Discover Logistics with SAP®

SAP ERP and SAP SCM
Contents at a Glance

PART I: Procurement and Logistics Execution
1  Introduction to Logistics with SAP ........................................ 27
2  Procurement ........................................................................ 41
3  Inventory Management .......................................................... 79
4  Warehouse Management ...................................................... 99
5  Inbound and Outbound Logistics ........................................... 123

PART II: Product Development and Manufacturing
6  Product Planning ..................................................................... 141
7  Manufacturing Operations ..................................................... 183
8  Plant Maintenance .................................................................. 209
9  Quality Management ............................................................. 235

PART III: Sales and Service
10 Sales Order Management .......................................................... 261
11 Customer Service ................................................................. 291
12 Transportation Management .................................................. 319

PART IV: Implementation and New Technologies
13 Implementation ......................................................................... 343
14 New Technologies and Conclusion ........................................ 367

Appendices
A  Bibliography .......................................................................... 391
B  Glossary ................................................................................ 393
C  The Author ............................................................................ 403
Contents

Preface ......................................................................................................................... 17
Acknowledgments ........................................................................................................ 23

PART I: Procurement and Logistics Execution

1 Introduction to Logistics with SAP ................................................................. 27
   Origins of SAP ........................................................................................................... 27
   SAP and Logistics ..................................................................................................... 30
   Logistics Functionality ............................................................................................. 34
      Procurement and Logistics Execution ................................................................. 34
      Product Development and Manufacturing ......................................................... 35
   Sales and Service ...................................................................................................... 37
   Conclusion ................................................................................................................ 39

2 Procurement ............................................................................................................ 41
   SAP Organization Structure .................................................................................... 41
      Creating the Client Landscape .............................................................................. 42
      Company Code ....................................................................................................... 43
      Plant ......................................................................................................................... 44
   Storage Location ....................................................................................................... 45
   Warehouse ................................................................................................................ 46
   Storage Type ............................................................................................................. 47
   Storage Section ......................................................................................................... 48
   Storage Bin ............................................................................................................... 48
   Purchasing Organization Structure .......................................................................... 48
      Purchasing Organization ......................................................................................... 49
      Purchasing Group ................................................................................................... 52
   Purchasing Process .................................................................................................. 53
      Purchasing Best Practices ...................................................................................... 53
      Purchase Requisition ............................................................................................. 55
   Request for Quotation (RFQ) ................................................................................... 57
   Quotation .................................................................................................................... 58
   Purchase Order .......................................................................................................... 58
   Accounts Payable and Invoice Verification ............................................................. 61
3 Inventory Management ................................................. 79
   Plant Structure .............................................................. 80
      Plant ........................................................................ 80
      Storage Location ....................................................... 82
   Goods Movements ............................................................ 83
      Goods Receipt ............................................................. 84
      Goods Issue ............................................................... 84
      Returns .................................................................... 85
      Reservations ............................................................. 86
   Stock Transfers and Transfer Postings ......................... 87
   Physical Inventory .......................................................... 93
      Physical Inventory Procedures ..................................... 93
      Preparing for the Physical Count ................................ 94
      Performing the Physical Count ................................... 95
      Count Discrepancies .................................................. 95
      Completing the Physical Inventory ............................. 96
   Summary ........................................................................ 97

4 Warehouse Management .............................................. 99
   Warehouse Structure .................................................... 100
   Warehouse ................................................................. 101
   Storage Types ............................................................. 102
5 Inbound and Outbound Logistics ............................ 123

Inbound Logistics ................................................................. 124
  Shipping Notification ...................................................... 124
  Manually Created Inbound Deliveries ......................... 125
  Delivery Monitor ............................................................ 126
  Goods Receipt ............................................................... 127

Outbound Logistics ............................................................... 131
  Outbound Delivery ......................................................... 131
  Picking ........................................................................... 132
  Packing Using Handling Units ......................................... 134
  Goods Issue ................................................................. 134
  Proof of Delivery .......................................................... 136

Summary .............................................................................. 136

PART II: Product Development and Manufacturing

6 Product Planning ............................................................. 141

  Sales and Operations Planning ........................................ 142
  Standard Sales and Operations Planning ...................... 142
  Flexible Sales and Operations Planning ....................... 144
  Master Data in Sales and Operations Planning ............. 144
  Reporting ................................................................. 145
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forecasting and Replenishment</td>
<td>149</td>
</tr>
<tr>
<td>Integration with SAP Retail</td>
<td>149</td>
</tr>
<tr>
<td>Demand Influencing Factors</td>
<td>149</td>
</tr>
<tr>
<td>Forecasting and Replenishment Processor</td>
<td>151</td>
</tr>
<tr>
<td>Order Proposal Management</td>
<td>151</td>
</tr>
<tr>
<td>Demand Management in SAP ERP</td>
<td>152</td>
</tr>
<tr>
<td>Make-to-stock Strategy</td>
<td>153</td>
</tr>
<tr>
<td>Make-to-order Strategy</td>
<td>154</td>
</tr>
<tr>
<td>Strategy for Configurable Materials</td>
<td>155</td>
</tr>
<tr>
<td>Planned Independent Requirements</td>
<td>156</td>
</tr>
<tr>
<td>Customer Requirements</td>
<td>157</td>
</tr>
<tr>
<td>SAP Advanced Planning and Optimization</td>
<td>159</td>
</tr>
<tr>
<td>Supply Chain Model</td>
<td>159</td>
</tr>
<tr>
<td>Supply Chain Cockpit</td>
<td>160</td>
</tr>
<tr>
<td>Supply Chain Collaboration</td>
<td>162</td>
</tr>
<tr>
<td>Service Parts Planning</td>
<td>163</td>
</tr>
<tr>
<td>Transportation Management</td>
<td>164</td>
</tr>
<tr>
<td>Supply Network Planning</td>
<td>165</td>
</tr>
<tr>
<td>Supply Network Planning Process</td>
<td>165</td>
</tr>
<tr>
<td>Safety Stock Planning</td>
<td>167</td>
</tr>
<tr>
<td>Source Determination</td>
<td>168</td>
</tr>
<tr>
<td>Demand Planning in APO</td>
<td>169</td>
</tr>
<tr>
<td>Demand Planning Process</td>
<td>169</td>
</tr>
<tr>
<td>Characteristics-based Forecasting</td>
<td>172</td>
</tr>
<tr>
<td>Characteristics-dependent Planning</td>
<td>173</td>
</tr>
<tr>
<td>Customer Forecast Management</td>
<td>173</td>
</tr>
<tr>
<td>Materials Requirements Planning</td>
<td>173</td>
</tr>
<tr>
<td>Planning with MRP</td>
<td>174</td>
</tr>
<tr>
<td>Executing the Planning Run</td>
<td>174</td>
</tr>
<tr>
<td>Global Available-to-Promise</td>
<td>177</td>
</tr>
<tr>
<td>Product Availability Check</td>
<td>177</td>
</tr>
<tr>
<td>Product Allocation</td>
<td>178</td>
</tr>
<tr>
<td>Forecast</td>
<td>179</td>
</tr>
<tr>
<td>Rules-based ATP Check</td>
<td>179</td>
</tr>
<tr>
<td>Multi-item Single Delivery</td>
<td>179</td>
</tr>
<tr>
<td>Production Capable-to-Promise</td>
<td>179</td>
</tr>
<tr>
<td>Production Multi-level ATP Check</td>
<td>180</td>
</tr>
<tr>
<td>Summary</td>
<td>180</td>
</tr>
</tbody>
</table>
## Contents

