This chapter covers the configuration steps for repetitive manufacturing (REM). These steps include creating a repetitive manufacturing profile, setting scheduling parameters for a run schedule quantity (planned orders), and selecting backflush settings for use online or in the background.
Chapter 5
Repetitive Manufacturing
Configuration

Configuration steps in repetitive manufacturing include creating a repetitive manufacturing profile, setting scheduling parameters for a run schedule quantity (planned orders), and selecting backflush settings for use online or in the background.

The configuration steps in repetitive manufacturing (REM) are relatively straightforward, without many complexities when compared to discrete manufacturing or process manufacturing types. In fact, the very purpose of REM is to enable lean manufacturing in actual business scenarios with correspondingly fewer entries in the SAP S/4HANA system. REM may not be able to manage complex manufacturing processes, but it can be used to bring about significant process optimization with a decreased data entry workload and improved system performance.

This chapter begins by explaining how to set up the REM profile using the REM assistant. The assistant guides the user with a step-by-step approach to ensure that the correct settings are made during the REM profile creation stage. The assistant also provides the detailed function of each configuration step and gives recommendations where necessary. You can even choose the desired production method, such as make-to-stock (MTS) or make-to-order (MTO). We deliberately took the long route to REM profile creation by using the assistant because we wanted to focus on explaining every available option in detail and with business examples.

At the end of REM profile creation by using the assistant, we explain the “normal” or the prevalent method of creating an REM profile with a single screen (and multiple tabs). Here, we also explain the options that aren’t available in the REM profile assistant. If you’re configuring an REM profile for the first time, we suggest that you use the REM profile assistant. If you’re already familiar with the REM profile and the functionalities it offers, then you can directly proceed to using the single-screen REM profile creation option.
We cover scheduling REM planned orders and running schedule quantity and then proceed to discuss the layout and display settings available on various screens in REM processing. You’ll get to see the effects of the REM configuration in Chapter 8, in which we cover the production planning for REM in detail. Finally, we also cover the settings available to optimize day-to-day business transactions, such as backflushing.

**Note**
Refer to Chapter 1 for features comparison among discrete manufacturing, process manufacturing, and REM, as well as how to decide which manufacturing type is most relevant for a given industry.

Let’s get started.

## 5.1 Repetitive Manufacturing Profile

The REM profile enables you to control several important functions that form the basis of regular or periodic data recording in the system. This includes the options to post activities online or at a later date, automatic goods movements of all or some of the materials, and stock and/or automatic batch determination, among others. To create an REM profile using the REM profile assistant, follow the SAP configuration menu path, `SAP IMG • Logistics • Production • Repetitive Manufacturing • Control • Create Repetitive Manufacturing Profile Using Assistant`, or use Transaction OSPT.

In the following sections, we’ll explain the steps involved in setting up an REM profile.

### 5.1.1 Repetitive Manufacturing Production Type

While creating an REM profile, you can decide whether you want to use the profile for the MTO or MTS production method.

**Note**
Chapter 11 covers MTO and MTS production methods.

Depending on the option you select, the system correspondingly displays the relevant screens and options to choose from. If you choose MTO production, you create a profile suited to REM that references the sales order. If you choose MTS production, you create a profile suited to REM that doesn’t reference the sales order.

You can also use an REM profile template to copy previously created and available REM profiles to create a new REM profile. This step copies all the settings of the REM template profile into the new REM profile, and you can then make the desired changes where needed.

### Tips & Tricks

Choose the Meaning icon available on each screen of the REM profile creation to get information on the underlying concept of that functionality or area.

Choose the Recommendation icon available in each screen of the REM profile creation to see system advice on recommended settings.

For this example, we’ll create an REM profile for an MTS production method. Figure 5.1 shows the initial screen to create an REM profile using the assistant. For this example, select the Make-to-stock - REM radio button, and then choose Next.

![Figure 5.1 Initial Screen of the Repetitive Manufacturing Profile Assistant](image-url)
5.1.2 Reporting Points

A reporting point (RP) enables the system to record consumption or other details, such as identifying the work in process (WIP) and better stock visibility in inventory management (IM), which are specific to actual information in time and equally helpful in reporting. As shown in Figure 5.2, you can select whether you want the system to include no RPs or make the RP mandatory or optional. The RP serves the same purpose as a milestone does in routing for discrete manufacturing. If you select the Mandatory reporting points option, then you have to define an RP at the time of assembly or component backflush.

![Figure 5.2 Reporting Points](image)

You can use RPs in one of the following situations:

- If you use mandatory RPs, then you must backflush at every RP. It makes sense to backflush at RPs if the goods issue (GI) is to be posted as close as possible to the actual issuance of the materials or if WIP is to be calculated.

- If you use optional RPs, you can carry out the normal final backflush, and then use RP backflush only in certain situations. At optional RPs, you can use the standard goods receipt (GR) posting procedures in REM for backflushing and then only backflush at RPs for special purposes, for example, when backflushing scrap or when calculating WIP. The optional RP makes sense when you usually don’t have a need for an RP at all, but due to technical issues in the production line, you want to evaluate extra material issuance or extra scrap generation.

For this example, choose Mandatory reporting points, and then choose Next.

5.1.3 Automatic Goods Movements

The automatic goods movement option applies to RP backflush only. Without RPs, you can only post the GR on final confirmation. In Figure 5.3, you can choose whether you want the system to perform automatic GR at the time of assembly backflush. When you record assembly backflush and confirm the yield, the system automatically performs the GR at the last RP.

![Figure 5.3 Automatic GR](image)

When using optional RPs, you choose the setting in automatic GR because you usually backflush the components along with the GR posting.

When using mandatory RPs, you can only backflush at RPs. The normal GR posting isn’t available here. Therefore, for mandatory RPs, the recommendation is to define the last workplace on your production line as an RP with the automatic GR setting.

If you set the automatic GR option, you have to post activities and GIs manually for operations that lie after the last RP. This is normally an exception to the preceding rule/recommendation.

For this example, choose Automatic GR, and then choose Next.

Note

While configuring the REM profile using the assistant, your system displays either the screen shown in the preceding figure or the screen shown in the following figure. This is dependent on the option you’ve previously selected while creating a REM profile.

5.1.4 Reporting Points Confirmation and Kanban

Depending on your system release, you can select whether you want to use RPs with or without Kanban, as shown in Figure 5.4. RP Kanban enables you to monitor the production process at the intermediate level by using Kanban for processing products in individual operations. The RPs record the confirmation that an operation has completed. For this example, choose RP Confirmation w/o Kanban, and then choose Next.
5.1.5 Activities Posting

In the next screen, you can choose whether or not you want the system to also post the activities to a product cost collector at the time of assembly backflush by choosing the Post activities or No activity posting radio button. Activities may be machine hours, labor hours, or processing time, and they are defined in rate routing. If you follow the lean manufacturing approach, in which even the data entry effort is minimal, activities posting involves additional use of the system’s resources, such as material calculation and price updates. Activities posting should only be considered if it’s significant when compared with cost. We suggest that you engage a product cost controlling (CO-PC) resource to help with the decision-making process on activities posting.

If you instruct the system to post production activities, it calculates these activities either on the basis of details from the standard cost estimate or from preliminary costing in the cost collector for material. Additionally, the system posts the activities during the confirmation process. For this example, choose Post activities, and then choose Next.

5.1.6 Separated Backflush

You can choose whether you want the system to perform separated backflushes or not by selecting the Separated backflush or No separated backflush radio button. This option is primarily used to improve a system’s performance, especially if it gets slow due to a large number of confirmations. With separated backflush, you can uncouple certain aspects of backflushing during the confirmation process by scheduling them as separate background jobs offline.

You use the separated backflush in the following cases, for example:

- To improve system performance
- If you’re dealing with large bills of materials (BOMs)
- For sales orders with many schedule lines for small quantities

For this example, choose Separated backflush, and then choose Next.

If you choose No separated backflush, then Figure 5.5 will appear wherein you can choose whether you want the system to simultaneously post GR and GI in the same transaction of assembly confirmation. In REM, the final confirmation also encompasses GR. You can choose whether you also want to post GI during the confirmation process. If you choose the Post GR only option, you can post the GIs for the components collectively, for example, using the GI transaction in REM.

For this example, choose Post GR and GI in the assembly confirmation.

5.1.7 Process Control

In Figure 5.6, you can choose when GI and calculation of costs are performed and whether GI and calculation of costs are aggregated during confirmation. While you have the option to let the system perform several steps/functions together, you can use the Process control option to customize the process according to your business needs. You can click on the Customizing button on this screen to make the necessary changes. However, we cover the customization of process controls later in Section 5.5.
It's important to note that you'll only get this option if you chose Separated back-flush in the previous step. In that case, you have to define the process control for this separated backflush, and there are four options available to maintain.

For this example, enter the Process control “SAPI”, and choose Next.

5.1.8 Firming Planned Orders
It makes sense to firm the planned orders when you create them in the REM planning table because a firmed planned order won’t change during the material requirements planning (MRP) run. You also have the options to not firm the planned order at the time of its creation and to firm planned orders in the planning time fence only.

