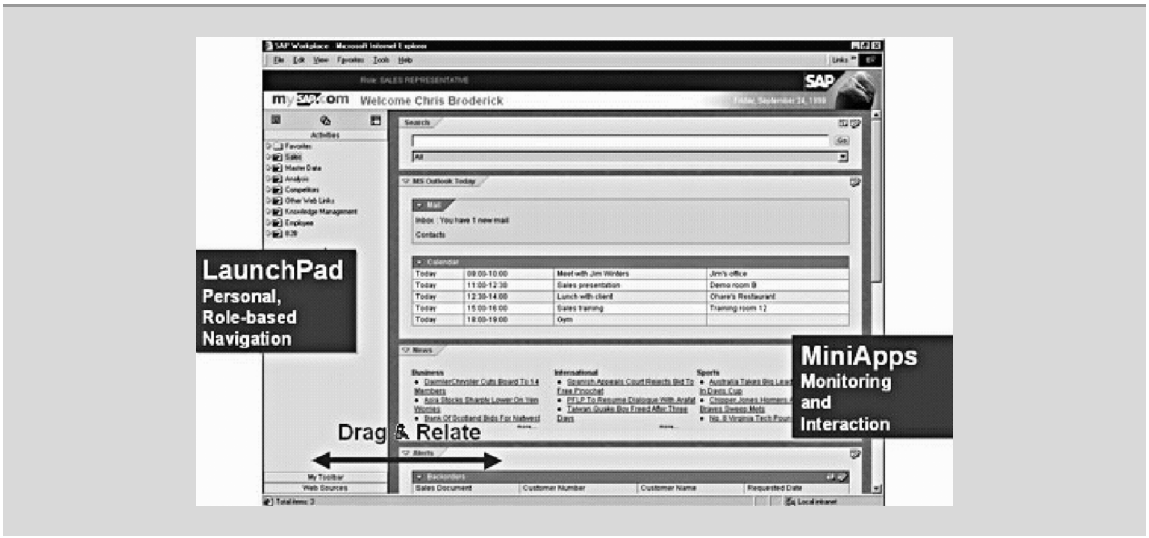

Figure 6.3 SAP Portal

6.4 COLLABORATIVE BUSINESS

SAP considers C-Business as the successor to E-Business. C-Business means collaboration between suppliers and customers as a result of which suppliers and customers appear to be working in one company. This functionality should result in an optimal value chain.

Collaborative Business Maps (C-Business Maps) give a blueprint of how the SAP E-Business platform could be set in for various industries. SAP uses these diagrams to depict the communication with the outside (suppliers and customers). In this book you use C-Business diagrams for processes and to focus on the collaboration between the departments within a company.

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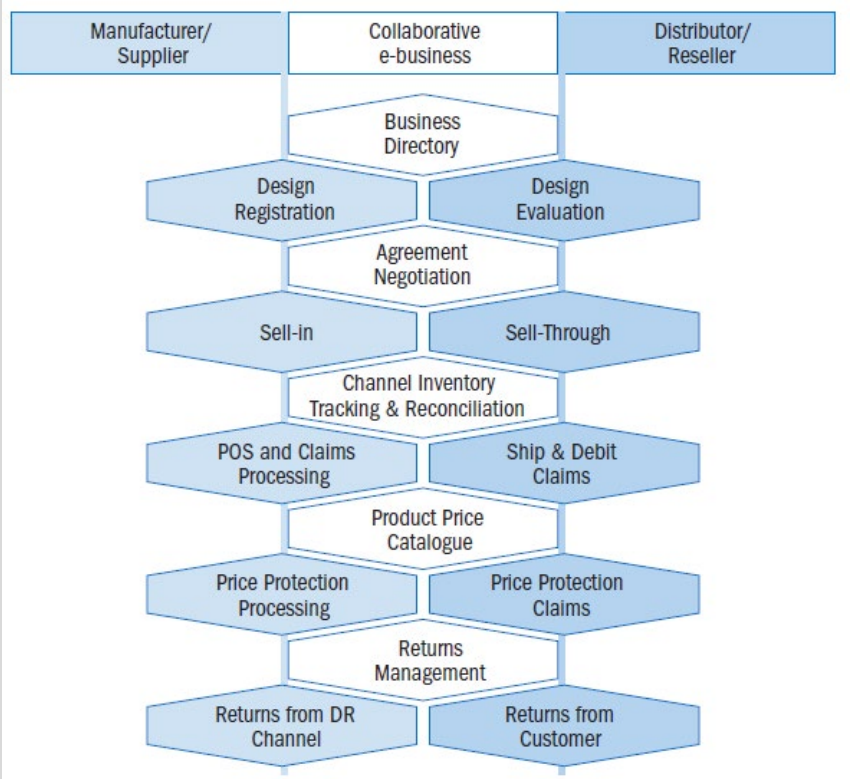

Figure 6.4 C-Business diagram

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7 IDES

IDES, the 'Internet Demonstration and Evaluation System' or 'International Demonstration and Education System' in the SAP systems, represents a model company. It consists of an international group of companies with subsidiaries in several countries. IDES contains application data for various business scenarios that can be run in a SAP System. The business processes in the IDES system are designed to reflect real-life business requirements, and have access to many realistic characteristics.

In this chapter, the structure of the IDES database will be described in brief.

7.1 SHORT DESCRIPTION OF IDES

IDES uses easy-to-follow business scenarios to show you the comprehensive functions of the SAP systems. The focal point of IDES, however, is not the functionality itself, but the business processes and their integration.

These IDES business processes are described in detail within this online documentation. The individual demos provide you with an overview of the master data, and contain step-by-step instructions on how to execute the individual processes.

IDES covers not only the Logistics area, but also Financial and Human Resources. It demonstrates how the SAP ERP System is able to support practically all types of industries, from discrete production through to process industries, from engineering-to-order to repetitive manufacturing. However, IDES is not a sector-oriented model company. The individual processes are based on practice-oriented data for sectors such as Retailing or Banking. The IDES group manufactures products as diverse as elevators, motorcycles, and paints.

IDES is managed by SAP just as any regular business enterprise. SAP regularly updates the IDES data (master data, transaction data, and customizing). You also carry out period-end closing and plan with different time horizons. Transaction data are generated to ensure that the information systems in all areas have access to realistic evaluation data. You are constantly implementing new, interesting business scenarios to highlight the very latest functions available in the SAP systems. New functions are represented and documented by IDES scenarios.

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Above all, IDES shows you the possibilities of the integrated applications in the SAP System. You cover all aspects of a business enterprise, including Human Resources, Financial Accounting, Product Cost Planning, Overhead Management, Profitability Analysis, Planning, Sales and Distribution, Materials Management, Production, and much, much more. You also have integrated document administration and third-party CAD systems within the IDES system. This means that you can call up and display external documents, or access CAD drawings.

IDES shows you how the SAP ERP System supports production processes, the supply chain, and the efficient usage of global resources. Or perhaps you would like to increase your understanding of just-in-time production or the integration of the electronic KANBAN system in an MRP II environment? IDES provides the ideal way to learn about areas such as Product Cost Controlling, Activity-Based Costing, or Integrated Service Management and Plant Maintenance. How to manage high inflation is just one of the ever-growing number of IDES business scenarios that you can choose from.

The IDES group comprises four subgroups. These are the European subgroup, with a plant in Germany, the Netherlands and other countries, and the North America group, the Latin America group and Asia. Each of these companies has its own clearly defined business objectives within the consolidated group and is organized according to local business practices and legal requirements. Consolidation takes place across the financial areas. For example, the French subsidiary operates solely as a sales company, whereas in Mexico, you demonstrate high-inflation methods and the material ledger. The American and German subsidiaries produce goods, as well as carrying out purchasing and sales activities. Accounting and Human Resources for each individual company have been adapted to meet the particular business objectives. Germany and the United States, for example, have been set up to use flexible standard costing, whereas the United Kingdom uses static standard costing based on full costs.

7.2 STRUCTURE OF IDES SALES ORGANIZATION

IDES has two sales organizations in Germany: 1000 and 1018. The products and services marketed are clearly allocated to one division and reach the customer via different distribution channels.

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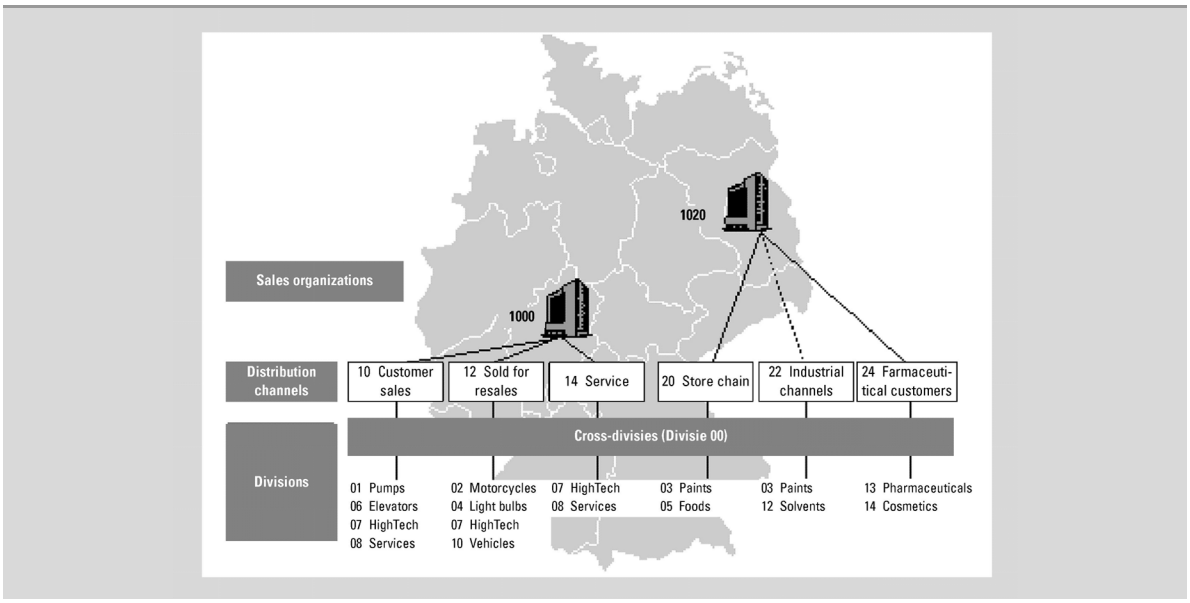

Figure 7.1 Sales organizations

The sales organizations have the following areas of responsibility: Sales organization 1000 is in charge of selling and distributing pumps, elevators, lighting, motorcycles, vehicles and high tech products. Sales organization 1020 is responsible for consumer goods, chemical and pharmaceutical products and cosmetics.

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PART 2
CARRYING OUT A COMPLETE ERP PROCESS

8. Log on and the SAP ERP interface
9. Accounts receivable
10. General Ledger administration
11. Accounts payable
12. Human resources
13. Logistic master data
14. Complete ERP process

This part describes a complete ERP process and constitutes the main part of this book. The assignments in the chapters of this part are related to the Financial, Human Resources and Logistics areas. In chapter 8 some basic terms are explained. Most exercises in chapters 9, 10, 11, 12 and 13 are about the creation of master data.

In chapter 14 the student performs a sales-order-driven process. By means of a materials requirement planning (MRP I) all steps of a business cycle are gone through. The master data of chapters 9, 10, 11, 12 and 13 are applied in carrying out the complete ERP process in chapter 13.

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8 LOG ON AND THE SAP ERP INTERFACE

In this chapter we explain how to log on to SAP ERP. Screens and buttons will be clarified. The possibilities to export lists to Word or Excel User are mentioned. Specific settings, such as favourites, defaults and variants, will be explained at the end of the chapter. This chapter is primarily to be used as a reference document.

8.1 CLIENT CODE AND COMPANY CODE

Work is done in client 900 or higher. This client is a copy of the IDES Company.

Work is usually done in the following different companies:

1000 IDES
2500 Dutch plant (subsidiary of IDES)
3000 IDES USA, New York
4000 IDES Canada, Toronto
5000 IDES Japan

The company code, if required, is only entered during the transactions.

8.2 USER

Each student needs a username to log on. The username ends in three digits (???), for example HVA-013. This number, which is unique to each user, is used in various exercises. For example, there is a customer with code 35???. The HVA-014 user enters the customer as 35013.

8.3 LOGGING ON

SAP ERP is started up in Windows. In the SAP group double click on the SAP ERP icon. Fill in the client's number (for example 900), the user (for instance HVA-014), the password (initial 123456) and if necessary the language (EN = English and DE = German) and hit «Enter».

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When you first log on you are asked to create your own password. Choose a password (between three and eight characters, letters and/or digits), hit «Tab», type the password again and hit «Enter». Look at any information in the dialog box and after «Enter» or «Continue» the initial screen of SAP appears again.

8.4 LOGGING OFF

To log off, choose the top menu.

System → Log off

or close the application in the normal Windows way (Close). The question, '*Unsaved data will be lost. Do you still want to close down?*' will always be asked. By giving the answer «Yes», you leave the system.

8.5 EXPLAINING THE STANDARD SCREEN

Some function keys that can be used in the standard screens will be explained in this section. Many procedures are similar to those found in other Windows software. Some procedures are specific to SAP. With the information below we hope to guide you more quickly through all the exercises.

In this course book frequent use will be made of menu paths such as:

System → List → Save → Local file

The menu starts with *SAP menu*. By clicking the triangle, the menu can be extended into a top menu.

The menu paths are usually indicated from the highest level (SAP menu), sometimes (particularly if the menu paths have two lines) it is only possible to use the last part of the menu.

A check ☑ in a field indicates that this field is obligatory and must be filled in. A field that is shaded gray cannot be changed.

- In order to change fields you can use the «Tab» key or the mouse. When you have filled in the relevant data it is possible to check the screen by hitting «Enter» or clicking the ✔ in the upper left-hand corner of the screen (see explanation of icons).

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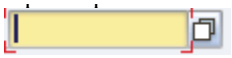
- The keys F13 and higher, which are not on the keyboard, can be used by pressing «Shift» and «F12» at the same time, for example to get «F24». It is also possible to click right on the mouse, which displays all the items you need and is easier to use.
- If you want to select an item, you can do so by clicking on the item and then hitting «SELECT». It is also possible to double click on an item, which automatically selects the item.
- 

  This symbol indicates that there are limited number of possibilities to be selected for the field. If you click on it, you will get a list of all the input possibilities for this field from which you can select the input required.
- 

  This symbol indicates that more than one selection of data for this field can be made. Here you search using match codes (secondary indices). When you have chosen a match code you must give a code or a description. If you do not know the code or description, or only partially (e.g. it begins with 'MB'), you either fill in nothing or you type the part you know, 'MB', after which you get the entire list with all possibilities of the desired input. Searching by name generally works better than searching by number. When searching for a document, you can give your own user code in the field 'placed by'.
- If you have not filled in a field correctly you will get a message in the blue bar below the screen. This message may be one of the following:
  - W Warning
  - E Error
  - A Abnormal closure
  - I Information

  By double clicking on the message it is possible to see the message in full. A warning can be cancelled by «Enter»; an error must be corrected.

It is possible to have several screens (sessions) open at the same time. A session is an independent task that is performed within its own window. A maximum of nine sessions can be opened. By choosing

System → Create session

or clicking the button you open a new session and the main menu. By using «Alt» «Tab» or the toolbar it is possible to switch between the various open screens.

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From each overview you can make a download in the form of a file. By selecting

System → *List* → *Save* → *Local file*

you can choose a format and indicate the name of the file.

A screen can also be included in a project. With «Alt» «Print Screen» the active window is put on the clipboard and can be retrieved with the Paste button in Word or Paintbrush. In Paintbrush there is another piece to be cut out and saved with Copy To…as Bitmap or JPG.

8.6 KEY TO SYMBOLS

Some of the icons on the screen will be explained. You can activate the icons by clicking on them or by making use of the special keys, which are also specified in the icon list at the end of the book.

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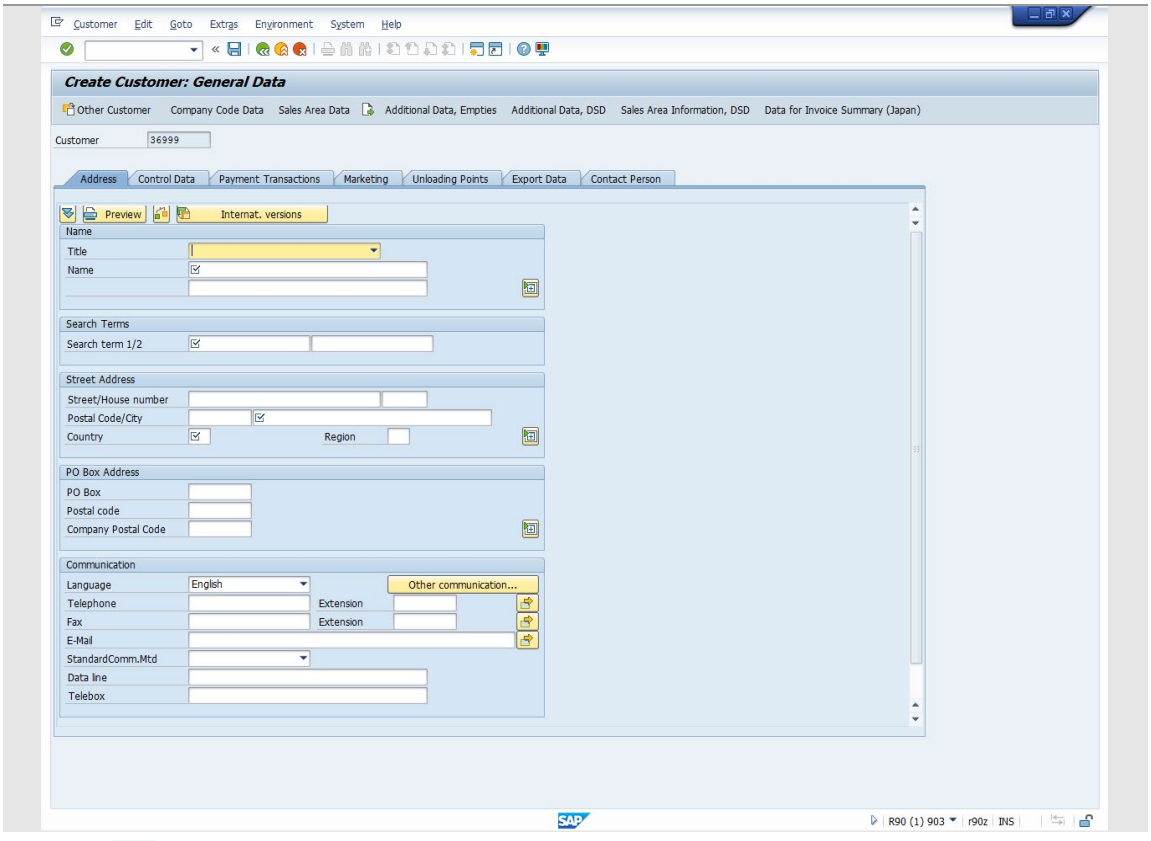

Figure 8.1 Screen Layout SAP ERP

 Once you have filled in a screen completely, this button allows you to check whether the data has been correctly entered. This button can be replaced by the «Enter» key.

 If you want to have a task carried out, for example a report, you should make use of  the «execute» button. This button can be replaced by the function key «F8».

Here, you can enter transaction codes, in order to go through the menu more quickly. Each transaction is identified by a unique transaction code of letters and digits. By clicking on the top menu, you will see the transaction codes of the transactions just carried out. In the white command field you can start up a transaction with /N<transaction code> or by opening a second session (mode) with the desired transaction by typing /O<transaction code>. Users who work with SAP frequently can find a particular function more quickly in this way than via the menu.

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By choosing

System → Status

you get the screen on which you can read which transaction you are using at any given moment.

 When everything has been correctly entered the screen can be saved. At the bottom of the screen a document number, warning or error message will appear. If a number appears, it is advisable to write it down. This button is equivalent to «F11».

 With these buttons you can return to the previous level. The first button is to go back one level, the second button to close the function, the third button is to cancel the function. These buttons can be replaced by «F3», «F15» and «Esc» respectively.

 This button leads to the help function. Instead of the button you can use «F1». In this way you get context-sensitive help, such as the meaning of a particular field.

You get general help by choosing the top menu

Help → SAP Library

The library gives you an extensive description of each module. By clicking on the name of the module a table of contents of the instructions for this module appears. The texts of the various chapters can be retrieved and, if necessary, printed.

The SAP Library can also be found on the Internet at http://help.sap.com/.

8.7 EXPORTING LISTS TO WORD OR EXCEL

A list, such as a balance sheet, often either fails to satisfy layout preferences or there is a wish to incorporate a list of this kind into a report. In these cases the simplest method is to save the list as a spreadsheet, in Rich Text Format (RTF-file) or as HTML on a local disk by choosing

System → List → Save → Local file

Select Rich Text Format if you wish to go on working in Word, and give the file a name with the extension .RTF. The file can be saved on the local drive.

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In some lists the *list* option is already provided for at top left and there are also lists that can be directly transferred to Excel (in these cases there is a button showing this option). The balance sheet can be exported to Excel with the 'ALV grid control' layout using:

List → Export → Spreadsheet

Select 'Table' and then 'Excel'. The list can be saved locally within Excel.

8.8 FAVOURITES

Many frequently used functions can be included in the list of favourites. Go to the frequently used menu items, click right and select 'Add to favourites'.

This can also be done with the  button.

You can create your own menu structure by choosing

Favourites → Insert folder

Give the folder a name, for example the task/function for which you often use the menu.

8.9 USERS' DEFAULTS AND USERS' PARAMETERS

Select

System → User profile → Own data

At the 'Defaults' tab it is possible to change the date format, select a point instead of a comma for decimals or choose a different language.

The tab 'Address' can be used to enter the names and organization data of the user.

The users' specific default values are entered at the 'Parameters' tab. It is often the case that in particular fields the same value has to be filled in. Examples of such fields are the company code, the currency, the sales organization etc. With these fields it is possible, provided the field has a 'Parameter-ID' (Parameters), to enter a default value. The settings are linked to specific user identification in the client. The values are also saved after logging off.

In order to enter a user parameter you first have to find the parameters of the field. To searching for a parameter, proceed as follows:

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Put the cursor on the field in which you want to enter a default value, click on «Help» and then choose the «Technical info» button. You will see the Parameter-ID with the field data. If no parameter has been filled in, it is not possible to establish a default for this field. Write down the parameters or copy them by highlighting the parameter with the mouse and putting it on the clipboard with «Ctrl»«C». The parameter for the company code is, for example, BUK.

By choosing

System → User profile → Own data

you can enter the default value with the 'Parameters' tab. Type the parameters in the first column, and in the second column enter the value or paste it with «Ctrl»«V» from the clipboard. Example: fill in the code BUK as a Parameter and 1000 as the parameter value, a frequently used company code. Click on < to save the setting.

«Ctrl»«C» and «Ctrl»«V» can be used in SAP in the same way as in all Windows applications.

