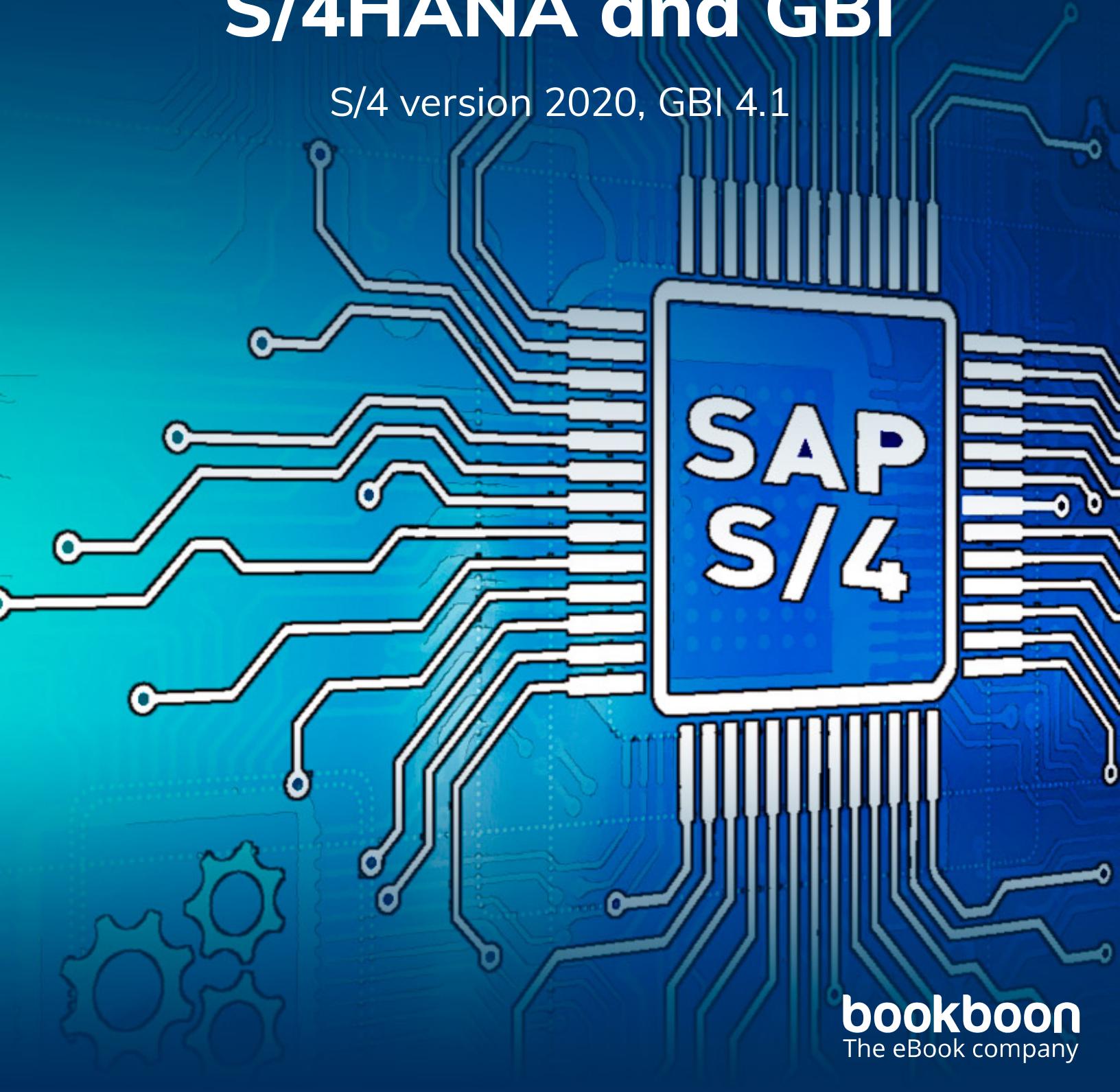


Dirk-Jan Schenk & Casper Draijer

# Hands-on with SAP S/4HANA and GBI

S/4 version 2020, GBI 4.1



CASPER DRAIJER & DIRK-JAN SCHENK

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**HANDS-ON WITH SAP  
S/4HANA AND GBI  
S/4 VERSION 2020, GBI 4.1**

Hands-on with SAP S/4HANA and GBI: S/4 version 2020, GBI 4.1

3<sup>rd</sup> edition

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# PREFACE

The material for this module was originally 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.

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 2020 the exercises were converted to S/4HANA, the Fiori interface and the GBI dataset. The standard S/4 GBI environment is little customized to fit the needs for the exercises in this book.

We greatly appreciate the cooperation and contribution of Sandra de Hoog.

Amsterdam, 12 June 2020

Dirk-Jan Schenk

Casper Draijer

# 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 organization towards a process oriented organization. The integration is not only within the company, but also beyond the borders of the organization. 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)

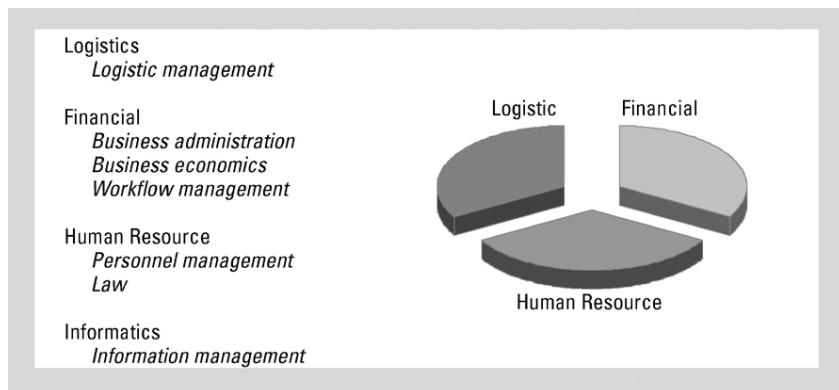


Figure A ERP system and disciplines

SAP S/4HANA is an ERP software system developed by the SAP AG that covers almost all transaction requirements and business functions of a company.

Global Bike International (GBI), has been developed by SAP University Alliances and the SAP UCC's (University Competence Centers).

This course is an introduction to the ERP system S/4HANA with the GBI dataset.

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 S/4HANA, but on the main characteristic of 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 S/4HANA 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 SAP S/4HANA. The data of chapters 9-13 are applied in this ERP process.

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

# 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 18.

More about **Logistics** can be found in chapter 17.

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.

# PART 1 ENTERPRISE RESOURCE PLANNING AND SAP

1. Enterprise Resource Planning
2. The Company: SAP AG
3. SAP S/4HANA
4. Organization depicted in SAP S/4HANA
5. Customizing
6. Intelligent Enterprise
7. GBI

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

The company that developed SAP S/4HANA, SAP AG, will be introduced in chapter 2. In chapter 3 an overview of the functionality of SAP S/4HANA 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 S/4HANA to the company can be found at customizing, which can be found in chapter 5.

Chapter 6 deals with the SAP Intelligent Enterprise. The GBI environment is described in chapter 7.

# 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.

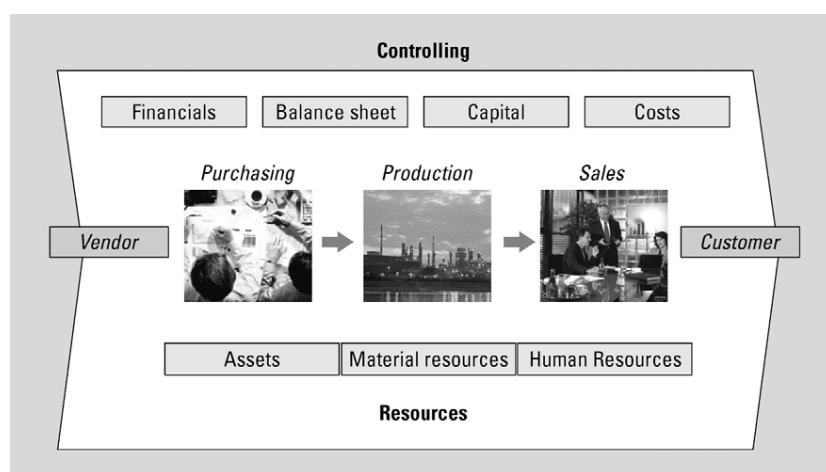
The functions of Enterprise Resource Planning are presented in a diagram and are explained in the text. The flow of goods and the transformations they may undergo are explained in paragraph 1.4. In paragraph 1.6 the flow of goods is linked with Enterprise Resource Planning.

## 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.

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 similar for most companies and can 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 S/4HANA

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 S/4HANA) 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](http://www.monsterboard.nl) in publications specializing in computer and information specialist recruitment indicates a great demand for SAP consultants, Oracle experts, etc.

SAP (SAP S/4HANA, SAP ERP and SAP R/3) was in 2018 with a market share of 22% still the market leader. Oracle, who took over Peoplesoft and JD Edwards, is number two.

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. SAP originally started as software for finance and controlling and has consequently developed functionality features centered on production, logistics and HR. Nearly all the large players in the market are converging with respect to functionality of the ERP package. Meanwhile SAP has 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 (SCM), workflow management (WFM), Human Resources Management (HRM), 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.
- *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.

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).

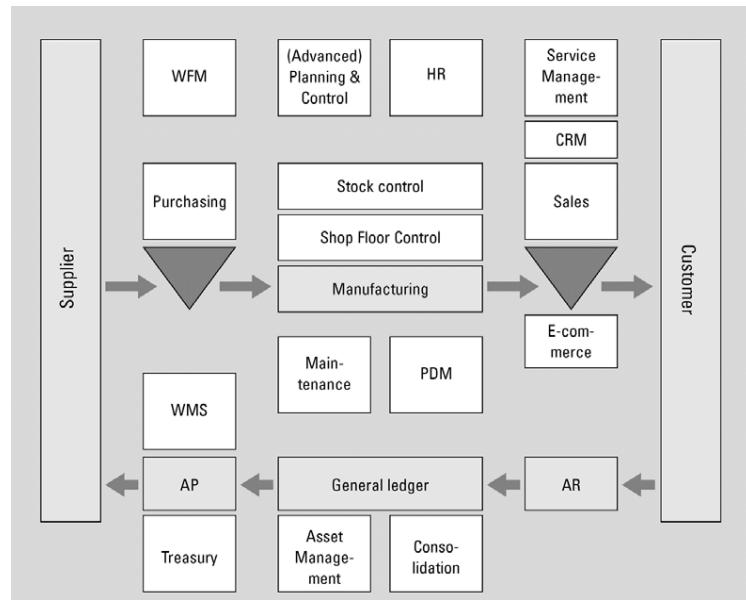


Figure 1.2 Enterprise Resource Planning

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.

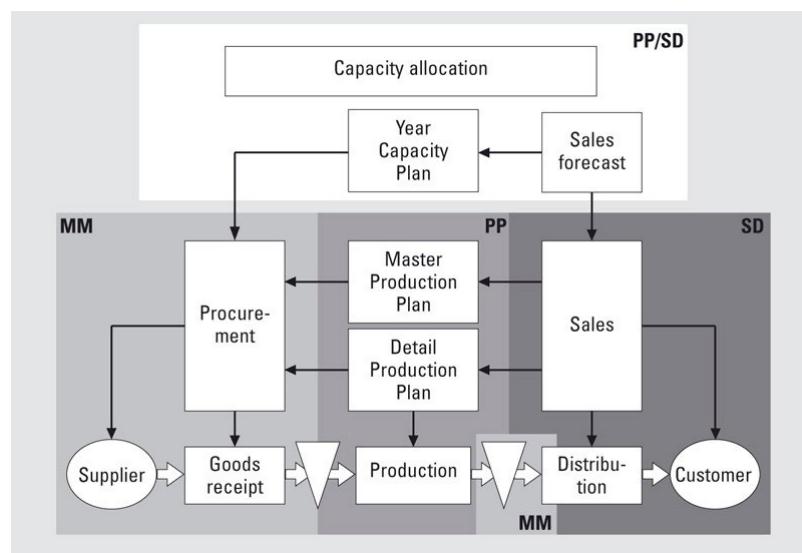


Figure 1.3 Integrated planning

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.



Figure 1.4 Integrated processes

Integrated planning comes with integrated processes cross departments as depicted in figure 1.4. In SAP you can define roles to organize the authorization and to assign groups of applications in the launchpad, part of the SAP user interface.

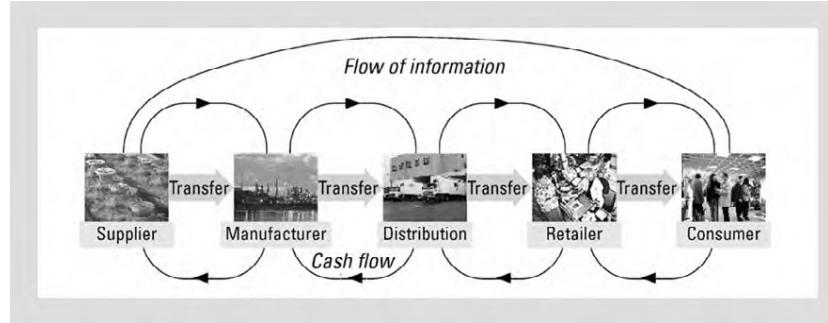
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Post General Journal Entries	Manage Journal Entries	Create Incoming Invoices	Display Supplier Balances	Post Incoming Payments	Post Outgoing Payments	
Reset Cleared Items	Assignment of Open Items	Post Parked Document	Manage Debit Memo Requests	Create Outgoing Invoices	Learning Snack FI Single-Choice	

Figure 1.5 Role Financial accounting in the SAP Launchpad

## 1.5 SUPPLY CHAIN MANAGEMENT

The *Supply Chain concept* is central in SAP S/4HANA: 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 S/4HANA; 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.

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 1.6).



**Figure 1.6** 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 more 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.

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 semi manufactures 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 color 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.

### 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 1.7.

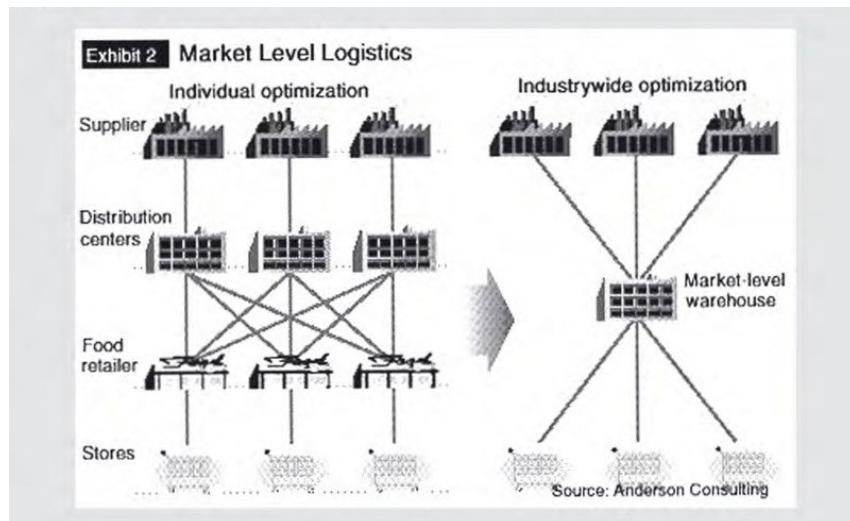


Figure 1.7 Supply chain planning

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. 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.

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.

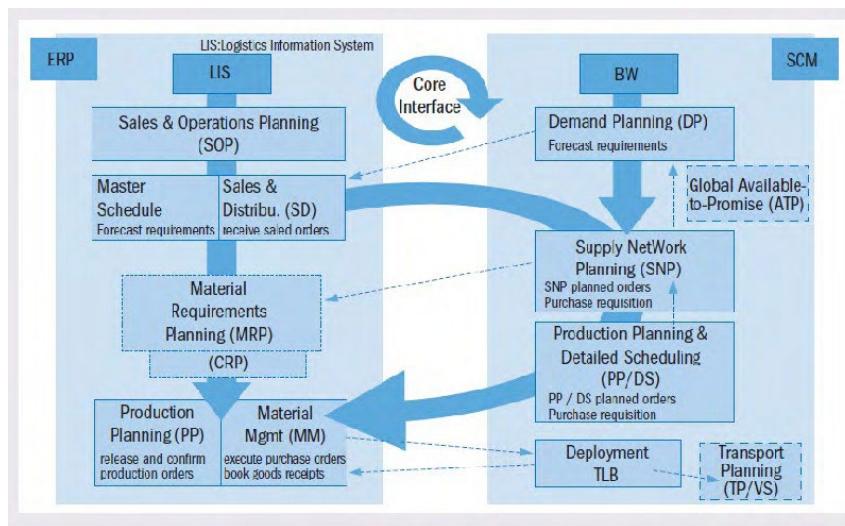


Figure 1.8 Supply chain planning

## 2 THE COMPANY: SAP AG

In this chapter the company that developed SAP S/4HANA 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 €27,55 billion in 2019. SAP employed more than 98,000 people in 2019.

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



## 2.2 PRODUCTS OF SAP AG

SAP S/4HANA 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 S/4HANA can be used on-premise (own installation) or cloud (installation and maintenance by SAP).

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 S/4HANA. 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 and SAP C/4HANA (CRM systems).

SAP S/4HANA is the next generation ERP. The database HANA and the interface will be Fiori.

Midsized companies will be using the SAP S/4 or Business ByDesign.

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

*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](http://www.sap.com). In the Netherlands there is an active users association, the VNSG (Dutch SAP user group). There is more information about the VNSG on [www.vnsg.nl](http://www.vnsg.nl).

# 3 SAP S/4HANA

In this chapter the structure of SAP S/4HANA is explained and extensive attention is paid to the various solutions of the SAP S/4HANA system.

## 3.1 STRUCTURE OF SAP S/4HANA

SAP S/4HANA 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 user experience and web-services.

SAP S/4HANA includes four individual solutions that support key functional areas, which together form the foundation for the business processes:

- SAP S/4HANA Financials (Finance and Controlling)
- SAP Human Capital Management (HCM)
- SAP S/4HANA Operations:
  - Procurement and Logistics Execution (Material Management, Warehouse Management)
  - Projects and Manufacturing (Project System, Production Planning)
- SAP S/4HANA Corporate Services:
  - Sales and Service (Sales and Distribution, Corporate Services)
  - Corporate Services (Enterprise Asset Management)

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

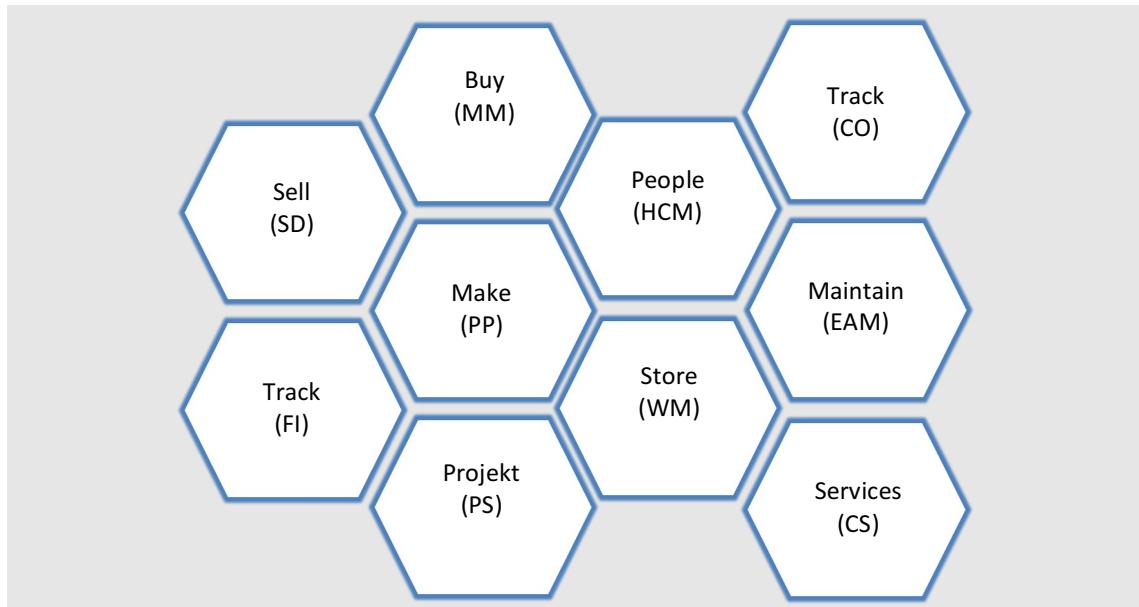


Figure 3.1 Solution Map

## 3.2 ANALYTICS

SAP Analytics Cloud (SAC) will be the analytic tool for all SAP systems. It can connect to HANA databases. Dashboards and predictive scenarios can be created with SAC. Dashboard are used for commercial and financial graphic overviews. An other good example of predictive analytics can be found in Enterprise Asset Management (EAM), companies do not like to do unnecessary maintenance and on the other hand do not like unexpected downtime of machines.

**Sample: Summary Q1 (2014) – Q4 (2016)**

This page outlines sales for the fictional company "The Best Run Juice Company". Feel free to click around and explore the data!

**Figure 3.2 Analytics**

### 3.3 FINANCIALS

SAP S/4HANA 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 S/4HANA is profit center 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.

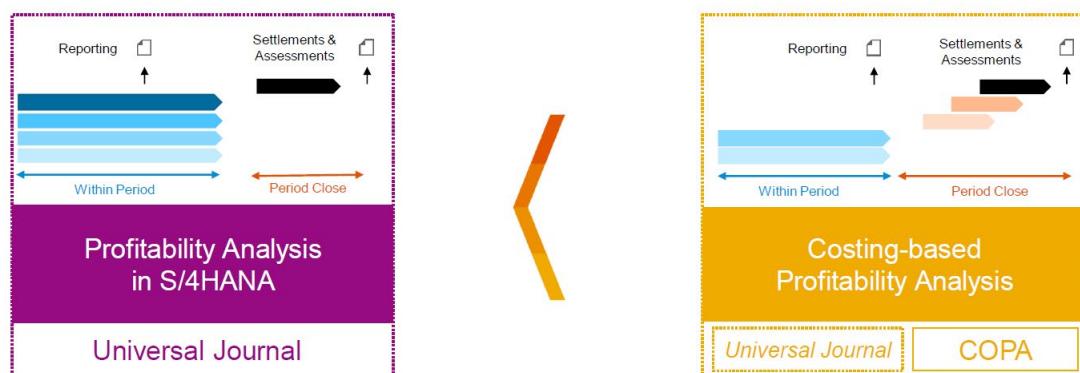
Financial Supply Chain Management	Financial Accounting	Management Accounting	Corporate Governance
<ul style="list-style-type: none"> <li>Credit Management</li> <li>Electronic Bill Presentation and Payment</li> <li>Collections Management</li> <li>Dispute Management</li> <li>In-house Cash</li> <li>Cash and Liquidity Management</li> <li>Treasury and Risk Management</li> <li>Bank Relationship Management</li> </ul>	<ul style="list-style-type: none"> <li>General Ledger</li> <li>Accounts Receivable</li> <li>Accounts Payable</li> <li>Contract Accounts Receivable and Payable</li> <li>Fixed Assets Accounting</li> <li>Bank Accounting</li> <li>Cash Journal Accounting</li> <li>Inventory Accounting</li> <li>Tax Accounting</li> <li>Accrual Accounting</li> <li>Local Close</li> <li>Financial Statements</li> </ul>	<ul style="list-style-type: none"> <li>Profit Center Accounting</li> <li>Cost Center and Internal Order Accounting</li> <li>Project Accounting</li> <li>Investment Management</li> <li>Product Cost Accounting</li> <li>Profitability Accounting</li> <li>Transfer Pricing</li> </ul>	<ul style="list-style-type: none"> <li>Audit Information System</li> <li>Management of Internal Controls</li> <li>Risk Management</li> <li>Whistle Blower Complaints</li> <li>Segregation of Duties</li> </ul>

Figure 3.3 Financials

## Universal journal

The database for S/4HANA is simplified compared with SAP ERP. This is more than a technical change. The complete integration of Finance and controlling is realized in S/4.

## Instant Margin Insight with Profitability Analysis in S/4HANA



### Instant margin insight with S/4HANA

For the input of data this means, every GL-account is a Cost Element and all financial postings are posted on a Cost Center. Every financial transaction is recorded in the Universal Journal, this is one table with all fields that might be touched (in ERP we saw separate documents for GL, costing, profit center, etc.).

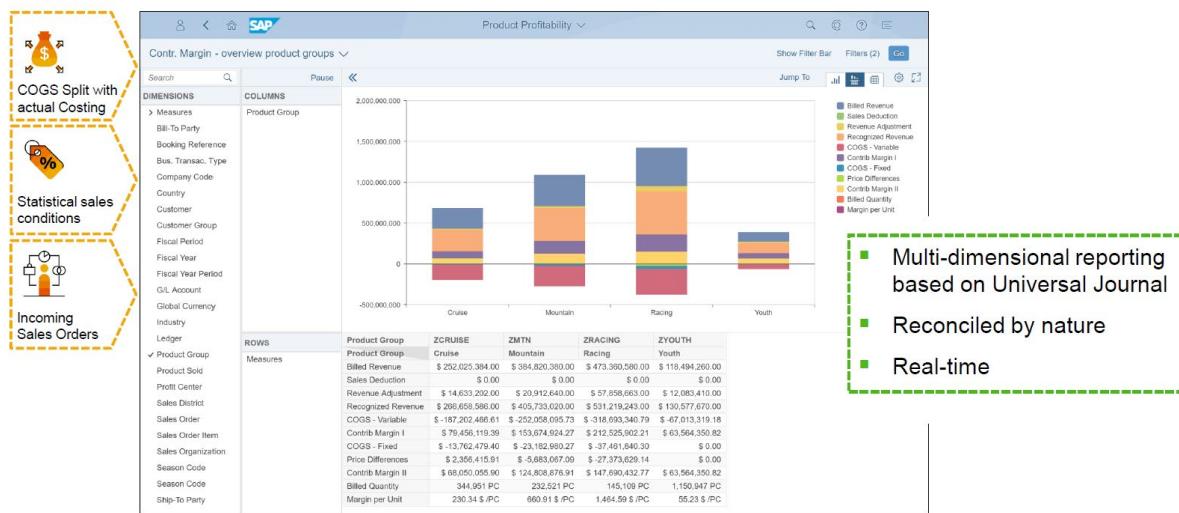
### Traditional ERP

- Separate data model
- Reconciliation challenges
- Not real-time

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Reporting is easier, because as a user you can easily create any crosslink analysis between different areas, e.g. cost center postings and profit centers.