For this example, choose Firm planned orders in plng time fence, and then choose Next (Figure 5.7).

5.1.9 Automatic Stock Determination
You can choose to take advantage of the system performing the automatic stock determination at the time of component or assembly backflush by selecting the Use stock determination radio button. The prerequisite is that you’ve already set up the automatic stock determination procedure in the system. Stock determination enables the system to suggest available stock for consumption based on the defined criteria.

For this example, choose Do not use stock determination, and then choose Next.

5.1.10 Batch Determination Procedure
Similar to the previous automatic stock determination procedure, you can also choose whether or not the system should perform the batch determination procedure in REM by selecting Separate batch search proc. or No separate batch search proc.

5.1.11 Reduction in Planned Order Quantities
In the screen shown in Figure 5.8, you can choose whether you want the system to reduce the production quantities in the planned order or in the run schedule quantity (RSQ) when you perform assembly confirmation of a material. You can also choose whether you want the system to reduce the planned order quantity only if it pertains to a specific production version. As each production version reflects a production line, this option enables you to reduce planned order quantities as soon as the goods on the production line (in direct relation to the production version) are produced.

For this example, choose All, which causes the system to reduce planned order quantities in all cases. Choose Next.

5.1.12 Reduction Period
In the screen shown in Figure 5.9, you can choose the period in days during which the system should reduce the planned order quantities. The system considers the reduction period from today and expands to consider the defined dates in the future. For example, if you’re consistently faced with overproduction and want to...
avoid additional production for the defined days in the future, then you can enter the reduction period here. In addition, note that the system reduces the planned order quantities dates of the past in any case and accords them higher priority than the current date or future dates.

For this example, enter “3” in the Reduction period field, and then choose Next.

![Figure 5.9 Reduction Period for Planned Orders](image)

**5.1.13 Create New Planned Orders on Goods Receipts Reversals**

In the screen shown in Figure 5.10, you can choose whether the system should automatically create planned orders for reversed quantities. If you choose not to, then the system automatically creates planned orders during the MRP run if necessary. For this example, choose No planned order creation, and then choose Next.

![Figure 5.10 Planned Order Creation on GR Reversals](image)

**5.1.14 Online Error Correction**

You can choose how the system processes errors encountered during transaction postings, such as a failed component backflush due to a mismatch in IM. Other types of errors may include an insufficient quantity of a component’s stock in a component backflush, a missing storage location for GI or GR, and so on. If you opt for No online correction or Optional online correction, you can use a separate transaction to attend errors separately, provided that reprocessing records are created (see the next step). You can also choose Online correction mandatory. For this example, choose Optional online correction, and then choose Next.

**5.1.15 Reprocessing Errors Log Maintenance**

During automatic goods movement processing, such as backflushing, sometimes the processing isn’t successful due to insufficient stock, an incorrect storage location, or missing or nonupdated rates for activity types. All such unsuccessful records end up in errors log maintenance for reprocessing and to note that they haven’t been resolved yet.

In the screen shown in Figure 5.11, you can choose how the system should manage all reprocessing records of all items that caused the errors. The available options are that the system won’t maintain any reprocessing record, the system will maintain collective reprocessing records, or the system will maintain individual and collective reprocessing records of errors. For this example, choose Indiv. and cumul. reprocessing records, and then choose Next.

![Figure 5.11 Reprocessing Incorrect Records](image)

**5.1.16 Movement Types for Stock Postings**

On the next screen (Figure 5.12), the system provides standard movement types that the system uses to perform various IM transactions. For example, for GI against an REM planned order, the movement type is 261, and its reversal is reflected in movement type 262.
If you have any customized movement type to record an inventory transaction, you can enter it on this screen. The prerequisite for using a customized movement type is that you’ve maintained it in the system previously and then assign it on this screen. Choose Next.

5.1.17 Naming the Repetitive Manufacturing Profile

You’ll now see the last screen of the REM profile creation process using the assistant. In this screen, enter the REM profile “PP10”, and give it a short description. You can go back and make changes to any of the settings you’ve made so far.

5.1.18 Summary of Repetitive Manufacturing Profile Settings

Figure 5.13 shows the overview/summary screen of the REM profile PP10. Choose Continue, and then save. Scroll down to review the remaining options that you configured for the REM profile in the previous screens.

After you’ve created the REM profile, you can’t use the same transaction to make changes to it because it’s only for the creation of the REM profile. At the same time, when you become familiar with the REM profile, you can proceed to directly create it without using the REM profile assistant. This saves time and effort because all of the selection options are available on one screen and in different tabs.

To make changes or to update any field in the already-created REM profile, follow the SAP configuration (Transaction SPRO) menu path, Production • Repetitive Manufacturing • Control • Define Repetitive Manufacturing Profiles, or use Transaction OSP2. Here, you can make changes to REM Profile PP10. For this example, scroll down and choose Backflush using standard cost estimate for material (not shown), and then save the REM profile (see Figure 5.14).
5.2 Scheduling Planned Orders

The next basic configuration topic we’ll discuss is scheduling planned orders. As in the discrete manufacturing or process manufacturing types, you can take advantage of the available scheduling options. You can set scheduling parameters for planned orders in REM by following the configuration menu path, SAP IMG > Production > Repetitive Manufacturing > Planning > Define Scheduling Parameters for Planned Orders. The initial screen appears for maintaining the scheduling parameters for a planned order. Because the order type for the REM planned order is “PE”, enter Plant “1000” and Order Type “PE”, and double-click the Plant field (1000). It’s important to note here that the Order Type “PE” is identical to the RSQ.

After this selection, choose the Detail icon. This takes you to the detailed screen to set scheduling parameters for the REM planned order of Order Type PE and Plant 1000 (see Figure 5.15).

Because REM uses rate-based scheduling, select both the Scheduling and Generate Capacity Reqs. checkboxes. At the same time, if your organization decides to use detailed scheduling for all non-REM applications, you can select the relevant scheduling and capacity requirements checkboxes to meet the business need.

You can also select the Scheduling Type, which, for this example, is Forwards. You can also choose from Backward Scheduling and Current Date as scheduling types. Refer to Chapter 3 in which we cover scheduling in detail. Although the details covered in Chapter 3 are applicable to scheduling production orders, the same equally applies to planned orders.

You have a few different options to control how different settings will appear in your system. The following sections cover two display options.
5.3.1 Entry Parameters for a Planning Table
You can choose how the display entry parameters of the REM planning table should look or how to present the requisite information. The settings you make in this section will eventually be available on the initial parameters selection screen of the REM planning table (Transaction MF50). To maintain or change the entry parameters of the planning table, follow configuration menu path SAP IMG → Production → Repetitive Manufacturing → Planning Table → Maintain Entry Parameters (see Figure 5.16).

![Figure 5.16 Entry Parameters of the REM Planning Table](image)

You’ll be able to see the impact of the preceding configuration on the parameters selection screen of the planning table (Transaction MF50), which we cover in Chapter 8.

5.3.2 Maintain Rows Selection
You can control the display of information within the planning table, including receipts, requirements, and stock situations. To configure rows selection in the planning table, follow the configuration menu path, SAP IMG → Production → Repetitive Manufacturing → Planning Table → Maintain Rows Selection. For this example, select all the checkboxes (see Figure 5.17); however, you should select only the checkboxes relevant to your business needs to keep things lean when dealing with your company’s unique situation.

![Figure 5.17 Visible Rows in the REM Planning Table](image)

5.4 Material Staging
A pull list is basically a movement of stock (stock transfer) from storage location to storage location that uses inventory movement type 311. It’s also known as material staging. You can also assign previously configured stock determination and batch search procedures on this screen. For the necessary settings, follow the configuration menu path, SAP IMG → Production → Repetitive Manufacturing → Material Staging → Define Control Data for Pull List (see Figure 5.18).
5.5 Global Settings for Confirmation and the Logistics Information System

Some settings are maintained at the global level. This includes the period the system is to take into account when automatically updating statistics (logistics information system [LIS]) of the planning figures. It also includes the option allowing you to require the system to display the planned order number of the RSQ number during backflushing.

To configure the necessary settings, follow the configuration menu path, SAP IMG • Production • Repetitive Manufacturing • Backflushing • Maintain Global Settings for Confirmation and LIS. In the Start: current date+ and Finish: current date+ fields (see Figure 5.19), you can choose to start from the current date (the earliest) and give any number of future dates.

When you maintain the process control for confirmation, you can control when the system should update the transactions, such as backflush or activities costs calculation. The system can update the information immediately and online by using an update program or later in a background program. It’s therefore important to ensure that you select the process control when you’re creating the REM profile.

In Figure 5.20, if you place the cursor in the Backflush field and press (F4), the drop-down on the right side of the screen appears. From the dropdown, you can choose one of the three backflushing options available. To set the relevant parameters, use configuration menu path, SAP IMG • Production • Repetitive Manufacturing • Backflushing • Separate Backflushing Processes • Define Confirmation Processes.

