Master Guide
SAP Enhancement Package 2 for SAP Supply Chain Management 7.0

Using SAP SCM 7.0 including SAP enhancement package 2, SAP ERP 6.0, and SAP NetWeaver 7.0 including SAP enhancement package 3

Target Audience

- Technical Consultants
- System Administrators

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Documentation in the SAP Service Marketplace

You can find this document at the following address: http://service.sap.com/instguides

Typographic Conventions

Example	Description
<>	Angle brackets indicate that you replace these words or characters with appropriate entries to make entries in the system, for example, “Enter your <User Name>”.
→	Arrows separating the parts of a navigation path, for example, menu options
Example	Emphasized words or expressions
Example	Words or characters that you enter in the system exactly as they appear in the documentation
Example	Textual cross-references to an internet address, for example, http://www.sap.com
/example	Quicklinks added to the internet address of a homepage to enable quick access to specific content on the Web
123456	Hyperlink to an SAP Note, for example, SAP Note 123456
Example	■ Words or characters quoted from the screen. These include field labels, screen titles, pushbutton labels, menu names, and menu options. ■ Cross-references to other documentation or published works
Example	■ Output on the screen following a user action, for example, messages ■ Source code or syntax quoted directly from a program ■ File and directory names and their paths, names of variables and parameters, and names of installation, upgrade, and database tools
EXAMPLE	Technical names of system objects. These include report names, program names, transaction codes, database table names, and key concepts of a programming language when they are surrounded by body text, for example, SELECT and INCLUDE
EXAMPLE	Keys on the keyboard

Document History

CAUTION

Before you start the implementation, make sure you have the latest version of this document. You can find the latest version on SAP Service Marketplace http://service.sap.com/instguides.

The following table provides an overview on the most important document changes:

Version	Date	Description
1.0	2011-11-08	New version
1.1	2012-05-07	Correction of typo in chapter *SAP Supply Chain Management Server (SAP SCM Server)*: *SAP enhancement package 1 for SAP NetWeaver 7.03 usage type BI (SAP BI)* changed to *SAP enhancement package 3 for SAP NetWeaver 7.0 usage type BI (SAP BI)*.

Table of Contents

1 Getting Started

1.1 About this Document

This SAP SCM Master Guide provides a central starting point for the technical implementation of SAP SCM. It contains all the information for the implementation of SAP SCM business processes.

To facilitate the implementation process, this document is organized by business processes and business process groups. You can choose from among several generic business processes and find all the information that is relevant for the technical implementation of a specific business process in that section.

NOTE

The central starting point for the **technical upgrade** of your SAP application is the Upgrade Master Guide, which you can find on SAP Service Marketplace at http://service.sap.com/instguides.

NOTE

This Master Guide provides only one way to implement each business process using SAP SCM 7.0 including SAP enhancement package 2. For other ways to implement the business processes, see the Scenario Component List Viewer on SAP Service Marketplace at http://service.sap.com/scl.

Information in the Master Guide

Use the Master Guide to get a technical overview of SAP SCM and its processes. The Master Guide is a planning tool that helps you to design your system landscape and refers you to more detailed documentation such as the following:

- Installation guides for single software units
- SAP Notes
- Configuration documentation

- SAP Library documentation

For a general overview of the available SAP documentation, see *The Main SAP Documentation Types* in the *Appendix*.

Content

Below is a summary of the sections of this guide that you can refer to during the implementation of the business processes.

- The *Getting Started* contains valuable information about using this document and related information (documentation and SAP Notes) crucial to the installation and upgrade.
- *SAP Supply Chain Management Overview* [page 29]
  - The *Software Component Matrix* provides the information about which business processes use which component and whether the corresponding component is mandatory or optional.
  - *System Landscape* provides an overview of a possible system landscape and also provides installation information.
- *Business Processes of SAP SCM* [page 51] contains the following information for each business process:
  - A short overview of the business process
  - A software component matrix for each business process that shows which components the business process uses and whether the component is mandatory or optional
  - References to further information about the business process
- *Solution-Wide Topics* [page 115] provides information about SAP Solution Manager.
- Depending on the specific business process, different installation and master guides are required during the business process implementation. In *Appendix*, you can find an overview of all required documentation referenced in this Master Guide.

NOTE

You can find the most current information about the technical implementation of SAP SCM and the latest installation and configuration guides on SAP Service Marketplace at http://service.sap.com/instguides.

We strongly recommend that you use the documents available here. The guides are regularly updated.

Constraints

- The business processes that we present here serve as examples of how SAP software can be used. They are only intended as models and do not necessarily operate as we describe them in your customer-specific system landscape. Check your requirements and systems to determine whether these processes can be used at your site and be sure to test all processes thoroughly to ensure that they work as desired in your environment.
- This Master Guide primarily discusses the overall technical implementation of SAP SCM than its subordinate components. This means that additional software dependencies might exist without being mentioned explicitly in this document. You can find more information on component-specific software dependencies in the corresponding installation guides.

1.2 Related Information

Planning Information and Further Useful Links

The following table contain links to crucial information for implementing SAP SCM:

Planning Information and Further Useful Links

Content	Location
Latest version of installation and update guides for SAP components	http://service.sap.com/instguides
General information about SAP SCM	http://service.sap.com/scm
SAP Business Maps – information about applications and business scenarios	http://service.sap.com/businessmaps
Sizing, calculation of hardware requirements – such as CPU, disk and memory resource – with the Quick Sizer tool	http://service.sap.com/quicksizer

Content	Location
Released platforms and technology-related topics such as maintenance strategies and language support	http://service.sap.com/platforms
Platform Availability Matrix	http://service.sap.com/pam
Information about network security – SAP Security Guides	http://service.sap.com/securityguide
Information about high availability	http://www.sdn.sap.com/irj/sdn/netweaver
Performance	http://service.sap.com/performance
Information about Support Package Stacks, latest software versions, and patch level requirements	http://service.sap.com/sp-stacks
Information about Unicode technology	http://www.sdn.sap.com/irj/sdn/i18n
Information about SAP Notes	http://service.sap.com/notes
Information about creating error messages	http://service.sap.com/message
SAP Software Distribution Center (software download and ordering of software)	http://service.sap.com/swdc
SAP Online Knowledge Products (OKPs) – role-specific Learning Maps	http://service.sap.com/rkt
Documentation on SAP Help Portal	http://help.sap.com

Related Master Guides

This Master Guide is based on Component Master Guides. The documents listed in the following table contain detailed information about the relevant components:

List of Related Master Guides

Content	Location
SAP ERP 6.0	http://service.sap.com/instguides → *SAP Business Suite Applications* → *SAP ERP* → *SAP ERP 6.0* → *Installation* → *Master Guide*
SAP EWM 7.0 including SAP enhancement package 2	http://service.sap.com/instguides → *SAP Business Suite Applications* → *SAP SCM* → *SAP EWM* → *Using SAP enhancement package 2 for SAP EWM 7.0* → *Master Guide*
SAP SNC 7.0 including SAP enhancement package 2	http://service.sap.com/instguides → *SAP Business Suite Applications* → *SAP SCM* → *SAP SNC* → *Using SAP enhancement package 2 for SAP SNC 7.0* → *Master Guide*

Content	Location
SAP Event Management 7.0 including SAP enhancement package 1	http://service.sap.com/instguides → *SAP Business Suite Applications* → *SAP SCM* → *SAP EM* → *Using SAP enhancement package 1 for SAP EM 7.0* → *Master Guide*
SAP CRM 7.0	http://service.sap.com/instguides → *SAP Business Suite Applications* → *SAP CRM* → *SAP CRM 7.0* → *Plan*
Industry Upgrade Master Guides	http://service.sap.com/instguides → *Industry Solutions* → *Industry Solution Guides*

1.3 Main Implementation Processes and Related Documentation

The following processes are the most important implementation processes for installing, updating, and upgrading SAP NetWeaver server-based SAP applications:

- New installation of an SAP system including an enhancement package (installation)
- Installation of an enhancement package on an existing SAP system (update)
- Upgrade to an SAP system including an enhancement package (upgrade)

Each of the implementation processes consists of a planning phase and an implementation phase. Each phase is divided into steps that describe the processes in detail. Each step contains references to the corresponding documentation to ensure that you can easily find the information you need.

The process sequences give a comprehensive overview of all possible steps. You only need to select the steps that are relevant for your requirements.

NOTE

If you have already decided which business scenarios and business functions to implement, you can ignore the corresponding step in the planning phase of the installation, update, or upgrade process sequences.

NOTE

Detailed implementations sequences for business scenarios are also found in this Master Guide, see section *Business Processes of SAP SCM* [page 51]. These

implementation sequences describe the components required for a specific scenario and the sequence in which they need to be installed, they do not describe the installation process itself, as is done in this and the following sections.

The following figure shows the Application Lifecycle Management phases, the associated user profiles, and how they map to the slightly simplified planning and implementation phases described in the sections linked below:

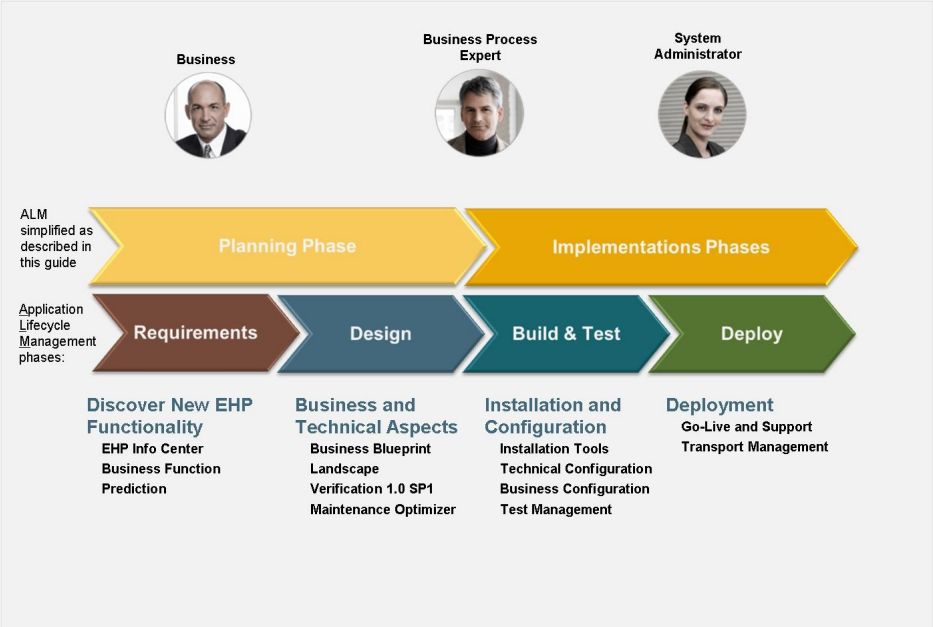

Figure 1:

For more information about Application Lifecycle Management, see http://service.sap.com/alm.