### 7 Manufacturing Operations ................................................. 183

- Manufacturing Structure .................................................. 184
- Work Centers .................................................................... 184
- Bill of Materials .................................................................. 188
- Routings ............................................................................. 190
- Routings for Configurable Materials ................................. 191
- Production Resources and Tools ........................................ 192
- Shop Floor Control ......................................................... 193
- Production Order ............................................................ 193
- Confirming a Production Order ......................................... 198
- Production Order Settlement ............................................ 200
- Printing Shop Papers ...................................................... 201
- Order Information System ................................................ 202
- Product Costing ............................................................... 203
  - Cost Estimate with a Quantity Structure ......................... 204
  - Cost Estimate without a Quantity Structure .................... 205
- Summary ........................................................................ 206

### 8 Plant Maintenance .......................................................... 209

- Maintenance Organization Structure .................................. 210
- Functional Location ....................................................... 210
- Equipment ........................................................................ 213
- Preventive Maintenance ................................................. 218
  - Maintenance Task List .................................................. 218
  - Maintenance Plans ...................................................... 221
  - Maintenance Scheduling ............................................. 223
- Maintenance Processing .................................................. 226
  - Maintenance Notifications ......................................... 226
  - Converting Notifications to Maintenance Orders ............ 229
  - Maintenance Orders .................................................... 229
- Summary ......................................................................... 233

### 9 Quality Management ..................................................... 235

- Quality Management Structure ......................................... 237
- Catalog ............................................................................ 237
- Code Groups .................................................................... 237
PART III: Sales and Service

10 Sales Order Management .............................................. 261

Sales Structure .............................................................. 262
Sales Organization .......................................................... 263
Distribution Channel ...................................................... 264
Sales Division ................................................................. 265
Sales Office ................................................................. 266
Sales Group ................................................................. 267
Sales Ordering ............................................................... 268
Customer ................................................................. 268
Customer Inquiry ......................................................... 271
Customer Quotation .................................................... 272
Sales Order ................................................................. 273
Scheduling Agreement .................................................. 274
Contract ................................................................. 275
Credit Memo ............................................................. 279
Contents

Shipping Processes ............................................................... 280
Packing .......................................................................... 280
Outbound Delivery ......................................................... 281
Goods Issue .................................................................... 282
Billing Function ................................................................. 282
Billing Process ................................................................ 282
Creating Billing Documents ............................................ 284
Reporting ....................................................................... 285
Summary .............................................................................. 288

11 Customer Service ........................................................... 291
Service Structure ............................................................. 293
Material ......................................................................... 293
Equipment ..................................................................... 294
Functional Location ........................................................ 295
Installed Base ................................................................ 296
Service Agreement ........................................................... 297
Service Contract ............................................................. 298
Warranty ........................................................................ 302
Service Processing ................................................................. 304
Service Notification ........................................................ 305
Activity Report .................................................................. 306
Service Order ................................................................. 307
Repair Order ..................................................................... 308
Confirmation .................................................................... 311
Billing ............................................................................. 312
Customer Relationship Management ............................ 313
Installation Management ................................................ 313
Service Contract ............................................................. 314
Service Plan .................................................................... 314
Service Order Management ............................................ 315
Complaints and Returns Management ............................ 316
Summary .............................................................................. 317

12 Transportation Management ................................. 319
Transportation Planning ........................................................ 320
Transportation Planning Point ........................................ 321
Shipping Type ................................................................. 321
14 New Technologies and Conclusion .......................... 367

SAP NetWeaver .......................................................... 367
  Integration .................................................................. 368
  Key Benefits .............................................................. 368
Service-Oriented Architecture ........................................... 369
  Services and SOA ...................................................... 369
  SOA with Enterprises ............................................ 370
  Enterprise Services Bundles ....................................... 371
SAP Supplier Relationship Management ......................... 372
  Core SRM Functionality .......................................... 373
  Supplier Collaboration ............................................ 374
  Supplier Base Management ...................................... 374
SAP Product Lifecycle Management ................................. 374
  History of PLM ......................................................... 374
  Benefits of SAP PLM ............................................ 375
  PLM Integration ....................................................... 375
  SAP PLM Functionality ........................................... 375
Mobility and Logistics .................................................... 377
  SAP Mobile Platform .............................................. 377
  Mobile Platform Solution ....................................... 378
SAP HANA ...................................................................... 379
  Real-Time Analytics ............................................... 379
  Real-Time Applications ......................................... 380
  Advantages of SAP HANA ....................................... 381
Conclusion .................................................................... 382
  Lessons Learned ...................................................... 382
  Future Direction ...................................................... 386

Appendices ..................................................................... 389
A Bibliography ............................................................. 391
B Glossary ....................................................................... 393
C The Author .................................................................... 403
Index ............................................................................... 405
Preface

Welcome to the second edition of *Discover Logistics with SAP: SAP ERP and SAP SCM*. The first edition was published in January 2009. The book was specifically aimed at SAP ERP and was favorably received. This second edition expands the range of the book to include the logistics functions of SAP SCM.

In writing this book, we addressed the needs of logistics and supply chain professionals who require an easy-to-understand overview of the logistics functionality available in SAP.

We have explained the logistics functionality in SAP in understandable language that isn’t technical jargon or sales terminology. You will not find menu paths or SAP transaction codes in this book. This book simply describes the benefits of using SAP using examples and case studies to help you understand what the logistics functionality in SAP can do for the success of your company.

Who This Book Is For

If you’re a supply chain or logistics manager or analyst whose company is implementing or thinking of implementing SAP, then this book will help you become familiar with the logistics functionality in SAP. The book describes the different logistical areas of SAP ERP and SAP SCM. It examines these areas in full, highlighting aspects that are important in achieving measureable benefits for your company.

This book is also helpful for IT professionals who have focused on the logistics or supply chain but may have never worked with SAP before. This book gives you the basic knowledge from which you can hit the ground running and be a productive member of any implementation team.
Lastly, if you are a supply chain or logistics consultant considering a position with a company that has implemented SAP, this book will help you see where the different logistics functions fit into the overall SAP landscape.

Navigational Tools for This Book

Throughout the book, we will provide several elements that will help you access useful information:

› Tips call out useful information about related ideas and provide practical suggestions for how to use a particular function.

› Notes provide other resources to explore or special tools or services from SAP that will help you with the topic under discussion.

› Examples provide real-world scenarios and illustrations of how the tools are used.

› Marginal text provides a useful way to scan the book to locate topics of interest to you. Each marginal note appears to the side of a paragraph or section with related information.

Organization of This Book

When you examine the functionality of the SAP ERP business suite, you’ll find three distinct elements:

› SAP ERP Financials

› SAP ERP Human Capital Management (HCM)

› SAP ERP Operations

Although SAP ERP Financials and SAP ERP HCM are important to your company’s success, they don’t contain any of the logistics functions we’ll discuss in this book.

The SAP ERP Operations functionality contains the elements that are familiar to logistics users. The SAP ERP Operations functionality is characterized by these three areas:
This book takes these areas and delves into their distinct functionality. In addition, we will examine other logistics functions that are part of the SAP SCM product, such as SAP Extended Warehouse Management (SAP EWM). So let’s take a look at how the book is organized.

Part I—Procurement and Logistics Execution
This section of the book initially introduces you to the SAP ERP environment. It then goes on to examine the procurement, inventory management, and warehouse management functionalities. Finally, this section ends with an examination of the inbound and outbound logistics functions.