5.6 Operational Methods Sheet

The operational methods sheet (OMS) supports business tasks in the entire REM cycle. An OMS shows the production details that a plant operator needs to produce the goods. You can make several layout and configuration settings to customize the display layout of an OMS. For example, you can specifically select the desired fields from the work center, operation, component, production resources/tools (PRT) or Document Management System (DMS) that you want to appear in the OMS. You can separately customize the header and table (item) details.

To create an OMS, follow the configuration menu path, SAP IMG • Production • Basic Data • Line Design • Operational Method Sheet, or use Transaction OLDP. In the
Table Assignments area shown in Figure 5.21, you can select COMPONEN, MATERIAL, OPERATIO, or PRT, for example, from the Table ID column. Next, you can use the Assign fields folder available on the left-hand side of the screen to choose the field that you want to display in the OMS.

![Table Assignments](image)

**Figure 5.21 Operational Methods Sheet**

In Chapter 8, we’ll show how the settings you made here enable you to display (and print) the OMS in REM. You have to ensure that integration with Microsoft Word is in place as well. The prerequisite is to have at least Word for Windows 95 installed with macros enabled. The template file is placed within the SAP system, which the system refers to while creating the OMS.

### 5.7 Summary

The REM profile is the main configuration activity, and it controls the various functions that you can perform in REM. You assign the configured REM profile in the material master. You can configure the scheduling parameters of RSQs as well as alter the display layout of the planning table. You can control when the system performs automated functions, such as backflush, either online or in the background.

In the next chapter, we’ll cover the business processes associated with discrete manufacturing in the SAP S/4HANA system. The chapter will build upon the configuration concepts and understanding you developed in Chapter 3.
Contents

Acknowledgments ................................................................................................................ .............. 27
Preface ........................................................................................................................................... 29

PART I  Core Production Planning Concepts

1  Introduction to Production Planning with SAP S/4HANA 37

1.1  Production Planning and Control ................................................................. 38
    1.1.1 Production Planning Overview ................................................................. 38
    1.1.2 Characteristics of Production Types ......................................................... 40
    1.1.3 Processes in Production Planning and Control ......................................... 47
    1.1.4 Product Cost Controlling .......................................................................... 49

1.2  Comparison Table of Production Types ..................................................... 50

1.3  SAP Integrated Business Planning ............................................................. 55

1.4  Summary ............................................................................................................... 57

2  Organizational Structure in SAP 59

2.1  Breaking Down the Structure into Units ..................................................... 59
    2.1.1 Client ........................................................................................................... 61
    2.1.2 Company Code ............................................................................................ 62
    2.1.3 Plant ............................................................................................................. 63
    2.1.4 Storage Location .......................................................................................... 65
    2.1.5 Material Requirements Planning Controllers ............................................ 66
    2.1.6 Capacity Planners ......................................................................................... 67
    2.1.7 Production Schedulers ............................................................................... 67

2.2  SAP Calendar ...................................................................................................... 68
    2.2.1 Public Holidays ............................................................................................ 69
PART II Production Planning Configuration

3 Discrete Manufacturing Configuration

3.1 Material Master ................................................................. 76
3.2 Bill of Materials ................................................................. 78
3.2.1 Define Bill of Material Usages ........................................ 78
3.2.2 Allowed Material Types in the Bill of Materials Header ........................................ 79
3.2.3 Bill of Material Status ..................................................... 80
3.2.4 Bill of Material with History Requirement ...................... 81
3.2.5 Item Category in Bill of Material ................................. 81
3.2.6 Variable Size Item Formulas ........................................ 82
3.2.7 Bill of Material Explosion Types ................................. 83
3.2.8 Bill of Material Selection (Order of Priority) ................... 83
3.3 Work Center ................................................................. 84
3.3.1 Work Center Category ................................................ 84
3.3.2 Field Selection in the Work Center ............................... 85
3.3.3 Formulas for the Work Center ....................................... 87
3.3.4 Standard Value Key .................................................... 89
3.3.5 Location Groups ......................................................... 92
3.3.6 Control Key for Operations ........................................ 94
3.4 Routing ........................................................................... 95
3.5 Production Order Configuration ...................................... 97
3.5.1 Maintain Order Types ................................................. 98
3.5.2 Number Ranges ......................................................... 100
3.6 Order Type-Dependent Plant Parameters ....................... 101
3.6.1 Planning .................................................................... 102
3.6.2 Implementation ......................................................... 104
3.6.3 Cost Accounting ......................................................... 106
3.7 Production Scheduling Profile ........................................... 106
3.8 Default Values for the Generation of Operations .............. 109
3.9 Availability Check ............................................................ 110
3.9.1 Define the Checking Group .......................................... 111
3.9.2 Define the Checking Rule ........................................... 112
3.9.3 Define the Scope of Check .......................................... 112
3.9.4 Define the Checking Control ....................................... 114
3.10 Scheduling ................................................................. 116
3.10.1 Scheduling Types for Production Orders .................... 117
3.10.2 Scheduling Parameters for Production Orders ................ 118
3.10.3 Scheduling Margin Key ............................................. 119
3.11 Reduction Strategy ........................................................ 121
3.12 Confirmation ............................................................... 122
3.12.1 Process Overview ..................................................... 123
3.12.2 Parameters for Order Confirmation ......................... 124
3.12.3 Single Entry Screen for Confirmation ......................... 128
3.12.4 Time of Confirmation ............................................... 130
3.13 Reason for Variances ...................................................... 130
3.14 Trigger Points ............................................................... 132
3.15 Define Print Control ....................................................... 132
3.16 Background Jobs ........................................................... 133
3.17 Summary ........................................................................ 134

4 Process Manufacturing Configuration

4.1 Master Data in Process Industries ..................................... 136
4.1.1 Master Recipe Profile ................................................ 136
4.1.2 Task List Assignment to Material Types ..................... 138
4.1.3 Task List Status ......................................................... 138
4.2 Order Type-Dependent Parameters ................................. 139
4.2.1 Master Data ............................................................... 140
4.2.2 Planning ................................................................. 141
## 6.3 Production Order Management

- **6.3.1 Header Data** .......................................... 248
- **6.3.2 Operations Overview** ........................................ 249
- **6.3.3 Standard Trigger Points** .................................. 252
- **6.3.4 Components Overview** .................................. 254
- **6.3.5 Reread Master Data** .................................... 255
- **6.3.6 Statuses** .................................................. 255
- **6.3.7 Scheduling** .................................................. 256
- **6.3.8 Availability Checks** ....................................... 261

## 6.4 Release Production Order

- **6.4.1 Automatic Release** ........................................ 267
- **6.4.2 Individual Release** ........................................ 267
- **6.4.3 Collective Release** ......................................... 268

## 6.5 Printing

- ................................................................. 269

## 6.6 Material Withdrawal

- **6.6.1 Goods Issuance against the Production Order** ........ 273
- **6.6.2 Picking List** ............................................. 275
- **6.6.3 Backflush** ................................................ 276

## 6.7 Confirmation

- **6.7.1 Confirmation at the Operations Level** ................. 281
- **6.7.2 Progress Confirmation** ................................... 284
- **6.7.3 Confirmation for Order** ................................ 284
- **6.7.4 Confirmation Cancellation** ............................. 285
- **6.7.5 Display Confirmation** ..................................... 285

## 6.8 Goods Receipt

- **6.8.2 Goods Receipt: Automatic Process** ..................... 288

## 6.9 Postprocessing

- **6.9.1 Reprocessing Goods Movements** ....................... 289
- **6.9.2 Cost Calculation** ......................................... 291

## 6.10 Settlement and Completion

- ................................................................. 291

## 6.11 Additional Functions and Information Systems

- **6.11.1 From Planned Order: Individual Conversion** ........ 293
- **6.11.2 From Planned Orders: Collective Conversion** ........ 293
- **6.11.3 Production Order Creation without a Material** ........ 294

## 7 Production Planning for Process Manufacturing

### 7.1 Process Manufacturing Overview ................................ 300

### 7.2 Master Data in Process Manufacturing

- **7.2.1 Material Master** ............................................. 303
- **7.2.2 Bill of Materials** ............................................. 304
- **7.2.3 Resource** ..................................................... 304
- **7.2.4 Production Version** ........................................ 304
- **7.2.5 Master Recipe Creation** .................................. 305

### 7.3 Characteristics ..................................................... 312

### 7.4 Process Management

- **7.4.1 Elements in Process Management** ...................... 318
- **7.4.2 Integrating Process Management** ....................... 318
- **7.4.3 Process Instructions** ....................................... 319
- **7.4.4 Process Instruction Sheet** ................................ 321

### 7.5 Process Order Execution ......................................... 330

### 7.6 Process Management in Action

- **7.6.1 Creating and Releasing a Process Order** .............. 332
- **7.6.2 Generating a Control Recipe** ............................ 333
- **7.6.3 Downloading and Sending a Control Recipe** ......... 335
- **7.6.4 Maintaining Process Instruction Sheets** ............... 337
- **7.6.5 Completing Process Instruction Sheets** ............... 340
- **7.6.6 Sending Process Messages** .............................. 340