The processes that are relevant for an installation are described in the following sections:

- *Planning for Installation, Update, and Upgrade Processes* [page 17]
- *Implementation of the Installation Process* [page 21]

NOTE

For information about the update process and the upgrade process, see the sections *Implementation of the Update Process* and *Implementation of the Upgrade Process* in the Upgrade Master Guide for SAP Supply Chain Management (SAP SCM).

1.3.1 Planning for Installation, Update, and Upgrade Processes

The planning phase is the general starting point for any kind of enhancement package implementation project. The detailed definition of your scope and requirements is the key success factor for a smooth project. You discover new developments and functions to find out which solution best suits your needs and you cover the business aspects as well as the technical aspects of your implementation.
The table below lists the topics you need to consider in the planning phase with references to relevant documentation. You have to look into those steps that are relevant for your requirements.

NOTE

How to read the table:

- The first column contains the name of the process step.
- The middle column contains a short description of the step and some documentation references that are always followed by a number in square brackets, for example, [1]. This number corresponds with the same number in a list in the third column, for example 1.
- The third column contains the full title of the documents referred to in the middle column, as well as where to find them. The documents are numbered in the same way as in the middle column.

Planning Steps

Step	Step Description	Documentation
Scope and Requirements	Define your business scope, such as business scenarios and business functions you want to use. You can find information about scope topics at the **Enhancement Package Info Center** [1]. The SAP Solution Browser Tool gives you a summary of key functional changes	1. http://service.sap.com/scm-ehp 2. http://solutionbrowser.erp.sap.fmpmedia.com 3. http://help.sap.com/scmserver → *SAP Enhancement Package 2 for SAP SCM 7.0* → *SAP Supply Chain Management* → *<SCM component>*

Step	Step Description	Documentation
	between two releases or SAP enhancement packages [2]. You can find detailed information about business functions on the SAP Help Portal [3].	
Dependencies to Other Systems in the Landscape	**NOTE** Only relevant for upgrades! The upgrade of one SAP system might have an impact on other systems in your system landscape. Check whether such dependencies exist using the Upgrade Dependency Analyzer.	http://service.sap.com/uda
Landscape Planning	If you want to change or modify your existing system landscape, make yourself familiar with the available system landscape options. For detailed information about business landscape options, use the *Planning Guide - SAP Business Suite Landscape Implementation*.	http://service.sap.com/instguides → *Installation & Upgrade Guides* → *SAP Business Suite Applications* → *SAP SCM* → *SAP SCM Server* → *Using SAP Enhancement Package 2 for SAP SCM Server 7.0* For more information, see SAP Note 1388258.
Business Functions	Identify the business functions that you wish to activate based on your business needs. **CAUTION** It is not possible to uninstall an enhancement package. Furthermore, you cannot revoke the activation of most business functions and it	http://help.sap.com/scmserver → *SAP Enhancement Package 2 for SAP SCM 7.0* → *SAP Supply Chain Management* → *<SCM component>*

Step	Step Description	Documentation
	is only possible to transport complete business function switch settings across your system landscape. For these reasons, we recommend testing the business functions thoroughly in a dedicated evaluation system (not the development system), until you are sure that you definitely want to use them. It makes sense to use a copy of your production system as evaluation system.	
Hardware & Software Prerequisites	Check the availability of the required SPs or SP stack of the application as well as for the corresponding SAP NetWeaver release are available. The upgrade stops if the equivalent support package of the target release is missing. It is not a prerequisite and not recommended to implement the latest SP stack in your source system before doing an upgrade or EHP implementation. The support package equivalence levels are described in SAP Notes [1]. The SP stack implementation is also described in the Software Update Manager guide [2]	1. SP Stack notes: ■ SAP Note 850038 (SAP SCM) ■ SAP Note 789220 (SAP NetWeaver) 2. http://service.sap.com/instguides → *Installation & Upgrade Guides* → *SAP Business Suite Applications* → *SAP SCM* → *SAP SCM Server* → *Using SAP Enhancement Package 2 for SAP SCM Server 7.0* → *Update Guide - Update of SAP Systems Using Software Update Manager <latest version>* 3. http://service.sap.com/sp-stacks

Step	Step Description	Documentation
	For more information about SP stack strategy and the release schedule, see the SAP Service Marketplace [3].	
	Check which platforms are supported for your target release (OS/DB dependencies) with the Product Availability Matrix.	http://service.sap.com/pam
	Check which hardware sizing is required for your target release.	http://service.sap.com/sizing
Solution Manager Prerequisites	Make sure that your SAP Solution Manager system has one of the following support package (SP) levels with the associated content release: ■ SAP Solution Manager 7.01 SP Stack 23 ■ SAP Solution Manager 7.1 SP Stack 01 ■ Content: ST-ICO 150_700 SP 31 **NOTE** The use of the Solution Manager Content is recommended, not mandatory. Check if you need to do an update or upgrade of your SAP Solution Manager application or content and select your required upgrade or update: ■ Upgrade from source releases SAP Solution Manager 3.1 and 3.2. [1]	All SAP Solution Manager guides are available at: http://service.sap.com/instguides → *Installation & Upgrade Guides* → *SAP Components* → *SAP Solution Manager* → *Release 7.0 EHP1* (or *Release 7.1*). 1. *Upgrade Guide – SAP Solution Manager 7.0 incl. Enhancement Package 1* 2. *Update Guide SAP Enhancement Package 1 for SAP Solution Manger 7.0* 3. *Solution Operations Guide – SAP Solution Manager 7.0 EHP1*

Step	Step Description	Documentation
	■ Update from source releases SAP Solution Manager 7.0. [2] After an upgrade or update to SAP Solution Manager 7.0 EHP1, you need to do follow-up actions described in the section *Software Change Management* of the *Solution Operations Guide*. [3]	
Add-on Compatibility	If you want to use add-ons, check their compatibility with your target release.	SAP Note 1585807
Testing	You perform regression and acceptance tests. After the installation of an SAP enhancement package, you find additional information with the help of the Impact Analyzer tool [2] and you can access test cases for individual business functions [3]. **NOTE** Switch BC Sets are also delivered with business functions. They are automatically unpacked when you activate the business function.	1. To use the Impact Analyzer, call transaction `SFW5` and right-click a business function. 2. To access test cases, call transaction `SFW 5` and view the test cases in column *SAP Test Catalog*.

1.3.2 Implementation of the Installation Process

The table below lists the steps for a new installation of an SAP system including an enhancement package. The table lists all possible steps with references to the documentation relevant for each step. You have to look into those steps that are relevant for your requirements.

NOTE

How to read the table:

- The first column contains the name of the process step.
- The middle column contains a short description of the step and some documentation references that are always followed by a number in square brackets, for example, [1]. This number corresponds with the same number in a list in the third column, for example 1.
- The third column contains the full title of the documents referred to in the middle column, as well as where to find them. The documents are numbered in the same way as in the middle column.

Installation Steps

Step Sequence	Step Description	Documentation
1 System Preparation	Prepare your host systems, for example: ■ Install and update your operating system. ■ Create the file systems. ■ Check database requirements. You can find this information in the *Planning* and *Preparation* sections of the relevant installation tool guides [1] and in the installation information of this document (the application Master Guide [2].	All guides are found at: http://service.sap.com/instguides → *Installation & Upgrade Guides* → *SAP Business Suite Applications* → *SAP SCM* → *SAP SCM Server* → *Using SAP Enhancement Package 2 for SAP SCM Server 7.0* 1. Installation tool guide *Installation Guide - SAP Systems Based on the Application Server ABAP of SAP NetWeaver 7.0 including EHP3 on <OS>:<DB>* 2. *Installation Information* [page 25]
2 Installation Media	Make the required installation media (physical or downloaded media) available. A list of the installation media is found in the relevant installation tool guides (section *Preparation*) [1] and details are provided in the application-specific media list [2].	Both the installation guide and the application media list are found at: http://service.sap.com/instguides → *Installation & Upgrade Guides* → *SAP Business Suite Applications* → *SAP SCM* → *SAP SCM Server* → *Using SAP Enhancement Package 2 for SAP SCM Server 7.0* 1. Installation tool guide *Installation Guide - SAP Systems Based on the Application Server*

Step Sequence	Step Description	Documentation
		ABAP of SAP NetWeaver 7.0 including EHP3 on <OS>:<DB> 2. *SAP SCM Media List*
3 Installation	If required, install the database with the DB-specific installer. Run SAPinst to install your system. This is described in the relevant installation tool guides [1]. Check also the SAP application-specific installation information of this document (the application Master Guide) [2].	All guides are found at: http://service.sap.com/instguides → *Installation & Upgrade Guides* → *SAP Business Suite Applications* → *SAP SCM* → *SAP SCM Server* → *Using SAP Enhancement Package 2 for SAP SCM Server 7.0* 1. Installation tool guide *Installation Guide - SAP Systems Based on the Application Server ABAP of SAP NetWeaver 7.0 including EHP3 on <OS>:<DB>* 2. *Installation Information* [page 25]
4 Post-Installation Steps	Check the relevant installation tool guides [1] and the SAP application-specific installation information of this document (the application Master Guide) [2] for post-installation tasks.	http://service.sap.com/instguides → *Installation & Upgrade Guides* → *SAP Business Suite Applications* → *SAP SCM* → *SAP SCM Server* → *Using SAP Enhancement Package 2 for SAP SCM Server 7.0* 1. Installation tool guide *Installation Guide - SAP Systems Based on the Application Server ABAP of SAP NetWeaver 7.0 including EHP3 on <OS>:<DB>* 2. *Installation Information* [page 25]
5 Content Installation	If required, you install BI Content as an add-on as described in the relevant SAP Note.	SAP Note 1000822
6 Add-On Installation	Information on compatible add-ons can be found in the Master Guide section [1], including the relevant installation SAP Notes [2].	SAP Note 1585807
7 Solution Manager Set-Up	To set up your SAP Solution Manager application, perform the following steps:	1. *Maintenance Planning Guide* at http://service.sap.com/mopz under the section *How-To's and Guides*