8.10 VARIANT

To save the selection criteria for a report, for example a complex selection of certain customers, this can be saved as a variant. To make use of specific sector selection criteria more frequently, avoiding having to enter the sequence into the screen every time, you can use a 'variant', as follows:

Goto → Variants → Save as variant…

Give the variant a name and a useful description. Once the variant is saved it is available for retrieval the next time the system is started up, using the  button and so there is no need to enter everything again.

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9 ACCOUNTS RECEIVABLE

In this chapter you become familiar with the menu and some of the icons and buttons of SAP ERP by generating an open items report and credit management information. The master data of a customer will be created. The integration between accounts receivable, marketing and physical distribution is illustrated.

9.1 OPEN ITEMS

You want to know from accounts receivable whether a customer named **Bit Market** has paid all the invoices or that there are still outstanding (open) items.

Open items – display documents
Choose the following menu for a survey of open items covering the full range of customers:

SAP menu → *Accounting* → *Financial Accounting* →
Accounts Receivable → *Account* → *Display/change line items*

Bit Market may have open items. Use  or the «F4» key to search for the customer number. A pop-up window appears with 'Customer number'. Click on the tab 'Customer (by company code)'. Enter company code 1000 (IDES AG) and for the 'Name' field 'Bit*' (in the name field and not in the search field) and start the search with «Enter». Select the customer 'Bit Market' with a double click or a left click and hit «Enter».

The customer number 2152 appears on the screen. The company code (1000) must now be entered again as 'Company code'.

In the 'Line item selection' screen select the 'open items' radio button. The other settings are at the bottom of the screen (these can be scrolled when necessary). Multiple settings are available, but there is no need to change them for this assignment.

The open items related to this customer are displayed after selecting  «Execute».

Select any random open item (one line) – there probably will be only one open item – by clicking on the check box  on the left side of the item. Select a document with «Display document»  or by double clicking on a line.

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This so-called 'drill down' function offers the option of looking at the data behind the data. An astonishing amount of detail is often hidden behind the data. This function is available with many of the lists.

At the top right we see that the customer is linked to general ledger account 140000 (= Trade Receivables – domestic).

With the document overview , it can be seen that the turnover achieved has been posted into account 800000. Pressing the «Document header»  button brings up a screen with information about the document. In the document header you can see what type of document is concerned, who entered the document and when it was entered, whether it refers to another document, etc. (Information relating to a particular field can be obtained by clicking on the field and then hitting the «F1» key.)

Go back to the exit menu using «Back» and «Exit» (see key to symbols).

Accounts receivable credit management

Choose the following menu path to call up a report on the credit limits for one or more customers:

SAP menu → *Accounting* → *Financial Accounting* →
Accounts receivable → *Credit management* →
Credit management info system → *Overview*

This brings up a screen in which the search area can be defined.

Credit account field: enter the customer account here. Enter 4000 to 300325 as the credit account number range.

The search can be made progressively more accurate, i.e. more detailed by entering data into the other fields.

Once all the appropriate fields have been entered, the list is generated by the use of «Execute».

It is possible to analyze a customer in greater detail, by using the «Payment History» button, for instance. Try this button, but first position the cursor at customer 4999 and credit control area 1000. A credit control area usually includes all company codes using the same currency.

Go back to the exit menu using «Back» and «Exit».

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9.2 CUSTOMER MASTER DATA

In this section you deal with the creation of a customer's master data. Enter the master data for a German customer. This customer will play the role of a customer of the company in Frankfurt in later chapters. The customer will buy bicycles from us.

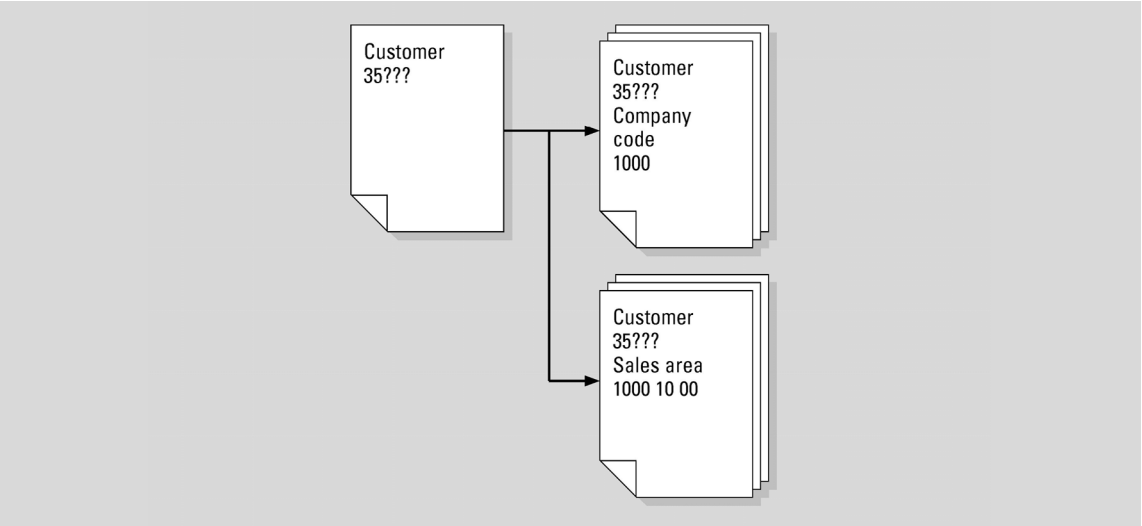

Figure 9.1 Customer's master data

SAP menu → Logistics → Sales and Distribution → Master Data →
Business partners → Customer → Create → Complete

Enter:

Account group	*Customers*	
Customer	*35???, in which the question marks refer to the last three figures of the login code.* *HVA-014 therefore selects customer number 35014.*	
Company code	*1000*	
Sales organization	*1000*	*(Germany Frankfurt)*
Distribution channel	*10*	*(Final customer sales)*
Division	*00*	*(Cross-division)*

Using «F1» and «Possible entries» or «F4» (entry options), take a look at the significance of the entry options for the different fields. To do this, position the cursor in the field concerned.

If you have filled in the screen properly, you will be able to enter the next screen in order to create the customer details by pressing «Enter».

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General data

General data is information about the customer, that are only dependant on the business partner, e.g. address and contact persons. Other data are related to the company code, e.g. a reconciliation account (G/L account). The pricing data will be entered in combination with the sales area.

General data: Address

Make your own choice for the name and address of the customer. Indicate in the «Search term 1\2» how you want to be able to search for the customer in future, e.g. 'The Biketrend bicylce shop'; this will create the search term 'Biketrend'. Enter a postal code of 5 digits. Ensure that the customer lives in Germany (DE), e.g. in Walldorf, in order to avoid all kinds of export problems. In this screen also indicate that communication with this customer is taking place in English. Bear in mind that all students will be able to retrieve this data!

Once all the fields with a check marker in this screen have been filled (the so-called required fields) according to your wishes, click on the following tab page or «Display next tab page» for the following input screen.

General data: Control data (Control)

Here you find the Customer control data. If the customer is also known as a vendor within the company, this fact must be indicated here. For the time being you will leave the field empty.

Give the registered VAT number. A VAT number has 11 positions, and begins with DE. Take DE126523??? as the VAT Registration Number.

General data: Payment transactions/Marketing/Unloading points/Export data

No entries necessary.

General data: Contact persons

Enter the family name and the first name of the contact person for this customer. Contact person details can be entered in «Details of partner selected» . By selecting you return to the tab sheets.

By pressing the «Company code data» button a tab page is displayed showing data that is dependent on the customer/subsidiary company combination. Each subsidiary company can, for instance, use a different ledger account for open items relating to a customer.

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Company code data: Account management

Here you enter the account management data for financial accounting relating to the new customer. A link is made between the ledger administration and the accounts receivable.

Recon.account	*140000*	*(Trade Receivables – domestic)*
Cash mgmt group	*E6*	*(Major)*
Interest indic.	*02*	*(Standard bal.int.cal).*
Interest cycle	*01*	*(1 month)*

Company code data: Payment transactions

The following is to be entered in the next entry screen:

Terms of payment	*ZB01*	*Payment conditions determine both discount rules and payment periods.*

Company code data: Correspondence/Insurance

In the next screen, accounting correspondence, there is no need to enter any data, but it should be noted that this function can be very specific. The same goes for the insurance data: there is no need to enter any data.

Sales area data

Clicking the «Sales area data» button brings up the tab pages with data that is dependent on the customer/distribution channel combination. A customer may buy bicylces from us for at the wholesale price, but if the customer buys a machine for example, the industry price list applies.

The Sales area data: sales

Enter the following into the order section on the next screen:

Sales district	*DE0010*	*(Northern Germany)*
Sales office	*1010*	*(Hamburg office)*
Sales group	*110*	*(Gr. H1 Mr. Thomas)*
Customer group	*02*	*(Trading companies)*
Currency	*EUR*	

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and at pricing/statistics:

Price group	*01*	*(Bulk buyer)*
Cust.pric.proc.	*1*	*(Standard)*
Price list	*01*	*(Wholesale)*
Cust.stats.grp	*1*	*(Relev. f. statistics)*

Sales area data: Shipping

Enter the forwarding details for the customer. The required data is in the forwarding section:

Delivery priority	*02*	*(Normal)*
Shipping conditions	*02*	*(Standard)*

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Sales area data: Billing document

Enter the customer's invoicing details:

Incoterms	*CIF*	
Second part incoterms	*Berlin*	
Terms of payment	*ZB01*	*(14 Days 3%, 30/2%, 45 net)*
Acct assgmt group	*01*	*(Domestic revenues)*
Tax details:		
DE Germany		*MWST (Output Tax)*
Tax classification	*1*	*(Liable for Tax)*

Sales area data: Partner functions

The following screen displays the messages from the Sales sector. Take a look at these; nothing needs to be entered. Similarly, in the final screen, you only need to read the details. No action is expected. If the customer is a plant of a multinational, the bill to party could be the head office.

Save the customer details using «Save». A message appears at the bottom of the screen showing that the customer has been established.

The customer has been assigned company code 1000, as shown in the status bar at the bottom of the screen. You will continue to work with this customer in chapter 13. Should you have entered anything you would like to change, however, choose:

SAP menu → Logistics → Sales and Distribution → Master Data →
Business partners → Customer → Change → Complete

in the changes menu. Enter the customer number. The details can be changed using the method described above.

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10 GENERAL LEDGER ADMINISTRATION

In this chapter a general ledger account is created, and a balance sheet and profit and loss statement are generated for the IDES company in Germany.

10.1 GENERAL LEDGER ACCOUNT MASTER DATA

A Chart of Accounts consists of all ledger account numbers. A particular subsidiary company activates a selection of ledger accounts from the Chart of Accounts using its own company code. A Chart of Accounts is generally established for all subsidiary companies on a country-by-country basis.

The financial administrator has established that no account for special advisory costs exists in the Chart of Accounts, so that this account needs to be created. The account does not yet exist in the INT Chart of Accounts (Chart of Accounts – international), nor has it been created for the company concerned. You will therefore create account number 417???.

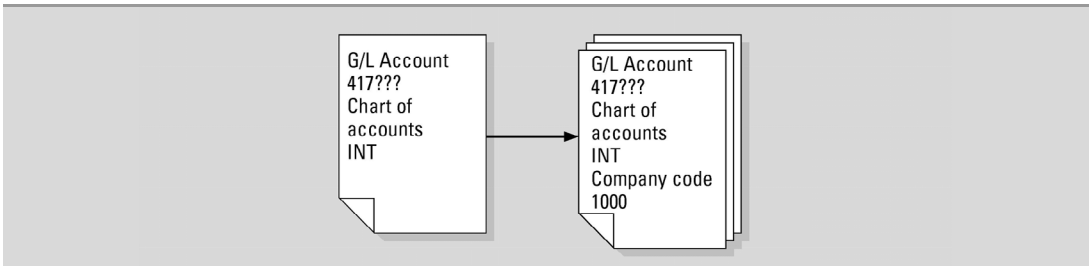

Figure 10.1 Master data general ledger account

Entering an account into the Chart of Accounts

SAP menu → Accounting → Financial Accounting →
General Ledger → Master records → G/L Accounts →
Individual processing → In Chart of accounts

New number:
G/L account *417???*
Charts of accounts *INT*

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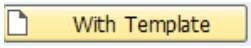
Account 417000 is a similar to the account you are going to create. The reference ensures that data is copied from the reference account number as much as possible. This saves much time in entering the details, which appear to be very similar, e.g. a number of accounts receivable with only small differences.

Using the 

button, copy the account:

G/L account *417000*
Charts of accounts *INT*

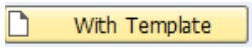
and change both the short and the long text in the ledger account with a description you make up yourself. Perhaps a change is desirable in the 'Key word/translation' tab. Further changes are unnecessary and the data can be saved 🖫. Any further references to languages not installed on your computer can be ignored by hitting «Enter».

Entering the account into the company

The second step is the allocation of the account to company code 1000 by selecting:

SAP menu → Accounting → Financial Accounting →
General Ledger → Master records →
G/L Accounts → Individual processing → In company code

New number:
G/L account *417???*
Company code *1000*

Using the 

button, create an account with the reference:

G/L account *417000*
Company code *1000*

Alternative account no. *blank (remove the number, if there is any value in the field)*

Save this data.

It is useful to give the company code a default value by means of a user parameter (see section 8.9 Users' defaults and users' parameters).

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10.2 BALANCE SHEET AND PROFIT AND LOSS STATEMENT

It is possible to have the system generate a profit and loss statement at any time. The structure can be freely determined by means of customizing.

Take a look at the results of the IDES company in Germany of the previous year and compare these results with the results before that year by choosing:

SAP menu → Accounting → Financial Accounting →
General Ledger → Information System → General ledger reports →
Financial Statement/Cash Flow → General →
Actual/Actual Comparisons → Financial Statements

Select:

Company code	*1000*
Financial statement version	*INT*
Language	*EN*
Reporting year	[*Last year*]
Reporting periods	*1 to 16*
Comparison year	[*Year before last year*]
Comparison periods	*1 to 16*

The structured account balance list is displayed with the radio button 'ALV tree control' at the bottom of the screen. Press «Execute». What were the domestic revenues for last year? Has the profit for last year been settled? Check the amount of the calculated profit stated in the balance sheet of last year with the calculated profit of the 'Financial statement usage'.

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11 ACCOUNTS PAYABLE

The vendor master data is created. The invoice process is started. The invoice for consultancy costs is posted. The outcome of this posting will be analyzed with the balance vendor account and the open items. Finally, the payment of the invoice is posted.

11.1 INVOICE PROCESSING C-BUSINESS DIAGRAM

This C-Business diagram (see paragraph 6.4) depicts the collaboration of the company with the outside business environment and the collaboration between the departments. The order of the process flow is top down. The invoice is created as collaboration between the supplier and the accounting department. This invoice does not contain logistical information. In chapter 14 an invoice is created with reference to a purchase order. Within the accounting department the creditors monitoring (credit control) is carried out. Finally, the communication between the financial accounting and the bank is leading to the posting of the outgoing payment.

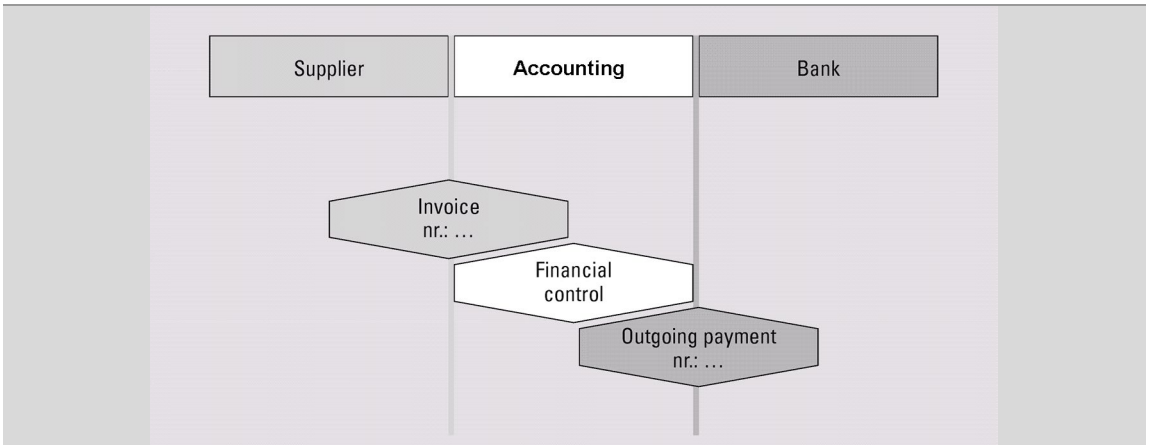

Figure 11.1 Invoice processing

11.2 VENDOR MASTER DATA

To make a start with accounts payable you first need to create a vendor as follows:

SAP menu → Logistics → Materials Management → Purchasing →
Master Data → Vendor → Central → Create

Vendor	*80???*
Company code	*1000*
Purch. organization	*1000*
Account group	*0001*

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Make sure not to use a reference. If there is a reference, remove it. Press «Enter».

Ensure that the vendor lives in Germany. Enter the address details of this supplier in Germany. Press «Enter». Indicate in the following control-related screen, at the tax information section, that payments to this vendor are inclusive of value added tax (☑ Sales/pur.tax). Use «Enter» to move a couple of screens further. In the 'Accounting information Accounting 'screen an reconciliation account entry is required. Enter 160000 (Trade payable – domestic). Enter at 'Cash mgmnt group' A1 (Domestic). Press «Enter». The payment condition ('Payment terms') is ZB01. Press «Enter» twice. At purchasing data you enter the order currency EUR and as payment terms again ZB01. Finally you enter a check mark for 'Automatic purchase order'. After the final screen the entries can be saved.

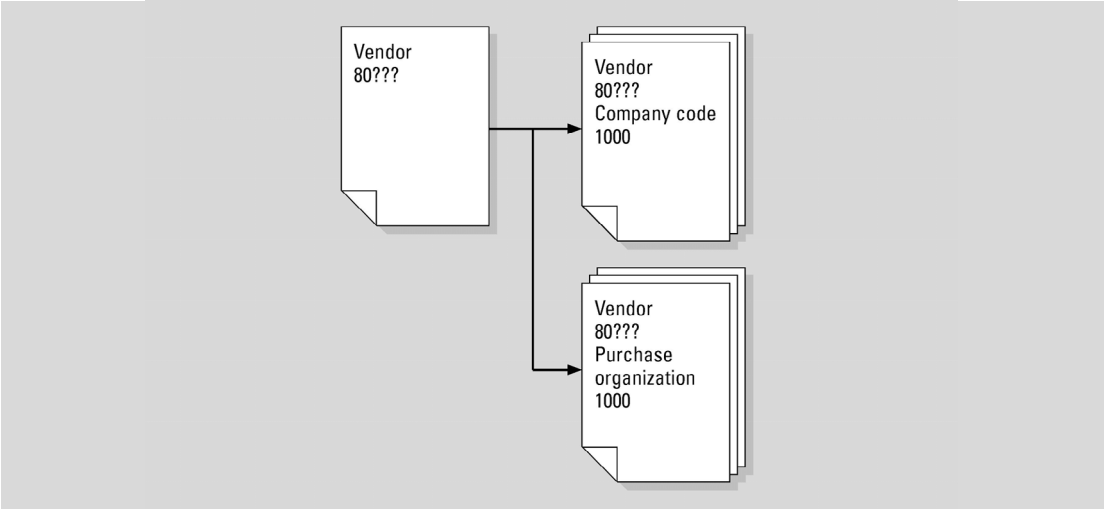

Figure 11.2 Master data vendor

The vendor can be subsequently changed by choosing:

SAP menu → Logistics → Materials Management → Purchasing →
Master Data →Vendor → Central → Change

11.3 POST THE INVOICE

An invoice has been received from vendor 80???.

This is an invoice of € 250 relating to a notification that has been received regarding advice on the colour scheme of a bicycle. Often invoice postings are related to purchase orders. This invoice will be posted directly into accounts payable via:

SAP menu → Accounting → Financial Accounting → Accounts Payable
Document entry → Invoice

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You work for company 1000 (IDES AG Frankfurt). If necessary change the company code with «Switch leading company code».

For the vendor number enter (Vendor 80???). For the invoice date and posting date, enter the current date. It is sufficient, instead of entering 24.05.2001, to enter 240601 or hit «F4» (Entry options). For the currency select EUR. The document header text (Text) is 'Consultancy and advertisement ???'. Enter the amount 250. This amount is including tax. Activate calculate tax (check box). Enter VA (19% domestic input tax) as the tax code.

Make sure at the 'Payment' tab that the payment term is ZB01, the rest of the payment conditions will be completed automatically.

The offsetting G/L accounts are entered as 'items'. Enter account 417??? as the general ledger account and €100 for the amount (Amount in doc.curr.). Double click on the line to enter the text for this item is 'Consultancy???'. Go with the green arrow «Back» to the overview.

Create a second item for advertisements cost. The general ledger account for these costs is 477000 (Advertising and Sale) for €150. Double click on the line item again and enter the cost centre 3200 (Marketing) and the text 'Advertisement ???' for this item. Return with the green arrow «Back» to the overview.

On the tab 'Details' add the text 'Consult. and advert. ???' as Headtext. Using texts facilitates the control of postings.

The posting can be simulated using the «Simulate» button. This list contains the ledger accounts to be posted. By double clicking on the vendor number, the general ledger account (160000) appears. This account will be posted automatically. This is the integration of the accounts payable and the general ledger administration.

Return to the overview with the button «Back». The account balances and can be saved by clicking on <<Save>> or 🖫. Do not use the button «Park» or «Complete», the invoice will not be posted, but will appear in the mailbox of an other employee to approve the invoice. Write down the number in the C-Business diagram.

The system expects the entry of a new invoice for posting. Leaving this screen is therefore only possible using «Exit» and saying 'Yes' to the question whether you really want to exit.

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Select:

SAP menu → Accounting → Financial Accounting →
Accounts payable → Document → Display

The number of the last document to be entered is filled in. If you take a look at this document by pressing «Enter», you can see that the VAT was also posted to the correct ledger account when the document was saved.

11.4 MONITORING THE ACCOUNTS PAYABLE

Accounts payable monitoring exists in order to check whether all accounts are paid on time.

Vendor balance

Select:

SAP menu → Accounting → Financial Accounting →
Accounts payable → Account → Display balances

Enter the vendor number you just created. The company code is 1000. The required overview is available by pressing «Execute».

Double click on an amount (for instance the amount you have just entered) in the line covering the current period.

List of open items

In order to check the Open Items, choose:

SAP menu → Information systems → Accounting →
Financial Accounting → Accounts Payable → Open items

Fill in the correct vendor number or make an alternative selection. It is wise to limit the analysis to a single company. The report appears on the screen when «Execute» is pressed.

Balance lists

The financial manager requests a survey of advisory costs for the current year:

SAP menu → Information systems → Accounting →
Financial Accounting → General ledger → Account balances

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From the Chart of Accounts select 'chart of accounts' INT, since the 1000 company (IDES) uses this. For the actual ledger account you must select the ledger account 417???. If you use the entry options, enter the company code 1000. The company code requested is 1000. Enter the current fiscal year. Once everything has been entered, press «Execute», after which a balance list is displayed.

11.5 PAYMENT TO A VENDOR

In the following payment, the Financial Manager transfers the amount from the Deutsche Bank (ledger account number 113100) with a deduction of 3% discount.