### 7.7 Execution Steps .................................................... 343

- **7.7.1 Repository for Standard XSteps** ......................... 343
- **7.7.2 Importing the Standard XSteps Library** ............... 344
- **7.7.3 Switching from Process Instructions to Execution Steps** 345
- **7.7.4 General Information** ...................................... 346
- **7.7.5 Parameters** .................................................. 347
8 Production Planning for Repetitive Manufacturing

8.1 Overview

8.2 Master Data

8.3 Material Requirements Planning in REM

8.4 Planning Table

8.5 Material Staging

8.6 Production List

8.7 Confirmation

Contents

8.7.6 Valuation................................................................................................................. 347
8.7.7 Control Recipe Destination .................................................................................. 348
8.7.8 Process Instructions .............................................................................................. 349
8.8 Process Messages Evaluation .................................................................................. 357
8.9 Process Manufacturing Cockpit .............................................................................. 359
8.10 Summary .................................................................................................................... 360

8.11 Reporting

8.12 Summary

PART IV Production Planning Tools

9 Batch Management

9.1 Batch Management Overview

9.2 Batch Level and Batch Status Management

9.3 Master Data in Batch Management

9.4 Costing Activities (Cost Object Controlling)

9.5 Heijunka

9.6 Reporting

9.7 Summary

Contents

8.7.2 Assembly Confirmation......................................................................................... 407
8.7.3 Component Confirmation...................................................................................... 407
8.7.4 Activities Confirmation.......................................................................................... 407
8.7.5 Actual Assembly Confirmation............................................................................... 407
8.7.6 Separated Backflush............................................................................................ 407
8.7.7 Postprocessing of Components.............................................................................. 407
8.7.8 Collective Confirmation........................................................................................ 407
8.8 Reversals and Scrap

8.8.1 Document-Specific Reversal.................................................................................. 417
8.8.2 Document-Neutral Reversal.................................................................................. 417
8.8.3 Repetitive Manufacturing Actual Assembly Scrap............................................... 417
8.8.4 Repetitive Manufacturing Actual Component Scrap........................................... 417
8.8.5 Repetitive Manufacturing Actual Activity Scrap.................................................. 417
8.8.6 Reset Reporting Point Confirmation..................................................................... 417
8.9 Costing Activities (Cost Object Controlling)

8.10 Heijunka

8.11 Reporting

8.11.1 Document Log Information.................................................................................. 427
8.11.2 Reporting Point Statistics.................................................................................... 427

8.12 Summary

8.13.1 Activate Batch Management in the Material Master......................................... 427

8.14 Batch Management Overview

8.15 Batch Level and Batch Status Management

8.16 Master Data in Batch Management

8.17 Activate Batch Management in the Material Master

8.18 Heijunka

8.19 Reporting

8.20 Summary
9.3.2 Batch Classification ................................................................. 439
9.3.3 Assigning Classification in the Material Master ......................... 442

9.4 Business Processes of Batch Management ........................................ 443
9.4.1 Create a Batch Master Manually ............................................... 444
9.4.2 Changing a Batch ..................................................................... 448
9.4.3 Deleting a Batch ....................................................................... 448
9.4.4 Automatic Creation of a Batch in Goods Movement ..................... 448
9.4.5 Stock Overview ........................................................................ 450

9.5 Batch Determination ..................................................................... 452
9.5.1 Define Condition Tables ........................................................... 453
9.5.2 Define the Access Sequence ....................................................... 456
9.5.3 Define Strategy Types ................................................................. 457
9.5.4 Batch Search Procedure Definition ............................................ 458
9.5.5 Batch Search Procedure Allocation and Check Activation ............ 460
9.5.6 Batch Search Procedure for Production Orders ............................ 460
9.5.7 Creating Sort Rules .................................................................... 461
9.5.8 Maintaining Condition Records .................................................. 462
9.5.9 Stock and Batch Determination .................................................... 464
9.5.10 Business Process ...................................................................... 465

9.6 Recurring Inspection and Expiration Dates ...................................... 467
9.6.1 Quality Management Master Data Checklist ................................. 468
9.6.2 Business Processes ..................................................................... 471

9.7 Batch Derivation ........................................................................... 474
9.7.1 Configuration Basics ................................................................. 475
9.7.2 Classification in Material Master ............................................... 475
9.7.3 Business Processes .................................................................... 483
9.7.4 Reporting .................................................................................. 486

9.8 Batch Traceability of Work in Process Batches ................................. 487
9.8.1 Configuration Settings ............................................................... 487
9.8.2 Master Data Setup ...................................................................... 490
9.8.3 Business Processes ..................................................................... 491
9.8.4 Work in Process Batches Reporting .......................................... 497

9.9 Batch Information Cockpit ............................................................. 499
9.10 Electronic Batch Record ............................................................... 501
9.11 Summary .................................................................................... 503

10 Sales and Operations Planning ...................................................... 505
10.1 Standard Sales and Operations Planning ........................................ 506
10.1.1 Overview ................................................................................ 506
10.1.2 Information Structures ........................................................... 512
10.1.3 Planning Methods ................................................................. 515
10.1.4 Planning Types in Standard Sales and Operations Planning .......... 516
10.1.5 Distribute Key Figures .............................................................. 522
10.1.6 Working with Macros .............................................................. 526

10.2 Flexible Planning ................................................................. 527
10.2.1 Creating a Self-Defined Info Structure ................................. 528
10.2.2 Planning Hierarchy ................................................................. 534
10.2.3 Planning Type ................................................................. 536
10.2.4 Working with Self-Defined Macros in Flexible Planning .......... 540
10.2.5 Row Attributes in a Planning Type ........................................ 543
10.2.6 Planning in the Planning Table ............................................... 544
10.2.7 Additional Features of Planning Tables ................................. 550

10.3 Version Management ................................................................. 551
10.3.1 Copy a Version ................................................................. 551
10.3.2 Delete a Version ................................................................. 552
10.3.3 Scheduling a Copy Version or Scheduling a Delete Version ......... 553

10.4 Forecasting ................................................................. 553
10.4.1 Forecasting View in the Material Master ................................. 554
10.4.2 Forecast Models ................................................................. 558
10.4.3 Forecast Profile ................................................................. 560
10.4.4 Forecast Strategy ................................................................. 562
10.4.5 Using the Forecast Profile ..................................................... 564
10.4.6 Weighting Group ................................................................. 566
10.4.7 Splitting Indicator ................................................................. 566

10.5 Rough-Cut Planning Profile ...................................................... 567
10.5.1 Create a Profile ................................................................. 568
10.5.2 Pegged Requirements ........................................................... 571

10.6 Events ................................................................. 572
10.6.1 Create Events ................................................................. 573
10.6.2 Assignment of Events .......................................................... 574
10.6.3 Events in Planning ............................................................... 576
10.7 Mass Processing in Sales and Operations Planning ............................................. 578
  10.7.1 Planning Activity ............................................................... 579
  10.7.2 Setting Up a Mass Processing Job ............................................. 579
  10.7.3 Scheduling the Mass Processing Job ............................................. 580
10.8 Standard Analysis in Flexible Planning ................................................................. 581
10.9 Summary ...................................................................................................................... 584

11 Demand Management ....................................................................................................... 585

11.1 Elements of Demand Management .............................................................................. 586
  11.1.1 Consumption Modes and Logic ............................................................................ 586
  11.1.2 Determining the Requirements Type ..................................................................... 588
  11.1.3 Availability Check and Total Replenishment Lead Time ........................................ 592
11.2 Strategies for Make-to-Stock Production ..................................................................... 593
  11.2.1 Strategy 40: Planning with Final Assembly .......................................................... 594
  11.2.2 Strategy 30: Production by Lot Size ...................................................................... 596
  11.2.3 Strategy 10: Net Requirements Planning ........................................................... 599
  11.2.4 Strategy 11: Gross Requirements Planning ......................................................... 601
  11.2.5 Strategy 52: Planning with Final Assembly and without MTO ............................ 602
  11.2.6 Strategy 63: Planning with a Planning Material and without MTO ..................... 604
11.3 Strategies for Make-to-Order Production ................................................................. 605
  11.3.1 Strategy 20: Make-to-Order Production .............................................................. 607
  11.3.2 Strategy 60: Planning with a Planning Material .................................................... 609
  11.3.3 Strategy 50: Planning Without Final Assembly .................................................. 610
11.4 Strategies for Assemble-to-Order ................................................................................. 612
  11.4.1 Strategy 81: Assembly Processing with Planned Orders ..................................... 613
  11.4.2 Strategy 82: Assembly Processing with Production Orders ............................... 616
11.5 Strategies for Planning Components ........................................................................... 618
  11.5.1 Strategy 70: Planning at Assembly Level ............................................................. 619
  11.5.2 Strategy 59: Planning at Phantom Assembly Level ............................................ 620
11.6 Production with Variant Configuration ........................................................................ 621