### Instant Margin Insight with S/4HANA



### 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.

The HCM functions are partly available in S/4HANA and partly in the SAP cloud solution SuccessFactors.

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

Talent Management	Workforce Process Management	Workforce Deployment
<ul style="list-style-type: none"> <li>• Recruiting</li> <li>• Career Management</li> <li>• Succession Management</li> <li>• Enterprise Learning</li> <li>• Employee Performance Management</li> <li>• Compensation Management</li> </ul>	<ul style="list-style-type: none"> <li>• Employee Administration</li> <li>• Organizational Management</li> <li>• Global Employee Management</li> <li>• Benefits Management</li> <li>• Time and Attendance</li> <li>• Payroll and Legal Reporting</li> </ul>	<ul style="list-style-type: none"> <li>• Project Resource Planning</li> <li>• Resource and Program Management</li> <li>• Call Center Staffing</li> <li>• Retail Scheduling</li> </ul>

Figure 3.4 Human Capital Management

### 3.5 PROCUREMENT AND LOGISTICS EXECUTION

With SAP S/4HANA 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
<ul style="list-style-type: none"> <li>• Requisitioning</li> <li>• Purchase Request Processing</li> <li>• Trading Contract Management</li> <li>• Purchase Order Processing</li> <li>• Receiving</li> <li>• Financial Settlement</li> <li>• Managing Catalog Content</li> <li>• Compliance Management</li> </ul>	<ul style="list-style-type: none"> <li>• Development Collaboration</li> <li>• Purchase Order Collaboration</li> <li>• Confirmation of Goods and Services</li> <li>• Invoice Processing</li> </ul>	<ul style="list-style-type: none"> <li>• Cross Docking</li> <li>• Warehousing and Storage</li> <li>• Physical Inventory</li> </ul>	<ul style="list-style-type: none"> <li>• Inbound Processing</li> <li>• Outbound Processing</li> <li>• Product Classification</li> <li>• Duty Calculation</li> <li>• Customs Communication Service</li> <li>• Trade Document Service</li> <li>• Trade Preference Processing</li> </ul>	<ul style="list-style-type: none"> <li>• Transportation Execution</li> <li>• Freight Costing</li> </ul>

Figure 3.5 Procurement and Logistics Execution

### 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
<ul style="list-style-type: none"> <li>• Production Planning</li> </ul>	<ul style="list-style-type: none"> <li>• Manufacturing Execution</li> <li>• Shop Floor Integration with xmII</li> <li>• Supervision and Control</li> </ul>	<ul style="list-style-type: none"> <li>• Product Development</li> <li>• Development Collaboration</li> </ul>	<ul style="list-style-type: none"> <li>• Document Management</li> <li>• Product Structure Management</li> <li>• Recipe Management</li> <li>• Specification Management</li> <li>• Change and Configuration Management</li> </ul>

Figure 3.6 Product Development and Manufacturing

### 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
<ul style="list-style-type: none"> <li>• Account Processing</li> <li>• Internet Sales</li> <li>• Managing Auctions</li> <li>• Inquiry Processing</li> <li>• Quotation Processing</li> <li>• Trading Contract Management</li> <li>• Sales Order Processing</li> <li>• Mobile Sales</li> <li>• Inbound Telesales</li> <li>• Contract Processing</li> <li>• Billing</li> <li>• Returnable Packaging Management</li> <li>• Consignment</li> </ul>	<ul style="list-style-type: none"> <li>• Phase-In Equipment</li> <li>• Phase-Out Equipment</li> <li>• Asset Scrapping</li> <li>• Product and Warranty Registration</li> <li>• Warranty Claim Processing</li> <li>• Service Contract Processing</li> <li>• Service Plan Processing</li> <li>• Mobile Measurement and Counter Reading</li> <li>• Service Employee Resource Planning</li> <li>• Service Notification Processing</li> <li>• Service Order Processing</li> <li>• Billing</li> <li>• Returns Processing</li> <li>• In-House Repair Processing</li> </ul>	<ul style="list-style-type: none"> <li>• Project Planning and Scoping</li> <li>• Resource and Time Management</li> <li>• Quotation Processing</li> <li>• Sales Order Processing</li> <li>• Project Execution</li> <li>• Time and Attendance</li> <li>• Managing Employee Time and Attendance</li> <li>• Travel Expense Management</li> <li>• Project Accounting</li> <li>• Resource-Related Billing</li> <li>• Resource-Related Intercompany Billing</li> <li>• Billing</li> </ul>	<ul style="list-style-type: none"> <li>• Incentive Business Configuration</li> <li>• Incentive Plan Maintenance</li> <li>• Incentive Processing</li> </ul>

Figure 3.7 Sales and Service

### 3.8 CORPORATE SERVICES

SAP S/4HANA 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
<ul style="list-style-type: none"> <li>• Property acquisition and Disposal</li> <li>• Portfolio</li> <li>• Management</li> <li>• Property Management</li> <li>• Technical</li> <li>• Management</li> <li>• Support Processes</li> </ul>	<ul style="list-style-type: none"> <li>• Investment Planning &amp; Design</li> <li>• Procurement &amp; Construction</li> <li>• Maintenance &amp; Operations</li> <li>• Decommission &amp; Disposal</li> </ul>	<ul style="list-style-type: none"> <li>• Project Planning</li> <li>• Resource and Time Management</li> <li>• Project Execution</li> <li>• Project Accounting</li> <li>• Prototyping and Ramp-Up</li> <li>• Development Collaboration</li> </ul>	<ul style="list-style-type: none"> <li>• Travel Request and Pre-trip approval</li> <li>• Travel Planning - Online Booking</li> <li>• Travel and Expense Management</li> <li>• Global Travel Policy Compliance</li> <li>• Travel and Expense Analytics</li> </ul>	<ul style="list-style-type: none"> <li>• Product Safety</li> <li>• Hazardous Substance Management</li> <li>• Dangerous Goods Management</li> <li>• Waste Management</li> <li>• Industrial Hygiene and Safety</li> <li>• Occupational Health</li> <li>• Emissions Management</li> </ul>	<ul style="list-style-type: none"> <li>• Quality Engineering</li> <li>• Quality Assurance/ Control</li> <li>• Quality Improvement</li> <li>• Audit Management</li> </ul>	<ul style="list-style-type: none"> <li>• Sanctioned Party List Screening</li> <li>• Export Control</li> <li>• Product Classification</li> <li>• Duty Calculation</li> <li>• Customs communication Service</li> <li>• Trade Document Service</li> <li>• Trade Preference Processing</li> <li>• Restitution Handling</li> <li>• Letter of Credit</li> <li>• Periodic Declarations</li> </ul>

Figure 3.8 Corporate Services



# 4 ORGANIZATION DEPICTED IN SAP S/4HANA

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 S/4HANA is described, and the hierarchy that functions as a backbone in SAP S/4HANA 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

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 S/4HANA 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 material. 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.

## Business Partner

Any person or organization that has a relation to the company is called a business partner. The ‘General’ data, for example name and address, are only related to the partner.

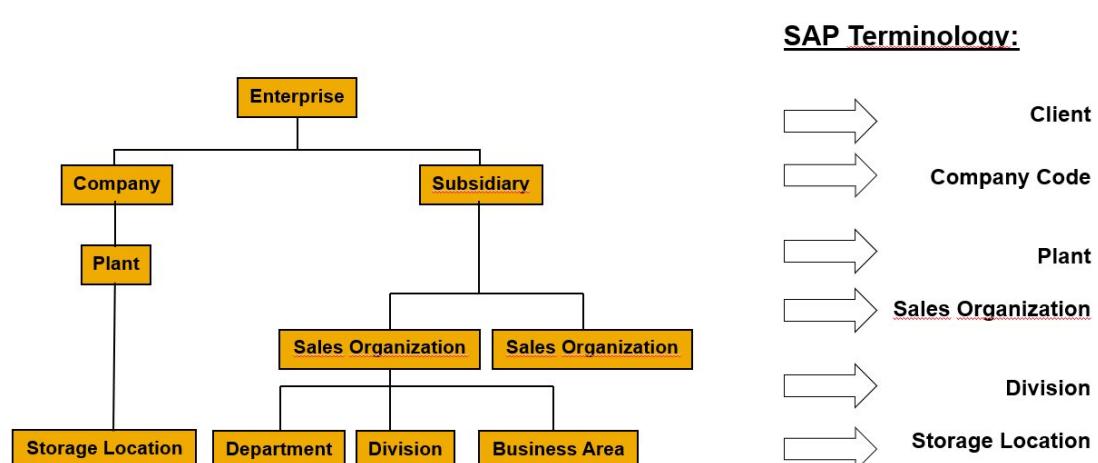
The business partner can be assigned to various roles and those roles can be related to organizational units within the company (see next paragraph). Examples:

<b>Role</b>	<b>Unit</b>
<i>Customer</i>	<i>Sales organization</i>
<i>FI Customer (Debtor) Company</i>	
<i>Vendor</i>	<i>Purchase organization</i>
<i>FI Vendor (Creditor) Company</i>	
<i>Employee</i>	<i>Personnel organization</i>

Several roles can be assigned to one business partner: a company can be both a customer and a vendor; a person can be employee, creditor and customer; etc.

## 4.2 ORGANIZATION STRUCTURE PROJECTED IN SAP S/4HANA

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.



## 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 S/4HANA 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.

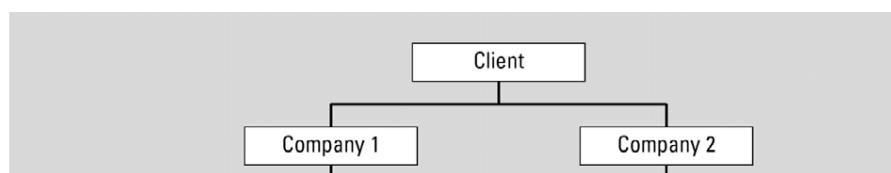


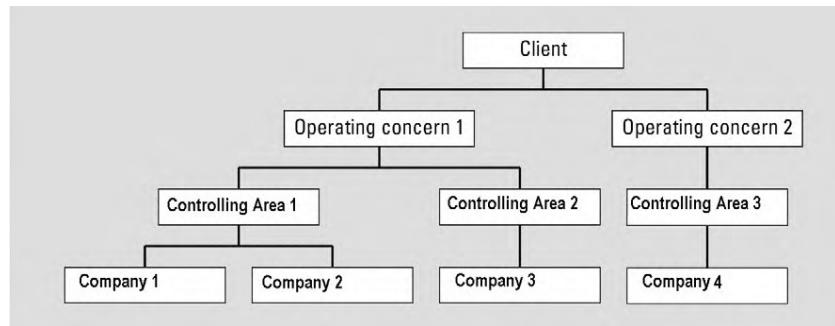
Figure 4.1 Organization structure financial

## 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.



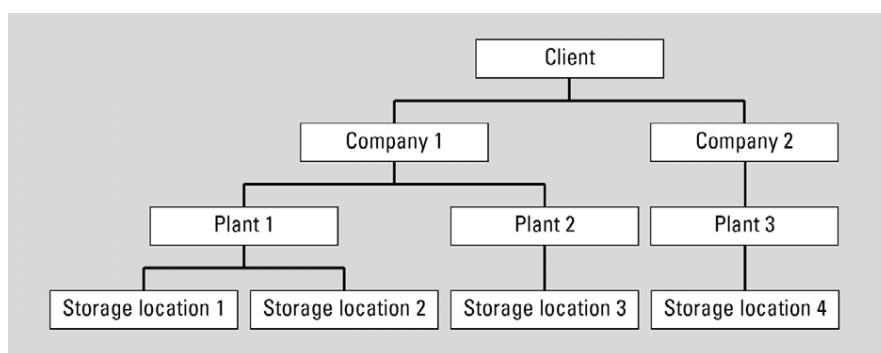
**Figure 4.2** Organization structure controlling

## 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

### 4.3 PROJECTING THE BUSINESS STRUCTURE IN SAP S/4HANA

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.

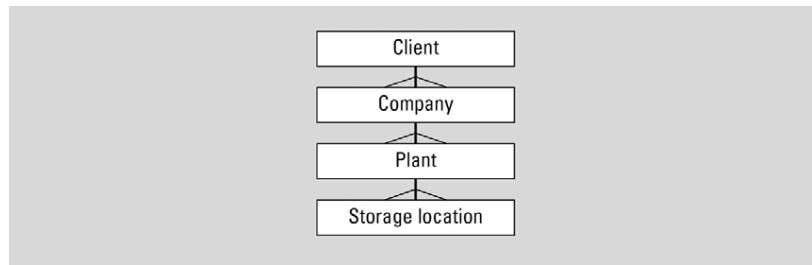
Nearly all customizing activities are related to one client. In other words, an activity only affects the client in which a user is working.

## 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.

### 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.

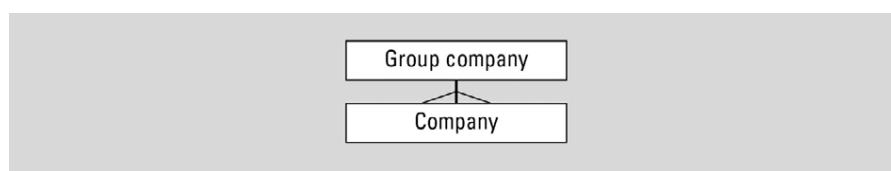


Figure 4.5 Group company

## 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.

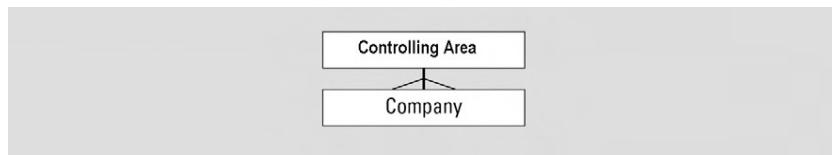


Figure 4.6 Controlling area

### 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.

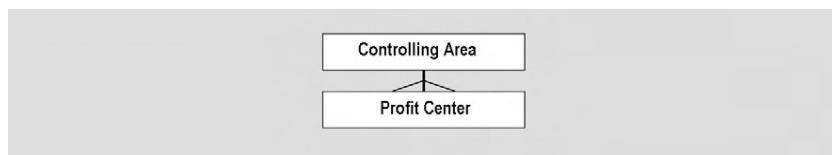


Figure 4.7 Profit center

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.

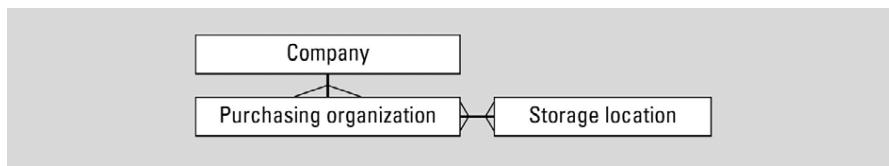
### Example 4.4

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.

## 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

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

### 4.7.1 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

#### *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  $\Rightarrow$  order  $\Rightarrow$  delivery  $\Rightarrow$  invoice). Often, sales organizations mirror the division of a particular market geographically.

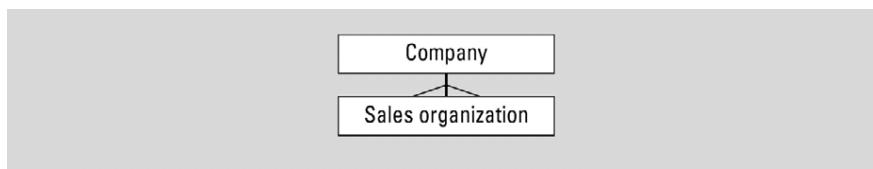


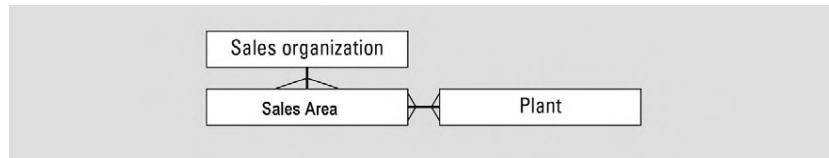
Figure 4.9 Sales organization

#### 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

### 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.

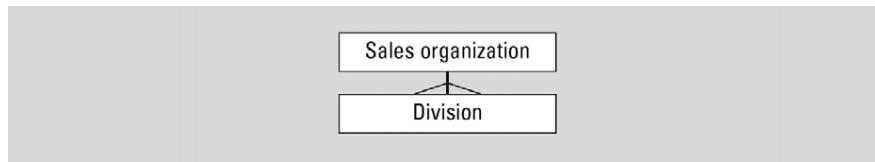
### Example 4.8

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.

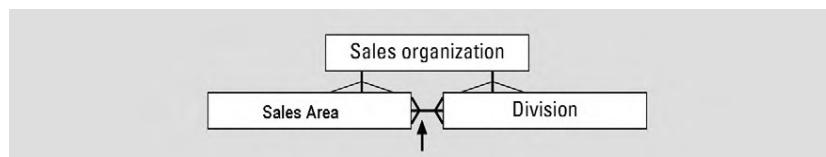
**Figure 4.11** Division**Example 4.9**

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.

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.

#### 4.7.2 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.

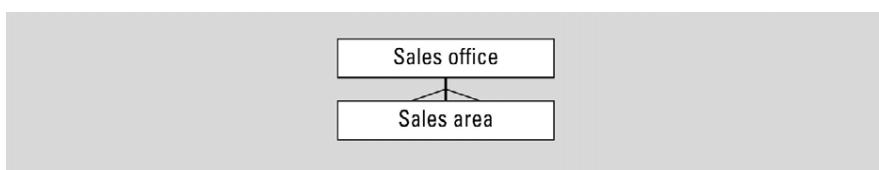


Figure 4.13 Sales office

##### 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.

## 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.

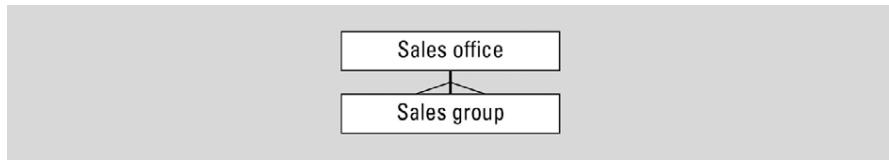


Figure 4.14 Sales group

### 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).

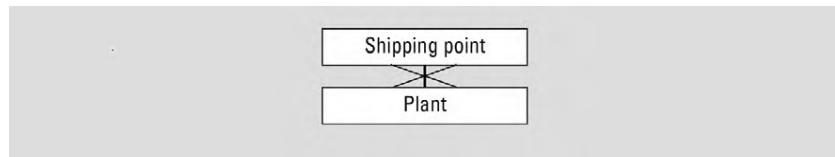
## 4.7.3 DISTRIBUTION

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.



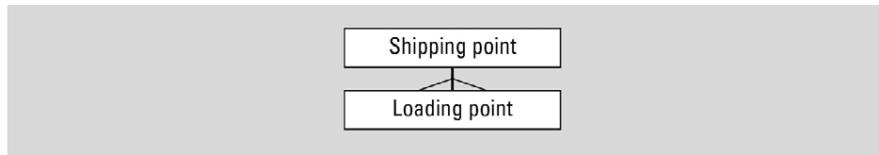
**Figure 4.15** Shipping point

### 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

# 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.

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. Accenture, CapGemini, CTac).

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

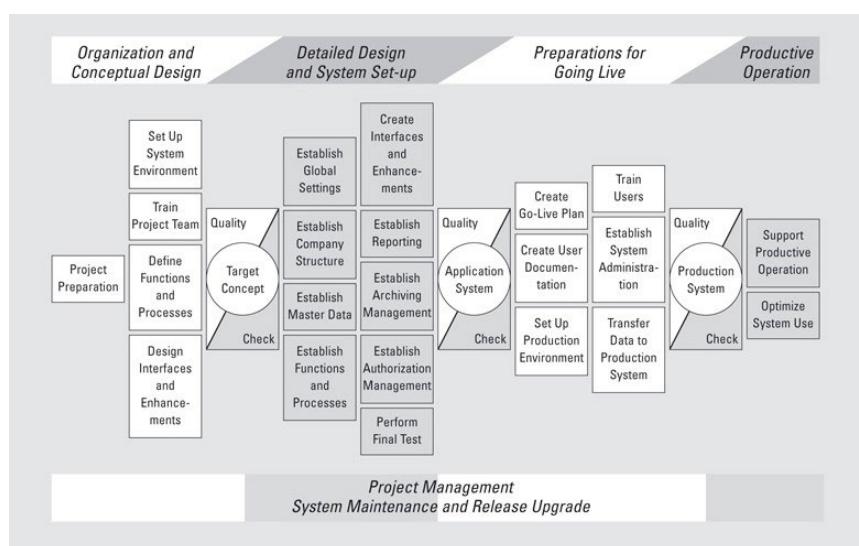


Figure 5.1 Procedure model

## 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

## 5.4 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. The option is in GBI not possible with the launchpad. You will find the IMG by logging on to SAP S/4 with the SAP GUI 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

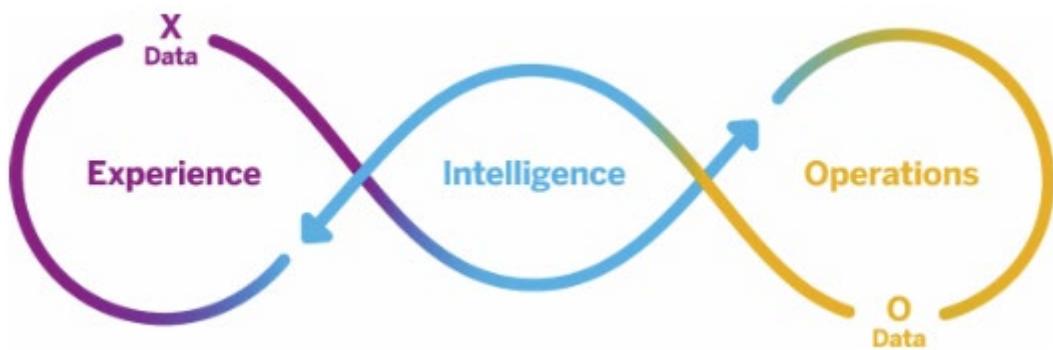
# 6 INTELLIGENT ENTERPRISE

Large companies and companies using their systems to collaborate with other companies and customers will need more systems than SAP S/4HANA. The systems from SAP will be mentioned as part of the Intelligent Enterprise. The C-Business diagrams will be introduced in the last paragraph.

## 6.1 INTELLIGENT ENTERPRISE

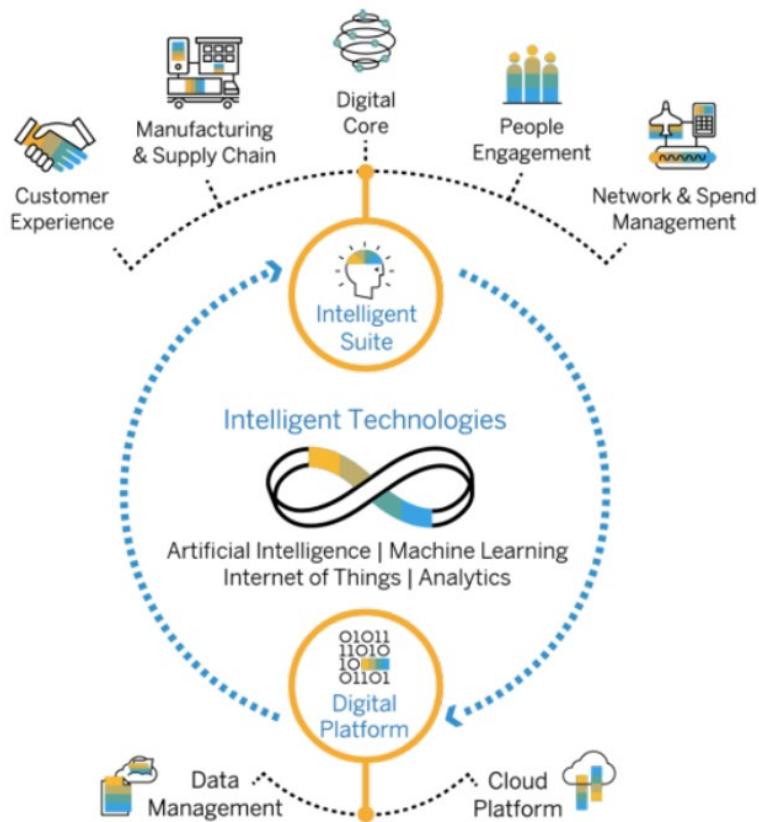
According to SAP: 'Intelligent Enterprises use the latest technologies to turn insight into action across the business – in real time. As a result, they accelerate data-driven innovation and process automation, launch new business models, deliver exceptional experiences, and more. An Intelligent Enterprise connects experiences and operations using experience management (XM) solutions, a business technology platform, and a suite of applications.'