SAP menu → Accounting → Financial Accounting → Accounts Payable → Document entry → Outgoing payment → Post

For the document date, enter today's date. The company code is 1000. For the currency/ exchange rate, enter the euro.

The (bank) account requested is 113100. The amount is 242,50 (250 less 3% discount). Once again enter today's date when asked for the due date.

When selecting open items an account number is requested; this is the accounts payable number: 80???. Note that the 'Account type' is set at K (vendors).

Go to the next screen by pressing the 'Process open items' button.

There is only one open item. Check the € 7,50 discount. Post the payment (🖫).
Make a note of the posting number in the C-Business diagram.

If there are additional open items, select the amount at 'additional selections'. Similarly in this case, you can use «Process open items» and, if all is well, you will see a list of all open items. Save the transaction and make a note of the number in the C-Business diagram.

Verify the posting by displaying the vendor account balance!

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12 HUMAN RESOURCES

You create a position for a trainee. You will hire yourself as the new employee for this position.

12.1 POSITION

A position can be filled by one or more persons. A position belongs to an organizational unit and is described by a job.

An example from a Business school: your SAP lecturer occupies the position of 'Business informatics lecturer 1', described by the job 'lecturer' and belongs to the department Business Economics of the business school.



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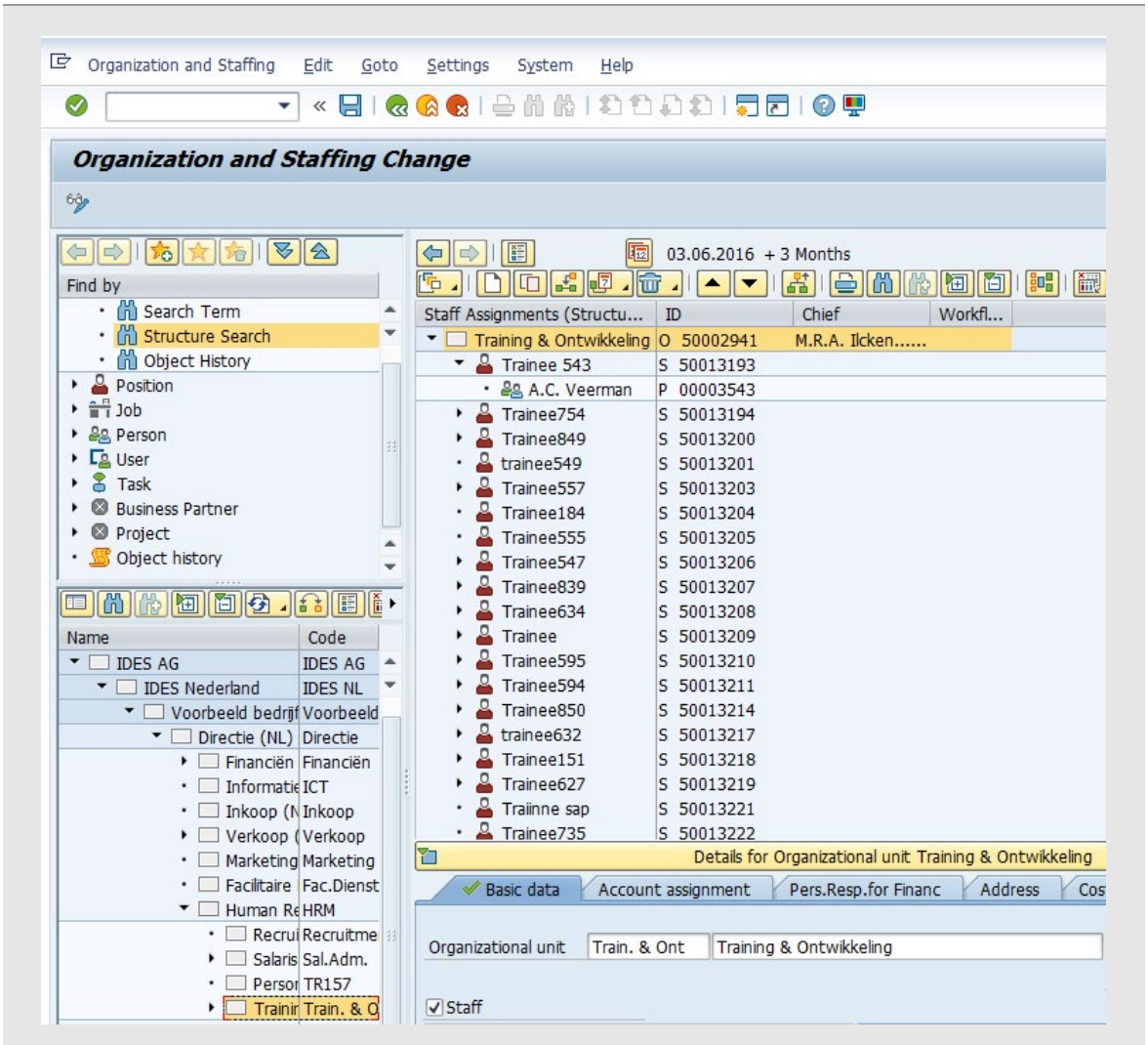

Figure 12.1 Position

Create a new position for a trainee:

> *SAP menu → Human Resources → Organizational Management → Organizational plan → Organization and Staffing → Change*

Click on the upper left window on the triangle in front of 'Position'. Click on 'Structure search'.

Click in the lower left window on the triangle before 'IDES AG' to display the structure of the company. Next open with a triangle 'IDES Nederland'. Next 'Voorbeeld Organisatie Nederland (NL)', next 'Directie (NL)' and 'Human Resources Management (NL)'. Double click on 'Training en Ontwikkeling (NL)'.

Click on  in the right window and select 'Staff Assignment (structure)'.

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The number becomes visible by clicking on the  «Column Configuration» and activating the ID marker.

Click on the department 'Training en Ontwikkeling (NL) in the upper right window. With the button «Create» a pop-up window 'Choose relationship' appears. Choose 'Incorporates position'. In case the message 'Training en Ontwikkeling (NL) is locked by…' another student is adding a position. Wait a while and repeat this action.

In the right lower window change the short description of the position from 'New position' to 'TR???' and add a long description 'Trainee???'. «Save» the position and write down the number (ID) for this position.

12.2 HIRING A NEW EMPLOYEE

Enter yourself as a new member of staff who is going to take up the position you created.

SAP menu → Human Resources → Personnel Management →
Administration → HR Master Data → Personnel Actions

In this screen fill in as 'Pers.no.' 3??? and under 'From' the current date. Select the 'Hire' action by clicking on the box in front of hire (highlight in colour) and then:

Personnel area	*NL01*
Employee group	*1*
Employee subgroup	*N2*

Click on the «Execute» button.

In the following screen enter the number (ID) of the position you created in the previous section as 'Position' (search if necessary using the search term '*???'). Save this data.

The next screen is the 'Personal data' screen. Enter your title, last (birth) name, initials and first name. State that you are 'single' and without children to prevent triggering data about your partner and kids. Save these data as well.

The 'Organizational assignment' is complete once a position has been entered. Save the input. If a pop-up menu appears with 'Delimit vacancy' enter the current date. Confirm the delimitation.

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Choose '3 Home address' and enter an address in The Netherlands. The information that 'WFM root organization cannot be determined' can be confirmed with «Enter».

There is no need for you to enter any changes into the 'Planned working time' screen and you can have it checked by pressing «Enter» and then save it.

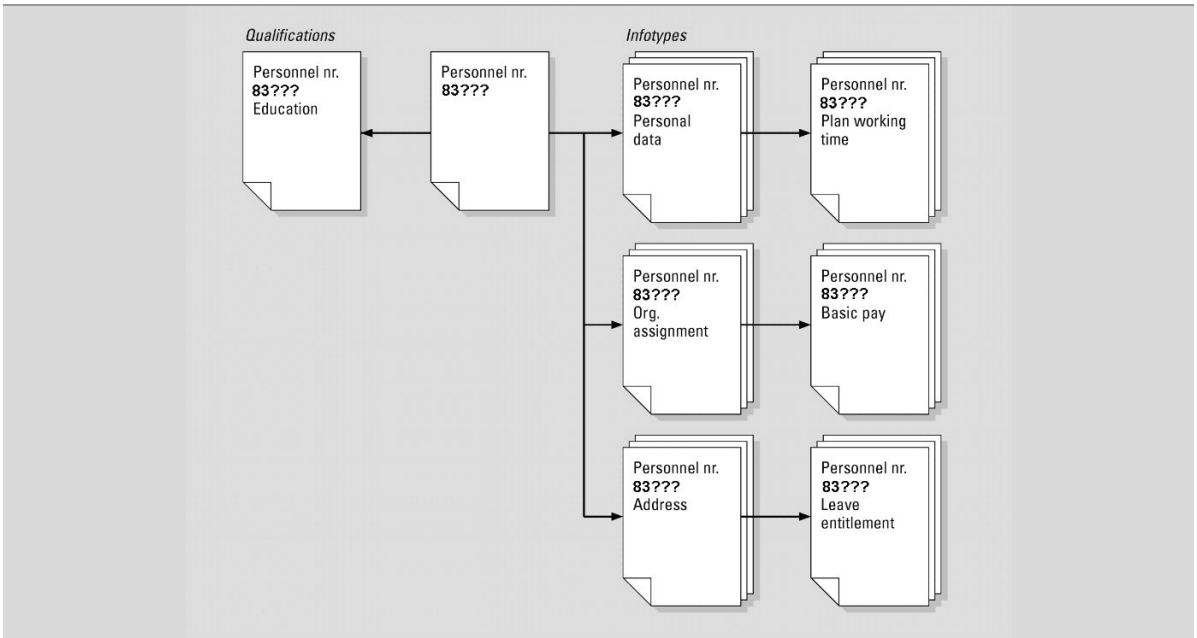

Figure 12.2 Master data employee

The 'Basic Pay' screen depends on the position you have chosen. The 'Type' 10 and 'Area' 10 are filled. Choose the pay scale group 'L05' and level 1. The amount is found with «Enter». Save the 'Basic Pay'.

No the bank details need to be entered:

City	[*your residence*]
Bank Key	*P*
Bank Account	*???*

Save the bank details.

Finally the leave entitlement needs to be confirmed with «Save».

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The new member of staff has been created and by choosing:

SAP menu → Human Resources → Organizational Management →
Organizational plan → Organization and Staffing → Display

You can see that you have become the holder of the position you have just created.

To change or add a group of data, infotype, use the menu:

SAP menu → Human Resources → Personnel Management →
Administration → HR Master Data → Maintain

The created infotypes are marked with a green checkmark. These can be change with «Change». Missing infotypes can be created with «Create».

Log off SAP.

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13 LOGISTIC MASTER DATA

To enable a complete ERP process: from purchasing, inventory, and production to sales, the master data for the materials, the master data for the production (bill of material, direct wage hours and machine hours, work center and routing) and the purchasing (info record) are to be created.

13.1 MASTER DATA FOR THE MATERIALS

The bicycle will be created as a finished product. The views you will create will determine the characteristics of a material for sales, planning (MRP), inventory and accounting. The components, frame and wheels, are created as raw materials. Within SAP ERP it is possible to manage the inventory with or without warehouse management. To illustrate this, the bicycles are only managed at the inventory level. The warehouse management is activated for the frame and the wheels by entering the views of warehouse management.

13.1.1 SPECIAL BICYCLE

Go to the screen for setting up a material, a special bicycle, using the following menu:

SAP menu → *Logistics* → *Materials Management* → *Material Master* → *Material* → *Create (Special)* → *Finished Product*

The material (code) that needs to be entered is SB???. Once you are in the 'Industry sector' box, scroll to 'Mechanical engineering'.

Press «Select view(s)». Select the following views:

- Basic Data 1
- Basic Data 2
- Sales: Sales Org. Data 1
- Sales: Sales Org. Data 2
- Sales: General/Plant Data
- Sales Text
- MRP 1
- MRP 2
- MRP 3
- MRP 4
- Work Scheduling

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- General Plant Data/Storage 1
- General Plant Data/Storage 2
- Accounting 1
- Accounting 2.

Click on the «Continue Enter» button. This opens the 'Organizational levels' screen.

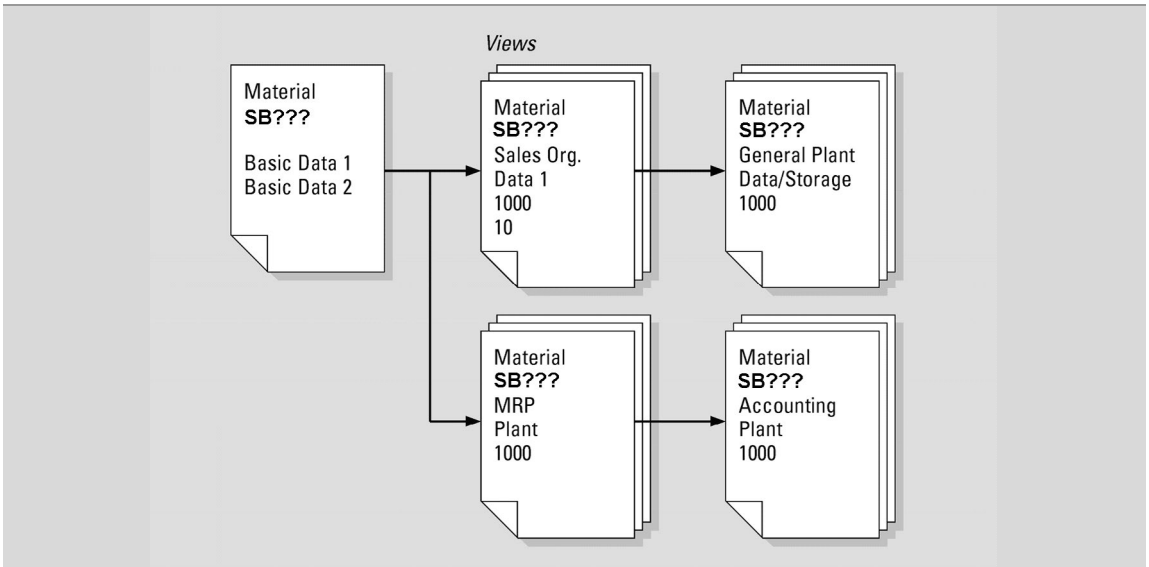

Figure 13.1 Bicycle master data

Enter the following:

Plant	*1000*
Stor. Location	*0002*
Sales org.	*1000*
Distr. channel	*10*

Again press «Continue Enter».

Many views contain required fields. An automatic check is made to make sure that all required fields have been filled in before you leave a view. All other fields then turn grey, i.e. they cannot be changed and the required field remains white. The required field must be filled before the material can be released. The purpose of this method is to prevent incomplete data for materials – meaning not all required fields are filled – being added to the material master.

The 'Basic data' are data that are exclusively dependent on the material.

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Basic data 1

Make up your own description in the field to the right of the material, to make clear this bicycle is created by you.

Basic unit of measure	*PC (Piece(s))*
Gross weight	*22 kg*
Net weight	*20 kg*

Basic data 2

No data need to be entered in the 'Basic data 2' screen.

The sales data is determined according to the sales channel.

Sales: Sales org. 1 data

Tax classification	*1*

Click on the button «Conditions» in the middle of the screen. At scales you enter the normal sales price €1.045,- per piece and if you buy five or more bicycles a lower price €995,-.

'from'	*1 PC*	*1045 EUR*
	5 PC	*995 EUR*

Return with «Back» to 'Sales org Data.1 data'.

Sales: Sales org. 2 data

Material pricing grp	*Standard Parts*
Acct assignment grp	*Finished goods*

Sales: general/plant

Here the delivery details relating to the material for a particular branch are specified.

Availability check	*01*	*Daily requirements*
Transport group	*0001*	*(On palettes)*
Loading Group	*0002*	*(Forklift)*

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Sales text

This is the text that you send to our customers and it must therefore be in the language you use to communicate with these customers. You will see it on the invoice to the customer. In the case of this customer, you have already indicated that communications will take place in English. Enter an English language sales text here. Sales texts can be entered in different languages here  by using.

MRP 1

MRP group	*0020*
MRP type	*PD*
MRP controller	*101*
Lot size	*TB*

MRP 2

In-house production	*0 days (this very short production time gives rise to a warning which you can ignore by pressing «Enter»)*
Sched.Margin key	*001*

Ignore the warning by pressing «Enter», the earlier entered '0' is removed.

MRP 3

Strategy group	*20 (Make-to-order production)*

MRP 4, Work scheduling, Plant Data/Storage 1 and Plant Data/Storage 2

No data need to be entered in the 'MRP 4', 'Work scheduling', 'Plant data/ storage 1' or 'Plant data/storage 2' screens. It is important however to press «Enter» in these screens, confirmed by . Views that have not yet been checked can be recognized by . The highlighting of the 'Plant data/storage 1' has the implication that your material can be stored in warehouse 0002 of plant 1000.

Accounting 1

Valuation class	*7920*
Price control	*S*
Standard price	*€500*

The stock valuation of the finished product is based on a standard price of €*500.*

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Accounting 2

No data need to be entered in the 'Accounting 2' screen.

After you have entered the last view, answer the question whether the data should be saved with 'Yes' or press «Save».

13.1.2 Frame

Create a material, a special frame, using the following menu:

SAP menu → Logistics → Materials Management → Material Master → Material → Create (Special) → Raw material

The material code to be entered is FR??? and again the industry sector is 'Mechanical engineering' (see figure 13.2).

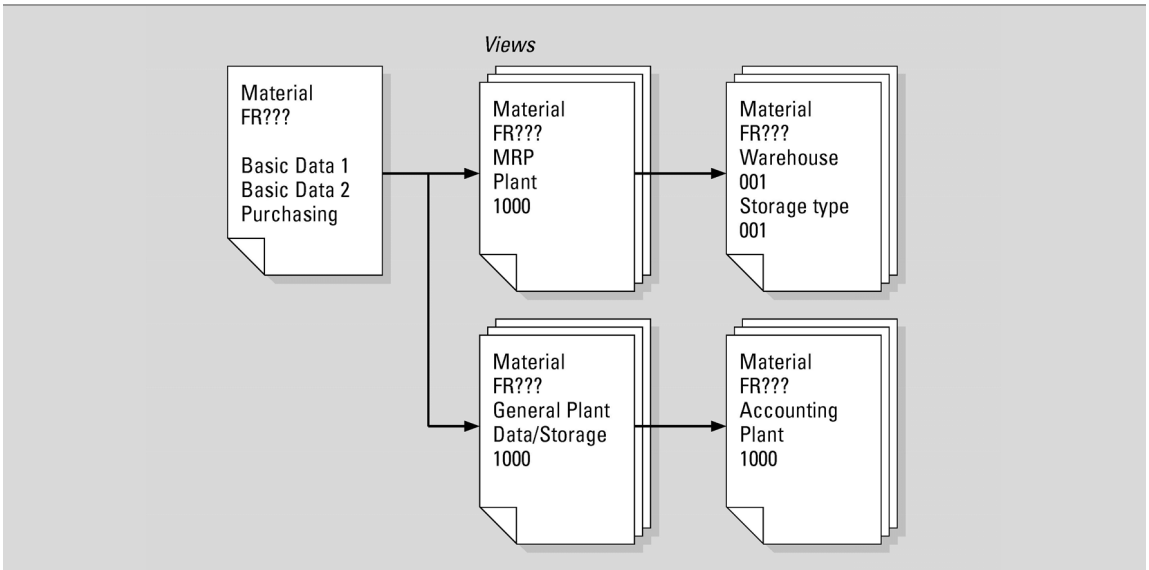

Figure 13.2 Master data frame

Press «Select view(s)». The entries are spread over a number of screens. Select the following views:

- Basic Data 1
- Basic Data 2
- Purchasing
- Purchase Order Text
- MRP 1
- MRP 2

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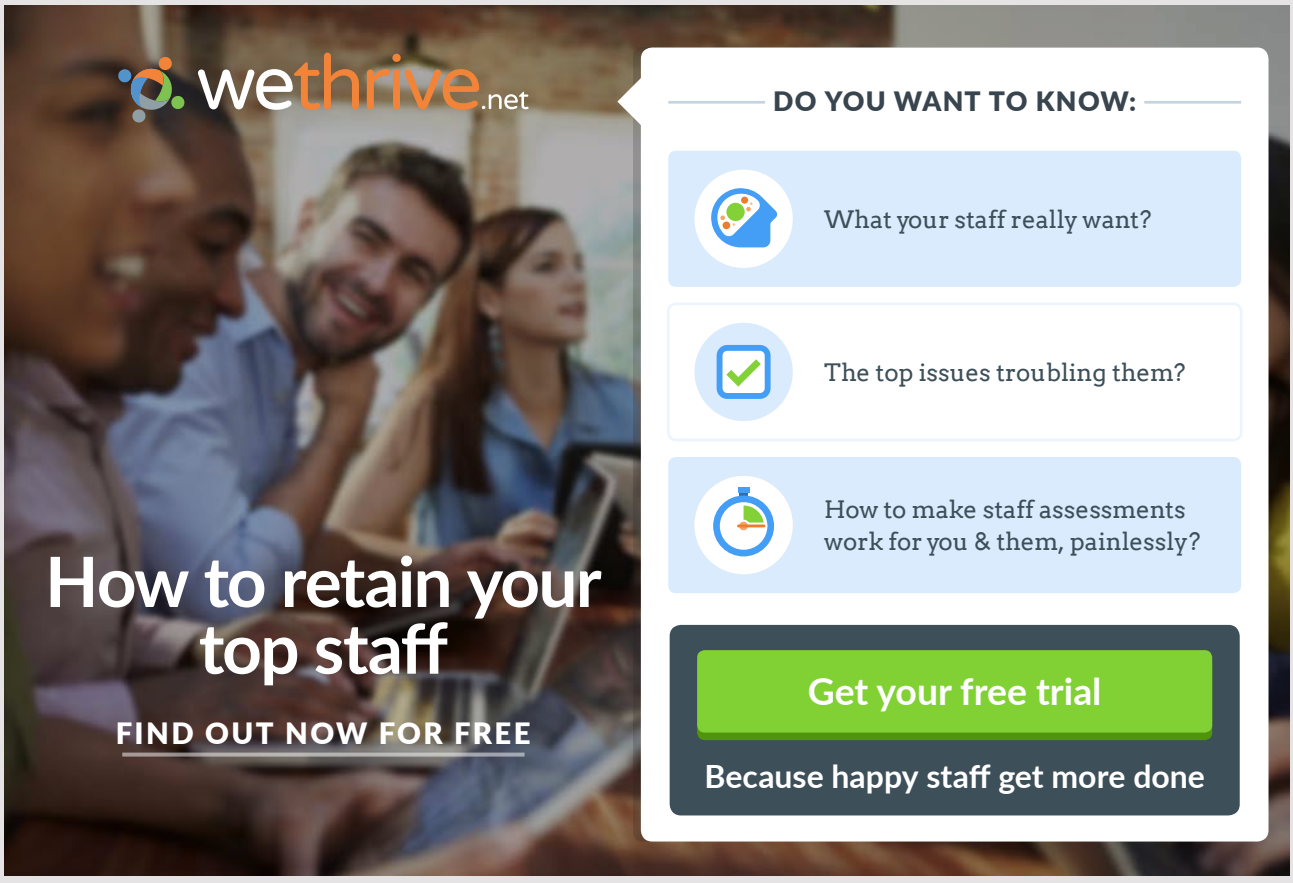
- MRP 3
- MRP 4
- Forecasting
- General Plant Data/Storage 1
- General Plant Data/Storage 2
- Warehouse Management 1
- Warehouse Management 2
- Accounting 1
- Accounting 2.