11.7 Create a Custom Requirement Class ........................................................................... 624
  11.7.1 Copy Standard Requirements Class ................................................................. 626
  11.7.2 Create a Requirements Type and Add the Requirements Class ....................... 627
  11.7.3 Create a Planning Strategy ................................................................. 627
  11.7.4 Create a Strategy Group and Include the Newly Created Planning Strategy ....... 628
  11.7.5 Assign Strategy Group to a Material Requirements Planning Group .................. 628
11.8 Business Processes in Demand Management .............................................................. 629
  11.8.1 Planned Independent Requirements ................................................................. 629
  11.8.2 Customer Independent Requirements .............................................................. 634
  11.8.3 Planning for Independent Requirements ......................................................... 635
  11.8.4 Stock/Requirements List for Independent Requirements ................................. 635
  11.8.5 Total Independent Requirements: Evaluation .................................................... 636
  11.8.6 Total Independent Requirements: Reorganization .......................................... 638
  11.8.7 Planned Independent Requirements: Reduction .............................................. 640
11.9 Summary ...................................................................................................................... 641

12 Foundations of Material Requirements Planning .......................................................... 643

12.1 Process Overview ........................................................................................................ 644
12.2 Deterministic Replenishment Procedures ................................................................. 651
  12.2.1 MRP Type PD .................................................................................................... 652
  12.2.2 MRP Type VB .................................................................................................... 656
  12.2.3 MRP Type VM .................................................................................................... 659
  12.2.4 MRP Type V1 .................................................................................................... 662
  12.2.5 MRP Type V2 .................................................................................................... 662
  12.2.6 MRP Type D1 .................................................................................................... 663
12.3 Stochastic Replenishment Procedures ........................................................................ 664
  12.3.1 MRP Type VV .................................................................................................... 664
  12.3.2 MRP Types R1 and R2 ...................................................................................... 668
## 12.4 Configuring Material Requirements Planning Types

### 12.5 Lot Sizing Procedures

- **12.5.1 Static Lot-Sizing Procedures**
- **12.5.2 Periodic Lot-Sizing Procedures**
- **12.5.3 Optimum Lot-Sizing Procedures**
- **12.5.4 Configuring Lot Size**

### 12.6 Rounding

- **12.6.1 Assembly Scrap**
- **12.6.2 Component Scrap**
- **12.6.3 Operations and Component Scraps in Bill of Materials**
- **12.6.4 Scrap in Routing**

### 12.7 Scrap

- **12.7.1 Assembly Scrap**
- **12.7.2 Component Scrap**
- **12.7.3 Operations and Component Scraps in Bill of Materials**
- **12.7.4 Scrap in Routing**

### 12.8 Safety Stock

- **12.8.1 Static Safety Stock**
- **12.8.2 Safety Stock Availability**
- **12.8.3 Dynamic Safety Stock with Range of Coverage Profile**
- **12.8.4 Safety Stock and Safety Time**

### 12.9 Scheduling

- **12.9.1 Scheduling In-House Production**
- **12.9.2 Basic Date Determination**
- **12.9.3 Planned Order Dates**
- **12.9.4 Scheduling External Procurement**
- **12.9.5 Forward and Backward Scheduling**

### 12.10 Procurement Proposals

- **12.10.1 Planned Orders**
- **12.10.2 Planned Order Profile**
- **12.10.3 Purchase Requisitions**

### 12.11 Configuration Settings for Material Requirements Planning

- **12.11.1 Material Requirements Planning Activation**
- **12.11.2 Scope of Planning Configuration**
- **12.11.3 Plant Parameters Configuration**
- **12.11.4 Material Requirements Planning Group Configuration**

### 12.12 Summary

## 13 Running Material Requirements Planning

### 13.1 MRP Live

### 13.2 Stock/Requirements List

- **13.2.1 Overview**
- **13.2.2 Traffic Lights for Days' Supply and Receipt Days' Supply**
- **13.2.3 Exception Messages**
- **13.2.4 Order Report**
- **13.2.5 Material Requirements Planning Elements**
- **13.2.6 Header Details of Stock/Requirements List**
- **13.2.7 Interactive Conversion of Procurement Elements**
- **13.2.8 Summation View**
- **13.2.9 Stock Statistics**
- **13.2.10 User Settings**

### 13.3 Planning Calendar

### 13.4 Planning Areas

- **13.4.1 Configuration**
- **13.4.2 Set Up in the Material Master**
- **13.4.3 Running Material Requirements Planning Areas at the Planning Area Level**
- **13.4.4 Planning Results**

### 13.5 Classic Material Requirements Planning

### 13.6 Types of Planning Runs

- **13.6.1 Total Planning Online**
- **13.6.2 Total Planning Background**
- **13.6.3 Single-Item Planning, Sales Order**
- **13.6.4 Single-Item Planning, Project**

### 13.7 Demand-Driven Replenishment

- **13.7.1 Why Use Demand-Driven Replenishment?**
- **13.7.2 Key Terms**
- **13.7.3 Demand-Driven Material Requirements Planning Components**
- **13.7.4 Material Master**
- **13.7.5 Schedule Classification of Products**
- **13.7.6 Lead Time Determination**
- **13.7.7 Buffer Level Determination**
15 Capacity Requirements Planning

15.1 Process Overview ...................................................... 814
15.2 Capacity Requirements and Capacity Evaluation .................. 817
   15.2.1 Capacity Requirements .............................................. 817
   15.2.2 Standard Evaluation of Capacity Utilization .................. 818
   15.2.3 Variable Evaluation of Capacity Utilization ................... 822
   15.2.4 Cumulating the Capacity Requirements ....................... 827
   15.2.5 Checking Capacity Availability ................................. 827
15.3 Finite Scheduling .......................................................... 833
15.4 Dispatching ..................................................................... 835
   15.4.1 Process Steps .......................................................... 835
   15.4.2 Profiles for Dispatching .......................................... 838
   15.4.3 Dispatching Sequence .............................................. 844
   15.4.4 Sequence-Dependent Setup ...................................... 846
   15.4.5 Midpoint Scheduling .............................................. 849
   15.4.6 Mass Processing ..................................................... 850
15.5 Capacity Planning Table ....................................................... 851
   15.5.1 Changing Orders, Operations, or Capacity ..................... 851
   15.5.2 Dispatch Operations ............................................... 854
   15.5.3 Deallocate ............................................................. 855
   15.5.4 Options in the Graphical Planning Table ....................... 855
   15.5.5 Material Availability before Dispatching ................... 856
15.6 Summary ........................................................................ 858

16 Production Planning and Detailed Scheduling

16.1 Configuration .............................................................. 860
16.2 Master Data in PP-DS .................................................. 866
   16.2.1 Location ............................................................... 866
   16.2.2 Material Master ...................................................... 867
   16.2.3 Work Center/Resource ........................................... 875
   16.2.4 Sources of Supply .................................................. 879
16.3 Business Processes ................................................................. 883
16.4 Heuristics ............................................................................ 891
16.5 Production Planning Run ....................................................... 893
  16.5.1 Executing Planning in SAP S/4HANA ................................. 895
  16.5.2 Conversion of PP-DS Planned Orders ............................... 898
  16.5.3 Production Planning-Detailed Scheduling Optimizer .......... 903
16.6 Reporting and Monitoring Apps .............................................. 907
  16.6.1 Production Scheduling Board ............................................ 909
  16.6.2 Monitor Capacity Utilization ............................................. 910
  16.6.3 Create Optimal Orders for Shipment ................................. 912
16.7 Alert Monitor ........................................................................ 913
16.8 Plan Monitor .......................................................................... 915
16.9 Summary .............................................................................. 920

PART V Monitoring and Evaluating Production Planning

17 Early Warning System .............................................................. 923
  17.1 Overview ............................................................................ 923
  17.2 Exceptions ......................................................................... 925
    17.2.1 Set Up Exceptions ......................................................... 926
    17.2.2 Define Requirements .................................................... 928
    17.2.3 Follow-Up Processing ..................................................... 930
    17.2.4 Group Exceptions ........................................................ 931
  17.3 Set Up Periodic Analysis ....................................................... 932
  17.4 Schedule an Early Warning System ...................................... 935
  17.5 Triggering an Early Warning System .................................... 936
  17.6 Exception Analysis ............................................................. 939
  17.7 Summary ............................................................................ 942

18 Production Planning Reporting ................................................. 943
  18.1 The Basics of Reporting ....................................................... 943
  18.2 Report Parameters ............................................................ 945
    18.2.1 Selection Screen at the Header Level .............................. 946
    18.2.2 Selection at the Operations and Components Levels with
      Options ............................................................................. 948
    18.2.3 Selection Screen for Dates ......................................... 949
    18.2.4 Multiple Selection ...................................................... 950
    18.2.5 Maintain Selection ..................................................... 951
    18.2.6 Maintain Variant ....................................................... 952
    18.2.7 Order Header in the Process Orders ............................. 952
    18.2.8 Filter Settings ............................................................ 956
    18.2.9 Download ................................................................. 957
    18.2.10 Copy Selective Data to Microsoft Excel ....................... 957
  18.3 Order Information System Reports ....................................... 958
    18.3.1 Automatic Goods Movement ....................................... 958
    18.3.2 Capacities .................................................................. 959
    18.3.3 Production Resource/Tool .......................................... 959
    18.3.4 Items ......................................................................... 959
    18.3.5 Document Links ........................................................ 959
    18.3.6 Execution Steps ........................................................ 960
  18.4 Missing Parts Information System ........................................ 960
  18.5 Summary ............................................................................ 962