Chapter 1—Introduction to SAP Logistics
This is an introduction for the reader to gain understanding of the SAP software environment and get a review of how the logistics function is an integral part of the SAP ERP and SAP SCM applications. This chapter gives a comprehensive overview of the SAP functionality that is relevant to logistics.

Chapter 2—Procurement
This chapter gives readers an overview of the organizational structure that is used by SAP ERP for the purchasing function. It then introduces the reader to the purchasing functions in SAP ERP, such as purchase requisition, request for quotation (RFQ), purchase orders (POs), and accounts payable. This chapter also looks at the SAP Supply Network Collaboration (SAP SNC) and Ariba, which was purchased by SAP in 2012.

Chapter 3—Inventory Management
This chapter describes the SAP functions used in inventory management. The logical structure of the plant is introduced as well as the goods movements within the plant, and physical inventory of material.
Chapter 4—Warehouse Management
In this chapter, we fully examine the structure of the warehouse and how it integrates with the SAP Inventory Management (SAP IM) functionality. This chapter also details the movements of material within the warehouse. The SAP Extended Warehouse Management (EWM) functionality that is part of the SAP Supply Chain Management product is also reviewed in this chapter.

Chapter 5—Inbound and Outbound Logistics
This chapter explains the logistical movements of material in and out of the plant by detailing the goods receipt and goods issue functions.

Part II—Product Development and Manufacturing
The second section of SAP ERP Operations looks at the manufacturing functionality. The section begins with a discussion of the planning functions in SAP followed by an examination of the manufacturing operations. The two remaining chapters in this section discuss the two important functions that support successful manufacturing: plant maintenance (PM) and quality management (QM).

Chapter 6—Product Planning
This chapter introduces the product planning functions in SAP. The chapter will detail the functionality of Forecasting and Replenishment, Demand Planning, SAP Advanced Planner and Optimizer (SAP APO), SAP Sales and Operations Planning (SAP SOP), and materials resource planning (MRP).

Chapter 7—Manufacturing Operations
This chapter reviews the structure of the manufacturing function, including master data such as equipment, bills of material (BOM), and routings. The chapter continues with an examination of the functionality of production orders and product costing.

Chapter 8—Plant Maintenance
Plant maintenance is important to a successful manufacturing process, and this chapter begins with an examination of the organizational structure of the plant maintenance (PM) function. The chapter
also describes the preventative maintenance and maintenance processing functions.

Chapter 9—Quality Management
Like PM, quality management (QM) is an important part of successful manufacturing. This chapter details QM functions, concentrating on quality planning, notifications, and inspections.

Part III—Sales and Service
The third section of this book looks at the sales and service functionality. This section covers sales order management, Customer Service (CS), and SAP Transportation Management (SAP TM).

Chapter 10—Sales Order Management
This chapter introduces the SAP sales functionality. The chapter initially examines the organizational structure of the sales function and then details the sales ordering, shipping, and billing processes.

Chapter 11—Customer Service
Following the examination of the sales function, this chapter reviews the Customer Service (CS) functions in SAP. The topics include the master data, service agreements, warranties, and processing of service orders. In addition, the chapter will examine the SAP Customer Relationship Management (SAP CRM) application.

Chapter 12—Transportation Management
This chapter examines the transportation functions found in SAP. The chapter examines the planning of transporting materials, determining freight costs, and the user functionality for transporting materials.

Part IV—Implementation and New Technologies
This section looks at successfully implementing SAP ERP using tried and tested implementation methodologies. It also examines new SAP technology your company can use, including SAP NetWeaver and other business suites, such as SAP HANA.
Chapter 13—Implementation
This chapter covers the best approach to implementing logistics—not the “how,” but the “how to plan for and approach.” It also reviews how much the total cost of ownership (TCO) might be, and when and how much of a return on investment (ROI) to expect.

Chapter 14—New Technologies and Conclusion
This chapter reviews the new technologies developed by SAP that will be important to logistics, including SOA and SAP NetWeaver. It also touches on other SAP software, such as SAP HANA. This chapter closes with a review of the concepts that were discussed throughout the book.

This book gives you the information you need to understand the logistics functionality available in SAP ERP and SAP SCM. Learning how the functionality in both applications can be used either separately or together will provide your organization logistics best practices and their benefits. This, in turn, can increase revenue, improve profitability, and enhance customer satisfaction as it relates to your organization’s logistics business processes.
Warehouse Management

Warehouse Management (WM) defines the SAP structure and functionality within the warehouse. In Chapter 2, we examined the inventory management structure, which included the plant and storage locations. Your logistics management must determine whether the functionality within the SAP Inventory Management (SAP IM) function is sufficient for your business or whether the added functionality of WM would reduce costs and improve efficiency. This chapter helps you understand the structure and functionality of the WM component.

The WM component is part of the logistics execution functionality. It’s a vital part of the SAP ERP functionality for companies that manage thousands of items in their warehouses. Some companies that implement SAP with the SAP IM functionality find that it isn’t sufficient to efficiently manage their inventory. Depending on the number of items that they manage and the complexity of their operation, companies may decide that they need the added functionality of WM.

The WM component gives companies a total picture of the warehouse inventory down to the bin level. WM is fully integrated with the inventory management, finance, and sales functionality.
For companies that implement the SAP Supply Chain Management (SAP SCM) business suite there is added warehouse management functionality called SAP Extended Warehouse Management (SAP EWM). Figure 4.1 shows how WM integrates with the SAP ERP and SAP SCM business suites.

In the first section of this chapter, we’ll review the structure within the WM component.

### Warehouse Structure

This section examines the warehouse structure and helps you understand how the WM component may be more suitable to your logistics function than just the SAP IM functionality. The lowest level in the SAP IM component is the storage location.

**Who needs WM?**

If your company uses and stores a small number of materials, WM may be more than you need to run your business efficiently. However, if your plant has a large number of locations where material is stored or placement and removal of materials needs to be efficiently managed, then WM may be more appropriate. There are no set rules for when to use WM rather than SAP IM. The decision should be made by your logistics management with advice from SAP and your SAP consultants.
Let’s take a look at the structure within the WM component.

**Warehouse**

A *warehouse* is a physically defined area in your plant. It can be an area that encompasses the whole plant, a racking section, a separate carousel system, or any area your company defines.

**Example**

A company that manufactures electronic components uses 4,000 raw materials and sells 6,000 finished products. The raw materials and finished goods are stored in three automated horizontal carousels and an area of racking. The company decided to use WM and define each carousel as an individual warehouse, but it defined the racking as a number of separate storage locations that are not assigned to a warehouse.

The warehouse can be assigned to one or more storage locations that are defined in the SAP IM component. This assignment links the WM component to the SAP IM component. By implementing WM, your company can define as many individual locations as required in a structured environment. This is important if your company has thousands of items in a single storage location that need to be moved efficiently.

The warehouse structure is further divided into smaller locations called storage types, sections, and bins. Figure 4.2 shows the warehouses that have been created in SAP. Warehouses 700 through 710 have been created to represent the different storage carousels that have been installed at the company’s facility.
Storage Types

The warehouse can be divided into specifically defined areas, called storage types. Search strategies can be configured at the storage-type level. These searches can be used by your staff for the variety of different types of stock placement and stock removal that occur. Common storage types in a warehouse can be areas such as cold room, bulk storage, and high racking area.