The registration of warehouse locations and transport orders is activated by selecting the warehouse management view. These are not activated in the case of the finished product, your assembled bicycle.

Click on the «Continue Enter». This brings you into the Organizational Levels screen.



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The following must be entered here:

Plant	*1000*
Stor. Location	*0088*
Whse. number	*001*
Storage type	*001*

Press «Continue Enter».

Basic data 1

Basic unit measure	*PC (Piece(s))*

Make up the English description of the material so that it is clear that you have set up this frame.

Material group	*00101*
Gross weight	*7 kg*
Net weight	*7 kg*

Basic data 2

No data need to be entered in the 'Basic data 2' screen.

Purchasing

Purchasing group	*100*
Autom. PO	☑ *(Automatic purchase order on)*

Purchase order text

Think up a suitable text for yourself, as you did with the sales text.

MRP 1

MRP group	*0000*
MRP type	*Automatic reorder point planning*
MRP controller	*101*
Lot size	*TB*

Press «Enter» and ignore the warning.

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MRP 2

Plnd. delivery time	*1 day*
Sched. Margin key	*001*

Press «Enter».

MRP 3

Availability check	*01*

MRP 4

No input is needed in the 'MRP 4' screen.

Forecast

Forecast model	*D*

Plant data/storage 1, Plant data/storage 2 and Warehouse management 1 Warehouse management 2

No data need to be entered into the 'Plant data/storage 1', 'Plant data/storage 2' and 'Warehouse management 1' screens. You have to press «Enter» on these screens to allow the materials to be stored in this warehouse.

Warehouse management 2

Storage Bin	*01-???*

Accounting 1

Valuation class	*3000*
Price control	*V*
Moving price	*€100*

The stock valuation is based on a moving average price.

Accounting 2

No data needs to be entered into the 'Accounting 2' screen.

After enter, save the data (🖫).

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13.1.3 Wheels

Finally, you are going to enter a wheel with the material code WL???. Make use of the same menu again. The same views are to be entered for the wheel as for the frame.

Enter the same organizational data as for the frame. All the other data are the same as for the frame, with the exception of the description and the weight of the wheel 1 kg in **Basic Data 1**. In **Warehouse Management 2** the bin for the wheels is 02-???. In **Accounting 1** the moving average price is €44.

When a view is missing the view can be created by choosing:

SAP menu → Logistics → Materials Management → Material Master → Material → Create (Special) → Raw material

You have to create this view, because it does not exist for the already created material. An existing view can be altered by way of 'change'.

13.2 BILL OF MATERIAL

The bill of material is a list of materials from which another material is made. A bill of material may consist of a number of different levels. A bicycle consists of a frame, handlebars, a saddle, wheels, etc. A wheel in turn consists of a rim, a number of spokes, rim binding, an inner tube and an outer casing.

You will keep the bill of material for the special bicycle simple; the company assembles a special bicycle from two wheels and a frame. The bill of material is created as follows:

SAP menu → Logistics → Production → Master Data
Bills of Material → Bill of Material → Material BOM → Create

As the material, enter the number of the whole bicycle SB???. The plant is 1000 and 'BOM Usage' is 1. Press «Enter».

The components of the bicycle are the frame and two special wheels for this bicycle.

The position type (ICt, Item category) is 'L' (Stock item). Enter the already created numbers of the frame (FR???) and the wheel (WL???) as components. Enter the quantities per component, one frame and two wheels per bicycle. Save this bill of material.

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13.3 DIRECT WAGE HOURS AND MACHINE HOURS

For the production of the bicycles wage hours and machine hours are created.

Wage hours

Create the activity type wage hours with:

SAP menu → Accounting → Controlling → Cost Center Accounting → Master Data → Activity Type → Individual Processing → Create

Check the controlling area with the top menu:

Extras → Set Controlling Area…

Select 'Controlling Area'1000 and save this setting with «Save as User Parameters».

Activity type	*1???*
Valid from	*01.01.*[*current year*]
Copy from	
Activity type	*1421*
Controlling area	*1000*

Click on «Master Data». 'Name' and 'Description' is 'Wage hours ???'. Check the allocation of cost element 619000. Save the activity type.

Machine hours

Create the activity type machine hours with:

SAP menu → Accounting → Controlling → Cost Center Accounting → Master Data → Activity Type → Individual Processing → Create

Activity type	*2???*
Valid from	*01.01.*[*current year*]
Copy from	
Activity type	*1420*
Controlling area	*1000*

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Click on «Master Data». 'Name' and 'Description' is 'Machine hours ???'. Check the allocation of cost element 620000. Save the activity type.

Prices

Enter the prices for these activity types with:

SAP menu → Accounting → Controlling → Cost Center Accounting → Planning →Activity Output/Prices → Change

Version	*0*
From period	*1*
To period	*12*
Fiscal year	[*current year*]
Cost center	*4216*
Activity type	*1???*

Click on «Overview screen». Enter the 'Variable Price' 60,00. Save the data.

Repeat this step for Activity type 2??? with a 'Variable Price' 697,00. Save the data.

13.4 WORK CENTER

The work center for capacity planning purposes for persons who are to carry out the assembly work is created using:

SAP menu → Logistics → Production → Master Data →
Work Centers → Work Center → Create

The plant is of course 1000, the work center is WC??? and the work center category is 0003 (Labor). After pressing «Enter» you enter a screen displaying the basic data for the work center. Enter a description of the work center here:

Person responsible	*001*
Usage	*009*
Standard value key	*SAP1*

Select the 'Capacities' tab and enter 002 as the 'Capacity category'. At 'Scheduling' you also enter 'Capacity category' 002. For the data associated with 'Costing' enter 4216 for 'Cost center' (Automotive Assembly).

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Enter the next data in 'Activities Overview' at 'Alt. activity discr.':

	Activity type	*Activity Unit*	*Formula*
Machine	*2???*	*Min*	*SAP006*
Labor	*1???*	*Min*	*SAP007*

At 'Setup' you don't have to enter something. Save this data.

13.5 ROUTING

The routing, the operations to be followed in order to assemble the bicycle, are specified by choosing:

SAP menu → *Logistics* → *Production* → *Master Data* →
Routings → *Routings* → *Standard Routings* → *Create*

The material is the number of the bicycle. Enter the plant 1000.
After pressing «Enter» the 'Create Routing: Header Details' screen is shown.

Usage	*1*	*(Production)*
Status	*4*	*(Released (general))*

Click on the «Operations» button. For the operation number 0010 enter WC??? for the work center and for the control code (Control key) enter PP01.

Double click on operation line 0010 and enter:

	Std value	*Un*	*Activty type*
Machine	*20*	*Min*	*2???*
Labor	*40*	*Min*	*1???*

Finally, after allocating the components with the «Comp.Alloc» button, the bill of material is accepted. Check the bill of material (if this is not correct, first change the bill of material with the button «BOM» and then «Save»). Save the routing.

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13.6 INFO RECORD

You are going to create an info record showing that a particular supplier is the supplier of the material you have created.

To create the information record, proceed as follows:

SAP menu → Logistics → Materials Management → Purchasing → Master Data → Info Record → Create

Use the vendor/supplier 80???, material FR??? (the frame), purchasing organization 1000 and plant 1000 you created in chapter 11. This is a standard info record. Press «Enter» and you will arrive at the 'General data' screen; no data need to be filled in here. Using «Purch. Org data 1» enter the planned delivery time as 1 day. The purchasing group is 100 and the standard quantity is 1 item. Further down the screen enter the net price as € 99. Save the info record.

Also enter an info record for wheel WL???. The net price of a wheel from this supplier is € 44.

All master data has been created and you can make a start on the process as a whole!

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14 COMPLETE ERP PROCESS

In this chapter you carry out a complete ERP process: from purchasing, inventory, and production to sales. The process is a sales-driven assembly production process planned by a MRP I run.

14.1 GENERAL

This process is using the master data that was created in previous chapters: the customer, the vendor, the employee, the materials and the other logistic master data.

The process starts with a sales call with the customer. The customer is interested in five special bicycles. Because of the unpredictable demand for the bicycle it is not on stock. The bicycle is assembled and the frame and wheels are procured externally. The customer asks for a quotation for five bicycles. The customer accepts the quotation and the quotation can be transferred into a sales order. Logistic control department plan production and purchasing requirements with a MRP-run. Purchasing will convert the purchasing requirements into a purchase order and the frames and the wheels will be purchased, delivered into the warehouse and invoiced. The invoice will be paid. The planned production can start and the materials can be issued. When the production order is completed the finished product will be stored in the warehouse. The sales order can be delivered and invoiced. The customer pays the invoice.

14.2 C-BUSINESS LOGISTICS DIAGRAM

The C-Business logistics diagram is shown in Figure 14.1.

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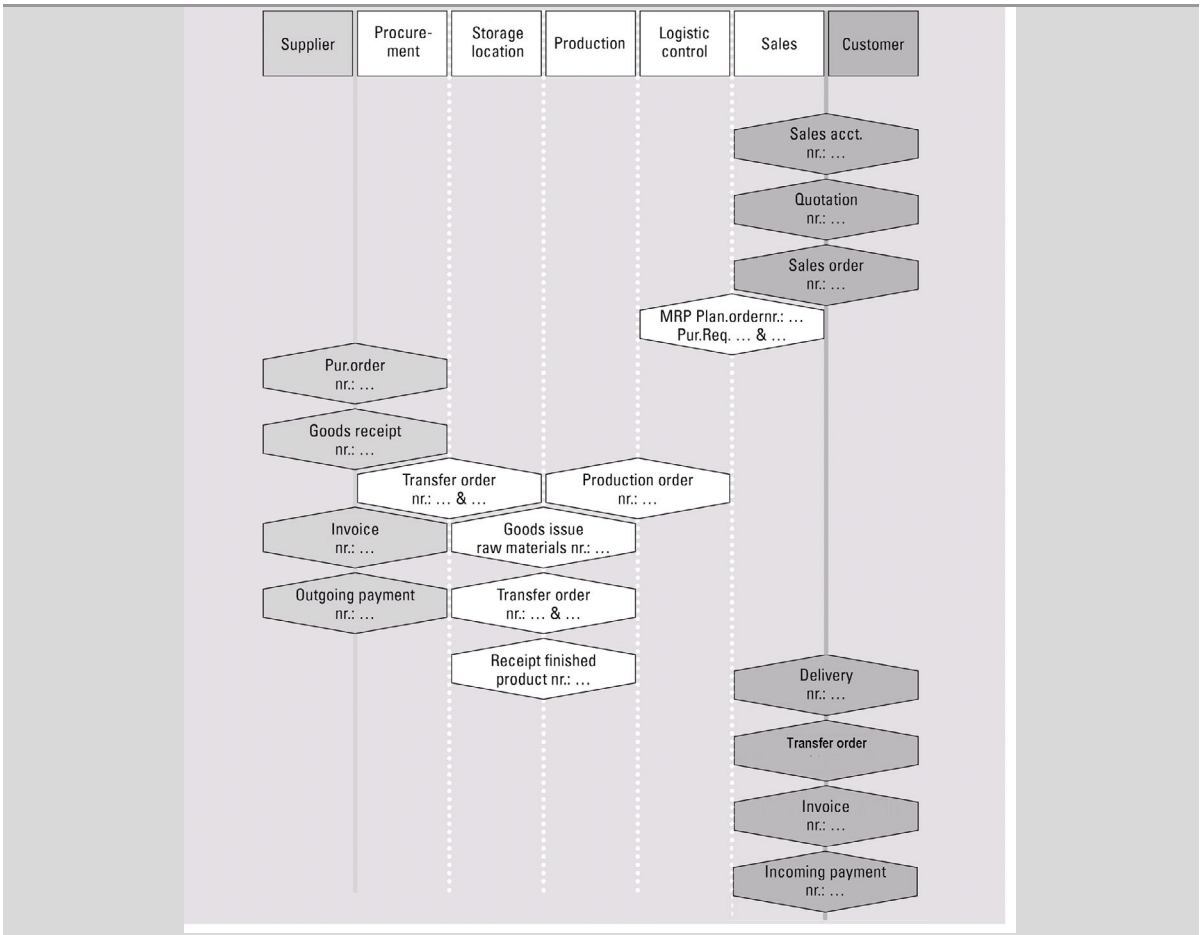

Figure 14.1 C-Business logistics diagram

14.3 SALES CALL TO THE CUSTOMER

You can register the pre-sales data through:

SAP menu → Logistics → Sales and Distribution →
Sales Support → Sales activities → Edit

Create a sales activity for the telephone conversation with the customer (type 'Telephone call').

Company.	*35???*
Empoyee responsible	*3???*

After «Enter» you select sales organisation 'Germany Frankfurt/Final customer sales/Cross-division'. You can see that the IDES company employee 3??? has spoken with the contact person of customer/company 35???.

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On the 'Description' tab sheet you select as a 'Reason' 'Regular sales call' and you can add notes about this call by selecting 'Telephone note' (the default is 'Preparation').

Save this activity and note the number in the C-Business diagram.

14.4 CREATE A QUOTATION FOR A CUSTOMER

The sales activity can be found by choosing:

SAP menu → *Logistics* → *Sales and Distribution* →
Sales support → *Sales activities* → *Edit*

and click on the left part of the screen on the button «Employee». Search the staff member by his family name, for example. By clicking on the triangles you open the list of sales activities and you see the sales activities entered today.

If you do not manage to find the sales activity in this way, then try to retrieve the sales activity through the top screen top menu:

Sales activity → *Get*



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If necessary fill in your login code in the field 'created by'. After «Enter» the sales activity can be selected by double clicking.

Create a quotation with the top menu:

Follow up actions → Quotation

The Sold-to party, 35???, is copied from the sales activity.

Indicate in 'Item Overview' that the customer requests a quotation for five bicycles, material SB???…

The 'Valid from' and 'Valid to' fields must be set at the current date and the current date plus one week respectively. Here similarly you can check the quotation by pressing «Enter». Make sure the quotation is complete. Select at the top menu:

Edit → Incompletion log

If data are missing, click on «Select all» and press «Complete data» (twice if necessary). The plant is 1000. After pressing «Enter» it is clear that the 'Shipping point' is added. Go back by pressing «Back». Once the document is complete you can save the quotation.

The quotation has been created. If the customer accepts our quotation, it can be converted into an order.

Note the number of the sales quotation in the scenario at the beginning of this chapter. Also write down all the numbers that arise during this process.

14.5 CREATE A CUSTOMER ORDER

The customer order can be created:

SAP menu → Logistics → Sales and Distribution →
Sales → Order → Create

Enter 'OR' (Standard order) as order type. To avoid having to enter all the data again, the data from the quotation can be used. Select «Create with reference» and enter the quotation number. The quotation number can be retrieved by entering in the 'Search criteria' for the 'sold to party' customer 35???. With «Search» the quotations of the customer are listed. Select the quotation. Copy the quotation using «Copy».

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To complete the order, enter a random number as PO number. This would be the purchase order number that comes from the customer's purchase system. The PO date, the date the order was created, must also be entered.

If all the data are correct you can save the order. Note of the order number in the C-Business diagram.

14.6 THE STOCK/REQUIREMENTS LIST

It is sometimes useful to work with two SAP screens. Do this using  or by choosing:

System → Create session

By using the normal Windows keys «Alt»«Tab» or the task bar, it is possible to switch from one screen to the other. In this second screen you can always check the consequences of the actions you have just implemented.

Retrieve the stock/requirements list from this second screen using:

SAP menu → Logistics → Production → MRP →
Evaluations → Stock/Requirements List

Enter the material number of the bicycle and plant 1000. Press «Enter». Here you see the quotation and the order. The order creates a shortage of 5 bicycles.

Once you have studied the list, switch to the other SAP session. Return to this screen after every section so that you can understand the consequences. The consequences only become visible after you have pressed the «Refresh»  button.

14.7 REQUIREMENTS PLANNING (MRP)

The customer order has been entered. There is a requirement for five bicycles. These still have to be manufactured. The components, the frame and the wheels, need to be purchased. When the MRP run is carried out the requirements for five frames and 10 wheels are generated, based on the bill of materials. In the case of large companies, this is a heavy burden for the system and so the MRP run generally takes place at night.

Execute this planning run real-time:

SAP menu → Logistics → Production → MRP →
Planning → Single-item Planning, Sales order

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Enter the order number here, the sales order item is 10 (the order has only a single order line and this was given the number 10).

Create purchase req.	*2*	*Purchase requisitions in opening period*
Delivery schedules	*3*	*Schedule lines*
Planning mode	*1*	*Adapt planning data (normal mode)*
Scheduling	*1*	*Basic dates will be determined for planning*

☑ *Display results before they are saved*
☑ *Display material list*

Press «Enter», read the warning and ignore it.

You see the result of the planning for the bicycle. Write down the planned order number (PlOrd.) for the bicycle in the C-Business diagram. Later the plan order will be converted into a production order. Save the planning. Select 'Proceed without stopping' and «Continue». In the report you will see that a 'Planned order' has been created, as well as two purchase requisitions.

Click on «Materials». Take a look at the consequences of the MRP on a material-by-material basis, by double clicking on the materials. Write down the purchase requisition numbers for both of the components, the wheels and the frame. These purchase requisitions, generated by the planner, are later converted into purchase orders by the purchasing department.

On leaving this area possibly a pop-up screen will appear with the warning that data will be lost. The planning data is already saved. Ignore the warning.

Take a look also at the changes in the requirements/stock list in the other SAP session as a result of the MRP-run.

14.8 CREATE A PURCHASE ORDER FOR THE SUPPLIER

The purchase requisition is created by planning. The purchase requisition must be converted into an order.

Choose the following path:

SAP menu → Logistics → Materials Management → Purchasing →
Purchase Requisition → Follow-On Functions → Assign

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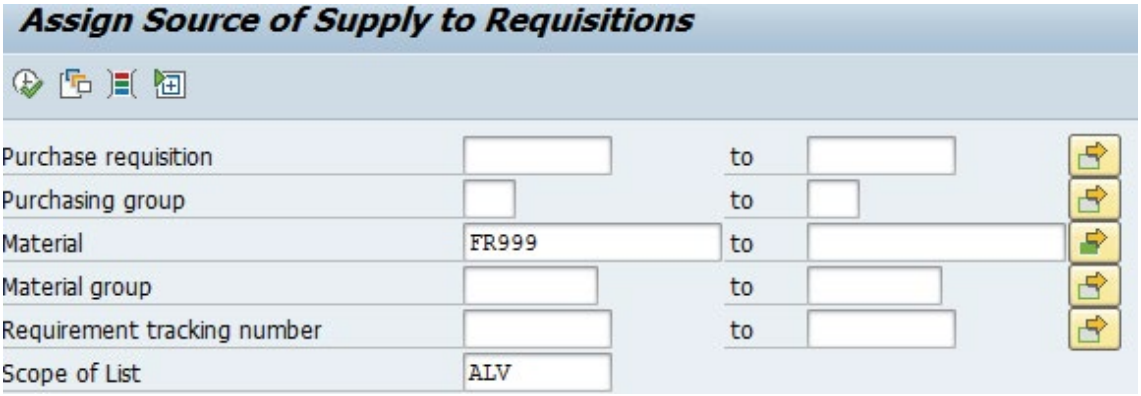

Enter, as the materials, the frame and the wheels using «Multiple selection» by 'material' on the tab 'Select single values'. Enter here the materials FR??? and WL???. Copy the settings with «Copy» . In the screen 'Assign Source of Supply to Requisitions' enter as 'Scope of List' ALV and plant 1000. Press «Execute».

Select both purchase requisitions by clicking the first grey block on the line with the requisition and choose the button «Assign source of Supply».

The supplier information will be found with the previously entered info record. Save the data and close this screen.

S..	Purchase ...	Item	P..	I..	S..	I..	A..	Material	Short Text	Quantity	U...	D	Delivery D...	P...	Material Gro...	Plant
	10017806	10						FR999	Frame for SB999	5	PC	D	09.06.2016	100	Steels	Hamburg
	10017807	10					E	WL999	Wheel for SB999	10	PC	D	09.06.2016	100	Steels	Hamburg

The purchase requisitions will be converted into purchase orders by choosing:

SAP menu → Logistics → Materials Management → Purchasing →
Purchase Requisition → Follow-On Functions →
Create Purchase Order → Via Assignment List

As supplier, enter your supplier (vendor) number 80??? and 'Scope of List' ALV. Generate the list with «Execute».

Select both purchase requisitions (click on the grey square) and select the vendor by ticking ☑.

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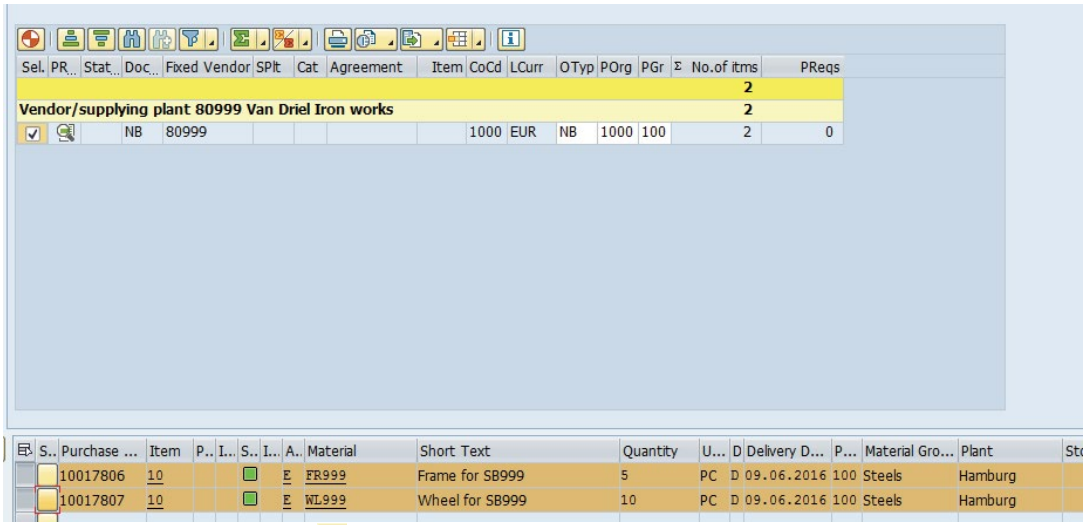


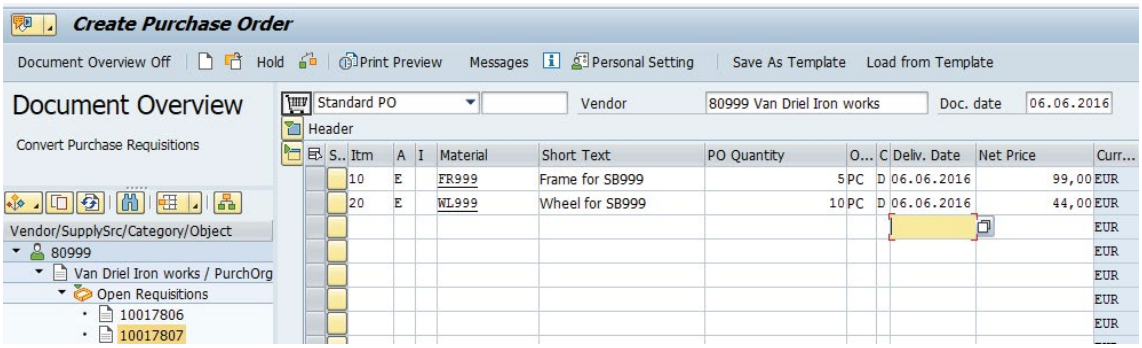
Press «Create purchase order»

In the screen 'Create purchase order' click on the first number of the 'purchase requisition' on the left-hand side of the screen and then on «Adopt» or drag the purchase requisition to the basket.