Step Sequence	Step Description	Documentation
	1. Maintain system data in the SAP System Landscape Directory (SLD). 2. Transfer system data from SLD to the SAP Solution Manager. 3. Check the landscape data with the Landscape Verification tool. 4. Create a maintenance transaction in SAP Solution Manager to calculate support packages and packages for technical usages. These steps are described in this document (the application Master Guide) [1]. For more information, see the SAP Developer Network: ■ SLD information [2] ■ Landscape Verification tool [3]	2. http://www.sdn.sap.com/irj/sdn/nw-sld 3. http://www.sdn.sap.com/irj/sdn/alm?rid=/webcontent/uuid/70fc3790-7ec9-2d10-57ad-95b2d0d1185d
8 Support Package Installation	The support package (SP) equivalence levels are described in SAP Notes [1]. Create a maintenance transaction in SAP Solution Manager to calculate support packages and packages for technical usages [2]. Install them as needed. For more information about SP stack strategy, see the SAP Service Marketplace [3]. **NOTE** If you have modified SAP code in your system, do not separate the installation of the SP stack and the installation of the SAP enhancement package into two steps. This would mean having to perform the modification adjustment twice	1. SP Stack notes: ■ SAP Note850038 (SAP SCM) ■ SAP Note789220 (SAP NetWeaver) 2. http://service.sap.com/sp-stacks

Step Sequence	Step Description	Documentation
	(and partially for the same objects).	
9 Configuration	Configure new functions, for example new business functions, with the Solution Manager content [1]. **NOTE** The use of the Solution Manager Content is recommended, not mandatory. How to use the Solution Manager Content is described in the SAP Library documentation for SAP Solution Manager [2].	1. See the step Solution Manager Prerequisites in the *planning* [external document] section for the correct SAP Solution Manager content release. 2. http://help.sap.com → *SAP Solutions* → *SAP Solution Manager* → *SAP Solution Manager Release* → *Implementing and Upgrading SAP Solutions*
10 Testing	Perform regression and acceptance tests.	For more information, see the table entry *Testing* in the section on *Planning for Installation, Update, and Upgrade Processes* [page 17] of this guide.

1.4 Installation Information

The installation process is a generic process which is described in the following guide:

http://service.sap.com/instguides → *Installation & Upgrade Guides* → *SAP Business Suite Applications* → *SAP SCM* → *SAP SCM Server* → *Using SAP Enhancement Package 2 for SAP SCM Server 7.0* → *Installation Guide - SAP Systems Based on the Application Server ABAP of SAP NetWeaver 7.0 including EHP3 on <OS>:<DB>*

For the installation you need to consider the following information specific to SAP Supply Chain Management:

- **Media list**

  The media list contains the list of relevant installation media which you need to have available when you start the installation.

You can find the media list here: http://service.sap.com/instguides → *Installation & Upgrade Guides* → *SAP Business Suite Applications* → *SAP SCM* → *SAP SCM Server* → *Using SAP Enhancement Package 2 for SAP SCM Server 7.0* → *Media List*

- **SAP SCM Server installation**

  You select the option *SAP Application Server ABAP* for *Enhancement Package 2 for SAP SCM 7.0* when you are asked to choose the installation option. All relevant ABAP components are then installed by the installation tool.

  For more information about the installation procedures, see http://service.sap.com/instguides → *Installation & Upgrade Guides* → *SAP Business Suite Applications* → *SAP SCM* → *SAP SCM Server* → *Using SAP Enhancement Package 2 for SAP SCM Server 7.0* → *Installation Guides* → *Installation Guide - SAP Systems Based on the Application Server ABAP of SAP NetWeaver 7.0 including EHP3 on <OS>:<DB>*.

- **Post-installation steps**

  See SAP Note 1622417.

  NOTE

  Up to SAP Enhancement Package 1 for SAP SCM 7.0, post-installation steps were described in the installation guide. As of SAP Enhancement Package 2 for SAP SCM 7.0, post-installation steps they are part of this SAP Note.

1.5 Important SAP Notes

This section contains important SAP Notes for SAP SCM.

CAUTION

Read the SAP Installation Notes before you start the installation. These notes contain the most recent information about the installation, as well as changes to the installation documentation.

Make sure that you have the up-to-date version of each SAP Note, which you can find on SAP Service Marketplace at http://service.sap.com/notes.

SAP Note Number	Title
811923	*Generating the SAP Solution Manager key*
836200	*SAP NetWeaver 7.0: Importing Process Integration Content*

SAP Note Number	Title
850038	*Support Package levels for SCM/APO installations/upgrades*
915367	*TDL: Automatic activation of the transaction data areas*
1115322	*Restrictions for availability check and backorder services*
1152640	*SAP NetWeaver 7.1 including EHPs: Importing ESR content*
1224284	*Enterprise Services, Installing and Accessing the SOA Docu*
1371027	*Delivery of TERM and GLOSSARY Texts in SAP_BASIS 7x Products*
1388258	*Version Interoperability within the SAP Business Suite*
1497083	*SAP SCM 7.0 EHP 2 SPS 01 - Release & Information*
1501562	*Installing or upgrading SCM_BASIS 702*
1515223	*SAP NetWeaver Process Integration: Release Recommendation*
1559307	*Implementing SCM Optimizer Version 7.03*
1574235	*SAP NetWeaver 7.3: Import of ESR content*
1622417	*Post-Installation Steps for SAP SCM EHP2*

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2 SAP Supply Chain Management Overview

SAP Supply Chain Management (SAP SCM) can help your organization transform a linear supply chain into an adaptive supply chain network that enables you to access the knowledge and resources of your peers, to quickly adapt to changing market conditions, and to remain customer-focused.

SAP SCM enables adaptive supply chain networks by providing companies with planning and execution capabilities for managing enterprise operations. In addition, SAP SCM provides companies with coordination and collaboration technology to extend their operations beyond corporate boundaries. These capabilities are summarized below.

- **Supply Chain Planning and Collaboration**
  SAP SCM enables you to model your existing supply chain, to set goals, and to forecast, optimize, and schedule time, materials, and other resources. Supply chain planning functionality enables you to maximize your return on assets and to ensure a profitable match of supply and demand.
- **Supply Chain Execution**
  SAP SCM enables you to carry out supply chain planning in an efficient and cost effective manner. With SAP SCM, you can easily monitor and respond to demand by using a supply chain network in which distribution, transportation, and logistics are integrated into real-time planning processes.
- **Supply Chain Visibility Design and Analytics**
  By giving you visibility across your extended supply chain, SAP SCM allows you to perform strategic as well as day-to-day planning. It also enables collaboration and analytics, so you can monitor and analyze the performance of your extended supply chain.

2.1 Software Units of SAP Supply Chain Management

This section provides additional information about the most important software components of SAP SCM.

NOTE

Specific business processes only require a subset of these components. For a process-specific overview of components, see the section *Business Processes of SAP SCM* [page 51].

2.1.1 Application Components

2.1.1.1 SAP Supply Chain Management Server (SAP SCM Server)

SAP Supply Chain Management Server (SAP SCM Server) is part of the SAP Supply Chain Management application suite. It is an advanced planning and scheduling tool that enables real-time decision support and collaborative network optimization across the extended supply chain. SAP SCM Server helps companies synchronize supply chain activities with their partners and excel to improve customer service and order fulfillment.

Embedded SAP BI

SAP SCM Server is shipped with an embedded SAP enhancement package 3 for SAP NetWeaver 7.0 usage type BI (SAP BI). Embedded SAP BI enhances, together with SAP liveCache, the performance of forecasting and replenishment tasks.

NOTE

SAP SCM Server uses the embedded SAP BI architecture for technical reasons (such as using info cubes in Demand Planning). Embedded SAP BI is not meant to be used for reporting purposes of your company.

2.1.1.2 SAP SCM Optimizer

The component SAP SCM Optimizer offers optimization engines for most of the SCM applications:

You can use SAP SCM Optimizer for Detailed Production Scheduling, Supply Network Planning, Supply Demand Matching, Transportation Planning and Vehicle Scheduling, and Sequencing.

For SNP, PP/DS and the automotive solution the optimizers are optional planning methods.

The optimizers are tightly integrated into the application and work without any own persistence.

Integration is administrated via the Remote-Control & Communication-Framework.

Each optimizer is working with a specialized algorithm to get the best possible planning results for the different applications.

SAP has developed an innovative and flexible APS optimization solution, which opens SAP SCM's advanced planning and scheduling capabilities to an external optimization technology:

The Optimization Extension Workbench. It is part of the SCM Server and allow the customer to integrate own optimization engines in parallel to the SAP Optimizer.

2.1.1.3 SAP ERP 6.0

Product instance SAP ERP 6.0 – SAP ECC Server (SAP ERP Central Component) consists of product version SAP ECC 6.0. It is the central component of SAP ERP 6.0 and is the successor component of SAP ECC 5.0, and the successor of the former SAP R/3 releases. For more information, see the ERP Master Guide on SAP Service Marketplace at http://service.sap.com/instguides → *SAP Business Suite Applications* → *SAP ERP* → *SAP ERP 6.0* → *Planning*.

2.1.1.4 SAP Supply Network Collaboration (SAP SNC)

SAP Supply Network Collaboration (SAP SNC) is an application that supports participants in a complex supply chain network to collaborate efficiently with each other. SAP SNC supports, among other things, the management of inventories by suppliers and customers, timely shipments of replenishments, and advanced shipping notification and invoice creation. It also supports forecasting processes and work order collaboration.

2.1.2 Technology Components

2.1.2.1 SAP NetWeaver Usage Type PI

Based on a native Web infrastructure that leverages open standards, SAP NetWeaver Process Integration (SAP PI) makes it possible to manage the broad diversity of highly heterogeneous components from a multitude of vendors and to run in various technological environments. The integration capabilities capture shared business semantics and act as a mediator between the services and their technical implementations. It includes technical functions, such as Web service discovery, queuing, mapping, and routing. It also establishes an infrastructure for business process management and high-performance execution within and across organizational boundaries.

Exchange-based process integration removes the problems of direct connections by extracting shared collaboration knowledge. These shared business semantics ease the integration of both external and internal components. Instead of directly coding point-to-point interfaces for each new component, the exchange infrastructure allows instant plug-in of new components. This provides the flexibility needed in today's fast-changing business world, and it reduces integration costs compared to the direct connection approach.

2.1.2.2 SAP liveCache (SCM LC)

SAP liveCache for SAP SCM

SAP liveCache is based on SAP MaxDB technology and ensures the highest SAP SCM performance. SAP liveCache is SAP's state-of-the-art memory-based computing technology for real-time, high-speed processing of large data volumes. The main capabilities of SAP's memory-resident object-oriented technology are the followings:

- Application logic execution where the data is stored to avoid network overload
- Aggregation of relational data structures retrieved from the database into application-specific optimized data representations in main memory. As a result, optimization and planning tasks can be performed in minutes or seconds.
- Built-in business functionality in the form of C++ object methods
- Semantic synchronization with the SAP database
- Ready to exploit 64-Bit technology

For more information about liveCache technology infrastructure, requirements, and performance recommendations, see SAP Service Marketplace at `http://service.sap.com/scm`.