**Example**

A company’s automated horizontal carousel consists of a series of shelving sections mounted on a horizontal, closed-loop oval track. The company is using WM and has defined the carousel as a warehouse. The company has further divided the carousel’s shelves and defined them as storage types.

Figure 4.3 shows storage types created for a warehouse. The figures show the storage types that describe a part of the warehouse. These storage types were created to define the structure of the warehouse. This was carried out in the configuration area of WM as part of the initial implementation. If your warehouse adds additional racking, then you may need to add more storage types to the configuration.
Evaluate the addition of each storage type to the SAP system. Sometimes unnecessary configuration can lead to additional workload for your staff. Try to keep the warehouse layout as accurate and straightforward as possible.

**Tip**

Storage Section

The storage type of a warehouse can be even further divided into areas called *storage sections*. This is particularly useful if your company has defined storage types that are large. By dividing the storage type into a number of storage sections, stock placement and removal searches can be more efficient.

**Example**

A company with a number of horizontal carousels has defined each carousel as separate warehouses in WM. Although the company saw no reason to physically divide each storage type, the company logically divided some of the storage types into fast-moving and slow-moving storage sections. The decision was made to logically store slow-moving stock in the same storage section.
Tip
At least one storage section has to be defined for each storage type.

Figure 4.4 shows a variety of storage sections that have been defined for a number of storage types. Each storage type has to have at least one storage section but can have more than one. The figure shows that storage type 001 has two storage sections defined—001 and 002. The storage sections in this case are divided between slow-moving and fast-moving items.

Storage Bin
Within a warehouse, the material is physically stored in a storage bin. The WM component is very flexible, and the structure can be changed immediately as your company’s storage needs fluctuate. A storage bin doesn’t always have to be a physical storage container. It can be a physical location in a shelving system or a part of a hanging storage system, which is often used to save space in the warehouse.
Example

A company has a warehouse with a variety of shelving systems. Each shelving unit has been designated as a storage type, and each shelf designated as a storage section. The company has hundreds of items stored in the warehouse, which vary in size from less than an inch in length to several feet. The company has designated each plastic container on each shelf as a separate storage bin. However, on some shelves, the items are too large for the physical containers. In these cases, the company has marked areas on the shelves with tape and designated each taped area as a storage bin.

Figure 4.5 shows a number of storage bins for storage type 001 in warehouse 700.

![Bin Status Report: Overview](image)

**Tip**

Storage bins can be created automatically based on a template. If your company has one structured format for storage bins, this can be set up and used to automatically create bins when they are needed.

Quant

Although the storage bin is the smallest container for your material in the warehouse, you need to identify each unit of material in that bin. The unique items that are placed in the bin are called *quants*. Your
company may decide that it doesn’t need to distinguish between different quants in the warehouse, but the ability to do so is part of the standard WM functionality.

Figure 4.6 shows the details that define an individual quant. The quant information shows where it is stored—storage location 900B—the quantity of the items that comprise the quant, the document that moved the quant into the bin, and the goods receipt date.

**Figure 4.6** Details Relating to a Quant

<table>
<thead>
<tr>
<th>Display Quant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical inventory</td>
</tr>
<tr>
<td>Material</td>
</tr>
<tr>
<td>Plant/Stor loc.</td>
</tr>
<tr>
<td>Warehouse No.</td>
</tr>
<tr>
<td>Batch</td>
</tr>
<tr>
<td>Stock cat.</td>
</tr>
<tr>
<td>Special qty</td>
</tr>
<tr>
<td>Picking Area</td>
</tr>
<tr>
<td>Stock data</td>
</tr>
<tr>
<td>Total stock</td>
</tr>
<tr>
<td>Actual stock</td>
</tr>
<tr>
<td>Stock for put.</td>
</tr>
<tr>
<td>Pick quantity</td>
</tr>
<tr>
<td>Weight</td>
</tr>
<tr>
<td>Cap. consumpt.</td>
</tr>
</tbody>
</table>

**Example**

Your plant maintenance department orders adjustable wrenches from a vendor each month. When the wrenches arrive at the warehouse, they are stored in the same storage bin. Each delivery of wrenches moved into the storage bin is identified as a separate quant. The storage bin may then contain several quants of the same wrenches.

Now that we’ve examined the various elements that make up the warehouse structure, let’s take a look at the movements of material within the warehouse.
Warehouse Movements

Movements of stock within the WM functionality are triggered by either an event that occurred in the SAP IM component, such as a goods receipt, or an event created within the WM module itself. This section examines the different events that can occur in the WM component.

When items are received at your plant, the SAP software uses the SAP IM component to move material to the correct storage location. If your company has adopted the WM component in addition to the SAP IM component, this functionality can be used to move the material to the correct area for that item within the warehouse.

However, this is only the case if the item to be moved is flagged as being stored in the warehouse. If the item isn’t flagged as such, then only the SAP IM component is used to move the item.

Example

An item that is stored in warehouse number 006 and requires refrigeration needs to be placed in a storage bin designated for cold storage in warehouse 006.

Items that are stored in a particular warehouse can also be moved among storage types, storage sections, and storage bins. For example, to fulfill a sales order, items may need to be moved from storage bins in the racking storage type to storage bins in the storage type designated for picking.

Two different types of movements are found in WM.

› Movements that are triggered by other SAP functionality, such as SAP IM and shipping that result in picking, packing, and transfers.

› Movements that are internal to the warehouse, such as bin-to-bin transfers or posting changes. The movements inside the warehouse don’t affect stock levels, and no information is passed to SAP IM.

Let’s review the warehouse movements that occur in WM.
Movements Triggered by SAP Inventory Management

In Chapter 3, we examined the different movements that occur in the SAP IM component, including goods receipts, goods issues, returns, and stock transfers. If your company implements WM, each of the SAP IM goods movements will trigger a WM movement when the material is stored in the warehouse.

Material is moved in the warehouse by the use of a two-step process: the transfer requirement and the transfer order. The next section describes the functionality that moves materials within the warehouse.

Transfer Requirement

A movement of material in the warehouse, triggered by either an inventory movement or a manual warehouse movement, starts with a transfer requirement. The transfer requirement is the planning phase where material is planned to be moved from one warehouse location to another. After a transfer requirement is processed, a transfer order is then used to perform and confirm the move when it’s completed.

Figure 4.7 shows a transfer requirement that has been created to move an item into the warehouse. The transfer requirement has been created by the inventory management movement for a goods receipt.
The transfer requirement includes the following information, which will help your warehouse staff as the material is moved in the warehouse:

› The material that should be moved within the warehouse
› The quantity of the material to be moved
› The date of when the material should be moved
› A reason why the material has to be moved

In addition to transfer requirements created by inventory movements, transfer requirements may also be created manually. Material that is stored in the warehouse is sometimes moved between storage types and storage bins. For example, material may have been stored in a temporary location and then needs to be moved to its normal storage bin.

**Example**

At an electrical motor manufacturer, a purchase order (PO) was made for the weekly supply of bearings. The order was received at the plant early, and the bearings couldn’t be placed in their normal storage type due to space limitations. The bearings were stored in temporary storage bins until there was enough space. When the bearings could be moved to their normal location, a manual transfer requirement was created to plan the movement.

Figure 4.8 shows a transfer requirement that has been created manually to move items between areas in the warehouse. The transfer requirement shows the material number and the quantity to move. The destination storage bin for removal or placement has not been determined at the time of creation.