19 Standard Planning Analysis ..................................................... 963
  19.1 Discrete Manufacturing/Production Order ......................... 964
    19.1.1 Work Center ............................................................. 964
    19.1.2 Operations ............................................................... 968
    19.1.3 Material .................................................................... 968
    19.1.4 Production Order ..................................................... 968
    19.1.5 Product Costs ........................................................ 970
### Index

<table>
<thead>
<tr>
<th>A</th>
<th>Page Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC analysis</td>
<td>649, 764, 957, 969</td>
</tr>
<tr>
<td>ABC classification</td>
<td>763</td>
</tr>
<tr>
<td>Access sequence</td>
<td>456</td>
</tr>
<tr>
<td>Activities posting</td>
<td>188</td>
</tr>
<tr>
<td>Activity backflush</td>
<td>409</td>
</tr>
<tr>
<td>Activity report</td>
<td>812</td>
</tr>
<tr>
<td>Activity type</td>
<td>233</td>
</tr>
<tr>
<td>Aggregation</td>
<td>524</td>
</tr>
<tr>
<td>Alert monitor</td>
<td>913</td>
</tr>
<tr>
<td>Alert profile</td>
<td>914</td>
</tr>
<tr>
<td>Alert threshold</td>
<td>870</td>
</tr>
<tr>
<td>Alternative sequence</td>
<td>240</td>
</tr>
<tr>
<td>Annual seasonal pattern</td>
<td>559</td>
</tr>
<tr>
<td>Approval</td>
<td>141</td>
</tr>
<tr>
<td>Assembly-to-order (ATO)</td>
<td>211, 612</td>
</tr>
<tr>
<td>Assembly backflush</td>
<td>408</td>
</tr>
<tr>
<td>Assembly processing</td>
<td>612</td>
</tr>
<tr>
<td>Assembly processing with planned</td>
<td>613</td>
</tr>
<tr>
<td>orders</td>
<td>616</td>
</tr>
<tr>
<td>Assembly processing with production orders</td>
<td>684</td>
</tr>
<tr>
<td>Assembly scrap</td>
<td>597</td>
</tr>
<tr>
<td>ATP indicator</td>
<td>597</td>
</tr>
<tr>
<td>Automatic calculation of proportional factors</td>
<td>525</td>
</tr>
<tr>
<td>Automatic goods movement</td>
<td>186, 289, 958</td>
</tr>
<tr>
<td>Automatic goods receipt</td>
<td>107, 288</td>
</tr>
<tr>
<td>Automatic reorder point planning</td>
<td>659</td>
</tr>
<tr>
<td>Automatic stock determination</td>
<td>190</td>
</tr>
<tr>
<td>Availability check</td>
<td>110, 261, 592</td>
</tr>
<tr>
<td>Available capacity, backlog</td>
<td>828</td>
</tr>
<tr>
<td>Available-to-promise (ATP)</td>
<td>701, 864</td>
</tr>
<tr>
<td>Available-to-promise (ATP) check</td>
<td>112</td>
</tr>
<tr>
<td>Average plant stock</td>
<td>802</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B</th>
<th>Page Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backflush</td>
<td>86, 200, 276, 407</td>
</tr>
<tr>
<td>separate</td>
<td>188, 415</td>
</tr>
<tr>
<td>Background job</td>
<td>133, 177, 936</td>
</tr>
<tr>
<td>Backward scheduling</td>
<td>116, 119, 700</td>
</tr>
<tr>
<td>Basic data</td>
<td>221</td>
</tr>
<tr>
<td>Basic date determination</td>
<td>695</td>
</tr>
<tr>
<td>Basic date scheduling</td>
<td>116, 746</td>
</tr>
<tr>
<td>Basic load</td>
<td>818</td>
</tr>
<tr>
<td>Batch</td>
<td>431-433, 445, 501</td>
</tr>
<tr>
<td>change</td>
<td>448</td>
</tr>
<tr>
<td>characteristics</td>
<td>431, 440</td>
</tr>
<tr>
<td>class and characteristics</td>
<td>441</td>
</tr>
<tr>
<td>classification</td>
<td>439</td>
</tr>
<tr>
<td>control</td>
<td>432</td>
</tr>
<tr>
<td>create for goods movement</td>
<td>437</td>
</tr>
<tr>
<td>create new</td>
<td>436</td>
</tr>
<tr>
<td>definition</td>
<td>431</td>
</tr>
<tr>
<td>delete</td>
<td>448</td>
</tr>
<tr>
<td>information</td>
<td>503</td>
</tr>
<tr>
<td>level</td>
<td>433</td>
</tr>
<tr>
<td>number</td>
<td>433</td>
</tr>
<tr>
<td>number assignment</td>
<td>435</td>
</tr>
<tr>
<td>record</td>
<td>446, 448</td>
</tr>
<tr>
<td>search procedure</td>
<td>460</td>
</tr>
<tr>
<td>search procedure definition</td>
<td>458</td>
</tr>
<tr>
<td>selection</td>
<td>457</td>
</tr>
<tr>
<td>split</td>
<td>458</td>
</tr>
<tr>
<td>status</td>
<td>445</td>
</tr>
<tr>
<td>strategy type</td>
<td>456-457</td>
</tr>
<tr>
<td>traceability</td>
<td>487</td>
</tr>
<tr>
<td>Batch derivation</td>
<td>474-475, 478, 480, 483</td>
</tr>
<tr>
<td>Batch determination</td>
<td>103, 180, 446, 457, 465</td>
</tr>
<tr>
<td>access sequence</td>
<td>456</td>
</tr>
<tr>
<td>condition table</td>
<td>453</td>
</tr>
<tr>
<td>process</td>
<td>452</td>
</tr>
<tr>
<td>strategy type</td>
<td>452</td>
</tr>
<tr>
<td>Batch Information Cockpit</td>
<td>431, 497</td>
</tr>
<tr>
<td>Batch management</td>
<td>299, 303, 431, 475, 503</td>
</tr>
<tr>
<td>business processes</td>
<td>443</td>
</tr>
<tr>
<td>material master</td>
<td>438</td>
</tr>
<tr>
<td>Batch master</td>
<td>470</td>
</tr>
<tr>
<td>Batch master record</td>
<td>444</td>
</tr>
<tr>
<td>Best-before date (BBD)</td>
<td>467, 469, 471</td>
</tr>
<tr>
<td>Bill of materials (BOM)</td>
<td>78, 215, 255, 304, 386, 603, 786, 989</td>
</tr>
<tr>
<td>define usage</td>
<td>78</td>
</tr>
<tr>
<td>explosion type</td>
<td>83</td>
</tr>
<tr>
<td>header</td>
<td>79</td>
</tr>
</tbody>
</table>
Index

Document principle ............................................ 425
Document-neutral reversal ............................... 417, 420
Document-specific reversal ............................ 418–419
Downward trend ............................................ 559
Drugs Controller General of India .................. 432
D5 planning board .................................. 901
Dynamic adjustments .................................. 756
Dynamic function call .................................. 162

E
Early Warning System (EWS) ......................... 923
follow-up processing ................................ 930
schedule .................................................. 935
triggering ............................................... 936
EFG analysis .......................................... 770
Embedded Extended Warehouse Management 65, 109, 402
Engineering change management (ECM) .... 81
Engineering Workbench ............................. 241
Engineer-to-order (ETO) ............................. 45
Evaluation profile .................................... 843
Event ....................................................... 572
assignment ........................................... 574
create .................................................. 573
in planning ........................................... 576
Exception ............................................ 727–730, 732, 925, 939
analysis ............................................... 939–940
create .................................................. 925
group .................................................. 925, 931
set up .................................................. 926
Execution Steps (XSsteps) ......................... 135, 343, 960
calculation ............................................ 351
control recipe destination ......................... 348
general information ................................. 346
library .................................................. 344
output characteristics and values ............. 354
parameter value .................................... 350
parameters .......................................... 347
process messages in ................................ 355
scope of generation in ......................... 356
signature ............................................ 356
standard repository ................................ 343
tables .................................................. 355
valuation ............................................ 347
Expiration dates ....................................... 467
Expiring stock ........................................ 503
External procurement .............................. 880
F
Factory calendar ....................................... 226
FDA ...................................................... 432–433
FDA 21 CFR Part 11 .................................. 432
Field selection ........................................ 85
Filter settings ......................................... 956
Finished good ........................................ 433
Finite scheduling ..................................... 116, 258, 815, 833
Firming .................................................. 550, 654, 801
planned order ........................................ 190
types ..................................................... 655
types for MRP ........................................ 655
First in first out (FIFO) ......................... 462
Fixed lot size ......................................... 674, 681
with splitting ........................................ 674
Flexible planning ................................... 507, 527
self-defined macro .................................. 540
standard analysis .................................... 581
steps for creating standard analysis .......... 581
update rules for key figures .................... 581
Float ...................................................... 696
after production .................................... 120
before production .................................. 120
before production and safety time ......... 260
Food, Drug and Cosmetic Act .................. 435
Forecast .................................................. 510, 553, 660, 665
execute .................................................. 544
model ................................................... 558, 562
period pattern ........................................ 566
profile .................................................. 560
profile button ....................................... 545
strategy .................................................. 562
using profile ......................................... 564
view in material master ......................... 554
Forecast values ..................................... 668
Forecast-based consumption planning .... 664
Forward scheduling .................................. 117, 700
Future procurement needs ....................... 786
Future requirements quantities ............... 785