Data is a key driver behind the decisions made about the business, the strategy, and ultimately the desired business outcomes. Operational data, or O-data for short, looks at transactions from a business point of view. In essence, it reveals what happens. To get the complete picture, however, it is important to also understand experience data, or X-data. X-data gives insight into why something happens. X-data is gathered by capturing human sentiment from customers, employees, and business partners at key moments to provide an immediate understanding of the quality of their experience. This is particularly important as we look at providing the best possible business outcomes.

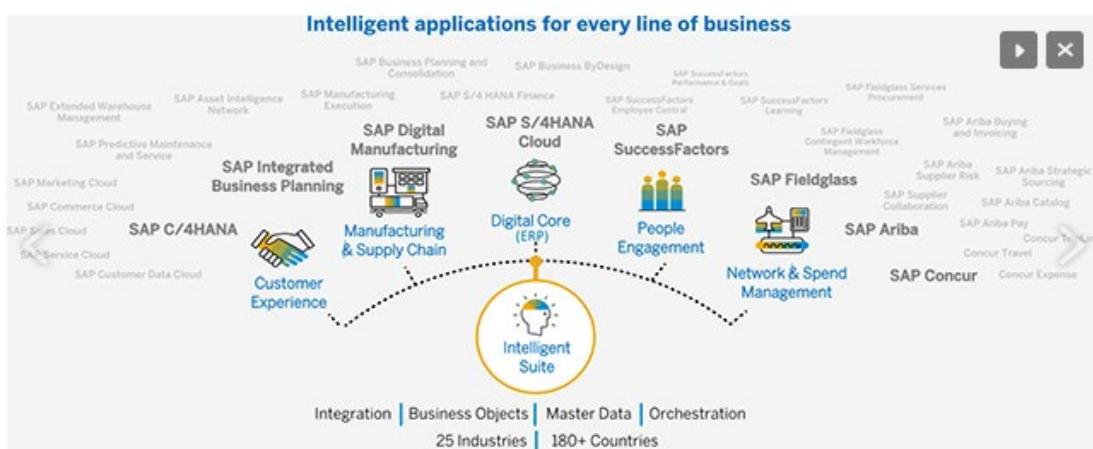


SAP: The Intelligent Enterprise: Turning Insight into Action. An unprecedented volume and variety of X-data and O-data are now available to your business, driven by trends and innovations such as social media, chatbots, conversational AI, and the Internet of Things. But simply having this data does not deliver intrinsic value. The real value comes when you

connect experience and operational data with advanced technologies, such as augmented analytics, AI, machine learning, and in-memory data management in the cloud, to deliver intelligence that not only improves real-time decision making but can also predict future behavior and outcomes to better guide your success in the future.'



SAP groups the systems as a complete solution for an intelligent enterprise. S/4HANA is the Digital core. The data are stored in a HANA database. Analytics are done with SAP Analytics Cloud (SAC).

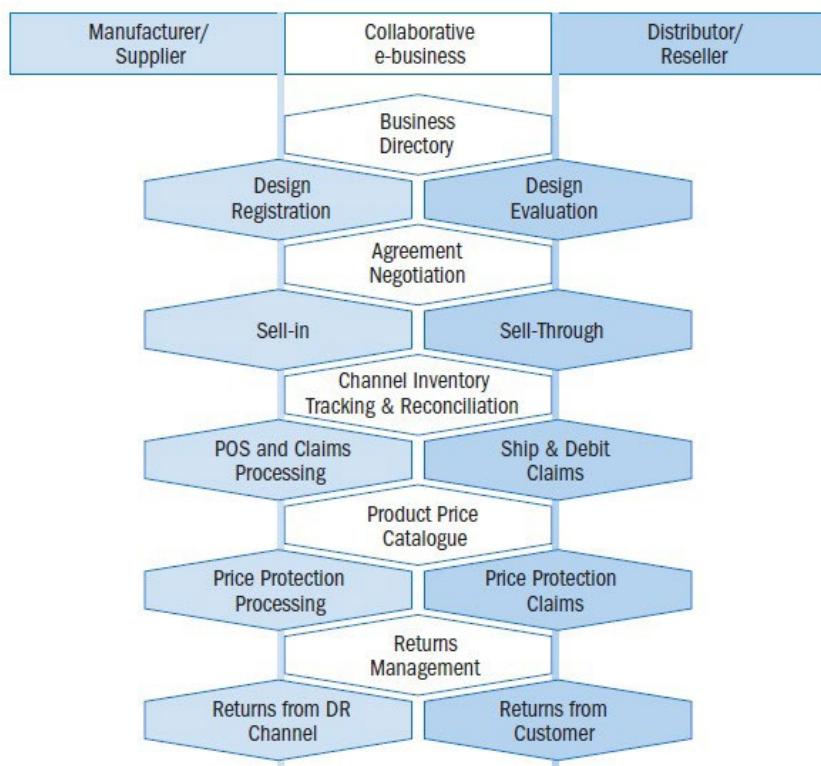


In this picture the SAP products are placed as part of the Intelligent Suite.

## 6.2 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.



**Figure 6.4** C-Business diagram

# 7 GBI

The SAP training material uses the dataset IDES (International Demo and Educational System). For example the training for the process integration with S/4HANA with official SAP certificate TS410, uses this dataset for hands-on exercises. This is a very complete and complex dataset with examples for almost any process in SAP.

The SAP UA (University Alliances) developed a much less complex dataset for teaching at schools and universities. These exercises and dataset to support these exercises are mostly developed by the SAP UCC's (University Competence Center). These centers are not part of the SAP company, but affiliated to universities.

A general understanding of Global Bike (the enterprise) prior to embarking on hands-on exercises and case studies in the SAP S/4 client is critical for success.

This narrative provides a historical background for how Global Bike began and an overview of its operations and strategy. This information will be used extensively throughout the curriculum material. The Global Bike data set has exclusively been created for SAP UA (University Alliances) global curricula.

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

## 7.1 SHORT DESCRIPTION OF GBI

The Global Bike Group has a pragmatic design philosophy that comes from its deep roots in both the off-road trail racing and long-distance road racing sports. Nearly 20 years ago, its founders designed their first bikes out of necessity—they had races to win and the bikes that were available at the time did not perform to their extremely high standards. So, they took matters into their own hands and built legendary bikes that would outlast and outperform the competition. From these humble origins, Global Bike Incorporated was born and continues to deliver innovative high-performance bicycles to the world's most demanding riders.

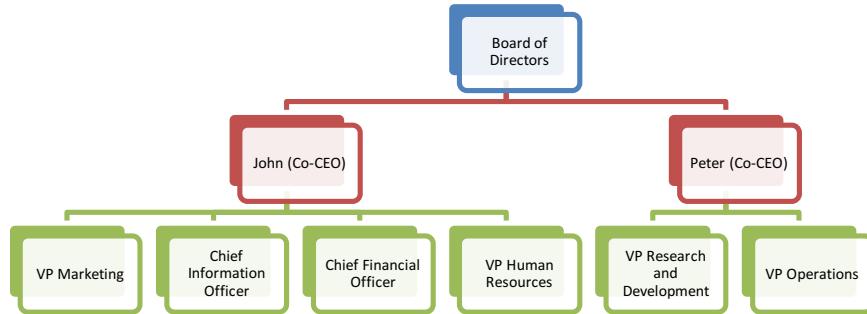
This heritage of entrepreneurial spirit and quest for design perfection is still the cornerstone of Global Bike's corporate philosophy. Global Bike produces bikes for the most demanding competitors—whether the competition is on pavement or dirt, for money, fame or just bragging rights.

John Davis earned his racing scars in the mountain racing circuit in America, where he won numerous downhill and cross-country championships. Early on, John realized that the mass-produced bicycles available were inadequate in many ways for the type of racing he was doing. So, John stripped four of his old bikes down to the bare metal and rebuilt them into a single “Frankenstein” bike that he rode to win the national championship. Once news of his Frankenstein bike got out, John’s friends and even his competitors began asking him to build them a Frankenstein bike too. While recovering from an injury in 1990, John started producing the first series of Frankenstein bikes in his garage—each one custom-built from cannibalized parts from other bikes. As more and more orders came in, John successfully expanded Frankenstein Bikes from his garage operations into a full-blown manufacturing facility in Dallas and began producing custom trail bikes which he sold through a network of specialized bike dealers throughout the country.

At nearly the same time, halfway around the world in Heidelberg, Germany, Peter Schwarz was studying engineering and competing in regional touring races on weekends. In between his races and studies, Peter worked at a bike shop in Heidelberg, fixing student bikes and tuning the touring bikes that he and his friends rode for competitions. As Peter’s reputation as a fierce competitor and mechanical wizard grew, he also began to design and build road bikes based on an ultra-light composite frame that he had created for one of his engineering courses. Peter’s innovative use of carbon composite materials allowed him to build a frame that was significantly stronger and one tenth the weight of competing frames. As a student, Peter did not have a great deal of financial resources, so he partnered with a local company that manufactured his frame designs as a contract manufacturer. Soon, Peter’s frames were being used by racers all over Europe and he started Heidelberg Composites to market and design frames which would be fabricated by a contract manufacturer on a larger scale. Heidelberg Composites sold its frames to specialized bike stores throughout Europe and directly to racing teams, eventually becoming the leader in lightweight touring frames in Europe.

Through a twist of fate, Peter and John met each other in 2000 and immediately recognized their mutual passion for performance and complimentary business models. Each had been looking for a partner in another racing field and each had been looking for a partner in a different market. They quickly realized that a merger between their two companies would be extremely synergistic and that the combination of their product lines and regional distribution channels would generate a great deal of efficiencies.

So, in 2001, Heidelberg Composites and Frankenstein Bikes merged to form Global Bike. Today, John and Peter share the responsibilities for managing Global Bike’s growing organization as co-CEO’s. John is responsible for sales, marketing, service & support, IT, finance and human resources groups and Peter is responsible for research, design, procurement and manufacturing groups from an organizational reporting perspective.



However, Global Bike is a process-centric organization, so John and Peter prefer to think of the processes that they are responsible for, rather than the functional areas of the company that report to them. From this perspective, Peter is responsible for Idea-to-Market and Build-to-Stock and John is responsible for Order-to-Cash and Service & Support, as well as the supporting services for all four key processes. The simple way to look at their responsibilities would be to say that Peter spends money and builds products and John sells products and brings in money.

# PART 2 CARRYING OUT A COMPLETE ERP PROCESS

8. Log on and the SAP S/4HANA 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.

# 8 LOG ON AND THE SAP S/4HANA INTERFACE

Log on to the S/4 GBI system with your browser, best use Google.

Your teacher will provide a link. You need a client number and a user code like LEARN??? or HvA-??? or something similar. The username ends in three digits (???), for example HVA-014. This number, which is unique to each user, is used in various exercises. For example, there is a GL-Account with code 751???. The HVA-014 user enters the GL-Account as 751014.

More information about the interface you can find on in any group.

Click on the tile:



And next:

Download Global Bike Curricula			
<input type="checkbox"/>	Name		<a href="#">Download English</a>
<input checked="" type="checkbox"/>	Curriculum Navigation		<a href="#">Download</a>

Click on 'Download' to find more information about the interface.

# 9 ACCOUNTS RECEIVABLE

In this chapter you become familiar with the launchpad, tiles and some of the icons and buttons of SAP S/4 by analyzing a customer balance. The master data of a customer will be created. The integration between accounts receivable, marketing and physical distribution is illustrated.

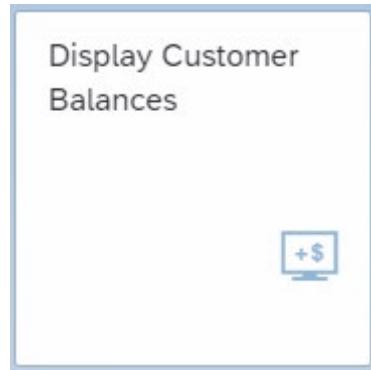
Sometimes, depending on the size of your screen, you have to click on «More»  to see the choice in the menu bar.

To get back to the Launchpad, press the home button  in the upper left corner.

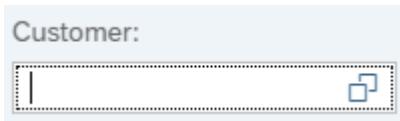
## 9.1 CUSTOMER BALANCE

Choose the following tile in space ‘Financial Accounting’ to manage the customer line items. Find the displayed Tile by clicking on  if present and look for the tile in the most logical section.

For example: The tile ‘Display Customer Balances’ will be in Space ‘ Financial Accounting’, Page ‘Accounts Receivable’ and Section ‘Head of Accounting’:



Customer Fahrpott may have open items.

  
Find the customer  by clicking on  to search for the

customer number. A pop-up window appears. The ‘Search Term’ is ‘000’ and as ‘Customer Name’ give ‘Fahr\*’ (this means that customers with a name that starts with Fahr and something behind will be selected). Start the search with «Go». (The brackets « » indicate the name of a button.)

Select  the customer ‘Fahrpott’ and «OK» .

The Company Code is DE00 and the Fiscal Year the <current year>. The balance is displayed with «Go» .

Click on the blue debit amount. The customer line item is displayed.

Click on the blue document number in the column ‘Journal Entry’. Click again on the number. The complete journal entry is displayed with «Back to Journal Entry» (below right at the screen).

Analyze the financial posting.

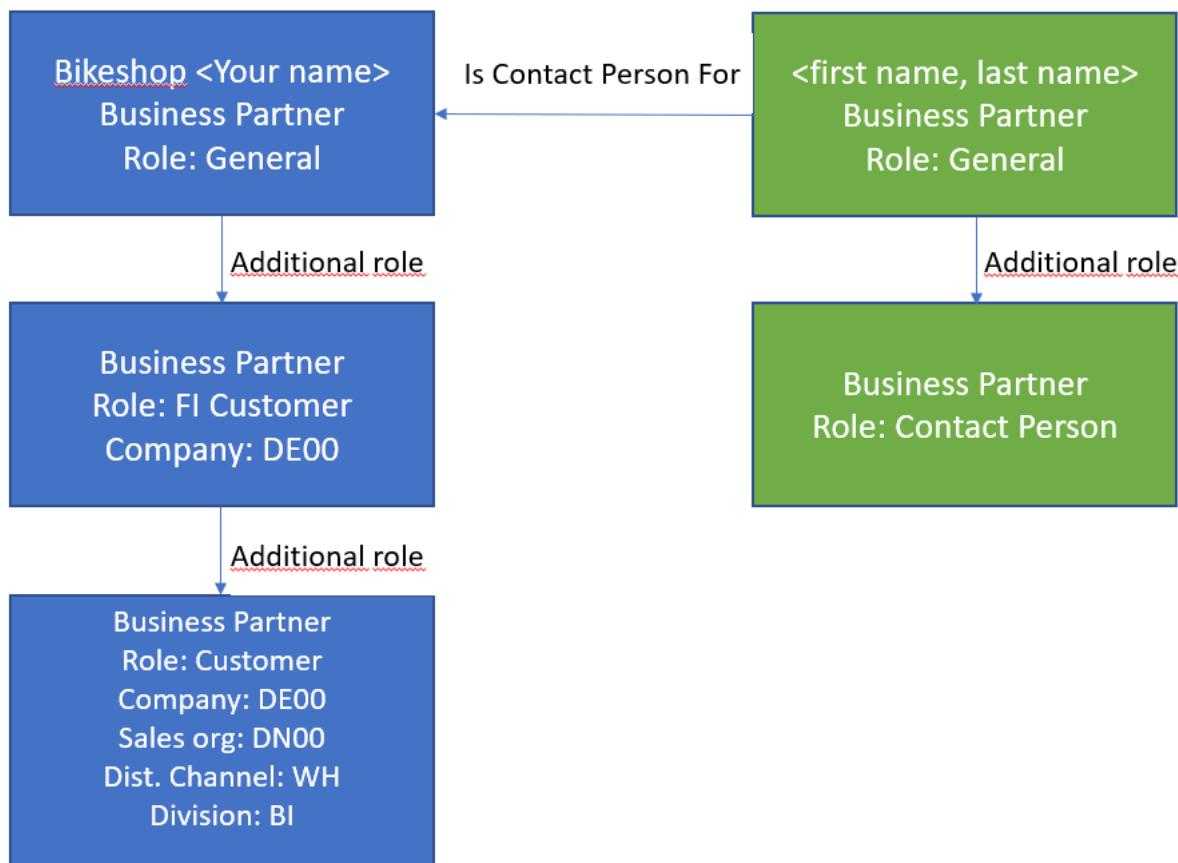
- Header: Who created this document? On which date?
- Line Items (3): Which G/L Accounts are posted?
- Tax (1): What is the VAT (tax) rate used?

Return to the launchpad by pushing the Navigation menu  next to ‘Manage Journal Entries’. Select «Home» .

## 9.2 CUSTOMER MASTER DATA

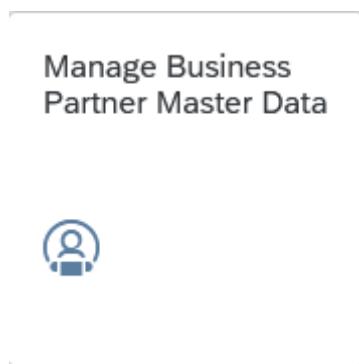
In this section you create the customer’s master data. Create the master data for a German customer: Bikeshop <your name>. This customer will play the role of a FI (Financial) and commercial customer of the company Global Bike Germany GmbH. The customer will buy bicycles from us.

A second business partner: an employee of this customer will be the contact person for this customer. This role and relationship will be created.



### Business Partner General and FI Customer

To create a customer, use the app *Manage Business Partner Master Data* in space ‘Financial Accounting’.



By creating the role FI Customer you will automatically create two roles: the role Business Partner (Gen.) and the role FI Customer. The role Business Partner (Gen.) contains the general data, this is information about the customer, that only dependents on the business

partner, e.g. the name or the address. The role FI Customer are customer data as debtor for a company code. A customer can be connected to different subsidiaries in different countries. The FI Customer information contains data that only dependents on the business partner in combination with a company code, e.g. the currency or the G/L account for the debtor.

Click on «Create» and next, to create a new customer as a company. Click on «Organization».

Choose in the pop-up screen only give BP Role ‘FLCU00’ (FI Customer) and «OK».

By creating the role FI Customer you will automatically create two roles: the role Business Partner (Gen.) and the role FI Customer. The role Business Partner (Gen.) contains the general data, this is information about the customer, that only dependents on the business partner, e.g. the name or the address. The role FI Customer are customer data as debtor for a company code. A customer can be connected to different subsidiaries in different countries. The FI Customer information contains data that only dependents on the business partner in combination with a company code, e.g. the currency or the G/L account for the debtor.

At the tab ‘Basic Data’ at ‘Title’ choose ‘Company’, the field ‘Name 1’ type ‘Bikeshop <your name>’ and ‘Search Term 1’ is ‘<your name>’.

At the tab ‘Address’ give a street, house number, postal code of 5 digits and city in Germany. Ensure that the customer lives in Germany (DE) in order to avoid export problems, because the company ‘Global Bike Germany GmbH’ is located in Germany and in case your customer is not in Germany you have other taxes and you have to enter export information. Indicate at Standard Communication in the Language field that communication with this customer is taking place in ‘Language’ English.

Bear in mind that all students will be able to retrieve this data, so use names or descriptions your fellow students and teacher is allowed to see!

Push «OK», is the Enter key on your keyboard.

Fields with a red asterisk are mandatory. You can use «F1» for help and «Possible entries» / «F4»  for entry options. To do this, position the cursor in the field.

## FI Customer

Select the tab ‘Roles’ and select the Business partner Role FLCU00 ( FI Customer) and click in the navigation-right-arrow . The data Tabs are extended.

Click on the tab ‘Company Codes’ to create the customer as a debtor (FI is Finance) for the financial organization unit. Select «Create»:

*Company Code*

*DE00 (Global Bike Germany GmbH)*

Give «Enter» to confirm.

At the tab ‘Finance’ enter at area ‘Accounting’:

*Reconciliation acct*

*1200000 (Trade receivables)*

At area ‘Payment Data’:

*Payment Terms*

*0003 (within 14 days 3%, 20 days 2%, 30 days Due net)*

Confirm the data entry with «Apply»  .

## Customer

Go to the Tab ‘ Roles’. With «Create» the role FLCU01 (Customer sales role) can be added. Give «Enter».

From the Tab ‘ Roles’ select  the Business Partner Role FLCU01 (Customer) and click on the navigation-right-arrow  .

Click on the tab ‘Sales Areas’ and with «Create» you add the sales area:

*Sales Org.*                  *DN00*                  *(Germany North)*

*Distr. Channel*              *WH*                  *(Wholesale)*

*Division*                    *BI*                  *(Bicycles)*

At area ‘ Sales Orders’ enter:

<i>Sales district</i>	<i>DE0001</i>	<i>(Northern Germany)</i>
<i>Customer Group</i>	<i>02</i>	<i>(Retail)</i>
<i>Sales office</i>	<i>HH00</i>	<i>(Hamburg Sales off)</i>
<i>Sales group</i>	<i>DE</i>	<i>(Sales Group Germany)</i>
<i>Currency</i>	<i>EUR</i>	

At area ‘Billing’:

<i>Incoterms</i>	<i>CIF</i>	
<i>Incoterm Loc. I</i>	<i>city</i>	<i>(where customer is located)</i>
<i>Payment Terms</i>	<i>0003</i>	<i>(14 Days 3%, 20/2%, 30 net)</i>

At area ‘Shipping’:

<i>Delivery Priority</i>	<i>Normal item</i>
<i>Delivery Plant</i>	<i>HD00</i>
<i>Shipping conditions</i>	<i>Standard</i>

At area ‘Accounting’:

<i>Account assignment group</i>	<i>Domestic Revenues</i>
---------------------------------	--------------------------

At ‘Pricing and Statistics :

<i>Price group</i>	<i>Bulk buyer</i>
<i>Cust.pric.proc.</i>	<i>Standard (1)</i>

Go to the Tab ‘Taxes’.

Enter at area ‘Sales Area Taxes (1)’:

<i>Tax Classification</i>	<i>1</i>	<i>(Liable for Taxes)</i>
---------------------------	----------	---------------------------

Entry is complete. Click on «Apply» twice and finally «Create» the Business Partner.

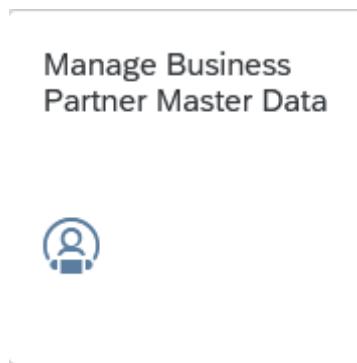
Write down the number the system generated for your Business Partner.

To change a Business Partner use the same app *Manage Business Partner Master Data* in space ‘Financial Accounting’. Type <your name> in the field ‘Search’   With «Go» and clicking on your Business Partner you can «Edit» the data.

When the editing is finished save the customer using «Save». A message appears at the bottom of the screen showing that the changes have been saved.

### **Business Partner Contact person**

To create a contact person, use the app *Manage Business Partner Master Data* in group ‘Financial Accounting’.



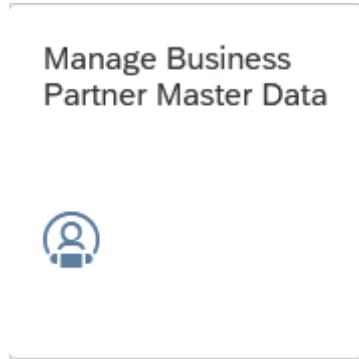
Click on «Create» to create a new business partner as a person. Click on «Person» to create a contact person for the company just created. Choose in the pop-up screen only give BP Role ‘BUP001’ (Contact Person) and «OK».

Enter a first name and last name <your name> as the name of the contact person for this customer. Indicate in the the search term 1 ‘<your name>’. In the area ‘Standard Address’ the ‘Country’ is ‘DE’. In the area ‘Standard Communication’ the ‘Language’ is English.

«Create» the Contact Person data and write down the number of this Contact Person.

## Relation Business Partner and Contact person

To create a relation, use the app *Manage Business Partner Master Data*.



Find the customer (not the contact person) by entering <your name> in the search field

 . Start the search with «Go» .

Click double on the business partner company 'Bikeshop <your name>'. Select «Edit»

Go to Tab ' Contacts'. Use «create» to add the contact person to the company. Use in the field ' Contact Person' the «Search» option and in the pop-up enter in the search field with < your name>. By double clicking on the given Business partner de contact person is selected. Maintain validity :Valid From is <'today'> and Valid To is 13.12.9999. Give «Enter». And «Save».

# 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 GBI 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 to use at the specific company code. A Chart of Accounts is generally established for all subsidiary companies on a country-by-country basis.

The financial administrator has determined that no account for purchased services exists in the Chart of Accounts. The account does not yet exist in chart of accounts GL00 (GBI Global), nor has it been created for the company code DE00 (Global Bike Germany GmbH) concerned. You will therefore create account number 5900??? as copy from 5900000. (The username ends with three digits (???). This number, which is unique to each user, is used in various exercises. For example the user HVA-114 enters the GL-Account as 5900114.)

In space ‘Financial Accounting’ use:



The Chart of accounts is GL00 and select G/L Account type P (Primary Costs or Revenue). With «Go» you get a list of G/L accounts. Select account number 5900000.

«Copy» this account to number Account Number 5900???, give as description in English ‘Purch. Services ???’ and select as Company Code Assignment only DE00  DE00, if necessary deselect the others and click «Copy». The G/L account is copied.