When the transfer requirement has been created, the next step is to create the transfer order.
Transfer Order

A transfer order is used by your warehouse staff to perform the movement of material from one location to another and confirm that movement of material when it’s completed. The transfer order can be created from a transfer requirement. The previous section talked about how a transfer requirement can be created automatically because of an inventory movement, or that it can be created manually.

In addition to being created from a transfer requirement, a transfer order can also be created manually or directly from an inventory movement, such as a delivery.

The transfer order contains the information required to perform the movement of materials into the warehouse, out of the warehouse, or from one storage bin to another storage bin within the warehouse.

Figure 4.9 shows a transfer order that is being created from a transfer requirement. The details from the transfer requirement are assigned to the newly created transfer order.

Along with creating a transfer order from a transfer requirement, you can also create one manually.
Example

After completing a transfer order movement, a warehouse operator finds that the destination bin has material stored in it that should be in the storage bin on the shelf below. The operator informs the warehouse supervisor, who creates a manual transfer order to move the items into the correct storage bin.

Figure 4.10 shows a transfer order that has been created manually.
Confirming the transfer order

A transfer order is confirmed after the items have been moved. In many warehouses, the warehouse staff members are given the transfer order document, and they select the items from the source storage bin and take them to the destination bin indicated on the document. When the movement of items is complete, a warehouse supervisor receives the document. The supervisor confirms in WM that the movement has occurred and if any variances were noted.

Figure 4.11 shows a transfer order that is ready to be confirmed. The confirmation screen shows the source and destination storage bins. The warehouse supervisor can change the quantity that has been moved if the warehouse operator indicated that the amount had changed.

![Figure 4.11 Confirmation of Transfer Order](image)

**Example**

A warehouse supervisor receives a transfer order from a warehouse operator. The operator indicated on the document that although they were supposed to move ten items from the source storage bin to the destination storage bin, the destination bin could not accommodate all the items. The operator placed only four items in the storage bin and returned the remaining six to the source bin. The supervisor confirms the transfer order with an actual quantity moved as four and not ten, as the document originally stated.

If items are unable to be stored

In some instances, it isn’t possible to return the items to the source storage bin. This may be due to regulatory issues, company policies, or the fact that the source bin has already been replenished. The transfer
order does contain information for the warehouse operator about where to place any remaining items, if it’s necessary to do so.

On the transfer order, there is a line that can be entered to show the operator where to store surplus items. Figure 4.12 shows a transfer order with the source and destination information and also a remainder location, which can be used to store the surplus items. In this example, any surplus items will not be returned to storage bin 900030 in storage type 001, but to storage bin 420301 in storage type 420.

Printing Transfer Orders
Transfer orders can be printed individually or in bulk depending on how your warehouse operates. In a warehouse that does not process many sales orders, movements in the warehouse may be ad hoc, and the printing of transfer orders may be processed when needed.

Figure 4.13 shows an example of a printed transfer order. The printed document can be used by the warehouse staff to perform the movement of the material, or as a label that can be adhered to the items.
after the move has taken place. In either case, the document shows
the transfer order number, the line item, material number, description, quantity to be moved, and the source and destination storage
bins.

Wave picking

In warehouses that fulfill a large number of sales orders, wave picking may be implemented, and the transfer orders are printed in bulk.

**Tip**

In warehouse operations where there are hundreds of picks to perform per hour, the SAP wave picking functionality can save time and resources.

*Wave picking* is a warehouse method where multiple customer orders are picked simultaneously. This method is used to improve the efficiency of the overall picking operation because it reduces the time between each warehouse movement. Many warehouses operate wave picking that bulk prints transfer orders for the next hour's picking requirements. The printed transfer orders are given to the warehouse staff members, who then perform the movements described on each transfer order.
Case Study

A Mexican automotive parts distributor implemented SAP software when they were purchased by a German automotive company. Until the implementation of the SAP system, the company had used a best-of-breed solution that included a standalone warehouse management solution. As part of the SAP implementation, the company decided not to activate the WM component but to integrate the SAP application with its existing warehouse solution.

After implementation, the warehouse staff found that the information in their warehouse solution was inconsistent and untrustworthy. The company had underestimated the inaccuracies in their legacy system, and due to the accuracy of SAP software, the problems caused by their legacy system had now been exposed. The weeks following the implementation of SAP software saw on-time shipping of customer orders to fall to less than 20 percent. After a number of attempts to improve data consistency in the existing warehouse solution, the company decided to implement the WM component to fully integrate its warehouse function with the rest of the company.

A two-month project was launched to move the warehouse function to WM. The project was completed on time, and after one month of working on the WM system, the on-time shipping percentage had risen to 78 percent. Six months later, the percentage had reached over 95 percent.

Now that we’ve examined the various warehouse movements, let’s take a look at the SAP Extended Warehouse Management functionality of the SAP SCM application.

SAP Extended Warehouse Management

SAP Extended Warehouse Management (SAP EWM) is part of the SAP SCM product and extends the functionality of the basic WM application. SAP EWM can use the organizational structure from WM and offers additional functionality to businesses with more complex warehouse situations. SAP EWM can integrate with standard WM so that documents created in the SAP ERP system trigger events in the SAP EWM system.
SAP EWM is particularly useful for companies that have large and complex warehouses with high volume and velocity. These companies can benefit from functionality such as yard management and cross-docking.

Organizational Structure
The organizational structure of a company can be set up in WM and linked to SAP EWM. There are some additional elements to the organizational structure that companies may want to use to help with their complex warehouse situations.

Activity Areas
The activity area is a structure in SAP EWM that is a group of storage bins. The bins are grouped together for a reason such as stock removal or stock placement. A storage bin can be assigned to more than one activity area. Figure 4.14 shows an activity area, 0001, created for warehouse J001.

Product Master
The product master is the SAP EWM version of the material master from SAP ERP. The product master is derived from the material master but has additional information relevant to SAP EWM. There is an additional view called warehouse management execution. Some of the additional fields include the handling indicator—which is used to describe how a material is moved from one location to another—the warehouse material group, the warehouse storage condition, an indicator that notes whether an item is likely to be pilfered, a quarantine period, and a catch weight—which identifies whether a material is...
managed using catch weight. Figure 4.15 shows the product master for item 100-110, which has a material master record in SAP ERP.

Transportation Zone
For creating routes, first a transportation lane is required. It is defined as a link between two locations—a start and destination—which can be plants, customers, or vendors. The transportation lane defines which products can be shipped between two locations and which method of transport can be used.

A transportation zone is comprised of a number of locations. The zone can determine which locations are included, and once data is assigned to the transportation zone it is transferred to all of the locations in the zone. This reduces the amount of data that needs to be entered for each zone. Figure 4.16 shows a transportation zone created for locations in the state of Pennsylvania.
Transportation Route
The route describes the characteristics of a physical route between two locations. The transportation route is used in determining the most relevant route during route determination. It has several characteristics such as legs, lead times, and shipping conditions.

Resource Type
A resource is an object that performs tasks in the warehouse. It can be a piece of equipment, such as a forklift, or a warehouse employee. You can group similar resources together as resource types in SAP EWM. They can be assigned to bin types, so that a resource type, such as a certain type of forklift, can only have access to certain types of bin, based on aisle width. Figure 4.17 shows a Toyota forklift defined as a resource type.

Queues
The queue is used in the assignment of warehouse orders. A warehouse order is assigned to a queue, and the resource group is assigned to a sequence of queues. The order can then be assigned to a particular resource, such as a forklift or an employee. Figure 4.18 shows a queue defined for warehouse J001.