LCA Routines for SAP SCM

ABAP programs and SAP APO optimizers use native SQL for communicating through the standard SAP database interface to liveCache. SAP liveCache has an SQL interface that is used to communicate with the SAP instances. With native SQL, ABAP programs call stored procedures in the SAP liveCache that point to Component Object Model (COM) routines written in C++. An SQL class provides access from the LCA routines (formerly known as COM routines) to the SQL data. The LCA routines are part of a dynamic link library that runs in the process context of the SAP liveCache instance. The LCA routines have direct access to the objects stored in the SAP liveCache and can change them. This includes creation and deletion of objects in the SAP liveCache.

2.2 Enhancement Package Key Concept

We have adapted our major release strategy to better fit your adoption cycle. To ensure that you benefit from new developments and innovations while minimizing the impact on your core operational systems, SAP uses enhancement packages to speed up the delivery of new functions.

With SAP enhancement packages, you can install and activate new functions depending on your business needs without having to perform a system upgrade. You can selectively implement the new functions and activate the software upon business demand. As a result, you can isolate the impact of software updates and make new functions available faster due to shortened test cycles.

Implementation

There are three different scenarios to implement an enhancement package:

- Installation of an enhancement package on an existing SAP system (update)
- New installation of an SAP system including an enhancement package (installation)
- Upgrade of an SAP system including an enhancement package (upgrade)

To implement new business functions you carry out the following two steps:

- Technical installation of an enhancement package
- Activation of business functions using the switch framework technology

You have a choice on both levels – installation and activation. You do not need to install a full enhancement package. Instead, you can update the software components that are related to the functional enhancements you want to use.

NOTE

Keep in mind that you cannot mix the installation of different enhancement package versions in your ABAP-based SAP system. You can have just one enhancement package version in the SAP system.

From a business point of view, functional enhancements are grouped into business functions (BFs). The technical installation of the business functions does not change the system behavior. The new functions are available in the system, but are not active. After the installation, no user interface or process change takes place. You must

explicitly activate new functions so that they become visible in the system. As a result, changes are predictable and there are no side effects as only the activated areas change. With the switch framework technology (transaction SFW5), it is possible to control the activation of new SAP objects in ABAP-based SAP systems. The activation process triggers a background job that automatically performs all changes in the SAP system.

CAUTION

You cannot reverse most business function once they are activated. Due to technical restrictions, only a limited number of business functions are reversible.

After you have activated a business function, you can see the changes and new developments in the SAP system, for example:

- Menu entries
- New screens
- New fields on the application user interfaces
- IMG activities required for the implementation
- New table entries in Customizing tables and system tables

You can create a transport request with the current settings of the switch framework. You can check functional changes and the impact of an activated business function in advance in the business function documentation.

RECOMMENDATION

Test the installation and activation on a sandbox system.

Maintenance

SAP enhancement packages have Support Packages of their own that are equivalent to the Support Package versions of the underlying SAP system. We highly recommend installing the enhancement package in combination with the latest available Support Package stack. This approach reduces installation, modification adjustment, and testing effort. Using this strategy, you can install SAP enhancement packages as a normal maintenance activity together with Support Package stacks.

An enhancement package requires a specific Support Package stack level in the source release SAP system.

NOTE

If the SAP system is on a lower Support Package stack level, all relevant Support Package stacks for the EHP installation are **automatically included** into the download queue by the Maintenance Optimizer, as well as the latest available Support Packages for the enhancement package.

Tools

The enhancement package installation requires the following tools:

- SAP Solution Manager

  NOTE

  Use of SAP Solution Manager is **mandatory**.

  You require at least one of the following versions of SAP Solution Manager.

  - SAP Solution Manager 7.0 EHP1, SPS23 or higher
  - SAP Solution Manager 7.1, SPS01 or higher

  SAP Solution Manager 7.0 EHP1, SPS23 supports all update and maintenance processes (for example, transaction `SMSY` or `Maintenance Optimizer`) There is no need to upgrade to SAP Solution Manager 7.1.

  For more information, see SAP Service Marketplace at `http://service.sap.com/solutionmanager`.

  Make sure that you have correctly defined and maintained your system landscape in SAP Solution Manager (transaction `SMSY`). To verify and correct your system landscape SAP highly recommends that you use Landscape Verification 1.0 for SAP Solution Manager 7.0, which is an add-on to your SAP Solution Manager 7.0 system. This add-on allows you to identify and correct issues in your SAP Solution Manager landscape (transaction `SMSY`) before they cause problems, for example during a system update. Examples for errors are a missing connection to the System Landscape Directory or the wrong assignment of products to technical systems. For each type of error, a generic description for the solution is provided.

  For more information about the landscape verification add-on, see SDN at `http://www.sdn.sap.com/irj/sdn` → *Application Lifecycle Management* → *Technical Enablement* → *Update and Upgrade* → *Related Areas on Upgrade and Update*

Management → *Landscape Verification* (http://www.sdn.sap.com/irj/sdn/alm?rid=/webcontent/uuid/70fc3790-7ec9-2d10-57ad-95b2d0d1185d).

RECOMMENDATION

Before installing the enhancement package, we recommend that you install the landsape verification add-on to check your landscape setup and your data (transaction SMSY) and to correct data should ii be necessary.

- Installation or upgrade tools (depending on your scenario)

The SAP Solution Manager Maintenance Optimizer (transaction DSWP) supports the download of a consistent queue that includes all necessary Support Packages and enhancement packages. In addition, SAP Solution Manager calculates a valid import queue for the selected SAP system and generates the enhancement package stack configuration file that you require for the installation.

For the new installation of an SAP system including enhancement package you use the standard installation tool (SAPinst).

To install an enhancement package on an existing SAP system, as well as for the upgrade of an SAP system to a higher release including an enhancement package, you use the Software Update Manager (SUM).

2.3 Key Facts About Enhancement Packages

The following list summarizes important facts about the enhancement package concept and recommended approaches:

- Install only selected parts of the enhancement package. The selection is driven by the functional need from a business point of view.
- You cannot mix the installation of different enhancement package versions in your ABAP-based SAP system. You can have just one enhancement package version in the SAP system. This means, if you have already updated technical usages to a previous EHP you need to apply the current EHP to those components as well.

- SAP enhancement packages are cumulative, meaning that each new enhancement package includes new innovations of its own as well as all innovations delivered with prior packages.
- We recommend installing the latest available enhancement package version.
- Install enhancement packages and Support Packages in one single step (this includes the preconditioned Support Packages).
- SAP enhancement packages have Support Packages of their own that are equivalent to the Support Package versions of the underlying SAP system.
- SAP enhancement packages have the same maintenance period as the underlying core application.
- The installation of an enhancement package is irreversible.
- As long as you do not activate a business function, the installation of an enhancement package has no impact on existing business processes or user interfaces.

  You can only activate business functions in ABAP-based systems, not in Java-based SAP systems.
- The activation of most business functions and extension sets is irreversible. Only a small number of business functions is reversible.

  Test the installation process and activation of new functions in advance on a sandbox system. Ensure that you evaluate the runtime and the SAP system behavior, its dependencies and impacts. Make sure that your SAP system is free of errors before going live.

2.4 Software Component Matrix

This section provides an overview of the components that are used by each SAP SCM business process.

NOTE

There are software requirements for each component below which are not explicitly mentioned in this documentation. The requirements are documented in the relevant installation guides.

NOTE

This guide provides one way that is valid for SAP SCM 7.0 to implement each business process. For other ways to implement the business processes, see the Scenario Component List Viewer on SAP Service Marketplace (http://service.sap.com/scl).

SAP SCM Business Processes		Software Component Key: X = mandatory; (X) = optional								
Process Group	Business Process	SAP SCM Server 7.0	SAP enhancement package 2 for SAP SCM 7.0	SAP liveCache 10.0	SAP SCM Optimizer 7.03	SAP ERP 6.0	SAP NW 7.03 usage type BI	SAP NW 7.03 usage type PI	SAP CRM 7.0	SAP SNC 7.0
Demand and Supply Planning	Customer Forecast Management	X		X						
	Demand Planning & Forecasting	X	(X)	X			(X)			
	Forecast Release and Consumption for Variant Configuration	X		X		(X)				
	Vendor-Managed Inventory	X		X	(X)	X				
	Safety Stock Planning	X		X						
	Distribution Planning	X		X	(X)					
	Supply Network Planning Heuristic	X		X						

SAP SCM Business Processes		Software Component Key: X = mandatory; (X) = optional								
Process Group	Business Process	SAP SCM Server 7.0	SAP enhancement package 2 for SAP SCM 7.0	SAP liveCache 10.0	SAP SCM Optimizer 7.03	SAP ERP 6.0	SAP NW 7.03 usage type BI	SAP NW 7.03 usage type PI	SAP CRM 7.0	SAP SNC 7.0
	Supply Network Optimization	X		X	X					
	Multilevel Demand and Supply Match	X	(X)	X	X					
	Characteristics-Based CTM	X		X		(X)				
Transportation	Transportation Planning	X		X	(X)					
Services Parts Planning	Parts Forecasting	X		X		(X)	X		(X)	
	Stocking List Determination	X		X						
	Safety Stock Calculation	X		X						
	Distribution Requirements Planning	X		(X)		X		(X)		
	Pull Deployment	X		(X)		(X)				
	Inventory Balancing	X		(X)		X				
	Parts Monitoring	X		X		(X)	X		(X)	X
	OEM-Managed Inventory	X		X		X	X			

SAP SCM Business Processes		Software Component Key: X = mandatory; (X) = optional								
Process Group	Business Process	SAP SCM Server 7.0	SAP enhancement package 2 for SAP SCM 7.0	SAP liveCache 10.0	SAP SCM Optimizer 7.03	SAP ERP 6.0	SAP NW 7.03 usage type BI	SAP NW 7.03 usage type PI	SAP CRM 7.0	SAP SNC 7.0
ATP	Availability Check	X		X						
	Backorder Processing	X	(X)	X						
PP/DS	Production Scheduling with Capacity Reservation	X		X	(X)	(X)				
	MRP-Based Detailed Scheduling	X		X	(X)	X				
	Production Scheduling with Tank Planning	X		X	X	(X)				
	Production Scheduling with Resource Networks	X		X	(X)	(X)				
Order Fulfillment	Sourcing	X		X		(X)				
	Supersession	X		X		(X)				
Manufacturing (Planning & Operations)	Production Planning (Process Manufacturing) MTS in SCM	X		X	(X)	(X)				
	Production Planning	X		X	(X)	(X)				