Edit the master data for this new G/L account in group ‘Financial Accounting’ with:



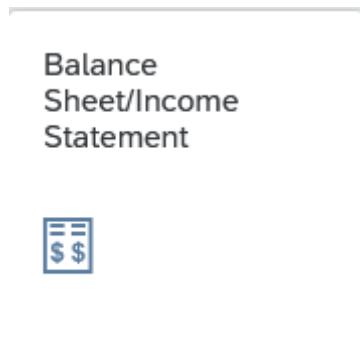
Enter in the selection field Chart of accounts GL00 and G/L Account: 5900??? and «Go». Select number 5900??? in the first column and «Mass Change» and next «Description Only». Click on «Language Setting» and select EN (English) and DE (German).

The G/L Account Long Text is ‘Purchased Services ???’. The German (DE) translation must be as short text ‘Bezogene Leist. ???’ and as long text ‘Bezogene Leistungen ???’. «Save» the G/L account master data.

## 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 GBI company in Germany of this year and compare these results with the results of the year before by choosing in space ‘Financial Accounting’:



Select:

<i>Company code</i>	<i>DE00</i>
<i>Ledger</i>	<i>OL</i>
<i>Financial statement version</i>	<i>G000</i>
<i>Statement Type</i>	<i>Normal (Actual – Actual)</i>
<i>End Period</i>	<i>12 [This year]</i>
<i>Comparison End Period</i>	<i>12 [Last year]</i>
<i>Currency</i>	<i>EUR</i>

Press «Go». With  you can expand a node. Open the nodes ‘PROFIT & LOSS STATEMENT’, ‘Revenue’ and finally ‘Sales revenue’ to find the revenues for this year.

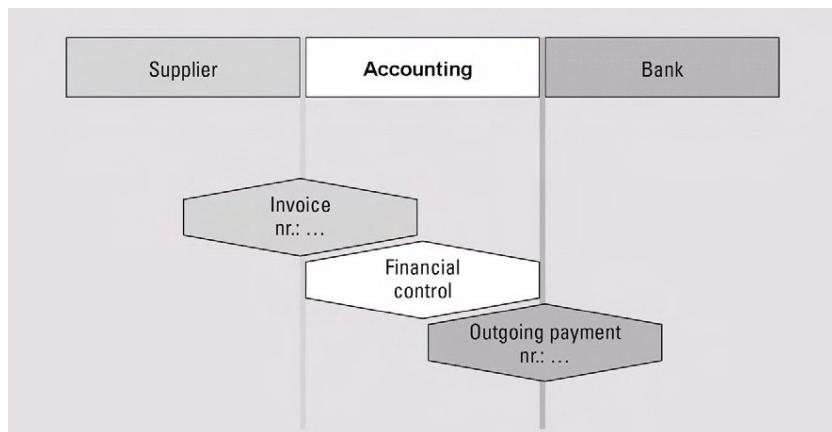
Since this is an overview, you don’t have to save.

# 11 ACCOUNTS PAYABLE

In this chapter the following actions will take place. 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

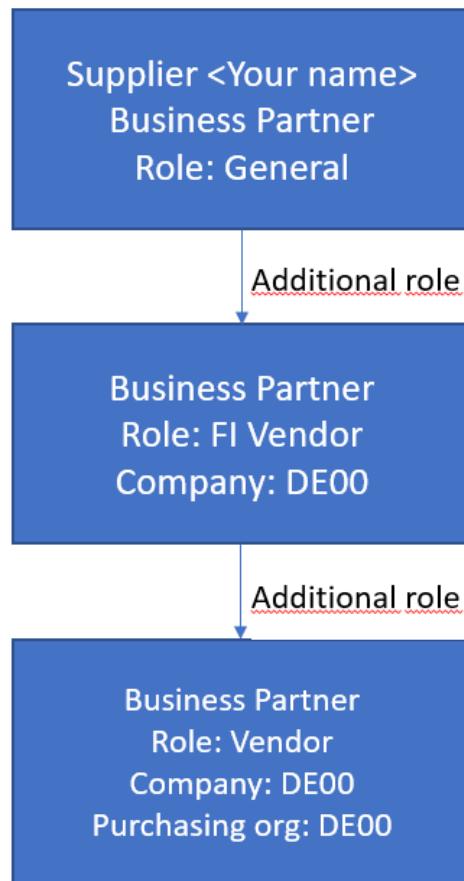
This C-Business diagram (see paragraph 6.2) depicts the collaboration of the company with the outside business environment and the collaboration between the departments. The order of the process flow is top down. The invoice is created as collaboration between the supplier and the accounting department. This invoice does not contain logistical information. In chapter 14 an invoice is created with reference to a purchase order, 3-way matching. Within the accounting department the creditors monitoring (credit control) is carried out. Finally you post the outgoing payment.



**Figure 11.1** Invoice processing

## 11.2 VENDOR MASTER DATA

The structure of the vendor is similar to the customer.



### Business Partner FI Vendor

To make a start with accounts payable you first need to create a vendor as follows with the app from space ‘Material Management’:



Click on «Create» and select «Organization» to create a new vendor as a company.

<i>Business Partner</i>	<i>&lt;Leave blank&gt;</i>
<i>BP role</i>	<i>FLVN00 ( FI Vendor FI means Finance, so the vendor will also be created as a creditor)</i>

Give «OK» .

On the tab ‘Basic Data’ enter at ‘Name 1’ the name ‘Supplier <your name>’. Indicate in the ‘Search term 1’ the search term ‘<your name>’. Create in Tab ‘Address’ an address of the company in Germany. Enter a street, house number, postal code of 5 digits and city. Ensure that the vendor lives in Germany (DE) in order to avoid all kinds of import problems, e.g. tax data and legal data, the company Global Bike Germany GmbH’ is in Germany. In this screen also indicate that communication with this vendor is taking place in English.

Select the tab ‘Roles’ and select the Business partner Role FLVN00 ( FI Vendor) and click on the navigation-right-arrow . The data tabs are extended.

Click on the tab ‘Company Codes’ to create the vendor as a creditor for the financial organization unit. Select «Create».

<i>Company Code</i>	<i>DE00 (Global Bike Germany GmbH)</i>
<i>Reconciliation Account</i>	<i>3300000 (Trade Payables)</i>
<i>Payment Terms</i>	<i>0003 (within 14 days 3%, 20 days 2%, 30 days Due net)</i>

Give «Apply» to connect the vendor with the company code.

## Business Partner as Vendor

Go to the Tab ‘Roles’ and choose «Create». Create the role ‘FLVN01’ (Vendor Purchase) for your Business Partner.

Select the tab ‘Purchasing Organizations’ and choose for «Create»::

<i>Purch. organization</i>	<i>DE00 ( Global Bike Germany)</i>
<i>Purchasing group</i>	<i>E00 (Europe)</i>

After «Enter» at the tab ‘Purchasing Organizations’ and the area ‘Conditions’ enter the order currency EUR and as payment terms again 0003. Scroll to the right and enter a check mark at ‘Automatic Purchase Order’. Give «Apply» the role Vendor Purchase, give «Apply» again and finally «Create» this Business Partner.

Write down the number for this vendor.

### 11.3 POST THE INVOICE

An invoice is received from the vendor you just created. The total invoice amount is € 250 relating to a notification that has been received regarding advice on the color scheme of a bicycle. Often invoice postings are related to purchase orders. This invoice will be posted directly into accounts payable in space ‘Financial Accounting’ via:



You work for company DE00 (Global Bike Germany GmbH). If necessary change the company code with «Company Code».

The vendor is the vendor you created with name Supplier <your name>. You can find the vendor with and search the vendor at ‘Invoicing Party’ by the search term <your name>. Double click on the supplier you just created.

For the Invoice date and Posting date enter the current date. It is sufficient, instead of entering 24.05.2022, to enter 240522 or use «F4» (Entry options). Give «Enter».

Enter the amount 250. For the currency select EUR. This amount is including tax. In area ‘Tax’ you can activate to calculate tax . Enter V1 (19% domestic input tax) as the tax code. The document header text (Text) is ‘Consultancy and advertisement ???’.

Make sure at the ‘Payment’ tab that the payment term is 0003, the rest of the payment conditions will be completed automatically.

The offsetting G/L accounts are entered as ‘Items’. Enter account 5900??? as the general ledger account. Double click on the line. Enter €100 as amount (Amount in doc.curr.), Cost Center EUMK1000 (Marketing Costs) and the text for this item is ‘Consultancy ???’.

Go with  «Back» to the overview.

Create a second item for advertisements cost. The general ledger account for these costs is 6600000 (Advertising Expenses). Double click on the line item. Enter €150 as amount, the Cost Center EUSA1000 (Sales Costs) and the text ‘Advertisement ???’ for this item. Return with «Back» to the overview.

Click on the tab ‘Details’ and add the Header Text ‘Consult. and advert. ???’.

The posting can be simulated, click the «Simulate» button. A warning can be ignored with «Enter». This list contains the ledger accounts to be posted. By double clicking on the vendor number, the general ledger account (3300000) 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».

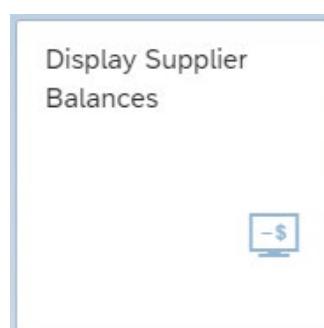
The account balances and can be saved, click on «Post» . Do not use the button «Park» or «Complete», the invoice will not be posted, but will appear in the mailbox of another employee to approve the invoice. Write down the number in the C-Business diagram.

The system expects the entry of a new invoice for posting. Leaving this screen is therefore only possible using «Home»  and ,when asked click ‘OK’ to the question whether you really want to leave.

## 11.4 MONITORING THE ACCOUNTS PAYABLE

With accounts payable monitoring you can check whether all accounts are paid on time.

Select in space ‘Financial Accounting’:



Enter the vendor number you created with name Supplier <your name> or just type <your name>. You can find the vendor with  and search the vendor at the tab ‘Suppliers (General) by the search term <your name>. The Company Code is DE00 and the Fiscal Year is the <Current Year>. The balance is displayed with «Go».

Click on an amount (for instance the amount entered in the previous paragraph) in the line covering the current period (month).

Click on the blue number in the column Journal Entry and again on the number. The details from the item are displayed. With «Back to Journal Entry» the overview with all line items are listed.

## 11.5 PAYMENT TO A VENDOR

Post the outgoing payment from the Bank (ledger number 1800000) with a deduction of 3% cash discount. Use in space ‘Financial Accounting’:



The company code is DE00. For the Posting Date, Journal Entry Date and Value Date enter today’s date. The Bank Data G/L account requested is 1800000. The amount €242,50 (€250 minus 3% discount). The currency is EUR. Open items selection with Account type ‘Supplier’ and for Account ID enter <your name> and double click on the right supplier. With «Show items» the open items for this supplier are displayed.

Select the open item to be cleared with «Clear >>».

Check the balance at the right top of the screen. It should be zero in green. Check the discount with «Simulate». «Post» the payment. Make a note of the posting number in the C-Business diagram.

Verify the posting by displaying the vendor account balance as done in the previous paragraph!

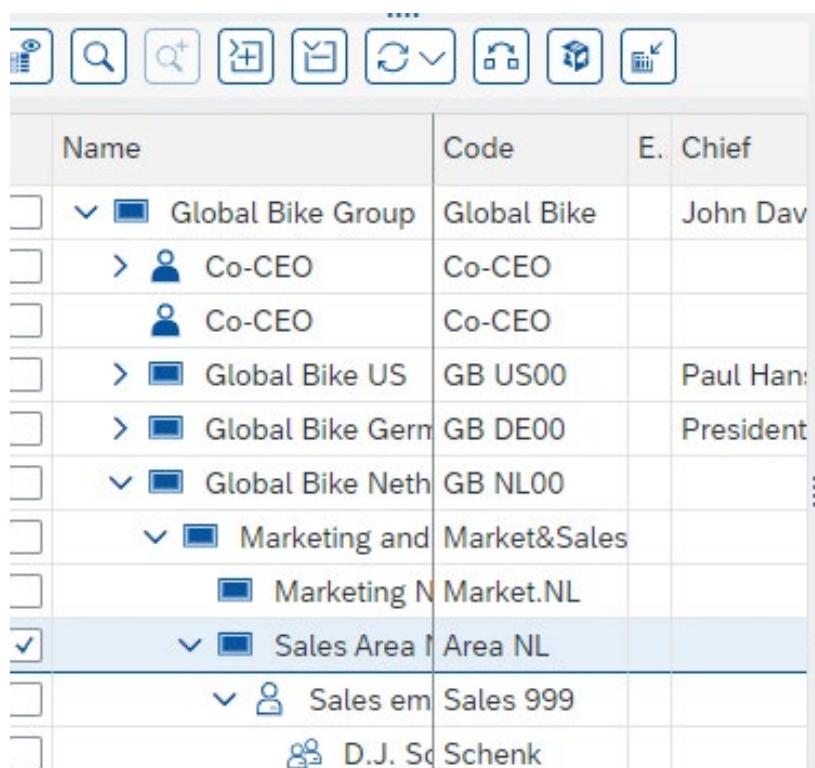
# 12 HUMAN RESOURCES

You create a position for a sales employee. 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 ‘International Business’.



The screenshot shows a hierarchical list of organizational units and positions in SAP. The top row contains icons for search, refresh, and other functions. Below is a table with columns: Name, Code, and E. Chief. The data is as follows:

Name	Code	E. Chief
Global Bike Group	Global Bike	John Dav
Co-CEO	Co-CEO	
Co-CEO	Co-CEO	
Global Bike US	GB US00	Paul Han
Global Bike Germ	GB DE00	President
Global Bike Neth	GB NL00	
Marketing and	Market&Sales	
Marketing N	Market.NL	
Sales Area	Area NL	
Sales em	Sales 999	
D.J. Schenk		

**Figure 12.1 Position**

Create a new position for a sales employee in space ‘Human Capital Management’ via:



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

Click in the lower left window on before 'Global Bike Group' to display the structure of the company. Next open with 'Global Bike Netherlands'. Next 'Marketing and Sales'. Finally double click on 'Sales Area NL'.

Check with in the right window if 'Staff Assignments (structure)' is selected.

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

Click on the department 'Sales Area NL' in the upper right window, to work with this object. With the button «Create» a pop-up window 'Choose relationship' appears. Choose 'Incorporates position'. In case the message 'Sales Area NL is locked by...' appears, 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 'Sales???' and next to it add a long description 'Sales employee ???'.

Position:

«Save» the position and write down the number (ID), without the 'S', for this position. Sometimes you have to scroll in the upper right window to find your 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 in space 'Human Capital Management' via:



In this screen fill under 'From' the current date (leave the personnel number blank).

Select the action 'Hiring' and:

<i>Personnel area</i>	<i>NL00</i>	<i>(GBI Amsterdam)</i>
<i>EE group</i>	<i>1</i>	<i>(Active)</i>
<i>EE subgroup</i>	<i>NB</i>	<i>(Monthly employee)</i>

Click on the «Execute».

In the following screen enter at 'Start' todays date. Enter the number (ID) of the position you created in the previous section as 'Position' (can be searched by the search term '\*???''). «Save» these data. Read the information and «Continue(Enter)».

The next screen is the 'Personal data' screen. Enter your title, last (birth) name, initials and first name.

The 'CSN [BSN]' must be a 9-digit number, you can find one on [www.testnummers.nl](http://www.testnummers.nl) or type a number and change the last digit to get an allowed BSN-number.

Enter a 'Birth date' and give your 'Nationality'. 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 if the position field is filled. «Save» the input. If a warning pops up about the payroll, it can be ignored with «Enter». A pop-up menu appears with 'Delimit vacancy', enter the current date. Confirm the delimitation with «Yes (Enter)».

The address type is 'Permanent residence' and enter an address in The Netherlands and «Save»

There is no need for any changes into the ‘Planned working time’ screen and you can have it checked by pressing «Enter». If a warning pops up about the payroll, it can be ignored with «Enter». «Save» the planned working time.

The ‘Basic Pay’ screen depends on the position you have chosen. At pay scale:

<i>Type</i>	<i>10</i>	<i>(Bedrijfs-CAO)</i>
<i>Area</i>	<i>10</i>	<i>(Nederland)</i>
<i>Group</i>		<i>L02</i>
<i>Level</i>		<i>1</i>

The amount is found with «Enter». If a warning pops up about the payroll, it can be ignored with «Enter». «Save» the ‘Basic Pay’.

The bank details need to be entered:

<i>City</i>	<i>&lt;your residence&gt;</i>
<i>Bank Country</i>	<i>Netherlands</i>
<i>Bank Key</i>	<i>ING</i>
<i>Bank Account</i>	<i>???</i>

If a warning pops up about the payroll, it can be ignored with «Enter». «Save» the bank details.

There is no need for any changes into the ‘Fiscal Data NL’ screen and you can have it checked by pressing «Enter» and then «Save» it.

At the ‘Social Insurance NL’ screen enter:

<i>Contract type</i>	<i>21 (Unlimited)</i>
<i>Written Contract</i>	<i>Yes</i>
<i>Stand-By Contract</i>	<i>No</i>
<i>Annualized Hours</i>	<i>Yes</i>

Check by pressing «Enter», ignore the message about the legal person and then «Save» it.

There is no need for any changes into the ‘Pensions NL’ screen and you can have it checked by pressing «Enter», ignore the message and then «Save» it.

In the ‘Contract Elements’ screen, the payment period from beginning of illness should be changed to ‘Continued Pay’ 1 year and no ‘Sick Pay Supplement’. In this infotype the probationary period is created, as well as the ER (EmployeR) and EE (EmployeE) notice period. Check the data with «Enter» and then «Save» it.

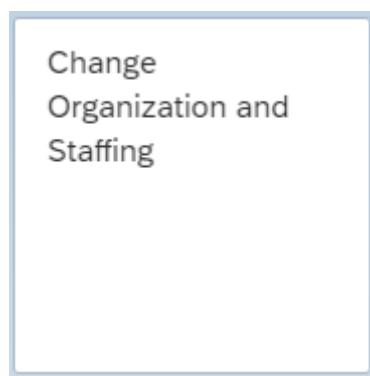
Since you entered a probationary period, an evaluation of this period should be planned. Check the ‘Monitoring of Tasks’ with «Enter» and then «Save» it.

The ‘Leave Entitlement’ will be a proportional part of the 25 days per year, since the employee is not hired on January 1<sup>st</sup>. Confirm with «Enter» and «Save».

The ‘CBS NL’ can be checked «Enter» and then «Save» it.

Finally the ‘Wage Return’: change the ‘CAO Code’ to 487 (Metalekro v/h metaal- en elektrotechn. industrie) and the ‘F&S Phase Cat. Code’ must be blank. Confirm with «Enter» and «Save».

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



Open the same windows as in 12.1. 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:



In case the 'Personnel no.' is blank, find the employee you created by last name.  
Give «Enter».

The created infotypes are marked with a green checkmark. These can be changed with  
«More» and 'HR master data' -> 'Maintain'.

You can «Change» an infotype and missing infotypes be created with «Create».

# 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 S/4 it is possible to manage the inventory with or without warehouse management. To illustrate this, the frames and wheels are using the full warehouse functionality.

### 13.1.1 SPECIAL BICYCLE

Go to the screen for setting up a material, a special bicycle, use in space ‘Materials Management’ the app:



The material (code) that needs to be entered is SB???. Once you are in the ‘Industry sector’ box, scroll to ‘Mechanical engineering’. The material type is ‘**Finished Product**’.

Click «Continue (Enter)». 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
- General Plant Data/Storage 1
- General Plant Data/Storage 2
- Warehouse Management 1
- Warehouse Management 2
- Accounting 1
- Accounting 2
- Costing 1
- Costing 2.

Finally select  Create views selected

Click on the «Continue (Enter)» hdbutton. This opens the ‘Organizational levels’ screen.

Enter the following:

<i>Plant</i>	<i>HD00</i>
<i>Stor. Location</i>	<i>FG00</i>
<i>Sales org.</i>	<i>DN00</i>
<i>Distr. channel</i>	<i>WH</i>
<i>Warehouse No.</i>	<i>200</i>
<i>Storage Type</i>	<i>001</i>

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.

### **Basic data 1**

Make up your own ‘Descr’ (Description) in the field under the material, to make clear this bicycle is created by you.

<i>Basic unit of measure</i>	<i>PC</i>
<i>Gross weight</i>	<i>22</i>
<i>Weight unit</i>	<i>KG</i>
<i>Net weight</i>	<i>20</i>

Go to the next tab with «Enter».

### **Basic data 2**

No data need to be entered in the ‘Basic data 2’ screen. Go to the next tab with «Enter».

The sales data is determined according to the sales channel.

### **Sales: Sales org. 1 data**

<i>Division</i>	<i>BI</i>	<i>(Bicycles)</i>
<i>Delivering Plant</i>	<i>HD00</i>	
<i>T...(Tax classification)</i>	<i>1</i>	<i>(Full tax)</i>

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,-.

<i>from'</i>	1 PC	1045 EUR	1 PC
	5	995	

Return with «Back»  to ‘Sales org Data.1 data’. Go to the next tab with «Enter» or clicking on the next chosen tab  (this is not repeated at each view).

### **Sales: Sales org. 2 data**

<i>Material Price Grp</i>	1	<i>(Normal)</i>
<i>Acct Assmt Grp Mat.</i>	03	<i>(Finished Products)</i>

Go to the next tab with «Enter».

### **Sales: general/plant**

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

<i>Availability check</i>	01	<i>(Daily requirements)</i>
<i>Trans. Grp</i>	0001	<i>(On palettes)</i>
<i>LoadingGrp</i>	0002	<i>(Hand lift)</i>

Go to the next tab with «Enter».

### **Sales text**

This is the text that will be on the invoice 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. Click outside the textbox and go to the next tab with «Enter».

**MRP 1**

<i>MRP type</i>	<i>PD</i>
<i>MRP controller</i>	<i>000</i>
<i>Lot Sizing Procedure</i>	<i>TB</i>

Go to the next tab with «Enter».

**MRP 2**

<i>In-house production</i>	<i>&lt;blank&gt;</i>
<i>Sched.Margin key</i>	<i>001</i>

Ignore the warning by pressing «Enter». Go to the next tab with «Enter».

**MRP 3**

<i>Strategy group</i>	<i>20 (Make-to-order production)</i>
-----------------------	--------------------------------------

Go to the next tab with «Enter».

**MRP 4, Work scheduling, Plant Data/Storage 1 & 2 and Warehouse management 1 & 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 **each** of these six screens, which the system confirms by . Views that have not yet been checked can be recognized by . The activation of the views ‘Plant data/storage 1/2’ and ‘Warehouse management 1/2’ has the implication that your material can be stored in storage location FG00 and warehouse 200 with storage type 001 in plant HD00.

## Accounting 1

<i>Valuation class</i>	7920
<i>Standard price</i>	500
<i>Prc. Ctrl.</i>	S

The stock valuation of the finished product is based on a standard price of €500 (ignore the warning about local currency). Go to the next tab with «Enter».

## Accounting 2

No data need to be entered in view ‘Accounting 2’. Go to the next tab with «Enter».

## Costing 1

Activate with a checkmark the material is costed with quantity structure.  With Qty Structure:  . Go to the next tab with «Enter».

## Costing 2

No data need to be entered in view ‘Costing 2’. Give «Enter» to create it .

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

### 13.1.2 FRAME

Create a material, a special frame, via the app in space ‘Materials Management’:



The material code to be entered is FR??? and again the industry sector is ‘Mechanical engineering’. The material type is ‘**Raw materials**’.

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**
- **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**
- **Costing 1**
- **Costing 2.**

Finally select  **Create views selected**

Click on the «Continue (Enter)» button. This opens the ‘Organizational levels’ screen.

The following must be entered here:

<i>Plant</i>	<i>HD00</i>
<i>Stor. Location</i>	<i>RM00</i>
<i>Whse. number</i>	<i>200</i>
<i>Storage type</i>	<i>001</i>

Press «Continue (Enter)».

### Basic data 1

Make up the English Descr. (Description) of the material so that it is clear that you have set up this frame.

<i>Basic unit measure</i>	<i>PC (Piece(s))</i>
<i>Material group</i>	<i>RAW</i>
<i>Gross weight</i>	<i>7</i>
<i>Weight unit</i>	<i>KG</i>
<i>Net weight</i>	<i>7</i>

Go to the next tab with «Enter».

### Basic data 2

No data need to be entered in the ‘Basic data 2’ screen. Go to the next tab with «Enter».

### Purchasing

<i>Purchasing group</i>	<i>E00</i>
<i>Autom. PO</i>	<input checked="" type="checkbox"/> ( <i>Automatic purchase order on</i> )

Go to the next tab with «Enter».

**Purchase order text**

Think up a suitable text for yourself, as you did with the sales text. Click outside the text area and go to the next tab with «Enter».

**MRP 1**

<i>MRP type</i>	<i>VM (Automatic reorder point planning)</i>
<i>MRP controller</i>	<i>000</i>
<i>Lot Sizing Proc.</i>	<i>TB</i>

Go to the next tab with «Enter» and ignore the warning with «Enter».

**MRP 2**

<i>Plnd. delivery time</i>	<i>1 day</i>
<i>Sched. Margin key</i>	<i>001</i>

Go to the next tab with «Enter».

**MRP 3**

<i>Availability check</i>	<i>01</i>
---------------------------	-----------

Go to the next tab with «Enter».

**MRP 4**

No input is needed in the ‘MRP 4’ screen. Go to the next tab with «Enter».

## Forecasting

*Forecast model*      *D*

Go to the next tab with «Enter».

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

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*      *STBN-1-???*

Go to the next tab with «Enter».

## Accounting 1

<i>Valuation class</i>	<i>3000</i>
<i>Per. unit price</i>	<i>100</i>
<i>Price control</i>	<i>V</i>

The stock valuation is based on a moving average price. Go to the next tab with «Enter».