Figure 4.17 Resource Type for Toyota Forklift Trucks

Figure 4.18 Queue Defined for Warehouse J001
Documents
There are a number of important documents in SAP EWM that can be found in the outbound delivery process, inbound delivery process, and internal warehouse tasks.

Outbound Delivery Request
When an SAP EWM-relevant outbound delivery document is processed in SAP ERP, a document is created in SAP EWM called an outbound delivery request (ODR). The ODR creates an outbound delivery order in SAP EWM. A goods issue can be performed on the outbound delivery order, and this creates the SAP EWM outbound delivery, which is also called the final delivery.

Inbound Delivery Notification
When an inbound delivery is processed in the SAP ERP system, the delivery is checked to see if it is relevant for an SAP EWM warehouse. If it is, then an inbound delivery notification (IDN) is created usually in the background. This document then creates an inbound delivery document in SAP EWM.

Warehouse Tasks
There are two types of tasks in the warehouse: product warehouse tasks and handling unit (HU) warehouse tasks. A product warehouse task performs a movement of stock in the warehouse. These tasks are used for picking, putaway, and internal warehouse movements. A handling unit warehouse task is used to move an entire handling unit within the warehouse.

Warehouse Orders
A warehouse order is a combination of several warehouse tasks that are given to a warehouse resource to perform in a specific period of time. A warehouse task is assigned to a warehouse order based on a set of rules.

Warehouse Processes
The SAP EWM application provides functionality for inbound and outbound deliveries that help reduce the effort involved in complex warehouse processes for high-volume and high-velocity warehouses.
Inbound Processes
The inbound process in a warehouse commences when the SAP ERP system receives an advance shipping notice (ASN). It can be transferred to SAP EWM, and an inbound delivery notification (IDN) is created. An inbound delivery in SAP EWM can be created once the IDN is activated. The inbound delivery includes data such as the product data, quantity to be delivered, movement data, and status. When the vehicle that contains the items arrives at the warehouse, the transportation unit (TU) is registered in the yard management function. If the information about the TU was sent in the original ASN, then the TU can be produced automatically when the inbound delivery is transferred from SAP ERP to SAP EWM.

When scheduled, the vehicle can be unloaded, and the status of the TU can be changed manually when the unloading is complete. An inspection of the products can be made and, if necessary, adjustments can be made or the delivery can be rejected. The inbound delivery can be goods receipted manually or automatically when the putaway warehouse task has been completed. The goods receipt in SAP EWM is then transferred to the SAP ERP system.

Outbound Processes
The outbound process can begin with a sales order creation in SAP ERP or the SAP CRM system. An outbound delivery is generated, and the process is activated in the warehouse. The outbound delivery is forwarded to the SAP EWM system, and an outbound delivery request (ODR) is generated. The ODR can be activated, and an outbound delivery order (ODO) is created. After the creation of the ODO, you can manually create warehouse tasks and the warehouse order can also be created. The physical tasks of picking the product, packing, kitting, staging, and loading can start.

After the products have been loaded onto a vehicle, the ODO can be goods issued. The final outbound delivery document is generated and transferred to the SAP ERP system.

Replenishment
The replenishment process takes in product from a reserve area and moves it to a forward picking position in the warehouse. There are
five types of replenishment: planned replenishment, order-related replenishment, crate part replenishment, direct replenishment, and automatic replenishment.

Rearrangements
During the rearrangement process, the system compares how the product should be placed in the warehouse, with how the product is actually stored in the warehouse. For example, if a product was identified as a slow-moving item but now is in demand, the system will rearrange the product so the bin locations are located in an area with fast-moving stock.

Ad Hoc Movements
Sometimes product is in a bin location that is not close to other bin locations where the product is usually stored. In this instance, an ad hoc movement may be instigated so that the warehouse staff can move the product to a different bin location.

Posting Changes
A posting change can be driven from the SAP ERP system or in the SAP EWM system. A posting change notice can be created in SAP ERP and transferred to the SAP EWM system as a posting change request.

Summary
This chapter discussed the structure of the warehouse in SAP software and how material is moved around the warehouse. Movements inside the warehouse determine where that material goes, how it gets there, how it is stored, and how it gets retrieved. The transfer requirement and the transfer order are the two documents that move material inside the warehouse, and it’s important to know how the processes of each work individually and in combination.

The SAP Warehouse Management component is important to your logistics operation because it provides the flexibility to adapt to rapid changes in your storage facility. Storage bin creation can be performed in real time, allowing for the constant changes that occur in your warehouse. The WM component gives companies of all sizes the
material visibility that they require to efficiently operate the warehouse.

If your company operates complex or high velocity warehouses, the SAP Extended Warehouse Management functionality should be considered to increase efficiency.

The key points identified in this chapter were the following:

› WM and SAP EWM offer a complete solution for companies with complex warehouse requirements.
› The structure is designed to be flexible, allowing for changes in the physical warehouse.
› Warehouse placement and removal strategies offer highly simplistic or highly complex functionality.
› Seamless integration with inventory management is possible.
› The high degree of material visibility is helpful to warehouse staff.

The next chapter discusses inbound and outbound logistics in SAP, which will help you understand the goods receipt and goods issue processes.
Index

A

Account assignment, 393
Account assignment category, 393
Account balances report, 286
Accounts, 43
Accounts payable, 393
Accounts receivable report, 286
Activity area, 116
Activity report, 306
Adjustment, 96
Administrative element, 184
Advance shipping notice (ASN), 120
Advanced shipping notification (ASN), 393
Air transportation, 330
Americas’ SAP Users’ Group (ASUG), 393
APO, 159, 165, 169
Ariba, 30, 73, 76, 393
ASAP, 393
ASAP implementation, 346
ASAP methodology, 346
Assembly, 393
Asset-based carriers, 330
ASUG, 28
Authorizations, 393
Automatic goods receipt, 198, 200
Automatic reservation, 86
Availability check, 230, 393

B

Backflushing, 198, 199, 393
Balance sheet, 43
Barcode, 393
Base unit of measure, 393
Baseline result, 355
Batch, 393
Batch determination, 393
Batch management, 34
Best-of-breed, 28
Bill of distribution, 163
Bill of materials (BOM), 174, 184, 188, 190, 194, 384, 393
Billing, 312
Automatic, 284
Document, 393
Documents, 284
Function, 282
Manual, 285
Manual conversion, 285
Process, 282
Bins, 101
Blanket order, 393
Blocked status, 93
Book quantity, 96
Budget, 350
Business blueprint, 347, 350, 351, 386
Business decision matrix, 310

C

Calibration order, 308
Call horizon, 223, 224
Call object, 224
Capacity requirements, 194, 196
Cash flow, 142
Catalog, 237, 394
Pre-defined, 237
Change management, 394
Change management program, 348
Characteristic, 394
Characteristic value, 394
Characteristics-based forecasting, 172
Characteristics-dependent planning, 173
Chart of accounts, 43, 394
Check-in, 326
List, 336
Class rate, 333
Client, 42, 394
Client/server enterprise, 27
Index