SAP SCM Business Processes		Software Component Key: X = mandatory; (X) = optional								
Process Group	Business Process	SAP SCM Server 7.0	SAP enhancement package 2 for SAP SCM 7.0	SAP liveCache 10.0	SAP SCM Optimizer 7.03	SAP ERP 6.0	SAP NW 7.03 usage type BI	SAP NW 7.03 usage type PI	SAP CRM 7.0	SAP SNC 7.0
	(Process Manufacturing) MTO in SCM									
	Production Planning (Discrete Manufacturing) MTS in SCM	X		X	(X)	(X)				
	Production Planning (Discrete Manufacturing) MTO in SCM	X		X	(X)	(X)				
	Production Planning (Discrete Manufacturing) CTO in SCM	X		X	(X)	(X)				
	Production Planning (Discrete Manifacturing) ETO in SCM	X		X	(X)	(X)				
	Production Planning (Repetitive	X		X	(X)	(X)				

SAP SCM Business Processes		Software Component Key: X = mandatory; (X) = optional								
Process Group	Business Process	SAP SCM Server 7.0	SAP enhancement package 2 for SAP SCM 7.0	SAP liveCache 10.0	SAP SCM Optimizer 7.03	SAP ERP 6.0	SAP NW 7.03 usage type BI	SAP NW 7.03 usage type PI	SAP CRM 7.0	SAP SNC 7.0
	Manufacturing) MTS in SCM									
	Production Planning (Repetitive Manufacturing) MTO in SCM	X		X	(X)	(X)				
	Production Planning (Repetitive Manufacturing) CTO in SCM	X		X	(X)	(X)				
	Production Scheduling (Manual Scheduling)	X		X	X					
	Production Scheduling with Scheduling Heuristics	X		X	X					
	Production Scheduling Optimization	X		X	X					
	Production Scheduling with Block Planning	X		X	(X)					

SAP SCM Business Processes		Software Component Key: X = mandatory; (X) = optional								
Process Group	Business Process	SAP SCM Server 7.0	SAP enhancement package 2 for SAP SCM 7.0	SAP liveCache 10.0	SAP SCM Optimizer 7.03	SAP ERP 6.0	SAP NW 7.03 usage type BI	SAP NW 7.03 usage type PI	SAP CRM 7.0	SAP SNC 7.0
	Production Scheduling with Production Campaigns	X		X	(X)					
	Manufacturing Execution (Process Manufacturing)	(X)		(X)		X				
	Manufacturing Execution (Discrete Manufacturing)	(X)		(X)		X				
	Manufacturing Execution (Repetitive Manufacturing)	(X)		(X)		X				
	Cross-Location Planning with PP/DS	X		X		(X)				
	Replenishment Planning in PP/DS	X		X		(X)				
Procurement	Purchase Order Processing for Service Parts	X				X		X		X

SAP SCM Business Processes		Software Component Key: X = mandatory; (X) = optional								
Process Group	Business Process	SAP SCM Server 7.0	SAP enhancement package 2 for SAP SCM 7.0	SAP liveCache 10.0	SAP SCM Optimizer 7.03	SAP ERP 6.0	SAP NW 7.03 usage type BI	SAP NW 7.03 usage type PI	SAP CRM 7.0	SAP SNC 7.0
	Release Processing for Service Parts	X				X		X		X

2.5 System Landscape

Possible System Landscape

The following figure provides an overview of a possible system landscape for the business processes of SAP SCM.

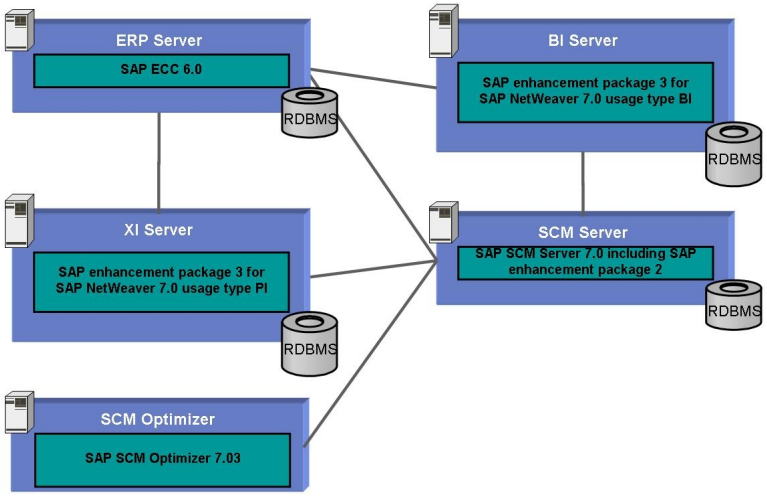

Figure 2: System Landscape

NOTE

All processes described in this Master Guide can run with SAP NetWeaver 7.0 usage type PI or higher. For more information about higher PI releases, see SAP Note 1515223.

RECOMMENDATION

We do not recommend installing all components on one host. Instead, you can distribute the components among several hosts, as displayed in the figure above. The figure represents one of several ways of distributing the components. The distribution depends on many factors, such as sizing, security, available hardware, and so on. In practice, any distribution of components among hosts is possible.

RECOMMENDATION

Before you start the installation, ensure that you know which components are required for the business process you plan to use. For more information about the required components, see the software component matrix for each business process.

Remark Regarding SAP Identity Management

For an overview of the planning and installation information necessary for implementing SAP NetWeaver Identity Management 7.2, see SAP Help Portal at http://help.sap.com/nwidm72.

2.6 Overall Implementation Sequence

NOTE

The installation is executed by SAPinst. For more information, see the section *Implementation of the Installation* [page 21] in this Master Guide.

The following table shows the installation sequence for the different servers and point you to detailed information about each one:

Process

Step	Action	Documentation
1	**Installation of SAP Enhancement Package 6 for SAP ERP 6.0**	For more information, see the SAP ERP Installation Guide on SAP Service Marketplace at http://service.sap.com/instguides → *SAP Business Suite Applications* → *SAP ERP* → *SAP ERP 6.0* → *SAP Enhancement*

Step	Action	Documentation
		Packages for SAP ERP 6.0 → *SAP enhancement package 6 for SAP ERP 6.0*.
2	**Installation of SAP SCM Server 7.0 including SAP enhancement package 2**	For more information, see the SAP SCM Installation Guide on SAP Service Marketplace at http://service.sap.com/instguides → *SAP Business Suite Applications* → *SAP SCM* → *SAP SCM Server* → *Using SAP enhancement package 2 for SAP SCM 7.0 Server*.
3	**SAP liveCache 10.0**	For more information, see the SAP liveCache Installation Guides on SAP Service Marketplace at http://service.sap.com/instguides → *SAP Business Suite Applications* → *SAP SCM* → *SAP SCM Server* → *Using SAP enhancement package 2 for SAP SCM 7.0* → *Installation Guides*.
4	**Installation of SAP SCM Optimizer 7.03**	For more information, see the SAP SCM Optimizer Installation Guide on SAP Service Marketplace at http://service.sap.com/instguides → *SAP Business Suite Applications* → *SAP SCM* → *SAP SCM Server* → *Using SAP enhancement package 2 for SAP SCM 7.0* → *Installation Guides*.
5	**Installation of SAP NetWeaver 7.03 usage type PI**	For more information, see http://service.sap.com/installNW70.
6	**Installation of XI Content for SAP SCM 7.0 including SAP enhancement package 2**	You can download the XI content for SAP SCM from SAP Service Marketplace at http://service.sap.com/swdc → *SAP Software Download Center* → *Support Packages and Patches* → *Browse Our Download Catalog* → *SAP Application Components* → *SAP SCM ENHANCE PACKAGE* → *EHP2 FOR SAP SCM 7.0* → *Comprised Software Component Versions*.

Step	Action	Documentation
7	**Installation of SAP NetWeaver 7.03 usage type BI**	For more information, see http://service.sap.com/installNW70.
8	**BI Content 7.46**	You can download the BI content for SAP SCM from SAP Service Marketplace at http://service.sap.com/swdc → *SAP Software Download Center* → *Support Packages and Patches* → *Browse Our Download Catalog* → *SAP Application Components* → *SAP SCM ENHANCE PACKAGE* → *EHP2 FOR SAP SCM 7.0* → *Comprised Software Component Versions* → *SAP NW 7.0 BI CONT ADDON 7.46*.

NOTE

The business process that you want to use determine the servers (software components) that you must install. For more information, see *Software Component Matrix* [page 38].

2.7 Integration of SAP BusinessObjects

The integration of SAP BusinessObjects Crystal Reports and SAP BusinessObjects Xcelsius in SAP Business Suite provides you with analysis functions that are integrated in the user interface and processes: Embedded Analytics.

Predefined reports and dashboards provide a detailed, graphical, or interactive display of (transaction) data from SAP Business Suite or from SAP NetWeaver BW.

Embedded Analytics contains the following integrations:

- Crystal Reports as an alternative for displaying simple lists in SAP GUI ALV Grid, Web Dynpro ABAP ALV, and POWER list (not in SAP CRM)
- Crystal Reports for the formatted display of data from queries
- Xcelsius for the graphical or interactive display of data from queries in dashboards

Users can call these functions in SAP NetWeaver Business Client, SAP NetWeaver Portal, or SAP CRM.

Technical Requirements

- Crystal Reports for Displaying Simple Lists
  You require Crystal Reports Viewer for Business Suite Applications 1.0 or higher. Note the corresponding license terms.
- Crystal Reports with Queries
  To display the Crystal Reports provided, you require SAP BusinessObjects Enterprise XI 3.1 (SP02) and SAP BusinessObjects Integration for SAP XI 3.1 (SP02). Note the corresponding license terms for SAP BusinessObjects.
  To create your own Crystal Reports, you require Crystal Reports 2008 V1 (SP02). Note the corresponding license terms.
- Xcelsius Dashboards with Queries
  To display the Xcelsius dashboards provided, you require Adobe Flash Player version 9. You must also check the license terms for SAP BusinessObjects.
  To create your own dashboards, you require SAP BusinessObjects Xcelsius Enterprise 2008 (SP03, FP1). Note the corresponding license terms for SAP BusinessObjects.

For displaying data from queries via the predefined content, the following system requirements also apply:

- SAP NetWeaver 7.0 including enhancement package 2 (SP04) or higher
- SAP NetWeaver 7.0 BI Content Add-On 5 or higher
- Extension for SAP NetWeaver 7.02 BI Content Add-On 5 or higher

More Information

For more information about the different topics, see the information sources in the following table.