G
Generation of operations ......................... 109
Goods movement ................................... 448
Goods receipt ........................................ 249, 286, 288, 437, 721
automatic process ................................ 288
manual process ..................................... 286
Graphical capacity planning table ............ 851
Graphical planning table ...................... 855
Gross requirements planning ................. 601
Group category .................................... 846
Grouping ............................................. 226

H
Heijunka .................................................. 424, 816
Heuristic ............................................... 869, 891, 895
History requirement ............................... 81

I
icons ...................................................... 820, 972
Independent requirements evaluation ........ 636
planning for ......................................... 635
reorganization ....................................... 638
stock/requirements list for .................... 635
Info structure ...................................... 510, 512, 924, 974
create self-defined .................................. 528
multiple planning types ....................... 536
Information system ............................... 296, 943, 946
Inspection results .................................. 161
Interactive planning ................................ 702
Internal procurement ................................ 879
Internet Demonstration and Evaluation System (IDES) ............................................. 30
Intra material ........................................ 82
Inventory controlling information system .... 809
evaluate ............................................. 810
Inventory management (IM) .................. 454

J
Job Wizard ................................................ 134

K
Kanban ................................................... 33, 46–47, 187
Key figure ............................................. 916, 928–929, 965
distribute ............................................. 522
mass changes .......................................... 522
schema ................................................. 919
transfer to demand management .......... 548
view ....................................................... 971

L
Last in first out (LIFO) .............................. 462
Layout key ............................................. 845
Lead time determination ......................... 769
Lead time scheduling .............................. 116, 695, 746
capacity requirement ............................. 818
Level-by-level planning ........................... 516
Lists ....................................................... 947
Location ............................................... 866
Location group ....................................... 92
Lock ....................................................... 245
Logistics information system (LIS) .... 102, 142, 200, 600, 786, 806, 923
Long-term planning (LTP) ......................... 48, 78, 505, 785
BOM ..................................................... 787
business processes .................................. 794
calculate average stock ................. 802
Copy results to operative planning .......... 803
create simulate planned order ............. 800
evaluate information systems .......... 806
evaluate stock/requirements list ........ 797
inventory controlling information system ........ 809
planning data ........................................ 786
range of coverage .................................. 811
run ......................................................... 794
set up purchasing information system .... 806
Long-term planning checkbox .............. 227, 375
Lot size .................................................. 678, 872
Lot configuration .................................... 678
periodic ............................................... 676
procedures ........................................... 677

998
999
Material availability ........................................ 856
Material availability check ............................ 131
Material BOM ................................................. 78–79
Material cost estimate ................................. 49
Material Documents Overview app ................. 988
Material input parameter ............................. 82
Material master ............................................ 76, 207, 210, 365, 759, 867
activate backlash ........................................... 207
classification .................................................. 442, 446, 475
discrete ....................................................... 208
forecasting view ............................................ 554
plant-independent/dependent views ............... 209
Material quantity calculation ......................... 308
enter formula ............................................... 309
Material requirements planning (MRP) ........... 39, 48, 331, 361, 388, 510, 643, 713, 785, 814
activate .......................................................... 707
area setup in material master ......................... 741
backward scheduling ..................................... 257
classic .......................................................... 744
compare planning ......................................... 116
configuration settings ..................................... 706
configure area ............................................... 740
consumption-based planning ......................... 664
create group .................................................. 708
creation of list ............................................... 745
element ....................................................... 734
exception message ......................................... 726
group .......................................................... 709
individual conversion of planned order ......... 293
lot size .......................................................... 646
planning results for MRP area ....................... 743
planning run ............................................... 747
plant parameters .......................................... 707
process overview .......................................... 644
repetitive manufacturing ............................... 387
run ............................................................. 218, 597
run at MRP area level ..................................... 743
run for REM .................................................. 748
scope of planning ......................................... 707
scrap .......................................................... 684
simulate ........................................................ 794
Material staging ............................................ 199, 401
current situation .......................................... 402
toggle .............................. 402
trigger replenishment ................................... 403
Material stock ............................................... 856
Material type .............................................. 76, 209, 435
allowed in BOM header ............................... 79
set up attributes .......................................... 77
Material withdrawal ..................................... 272
picking list ................................................... 275
Materials list ............................................... 136
Materials management (MM) ................. 64, 213, 301, 924, 977
Maximum storage period ........................... 469
Medicines and Healthcare Products Regulatory
Agency .......................................................... 432
Midpoint scheduling ...................................... 836, 849
Milestone ..................................................... 280
Missing parts .............................................. 949, 960
Missing parts information system ................. 263
Mode costs .................................................... 906
Monitor Capacity Utilization app ................. 910, 912
Monitor External Requirements app ............. 981
Monitor Internal Requirements app ............. 983
Monitor Material Coverage app ................. 979
Move time matrix ......................................... 92
Movement type ............................................ 193
Moving average price .................................... 292
MRP controller ............................................. 66–67
MRP Live ................................................... 715, 718
app ............................................................. 990
results .......................................................... 718
MRP Master Data Issues app ....................... 985
MRP type .................................................... 649, 651
comparison ............................................... 671
configuring .................................................. 669
DI ............................................................. 663
PD ............................................................ 652
R1 and R2 ...................................................... 668
VI ............................................................. 662
V2 .............................................................. 662
VM ............................................................ 659
VV ............................................................. 664
MRP-based DS scenario .................................. 864
Negative seasonal trend .................................. 559
Net requirements planning ......................... 599
Nonbatch managed ....................................... 438
Nonvariable components ............................. 609
Number range ............................................. 100
Object Linking and Embedding (OLE) ............ 318
Objective function ....................................... 905
Obsolete ....................................................... 559
Online error correction .................................. 192
Opening period ............................................ 120
Optimization quantity ................................. 306
Operational methods sheet (OMS) .............. 201, 364, 406
Operations ................................................... 310, 380
phases ......................................................... 309
relationship .................................................. 310
Option profile ............................................. 826
Order category .............................................. 98, 825
Order confirmation ......................................... 124
Order date ..................................................... 697
Order headers ................................................ 952
Order information system ............................. 945
document link ............................................. 959
items .......................................................... 959
production resource/tool .................................. 959
reports .......................................................... 958
XSteps .......................................................... 960
Order number ............................................... 395
Order progress report ..................................... 733
Order type .................................................... 97, 861
consider stock/batch ..................................... 464
maintain ....................................................... 98
Order type-dependent parameter .................... 139
Organizational structure ................................ 59
Organizational unit ........................................ 61
Out of tolerance .............................................. 433
Overall profile .............................................. 823, 838
capacity leveling .......................................... 838
dispatching .................................................... 831
Overdelivery ................................................... 124
Overhead cost ................................................. 49
Oversizing .................................................... 234, 389
Overload ...................................................... 227, 819
Past consumption ........................................ 764
Pegged requirements ...................................... 571
Process instruction (Cont.)
create own category ................................ 168
dynamic function call ................................. 161, 169
in XSteps .................................................... 349
inspection results requests ........................ 161
maintenance ................................................. 138
process data request ...................................... 157
process message subscription ....................... 159
sequence definitions ...................................... 163
switch to XSteps .............................................. 345
type ............................................................... 155
universal ......................................................... 164
Process instruction assistant ......................... 164
Process instruction characteristic .................. 146
create self-defined ........................................ 170
Process instruction sheet ............................... 146, 173, 321
calculations ................................................... 324
call function ................................................... 326
complete ........................................................ 340
digital signature .............................................. 330
DMS ................................................................. 329
dropdown selection .......................................... 325
input group ...................................................... 325
instructions and notes .................................... 328
long text input ................................................ 337
maintaining ..................................................... 337
table entry ...................................................... 327
Process management ................................. 44, 144, 148, 299–300,
by lot size ...................................................... 596
continuous ..................................................... 42
control ............................................................ 49
date ................................................................. 445
discontinuous ................................................ 368
date ................................................................. 42
line category ................................................... 221
list ................................................................. 405
manufacturing master recipe ......................... 305
operations ....................................................... 752
regulated ........................................................ 42
Production order ................................. 41, 273, 454, 613, 946
activate backflush ........................................ 277
automatic release ......................................... 267
check capacity availability ............................. 827
collective release .......................................... 268
create for EWS ............................................... 291
components overview .................................... 254
destination ...................................................... 150
evaluation ...................................................... 357
monitoring ...................................................... 340
predefined objects ......................................... 148
Process order ............................................... 43, 454, 946
create and release .......................................... 332
execution ...................................................... 300, 330
Process Order Confirmation app ...................... 989
Process order information system .................. 945
Process planning ............................................ 300
Processing key ................................................. 744
Procurement proposal .................................... 700, 810
rounding ......................................................... 681
Product cost collector (PCC) ......................... 365
Product cost controlling (CO-PC) .................... 39, 49,
139, 188
Product costs .................................................. 964, 970
Product flow ..................................................... 770
Product group .................................................. 506
creation ........................................................ 517
plan ................................................................. 518
Product heuristic ............................................ 891
Product recall .................................................. 433, 446, 503
Production ....................................................... 119