Code, 237
Code group, 237, 239
Collaborative demand planning, 162
Collaborative supply planning, 162
Collaborative transportation planning, 162
Collective billing process, 283
Commission, 324
Company, 50, 51, 127, 128, 129
Company code, 50, 394
Condition, 394
Configurable materials, 155
Configuration, 394
Confirmations, 198, 311
Collective, 311
Consignment stock, 93
Consumption-based planning, 394
Continuous inventory, 93
Contract, 394
Contract rates, 334
Contracts, 275
Master contract, 275
Quantity contract, 276
Release orders, 278
Value contract, 277
Cost center, 394
Cost estimate, 204, 205
Cost of goods manufactured (COGM), 203, 394
Cost of goods sold (COGS), 204, 394
Cost receivers, 201
Costing
Department, 201
Information, 198
Count procedure, 93
Counter, 215
Credit memo, 279, 394
Financial aspects, 279
Request, 280
Customer, 62, 82, 394
Customer defect report, 257
Customer forecast management, 173
Customer inquiry, 271, 394
Customer location, 93
Customer quotation, 272, 274, 394
Customer record, 269
Customer requirements, 157
Customer satisfaction, 360
Customer service, 38, 94, 142
Customizing, 395
Cycle counting, 93, 395

D

Defects recording, 252
Delivery documentation, 136
Delivery information, 38
Delivery monitor, 395
Delivery note, 62
Demand management, 141, 152, 173, 383, 395
Demand planning, 169
Digital signature, 251
Direct costs, 359, 361
Recurring, 360
Distinct sales area, 266
Distribution center, 89
Distribution channel, 264, 395
Distribution SIG, 28
Document, 395

E

Electronic data interchange (EDI), 395
End load, 327
Engineering change management, 34
Equipment, 213, 294, 395
Master record, 214
Task list, 220
Equipment record, 213
Equipment task list, 395
E-sourcing, 373
Evaluated receipt settlement (ERS), 34, 382, 395
Evaluations, 158
Exception message, 174
Exception rate, 334
External services, 395
## Index

| F | Handling unit management, 34  
Helpdesk, 356 |
|---|---|
| G | Implementation guide (IMG), 396  
Implementation methodology, 345  
Implementation strategy, 343 |
Goods movement, 383  
Goods receipt, 62, 84, 127, 128, 382, 396  
Gross freight, rate, 335 |

### F

- Factory calendar, 395
- Fast-moving stock, 93
- FIFO (first in, first out), 395
- Final preparation, 347, 353, 354, 386
- Financial Accounting (FI), 395
- Finished goods, 93, 94, 293
- Flexible sales and operations planning, 144
- Forecast, 179, 395
- Forecast accuracy, 142
- Forwarding agent, 324, 395
- Freight cost, 330, 395
- Freight forwarder, 324
- Freight forwarders, air, 331
- Full-truckload (FTL), 332, 395
- Functional location, 210, 213, 221, 295, 395
- Functional, 295
- Hierarchy, 211
- Process-related, 210, 295
- Spatial, 210, 295
- Task list, 220
- Work center, 210

### G

- General maintenance task list, 219
- GL (general ledger) account, 395
- Global available-to-promise, 177
- Go-live and support, 347, 354, 356, 386
- Good manufacturing practice (GMP), 37
- Goods movement, 383
- Goods receipt, 62, 84, 127, 128, 382, 396
- Gross freight, rate, 335

### I

- Implementation guide (IMG), 396
- Implementation methodology, 345
- Implementation strategy, 343
- Inbound delivery notification (IDN), 119
- Inbound logistics, 35, 383
- Indirect costs, 360, 361
- Individual billing document, 283
- Industry solutions, 345
- Initial costs, 360
- Initial stock creation, 84
- Inspection, 197, 209
- Characteristic, 237, 239, 241, 396
- Lot, 248, 250
- Method, 237
- Operations, 241
- Plan, 240, 241
- Process, 258
- Specification, 249
- Inspection lot, 396
- Inspection plan, 396
- Instance, 42
- Internal problem report, 245
- Internal transfer, 83
- International shipment, 321
- Inventory, 94
- Inventory adjustment, 396
- Inventory differences, 96
- Inventory inaccuracies, 94
- Inventory management, 99, 108
- Inventory management SIG, 28
- Inventory sampling, 93
- Inventory stock, 135
- Inventory valuation, 396
- Inventory variance report, 93
- Invoice, 62, 396
- Invoice split, 284, 396
- Invoice verification, 396
- Item category, 396

---

407
Index

K

Kanban, 396

L

Labor, 184
Legal entity, 42
Less than truckload (LTL), 396
Less-than-truckload (LTL), 332
LIFO (last in, first out), 396
Local rate, 334
Logistics, 30, 34
Logistics execution, 382
Lot size, 396

M

Maintenance notification, 226, 228, 396
Maintenance order, 222, 228, 229, 231, 396
Maintenance plan, 222, 396
Scheduling, 223, 224, 225
Maintenance processing, 226
Maintenance schedule, 396
Maintenance task list, 396
Maintenance tasks
List, 218
Operations, 219
Make to stock, 153
Make-to-order strategy, 154
Make-to-stock strategy, 153
Manufacture, 41
Manufacturing, 382, 384
Operations, 36
Manufacturing operations, 183
Manufacturing SIG, 28
Manufacturing structure, 184
Master contract, 275
Master data, 144
Master production scheduling (MPS), 36, 397
Material, 56, 57, 84, 86, 88, 89, 94, 128, 129
Counts, 95
Material (Cont.)
Discrepancies, 96
Material defect report, 255
Material group, 397
Material master record, 153, 154
Material price, 205
Material requirements planning (MRP), 36, 141, 173, 174, 397
Material routings, 184
Material specification, 240
Advantage, 240
Inspection characteristics, 240
Material type, 397
Material usage report, 147
Materials production schedule (MPS), 147
Materials requirements planning (MRP), 383
Measurement, 215
Measurement document, 217
Movement type, 397
MRP controller, 397
MRP list, 397
MRP type, 397
Multi-item single delivery, 179

N

National Motor Freight Classification (NMFC), 333
Negative inventory, 397
Negotiated price, 58
Nonasset-based companies, 330
Notification, 227
Notification monitoring, 246
Notifications, 384

O

Objective measurement, 363
Offsetting adjustment, 96
One-step stock transfer, 397
One-time vendor, 397
Ongoing costs, 360
Operation, 397
Operations, 94
Order fulfillment, 142
Organizational structure, 41, 43
Outbound delivery, 131, 281
Outbound delivery document, 131, 134, 281
Outbound delivery monitor, 132
Outbound delivery request (ODR), 120
Outbound logistics, 35, 131, 383
Outline agreement, 397
Output device, 397
Overseas shipment, 325

P
Packing information, 134
Partner functions, 270
Periodic billing, 300
Permit, 214, 215, 397
Physical elements, 184
Physical inventory, 93, 95, 96, 383, 397
  Count sheet, 95
Picking, 132, 397
Picking status, 133
Planned independent requirements, 156, 157
Planning functionality, 156
Planning hierarchy, 144
Planning situation report, 147
Planning strategy, 152
Plant, 44, 45, 51, 83, 86, 88, 93, 107, 397
Prevention, 209
Preventive maintenance, 218
  Plan, 222
  Single-cycle, 222
Pricing information, 38
Process orders, 184
Procurement, 382
Procurement SIG, 28
Product allocation, 178
Product availability, 38
Product availability check, 177
Product costing, 184, 187, 203, 207, 384
Product development, 382, 383
Product group, 144, 398
  Breakdown, 145
  Usage, 146
Product Lifecycle Management (PLM), 397
Product master, 116
Product planning, 36, 141
Production, 94, 235
Production capable-to-promise, 179
Production component, 209
Production line, 184
Production multi-level ATP check, 180
Production order, 193, 197, 201, 398
  Confirmation, 198
Settlement, 200
Production process, 84
Production resources and tools (PRT), 192, 398
Project, 86
Project preparation, 347, 348, 349, 386
Proof of delivery, 136, 398
Purchase order, 58, 62
  Number, 129
Purchase order (PO), 127, 129, 398
Purchase requisition, 55, 57, 194, 398
Purchasing, 41
Purchasing department, 55, 57, 58
Purchasing group, 52, 398
Purchasing information record, 398
Purchasing organization, 49, 50, 51, 52, 398
Purchasing proposals, 174
Putaway, 398