Topic	Information Source
General Information	SAP Library for SAP ERP or SAP Library for SAP Customer Relationship Management on SAP Help Portal at http://help.sap.com/erp606 or http://help.sap.com/crm In SAP Library, choose *SAP Business Suite → Processes and Tools for Enterprise Applications (CA-EPT) → Embedded Analytics*.
Installation Information	SAP Service Marketplace at http://service.sap.com/bosap-instguides and

Topic	Information Source
	SAP Help Portal at http://help.sap.com → *SAP BusinessObjects* → *All Products*
Configuration Information	SAP Solution Manager under *Solutions/Applications* → *Basic Configuration* → *Embedded Analytics*
Installation Instructions	SAP Notes 1353044 (*Crystal Reports Viewer for Business Suite Applications 1.0*) and 1345320 (*Crystal Reports with Queries*)

3 Business Processes of SAP SCM

This section contains short process descriptions and information about the technical landscape of the business processes. A detailed process description and configuration documentation is part of SAP Solution Manager implementation content `ST-ICO 150_700 SP 31`.

This guide does not cover processes related to SAP Supply Network Collaboration (SAP SNC), SAP Extended Warehouse Management (SAP EWM), SAP Event Management, or SAP Forecasting and Replenishment (Multilevel Replenishment). . For more information about the excluded processes, see the following guides on SAP Service Marketplace:

- `http://service.sap.com/instguides` → *SAP Business Suite Applications* → *SAP SCM* → *SAP SNC* → *Using SAP Enhancement Package 2 for SAP SNC 7.0*
- `http://service.sap.com/instguides` → *SAP Business Suite Applications* → *SAP SCM* → *SAP EWM* → *Using SAP Enhancement Package 2 for SAP EWM 7.0*
- `http://service.sap.com/instguides` → *SAP Business Suite Applications* → *SAP SCM* → *SAP EM* → *Using SAP Enhancement Package 1 for SAP Event Management 7.0*.
- `http://service.sap.com/instguides` → *Industry Solutions* → *Industry Solution Guides* → *SAP for Retail* → *SAP Retail*.

SAP SCM Business Process Groups

SAP SCM consists of the following business process groups:

- *Demand and Supply Planning*
- *Transportation*
- *Service Parts Planning*
- *Available to Promise*
- *Production Planning and Detailed Scheduling (PP/DS)*

- *Order Fulfillment*
- *Manufacturing (Planning & Operations)*
- *Procurement*

NOTE

You can find an overview of the SAP SCM functionality in the solution map located at http://service.sap.com/bmet → *SAP Business Maps* → *Cross-Industry Maps* → *Supply Chain Management*.

3.1 Demand and Supply Planning

The process group *Demand and Supply Planning* contains the following business processes:

- *Customer Forecast Management* [page 52]
- *Demand Planning & Forecasting* [page 53]
- *Forecast Release and Consumption for Variant Configuration* [page 56]
- *Vendor-Managed Inventory* [page 57]
- *Safety Stock Planning* [page 58]
- *Distribution Planning* [page 59]
- *Supply Network Planning* [page 60]
  - *Supply Network Planning Heuristic* [page 60]
  - *Supply Network Optimization* [page 62]
  - *Multilevel Demand and Supply Match* [page 64]
  - *Characteristics-Based CTM* [page 66]

3.1.1 Customer Forecast Management

Description

You can use this business process to receive and analyze incoming customer forecasts and make the necessary adjustments before releasing them to Demand Planning for downstream planning. An analysis of forecasts enables you as a vendor to sense tendencies and changes in customer demand and integrate this information into replenishment planning. Customer Forecast Management ensures higher

responsiveness to fluctuations in demand and also contributes to the prevention of stock-outs.

For more information, see SAP Library for SAP SCM 7.0 on SAP Help Portal at http://help.sap.com/scm70. In SAP Library, choose *SAP Supply Chain Management (SAP SCM)* → *SAP Advanced Planning and Optimization (SAP APO)* → *Demand Planning* → *Customer Forecast Management*.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process. The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	

For more information about the installation of these components, see section System Landscape in this guide.

3.1.2 Demand Planning & Forecasting

Description

You can use this business process to perform your demand planning and forecasting activities in SAP Supply Chain Management (SCM). Demand Planning is often the starting point of the entire supply chain planning process and is used to create a forecast of market demand for your company's products.

This business process contains the following major planning processes:

- Consensus Demand Planning
- Forecasting and Lifecycle Planning
- Promotion Planning

Consensus Demand Planning

Consensus demand planning brings together all available information and enables a collaborative planning process that includes all partners. Forecasts and promotion

plans are included automatically. Various calculations can be carried out to combine all information or to check for critical situations that are highlighted as alerts.
The result of consensus demand planning is a final demand plan that can be transferred to:

- Supply planning for further planning
- Execution (in an ERP system of SAP) to trigger production or procurement
- SAP Business Intelligence (SAP BI) for archiving, reporting, or integrating to other systems and solutions

Consensus demand planning includes the following areas:

- Data handling
- Collaborative demand planning
- Macro calculation

Data Handling

Demand Planning should include all available information regarding historical sales, budgets, strategic company plans, or sales targets. This data can be obtained from different sources. Then, it can be transferred from any source to InfoCubes of SAP Business Intelligence (SAP BI). From there, the data can be read directly or transferred first to the liveCache to improve performance.
Furthermore, the data can be restructured to generate characteristic combinations to be used as a planning basis. For aggregated planning, the results often need to be disaggregated to lower levels of detail. In this case, the historical data can be used to calculate the corresponding proportions of all details.
Planned data (such as forecasts or a demand plan) is stored in liveCache. From there it can be extracted to InfoCubes for reporting, archiving, or integration into other systems or solutions.

Collaborative Demand Planning

Demand Planning includes a very flexible interactive planning interface to enable manual planning, simulation, forecasting, and work on critical situations for all involved planners.

Furthermore, all Demand Planning data is available on the web so as to include internal and external partners in the planning process. This ensures that all partners agree on the defined quantities, horizons, and conditions.

Macro Calculation

Macros enable calculation on the planning grid. They can be freely defined by planners using a simple macro language in the easy-to-use MacroBuilder.
Macros can be executed during background processing and on the planning grid. In particular, they are used to combine different kinds of information, to derive dependent measures, or to calculate alerts based on any check.
More sophisticated macros can also add new planning logic, which increases the flexibility and strength of the application.

Forecasting and Lifecycle Planning

A company's product portfolio probably includes a variety of products that are in different stages of their lifecycle and have different demand types. Unfortunately, a single forecasting method that creates accurate statistical forecasts for mature, slow-moving or new products does not exist. Therefore, various methods have to be used to get the right answers. Forecasting and Lifecycle Planning offers a toolbox for practical, proven forecasting that can be divided into three methods:

- Statistical Forecasting
- Causal Forecasting
- Composite Forecasting

Lifecycle Planning can be combined with each of these methods.

Promotion Planning

In Demand Planning, you can plan promotions or other special events separately. You can use promotion planning to record either one-time events or repeated events, such as quarterly advertising campaigns. Other examples of promotions are trade fairs, trade discounts, dealer allowances, product displays, coupons, contests, free-standing inserts, as well as non-sales-related events, such as competitors' activities, market intelligence, upward/downward economic trends, strikes, and natural disasters, such as hurricanes or earthquakes.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP enhancement package 2 for SAP SCM 7.0		X
SAP liveCache 7.0	X	
SAP enhancement package 1 for SAP NetWeaver 7.0 usage type BI		X

For more information about the installation of these components, see section System Landscape in this guide.

NOTE

Depending on the data volume that your company handles, the integrated BI of the SCM server may be sufficient. In this case you do not need a separate BI server.

3.1.2.1 Forecast Release and Consumption for Variant Configuration

Description

Forecast Release and Consumption for Variant Configuration (VC) allows you to release the forecast with its own configuration for the Variant Configuration scenario. These forecasts are released to SNP or PP/DS, into a new planning segment called Characteristics-Based Planning Without Final Assembly. The released forecasts can be consumed by sales orders with a matching configuration. The orders can be integrated back to characteristics-based forecasting (CBF) as well.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP ERP 6.0		X

3.1.3 Vendor-Managed Inventory

Description

You can use this business process to perform replenishment planning as a vendor on behalf of your customers. Vendor-managed inventory (VMI) aims at the integration of key customers in supply chain planning. By receiving regular sales and stock data from the customer, the vendor has better access to actual customer requirements and can make informed decisions about how to distribute goods for different customers. This ensures improved customer service, lower transportation costs, less inventory, and lower sales costs. Besides the standard VMI process, you can also implement a consigned VMI process (a combination of customer consignment and vendor-managed inventory) or a parallel consigned and non-consigned scenario.
For more information, see SAP Library for SAP SCM 7.0 on SAP Help Portal at http://help.sap.com/scm70. In SAP Library, choose ▶ *SAP Supply Chain Management (SAP SCM)* → *SAP Advanced Planning and Optimization (SAP APO)* → *Supply Network Planning* → *Vendor-Managed Inventory* ↵.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.
The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP SCM Optimizer 7.0		X
SAP ERP 6.0	X	

NOTE

SAP enhancement package 4 for SAP ERP 6.0 is required for the consigned VMI process and the parallel consigned and nonconsigned scenario. The standard, nonconsigned VMI process does not require SAP enhancement package 4 for SAP ERP 6.0.

For more information about the installation of these components, see section System Landscape in this guide.

3.1.4 Safety Stock Planning

Description

You can use this business process to plan the quantity of additional stock to procure and hold in case of unexpectedly high fluctuations in demand. Safety Stock Planning allows you to meet a target service level while creating a minimum necessary amount of safety stock throughout your entire supply chain for all intermediate and finished products at their respective locations.

Two different groups of safety stock calculation methods are offered:

- Basic safety stock planning
- Extended safety stock planning

Basic Safety Stock Planning

The easiest way to plan your safety stock is to define a time-dependent or time-independent safety stock level, or to define a number of safety days of supply values for materials required at any stock holding location. The system applies these settings and calculates the resulting safety stock automatically. The safety stock is then considered during subsequent supply network planning runs and during the production run.

Extended Safety Stock Planning

The extended safety stock planning method can calculate and consider the variability on the demand and supply side. Simulations of the service level and the forecast error can also be performed. Besides service levels, the system also supports reorder cycle and reorder point strategies.