The centre window with the help texts can be closed with «Close». It is convenient to keep an overview on the requirements. To do so click on the button 'Item overview' in the right window.

The purchase requisition will be added to the order. Add the second purchase requisition in the same way to the order. Because we wish to have the order delivered today, change the delivery date. Scroll to the right on the line 'item overview' until you find Stor.location. Enter the storage location (Stor.location) 0088.

Check the order information by pressing «Enter». Save the purchase order. Ignore the warning that the delivery time is too short by pressing «Enter».



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The changes for the stock/requirements list can be displayed in another session and note the purchase order number in the C-Business diagram.

14.9 GOODS RECEIPT FROM A SUPPLIER

The path for posting goods receipt is:

SAP menu → Logistics → Materials Management →
Inventory Management → Goods Movement →
Goods Receipt → For Purchase Order → PO Number Known

Enter the order number in the field next on the right of the 'Purchase order' field. The order number can be retrieved from the entry options and then searched for through 'Purchasing Documents per Vendor'. After entering the supplier, search for the order and select it.

Retrieve the details of the order using «Execute». Close the 'Detail data' at the lower part of the window. Click in the 'OK' column or at the bottom of the screen ☑ 'Item OK' for both materials, frames and wheels, to indicate they have been received and then post the receipt of the goods by clicking on 🖫. Write down the goods receipt number in the C-Business diagram.

14.10 TRANSFER ORDER GOODS RECEIPT TO PERMANENT STORAGE

The goods have been received in a goods receipt area and must be transported to a particular location in the warehouse. The location for these can be seen (open a third mode for this purpose when necessary) by choosing:

SAP menu → Logistics → Logistics Execution → Information System →
Warehouse → Stock → Per Material – Aggregated

Enter a material (the frame or a wheel). The warehouse number is 001 and the plant is 1000. Check the quantities after pressing «Enter».

Create in another modus/session a transport order for the incoming goods to warehouse number 001 location 01-??? using:

SAP menu → Logistics → Logistics Execution →
Internal Whse Processes →Transfer Requirement →
Display → For Material

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Warehouse number	001
Material	FR???
Plant	1000
Stor. Location	0088

Press «Enter». Select the transfer requirements you created for the receipt of the goods associated with the order. The transfer requirement is converted into a transfer order using the «TO in foregr» button.

With «Enter» the quantity is transferred to the items. At 'Items', indicate that the frames are to be stored on standard pallets (SUT, Storage unit type) E1. The type is 001 (High rack storage), the Sec (Section) is 001 and the 'Destination bin' is 01-???. Save the transfer order. Note the number of the transfer order in the C-Business diagram.

Take a look in the other session at the consequence of this action. If necessary click on «Refresh». Notice that the five frames are still located in area 902, as a picking quantity and to be stored in 001.

Confirm the transfer order by choosing:

SAP menu → Logistics → Logistics Execution →
Internal Whse Processes → Stock Transfer →
Confirm Transfer Order → Single Document → In one step

Enter the number of the transfer order and the warehouse number. Press «Enter». Check the data and save the confirmation. Check the stock overview from time to time.

The same procedure must be carried out for the wheels, with the difference that the wheels are to be stored at location 02-???. Note the transfer order in the C-Business diagram.

Did you confirm both transfer orders?

14.11 RECEIPT OF THE INVOICE FROM THE SUPPLIER

The path for posting the receipt of the invoices is:

SAP menu → Logistics → Materials Management → Purchasing →
Purchase Order → Follow-On Functions → Logistics Invoice Verification

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Enter the current date as the invoice date and as the posting date. At 'amount' enter €1112,65. Enter the currency EUR in the field next to the amount. Activate 'Calculate tax'.

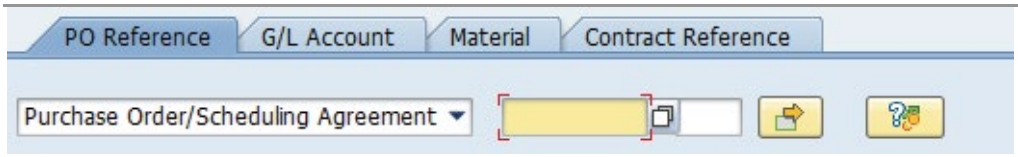

Figure 14.2 Enter purchase order number

Search for the order number in the middle of the screen (Figure 14.2) with the entry options, especially to be sure about the amount indicated on the invoice. In the 'Possible entries for purchasing document' screen enter supplier 80??? and select «Execute». Select the number of the purchase order and click on «Copy».

Press «Enter» and the purchase order details appear on the screen. In the 'Payment' tab, enter the current date as the 'Baseline date' and ZB01 as the payment conditions. Use «Simulate» to obtain an overview of the posting. Save the posting and note the number in the C-Business diagram.

14.12 PAYMENT OF THE SUPPLIER'S INVOICE

Ensure that the payment of the invoice is made through the Deutsche Bank (Domestic) with possible discounts in appropriate cases, (as in paragraph 11.5 Payment to a vendor). Note the document number in the C-Business diagram.

14.13 PRODUCTION ORDER

The plan order was created by the MRP run. This plan order must be converted into a production order. Choose:

SAP menu → Logistics → Production → MRP →
Evaluations → Stock/Requirements List

Enter as material the number of the bicycle and plant 1000. Press «Enter». Double click on the planned order (PlOrd.) and click «→Prod.ord» or right click and select 'PlndOrd. → Prod.ord.'. This brings you into the screen 'Production order Create: Header'. Check the data and where necessary change the order start and finish date into the current date.

Check the status of the production order with and return to the screen with the production order purchase data.

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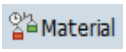
Carry out the raw materials availability check using 

. If the raw materials are not available for this order quantity, check the stock/requirements list for these materials.

With «Cost order»  the cost estimation with quantity structure for the quantity to be produced is carried out. The 'plan costs' for this order are calculated and posted. This is confirmed with a message in the information bar below in your screen: 'Costs determined→ see cost display'. Check and analyse the budgeted production costs, by top menu:

Goto→ Costs → Analysis

At «Select lay-out» select '1SAP01'. Check in stead of the variant 'Analysis' also the variants 'itemization' and 'Cost comp.structure'.

Release the order using . Save the production order and note the number of this production order in the C-Business diagram.

14.14 ISSUE OF RAW MATERIALS TO PRODUCTION

The frames and wheels are taken out of the warehouse and used by production.

SAP menu → Logistics → Materials Management →
Inventory Management → Goods Movement → Goods Issue

Movement type	*261*
Plant	*1000*
Storage location	*0088*

Choose «To order» and enter the number of the production order. Press «Enter».

If there is a message that goods movements are not allowed for this order you must change the production order. Change the order by selecting it in the stock/requirement list, release the order (see last paragraph) and save it.

Save the issue of goods and note the document number in the C-Business diagram.

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Create a transfer order for the goods to be issued from the storage location 0001 location 01-??? and 02-??? by choosing:

SAP menu → Logistics → Logistics Execution →
Internal Whse Processes → Transfer Requirement →
Display → For Material

Warehouse number	*001*
Material	*FR???*
Plant	*1000*
Stor. Location	*0088*

Press «Enter». Select the transport requirement that you created for goods issue to production. With the «TO in foregr.» button the transport requirement is converted into a transport order.

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At 'Quantities' we can see the five frames that must be collected and an open quantity of five items. By pressing the «Stock figures» button  you see the available stock level. Enter the required quantity in the column 'selected quantity'. With the button «Stock removal foreground» you will see the transport order to be carried out. Check that 'Confirm' for this transfer order is set so that the transfer order is confirmed directly. Confirm the entries with «Enter» and save the transfer order. Note the number of the transfer order in the C-Business diagram.

Repeat the same procedure for the wheels.

14.15 CONFIRMATION OF A PRODUCTION ORDER

The production order completion will be confirmed and the actual realized wage hours and machine hours will be posted.

> *SAP menu → Logistics → Production → Shop Floor Control → Confirmations → Enter → For Operation → Time Ticket*

Enter at 'Order' the production order number. Give «Enter». Choose at 'Confirm.type:' for 'Final confirmation'. In the section 'Activities' the actual wage hours and machine hours can be entered. The actual hours are for both cases exceeded by 10 percent in relation to the pre-calculated time. Enter 110 minutes as machine time and 220 minutes for labor. Save the data. Go back to the main menu.

14.16 GOODS RECEIPT FINISHED PRODUCT FROM PRODUCTION

The path for posting the goods receipt is:

> *SAP menu → Logistics → Production → Shop Floor Control → Goods Movement → Goods Receipt*

The movement type is 101. The order is the previously created production order, plant 1000 and the storage location 0002.

Select «Adopt + details». Save the goods receipt and note the number in the C-Business diagram.

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14.17 CREATING A DELIVERY TO THE CUSTOMER

Now you have to create the delivery. Choose:

SAP menu → Logistics → Sales and Distribution →
Shipping and Transportation → Outbound Delivery →
Create → Single Document → With reference to Sales order

Shipping point	*1000*
Selection date	[*Current date*]
Order	[*Sales order number*]

Press «Enter». In 'Delivery create: Overview' you will see the open quantity of 5 items. Go to the tab 'Picking' and, at the item, change the storage location to 0002; the delivery quantity is 5. Save and note the number of the delivery.

14.18 THE DOCUMENT FLOW AROUND THE SALES ORDER

If you want to have an overview of the document flow, choose:

SAP menu → Logistics → Sales and Distribution →
Sales → Order → Display

You will see the sales order. By pressing the «Display document flow»  button a list of all the actions you have carried out appears. As you see, all the numbers of the documents in the system are displayed. If the pointer is not placed on the line item the sales process is shown from sales activity, quotation and order. If you, for example, have forgotten the number of the delivery, you can find it in this overview.

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14.19 PICKING THE DELIVERY

The five bicycles have to be picked from the warehouse. Warehouse 0002 is customized as a 'lean warehouse' Order picking is registered but the storage locations and bins are not taken registered. Carry out the picking:

SAP menu → Logistics → Logistic Execution → Outbound Process →
Goods issue for Outbound Delivery → Picking →
Create Transfer Order → Single document

Warehouse number	*010*
Plant	*1000*
Delivery	[*delivery number*]

Press «Enter» and with the button «Generate TO item» the picking can be done. With «Save» the picking is confirmed. Note the number of the transfer order.

14.20 GOODS ISSUE DELIVERY TO THE CUSTOMER

The goods issue can be registered using:

SAP menu → Logistics → Logistic Execution → Outbound Process →
Goods issue for Outbound Delivery →
Outbound Delivery → Change → Single Document

Delivery	[*delivery number*]

After «Enter» you can see on the tab picking that the five bicycles have been picked. With the button «Post goods issue» the goods issue is posted.

14.21 INVOICE THE CUSTOMER

Create the invoice for the customer by choosing:

SAP menu → Logistics → Sales and Distribution
Sales → Order → Subsequent functions → Billing Document

The system indicates the last noted delivery number. Check this number. To have the invoice created by SAP ERP, select «Execute».

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Check the data and save the invoice. Write down the invoice number in the C-Business diagram.

The invoice is automatically processed by the system in the financial accounting and controlling.

The billing document can be shown:

SAP menu → Logistics → Sales and Distribution →
Billing → Billing Document → Display

Enter the number of the invoice you just created. It will be displayed with:

Billing document → Issue output to

The output type is RD00. Use «Print preview» to display the invoice. Make sure the invoice is complete and correct.

14.22 INCOMING PAYMENT FROM THE CUSTOMER

The accounting department posts the incoming payment:

SAP menu → Accounting → Financial Accounting →
Accounts Receivable → Document entry → Incoming payments

You can post the receipt of payment of the invoice that has just been created. The document date is today. Payment takes place through the general ledger account 113109 (Deutsche Bank – Customer payments). Calculate the amount that the customer will have to pay. Take into account the conditions of payment. For open items selection choose customer 35???. After «process open items» you can check if the amount entered by you matches with the posted open item. If the balance is zero you can save the transaction.

Note this last number of a document in the C-Business diagram.

Look at the document flow as you did in paragraph 14.18.

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14.23 TRACKING AND TRACING

The material documents and the financial documents can be analysed.

Create a list with the material documents, the financial documents and the paragraph where they were created.

The logistical material documents can be listed via:

SAP menu → Logistics → Materials Management →
Inventory Management → Environment → List Displays →
Material Documents

Enter as material the wheel WL??? and write down the numbers from the list. By double clicking more details from a document can be displayed. On the tab 'Doc.info' the financial documents are displayed with a button, if present. Write down the document numbers and the paragraph numbers on your list.
Repeat this pocedure for the frame FR??? and the bicycle SB???.

Display a list of financial documents:

SAP menu → Accounting → Financial Accounting →
General Ledger → Document → Display

Click on the button «Document List». Enter company code 1000 and the current year. Select 'Own documents only'. With «Execute» and «Enter» to ignore the warning, the financial documents that you created will be listed. Add these number to your list and complet the list with the paragraph numbers.

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PART 3
SPECIAL APPLICATIONS

15. Fixed assets
16. Repair order
17. Production on stock and forecast based planning
18. Product costing
19. Human Resource Management

In part three some special applications are described. The management of fixed assets will be reviewed in chapter 15. In chapter 16 controlling will be illustrated by an internal order that is used as a temporary cost center. Chapter 17 focuses on production on stock and forecast based planning. Product costing is examined in chapter 18. Finally in chapter 19 processes in HRM are illustrated.

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15 FIXED ASSETS

In this chapter fixed assets management is introduced. You will create the master data and carry out the acquisition of the fixed asset. The results can be shown with the use of the 'asset explorer'.

15.1 C BUSINESS DIAGRAM ACQUISITION OF FIXED ASSETS SCENARIO

Fixed assets management is introduced. You will create the master data and acquire the fixed asset. The procedure for posting the purchasing invoice of the asset is different from the procedure for posting an invoice of a purchasing material. The invoice will be assigned to the fixed asset. The outgoing payment will be posted. The process can be managed with the use of the asset explorer.

The C-Business diagram in Figure 15.1 shows the acquisition of the fixed asset.

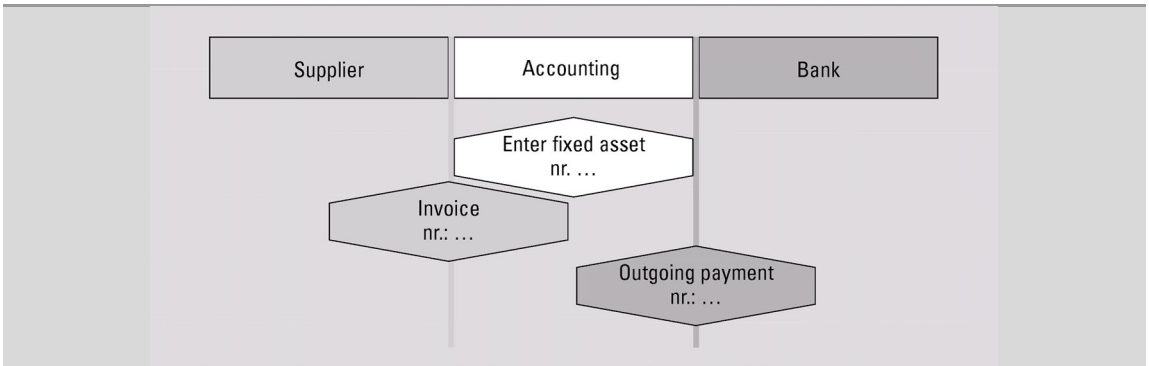

Figure 15.1 C-Business diagram acquisition of fixed asset

15.2 ASSET OVERVIEWS

Overviews of fixed assets on a company-by-company basis can be found by:

SAP menu → Accounting → Financial Accounting →
Fixed Assets → Information system → Reports on Asset Accounting →
Asset Balances → Asset List → Asset Balances → … by Asset Class

Enter the company code 1000, 'Report data' 31 December of the previous year and next press «Execute». Look at the overview.

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15.3 CAPITALIZING THE ASSET

First the asset has to be created. We are going to create the fixed asset motor vehicle of the type Volvo ???. Motor vehicles are administered in class 3100. Pressing «Enter» will in every case take us to the next screen. Register the asset as follows:

SAP menu → Accounting → Financial Accounting → Fixed Assets
Asset → Create → Asset

Asset class	*3100*
Company code	*1000*
Number of similar assets	*1*

Press «Enter» to go to the 'Create Asset: Master data' screen. At 'General' enter the description 'Volvo ???' and enter at 'Capitalized on' the current date. At the 'Time dependent' details fill in that the cost center is 3200 (Marketing).

For the origin data enter:

Vendor	*80???*
Org.acquisition year	[*current year*]
Original value	*€52.000*

The net worth tax is the 'Classification key' DE34.

At the tab Insurance:

Type	*02*	*Current value insurance*
Insur.Companies	*01*	*AS Insurance Co.*
Start date	[*current date*]	
Insurance rate	*1002*	*Normal premium*
Index series	*00030*	*Road Vehicles*

The depreciation areas should all be LINR, linear over five years ('UseLife')…

Save the fixed asset. Write down the number of the fixed assets in Figure 15.1.

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15.4 REGISTERING THE PURCHASE

A vendor number is required to create a purchase order. The vendor was already mentioned when the fixed asset was entered. The supplier is the vendor you created earlier with number 80???

The incoming invoice has to be posted:

SAP menu → Accounting → Financial Accounting →
Fixed Assets → Postings → Acquisition →
External acquisition → With vendor

You are working for company 1000 (IDES AG Frankfurt). Enter the current date as the document date and select EUR as the currency. The document header text is 'Purchase Volvo???'

At the bottom of the screen you enter posting key (PstKy) 31 (creditor credit posting, invoice) for supplier number (Account) 80???. Press «Enter».

The amount is €61.880. The tax must be calculated automatically (Calculate tax) using tax code VA.

The following item line is a debit posting on a fixed asset. The posting key is 70, the account number to be entered is the number of the fixed asset you have created (without the series number) the asset transaction type trans ((TType) is 100. Press «Enter».

The offsetting account must be posted with the same amount, this can be done by entering * for this amount. Check the posting as a whole choosing «Document overview». The posting of the account has taken place on both sides; the invoice is balanced and can be saved. Make a note of the document number in Figure 15.1.

The system expects you to post the next invoice. You can therefore only leave this screen through «Exit» and by giving an affirmative answer to the question of whether you really want to stop.

15.5 POST THE PAYMENT

Post the outgoing payment, together with the payment discount, to the supplier of the vehicle (as in paragraph 11.5 Payment to a vendor). Note the number of the payment in Figure 15.1.

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15.6 ASSET EXPLORER

The asset can be displayed by choosing:

SAP menu → *Accounting* → *Financial Accounting* →
Fixed Assets → *Asset* → *Asset Explorer*

The company code is 1000. The fixed asset can be selected with «possible entries». Use the 'Names and classes' tab, company code 1000 and class 3100. Select the car you have created. At the 'Planned values' tab you see the acquisition value and the planned depreciation. Also look at the 'Posted values' tab. Depreciation can be performed at the end of a given period by using the automated depreciation run.



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15.7 DEPRECIATION

Run the depreciation for the 'Volvo???' First carry out the tests run. After a successful test run, the real depreciation will be executed.

Accounting → *Financial Accounting* → *Fixed Assets* →
Periodic Processing → *Depreciation Run* → *Execute*

Company code	*1000*
Fiscal year	[*current year*]
Posting Period	[*current month*]
Controlling area	*1000*

Select at 'Reason for posting run' the option 'Repeat'. At 'Parameters for Test Run' select 'Test Run' and at 'Main asset number' enter your asset number. Carry out the depreciation run with «Execute». Ignore the message about the 'processing time' by choosing 'Yes'. Check the outcome of the depreciation run. A green traffic light together with 'documents created' means that the depreciation run was successful. By clicking on reference documents the financial postings are shown that actually have to be performed.

If an error is reported then transactions 15.3 and 15.4 are not done properly.
If the depreciation is good, we are going to carry out the depreciation.

SAP menu→ *Accounting* → *Financial Accounting* → *Fixed Assets* → *Periodic Processing* → *Depreciation Run* → *Execute.*

Deselect 'Test Run. Go to the top menu:

Program → *Execute in Background*

In the screen 'Background print parameters' the output device is 'LOCL'. Choose «Continue». In the screen 'Start Time' Choose «Immediate» and press on «Save». On the bottom of the screen the message appears: 'Background job was scheduled for program RAPOST2000'. The depreciation is executed.

Check the depreciations according to the instructions of section 15.6.

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16 REPAIR ORDER

An internal order is within the module Controlling (CO) a temporary cost center, in which costs of a certain activity are collected.
In SAP ERP the costs of an internal order are allways allocated to a cost center.
The Volvo from chapter 15 is repaired. The repair costs of the internal activities and materials are registered at an internal order.

At first we are creating a profit center and two cost centers in company 1000 of IDES. The first cost center is the cost center Motorpool and the second is the service cost center Technical Service. After that we create the internal order for the allocation oof the material and the labour costs to this order.

Finally the results of these actions have to be checked.

16.1 C-BUSINESS DIAGRAM INTERNAL ORDER PROCESSING

The C-business diagram is described in Figure 16.1.