Q
Quality certificate, 254
Incoming, 254
Outgoing, 254
Quality inspection, 93, 235, 247
Quality management
  Basic data elements, 239
  Structure, 237
Index

Quality notification, 235, 237, 243, 258, 398
Customer complaint, 243
Internal, 243
Report, 246
Quality planning, 235, 239, 258
Quant, 105, 398
Quantity contract, 276, 398
Quantity structure, 204
Queue time, 186
Quota arrangement, 398
Quotation, 272, 398

R
R/2, 28
Radio frequency, 35
Identification, 32
Radio frequency identification (RFID), 398
Rail transportation, 331
Rapid Deployment Solutions (RDS), 356
Raw material, 93
Realization, 347, 352, 353, 386
Real-time analytics, 379
Real-time applications, 380
Recording results, 250
Recurring costs, 360
Release, 398
Released value rate, 334
Repair, 209
Repair order, 308, 398
Repetitive manufacturing, 398
Reporting, 145
Reports, 285
Request for information (RFI), 399
Request for proposal (RFP), 399
Request for quotation (RFQ), 57, 382, 399
Request for tender (RFT), 399
Research and development, 344
Reservations, 86, 194, 399
Resource, 118
Resource use, 142
Return delivery, 399
Return material authorization (RMA), 279, 399
Return on investment (ROI), 343, 349, 362, 386, 399
Returnable packaging, 399
Returns, 382
Route, 399
Routings, 190, 194, 384, 399
Configurable materials, 191
Rules-based ATP check, 179

S
Safety stock, 399
Safety stock planning, 167
Sales, 266
Sales agreement, 304
Sales and operations planning, 148
Sales and service, 37, 382
Sales area, 399
Sales division, 265, 399
Sales function, 266
Sales group, 267
Sales office, 266, 399
Sales order, 131, 273, 399
Sales order management, 38
Sales ordering, 268
Sales organization, 263, 399
Sales structure, 262
Sample size, 249
SAP, 27
SAP Advanced Planning and Optimization (SAP APO), 159, 165, 169, 393
SAP Contract Lifecycle Management (SAP CLM), 373, 386
SAP Cost and Quotation Management (SAP CQM), 373, 386
SAP Customer Relationship Management (SAP CRM), 43, 344
SAP Customer Service (CS), 33, 291
SAP Environmental, Health & Safety (SAP EH&S), 399
SAP ERP, 28, 29
SAP Extended Warehouse Management (SAP EWM), 32, 115, 119, 122, 399
SAP HANA, 379, 399
SAP Inventory Management (SAP IM), 35, 100
SAP Logistics Information System (SAP LIS), 142
SAP Materials Management (MM), 33, 209, 235, 261
SAP NetWeaver, 367, 400
Components, 368
SAP Order Information System, 202
SAP Plant Maintenance (PM), 33, 37, 184, 192, 209, 235, 384
SAP Product Lifecycle Management (SAP PLM), 29
SAP Production Planning (PP), 33, 261
SAP Quality Management (QM), 33, 37, 384
SAP Sales and Distribution (SD), 33, 261
SAP Sales and Operations Planning (SAP SOP), 36, 141, 383, 400
Planning tools, 144
SAP Service-Orientated Architecture (SOA), 400
SAP Solution Manager, 346
SAP SRM, core functionality, 373
SAP Supply Chain Management (SAP SCM), 29, 344
SAP Supply Network Collaboration (SAP SNC), 400
SAP Transportation Management (SAP TM), 319, 385
SAP Warehouse Management (WM), 33, 99, 121, 383
Schedule performance, 142
Scheduling, 174, 195, 230
Scheduling agreement, 274, 400
Scheduling function, 225
Sections, 101
Selected set, 238
Serial number, 293, 400
Serialized material, 293
Service agreement, 297
Long-term, 297
Quotation, 299
Short-term, 297
Service contract, 298, 299, 300, 400
Inquiry, 298
Quantity, 301
Service department, 304
Service notification, 305, 400
Service order, 302, 307, 400
Service parts management (SPM), 372
Service parts planning, 163
Service processing, 304
Service tasks, 306
Serviceable object, 293
Service-oriented architecture (SOA), 370, 379, 400
Settlement rule, 201
Shipping, 325, 400
Shipmenet completion, 327
Checklist, 336
List, 337
Shipment costs, 319
Shipment start, 327
Shipment status, 326
Shipment type, 328
Shipped quantity, 135
Shipping, 107
Shipping assets, 324
Shipping costs, 335
Shipping notice, 383
Shipping point, 400
Shipping process, 280
Shipping rates, 333, 335
Shipping route, 322
Shipping stages, 322
Shipping type, 321, 322, 323, 325, 400
Shop floor control, 193
Shop papers, 201
Single-item MRP, 174
Single-item planning, 175, 176
Six Sigma, 400
Slow-moving stock, 89
Software services, 370
Source determination, 168
Special stock, 93
Spend analytics, 373
Standard price, 205
Start load, 326
Stock, 45
Stock level, 83, 94, 127
Stock transfer, 83, 382, 400
Stock valuation, 142
Stock/requirements list, 158
Storage bin, 48, 109, 110, 112, 400
Storage location, 45, 83, 88, 93, 99, 100, 107, 400
Storage section, 103, 400
Storage type, 47, 104, 107, 400
Strategy for configurable materials, 155
Strategy group, 154
Subcontracting, 401
Subjective measurement, 364
Supply Chain Cockpit (SCC), 160
Supply Chain Collaborative Planning (CLP), 162
Supply Chain Planning SIG, 28
Supply Network Planning (SNP), 165

T

Technical object, 217
Three-way match, 62
Total cost of ownership (TCO), 343, 356, 359, 361, 386, 401
Calculating, 361
History, 359
Total planning, 175
Transfer order, 108, 110, 401
Confirmation, 112
Printing, 113
Transfer posting, 382, 401
Transfer requirement, 121, 401
Transit time, 322
Transportation execution, 336
Transportation lane, 117
Transportation management, 38, 164, 319
Transportation options, 330
Transportation planning, 320
List, 328
Point, 321, 325
Transportation planning point, 401

Transportation SIG, 28
Transportation unit (TU), 120
Truck transportation, 332
Two-step stock transfer, 401

U

Unit of measure, 401
Universal product code (UPC), 401
Unrestricted, 93
Usage counter, 198
Usage decision, 252, 253

V

Valuation, 401
Value contract, 277, 401
Variance, 94
Variance location, 96
Variances, 93
Variant configuration, 34, 401
Vendor, 48, 51, 62, 83, 84, 129, 401
Vendor defect report, 256
Vendor evaluation, 401

W

Warehouse, 47, 93, 401
Warehouse management, 35
Warehouse movement, 107, 108
Warehouse section, 94
Warranty, 302, 303, 401
Warranty counter, 303, 304, 401
Wave picking, 401
Work center, 183, 184, 198, 241, 384, 401
Capacity, 185
Costing, 187
Record, 186
Scheduling, 186

Y

Yearly inventory, 93