A message can be ignored with «Enter».

## Accounting 2, Costing 1 and 2

No data need to be entered in views ‘Accounting 2’, ‘Costing 1’ and ‘Costing 2’. Give «Enter» at each view to create it.

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

### 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.

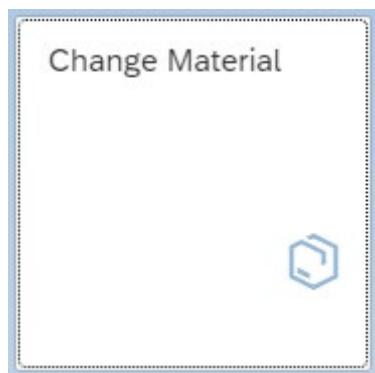
Enter the same organizational data as for the frame. All the other data are the same as for the frame, with the exception of the description and the weight of the wheel 1 kg in **Basic Data 1**. In **Warehouse Management 2** the bin for the wheels is STBN-2-???. In **Accounting 1** the moving average price, Price Control ‘V’, has Per. Unit Price 45,00.

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



You have to create the 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 of which another material is made. A bill of material may consist of a number of different levels. A bicycle has 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 part of the space ‘Production Planning and Execution’:



To create a new BOM click on «Create BOM».

In the popup window type as the material, enter the number of the whole bicycle SB???. The plant is HD00 and ‘BOM Usage’ is 1. Press «OK».

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

The Item category is ‘L(Stock item)’. Enter the already created numbers of the frame (FR???) and the wheel (WL???) as components. Enter the ‘Component Quantity’, 1 (displayed as 1,000) PC frame and 2 PC wheels per bicycle. «Create» this bill of material.

## 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 with the app in space ‘Controlling’:



Select ‘Controlling Area’ EU00 and list the activity types with «Go».

Select activity type ‘*LABOR*’ and use «Copy».

Enter for:

<i>Activity type</i>	<i>LB???</i>
<i>Valid from</i>	<i>01.01.[current year]</i>
<i>Name</i>	<i>Labor hours ??</i>
<i>Description</i>	<i>Labor hours ??</i>

Check the tab ‘Allocation’ that cost element 8000000 is allocated.

«Create» the activity type (ignore the message: Activity type deleted).

## Machine hours

Create the activity type machine hours with:



Select ‘Controlling Area’ EU00, ‘Activity Type’ MLABOR and list the activity types with «Go».

Select activity type ‘MLABOR’ and use «Copy».

Enter for:

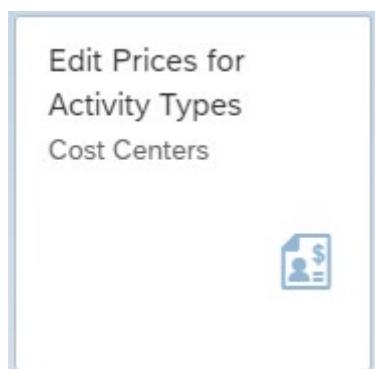
<i>Activity type</i>	<i>MC???</i>
<i>Valid from</i>	<i>01.01.[current year]</i>
<i>Name</i>	Machine hours ???
<i>Description</i>	Machine hours ???

Check the tab ‘Allocation’ that cost element 8004000 is allocated.

«Create» the activity type.

## Prices

Enter the prices for these activity types with:



When you get a pop-up: the ‘Controlling Area’ is EU00. Save this as «Save as User Parameters».

<i>Version</i>	0
<i>From period</i>	1
<i>To period</i>	12
<i>Fiscal year</i>	[current year]
<i>Cost center</i>	EUPR1000
<i>Activity type</i>	LB???

Click on «Overview screen». Enter the ‘Variable Price’ 60,00. «Post» the data.

Repeat this step for Activity type MC??? with a ‘Variable Price’ 697,00. «Post» 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 in space ‘Production Planning and Execution’ using:



The plant is HD00, the work center is WC??? and the work center category is 0003 (Labor).

Copy from plant HD00 and Ref. work center ASSY1000.

After pressing «Next screen» select:

- **Basic Data**
- **Texts**
- **Classification**

- **Subsystem Grouping**
- **Default Values**
- **Capacities**
- **Scheduling**
- **Costing**

Click on «Copy (Enter)».

You start in the Tab ‘Technology’. Enter in area ‘Technical data’:

*Machine Type 0003 (Assembly)*

*Sort string*                            0003

*CAPP planner group*                000

Ignore the warning. Go to Tab ‘Basic Data’. Change the description of the work center to ‘HD Assembly ???’.

Select the tab ‘Capacities’ tab and check that the ‘Capacity category’ is 002 (Person).

At the tab ‘Costing’ adjust the start date to 01.01.<current year>. Check if ‘Cost center’ EUPR1000 (Production costs) is set. Enter in the ‘Activities Overview’:

	<i>Activity type</i>	<i>Activity Unit</i>	<i>Formula</i>
<i>Setup</i>	<Blank>		
<i>Machine</i>	MC???	Min	SAP002
<i>Labor</i>	LB???	Min	SAP003

« Save » this work center.

## 13.5 ROUTING

The routing, the operations to be followed in order to assemble the bicycle, are specified in space ‘Production Planning and Execution’ by choosing:



The material is the number of the bicycle SB???. Enter the plant HD00.

After pressing «Continue (Enter)» the ‘Create Routing: Header Details’ screen is shown.

<i>Usage</i>	<i>I</i>	<i>(Production)</i>
<i>Overall Status</i>	<i>4</i>	<i>(Released (general))</i>

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

Double click on operation line 0010 and enter:

	<i>Std value</i>	<i>Un</i>	<i>Act. Type</i>
<i>Machine</i>	<i>20</i>	<i>Min</i>	<i>MC???</i>
<i>Labor</i>	<i>40</i>	<i>Min</i>	<i>LB???</i>

Finally, after allocating the components with the «Allocation» (Component Allocation) 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 «Back»).

«Save» the routing and note the group number.

## 13.6 PRODUCTION VERSION

Allocate the Routing and the Bill of Materials to the finished product. Sometimes the routing depends on the production lot size, i.e. production quantity. Use in space Materials Management:



Enter the finished product SB??? and «Continue (Enter)». Select the view MRP 4 and «Continue (Enter)». Use the plant HD00 and again «Continue (Enter)».

Click on the button ProdVersions. In the first line create version V??? with text 'Production version SB??? up to 4000 pc'. Valid from <Today> and valid to 31.12.<current year>.

Choose «Details».

<i>Minimum Lot Size</i>	1
<i>Maximum Lot Size</i>	4000
<i>Detailed planning Task List Type</i>	Routing
<i>Detailed planning Group</i>	<number from paragraph 13.5> Search using material
<i>Bill of material</i>	
<i>Alternative BOM</i>	1
<i>BOM Usage</i>	1

Check this with Check. Use «Cancel (Escape) to return to the Production Version Details. Two green lights must appear for the planning data and the bill of material. Now «Continue (Enter)» twice to return to the MRP 4 tab. Finally «Save» the changes made for this material.

### 13.7 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 info record, use in space ‘Materials Management’:



Click on «Create».

<i>Purchasing Info Record Category</i>	<i>Standard</i>
<i>Supplier</i>	<i>Supplier &lt;your name&gt;</i>
<i>Material</i>	<i>FR???</i>
<i>Purchasing Org.</i>	<i>DE00</i>
<i>Plant</i>	<i>HD00</i>
<i>Purchasing Group</i>	<i>E00</i>

Press «Enter».

At tab ‘Purchasing Data’ enter the planned delivery time as 1 day and the standard quantity is 1 piece.

At tab ‘Conditions’ use «Create» to enter the net price as € 99. «Apply» this condition. «Create» the info record.

Also create a second info record for the same supplier <your name> and wheel WL???. The standard quantity is 2. The net price for one wheel is € 44.

*All master data has been created and you can make a start on the complete ERP process!*

# 14 COMPLETE ERP PROCESS

In this chapter you carry out a make-to-order production 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 quotation for 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 accepts the quotation and the quotation can be transferred into a sales order. The logistics control department plans production and purchasing requirements with an 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 raw 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.

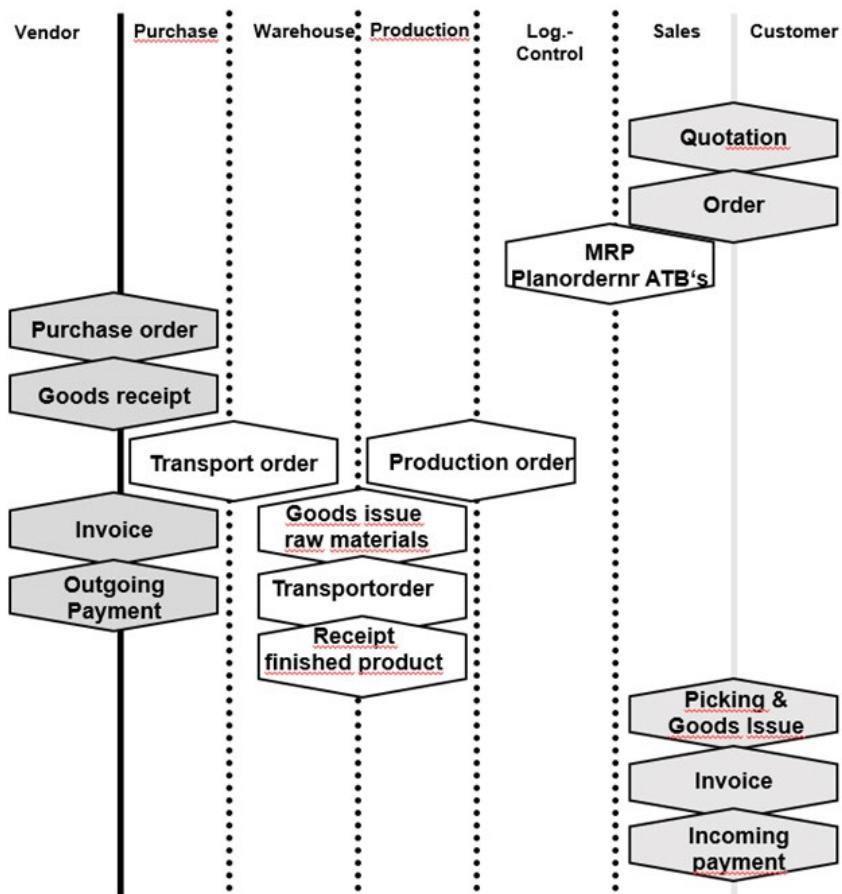


Figure 14.1 C-Business logistics diagram

## 14.3 CREATE A QUOTATION FOR A CUSTOMER

In space ‘Sales and Distribution’ use the app (the number indicates the quantity quotations in the system):



Click on «Create Quotation».

The quotation type is ‘QT’. Press «Continue (Enter)» to see the overview screen to create a quotation.

The Sold-to party is the customer you created with name Bikeshop <your name>. You can find the customer with  and search the customer at the tab ‘Customers (General)’ by the search term <your name>.

In tab ‘Item Overview’ the ‘Valid from’ and ‘Valid to’ fields must be set at the current date and the current date plus one week respectively.

The customer requests a quotation for ‘Material’ SB??? and an ‘Order Quantity’ of 5 bicycles.

Check the quotation by pressing «Enter».

Make sure the quotation is complete. Select , next ‘Edit’ and finally ‘Incompletion log’. If data are missing, select Plant. Press «Complete Data». The plant is ‘HD00’. After pressing «Enter» the shipping point is added. Choose «Edit Next Data». You return to the quotation overview and at the information at the bottom of the screen the message ‘Document is complete’ should appear.

«Save» the quotation. Note the number of the sales quotation in the scenario at the beginning of this chapter.

## 14.4 CREATE A CUSTOMER ORDER

If the customer accepts our quotation, it can be converted into an order:



Select «Create Sales Order-VA01».

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». Enter the quotation number.

The quotation number can be retrieved by 'Sales documents by customer' entering in the 'Search criteria' your customer. You can find the customer with  and search the customer at the tab 'Customers (General)' by the search term <your name>. With «Search» the quotations of the customer are listed. Select the quotation.

Give «Copy». Enter a random number as Cust. Reference. This would be the purchase order number that comes from the customer's purchase system. The Cust.Ref.Date is the current date.

Double click on the first item (for example on the order quantity 5) to see the details for this item. Choose the tab 'Shipping'. Check and complete by adding the 'Storage Location':

<i>Plant</i>	<i>HD00</i>
<i>Shipping point</i>	<i>HD00</i>
<i>Stor. Loc.</i>	<i>FG00</i>

If all the data are correct you can «Save» the order. Note of the sales order number in the C-Business diagram.

## 14.5 THE STOCK/REQUIREMENTS LIST

Open in a new tab in your browser and start S/4 GBI in that tab as well. Select from the space 'Production Planning and Execution':



Enter the material number of the bicycle SB??? and plant HD00. Press «Continue (Enter)».

The ‘Stock’ is zero. This is a sales order driven process, because in the bicycle master data view MRP 3 the strategy group 20 (Make-to-order production) was chosen. The system will check the specific ‘CustSt’ (Customer stock), that is registered under the quotation number. The ‘CusOrd’ (Customer order) creates a shortage of 5 bicycles. Check the document numbers and the quantity.

Once you have studied the list, switch to the other tab in your browser to continue with the next paragraph. Return to this monitor after every paragraph so that you can understand the consequences. The consequences become visible after «Refresh».

## 14.6 REQUIREMENTS PLANNING (MRP)

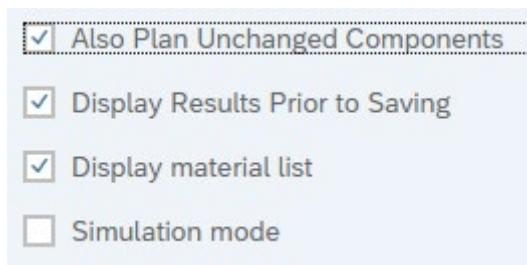
The customer order has been entered. There is a requirement for five bicycles. These still have to be assembled. The components, the frame and the wheels, need to be purchased. When the MRP run is carried out the requirements for five frames and ten wheels are generated, based on the bill of materials.

Execute this MRP planning in the space ‘Production Planning and Execution’:



Enter the bicycle number SB??? and plant HD00.

<i>Processing Key</i>	<i>NETCH</i>	<i>Net Change in Total Horizon</i>
<i>Create purchase req.</i>	<i>1</i>	<i>Purchase requisitions</i>
<i>SA Deliv. Sched. Lines.</i>	<i>3</i>	<i>Schedule lines</i>
<i>Create MRP List</i>	<i>1</i>	<i>MRP List</i>
<i>Planning mode</i>	<i>1</i>	<i>Adapt planning data (normal mode)</i>
<i>Scheduling</i>	<i>1</i>	<i>Determination of Basic Date for planned</i>



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

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 planned order will be converted into a production order. «Save and continue» the planning.

Select ‘Save and continue’ , select the option ‘ 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. The result for the bicycle SB??? was already displayed. Next double click the frame FR??? and the wheel WL???. The ‘DepReq’ (Dependent Requirement) is caused by bicycle SB???. Check the quantities. Write down the ‘PurRqs’ (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.

You can see the changes in the requirements/stock list (see 14.5) in the other tab in your browser as result of the MRP-run after «Refresh».

## 14.7 CREATE A PURCHASE ORDER FOR THE SUPPLIER

The purchase requisition is created by the logistic planning department. The purchase requisition will be sourced and next converted into an purchase order by the purchase department.

Choose in the space ‘Material Management’:



Enter in the field Search ‘\*????’ and «Go» to retrieve both your frames and wheels.

Click in the column ‘Assigned Supplier’ on the text ‘1 Sources’ (in case you see no source, create an info record as described in the previous chapter). Choose the supplier by check-marking the radio button  in front of the right info record. Do this for both frames and wheels. The number of the supplier should be visible now for both purchase requisitions.

The next step is to select  both sourced purchase requisitions and «Create Purchase Order» for both since they have the same supplier. Ignore the warning.

The purchase order type is ‘Standard PO’. «Save» the purchase order and note the purchase order number in the C-Business diagram. Ignore the warning again.

Go «Back» to the screen to manage the purchase requisitions and check that the processing status has changed to ‘PO created’. The consequences can be monitored with the stock/requirement list (change the ‘Material’ to FR??? or WL???), see paragraph 14.5.

## 14.8 GOODS RECEIPT FROM A SUPPLIER

Post the goods receipt in the space ‘Production Planning and Execution’:



Choose 'Goods Receipt' and 'Purchase Order'. Enter the purchase order number in the field next on the right of the 'Purchase order' field.

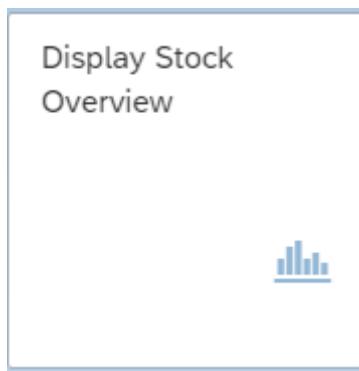
In case you did not note the number, the purchase order can be found with  , choose the tab ' Purchasing documents per Supplier' and enter the number of the vendor (or search for the number). «Find» and double click the right PO number.

Give «Enter» to display the purchase order.

«Close Detail Data» with  halfway down on the left side in the main screen. Enter for both lines the Storage Location RM00 (Raw Materials). Select OK for both items, do a «Check» and «Post» the receipt of the goods. Write down the goods receipt number in the C-Business diagram.

## 14.9 TRANSFER ORDER GOODS RECEIPT TO PERMANENT STORAGE

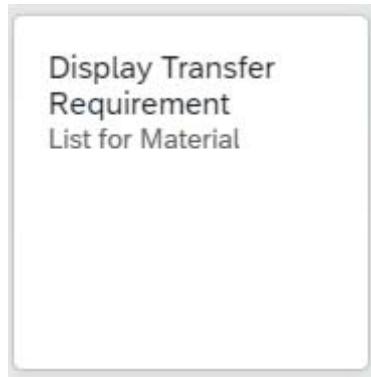
The goods have been received in a goods receipt area and must be transported to a particular location in the warehouse. The location for these can be seen by choosing in space 'Warehouse Management':



Enter a material (the frame FR??? or a wheel WL???) . The plant is 'HD00'. At the Stock Type Selection choose **Also Select Special Stocks:**  . Press «Execute» and Check the quantities. Right-click on the quantity and select 'WM Stocks' or use «More» and Environment > WM Stocks.

The material just arrived and was received in storage type 003 (GR Area External Receipts).

Create in another tab in your browser a transport order for the incoming goods to the high rack storage in the warehouse using in space 'Warehouse Management':



<i>Warehouse number</i>	200
<i>Material</i>	FR???
<i>Plant</i>	HD00
<i>Stor. Location</i>	RM00

Press «Enter». Select the transfer requirement created by the receipt of the goods. The transfer requirement is converted into a transfer order using the «TO in foreground».

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 (Shelf storage), the Sec (Section) is 001 and the 'Destination bin' is STBN-1-???. Save the transfer order with «Posting». Note the number of the transfer order in the C-Business diagram.

Take a look in the other tab at the consequence of this action. If necessary click on «Refresh». Notice that the five frames are still located in area 003 (GR Area), as a picking quantity and to be stored in 001 (Shelf Storage).

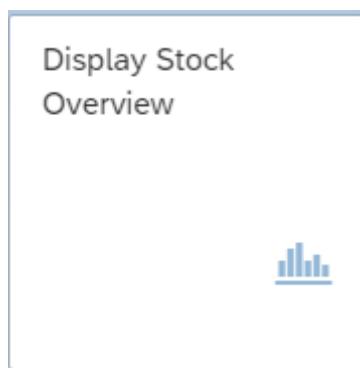
Confirm the transfer order by choosing in space 'Warehouse Management':



Enter the number of the transfer order and the warehouse number 200.

Select 'Open TO items' Press «Enter». Check the data and save the confirmation with «Posting».

Check the stock overview with:



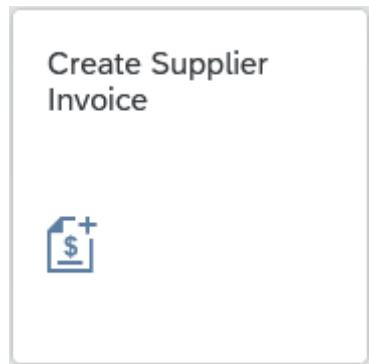
The same procedure must be carried out for the wheels, with the difference that the wheels are to be stored at location STBN-2-???. Note the transfer order in the C-Business diagram.

Are both FR??? and WL??? In the high rack storage? Check with 'Display Stock Overview'.

**Did you confirm both transfer orders?**

## 14.10 RECEIPT OF THE INVOICE FROM THE SUPPLIER

The app for posting the receipt of the invoices is in space 'Materials Management':



The company code is DE00. Enter the current date as the invoice date and as the posting date. Invoicing party is your vendor ( search with search term <your name>. At 'Gross Invoice Amount' enter €1112,65 and the currency EUR in the field next to the amount.

At Tab ' Purchasing Document References':

Reference Document Category:	Purchase Order/Scheduling Agreement	Purchase Order/Scheduling Agreement:			
Invoice Items Standard ▾					
<input type="checkbox"/> Invoice Item	Short Text	Purchasing Document Item	Amount	Quantity	Tax Code

Enter the purchase order number. (If you don't know the PO number, search for the order number in the middle of the screen. In the 'Selections for the Purchasing Document' screen enter at 'Search' the vendor number that is listed on the left upper part in blue as invoicing party. Give «Go» and select  the number of the purchase order and click on «OK»).

Press «Enter» and the purchase order details appear on the screen.

In the 'Payment' tab, enter the current date as the 'Baseline date' and 0003 as the payment conditions. Use «Simulate» to obtain an overview of the posting.

Calculate and write down the amount to be paid to the vendor, taking in account the cash discount of 3%.

«Post» the invoice and note the number in the C-Business diagram. You do not want to create a new supplier invoice.

## 14.11 PAYMENT OF THE SUPPLIER'S INVOICE

The outgoing payment by the bank is done. Post the outgoing payment from the Deutsche Bank (ledger number 100000) with a deduction of 3% cash discount. Use in space ‘Financial Accounting’:



The company code is DE00. For the Posting Date and Journal Entry Date enter today's date. The G/L account requested is 1800000 (Bank). The amount was written down in the previous paragraph. Open items selection with Account type 'Supplier' and for Account ID enter <your name> and click on the right supplier. With «Show items» the open items for this supplier are displayed.

Select the open item to be cleared with «Clear >> ».

Check the balance at the right top of the screen. It should be zero in green. Check the discount. «Simulate» the posting and when everything looks fine «Post» the payment. Make a note of the posting number in the C-Business diagram.

## 14.12 PRODUCTION ORDER

The planned order was created by the MRP run. This planned order must be converted into a production order. From the space ‘Production Planning and Execution’ use:



Enter as material the number of the bicycle SB??? and plant HD00. Press «Enter».

Double click on the planned order (PldOrd) 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 end date into the current date.

Check the status of the production order with  and go «Back» to the previous screen.

Carry out the raw materials availability check using «Material». If the raw materials are not available for this order quantity, do not save the production order and check the stock/requirements list for these raw materials. Click on «Cost order»  so that 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 analyze the budgeted production costs with «More» and Goto > Costs > Analysis. Check instead of the variant ‘Analysis’ also the variants ‘Goto > Costs > Itemization’ and ‘Goto > Costs > Cost Component Split’.

Go «Back» to ‘Production order Create: Header’. «Release Order»  and check the status again with .

«Save» the production order and note the number of this production order in the C-Business diagram.

Go «Back» to the Stock/Requirements List and «Refresh». The planned order is converted into a production order.

## 14.13 ISSUE OF RAW MATERIALS TO PRODUCTION

The frames and wheels are to be taken out of the warehouse and used by production. From the space ‘Production Planning and Execution’ use:



A07 Goods Issue      R08 Order     

The production order can be retrieved with the Stock/Requirements List in a other tab in your browser. Press «Enter».

If there is a message that goods movements are not allowed for this order you must change the status of the production order. Change the order by selecting it in the Stock/Requirements List, «Change Element» and release the order (see last paragraph) and save it.

«Close Detail Data» . Enter for both raw materials OK  and the storage location (SLoc) RM00. «Post» the issue of goods and note the document number in the C-Business diagram.

## 14.14 TRANSFER RAW MATERIALS TO PRODUCTION

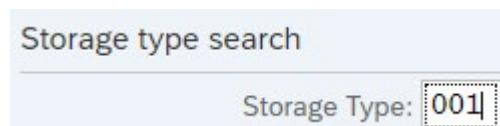
Create a transfer order for the goods to be issued from shelf storage using in space 'Warehouse Management':



<i>Warehouse number</i>	200
<i>Material</i>	FR???
<i>Plant</i>	HD00
<i>Stor. Location</i>	RM00

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

At ‘Quantities’ we can see the five frames that must be collected and an open quantity of five items. The Storage type search must be 001



By pressing the «Stock figures» button you see the available stock level.

(In case no stock is available, check the stock according to 14.9. A non-zero quantity as Pick quantity indicates you did not confirm the transfer order in 14.9).

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’ this transfer order is set so that the transfer order is confirmed directly. Confirm the entries with «Enter» and with «Posting» the transfer order is done. Note the number of the transfer order in the C-Business diagram.

**Repeat the same procedure for the wheels WL???.**

## 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. In space ‘Production Planning and Execution’:



Select «More» and Confirmation > Enter > For operation > Time Ticket.

Enter at 'Order' the production order number. Press «Actual Data» to check the production order data. Choose at 'Confirm.type' the 'Final confirmation'. In the section 'Quantities' at Yield put in 5 PC. 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 MIN (minutes) as machine time and 220 MIN for labor.