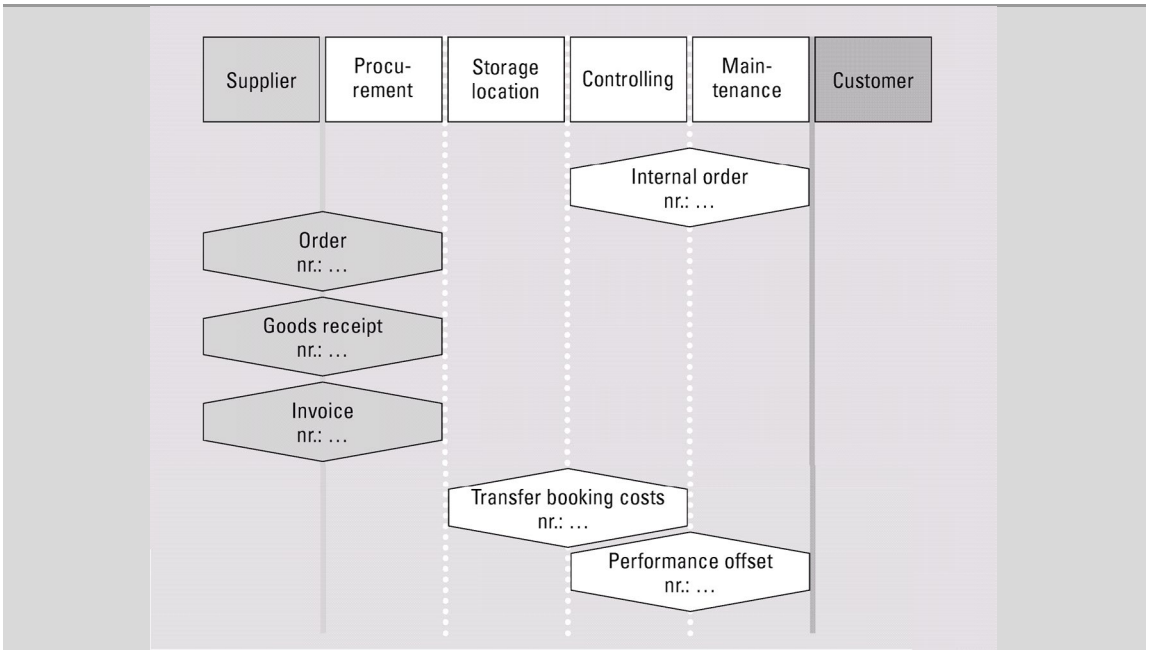

Figure 16.1 C-Business diagram internal order processing

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16.2 CREATING PROFIT CENTER

Profit centers can be created to report about the revenues and costs of separate elements.

Choose the following menu path to create profit center P???:

SAP menu → Accounting → Controlling→ Profit Center Accounting →
Master data → Profit center → Individual processing → Create

Profit center	*P???*

At 'Copy from':

Profit center	*1402*
CO Area	*1000*

Select «Master Data» and fill in at tab page 'Basic Data' at 'Person Respons.' your own name. Activate the profit center with . Save the data.

16.3 CREATING COST CENTERS

Cost centers can be posted from the financial accounting as primary cost element or being posted as secondary cost in the case of a reposting for instance by another cost center

First we create the cost center Motor Pool.

Choose:

SAP menu → Accounting → Controlling → Cost Center Accounting→
Master data → Cost center → Individual processing → Create

Fill in:

Cost center	*MP??? (Motor pool)*
Valid from	*01.01* [*current year*]
to	*31.10.9999*
(If necessary select Controlling area 1000)	

Select «Master Data»

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Fill in at tab Basic Data

Name:	*MP ???*
Description	*Motor Pool ???*
Name person respons.	*your own name*
Cost center Category	*4 (Administration)*
Hierarchy Area	*H1120 (Internal services)*
Company code	*1000*
Business area	*9900 (Corporate other)*
Profit center	*P???*

Save the cost center.

Create the cost center Technical Service.

Name:	*TS???*
Description	*Technical Service ???*
Name person response.	*your own name*
Cost center Category	*4 (Administration)*
Hierarchy Area	*H1120 (Internal services)*
Company code	*1000*
Business area	*9900 (Corporate other)*
Profit center	*P???*

«Save»

16.4 CREATING AN INTERNAL ORDER

The next step is to create an internal order for the repair of the Volvo??? . This makes it possible to post the costs of a certain activity such as the costs of the necessary materials and man hours on the repair order.

Choose:

SAP menu → Accounting → Controlling → Internal Orders →
Master data → Special functions → Order → Create

Fill in at Order type 0801 and select Controlling area 1000.

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Select «Master Data». Add ??? to the description: "Repair/Maintenance order ???"

Then at the tab assignments:

Company code	*1000*
Business area	*9900*
Plant	*1000*
Object class	*Overhead*
Profit center	*P???*
Responsible CCtr	*MP???*

Go to the 'Control Data' tab. set the currency to EUR.

Select «Settlement rule».

Cat.	*CTR*
Settlement Receivers	*MP???*
%	*100*
Se… (Settlement Type)	*PER (periodic settlement)*

Go back to the overview screen 'Create internal order: Master Data'. Release the order with the button «Release». Save the internal order and write down the order number in Figure 16.1.

The settings of the settlement rule indicate that the cost that are collected on the internal order will finally 100% (fully) allocated to cost center MP???. The costs of cost center MP??? are also directly posted to the profit center p???.

16.5 ORDERING MATERIALS FOR INTERNAL USE

Materials are required to repair the Volvo. The required materials will directly be posted on the cost account instead to the inventory account. As a first step, a purchase order is generated for the necessary materials by choosing:

SAP menu → Logistics → Materials Management → Purchasing →
Purchase Order → Create → Vendor/Supplying Plant known

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As supplier, enter vendor 80??? and press «Enter». At Purchasing organization enters 1000, the Purchasing group is 001 and the Company Code is 1000. On the item level of the order at column A enter 'F' (order). Enter material Z-112 (Bearing case) and 'PO quantity' is 12; the delivery date is the date of the order and is the current date. The 'Net price' is € 150. Scroll to the right and at 'Plant' enter 1000 at Storage Location enter 0001.

Double click on the order line and on the tab 'Account assignment' change the ledger account to 400400 and cost center MP??? and for the order number the internal order number that you just have created. Check whether the screen has been filled in correctly (by pressing «Enter») or use the icon for this purpose. Save this action and write down the number of the purchase order.

Commitment

The purchase order has been registered at the cost center MP??? as a commitment.

You can verify that by the following menu path:

> *SAP menu → Accounting → Controlling → Cost Center Accounting → Information System →Reports for Cost Center Accounting → Plan/Actual Comparisons → Additional Key figures → Cost Centers:Actual/Plan/Commitments*

Through double clicking on the amount of the commitment and then 'Cost Centers: Commitment Line Items' you can see the reference with the purchase order.

16.6 GOODS RECEIPT FOR INTERNAL USE

The goods receipt of the purchase order has to be posted.

Choose:

> *SAP menu → Logistics → Materials Management →*
> *Inventory Management → Goods Movement → Goods Receipt →*
> *For Purchase Order → Purchase Order Number Known*

Enter at 'Purchase order' the purchase order number. Pressing «Enter» takes you to the overview screen where the ordered materials are shown. If everything is correct, select the 'item ok' button and the receipt of the goods is then posted when you save this document. Do not forget to make a note of this document number in Figure 16.1.

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Commitment

The previous agreed commitment is replaced by the cost posting on the cost center MP.

You can verify this by the following menu path:

SAP menu → Accounting → Controlling → Cost Center Accounting → Information System → Reports for Cost Center Accounting → Plan/Actual Comparisons → Additional Key figures → Cost Centers:Actual/Plan/Commitments

By double clicking on the amount at statistical posting and then 'Cost Centers: Actual Line Items' you can see the reference with the goods receipt.

16.7 INVOICE RECEIPT MATERIAL INTERNAL USE

The incoming invoice must be entered. Choose:

SAP menu→ Logistics → Materials Management → Purchasing →
Purchase Order → Follow-On Functions →
Logistics Invoice Verification

You are in the 'Enter Invoice' screen. Enter the current date as the invoice date and also as the posting date. Retrieve the purchase order using the search options.

At order (Purchase order) you enter this order number. Press «Enter». At 'Amount' enter €2142 and activate 'Calculate tax'. At the tab 'Payment' enter the current date as 'Baseline date' and the payment condition ZB01. Press the 'Simulate' button and check whether the posting is correct. Save the invoice. Write down the document number in Figure 16.1.

We are going to pay the invoice.

SAP menu → Accounting →Financial Accounting → Accounts Payable →
Document entry → Outgoing payment → Post

Document date is current date. De company code is 1000 and currency is EUR. De bank account is 113100 and the amount is 2.077,74. The Business area is 1000. At selection of open items 'Account type' K should be selected and at account enter vendor number 80???. Press the button «Process open items» and the payment will be matched with the open item. Save the payment. Note the document number.

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16.8 ACTIVITY OUTPUT/PRICES

The internal price of a Wage hour (Activity Type 1410) of cost center TS??? is determined as follows.

Choose:

SAP menu → Accounting → Controlling→
Cost center Accounting → Planning → Activity/Output Prices → change

Version	*0 (plan/actual)*
From period/to period	*1 to 12*
Cost Center	*TS???*
Activity Type	*1410*

Press on «Overview screen». In the next screen you have to fill in for planned activity and capacity 100. The fixed activity price is €60. Save the data.

16.9 INTERNAL ACTIVITY SETTLEMENT

The number of hours required for the installation of the auto parts components is entered. This are internal performances supplied by 'Technical Service' with the cost center TS. The costs are charged to cost element 615000 DAA Repair Hours.

SAP menu → Accounting → Controlling → Internal orders →
Actual postings → Activity allocation → Enter

Change the screen variant (Scrn variant) into 'Cost center/order/pers.no.' and input type 'List Entry'.

At 'Sender' 'Cost ctr' enter the cost center responsible for providing the performance. In this case it is cost centre TS. At 'Activity type' enter 1410 (Repair Hours). At 'Receiver' order, enter the internal order number. There is no need to enter the receiving cost center, since the performance will be charged directly. At 'Total quantity' enter 2 hours.

After checking, save the data and note the document number in Figure 16.1.

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16.10 REPORTING ACTUAL ITEMS

The postings to the cost centers can be analysed with:

SAP menu → Accounting → Controlling → Cost center accounting →
Information system → Reports for Cost Center Accounting → Line items→
Cost Centers: Actual Line items

If necessary enter controlling area 1000,. With «multiple selection»  fill in the cost centers MP??? and TS. Delete if necessary the entries of the cost center group and cost element. At 'posting date' enter the period of which you have carried out this chapter. Push the «Execute» button. By double clicking on one of the actual items, more details are given about the transaction. Analyse the data.

Look at the postings on the internal order with the menu path:

SAP menu → Accounting → Controlling → Internal Orders →
Information system → Reports for Internal Orders → Line items →
Orders: Actual Line items

Enter the number of the internal order, the current year at the posting date and press «Execute».

Information about the profitability of the repair order we can get from the profit center by:

SAP menu → Accounting → Controlling →
Profit Center Accountings ' Information system →
Reports for Profit Center Accounting → Line item Reports →
Profit Center: Actual Line items

Fill in:

Controlling Area	*1000*
Company Code	*1000*
Posting period	[*current period*]
Fiscal Year	[*current year*]
Profit Center	*P???*

Click on «Execute». Check the data.

Make an overview of the posted items per CO-document and the section number.

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17 PRODUCTION ON STOCK AND FORECAST BASED PLANNING

In this chapter we are going to change the master data of bicycle that you created in chapter 13 and change the process from make-to-order production of chapter 14 into make to stock-production. For that reason the production planning will be based on a sales forecast. The sales forecast will use the trend pattern of the weighted moving average of sales of the past six months.

The planning will lead to a periodical increase of stock. With a sales order the logistic related activities of sales from stock will be carried out.



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17.1 PRODUCTION ON STOCK AND FORECAST BASED PLANNING

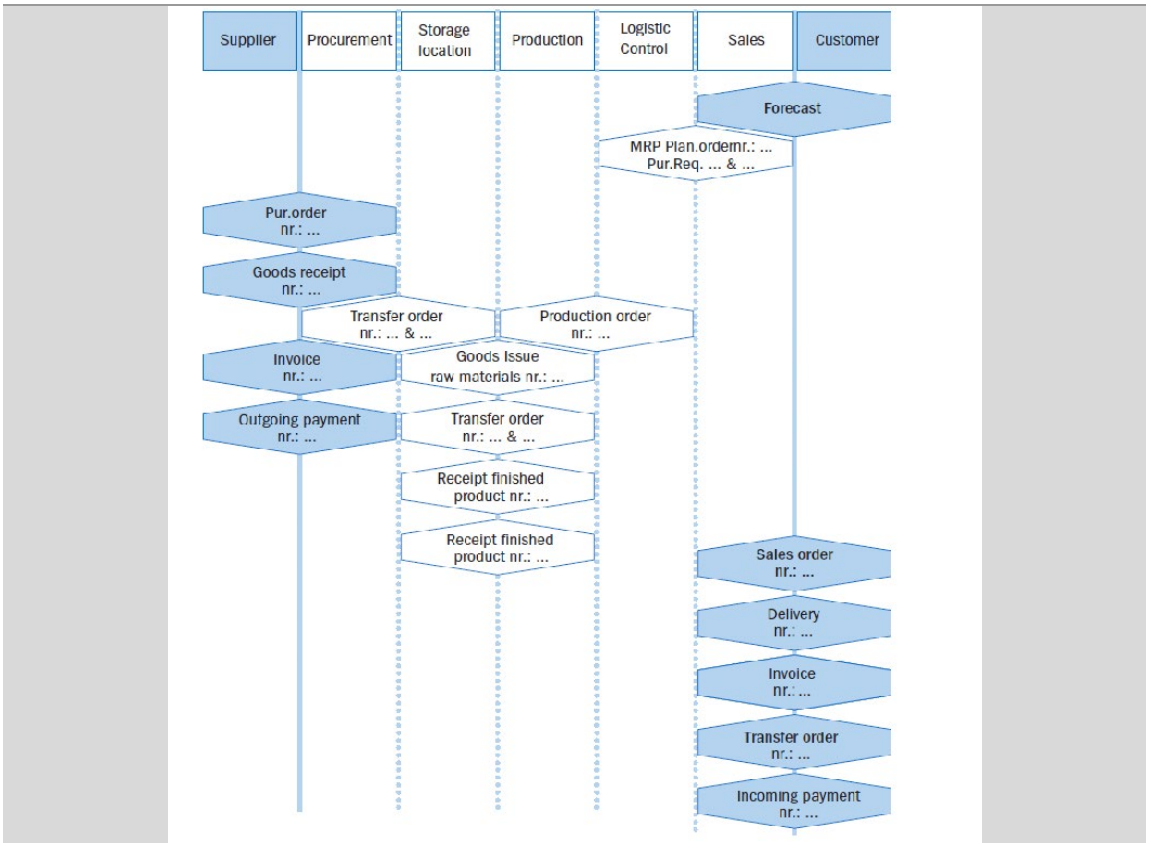

Figure 17.1 Production on stock and forecast based planning

17.2 MASTER DATA CHANGE AND EXTENSION

First we will change the master data of the bicycle from 'make-to-order planning' into 'make-to-stock planning'. Secondly we extend the master data of the bicycles with 'forecasting'.

Change the MRP date of the bicycle SB??? by using the menu:

> *SAP menu → Logistics →aterials Management → Material Master → Material → Change → Immediately*

Enter at 'Material'the bicycle SB???. Give «Enter». Select the views MRP1 and MRP 3. Enter for 'Organizational levels':

Plant	*1000*
Stor.location	*0002*

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Change within the MRP 1 view the MRP group 'make-to-order'(0020) into 'make-to-stock-production' (0010). Change the 'strategy group'of the MRP 3 view into 10 (make-to-stock-production). Save the master data.

The material master of bicycle SB??? will be extented with 'forecasting' using:

SAP menu → Logistics → Materials Management → Material Master → Material l →Create (General) → Immediately

For material you type SB??? and give «Enter». Confirm the message 'Material type Finished product and industry Mechanical Engineering copied from master record' with «Enter». In the 'Select Views' you select 'Forecasting'.

Enter for 'Organizational levels' plant 1000.

Forecast model	*G (moving average)*
Period indicator	*M*
Number of periods required	
Hist.periods	*6*
Forecast periods	*6*

Save the data.

Change the master data of the frame FR??? and the wheel WL??? with the menu:

SAP menu → Logistics → Materials Management → Material Master →Material→ Change→ Immediately

Select the view MRP1 and 'Organizational levels' plant 1000. Change the automatic reorder point 'VM' into MRP type 'PD'. Save your data.

17.3 DEMAND MANAGEMENT

Within demand management we enter the settings for the requirements type 'make to stock production':

SAP menu → Logistics → Production → DRP → Planning →
Demand Management → Change

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Select for 'planned individual parameters' the radio button material and enter material SB???. The plant 1000 must be selected. Use the button «user parameters» and «Enter»:

Plant	*1000*
Requirement type	*LSF 'make-to-stock production'*

With «Continue» you confirm the requirements type, and the settings are saved.

Go back to the main menu.

17.4 FORECAST BASED PLANNING

Your are going to create the forecast and activate the sales planning by using:

SAP menu → Logistics → Production → SOP →Planning →
For Material → Change

Material	*SB???*
Plant	*1000*

Select the «Active Version». Go to the top menu:

Edit → Create Sales Plan → Forecast …

Select the 'Period intervals' and enter:

Forecast	[*from:this month; to: this month plus 6 months*]
Historic	[*from:last month minus 5 months; to: last month*]

Make sure that for 'Forecast execution' the option of 'Aut. model selection' is selected.

On the bottom of this screen you select the button «Historical…» Ignore the warning.by pressing «Enter». Enter the given historical data: of table 17.1.

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Period	Corr.Value
this month -1	2000
this month -2	1900
this month -3	1800
this month -4	1700
this month -5	1600
this month -6	1500

Table 17.1 Historical data

Start the sales forecast with «Forecasting» Select 'Trend' and give the 'Alpha factor' value '1' and enter for the 'Beta factor' correction value '0'. Execute the forecast with «Forecasting».

Check the outcome of the forecast. If you accept the forecast use «Copy and save».
The sales forecast is copied to the first row of the planning table and the selected periods. The forecast creates a demand for sales from stock per period.

To carry out the production planning we stay in this application.

17.5 PRODUCTION PLANNING

The production planning has to be created in order to meet demand of the forecasted monthly sales.

With the top menu

Edit → Create Productn Plan → Synchronous to sales

the planned production will be matched with the forecasted sales. The planning results will be transferred to demand management using the top menu:

Extras → Transfer to Demand Management

Choose 'Yes' on the question 'Save planning values first?'. You arrive in the screen 'Transfer Planning data To Demand management'. At 'independent requirement specification' select LSF (make-to-stock production).

Choose the button «Transfer now» Go back to the main menu.

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The planning can be completed with the requirements planning. Use the menu:

SAP menu → Logistics → Production → MRP → Planning →
Multi-Level, Single-Item Planning

Material	*SB???*
Plant	*1000*
Create purchase req.	*2*
Delivery schedules	*3*
Planning mode	*1*
Scheduling	*1*

☑ *Also plan unchanged components*
☑ *Display results before they are saved*
☑ *Display material list*

Ignore the warning. Save the planning and select 'Proceed without stopping' and «Continue» Check the outcome with selecting the button «Materials». Write down the plan order number and the purchase requisitions of this month.

17.6 CREATE A PURCHASE ORDER FOR THE SUPPLIER

Purchasing will be carried out according to the instructions of section 14.8. Select the purchase requisitions of the frames and wheels of this month.

17.7 GOODS RECEIPT FROM A SUPPLIER

Goods receipt will be carried out according to the instructions of section 14.9.

17.8 TRANSFER ORDER GOODS RECEIPT TO PERMANENT STORAGE

The storage to a permanent storage will be carried out according to the instructions of section 14.10.

17.9 RECEIPT OF THE INVOICE FROM THE SUPPLIER

The invoice receipt of the vendor will be carried be carried out according to the instructions of section 14.11. The invoice amount is different. Calculate this yourself.

17.10 PAYMENT OF THE SUPPLIER'S INVOICE

The payment of the invoice using the Deutsche Bank account will be carried out according to the instructions of section 11.5.

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17.11 PRODUCTION ORDER

The plan order van this month has to be transferred into a production order according to the instructions of section 14.13.

17.12 ISSUE OF RAW MATERIALS TO PRODUCTION

The issue of raw materials to the production order will be carried out according to the instructions of section 14.14.

17.13 CONFIRMATION OF A PRODUCTION ORDER

The order will be confirmed according to the instructions of section 14.15. The consumption of actual wage hours and actual machine hours is equal to the planned consumption.

17.14 GOODS RECEIPT FINISHED PRODUCT FROM PRODUCTION

The bicycles that are confirmed are stored in storage location 0002. See section 14.16 for instructions.

17.15 SALES FROM STOCK

Customer 35??? wants to buy 1100 bicycles SB??? to be delivered as soon as possible.

Use the menu:

SAP menu → *Logistics* → *Sales and Distribution* → *Sales* →
Order → *Create*

Enter for the order type 'OR' (Standard order) and press «Enter». Enter for 'Sold-to party' your customer 35???. In 'Item Overview' you enter the material SB???, the sales order quantity 1100 and for plant 'Plnt' 1000. Also enter at 'First date' today's date.

Double click on the line item. Select the tab 'Shipping'. Enter for the 'Stor.Location' 0002.

Select the tab Schedule line. Change the delivery date into today's date.

Check the completion of the sales document with the top down menu:

Edit → *Incompletion log*

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Select in 'Item Overview' the item (10) with the data ordered by your customer and check the 'availability to promise' situation by using the pull-down menu:

Environment → Availability

Save the sales order!

17.16 MAKING A DELIVERY TO THE CUSTOMER

The delivery of the bicycles can start in the same way as carried out in section 14.17.

17.17 PICKING THE DELIVERY

The 1100 bicycles have to be picked in the same way as carried out in section 14.19.

17.18 GOODS ISSUE DELIVERY TO THE CUSTOMER

The goods issue can be registered in the same way as carried out in section 14.20.

17.19 INVOICE THE CUSTOMER

You create the invoice in the same way as carried out in section 14.21.

17.20 INCOMING PAYMENT FROM THE CUSTOMER

The receipt of the invoice payment of the customer is carried out in the same way as in section 14.22.

17.21 ANALYSES

The sales take place from stock. Check the consequences with::

SAP menu → Logistics → Production → MRP → Evaluations → Stock/Reqmts List

Enter the material number of the bicyclce and the plant 1000. Press «Enter».

Compare the outcome with the previous MRP run in a second session:

SAP menu →Logistics → Production → MRP → Evaluations → MRP list

What are the consequenses of the just delivered sales order?

Carry out the tracking and tracing for this chapter according to the instructions of section 14.23.

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18 PRODUCT COSTING

In this chapter the material costing as part of product cost controlling of SAP ERP is examined. The cost of goods manufactured and the cost of goods sold will be calculated for the bicycle that was created in chapter 13. The logistical and financial data of the bicycle are used in the cost calculations and serve as a basis for stock valuation for the next month. In the production order the planned costs are activated. In the execution of the production order actual costs are posted. The confirmation of the order takes will be done with use of time tickets. After the inventory posting of the bicycles, an overhead surcharge is posted and a variance analyzes will be carried out. The variances are settled.

18.1 COST OF GOODS MANUFACTURED

In the product costs calculation costing sheets are used. The costing sheet summarize all the costs to be calculated into rows, see Figure 18.1. In addition to direct costs the indirect cost are applied as material overhead (material OH). The direct costs are the calculation base to which overhead surcharge is calculated. In the costing sheet the raw materials that are being consumed are the calculation base in the costing sheet.