For more information about safety stock planning, see SAP Library for SAP Supply Chain Management under *SAP Advanced Planning and Optimization (SAP APO) → Supply Network Planning → Safety Stock Planning*.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.
The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	

For more information about the installation of these components, see section System Landscape in this guide.

3.1.5 Distribution Planning

Description

You can use this business process to plan distribution for your deployment run. When production is completed, deployment determines which demands can be fulfilled by the existing supply. Deployment decides by product where available quantities will be transported. If there are insufficient quantities available to fulfill the demand or the quantities available exceed the demand, deployment makes adjustments to the plan created by the SNP run.
The deployment run generates deployment stock transfers based on the SNP stock transfers that were created during the SNP run. The Transport Load Builder (TLB) then uses these deployment stock transfers to create transport loads, thus generating TLB shipments.

NOTE

You cannot use deployment for stock transfers involving storage location MRP areas. For more information, see SAP Library for SAP SCM 7.0 on SAP Help Portal

at http://help.sap.com/scm70. In SAP Library, choose ▶ *SAP Supply Chain Management (SAP SCM)* → *SAP Advanced Planning and Optimization (SAP APO)* → *Cross-Application Topics* → *Supply Chain Planning Within a Plant* → *Stock Transfer with Storage Location MRP Areas* ↵.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP SCM Optimizer 7.0		X

For more information about the installation of these components, see section System Landscape in this guide.

3.1.6 Supply Network Planning

Supply Network Planning (SNP) contains the following business processes:

- *Supply Network Planning Heuristic* [page 60]
- *Supply Network Optimization* [page 62]
- *Multilevel Demand and Supply Match* [page 64]
- *Characteristics-Based CTM* [page 66]

3.1.6.1 Supply Network Planning Heuristic

Description

You can use this business process to integrate purchasing, production, distribution (of demands), and transportation so that comprehensive midterm to long-term tactical planning and sourcing decisions can be simulated and performed on the basis of a single, global, consistent model or sub-model.

Supply Network Planning (SNP) offers three basic algorithms to carry out the planning:

- Heuristics (together with capacity leveling capability)
- Optimization
- Multilevel supply and demand matching (capable-to-match)

Starting from a demand plan, SNP determines a permissible medium- to long-term plan for fulfilling the estimated and real sales volumes. The algorithms plan for all sources of supply from the customer, through distribution centers, to the plants and their suppliers.

Each algorithm does the following:

- Distributes production over the plants
- Selects production options and alternatives
- Explodes the bill of materials
- Determines the procurement of semi-finished goods and raw materials

The algorithms differ in the way they make decisions, the constraints (for such factors as production, storage, or transportation) which they consider, and on which level of aggregation they perform the planning.

The result is best, but not necessarily optimal, purchasing, production, and distribution decisions as well as reduced order fulfillment times and inventory levels, and an improved customer service level.

SNP is based on a model of the supply network. The model represents a specific supply chain (or network) and consists of individual nodes, links, and other elements. The nodes represent different locations of the network, such as customer locations, distribution centers, plants, or suppliers. The links between the nodes are represented by the transportation lanes. Elements such as products, bills of materials, routings, and different kinds of resources are also essential parts of the supply network.

The supply network definition itself is not part of the ongoing SNP process, but it is an important prerequisite. The structure of the model and the detailed settings influence the results of the planning run.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.
The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	

For more information about the installation of these components, see section System Landscape in this guide.

3.1.6.2 Supply Network Optimization

Description

You can use this business process to integrate purchasing, production, distribution (of demands), and transportation using optimization and multilevel supply so that comprehensive midterm to long-term tactical planning and sourcing decisions can be simulated and performed on the basis of a single, global, consistent model or submodel.
Supply Network Optimization is best performed in planning versions that are different from the active planning version. Executing Supply Network Planning (SNP) and Production Planning and Detailed Scheduling (PP/DS) in different planning versions has the following advantages:

- High degree of stability in SNP
- Checked SNP plans can be released to PP/DS
- SNP and PP/DS can be performed in different frequency.
- SNP can build up stock.
- Adjustment of production and requirements is possible.
- Make-to-order is possible.
- There are no restrictions to periodic lots in PP/DS.

- Key performance indicators (KPIs) of what-if scenarios for different planning versions can be compared in the Business Intelligence (BI) system.

Supply Network Planning offers three basic algorithms to carry out the planning:

- Heuristics (together with capacity leveling capability)
- Optimization
- Multilevel supply and demand matching (capable-to-match)

Starting from a demand plan, SNP determines a permissible medium to long-term plan for fulfilling the estimated and real sales volumes. The algorithms plan for all sources of supply from the customer, through distribution centers to the plants and their suppliers.

Each algorithm does the following:

- Distributes production over the plants
- Selects production options and alternatives
- Explodes the bill of materials
- Determines the procurement of semifinished goods and raw materials

The algorithms differ in the way that they make decisions, the constraints (for such factors as production, storage, or transportation) that they consider, and the level of aggregation that they perform the planning.

The result is best purchasing, production, and distribution decisions as well as reduced order fulfillment times and inventory levels, and improved customer service.

SNP is based on a model of the supply network that represents a specific supply chain (or network) and consists of individual nodes, links, and other elements. The nodes represent different locations of the network, such as customer locations, distribution centers, plants, or suppliers. The links between the nodes are represented by the transportation lanes. Elements such as products, bills of materials, routings, and different kinds of resources are also essential parts of the supply network.

The supply network definition itself is not part of the ongoing Supply Network Planning and Outsourcing process, but is an important prerequisite. The structure of the model and the detailed settings influence the results of the planning run.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.
The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP SCM Optimizer 7.0	X	

For more information about the installation of these components, see section System Landscape in this guide.

3.1.6.3 Multilevel Demand and Supply Match

Description

You can use this business process to integrate purchasing, production, distribution (of demands), and transportation so that comprehensive mid-term to long-term tactical planning and sourcing decisions can be simulated and performed on the basis of a single, global, consistent supply chain model.
Starting from a demand plan, Capable-to-Match (CTM) - the key application in the Multilevel Supply and Demand Match process - determines a permissible mid-term to long-term plan for fulfilling the estimated and real sales volumes. CTM plans all sources of supply in the supply chain model, for example, it performs the planning from the distribution centers to the plants and their suppliers.
You can use CTM to do the following:

- Distribute production across the plants
- Select production options and alternatives
- Explode the bill of materials
- Determine the procurement of semi-finished goods and raw materials

CTM performs a finite and order-oriented planning of the demands in your supply chain based on priorities and quota arrangements. During the planning run, the

algorithm tries to match prioritized demand elements against categorized receipt elements by considering capacity constraints. The results of the planning run depend directly on the prioritization and categorization rules you maintained in your system. The CTM result is the most suitable according to these priorities and categories but not necessarily the optimal purchasing, production, and distribution plan in terms of costs.

CTM planning is based on a model of the supply network. The model represents a specific supply chain (or network) and consists of individual nodes, links, and other elements. The nodes represent different locations of the network, such as customer locations, distribution centers, plants, or suppliers. Transportation lanes are the links between the nodes. Elements such as products, bills of materials, routings, and different kinds of resources are also essential parts of the supply network. The supply network definition itself is not part of the ongoing supply chain planning process but is an important prerequisite. The structure of the model influences the results of the CTM planning run significantly.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP enhancement package 1 for SAP SCM 7.0		X
SAP liveCache 7.0	X	
SAP SCM Optimizer 7.0	X	

For more information about the installation of these components, see section System Landscape in this guide.

3.1.6.4 Characteristics-Based CTM

Description

With this business process, the Capable-to-Match (CTM) process considers characteristics while executing a multilevel, finite planning of demands in your supply chain. Characteristics-based CTM uses the PP/DS production data structure (PDS) and supports certain object dependencies, for example, select conditions and procedures with or without reference characteristics. It allows you to carry out block-based planning.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.
The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP ERP 6.0		X

For more information about the installation of these components, see section System Landscape in this guide.

3.2 Transportation

Transportation contains the following business processes: *Transportation Planning* [page 66].

3.2.1 Transportation Planning

Description

You can use this process to create optimized shipments and transfer these shipments to SAP ERP for execution. To do this, Transportation Planning/Vehicle Scheduling

(TP/VS) first reads transportation-relevant business documents (for example, sales orders, purchase orders, or stock transfer orders) from SAP ERP. Next, TP/VS assigns the loads represented by these documents to resources such as trucks or railcars to create planned shipments that it assigns to carriers, and, finally, tenders the shipments to the assigned carriers.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.
The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP SCM Optimizer 7.0		X

For more information about the installation of these components, see section System Landscape in this guide.

3.3 Service Parts Planning

The process group Service Parts Planning contains the following business processes:

- *Parts Forecasting* [page 68]
- *Stocking List Determination* [page 68]
- *Safety Stock Calculation* [page 69]
- *Distribution Requirements Planning* [page 70]
- *Pull Deployment* [page 71]
- *Inventory Balancing* [page 71]
- *Parts Monitoring* [page 72]
- *OEM-Managed Inventory* [page 73]

3.3.1 Parts Forecasting

Description

You can use this business process to capture historical demand, model that demand according to the structure of the service parts supply chain, and perform forecasts for determining future demand. Demand planning is done in an adaptive way which continuously analyses past forecast performance and adjusts forecast models and parameters accordingly.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.
The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP ERP 6.0		X
SAP CRM 7.0		X
SAP enhancement package 1 for SAP NetWeaver 7.0 usage type BI	X	

For more information about the installation of these components, see section System Landscape in this guide.
For gathering data for the demand history, you can choose whether you use SAP ERP 6.0 or SAP CRM 7.0 as source system.

3.3.2 Stocking List Determination

Description

You can use this business process to determine the optimal stocking points of a product within the service parts supply chain by considering the characteristics of the product, its demand, and the supply chain structure.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.
The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	

For more information about the installation of these components, see section System Landscape in this guide.

3.3.3 Safety Stock Calculation

Description

You can use this business process to simultaneously optimize the safety stock and an economic order quantity by using forecast demand information and its standard deviation to determine the amount of safety stock to be kept at each stocking point in the supply chain. This enables you to handle demand and supply uncertainty according to a target service level. Service levels are determined dynamically and differentiated based on demand, demand frequency, product classification, or cost of a product at the given location.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.
The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	

For more information about the installation of these components, see section System Landscape in this guide.