« Save» the confirmation.

## 14.16 GOODS RECEIPT FINISHED PRODUCT FROM PRODUCTION

The app for posting the goods receipt is in space 'Production Planning and Execution':



Choose 'Goods Receipt' and 'Order'. The order is the previously created production order and give «Enter».

At line 1 checkmark OK  and enter at SLoc FG00 so the storage location will be 'Finished Goods'.

«Check» and «Post» the goods receipt and note the number in the C-Business diagram.

Monitor the result in the Stock/Requirements list for SB??? in plant HD00.

## 14.17 CREATING A DELIVERY TO THE CUSTOMER

Now you have to create the delivery. Choose in space ‘Sales and Distribution’:



Give in  the name of your customer and press «Enter».

Click on at the end of the row with the sales order you are fulfilling and select  the item you are to deliver. With «Create Delivery». Confirm the pop up ‘Create Delivery’ with «OK».

With «Refresh» the number of the delivery is displayed. Note the number of the delivery.

Left below the screen «Process Flow» shows the current status of the order.

## 14.18 THE DOCUMENT FLOW AROUND THE SALES ORDER

If you want to have an overview of the document flow, choose in space ‘Sales and Distribution’:



The number shows the open orders.

Give in  the name of your customer and press «Enter».

Click on the blue ‘Overall Status’ of your order. The process with status is displayed. Return to the overview with «OK».

Click on  at the right of the order row to see the complete order.

By pressing the «Display document flow» 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 you, for example, have forgotten the number of the delivery, you can find it in this overview.

## 14.19 PICKING THE DELIVERY

The five bicycles have to be picked from the warehouse. Warehouse 100 is customized as a ‘lean warehouse’ Order picking is posted, but the storage locations and bins are not registered. To pick choose in space ‘Warehouse Management’:



Click «All Selections»  so that more selections are possible. The first Picking date should be the date the order was created or remove them. Scroll down to Material Data and enter as Material the bike SB???. With «Execute» the delivery to be picked is displayed.

Select  the delivery, choose , below in the screen, «TO in Foreground» and give «Enter». Select «Stock Figures» to see the available quantity. At ‘Selected quantity’ you enter the 5 bikes to pick. After «Posting» the picking is done and the delivery is green.

Note the number of the transfer order.

Confirm the transfer order:



Enter the number of the transfer order and the warehouse number 200.

Select ‘Open TO items’ Press «Enter». Check the data and save the confirmation with «Posting».

## 14.20 GOODS ISSUE DELIVERY TO THE CUSTOMER

To post the goods issue choose in space ‘Warehouse Management’:

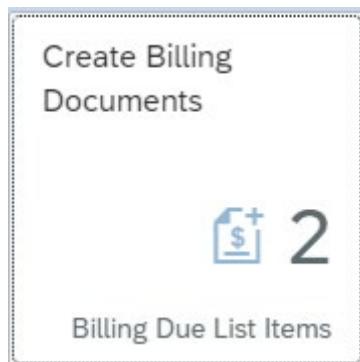


Give the delivery number (or find by ship to party / customer). After «Continue(Enter)» you can see on the tab picking that the five bicycles have been picked.

Go «Back» to the previous screen and «Post goods issue». The status of the delivery is changed. Check the order process as done in 14.18.

## 14.21 INVOICE THE CUSTOMER

Create the invoice for the customer by choosing in space ‘Sales and Distribution’:



The number shows the billing due deliveries.

Give in  the name of your customer and press «Enter».

The system indicates the delivery number due to be invoiced. Select  the delivery. «Create Billing Documents» the invoice and «Save» the invoice. The status is now ‘To Be Posted’. So «Post Billing Document». Write down the invoice number in the C-Business diagram.

The billing document can be shown in space ‘Sales and Distribution’ with:



Type the number of the invoice you just created and stay in this screen (don't press Enter).

With «Accounting» you will see the financial documents. If the journal entry has not yet been created, with «Release to Accounting» it will. If there are errors again, check the export data in your invoice.

It will be displayed with «More» and 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. Write down the amount the customer will pay in case he will pay today and takes the discount that is allowed.

## 14.22 INCOMING PAYMENT FROM THE CUSTOMER

The accounting department posts the incoming payment in space 'Financial Accounting':



You can post the receipt of payment of the invoice that has just been created.

### General Information

<i>Company Code</i>	<i>DE00</i>
<i>Posting Date</i>	<i>&lt;Today&gt;</i>
<i>Journal Entry Date</i>	<i>&lt;Today&gt;</i>
<i>Journal Entry Type</i>	<i>DZ (Customer Payment)</i>

### Bank Data

*G/L Account*      1800000 (Bank)  
*Amount*              <Amount noted previous paragraph> EUR

### Open Item Selection

*Account Type/Account ID*      Find  customer by search term <your name>

The open items are displayed with «Propose Items».

Top right on your screen the balance is displayed.

Choose the right item with   . The balance must be zero.

«Post» the incoming payment and note this last number of document in the C-Business diagram. Leave this payment with «Post next payment».

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

## 14.23 TRACKING AND TRACING

The material documents and the financial documents can be analyzed.

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

### 14.23.1 MATERIAL DOCUMENTS

The logistical material documents can be listed in space ‘Material Management’ via:



Make use of ‘Expand Header’

<i>Stock Change</i>	<i>All</i>
<i>Material document Year</i>	<i>&lt;This year&gt;</i>
<i>Material</i>	<i>SB??? and FR???</i>

The list is displayed with «Go».

Click on the document number to see the details.

Some material documents are financially posted as well. Click on a material document item to show the accounting document, by choosing the tab ‘General Information’ and scroll down to the ‘Process Flow’.

Write down in a list in Word or Excel the material document numbers and the numbers of the paragraph they were created.

Do the same for FR??? and WL???. Add the document numbers and the paragraph numbers in which they were created to the list.

### 14.23.2 FINANCIAL DOCUMENTS

The financial material documents can be listed in space ‘Financial Accounting’ via:



Make the selection:

<i>Company Code</i>	<i>DE00</i>
<i>Fiscal Year</i>	<i>&lt;This year&gt;</i>

Click on «Adapt Filters». Choose within the ‘Administrative Data’ . Select  ‘JE Created By’ and enter <Your user code>. With «Go» the financial documents that you created will be listed.

By clicking on the blue number and ‘Manage Journal Entry’ at the header data you can see who created this journal entry. When there are ‘ Related Documents’, the first on the list was the reason for the financial posting.

Add these financial document numbers to your list and complete the list with the paragraph numbers in which they were created.

# PART 3 SPECIAL APPLICATIONS

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

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.

# 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 ‘360 view on assets’.

## 15.1 C BUSINESS DIAGRAM ACQUISITION OF FIXED ASSETS SCENARIO

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.

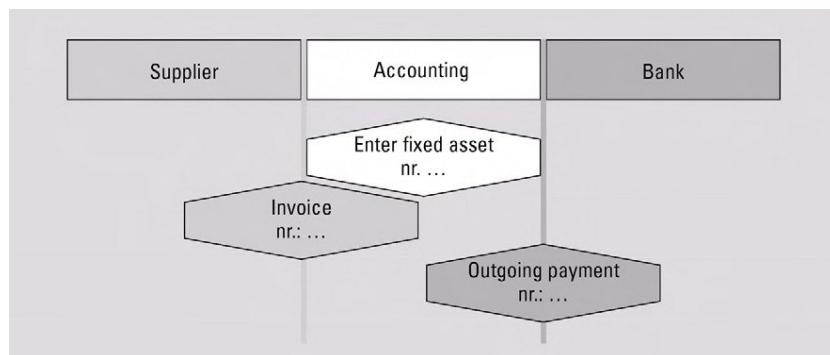


Figure 15.1 C-Business diagram acquisition of fixed asset

## 15.2 CREATE FIXED ASSET

First the asset has to be created. We are going to create the fixed asset production machine of the type Bike assembly machine ????. Machines are administered in class 2000, Production, Machinery, Equipment and Fixtures. Pressing «Enter» will in every case take us to the next screen. Register the asset as follows in space ‘Enterprise Asset Management’:



<i>Asset class</i>	2000
<i>Company code</i>	DE00
<i>Number of similar assets</i>	1

Press «Master data» to go to the ‘Create Asset: Master data’ screen. At ‘General’ enter the description ‘Bike assembly machine ???’. At the ‘Time dependent’ details fill in that the cost center is EUPR1000 (Production Costs).

For the tab ‘Origin’:

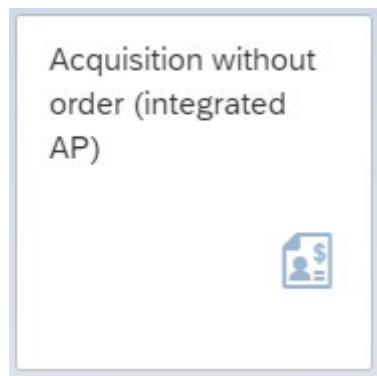
<i>Vendor</i>	<i>With search term &lt;your name&gt;</i>
<i>Asset purch. new</i>	<input checked="" type="checkbox"/>
<i>Org. Acquis. Year</i>	<i>[current year]</i>
<i>Original Value</i>	€48.000

At the tab ‘Deprec. Areas’ both depreciation areas should be LINR, linear over 5 years (‘UseLife’). «Save» the fixed asset. Write down the number of the fixed assets in the C-Business diagram.

### 15.3 REGISTERING THE PURCHASE

A vendor is required to create a purchase order. The vendor was already mentioned when the fixed asset was entered.

The incoming invoice has to be posted in space ‘Enterprise Asset Management’:



You are working for company DE00. Press «Continue(Enter)».

Enter the current date as the document date. The Doc.Header Text is ‘Purchase Assembly Machine’.

At the bottom of the screen you enter posting key (PstKy) 31 (creditor credit posting, invoice). The account is your supplier, can be found by search term <your name>. Press «Enter».

The amount posted is 57.120 EUR. The tax must be calculated automatically ( Calculate tax). The text is ‘Purch. Ass. Mach. ???’.

The ‘Next line item’ is a debit posting on a fixed asset. The posting key is 70, the account number to be entered is the number (without the series number) of the fixed asset you have created. Enter the number from the previous paragraph (or find the number with , names and classes and enter ??? as name) as the existing asset. 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. The tax must be calculated automatically (Calculate tax) using tax code V1.

Check the posting as a whole choosing «Display Document Overview» . Write down the amount to be paid to the vendor (what is the cash discount?). The posting of the account has taken place on both sides; the invoice is balanced.

«Post» the vendor invoice. 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.

## 15.4 PAYMENT OF THE SUPPLIER'S INVOICE

The outgoing payment by the is bank is done. Post the outgoing payment from the Deutsche Bank (ledger number 1800000) with a deduction of 3% cash discount. Use in space ‘Financial Accounting’:



The company code is DE00. For the Posting Date and Journal Entry Date enter today's date. The Bank Data G/L account requested is 1800000. The amount including the 3% discount was written down in the previous paragraph. Open items selection with Account type 'Supplier' and for Account ID enter <your name> and click on the right supplier. With «Show items» the open items for this supplier are displayed.

Select the open item to be cleared with «Clear >> ».

Check the balance at the right top of the screen. It should be zero in green. Check the discount. «Simulate» the posting and when everything looks fine «Post» the payment. Make a note of the posting number in the C-Business diagram.

## 15.5 360 VIEW ON ASSET

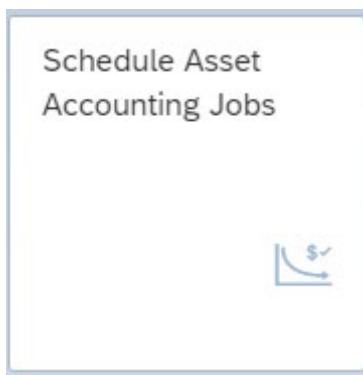
The asset can be displayed by choosing in space ‘Enterprise Asset Management’:



The company code is DE00. The fixed asset can be selected with «possible entries». Use the ‘Names and classes’ tab, company code DE00. Select the ‘Bike assembly machine ???’ you have created. At the ‘Planned values’ tab you see the acquisition value and the planned depreciation. Also look at the ‘Posted values’ tab. The depreciation can be performed at the end of a given period by using the automated depreciation run.

## 15.6 DEPRECIATION

Run the depreciation for the ‘Bike Assembly Machine ???’ First carry out the tests run. After a successful test run, the real depreciation will be executed, in space ‘Enterprise Asset Management’



Create a new job with

*Job Template*

*Depreciation Posting Run*

*Job Name*

*Depreciation Posting Run ??? Test*

At ‘Scheduling Options’, select Start Immediately  .

At ‘Parameters’, the posting parameters:

*Company Code*

*DE00*

*Fiscal Year*

*[Current year]*

*Posting period*

*[Current month]*

For ‘Test Run Parameters’

*Test Run*



*Asset*

*[Your asset number]*

For ‘Options’ choose ‘Totals Log’.

Carry out the depreciation run with «Schedule». The status is now ‘In Process’.

Type in Search ‘???’ and press «Go» to refresh.

A status ‘Finished’ indicates that the job is ready. By clicking on the log  you can navigate to the job log.

If an error is reported then transactions 15.3 and 15.4 are not done properly. If the depreciation test is good, we are going to carry out the real depreciation in space ‘Enterprise Asset Management’



Create a new job with

*Job Template**Depreciation Posting Run**Job Name**Depreciation Posting Run ??? Real*

At ‘Scheduling Options’, select Start Immediately  .

At ‘Parameters’, the posting parameters:

*Company Code**DE00**Fiscal Year**[Current year]**Posting period**[Current month]*

For ‘Test Run Parameters’

*Test Run* *(Deselected)**Asset**[Your asset number]*

For ‘Options’ choose ‘Totals Log’.

Carry out the depreciation run with «Schedule». The status is now ‘In Process’.

Type in Search ‘???’ and press «Go» to refresh.

A status ‘Finished’ indicates that the job is ready. By clicking on the log  you can navigate to the job log.

Check the depreciations with the 360 View on Assets according to the instructions of section 15.5.

# 16 REPAIR ORDER

The Bike assembly machine ??? you created in chapter 15 as a fixed asset will be created as an equipment. This equipment needs to be repaired. The gear box needs to be replaced. A malfunction report will start the maintenance process. Costs of Labor will be estimated. After the replacement of the gear box the assembly machine needs to be tested. The maintenance order starts the external operations of procurement of new gear box and internal labor activities of replacement and testing. The planned and actual repair costs of the internal activities and material replacement will be posted in the maintenance order. The technical completion is set when the repair is completed. Cost analyses of maintenance is carried out and the costs will be settled. Business completion will be set.

## 16.1 C-BUSINESS DIAGRAM INTERNAL ORDER PROCESSING

The C-business diagram is described in Figure 16.1.

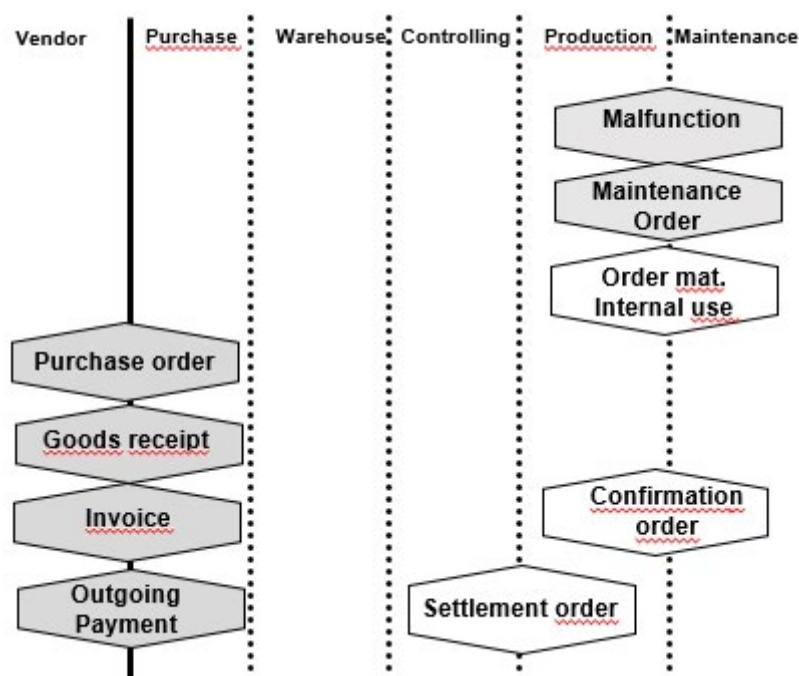


Figure 16.1 C-Business diagram internal order processing

## 16.2 EQUIPMENT MASTER DATA

The Bike assembly machine ??? you created in chapter 15 as a fixed asset will be created as an equipment. Sometimes several equipment's are financial posted as one fixed asset (with sub numbers).

Create the equipment in space 'Enterprise Asset Management' with:



Go to create with «More -> Equipment -> Create».

*Valid On* [Today]

*Equipment category* M (Machines)

Give «Enter» to continue.

The Description is 'Bike assembly machine ???'.

At tab 'Location':

*MaintPlant* HD00

*Work center* WC???

Give «Enter» to check.

At tab 'Organization':

*Company Code DE00 (was filled by the maintenance plant)*

*Asset [Your Asset number from chapter 15,  
(or find with  , names and classes and enter ??? as name)*

*Cost Center EUPR1000*

*Planning Plant HD00 (was filled by the maintenance plant)*

*Planner Group P00*

*Main WorkCtr MANT1000 / HD00*

Give «Enter» to check.

At tab ‘Structure’ click on «Change InstLoc» .

The function loc. is HD00-S-SHFL1000. «Confirm»

The Position is ???.

«Save» the equipment and note the number.

### 16.3 CREATE MALFUNCTION REPORT

To create the Malfunction report go to space ‘Enterprise Asset Management’



In the description field for the Notification enter: ‘Gear box making unusual noises ???’

At tab ‘Notification’ at ‘Reference Object’ enter as Equipment the equipment you created in 16.2. This number can be found by ‘Equipment by asset number’ and give your asset number. With «Enter» other fields are filled based on the equipment master data.

At ‘Subject’ enter:

*Coding*                    *VW1 0001 (Assembly Processing)*

*Description*                *Gear box making unusual noises ???*

At ‘Responsibilities’ enter:

*Reported by*            *[your user code]*

Next at tab ‘Items’ enter:

Sub tab ‘Items’

*Code Group*              *GEAR*

*Object part*             *1001 (Engine)*

*Code Group*              *GEAR*

*Damage Code*            *1004 (Unusual Noises)*

Sub tab ‘Causes’

*Code Group*              *PM-2000*

*Cause code*             *1004 (Normal Wear and Tear)*

*Cause Text*              *Intensive usage*

Sub tab ‘Activities’ and enter on the fist line:

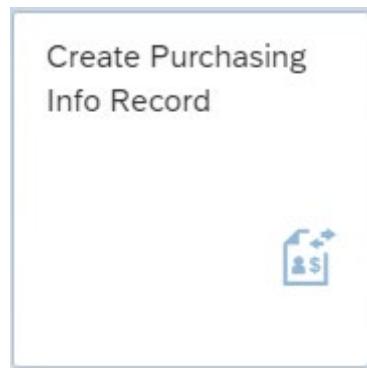
<i>Code Group</i>	<i>PM01</i>
<i>Activity Code</i>	<i>2 (Replacement (Spare))</i>
<i>Activity Text</i>	<i>Replacement Gear Box</i>

«Save» the malfunction report. Write down the notification number.

## 16.4 INFO RECORD

To replace and procure the Gear Box for the Bike assembly machine you have to create an info record.

To create the info, use in space ‘Materials Management’:



Use the vendor/supplier you created with name Supplier <your name>. You can find the vendor with  and search the vendor at the tab ‘Suppliers (General)’ by the search term <your name>.

<i>Material</i>	<i>Z-110</i>
<i>Purchasing Org.</i>	<i>DE00</i>
<i>Plant</i>	<i>HD00</i>

This is a standard info record. Press «Enter».

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 E00 and the standard quantity is 1 piece. Further down the screen enter the net price as € 4500. «Save» the info record.

## 16.5 CREATE MAINTENANCE ORDER

The maintenance Order will be created out of the Malfunction report. Go to the space 'Enterprise Asset Management' and select:



A new entry screen is opened with «More -> Maintenance notification -> Change».

A pop message appears, answer the question with 'NO'

Search for you notification by using at description \*???. Give «Enter» and select your notification.

Give «Enter» again. The notification is shown and the notification status OSNO (Outstanding notification). Besides the field Order click on «Create» . A new window appears, enter:

*Order Type* PM01

*Planning Plant* HD00

*Business Area* BI00

*Main Work Center* MANT1000/HD00 (Maintenance)

Select « Continue ».

Go to the tab ‘Operations’.

At line ‘OpAc’ 0010 replace the ‘Operation short text’ by ‘Gear box replacement ???’

Replacement time is estimated to be 2 hours:

<i>Work</i>	2
<i>Un (unit)</i>	<i>H</i>
<i>Number</i>	1
<i>Dur.(duration)</i>	2
<i>Un (unit)</i>	<i>H</i>
<i>CKey</i>	<i>Calculate duration</i>
<i>ActType</i>	<i>MLABOR</i>

Open another operation by selecting line ‘OpAc’ 0020.

Operation short text      ‘Bike assembly machine testing ???’

Testing time is estimated to be 45 minutes

<i>Work</i>	45
<i>Un (unit)</i>	<i>MIN</i>
<i>Number</i>	1
<i>Dur.(duration)</i>	45
<i>Un (unit)</i>	<i>MIN</i>
<i>CKey</i>	<i>Calculate duration</i>
<i>ActType</i>	<i>MLABOR</i>

Mark  operation line ‘OpAc’ 010 and choose «External»

External

Give «Enter»

At the subtab 'Components', 'Gen. Data' enter at line item 0010:

<i>Component</i>	<i>Z-110</i>
<i>Reqmt Qty</i>	<i>1</i>
<i>IC</i>	<i>N</i>
<i>Plant</i>	<i>HD00</i>

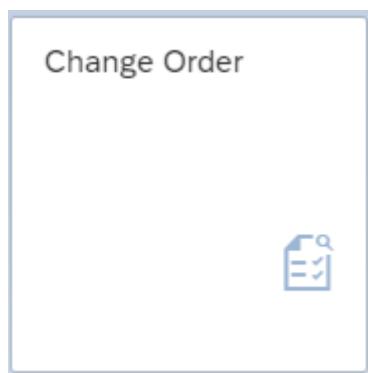
At the subtab 'Components', 'Purch' enter:

*Info record* [Created in 16.4]

Push «Enter» to check if all the data is entered correct and ignore the information with «Continue». «Save» the order. Write down the maintenance order number.

## 16.6 RELEASE MAINTENANCE ORDER

The maintenance Order will be released. Go to the space 'Enterprise Asset Management' and select:

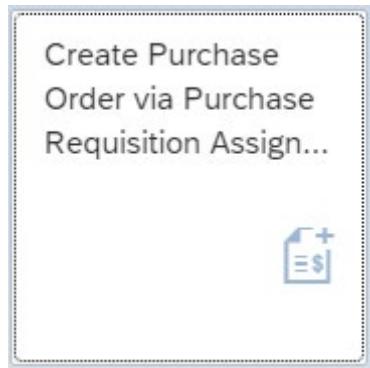


Give the maintenance order number or find the number by 'Advanced Search for PM Orders using Enterprise Search' and put ??? in the search field. «Enter» the order.

Click on the button «Release» **Release** and «Save» the order.

## 16.7 ORDERING MATERIALS FOR INTERNAL USE

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



Enter in the field ‘Supplier’ [Supplier <your name>] and «Execute».

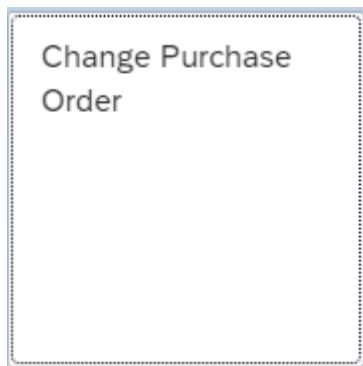
Open Assignments and select your supplier.

Open the Item Overview and select the purchase requisition for the Z-110.

«Create purchase order» . Now select the purchase requisition in the left window into the basket .

Ignore the message and «Save» the purchase order. Note the number.

Check if the details of the purchase order you just created is correct with space ‘Materials Management’:



Check on the item level of the order if 'F' (order). at column A is set .

Go to the item-detail screen and select the tab 'Account assignment'. Check and notice that the correct maintenance order is assigned.

## 16.8 GOODS RECEIPT FROM A SUPPLIER

Post the goods receipt in the space 'Production Planning and Execution':



Choose 'Goods Receipt' and 'Purchase Order'. Enter the purchase order number in the field next on the right of the 'Purchase order' field.

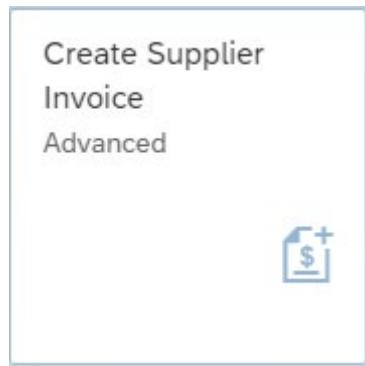
In case you did not note the number, the purchase order can be found with  , choose the tab ' Purchasing documents per Supplier' and enter the number of the vendor (or search for the number). «Find» and double click the right PO number.

Give «Enter» to display the purchase order.

 «Close Detail Data» with  halfway down on the left side in the main screen. Select OK, do a «Check» and «Post» the receipt of the goods. Write down the goods receipt number in the C-Business diagram.