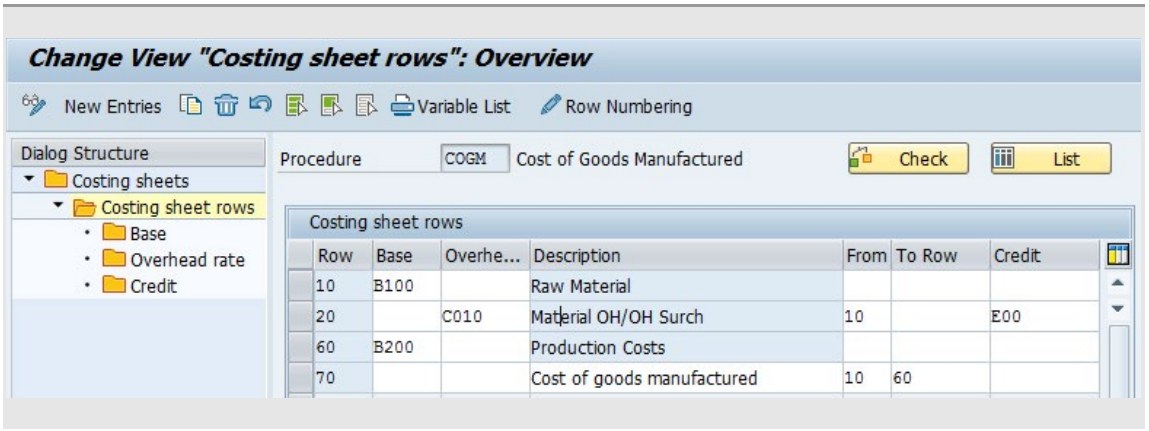

Figure 18.1 Costing sheet rows

The costs of goods manufactured can be determined at row 70, which is the result of the total of row 10 to 60.

Select the bicycles that have been maintained in chapter 14 in company code 1000. The calculation is in this case cost estimation with a quantity structure. The quantity structure uses the bill of material of the bicycle SB???.

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Calculate the product costs by:

SAP menu → Accounting → Controlling →Product Cost Controlling →
Product Cost Planning → Material Costing →
Cost Estimate with Quantity Structure → Create

Material	*SB???*
Plant	*1000*

Tab Costing Data:

Costing Variant	*ZPC1 (Std Cost Est Mat.COGM)*
Costing Version	*1*
Costing Lot Size	[*leave empty*]
Transfer Control	[*leave empty*]

Press «Enter». You will see the tab 'Dates' that states that the calculation will be effective at the first of next month. Also the validity period can be determined. The other fields are of no interest at this moment. With «Enter» you start the calculation. The outcome of the calculation is presented. The costing structure, prices and costs, is shown in the left side of the screen.

At the tab 'costing data' you find the relevant costing data. In the tab 'valuation' you see that the costing variant ZPC1 is linked to the calculation sheet COGM. The tab 'costs' states that the manufacturing costs of the bicycle until now are based on the value of the material usage of one bicycle (the costing lot size is 1).

18.2 OVERHEAD COSTS

The overhead costs are to be applied as a percentage surcharge. Start if necessary the product cost estimation like you did in chapter 18.2. Double click in the tab 'valuation' on costing sheet COGM to call up the calculation scheme. Select at costing sheets: COGM and enter for the controlling area 1000. Double click on 'costing sheet rows'. The structure of the calculation sheet is given. Select row 20: Material OH/OH surch. Double click on the overhead rate. Use a surcharge of 20%. This percentage can be selected by using the overhead key, OH Key, SAP101. You can leave the cost calculation without saving it.

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The surcharge key for overhead costs, SAP 101, can be allocated through the costing data of the material master of the bicycle. Maintain the costing data in the material master of the bicycle:

SAP menu → *Logistics* → *Materials Management* → *Material Master* → *Material* → *Change* → *Immediately*

Material *SB???*

Press «Enter», the material type and industry sector are copied. Confirm this with «Enter» and select the views costing 1 and costing 2.

At the organization level you enter again:

Plant *1000*

Choose costing 1 and select SAP101 for the overhead group and confirm also the view costing 2 with «Enter». Save the data.



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Repeat the cost estimation you carried out before. In the tab 'costs' you see that the cost estimation has been extended with the item overhead costs. In the tab 'valuation' the overhead key 'SAP 101' is added. In the top screen pull-down menu you can replace the recent display version 'itemization' by 'costs'. The costs are presented as cost components: raw materials and overhead. Save the cost estimation. The cost estimation is activated.

18.3 COST OF GOODS SOLD

The cost of goods sold consists of the cost of goods manufactured supplemented with sales and administration overhead costs. In this example a surcharge for Administration Overhead and Sales Overhead is calculated.

Calculate the cost estimation:

SAP menu → Accounting → Controlling → Product Cost Controlling →
Product Cost → Planning → Material Costing →
Cost Estimate with Quantity Structure → Create

Material	*SB???*
Plant	*1000*

Tab Costing Data:

Costing Variant	*PPC3*	*Current Cost Est. (Mat.)*
Costing Version	*1*	
Costing Lot Size	[*leave empty*]	
Transfer Control	[*leave empty*]	

Press «Enter» and again «Enter». The cost estimation of the bicycle is extended. At the tab 'costs' you see that the costs of goods sold consists of the cost of goods manufactured together with one surcharge for sales and administration overhead. In the top screen pull-down menu you can change the costing layout by:

Cost → Display Cost Components

Consequently you select in the middle of the screen 'cost component view' for the 'costs of goods sold'. The structure and the calculation of the direct costs 'raw materials' and the overhead surcharges: 'material overhead', 'administration overhead' and 'sales overhead' are listed.

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Which surcharge rate for administration and sales overhead are used in this cost estimation? By double clicking in the tab 'valuation' on the costing sheet COGS and selecting 'costing sheet rows' the rows 20, 80 and 90 can be selected individually. When you select in the left area 'overhead rate' the used overhead rates are shown.

18.4 STOCK VALUATION AT COSTS OF GOODS MANUFACTURED

In chapter 13 the materials are initially valuated. In the material master of the bicycle the stock valuation of bicycle SB??? was set at € 500. The stock valuation for next month will be based on the cost estimation of costs of goods manufactured that is derived in chapter 18.2.

Price update: mark standard price

In material costing the cost estimation of cost of goods manufactured can be transferred to the material master by using the function 'price-update'.
You are going carry out the price-update and make it effective per the first of next month.

SAP menu → Accounting → Controlling → Product Cost Controlling →
Product Cost Planning → Material Costing → Price Update

Posting Period/Fiscal Year	[*next month of this year*]
Company Code	*1000*
Plant	*1000*
Material	*SB???*

At the processing options you select 'test run' and 'with list output'. Click the button «Marking Allowance». Click at company code 1000 on 'legal valuation' and check the costing variant ZPC1 and costing version 1. Go one step back and press «Execute». Read the log data to check if the tests was successful.

Deselect at the processing options the test run. Carry out the update by pressing «Execute». Check the results of the update through:

SAP menu → Logistics → Materials Management →
Material Master → Material → Display → Display Current

Material	*SB???*

Choose Costing 2.

Plant	*1000*

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At the column 'future' you find the cost estimation of the cost of goods manufactured that will replace next month the current valuation.

Price update: release standard price
This task can only be performed at the start of the new month! The valuation that is marked to be used for this month and was established in the previous step has to be released to be used as the valuation for SB???. The valuation is set to be used as a target cost.

SAP menu → Accounting → Controlling → Product Cost Controlling → Product Cost → Planning → Material Costing → Price Update

Posting Period/Fiscal Year	[*current month of this year*]
Company Code	*1000*
Plant	*1000*
Material	*SB???*

Select at processing options 'with list output' «Execute». Outcome of the release is that materials are revaluated and cost estimate with quantity structure are set as target for this month. The target cost version is a prerequisite in the system to have the production orders variances analyses (price and efficiency variances) being executed and documented by the system.

18.5 PRODUCTION ORDER USING PRODUCT COSTING

Start a production order:

SAP menu → Logistics → Production → Shop Floor Control → Order → Create → With Material

Material	*SB???*
Production Plant	*1000*
Order type	*PP01*

Give «Enter».

Enter at 'Total Quantity' 1001 and at 'Dates' for 'Finish' and 'Start' today's date. Give «Enter» ad save the order. Write down the production order number.

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Carry out the MRP to determine the purchase requirements for this order.

SAP menu → Logistics → Production → MRP → Planning → Multilevel Single-Item Planning

Material	*SB???*
Plant	*1000*
Create purchase req.	*2*
Delivery schedules	*3*
Planning mode	*1*
Scheduling	*1*

☑ *Also plan unchanged components*
☑ *Display results before they are saved*
☑ *Display material list*

Give «Enter». Read and confirm the warning with «Enter». The planning results of SB??? show de previous created production order. By pressing «Save and continue» the required components for the bicycle are planned. Choose for «Proceed without stopping» and «Continue». The outcome of the planning can by analysed by selecting «Materials». Check if the planning outcome is meeting purchase requirements for FR??? And WL???.

18.6 CREATE A PURCHASE ORDER AT THE SUPPLIER

See for this transaction instructions of section 14.8.

18.7 GOODS RECEIPT FROM THE SUPPLIER

See for this transaction instructions of section 14.9.

18.8 TRANSFER ORDER GOODS RECEIPT TO PERMANENT STORAGE LOCATION

See for this transaction instructions of section 14.10.

18.9 INVOICE RECEIPT FROM THE SUPPLIER

See for this transaction instructions of section 14.11.

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18.10 PRODUCTION ORDER RELEASE

The material availability check will be carried out for the production order and the order will be costed.

SAP menu → Logistics → Production → MRP → Evaluations → Stock/Reqmts List

«Enter».

Material	*SB???*
Plant	*1000*

Double click on the 'PrdOrd'and select «Change element».With «Check material availability» the availability check is performed and are the required materials for the order reserved. With «Cost order» the cost estimation with quantity structure for the quantity to be produced is carried out. The 'plancosts' for this order are calculated and posted. This is confirmed with message in the information bar below in your screen: 'Costs determined→ see cost display'. Check and analyse the budgeted production costs, by

Goto→ Costs → Analysis

At «Select lay-out» select '1SAP01'. Check in stead of the variant 'Analysis' also the variants 'itemization' and 'Cost comp. structure'.

With «Release order» the production order is released and can be carried out.

18.11 ISSUE OF RAW MATERIALS TO PRODUCTION

The Goods issue will be performed according the instructions of section 14.14.

18.12 PRODUCTION ORDER CONFIRMATION

The production order completion will be confirmed and the actual realized wage hours and machine hours will be posted.

SAP menu → Logistics → Production → Shop Floor Control →
Confirmations → Enter → For Operation → Time Ticket

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Enter at 'Order' the production order number. Give «Enter». Choose at 'Confirm.type:' for 'Final confirmation'. In the section 'Activities' the actual wage hours and machine hours can be entered. The actual hours are for both cases exceeded by 10 percent in relation to the pre-calculated time. Save the data. Ignore the warning with «Enter». Go back to the main menu.

18.13 GOODS RECEIPT FINISHED PRODUCT FROM PRODUCTION

Goods receipt will take place according to instructions of section14.16.

18.14 PLANNED AND ACTUAL COSTS PRODUCTION ORDER

Analyse the production order with:

SAP menu → Accounting → Controlling → Product Cost Controlling → Cost Object Controlling → Product Cost by Order →
Information System → Reports for Product Cost by Order →
Detailed Reports → For Orders

Order	[*production order*]
Time Frame	*select Cumulated*

Click op «Layouts…» and select layout '1SAP02 Cost Trend'. Push the button «Execute». In the row 'Confirmations' you can double clicking (drill-down) on the amount at the column 'Total plan costs' and 'Total actual costs'. The related documents and cost elements are shown and can be examined. Further analysis is possible by selecting the row and choose «Select Layout…» and further select '1SAP Primary cost posting'. Double click on the row and click the hours overview of the 'confirmation time ticket'

18.15 ACTUAL OVERHEAD

After the finished products are stored into the warehouse, the overhead costs are settled to the production order.

SAP menu → Accounting → Controlling → Product Cost Controlling → Cost Object Controlling → Product Cost by Order → Period-End Closing → Single Functions → Overhead → Individual Processing

Order	[*production order*]
Period	[*current month*]
Fiscal Year	[*current year*]

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At 'Processing options' the option 'Test Run' should be selected. Press «Execute» With «next list level»the proposed posting of the overhead cost can be checked. By deselecting the 'Test Run' and «Enter» the actual overhead is posted. Check the settlement of the 'actual overhead' with the report used in section 18.14.

18.16 VARIANCE ANALYSIS PRODUCTION

The variance analysis and determination of the production order results is executed with:

> *SAP menu → Accounting → Controlling → Product Cost Controlling → Cost Object Controlling → Product Cost by Order → Period-End Closing → Single Functions → Variances → Individual Processing*

Select 'Selected Target Cost Vsns'. The options 'Test Run' and 'Detail list' also have to be selected. Give «Execute». The variance is determined by comparison of actual costs versus target costs. In the placement of the production order the related plan costs are based on the current cost estimation. When the production order quantities are posted to stock, the target costs are generated. Target costs are determined by the last posted and released costing run. In case of partial good receipt of the production order, partial target cost are generated. When you press the button «Variance Categories» all possible input/output variances that can be determined by the system are shown. With the selection of «Cost Elements» the variance per cost element are displayed. When the price update procedure (marking and release) of sections 14.8 have been executed in time, the above explained analysis can be carried out with «Explanation of variance» and «Explanation of targets».

When the price update has not taken place the variance report will generate messages and red traffic light. In that case the variance analysis has to be carried out manually.

Carry out the variance analysis by deselecting the 'Test Run' and «Execute».

The variances are recorded on the production order.

18.17 SETTLEMENT OF PRODUCTION ORDER

The recorded variances of the production order will be settled by:

> *SAP menu → Accounting → Controlling → Product Cost Controlling → Cost Object Controlling → Product Cost by Order → Period-End Closing → Single Functions → Settlement → Individual Processing*

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Order	[*production order*]
Parameters	
Settlement period	[*current month*]
Fiscal Year	[*current year*]
Processing type	*Automatic*

At processing options the 'Test Run' is marked. If you click on «Settlement rule» the allocation of the cost settlement is shown. Give «Execute». Select «Detail List» . Check de settlement. Execute the settlement by deselecting the 'Test Run' and give «Execute». Analyse the documents with «accounting documents».

18.18 OVERVIEW OF PLANNED AND ACTUAL COST PRODUCTION ORDER

The production orders can be analysed by:

SAP menu → Accounting → Controlling → Product Cost Controlling → Cost Object Controlling → Product Cost by Order → Detailed Reports→ For Orders

Order	[*production order*]
Time frame	*select Cumulated*

«Execute».

Check if the settlement has been posted correct and complete.

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19 HUMAN RESOURCE MANAGEMENT

In this chapter you will create again a new position. Next you will execute a complete recruitment procedure, including an advertisement, applicants, selection and hiring. Next you will add some qualifications and time registration for this employee. Succession planning will be the last task in this chapter.

19.1 POSITION

Create a new position:

SAP menu → *Human Resources* → *Organizational Management* → *Organizational plan* → *Organization and Staffing* → *Change*

Click on the upper left window on the triangle in front of 'Position'. Click on 'Structure search'.

Click in the lower left window on the triangle before 'IDES AG' to display the structure of the company. Next open with a triangle 'IDES Nederland'. Next 'Voorbeeld Organisatie Nederland (NL)' and 'Directie (NL)' Double click on and 'Human Resources Management (NL)'.

Click on  in the right window and select 'Staff Assignment (structure)'.

The number becomes visible by clicking on the  «Column Configuration» and activating the ID marker.

Click on the department 'Human Resources Management (NL)' in the upper right window. With the button «Create» a pop-up window 'Choose relationship' appears. Choose 'Incorporates position'. In case the message 'Human Resources Management (NL) is locked by…' another student is adding a position. Wait a while and repeat this action.

In the right lower window change the short description of the position from 'New position' to 'HR-EMP???' and add a long description 'HR Employee ???'. «Save» the position and write down the number (ID) for this position.

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19.2 ADVERTISEMENT

You will create an advertisement for the vacancy you for the new position:

SAP menu → *Human Resources* → *Personnel Management* →
Recruitment → *Advertising* → *Advertisement* → *Maintain*

Click on «Execute» and create a new advertisement with «Create advertisement». The number can be generated by the system with «Next free advertisement number». Note the number. Enter the data for this advertisement:

Instrument	*20 (Internet Connection)*
Publication date	[*current date*]
Advertisement end	[*next week*]
Publication costs	*500 EUR*
Text name	*ADVERTISEMENT HR EMPLOYEE ???*

Ignore the warning about the non-existence of the text.



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With «Add» you can add the vacancy. Search the vacancy with «Find» and enter '*???'. Select the vacancy by clicking on the grey block before the vacancy. Click on «Transfer» to add the vacancy to the advertisement. Save the advertisement.

19.3 APPLICANT

Enter yourself as an applicant on the advertisement via:

SAP menu → Human Resources → Personnel Management →
Recruitment → Appl. Master Data → Initial Data Entry

The data of the applicant:

Per.Area	*NL01*
Ap.Group	*1(Active (external))*
Ap.Range	*Salaried employees*
Pers.Off	*AMU(Anja Müller)*
Title	[*Mr. or Mrs.*]
Language	*EN*
National.	[*Your nationality*]
F.Name	[*First name*]
LastName	[*Last name*]
Birth Dt	[*Birth date*]
Advert	[*Advertisment number last paragraph*]

Save the data and write down the number for this applicant. A message about r "Technical Leaving" can be ignored with «Enter».

Enter additional data for this applicant with:

SAP menu → Human Resources → Personnel Management →
Recruitment → Appl. Master Data → Applicant actions

Enter the 'Applicant no.' and today's date as 'from'. Select 'Enter additional data' and «Execute» this action.

Choose the first tab 'Vacancy assignment' and enter for 'Vacancy' the number of the vacant position.

Use the second tab 'Education' to register your secondary school. Enter the date you started and ended this school. At E.. (Educational establishment) enter 02 (Secondary school) and type the name from your school as 'Institute'. The certificate (C..) is 01 (Final certificate).

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The third tab 'Other/Previous Employer' can be filled as you like.

Click on the button «Maintain qualifications profile» to enter your other qualifications. These are your qualifications. It is possible to enter the qualifications for a position or job. By comparing these qualifications with yours, you can analyze the suitability of a person for a position.

Ensure that you have the tab 'Qualifications' on top and then press the 'Create' button. Open the 'Qualifications catalog (complete)', next choose 'Management Proficiencies', 'Business Knowledge' and finally 'Business Administration'. Select at least five qualifications, for example the qualifications chosen in Figure 19.1.

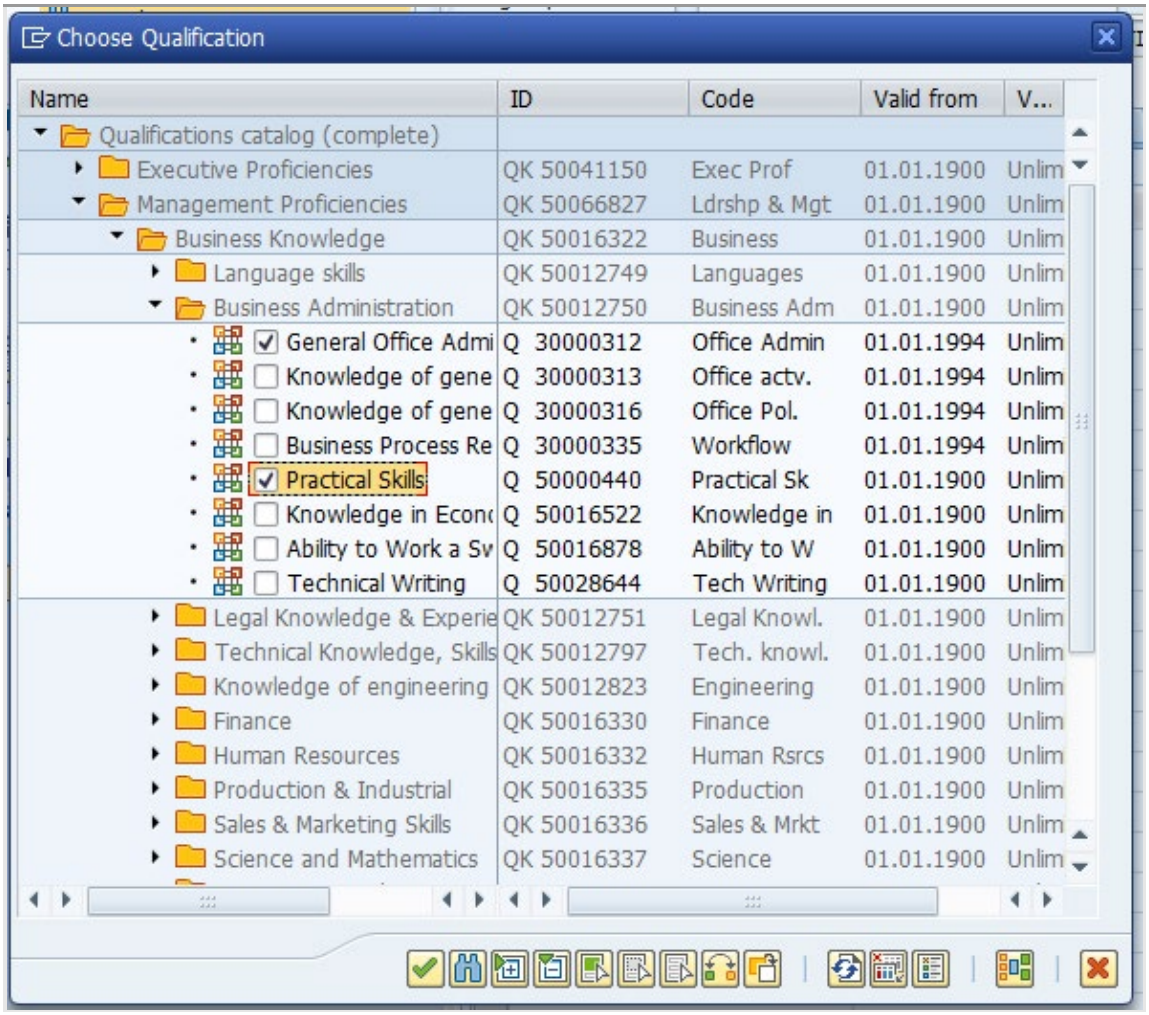

Figure 19.1 Qualifications

In the 'Proficiency' (level) column fill in a level for the qualifications you have chosen. Save this data.

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19.4 SELECTION APPLICANT

The applicant is selected to be invited for an interview:

SAP menu → Human Resources → Personnel Management →
Recruitment → Selection procedure → Decision

Enter the advertisement number and display the applicants for this advertisement with «Execute».

The only applicant for this position will invited for an interview with «Invite». With more candidates you can select the applicants who will be invited or rejected.

19.5 HIRING APPLICANT

The applicant had a good interview and will be hired via:

SAP menu → Human Resources → Personnel Management →
Recruitment → Appl. Master Data → Applicant actions

Enter the 'Applicant no.' and at 'from' the next work day. Select 'Prepare to hire' and «Execute» this action.

The status from this applicant will change to 'To be hired'. Save this action. The previous status 'In process' will have an end date, this is the reason for the warning. Confirm with «Enter».

Finally you hire the applicant:

SAP menu → Human Resources → Personnel Management →
Administration → HR Master Data → Personnel Actions

Enter as 'Personnel No.' 4??? and 'From' two work days later than today. Select the action 'Hire applicant' by clicking on the gray square before 'Hire applicant'. Enter also:

Personnel area	*NL01*
Employee group	*1*
Employee subgroup	*N2*

Click on the «Execute» button.