Index
<table>
<thead>
<tr>
<th>Page</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>1006</td>
<td>RP backflush 412</td>
</tr>
<tr>
<td>1006</td>
<td>Run schedule header 191</td>
</tr>
<tr>
<td>1006</td>
<td>Run schedule quantity (RSQ) 363</td>
</tr>
<tr>
<td>1007</td>
<td>Safety stock 686</td>
</tr>
<tr>
<td>1007</td>
<td>Sublevel 687</td>
</tr>
<tr>
<td>1007</td>
<td>Availability 688</td>
</tr>
<tr>
<td>1007</td>
<td>Sales and distribution (SD) 206, 452</td>
</tr>
<tr>
<td>1007</td>
<td>Sales and operations planning (S&amp;OP) 39, 48, 331, 505, 595</td>
</tr>
<tr>
<td>1007</td>
<td>Change info structure/key figures 512</td>
</tr>
<tr>
<td>1007</td>
<td>Mass processing 578</td>
</tr>
<tr>
<td>1007</td>
<td>Object 511</td>
</tr>
<tr>
<td>1007</td>
<td>Overview 506</td>
</tr>
<tr>
<td>1007</td>
<td>Standard, planning hierarchy 516, 525</td>
</tr>
<tr>
<td>1007</td>
<td>Sales information system (SIS) 509, 946</td>
</tr>
<tr>
<td>1007</td>
<td>Sales plan 38</td>
</tr>
<tr>
<td>1007</td>
<td>SAP Advanced Planning and Optimization (SAP APO) 55</td>
</tr>
<tr>
<td>1007</td>
<td>SAP calendar 68</td>
</tr>
<tr>
<td>1007</td>
<td>Factory calendar 64, 70</td>
</tr>
<tr>
<td>1007</td>
<td>Holiday calendar 70</td>
</tr>
<tr>
<td>1007</td>
<td>Public holidays 69</td>
</tr>
<tr>
<td>1007</td>
<td>SAP Extended Warehouse Management (SAP EWM) 56</td>
</tr>
<tr>
<td>1007</td>
<td>SAP Fiori 977</td>
</tr>
<tr>
<td>1007</td>
<td>Apps library 979</td>
</tr>
<tr>
<td>1007</td>
<td>HomePage 978</td>
</tr>
<tr>
<td>1007</td>
<td>SAP Fiori launchpad 977</td>
</tr>
<tr>
<td>1007</td>
<td>SAP IBP for demand 55</td>
</tr>
<tr>
<td>1007</td>
<td>SAP IBP for inventory 56</td>
</tr>
<tr>
<td>1007</td>
<td>SAP IBP for response and supply 56</td>
</tr>
<tr>
<td>1007</td>
<td>SAP IBP for sales and operations 55</td>
</tr>
<tr>
<td>1007</td>
<td>SAP Integrated Business Planning (SAP IBP) 55</td>
</tr>
<tr>
<td>1007</td>
<td>SAP Manufacturing Integration and Intelligence (SAP QM) 319</td>
</tr>
<tr>
<td>1007</td>
<td>SAP S/4HANA Finance 62, 102</td>
</tr>
<tr>
<td>1007</td>
<td>SAP Supply Chain Control Tower 56</td>
</tr>
<tr>
<td>1007</td>
<td>SAP Transportation Management (SAP TM) 56</td>
</tr>
<tr>
<td>1007</td>
<td>Scenario planning 505</td>
</tr>
<tr>
<td>1007</td>
<td>Schedule Buffer Level Calculation app 771</td>
</tr>
</tbody>
</table>

### Schedule Lead Time Classification of Products (DDL) app | 769
### Scheduling | 116, 228, 695, 936
### Copy | 553
### External procurement | 698
### Finite | 689
### Forward and backward | 699, 833
### In-house production | 695
### Log | 837
### Margin key | 119, 260
### Margin key (SMK) | 696
### Planned order | 196
### Production order | 257
### Type | 117, 746
### Scope of check | 176
### Scope of generation | 112
### Scrap | 141, 417, 683
### Actual activity | 422
### Actual assembly | 420
### Actual component | 421
### Assembly | 684
### Component | 684
### In BOM | 685
### In routing | 686
### Quantity | 930
### Variance | 131
### Scrap Reason app | 986
### Seasonal | 974
### Market | 559
### Model | 559
### Pattern | 559
### Trend model | 559
### Selection criteria | 457
### Profile | 825, 832, 842
### Type | 457
### Self-defined info structure | 528
### Self-defined process instruction category | 168
### Sell by batch | 503
### Sending material | 478
### Separated backflush | 415
### Sequence routing | 259
### Sequence-dependent setup | 846

### Setup matrix | 847
### Setup time | 848
### Optimization | 849
### Shelf life | 445
### Date | 445
### Shelf-life expiration date (SLED) | 468–469
### Shift note type | 221, 370
### Shift report type | 221, 370
### Shifts and intervals | 227
### Shop floor control (SFC) | 39, 205, 219, 945
### Shop floor information system | 104, 939, 963
### Shop floor papers | 42
### Print | 132, 270
### Shortage definition | 981
### Simulative planned order | 800
### Form | 801
### Simulative planning | 785
### Single-item planning | 839
### Project | 748
### Sales order | 747
### Sort rules | 461
### Sort sequence | 450
### Sources of supply | 879
### Special procurement | 219
### Spike horizon | 768
### Splitting | 234, 259
### Splitting indicator | 668
### Standard analysis | 974
### Tabular capacity planning table | 857
### Takt-based flow manufacturing | 361
### Takt-based scheduling | 424
### Target days' supply | 872
### Target stock level | 577
### Task list | 386, 567
### Assignment to material types | 138
### Delete | 241
### Status | 138
### Text item | 82
### Threshold value analysis | 929
### Time buffer | 751
### Time event | 280
### Time profile | 844
### Time series | 970
### Time ticket/event | 281
## Index

<table>
<thead>
<tr>
<th>W</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>What-if model</td>
<td>505</td>
<td></td>
</tr>
<tr>
<td>Wizard</td>
<td>164</td>
<td></td>
</tr>
<tr>
<td>Work breakdown structure (WBS)</td>
<td>46, 946</td>
<td></td>
</tr>
<tr>
<td>Work center</td>
<td>84, 208, 368, 875</td>
<td></td>
</tr>
<tr>
<td>activate backflush</td>
<td>277</td>
<td></td>
</tr>
<tr>
<td>capacity evaluation</td>
<td>820</td>
<td></td>
</tr>
<tr>
<td>category</td>
<td>84, 369</td>
<td></td>
</tr>
<tr>
<td>confirmation type</td>
<td>94</td>
<td></td>
</tr>
<tr>
<td>control key</td>
<td>94</td>
<td></td>
</tr>
<tr>
<td>create</td>
<td>220</td>
<td></td>
</tr>
<tr>
<td>Work center (Cont.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cumulate capacities</td>
<td>827</td>
<td></td>
</tr>
<tr>
<td>field selection</td>
<td>85</td>
<td></td>
</tr>
<tr>
<td>formula</td>
<td>87</td>
<td></td>
</tr>
<tr>
<td>key figures</td>
<td>967</td>
<td></td>
</tr>
<tr>
<td>standard analysis</td>
<td>964</td>
<td></td>
</tr>
<tr>
<td>SVK</td>
<td>89</td>
<td></td>
</tr>
<tr>
<td>Work in progress (WIP)</td>
<td>50, 186, 365</td>
<td></td>
</tr>
<tr>
<td>batch</td>
<td>487, 491</td>
<td></td>
</tr>
<tr>
<td>batch reporting</td>
<td>497</td>
<td></td>
</tr>
<tr>
<td>batches</td>
<td>105</td>
<td></td>
</tr>
<tr>
<td>Work scheduling view</td>
<td>144</td>
<td></td>
</tr>
</tbody>
</table>
Jawad Akhtar is an SAP logistics and supply chain management expert with a focus on business sales and delivery. He earned his chemical engineering degree from Missouri University of Science and Technology in the United States. He has more than 20 years of professional experience, 16 of which have been spent working with SAP systems. He has experience working on several large-scale, end-to-end SAP project implementation lifecycles, including rollouts. He works with SAP clients to help them identify root causes of business issues and address those with the appropriate SAP products and change management strategies. He now focuses on next-generation SAP products such as SAP S/4HANA, SAP IBP, SAP Ariba, and SAP C/4HANA.

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