## 16.9 RECEIPT OF THE INVOICE FROM THE SUPPLIER

The app for posting the receipt of the invoices is in space ‘Materials Management’:



When asked, give as the company code DE00 and «Continue (Enter)».

Enter the current date as the invoice date and as the posting date. At ‘amount’ enter € 5.355,00. Enter the currency EUR in the field next to the amount. Activate ‘Calculate tax’  **Calculate Tax**. The VAT is V1 (19% domestic input tax).

Select the tab ‘PO Reference’.

 A screenshot of a software interface showing the 'PO Reference' tab selected. There are three tabs at the top: 'TM Ref.', 'G/L Account', and 'PO Reference'. Below the tabs is a search bar containing 'Purchase Order/Scheduling Agreement' with a dropdown arrow. To the right of the search bar are several small input fields and buttons for search and copy functions.

Enter the purchase order number. (If you don’t know the PO number, search for the order number in the middle of the screen with the entry options. In the ‘Selections for the Purchasing Document’ screen enter at Supplier <your name> and click on the right supplier. «Execute» and 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 0003 as the payment conditions. Use «Simulate» to obtain an overview of the posting.

Calculate and write down the amount to be paid to the vendor, taking in account the cash discount of 3%.

«Post» the invoice and note the number in the C-Business diagram.

## 16.10 PAYMENT OF THE SUPPLIER'S INVOICE

The outgoing payment by the bank is done. Post the outgoing payment from the Deutsche Bank (ledger number 100000) with a deduction of 3% cash discount. Use in space ‘Financial Accounting’:



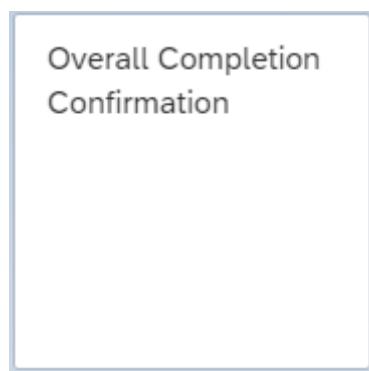
The company code is DE00. For the Posting Date and Journal Entry Date enter today's date. The Bank Data G/L account requested is 100000. The amount was written down in the previous paragraph. Open items selection with Account type ‘Supplier’ and for Account ID enter <your name> and click on the right supplier. With «Show items» the open items for this supplier are displayed.

Select the open item to be cleared with «Clear >> ».

Check the balance at the right top of the screen. It should be zero in green. Check the discount. «Simulate» the posting and when everything looks fine «Post» the payment. Make a note of the posting number in the C-Business diagram.

## 16.11 OVERALL COMPLETION CONFIRMATION

The maintenance Order is finished and can be confirmed. Go to the space ‘Enterprise Asset Management’ and select:



Select «More -> Extras -> Settings». Choose as profile 1 ( Maintenance with order number) and «Save».

At the field 'Order' enter your maintenance order number. The activity is 0010 and press «Enter». The confirm overview is shown.

The actual labor time spend for the replacement is 2,5 hours.

Enter at 'Time confirmation':

*Act. Work*                    2,5

*Fin... (Final Conf.)*        select

«Save» the confirmation.

Repeat this step for activity 0020. The actual labor hours spent for testing is 66 minutes.

## 16.12 ANALYSE COST AND TECHNICAL COMPLETION

The maintenance Order will be released. Go to the space 'Enterprise Asset Management' and select:



Give the maintenance order number or find the number by 'Advanced Search for PM Orders using Enterprise Search' and put ??? in the search field. «Enter» the order.

At the tab 'Cost' in the overview the planned and actual costs are shown. By choosing «Report Planned/Actual» **Rep. Plan/Act.** you can call up a more detailed report. Drill down for more related details by double clicking on the actual costs. For instance what is the source document of the actual cost posting?

Return to the overview of the maintenance order. To finish the order choose «Complete (technically)» **Complete (technically)**. Enter in the completion screen at notification for 'MalEnd' [Today's date] and select [Current time] followed by «Continue».

## 16.13 SETTLEMENT OF COSTS OF THE MAINTENANCE ORDER

After analyzing the cost of the maintenance order and accepting the results the balance of the maintenance order will be settled. Within the space 'Enterprise Asset Management' select:



In the 'Set Controlling Area' pop up select enter EU00 as Controlling Area. «Continue (Enter)».

Enter at parameters:

*Settlement Period* [current month]

*Fiscal Year* [current year]

*Processing Type Automatic*

At processing options

*Test Run* Select

*Check Trans Data* Select

Click on «Settlement Rule» **Settlement Rule** to see how the settlement will be posted. Return to the 'Actual Settlement: Order' screen.

Give «Execute» and select «Detail list». The total value is listed to be settled (posted).

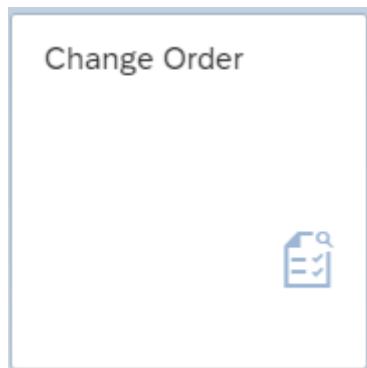
Go back to the 'Actual Settlement: Order' screen.

Remove the test indicator and press «Execute» and select «Detail list». The sender is the maintenance order, the receiver the cost center EUPR1000. The financial posting of the settlement is shown by selecting «Accounting documents». In 'List of documents in Accounting' an Accounting document and Controlling document is created. The posting is displayed by double clicking on the document number.

With the settlement posting the maintenance order is balanced (posted with credit amount) and the costs are allocated to the cost center EUPR1000.

## 16.14 ANALYSE THE COSTS BUSINESS COMPLETION

Go to the space 'Enterprise Asset Management' and select:



Give the maintenance order number or find the number by 'Advanced Search for PM Orders using Enterprise Search' and put ??? in the search field. «Enter» the order.

Select «More -> Extras -> Cost report -> Planned/actual comparison». Choose the maintenance order and click again «More -> Extras -> Cost report -> Planned/actual comparison». In the overview the planned and actual costs are listed. The balance of the maintenance order is zero. Drill down by double clicking on the EAM settlement amount to see the detail of the postings of the settlement in the previous paragraph.

## 16.15 DISPLAY ORDER HISTORY

With the order history the related orders to the maintenance order can be tracked and traced. Go to the space 'Enterprise Asset Management' and select:



At order status select: Completed and Historical   Historical:  . Enter at order your order number. Push the button «Execute».

All the details of the completed maintenance order are shown. Check the status of the order.

To track and trace the related (purchase) orders and notifications select at the function bar on top of your screen «Document flow».

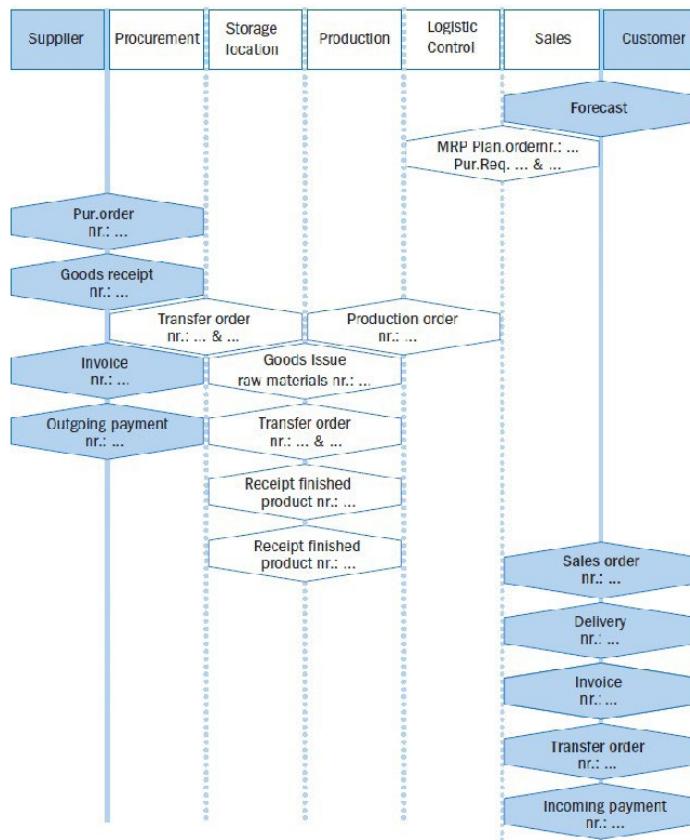
Select for example the purchase order and with «Display document» the purchase order document is shown. Check the other documents

# 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.

## 17.1 PRODUCTION ON STOCK AND FORECAST BASED PLANNING

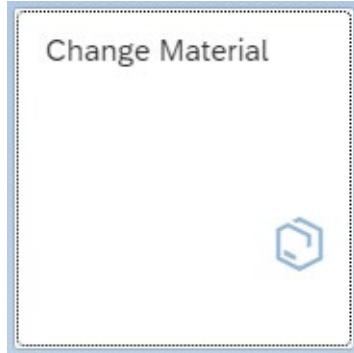


**Figure 17.1** Production on stock and forecast based planning

## 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 in space ‘Material Management’:



Enter at ‘Material’ the bicycle SB???. Give «Enter». Select the views MRP3. Enter for ‘Organizational levels’:

*Plant*                    *HD00*

*Stor. Loc.*            *FG00*

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 extended with ‘forecasting’ using in space ‘Materials Management’:



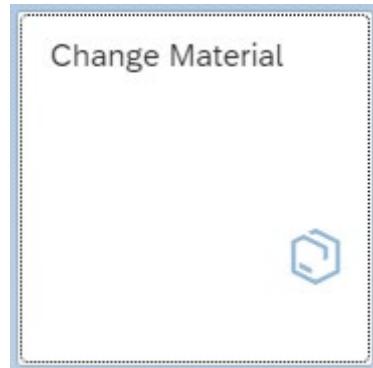
For material you type SB??? and give «Enter». Confirm the message ‘Material type Finished product and industry Mechanical Engineering copied from master record’ with «Enter».

In the ‘Select Views’ you select ‘Forecasting’. Enter for ‘Organizational levels’ plant HD00.

<i>Forecast model</i>	$G$ (moving average)
<i>Period indicator</i>	$M$
<i>Number of periods required</i>	
<i>Hist.periods</i>	6
<i>Forecast periods</i>	6

«Save» the data.

Change the master data of the frame FR??? and the wheel WL??? in space ‘Materials Management’ with:



Select the view MRP1 and ‘Organizational levels’ plant HD00. Change the automatic reorder point to MRP type ‘PD’ (MRP), was ‘VM’, for both frames and wheels. «Save» your data.

### 17.3 PRODUCT GROUP

Create a product group for special bike. Use in space ‘Production Planning and Execution’:



Via «More», next ‘Product groups’ and ‘Create’.

<i>Product group</i>	<i>PG-SB???</i>
<i>(second line)</i>	<i>Product group Special Bikes ???</i>
<i>Plant</i>	<i>HD00</i>
<i>Base unit</i>	<i>PC</i>

Give «Enter». At the member maintenance give:

<i>Member number</i>	<i>SB???</i>
<i>Plant</i>	<i>HD00</i>
<i>Aggr факт.</i>	<i>1</i>
<i>Proportion</i>	<i>100</i>

«Save» the product group.

## 17.4 DEMAND MANAGEMENT

Within demand management we enter the settings for the requirements type ‘make to stock production’ in space ‘Production Planning and Execution’:



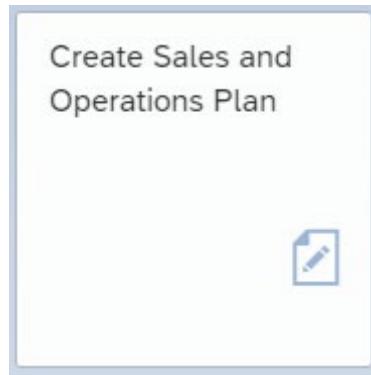
PIR is Planned Independent Requirement. Select for ‘planned individual parameters’ the radio button material and enter material SB???. The plant HD00 must be selected. Use the button «user parameters» and «Enter»:

<i>Plant</i>	<i>HD00</i>
<i>Requirement type</i>	<i>LSF 'make-to-stock production'</i>

With «Continue (Enter)» you confirm the requirements type, and the settings are saved. Go back to the launchpad.

## 17.5 FORECAST BASED PLANNING

Create the forecast and activate the sales planning by using in space ‘Production Planning and Execution’:



<i>Product group</i>	<i>PG-SB???</i>
<i>Plant</i>	<i>HD00</i>

Select the «Active Version».

Create a forecast with «More», next ‘Edit’, ‘Create Sales Plan’ and ‘Forecast ...’.

Select the ‘Period intervals’ and enter:

<i>Forecast</i>	<i>[from: this month; to: this month plus 6 months]</i>
<i>Historic</i>	<i>[from: last month minus 5 months; to: last month]</i>

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 «Continue (Enter)». Enter the given historical data: of table 17.1.

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.

The production planning has to be created in order to meet demand of the forecasted monthly sales. Use «More», next ‘Edit’, ‘Create Productn Plan’ and ‘Synchronous to sales’. The planned production is matched with the forecasted sales.

The planning results will be transferred to demand management using «More», next ‘Extras’ and ‘Transfer to Demand Management’.

Answer the question ‘Save planning values first?’ with ‘Yes’.

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 launchpad.

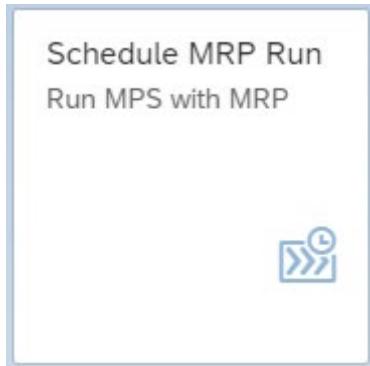
## 17.6 PRODUCTION PLANNING

Open in a new tab in your browser from the space 'Production Planning and Execution':

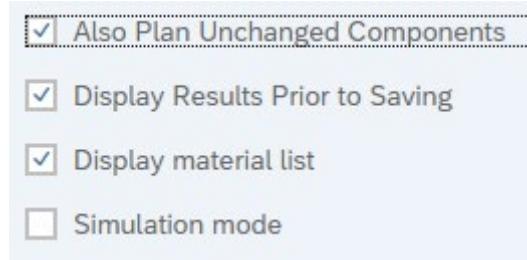


Enter the material number of the bicycle SB??? and plant HD00. Press «Continue (Enter)». The individual requirements (IndReq) for make-to-stock (LSF) are displayed.

In the other tab in your browser the planning can be completed with the requirements planning. Use from the space 'Production Planning and Execution':



<i>Material</i>	SB???
<i>Plant</i>	HD000
<i>Processing key</i>	NETCH
<i>Create purchase req.</i>	2
<i>Delivery schedules</i>	3
<i>Planning mode</i>	1
<i>Scheduling</i>	1



Press «Enter» and ignore the warning. «Save and Continue» the planning. Select ‘Proceed without stopping’ and «Continue». Check the outcome with selecting the button «Materials». Write down the planned order number and the purchase requisitions of this month.

Refresh the stock/requirements list in the other browser tab.

## 17.7 CREATE A PURCHASE ORDER FOR THE SUPPLIER

The purchase requisition is created by planning. The purchase requisition will be sourced and next converted into a purchase order.

Choose in the space ‘Materials Management’:



Enter in the field Search ‘\*????’ to retrieve both your frames and wheels.

Click in the column ‘Assigned Supplier’ on the text ‘1 Sources’ (in case you see no source, create an info record as described in the previous chapter, in case there are more sources choose your own vendor). Choose the supplier by clicking on the radio button  in front of the right info record. Do this for both frames and wheels. The number of the supplier should be visible now for both purchase requisitions.

The next step is to select  both sourced purchase requisitions and «Create Purchase Order» for both since they have the same supplier.

The purchase order type is ‘Standard PO’. «Save» the purchase order and note the purchase order number in the C-Business diagram.

Go «Back» to the screen to manage the purchase requisitions and check that the processing status has changed to ‘PO created’. The consequences can be monitored with the stock/requirement list (change the ‘Material’ to FR??? or WL???).

## 17.8 GOODS RECEIPT FROM A SUPPLIER

Post the goods receipt in the space ‘Production Planning and Execution’:



Choose ‘Goods Receipt’ and ‘Purchase Order’. Enter the purchase order number in the field next on the right of the ‘Purchase order’ field. Give «Enter» to display the purchase order.

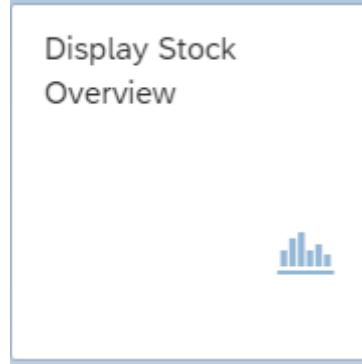
In case you did not note the number it can be found with and entering ‘\*????’ in the search field. Finally double click the right PO number.



«Close Detail Data» with halfway down on the left side in the main screen. Enter for both lines the Storage Location RM00 (Raw Materials). Select OK for both items, do a «Check» and «Post» the receipt of the goods. Write down the goods receipt number in the C-Business diagram.

## 17.9 TRANSFER ORDER GOODS RECEIPT TO PERMANENT STORAGE

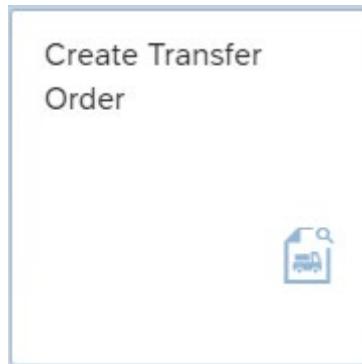
The goods have been received in a goods receipt area and must be transported to a particular location in the warehouse. The location for these can be seen by choosing in space ‘Warehouse Management’:



Enter a material (the frame FR??? or a wheel WL???) . The plant is 'HD00'. At the Stock Type Selection choose **Also Select Special Stocks:**  . Press «Execute» and Check the quantities. Right-click on the quantity and select 'WM Stocks'.

The material just arrived and was received in storage type 003 (GR Area External Receipts).

Create in another tab in your browser a transport order for the incoming goods to the high rack storage in the warehouse using in space 'Warehouse Management':



<i>Warehouse number</i>	100
<i>Material</i>	FR???
<i>Plant</i>	HD00
<i>Stor. Location</i>	RM00

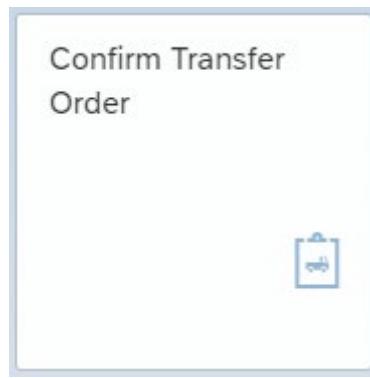
Press «Enter». Select the transfer requirements you created for the receipt of the goods associated with the purchase order. The transfer requirement is converted into a transfer order using the «TO in foreground».

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 (Shelf storage), the Sec (Section) is 001 and the ‘Destination bin’ is STBN-1-???. Save the transfer order with «Posting». Note the number of the transfer order in the C-Business diagram.

Take a look in the other tab at the consequence of this action. If necessary click on

«Refresh». Notice that the five frames are still located in area 003 (GR Area), as a picking quantity and to be stored in 001 (Shelf Storage).

Confirm the transfer order by choosing in space ‘Warehouse Management’:



Enter the number of the transfer order and the warehouse number 100. Press «Enter». Check the data and save the confirmation with «Posting».

Check the stock overview with:



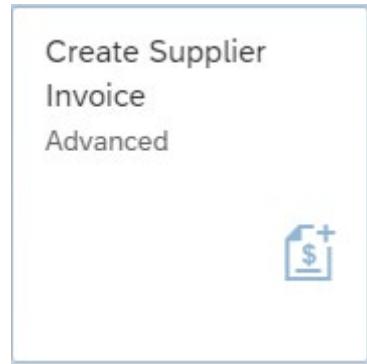
Are both FR??? and WL??? In the high rack storage?

The same procedure must be carried out for the wheels, with the difference that the wheels are to be stored at location STBN-2-???. Note the transfer order in the C-Business diagram.

**Did you confirm both transfer orders?**

## 17.10 RECEIPT OF THE INVOICE FROM THE SUPPLIER

The app for posting the receipt of the invoices is in space ‘Materials Management’:



When asked, give as the company code DE00 and «Continue (Enter)».

Enter the current date as the invoice date and as the posting date. The ‘amount’ including tax can be calculated after retrieving the purchase order. Enter the currency EUR in the field next to the amount. Activate ‘Calculate tax’  **Calculate Tax**. The VAT is V1 (19% domestic input tax).

Select the tab ‘PO Reference’.



Enter the purchase order number. (If you don’t know the PO number, search for the order number in the middle of the screen with the entry options. In the ‘Selections for the Purchasing Document’ screen enter at Supplier <your name> and click on the right supplier. «Execute» and 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 0003 as the payment conditions. Use «Simulate» to obtain an overview of the posting.

Calculate and write down the amount to be paid to the vendor, taking in account the cash discount of 3%.

«Post» the invoice and note the number in the C-Business diagram.

## 17.11 PAYMENT OF THE SUPPLIER'S INVOICE

The outgoing payment by the bank is done. Post the outgoing payment from the Deutsche Bank (ledger number 100000) with a deduction of 3% cash discount. Use in space ‘Financial Accounting’:



The company code is DE00. For the Posting Date and Journal Entry Date enter today's date. The Bank Data G/L account requested is 100000. The amount was written down in the previous paragraph. Open items selection with Account type 'Supplier' and for Account ID enter <your name> and click on the right supplier. With «Show items» the open items for this supplier are displayed.

Select the open item to be cleared with «Clear >> ».

Check the balance at the right top of the screen. It should be zero in green. Check the discount. «Simulate» the posting and when everything looks fine «Post» the payment. Make a note of the posting number in the C-Business diagram.

## 17.12 PRODUCTION ORDER

The planned order for this month has to be converted to a production order. From the space ‘Production Planning and Execution’ use:



Enter as material the number of the bicycle SB??? and plant HD00. Press «Enter».

Double click on the planned order (PldOrd) for this month and click «→Prod.Ord» or right click and select ‘→ 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. To force the production scheduled for today, choose at ‘Scheduling’ the ‘Type’: ‘Only capacity requirements’.

Check the status of the production order with  and go «Back» to the previous screen.

Carry out the raw materials availability check using «Material». If the raw materials are not available for this order quantity, do not save the production order and check the stock/requirements list for these raw materials.

With «Cost order» the cost estimation with quantity structure for the quantity to be produced is carried out. Ignore the warnings. Check and analyze the budgeted production costs with «More» and Goto > Costs > Analysis. Check instead of the variant ‘Analysis’ also the variants ‘Itemization’ and ‘Cost Component Split’.

«Release Order» and check the status again with .

«Save» the production order, ignore the message ‘Error calculating costs’. «Save» the production order and note the number of this production order in the C-Business diagram.

Go «Back» to the Stock/Requirements List and «Refresh». The planned order is converted into a production order.

## 17.13 ISSUE OF RAW MATERIALS TO PRODUCTION

The frames and wheels are to be taken out of the warehouse and used by production. From the space ‘Production Planning and Execution’ use:



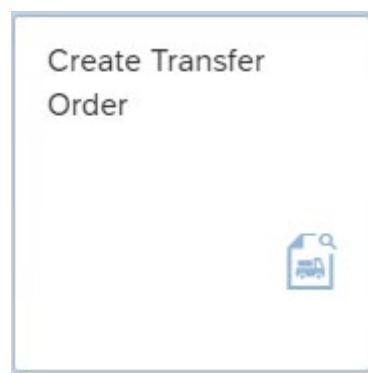
The production order can be retrieved with the Stock/Requirements List in another tab in your browser. Press «Enter».

If there is a message that goods movements are not allowed for this order you must change the status of the production order. Change the order by selecting it in the Stock/Requirements List, «Change Element» and release the order (see last paragraph) and save it.

«Close Detail Data» . Enter for both raw materials OK  and the storage location (SLoc) RM00. «Post» the issue of goods and note the document number in the C-Business diagram.

## 17.14 TRANSFER RAW MATERIALS TO PRODUCTION

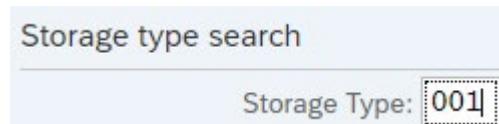
Create a transfer order for the goods to be issued from shelf storage using in space ‘Warehouse Management’:



<i>Warehouse number</i>	100
<i>Material</i>	FR???
<i>Plant</i>	HD00

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

At ‘Quantities’ we can see the five frames that must be collected and an open quantity of five items. The Storage type search must be 001



The screenshot shows a user interface for storage type search. At the top, it says 'Storage type search'. Below that, there is a field labeled 'Storage Type:' containing the value '001'. The '001' is highlighted with a dotted selection box.

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’ this transfer order is set so that the transfer order is confirmed directly. Confirm the entries with «Enter» and with «Posting» the transfer order is done. Note the number of the transfer order in the C-Business diagram.

**Repeat the same procedure for the wheels WL???.**

## 17.15 CONFIRMATION OF A PRODUCTION ORDER

The production order completion will be confirmed and the actual realized wage hours and machine hours will be posted. In space ‘Production Planning and Execution’:



Select «More» and ‘Confirmation’, ‘Enter’, ‘For operation’ and ‘Time Ticket’.