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In the next screen enter the number from the applicant and click on «Transfer».

In the following screen enter the number of the position is transferred from the applicant. Save this data.

The 'Organizational assignment' is complete once a position has been entered. Save the input. If a pop-up menu appears with 'Delimit vacancy' enter the current date. Confirm the delimitation.

The next screen is the 'Personal data' screen. Enter the mandatory fields. State that you are 'single' and without children to prevent triggering data about your partner and kids. Save these data as well.

Choose 3 'Home address' and enter an address in The Netherlands. The information that 'WFM root organization cannot be determined' can be confirmed with «Enter».

There is no need for you accept the proposed 'Planned working time' with the 'Work schedule rule' NORM. You can have it checked by pressing «Enter» and then save it.

The leave entitlement needs to be confirmed with «Save».

The 'Basic Pay' screen depends on the position you have chosen. The 'Type' 10 and 'Area' 10 are filled. Choose the pay scale group 'L05' and level 1. The amount is found with «Enter». Save the 'Basic Pay'.

The bank details are:

City	[*your residence*]
Bank Key	*P*
Bank Account	*???*

Save the bank details.

The data about education and previous employers are transferred and can be saved.

The applicant is hired.

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19.6 CATS

CATS, Cross Application Time Sheets, are used for time registration, for example for projects or absences. You will enter two absences, you take a one-day vacation and sick leave for one day.

SAP menu → Human Resources → Time Management→
Time Sheet → CATS Classic → Record Working Time

Enter the data:

Data Entry Profile	*BASIC*
Personnel number	*4???*

With «Enter Times» you start the time sheet. Ignore the message that appears with «Enter». Enter for the next working day that you are on leave for vacation by entering A/A (Attendance or Absence Type) 0100 (Leave) and enter 8 for the number of hours for the next working day. Register in the next row the day of your sickness, A/A type 0200 (Sick). Save the time sheet.

A report of your time registration is displayed with:

SAP menu → Human Resources → Time Management→
Time Sheet → Information System → Display Working Time

Enter your personnel number 4??? and push the «Execute» button.

CATS offers a lot possibilities, e.g. hours worked for a project or a sales order.

Analyse the time registration from employee Michel Waldmann with personnel number 109808 and change the 'Reporting Period' to 'All'.

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19.7 SUCCESSION PLANNING

The position of 'Chief Executive Officer (D)' (50000025) is about to become vacant. By comparing the qualifications required for this position and the qualifications of staff members, possible successors for this function are displayed by the system. Choose:

SAP menu → *Human Resources* → *Personnel Management* →
Personnel Development → *Planning* → *Succession*

Carry out the succession planning for a 'Position' 50000025. Enter all criteria using  and execute the planning with .

By clicking on the plus sign, you can find persons who are qualified and/or persons within whose career planning the position falls.

Retrieve a ranking list through the top menu:

Goto → *Ranking list*

Click on any name. All the recorded qualifications of a staff member can be displayed by pressing the «Profile» button.

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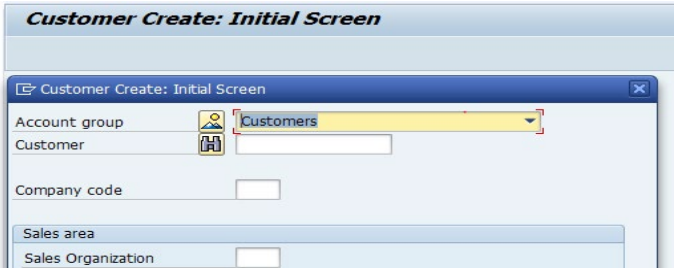
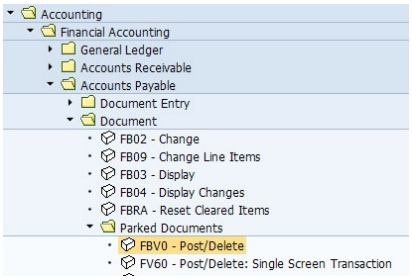
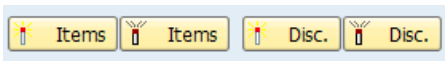
FAQ

Reference	Question / Answer
9.2	Error message creating the customer: **Number range 10 is not defined for object DEBITOR** Choose the right account groep Customer**s** in stead of Customer. 
11.3	Error message G/L account 417??? does not exist in company 1000. Do 10.1 second part again: Create Account 417??? into the company code 1000. Do not forget to remove the alternative account.
11.3	I posted the invoice as parked or complete. How can I post the inoice? By 'park' the document has to be approved by an other person. Since this is a small amout, you can do it yourself by: 
11.5	How can I (de-)select items?*In the screen with Process open items' amounts or discounts can be (de-)activated by double clicking or with the button:*  *With 'Simulate' (via the pull-down menu-> 'Document') you can see the posting before saving.*

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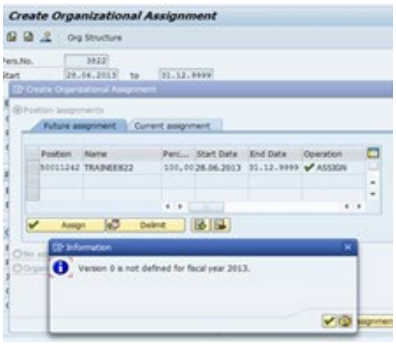
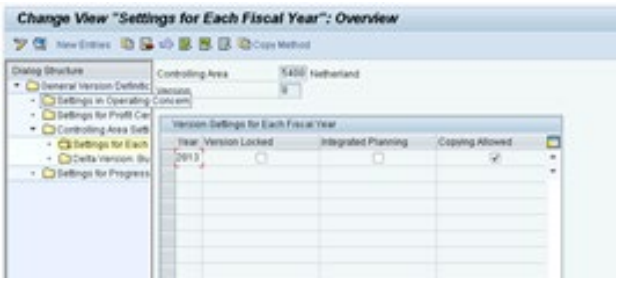
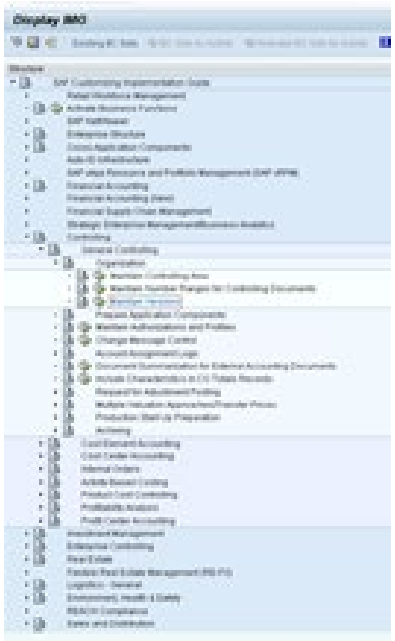
12.2	The new employee must be linked to a position. How can I solve the message: 'Version 0 is not defined for fiscal year 20..'?







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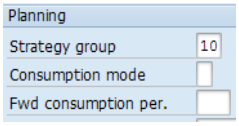
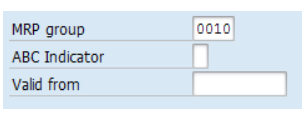
13.1.1	In the material master I can not adjust the standard price.  Use transactioncode MR21 (entry box left on top startscreen). If the entry box is not open, click in the arrow right left from the 'green entry arrow' to open it. Enter the material code and give enter. The current price is listed and can be changed.
13.1.2	No moving price has been enterd for master data of the frame. With material master change immediately it is not possible to change the price. This is so set. The moving price can be changed directly with transaction code MR21. The moving average price will be adjusted automaticaly when purchases are carried out.
13.3	With the creation of activity types man hours and machine hours the wrong validity dates are entered in the field 'valid from'. These dates cannot be changed. (i.g. November 26th 2015 into January 1st 2015) Solution: create the missing dates by creating the same activity for the missing period. Use accounting\controlling\cost center accounting\master data\activity types\individual processing\create and enter the activity type for the missing period. In this case 1-1-15 tot 25-11-15.
14.5	Copy of the created quotation to the salesorder does not work. I can find the quotatins with the use of the search criteria "sold to party" 35???. The error message states that the quotation is incomplete and can not be copied for that reason. Solution: use *SAP menu->Logistics -> Sales and Distribution -> Sales -> Quotation -> Change* to change the quotation and then select from the pulldown menu: *edit-> incompletion log*. Check what is incomplete. In case of missing logistic data enter first Plant '1000' and carry out the incompletion log again to see if the quotation si complete.
14.7	Problem: "sales order does not allow make-to-stock production".  Check the master data of your Bike SB???. Select the view MRP 1 and MRP3. The Strategy Group should be '20' ('make-to-order') in the process of chapter 14 and '10' (make-to-stock) in chapter 17 and 18. 

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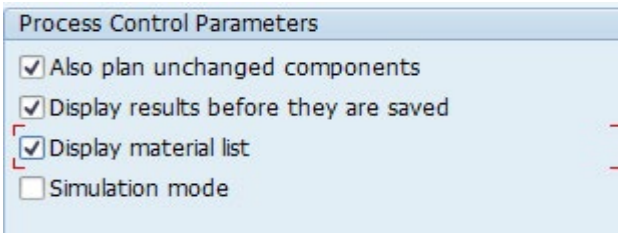
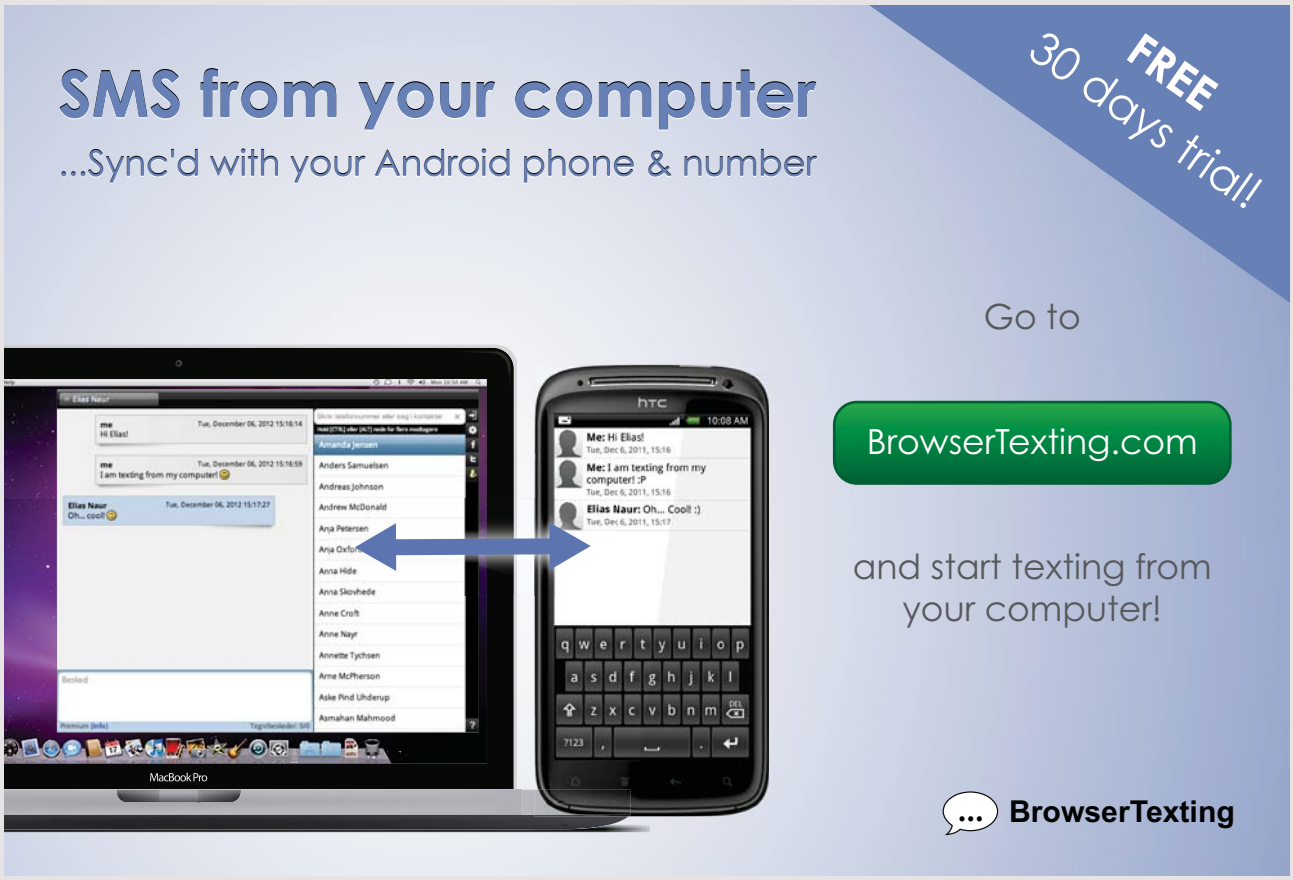
14.7	Carrying out the stock requirementsplanning :after save I can not select 'Proceed without stopping' and << Continue>> . Your forgot to select 'also plan unchanged components'. Select this option and carry out the MRP again 



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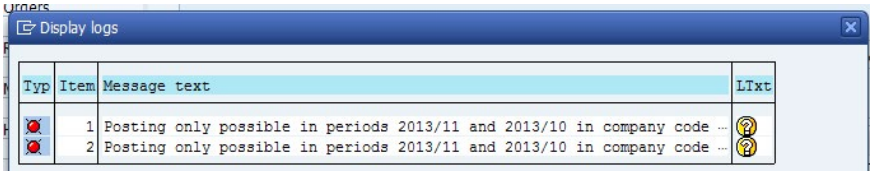
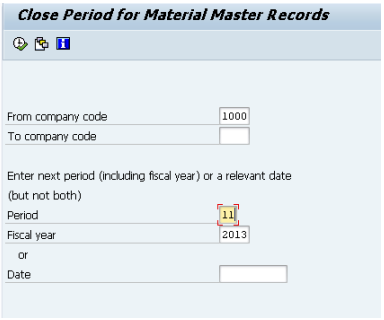
14.9	Problem with goods receipt



This message refers to the fact that within SAP ERP the period change has not been carried out. In SAP ERP there two period change processes:a logsitic period change and a financial period change. This message refers to the logsitc period change. With the transaction code MMPV the logistic change can be carried out. Enter the new period wihtin the fiscal year: e.g. Period 11 of 2013



By opening the new period the old period is closed. In logistic two periods are be open/active: e.g.October and November.



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14.10	I forgot te write down the number of the transferorder for WL???. I need the number to confirm the finischeing of the transfer to the right location. How can I track the documents number? Go to '*SAP-menu-Logistics-Logistics Execution – Information System – Warehouse – Stock – Per Material-aggregated*' (or transactioncode 'LS26') and choose for Material WL???. Double click on the white row in the screen 'Stock Overview'. Double click on the white row in the screen 'Stock per material'. Select the row WL??? in 'Stock per storage bin' and click on 'Quant'. Jou see neow 'Document number xxx':  Double click on documents 'xxx' wil bring you the overview and the work arround where you can confirm the transfer.
14.10	In paragraph 14.10 it is possible to transfer the frame to a fixed storage location. But it is not possible for the wheels. (WL???). Research with *SAP Menu->Logistics->Inventory Management -> Environment -> Stock -> Stock Overview*, shows that the Wheels are stored in location 0002 in stead of 0088. Solution: 1. Change the masterdata for the wheels from storage location 0002 into 0088. 2. transfer the wheels to storage location 0088.
14.10	In paragraph 14.10 it is possible to transfer one of my materials to a fixed storage location. But it is not possible for the wheels or frame because there is no transfer requirement. Check of the purchase order with *SAP Menu->Logistics->Materials Management -> Purchasing -> Purchase Order -> Display*

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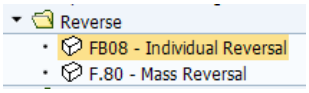
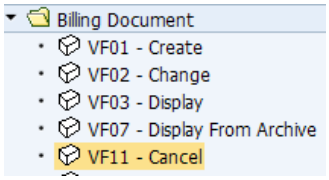
14.11	On the payment to a vendor I forgot to enter the discount of 3%. How can this be changed? Solution: cancel the payment with 'document reverse':  *SAP menu->Accounting ->Financial Accounting-> Accounts Payable -> Document -> Reverse -> Individual Reversal*, choose for reversal reason 'Current period'.
14.12	It is not possible to convert the planned order into a production order: the message "workschedule not maintained for the material" appears. During the creation of the master data of the bike SB??? the view 'work schedule' is not selected and for that reason not created for SB??? Solution: extend the material masterdata of SB??? with the view 'work schedule' with SAP Menu->Logistics-> Materials Management->Material Master -> Material -> Create (General) -> Immediately.
14.14	The Frames/Wheels are in stock, but have the status 'To quality inspection' and can for that reason not be used for production. See *SAP Menu-> Logistics -> Production -> MRP -> Evaluations -> Stock/Requirements List* of FR ??? /WL??? and double click on stock. Go to 'Transfer posting' (MB1B) and choose in the pulldown menu for 'Movement Type-Stock to Stock-QI to Unrestricted' enter the warehouse location, material and quantity involved. Save and the materials are released from Q control.
14.21	The invoice shows a net value of €0. Check if the price conditons (13.1.1 'Sales Org.Data 1') are entered in a correct way. If the price condition is missing or incomplete, maintain or change it. To update the pricing in the sales order first cancel the billing document: SAP menu->Logistics -> Sales and Distribution -> Billing -> Billing Document -> Cancel  - Carry out a 'price update' for the sales order SAP menu -> Logistics -> Sales and Distribution -> Sales ->Order-> change. Double click on the line item of the sales order. Go to tab 'Conditions'. Select below <Update Prices>. Choose for option 'B'. Create a new invoice for the delivery

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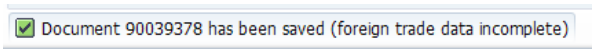
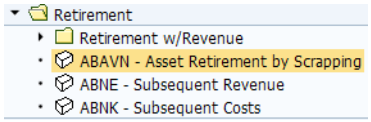
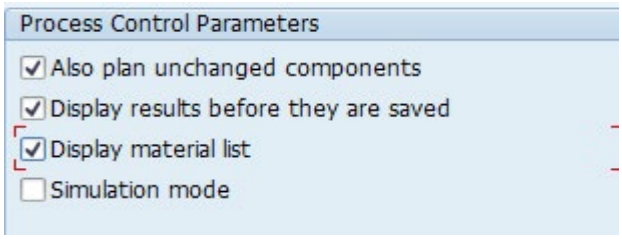
14.21	After Sales order handeling and invoicing the invoice data is not transferd to (posted in) accounting, because of the message. The reason of the error message is that in the Master Data creation the address is in an other country than Germany, e.g. the Netherlands.  The solution is to change the address of the customer to the an address in Germany. See 9.3 and refresh the sales order. Post the invoice again.
15.6	I tried to delete an asset, but get the error message 'Asset already has values'. How can the asset be removed? Use retirement by scrapping for the fixed assets. 
15.6	An asset is created with the wrong values, e.g.acquisition value, or wrong depreciation keys. How can this be changed? Best solution is to reverse the acquisition with transaction code AB08. Enter the document number and save. What if f a depreciation for this month is already posted? Carry out again 15.7 the depreciation (repeat) run. The posted depreciation is reversed. For changing the depreciaion keys use the 15.3 with change Enter the right acquisition
17.5	 Carrying out the stock requirementsplanning: after save I can not select 'Proceed without stopping' and << Continue>>. Your forgot to select 'also plan unchanged components'. Select this option and carry out the MRP again.

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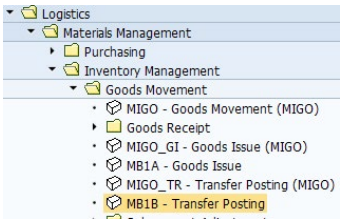
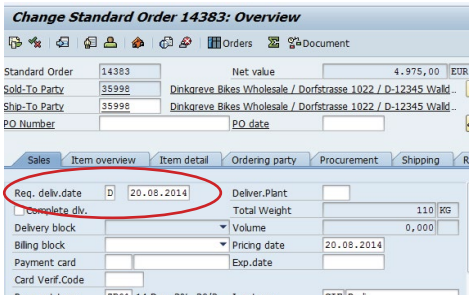
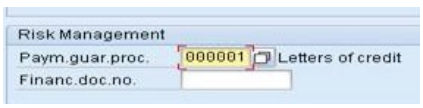
17.16	During picking of the bikes for a deleviry to the customer the message comes about non availability of the bikes. But I know that there are enough bikes on stock. **1st option** Check in 'Stock/requirementslist' of SB??? how many bikes are available as free stock or reserved by the customer. If the bikes are reserved for customer it is not possible. You can transfer the bicylcles from sales order to own with 'Transfer posting' (MB1B)  Choose from the top menu 'Movement Type-Transfer Posting-Sales Order Stock-Sales order to Own'.
17.17	 When creating the delivery to the customer I get the message: "no schedule lines due for delivery up to the selected date". Choose at outbound delivery not the date of today but the planned date of the delivery. The planned date of delivery is shown in the sales order.
17.17	When creating the delivery to the customer I get the message: "Order blocked for delivery as a result of credit check". How to solve this problem? Go to <<S&D – Sales – Order – Change>>, choose salesorder and double click on the line item. Go to the tab 'Billing Document'. At the area Risk Managment a Paym. guar.proc 000001 is entered. Remove this entry and save. The payment is unlocked. 

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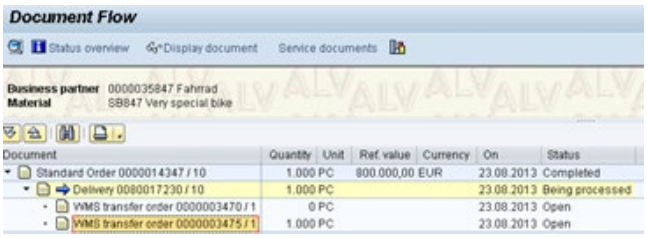
17.18	 At 'Post goods issue' I get the message "Delivery has not been completely processed by WM". What is the problem? When you carry out the picking a transferorder is created. With 'S&D-Sales-Order-Display' and then choose <<Environment-Document Flow>> the transfer order is shown. Select the de transferorder and choose for << Display Document>>. The status of the document is that the transffer order is still active and the confirmation completion is open. Confirmation can be carryed out with *SAP menu – Logistics – Logistics Execution – Internal Whse Processes – Stock Transfer – Confirm Transfer Order – Single Document – In One Step.* Note that the bike is in the master data set up by accident linked to Warehouse Management. That is why the 'confirmation' on the transferorder picking is tiggered.
18.5	I entered the wrong production quantity in the prodcution order. The productionorder can be changed with *<<production-shop floor control-order-change>>.*
18.12/18.16	In the confirmation of the production order the wrong quantities of Man Hours and Machine Hours are entered. With *<<Production – Shop floor control – Cancel (CO13)>>* the confirmation can be canceled. Confirm the production order again with the right quantities.
18.5	There are no planned costs for raw materials and overhead in the production order. Check in the productionorder if Bill-Of-Materials is available for the productieorder and if the BOM is correct by clicking in the component overview with pushing function key F6.

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