Enter at ‘Order’ the production order number. Press «Actual Data» to check the production order data. Choose at ‘Confirm.type’ the ‘Final confirmation’. In the section ‘Quantities’ at Yield you accept the proposed quantity (should be 2100 PC). In the section ‘Activities’ the actual wage hours and machine hours can be entered. The actual hours are for both cases exceeded by 5 percent in relation to the pre-calculated time. Change the machine time and the labor time accordingly.

« Save» the confirmation.

## 17.16 GOODS RECEIPT FINISHED PRODUCT FROM PRODUCTION

The app for posting the goods receipt is in space ‘Production Planning and Execution’:



Choose ‘Goods Receipt’ and ‘Order’. The order is the previously created production order and give «Enter».

At line 1 checkmark OK  and enter at Sloc FG00 so the storage location will be ‘Finished Goods’.

«Check» and «Post» the goods receipt and note the number in the C-Business diagram.

Monitor the result in the Stock/Requirements list for SB??? in plant HD00.

## 17.17 SALES FROM STOCK

Customer Bikeshop <your name> buys 1100 bicycles SB??? to be delivered as soon as possible. Use in space ‘Sales and Distribution’:



Select «Create Sales Order»

Enter for the order type ‘OR’ (Standard order) and press «Enter». Enter for ‘Sold-to party’ customer Bikeshop <your name>. The ‘Cust. Reference’ is ‘MTS???’.

In ‘Item Overview’ you enter plant is HD00 and the material SB???, the sales order quantity 1100. Also enter at ‘First date’ today’s date.

Double click on the line item. Select the tab ‘Shipping’. Enter for the ‘Stor.Loc.’ FG00. Select the tab ‘Schedule lines’. Change the ‘Delivery Date’ into today’s date.

Check the completion of the sales document with «More» , ‘Edit’ and ‘Incompletion Log’.

Select in ‘Item Overview’ the item (10) with the data ordered by your customer and check the ‘availability to promise’ situation with «More» , ‘Environment’ and ‘Availability’. Return to the sales order.

« Save» the sales order!

## 17.18 CREATING A DELIVERY TO THE CUSTOMER

Now you have to create the delivery. Choose in space ‘Sales and Distribution’:



Give in  the name of your customer and press «Enter».

Click on at the end of the row with the sales order you are fulfilling and select  the item you are to deliver. With «Create Delivery». Confirm the pop up 'Sales order – Actuals'.

With «Refresh» the number of the delivery is displayed. Note the number of the delivery.

The «Process Flow» shows the current status of the order.

## 17.19 THE DOCUMENT FLOW AROUND THE SALES ORDER

If you want to have an overview of the document flow, choose in space 'Sales and Distribution':



The number shows the open orders.

Give in  the name of your customer and press «Enter».

Click on the blue ‘Overall Status’ of your order. The process with status is display. Return to the overview with «OK».

Click on  at the right of the order row to see the complete order.

By pressing the «Display document flow» 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 you, for example, have forgotten the number of the delivery, you can find it in this overview.

## 17.20 PICKING THE DELIVERY

The five bicycles have to be picked from the warehouse. Warehouse 100 is customized as a ‘lean warehouse’ Order picking is posted, but the storage locations and bins are not registered. To pick choose in space ‘Warehouse Management’:



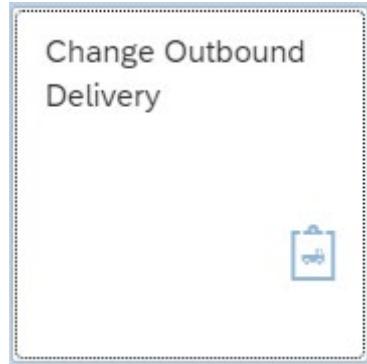
With «All Selections» more selections are possible. Remove the Picking Dates. Scroll down to Material Data and enter as Material the bike SB???. With «Execute» the delivery to be picked is displayed.

Select  the delivery, choose «TO in Foreground» and give «Enter». Select «Stock Figures» to see the available quantity. At ‘Selected quantity’ you enter the sold quantity bikes to pick. After «Posting» the picking is done and the delivery is green.

Note the number of the transfer order.

## 17.21 GOODS ISSUE DELIVERY TO THE CUSTOMER

To post the goods issue choose in space ‘Warehouse Management’:



Give the delivery number (or find by ship to party / customer). After «Continue(Enter)» you can see on the tab picking that the bicycles have been picked.

Go «Back» to the precious screen and «Post goods issue». The status of the delivery is changed. Check the order process as done in 17.19.

## 17.22 INVOICE THE CUSTOMER

Create the invoice for the customer by choosing in space ‘Sales and Distribution’:



The number shows the billing due deliveries.

Give in   the name of your customer and press «Enter».

The system indicates the delivery number due to be invoiced. Select  the delivery. «Create Billing Documents» the invoice 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 with:



Type the number of the invoice you just created and stay in this screen (don't press Enter).

With «Accounting» you will see the financial documents. If the journal entry has not yet been created, with «Release to Accounting» it will. If there are errors again, check the export data in your invoice.

It will be displayed with «More» and 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. Write down the amount the customer will pay in case he will pay today and takes the discount that is allowed.

## 17.23 INCOMING PAYMENT FROM THE CUSTOMER

The accounting department posts the incoming payment in space 'Financial Accounting':



You can post the receipt of payment of the invoice that has just been created.

### General Information

<i>Company Code</i>	<i>DE00</i>
<i>Posting Date</i>	<i>&lt;Today&gt;</i>
<i>Journal Entry Date</i>	<i>&lt;Today&gt;</i>
<i>Journal Entry Type</i>	<i>DZ (Customer Payment)</i>

### Bank Data

<i>G/L Account</i>	<i>100000</i>
<i>Amount</i>	<i>&lt;Amount noted previous paragraph&gt; EUR</i>

### Open Item Selection

*Account Type/Account ID*       *customer by search term <your name>*

The open items are displayed with «Propose Items».

Top right on your screen the balance is displayed.

Choose the right item with   . The balance must be zero.

«Post» the incoming payment and note this last number of document in the C-Business diagram. Leave the transaction with «Post next payment».

Look at the document flow as you did in paragraph 17.19.

## 17.24 ANALYSES

The sales took place from stock. Check the consequences by using from the space ‘Production Planning and Execution’:



Enter the material number of the bicycle and the plant HD00. Press «Enter».

Carry out the tracking and tracing for this chapter according to the instructions of section 14.23.

# 18 PRODUCT COSTING

In this chapter the material costing as part of product cost controlling of SAP S/4HANA 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 will be done with the 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 will be 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.

Row	Base	Overhea...	Description	From	To Row	Credit
10	B000		Material	0	0	
20		C010	Material OH/Surcharg	10	0	E01
30			Material usage	0	0	
40	B010		Production	0	0	
50		C001	Manufacturing OH	40	0	E02
60			Production Costs	40	50	
70			Cost of goods manufactured	0	0	

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 13 in company code DE00. The calculation is in this case cost estimation with a quantity structure. The quantity structure uses the bill of material of the bicycle SB???.

Calculate the product costs in space ‘Controlling’ with:



<i>Material</i>	<i>SB???</i>
<i>Plant</i>	<i>HD00</i>

Tab Costing Data:

<i>Costing Variant</i>	<i>PPC1 (Standard Cost Est. (Mat.)</i>
------------------------	--

Press «Enter». At the tab ‘Dates’ enter at ‘Costing Date From’ the current date. 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 PPC1 is linked to the calculation sheet PP-PC1. 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).

The overhead costs are to be applied as a percentage surcharge. Start if necessary the product cost estimation like you did in chapter 18.1. Double click in the tab ‘valuation’ on costing sheet PP-PC1 to call up the calculation scheme. Select at costing sheets: PP-PC1 and enter, when asked, for the controlling area EU00. Double click on ‘costing sheet rows’. The structure of the calculation sheet is given. Select row 20  20 : Material OH/Surcharg.

Double click on the ‘Overhead rate’ in the dialog structure in the left window. A surcharge of 20% is used. This percentage can be selected by using the overhead key, OH Key, SAP1. You can leave the cost calculation without saving it.

## 18.2 CHANGE MASTER DATA AND BOM

The surcharge key for overhead costs, SAP 1, can be allocated through the costing data of the material master of the bicycle. Adjust the costing data in the material master of the bicycle in space ‘Materials Management’:



*Material*

*SB???*

Press «Enter», the material type and industry sector are copied. Confirm this with «Enter» and select the view costing 1.

At the organization level you enter again:

*Plant*

*HD00*

Choose costing 1 and select SAP1 for the ‘Overhead Group’ and the ‘Variance Key’ is 0000001 (Variance Calculation for Orders). «Save» the data.

Adjust the bill of material of the SB??? to make the components relevant to costing. In space ‘Production Planning and Execution’:



Enter at material SB??? and with «Go» the Bill of Material is listed. Click on at the end of the line.

With «Edit» you can change the components. Click on at the end of the first line with FR???.

In the tab ‘Status/Long Text’ add X to ‘Relevancy To Costing’ .

Make also the second line with WL??? relevant to costing with the same procedure. «Save» the adjusted bill of material.

### 18.3 COST OF GOODS WITH OVERHEAD

Repeat the cost estimation you carried out before in 18.1. At the tab ‘Dates’ enter at ‘Costing Date From’ the current date. 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 1’ is added. In the top of the screen with «More -> Costs» you can replace the recent display version ‘Itemization’ by ‘Display Cost Components’. The costs are presented as cost components: raw materials and overhead. «Save» the cost estimation. The cost estimation is activated.

### 18.4 STOCK VALUATION AT COSTS OF GOODS MANUFACTURED

In chapter 13 the materials are initially valued. 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 18.3.

### 18.4.1 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 in space ‘Controlling’ with:



*Posting Period/Fiscal Year*                    *[this month of this year]*

*Company Code*                                  *DE00*

*Plant*    *HD00*

*Material*                                         *SB???*

You are now in ‘Price Update: Mark Standard Price’. At the processing options you select ‘Test Run’ and ‘With List Output’. Click the button

«Marking Allowance». Click at company code DE00 on ‘legal valuation’ and check the costing variant PPC1. Close this popup window. The costing version is 1. Go one step back and press «Execute». Read the log data to check if the tests was successful.

Return with «Back» to the screen ‘Price Update: Mark Standard Price’. Deselect at the processing options the ‘Test Run’. Carry out the update by pressing «Execute».

Check the results of the update in space ‘Materials Management’ through:



*Material* SB???

Choose Accounting 1.

*Plant* HD00

At the tab 'Future costing run' you find the 'Future plnd price' based on the cost estimation of the cost of goods manufactured that will replace next month the current valuation.

#### 18.4.2 PRICE UPDATE: RELEASE STANDARD PRICE

The valuation that is marked to be used for this month, was established in the previous step. It has to be released to be used as the valuation for SB???. The valuation is set to be used as a target cost. Use in space 'Controlling':



Click on «Release» **Release**. The title is now ' Price Update: Release Standard Price'.

Give:

*Posting Period/Fiscal Year* [current month of this year]

*Company Code* DE00

*Plant* HD00

*Material* SB???

Select at processing options ‘Test Run’ and ‘With List Output’. Test with «Execute». The output list should mention 1 material updated. If so, deselect ‘Test Run’ and «Execute». Outcome of the release is that materials are reevaluated 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

Did you change the material master data for SB???, FR??? and WL??? according 17.2?

Start a production order in space ‘Production Planning and Execution’:



Go to «More -> Order -> Create»

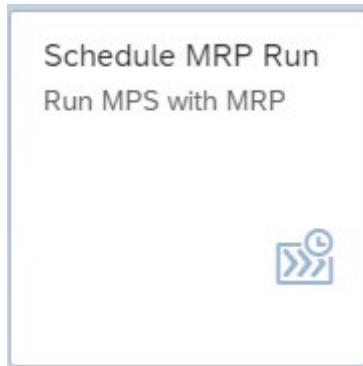
<i>Material</i>	<i>SB???</i>
<i>Production Plant</i>	<i>HD00</i>
<i>Order type</i>	<i>PP01</i>

Give «Enter».

Enter at ‘Total Quantity’ 1001 and at ‘Basic Dates’ for “Start” today’s date. Give «Enter» and «Cost Order», ignore the message. «Save» the order and write down the production order number.

## 18.6 REQUIREMENTS PLANNING (MRP)

Did you change the material master data for SB???, FR??? and WL??? according 17.2? Carry out the MRP to determine the purchase requirements for this order in space ‘Production Planning and Execution’:



<i>Material</i>	<i>SB???</i>
<i>Plant</i>	<i>HD00</i>
<i>Processing Key</i>	<i>NETCH</i>
<i>Create purchase req.</i>	<i>2</i>
<i>Delivery schedules</i>	<i>3</i>
<i>Create MRP List</i>	<i>1</i>
<i>Planning mode</i>	<i>1</i>
<i>Scheduling</i>	<i>1</i>

- *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 analyzed by selecting «Materials». Check if the planning outcome is meeting purchase requirements for FR??? And WL???.

## 18.7 CREATE A PURCHASE ORDER FOR THE SUPPLIER

The purchase requisition is created by the logistic planning department. The purchase requisition will be sourced and next converted into an purchase order by the purchase department.

Choose in the space ‘Materials Management’:



Enter in the field Search ‘\*???’ and «Go» to retrieve both your frames and wheels.

Click in the column ‘Assigned Supplier’ on the text ‘1 Sources’ (in case you see no source, create an info record as described in the previous chapter). Choose the supplier by check-marking the radio button  in front of the right info record. Do this for both frames and wheels. The number of the supplier should be visible now for both purchase requisitions.

The next step is to select  both sourced purchase requisitions and «Create Purchase Order» for both since they have the same supplier.

The purchase order type is ‘Standard PO’. «Save» the purchase order and note the purchase order number in the C-Business diagram.

Go «Back» to the screen to manage the purchase requisitions and check that the processing status has changed to ‘PO created’. The consequences can be monitored with the stock/requirement list (change the ‘Material’ to FR??? or WL???), see paragraph 14.5.

## 18.8 GOODS RECEIPT FROM A SUPPLIER

Post the goods receipt in the space ‘Production Planning and Execution’:



Choose ‘Goods Receipt’ and ‘Purchase Order’. Enter the purchase order number in the field next on the right of the ‘Purchase order’ field.

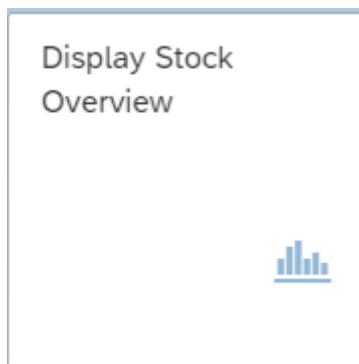
In case you did not note the number, the purchase order can be found with , choose the tab ‘Purchasing documents per Supplier’ and enter the number of the vendor (or search for the number). «Find» and double click the right PO number.

Give «Enter» to display the purchase order.

«Close Detail Data» with  halfway down on the left side in the main screen. Enter for both lines the Storage Location RM00 (Raw Materials). Select OK for both items, do a «Check» and «Post» the receipt of the goods. Write down the goods receipt number in the C-Business diagram.

## 18.9 TRANSFER ORDER GOODS RECEIPT TO PERMANENT STORAGE

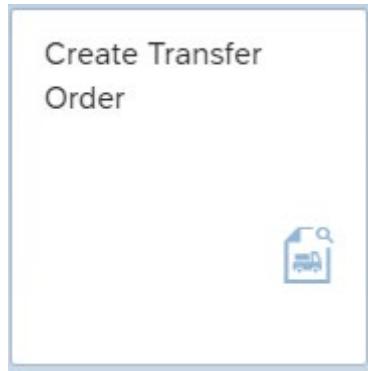
The goods have been received in a goods receipt area and must be transported to a particular location in the warehouse. The location for these can be seen by choosing in space ‘Warehouse Management’:



Enter a material (the frame FR??? or a wheel WL???). The plant is ‘HD00’. At the Stock Type Selection choose **Also Select Special Stocks:** . Press «Execute» and Check the quantities. Right-click on the quantity and select ‘WM Stocks’ or use «More» and Goto > Environment > WM Stocks.

The material just arrived and was received in storage type 003 (GR Area External Receipts).

Create in another tab in your browser a transport order for the incoming goods to the high rack storage in the warehouse using in space ‘Warehouse Management’:



<i>Warehouse number</i>	100
<i>Material</i>	FR???
<i>Plant</i>	HD00
<i>Stor. Location</i>	RM00

Press «Enter». Select the transfer requirement created by the receipt of the goods. The transfer requirement is converted into a transfer order using the «TO in foreground».

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 (Shelf storage), the Sec (Section) is 001 and the ‘Destination bin’ is STBN-1-???. Save the transfer order with «Posting». Note the number of the transfer order in the C-Business diagram.

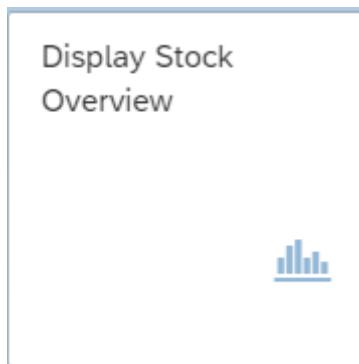
Take a look in the other tab at the consequence of this action. If necessary click on «Refresh». Notice that the five frames are still located in area 003 (GR Area), as a picking quantity and to be stored in 001 (Shelf Storage).

Confirm the transfer order by choosing in space ‘Warehouse Management’:



Enter the number of the transfer order and the warehouse number 100. Press «Enter». Check the data and save the confirmation with «Posting».

Check the stock overview with:



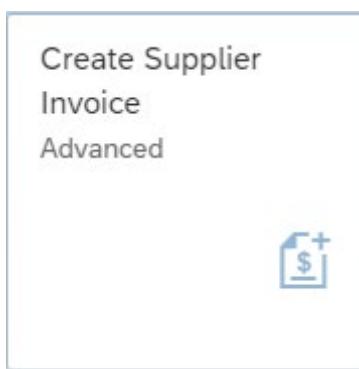
The same procedure must be carried out for the wheels, with the difference that the wheels are to be stored at location STBN-2-???. Note the transfer order in the C-Business diagram.

Are both FR??? and WL??? In the high rack storage? Check with 'Display Stock Overview'.

**Did you confirm both transfer orders?**

## 18.10 RECEIPT OF THE INVOICE FROM THE SUPPLIER

The app for posting the receipt of the invoices is in space 'Materials Management':



When asked, give as the company code DE00 and «Continue (Enter)».

Enter the current date as the invoice date and as the posting date. The amount including tax can be calculated after retrieving the purchase order. Enter the currency EUR in the field next to the amount. Activate 'Calculate tax'  **Calculate Tax**. The VAT is V1 (19% domestic input tax).

Select the tab ‘PO Reference’.



Enter the purchase order number. (If you don't know the PO number, search for the order number in the middle of the screen with the entry options. In the ‘Selections for the Purchasing Document’ screen enter at Supplier <your name> and click on the right supplier. «Execute» and 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 0003 as the payment conditions. Use «Simulate» to obtain an overview of the posting.

Calculate and write down the amount to be paid to the vendor, taking in account the cash discount of 3%.

«Post» the invoice and note the number in the C-Business diagram.

## 18.11 PAYMENT OF THE SUPPLIER'S INVOICE

The outgoing payment by the is bank is done. Post the outgoing payment from the Deutsche Bank (ledger number 100000) with a deduction of 3% cash discount. Use in space ‘Financial Accounting’:



The company code is DE00. For the Posting Date and Journal Entry Date enter today's date. The Bank Data G/L account requested is 100000. The amount was written down in the previous paragraph. Open items selection with Account type 'Supplier' and for Account ID enter <your name> and click on the right supplier. With «Show items» the open items for this supplier are displayed.

Select the open item to be cleared with «Clear >> ».

Check the balance at the right top of the screen. It should be zero in green. Check the discount. «Simulate» the posting and when everything looks fine «Post» the payment. Make a note of the posting number in the C-Business diagram.

## 18.12 PRODUCTION ORDER RELEASE

The material availability check will be carried out for the production order and the order will be costed. From the space 'Production Planning and Execution' use:



«Enter».

*Material* SB???

*Plant* HD00

Double click on the 'PrdOrd' and select «Change element». With «Material» the availability check is performed and are the required materials for the order reserved.

The costs of the production order were calculated and budgeted in 18.5. Check and analyze the budgeted production costs, with «More -> Goto -> Costs -> Itemization».

At «Select lay-out» select ‘1SAP02’. Check instead of the variant ‘Itemization’ also the variants ‘Analysis’ and ‘Cost component Split’. Return to the ‘Production order Change: Header’.

With «Release order» and «Save» the production order is released and can be carried out.

## 18.13 ISSUE OF RAW MATERIALS TO PRODUCTION

The frames and wheels are to be taken out of the warehouse and used by production. From the space ‘Production Planning and Execution’ use:



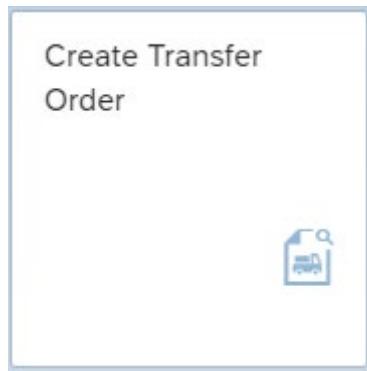
The production order can be retrieved with the Stock/Requirements List in a other tab in your browser. Press «Enter».

If there is a message that goods movements are not allowed for this order you must change the status of the production order. Change the order by selecting it in the Stock/Requirements List, «Change Element» and release the order (see last paragraph) and save it.

«Close Detail Data» . Enter for both raw materials OK  and the storage location (SLoc) RM00. «Post» the issue of goods and note the document number in the C-Business diagram.

## 18.14 TRANSFER RAW MATERIALS TO PRODUCTION

Create a transfer order for the goods to be issued from shelf storage using in space ‘Warehouse Management’:



<i>Warehouse number</i>	100
<i>Material</i>	FR???
<i>Plant</i>	HD00
<i>Stor. Location</i>	RM00

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

At ‘Quantities’ we can see the frames that must be collected and an open quantity. The Storage type search must be 001

<b>Storage type search</b>
Storage Type: <input type="text" value="001"/>

By pressing the «Stock figures» button you see the available stock level.

(In case no stock is available, check the stock according to 14.9. A non-zero quantity as Pick quantity indicates you did not confirm the transfer order in 14.9).

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’ this transfer order is set so that the transfer order is confirmed directly. Confirm the entries with «Enter» and with «Posting» the transfer order is done. Note the number of the transfer order in the C-Business diagram.

**Repeat the same procedure for the wheels WL???.**

## 18.15 CONFIRMATION OF A PRODUCTION ORDER

The production order completion will be confirmed and the actual realized wage hours and machine hours will be posted. In space 'Production Planning and Execution':



Select «More» and Confirmation > Enter > For operation > Time Ticket.

Enter at 'Order' the production order number. Press «Actual Data» to check the production order data. Choose at 'Confirm.type' the 'Final confirmation'. In the section 'Quantities' at Yield put in 1001 PC. 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 confirmation.

## 18.16 GOODS RECEIPT FINISHED PRODUCT FROM PRODUCTION

The app for posting the goods receipt is in space 'Production Planning and Execution':



Choose 'Goods Receipt' and 'Order'. The order is the previously created production order and give «Enter».

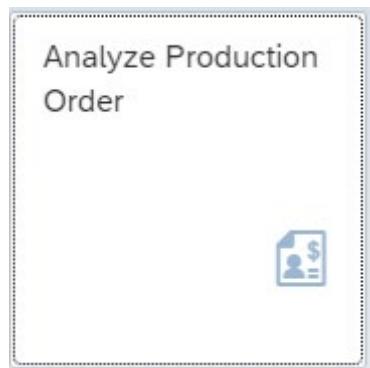
At line 1 checkmark OK  and enter at Sloc FG00 so the storage location will be 'Finished Goods'.

«Check» and «Post» the goods receipt and note the number in the C-Business diagram.

Monitor the result in the Stock/Requirements list for SB??? in plant HD00.

## 18.17 PLANNED AND ACTUAL COSTS PRODUCTION ORDER

Analyse the production order in space 'Controlling' with:



Enter when requested controlling area 'EU00'.

*Order* [production order]

*Time Frame* select Cumulated

«Execute» 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 '1SAP01 Target/Actual - Comparison'. You can double click on a row.

## 18.18 ACTUAL OVERHEAD

After the finished products are stored into the warehouse, the overhead costs are settled to the production order in space ‘Controlling’ with:



<i>Order</i>	[production order]
<i>Period</i>	[current month]
<i>Fiscal Year</i>	[current year]

At ‘Processing Options’ the option ‘Test Run’ should be selected. Press «Execute». With «Next list level» the posting is displayed. By deselecting the ’Test Run’ and «Enter» the actual overhead is posted. Check the posting of the ‘actual overhead’ with the report used in section 18.17.

## 18.19 VARIANCE ANALYSIS PRODUCTION

The variance analysis and determination of the production order results is executed in space ‘Controlling’ with:



*Order* [production order]

*Period* [current month]

*Fiscal Year* [current year]

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.

Carry out the variance analysis by deselecting the ‘Test Run’ and «Execute».

The variances are recorded on the production order.

## 18.20 SETTLEMENT OF PRODUCTION ORDER

The recorded variances of the production order will be settled in space ‘Controlling’ with:



*Order* [production order]

Parameters

*Settlement period* [current month]

*Fiscal Year* [current year]

*Processing type* Automatic

At processing options the ‘Test Run’ and ‘Check Trans. Data’ are 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».

## 18.21 OVERVIEW OF PLANNED AND ACTUAL COST PRODUCTION ORDER

The production orders can be analyzed in space ‘Controlling’ with:



*Order* [production order]

*Time frame* select Cumulated

«Execute».

Check if the settlement has been posted correct and complete.