3.3.4 Distribution Requirements Planning

Description

You can use this business process to determine rounded net requirement needs throughout the service parts supply chain. These requirements are aggregated along the hierarchical supply chain structure to result in supply proposals which are covered either by supply of remanufactured parts or by purchase requisitions or schedules for individual products or kits to one or more suppliers. The distribution requirements planning calculation considers full interchangeability to use up existing inventory of a predecessor product, minimum net demand for slow moving items, schedule adjustments for seasonal demands and inventory build-up, as well as supplier schedule stability rules.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.
The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0		X
SAP enhancement package 1 for SAP NetWeaver 7.0 usage type BI		X
SAP ERP 6.0	X	

For more information about the installation of these components, see section System Landscape in this guide.

3.3.5 Pull Deployment

Description

Pull deployment is triggered based on a material need of a subordinate location in the supply chain. It determines a prioritized fair share distribution among all subordinate locations of the same level, but only creates stock transfer requisitions to the triggering locations. Pull deployment uses the current inventory situation within the supply chain network as the basis for decision making.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.
The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0		X
SAP ERP 6.0		X

For more information about the installation of these components, see section System Landscape in this guide.

3.3.6 Inventory Balancing

Description

You can use this business process to manage lateral material movement in the service parts supply chain. Triggered by a number of events such as an unfulfilled Pull Deployment requisition, Inventory Balancing determines excess and shortage locations within a predefined balancing area. It suggests stock transfers based on a cost-benefit analysis that compares the additional cost of a lateral transfer with the inventory, warehouse, and service benefits.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.
The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0		X
SAP ERP 6.0	X	

For more information about the installation of these components, see section System Landscape in this guide.

3.3.7 Parts Monitoring

Description

You use this process to provide visibility for all planning-related processes and for potential follow-up activities.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.
The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP SNC 7.0	X	
SAP ERP 6.0		X
SAP CRM 7.0		X
SAP enhancement package 1 for SAP NetWeaver 7.0 usage type BI	X	

For more information about the installation of these components, see section System Landscape in this guide.

You only have to install SAP SNC 7.0 if you wish to use supplier delivery performance rating.

3.3.8 OEM-Managed Inventory

Description

You, being an original equipment manufacturer (OEM) and owner of Service Parts Planning (SPP), can use this business process to plan the inventory of certain service parts for certain customers or dealers. In doing so, you can support these customers or dealers to optimize their planning and their inventory situation. The customers and dealers that you include in this process do not actively have to order service parts from you any more, but you as OEM trigger the stock transport to the customer's or dealer's location based on your planning. The customer or dealer, whom you involve in the OEM-managed inventory process, has stored his or her sales data and his or her stock data either in an SAP system or in an external system. The customer or dealer provides you with information about this data in a business-to-business (B2B) process. This B2B process is an XML-based process between business partners, which allows these business partners (especially smaller business partners, as your customers or dealers might be) to exchange XML documents. SPP uses the sales data that you receive from your customer or dealer, to create a demand history for the relevant service parts. On the basis of this demand history, SPP continues the regular planning (including forecasting, inventory planning, distribution requirements planning, deployment, and so on) for the service parts at the customer's or dealer's location. You can display all the planning results for service parts at your customer's or dealer's location on the SPP screens on which you also display the planning results of your OEM-locations. Your customer or dealer can display the planning results that are relevant to him or her in the customer's worklist, which he or she can access using a Web browser.

Additionally, the customer or dealer has the following options to influence the planning result:

- Agree or disagree to a stocking or destocking decision.

- Approve and change replenishment orders for his or her location.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP ERP 6.0	X	
SAP enhancement package 1 for SAP NetWeaver 7.0 usage type BI	X	

NOTE

Note the following requirements regarding enhancement packages:

- If you use Service Parts Planning in a landscape with SAP CRM, you do not need any enhancement package of SAP ERP 6.0.
- If you use Service Parts Planning in a landscape without SAP CRM, you must work with SAP enhancement package 2 for SAP ERP 6.0 or higher.
- If you want to use the repair or buy function with a global ATP check, you must work with SAP enhancement package 4 for SAP ERP 6.0.

For more information about the installation of these components, see section System Landscape in this guide.

3.4 Available to Promise

This business process group contains the following business processes:

- *Availability Check* [page 75]
- *Backorder Processing* [page 75]

3.4.1 Availability Check

Description

You can use this business process in a heterogeneous system landscape to provide required real time information as quickly as possible. The availability check is an online search that ensures that your company can provide the requested product at the requested time in the requested quantity. The availability check automates business decisions about how to best service your customer, by using simple to complex rule definitions. It helps companies provide better customer service by increasing and meeting fulfillment expectations and can increase revenue by selling what you have, reducing overall operating expenses, and increasing your company's efficiency.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.
The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	

For more information about the installation of these components, see section System Landscape in this guide.

3.4.2 Backorder Processing

Description

You can use this business process to analyze and resolve backorder situations for your orders automatically. The business process *Backorder Processing* is relevant to you if you use Global Availability-to-Promise (Global ATP) in SAP Advanced Planning and Optimization (SAP APO) to determine the availability of the products for your orders. You combine backorder processing, for example, with the business process *Availability*

Check, which you use, for example, to determine the product availability in sales order processing.

From an ATP perspective, a backorder situation exists for an order item in the following cases:

- An order item is not yet completely confirmed.
- A requested delivery date is not confirmed.
- An overconfirmation exists, meaning that the cumulative confirmed quantity exceeds the available quantity.

Backorder processing allows you to change quantities and dates that result from a previous ATP check (that was performed, for example, during sales order creation). In particular, you can redistribute the confirmed quantities from low-priority order items to high-priority order items. The goal of backorder processing is to improve the confirmation situation for your high-priority orders (ideally a complete confirmation), if necessary at the cost of lower-priority orders.

The business process *Backorder Processing* uses batch backorder processing, that is, backorder processing in the background using the report `/SAPAPO/BOP`. You can schedule this report as a periodic background job (always running, for example, after a SNP or PP/DS planning run) or you can call it up manually (for example, if you receive high-priority orders at the last minute). The batch backorder processing report selects items according to your selection criteria and brings the items into a processing sequence according to your priorities. It then carries out an ATP check for all selected items in the defined sequence, and triggers the transmission of the results to the connected ERP system (SAP), where the corresponding order documents are updated automatically.

You can combine batch backorder processing and interactive backorder processing. In interactive backorder processing, you can process confirmations manually to redistribute quantities from low-priority orders to high-priority orders. You can even create overconfirmations if necessary, which you only should use, however, if you can resolve the overconfirmation situation by the start of the order fulfillment execution at the latest.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.
The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	

For more information about the installation of these components, see section System Landscape in this guide.

3.5 Production Planning and Detailed Scheduling (PP/DS)

The process group Production Planning and Detailed Scheduling contains the following business processes:

- *Production Scheduling with Capacity Reservation* [page 77]
- *MRP-Based Detailed Scheduling* [page 78]
- *Production Scheduling with Tank Planning* [page 79]
- *Production Scheduling with Resource Networks* [page 83]

3.5.1 Production Scheduling with Capacity Reservation

Description

You use this business process to model capacity reservations on resources. It is possible to reserve capacity for up to three different reservation characteristics on a single resource. For example you can reserve capacity for certain customers on a resource, capacity for a sales region, and capacity for certain account directors as well. In this case, the selected characteristics are customer, sales region, and account director.

Additionally, you can maintain a release date to prevent reserved capacity from remaining unused. This date specifies when the unused reserved capacity can be released for reassignment to other characteristics.

Capacity reservations help shorten delivery times to strategic customers by reserving capacity for them. During a capable-to-promise (CTP) check, capacity reservations are checked and a realistic delivery date can be returned to the customer.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP SCM Optimizer 7.0		X
SAP ERP 6.0		X

For more information about the installation of these components, see section System Landscape in this guide.

3.5.2 MRP-Based Detailed Scheduling

Description

MRP-based detailed scheduling allows you to combine material requirement planning (MRP) in SAP ERP and detailed scheduling in SAP Advanced Planning and Optimization (SAP APO) without transferring bills of materials (BOMs), routings, or production versions to SAP APO. This process enables you to derive the benefits of detailed scheduling in APO while continuing to use the planning functions of SAP ERP.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP SCM Optimizer 7.0		X
SAP ERP 6.0	X	

For more information about the installation of these components, see section System Landscape in this guide.

3.5.3 Production Scheduling with Tank Planning

Description

A container is a resource in which a product can be stored. Such a resource is limited not only by time, but also by capacity (defined as volume, weight, or other dimension). A container resource is considered occupied only when it contains product (downtimes are not considered). This means that upstream or downstream operations determine how long the resource will be used, rather than the direct operation (filling, emptying) of the resource itself. Capacity is consumed even without executing a production order or planned order.

Depending on the nature of the container resource, certain limitations may apply — for example, if the container resource can hold only one material at a time, or if it must be emptied to zero before it can be filled with a new product.

Single-product container resources can contain only one product at a time, while multi-product container resources can contain several products at the same time. Container Planning in SAP Supply Chain Management (SAP SCM) considers the material capacity limitations of such container resources as dedicated product container resources, holding or buffer containers, mobile containers, stockpiles, silos, reactors, or blend vessels with storage functionality (common in the chemical, food & beverage, and other process industries).

Container resources are used over the entire supply chain for purchased material, intermediates, and finished products. These can be liquids as well as bulk solids (the latter typically stored in silos).

RECOMMENDATION

Only container resources that pose real bottlenecks should be considered as container resources in SAP SCM for best performance and transparency. End of the recommendation.

Below are several examples of container planning scenarios:

- A container resource with a dedicated product holds a product over a long period of time (months or even years), and cannot be used for other products during that time. The container is filled and emptied without being drained between a minimum and maximum fill level.
  Relevant for scheduling is the available (remaining) capacity, not the availability of the resource itself. The major scheduling objective is to avoid overflow of the container.
- An interchangeable buffer container holds multiple products, but only one at a time. Between a product change, the container must be drained and often cleaned to avoid contamination by the predecessor product. The container usually is filled in one step and then emptied to zero in one or several steps.
  Relevant for scheduling is the capacity as well as the availability of the resource itself. Even if the resource is filled at only 5%, it is not available for another operation with a different product. The major scheduling objectives are to minimize the holding time of the containers and to use containers with the appropriate capacity, thus maximizing container utilization.
- Blending/Mixing with storage allows modeling the mixing of different materials in a vessel with storage characteristics. After completion of the process, that new material is stored in the same resource over a period of time. It means that the product(s) or components put into the container are different from the product withdrawn from the container.

The relevance for scheduling is similar to the interchangeable buffer container case described above, with the objective of maximizing asset utilization.

- Multiple product storage facilities hold more than one product at a time. Such cases are found in piece-oriented production and discrete manufacturing, where the pieces can be stored and withdrawn individually.

The business process Production Scheduling with Tank Planning contains the following major processes:

- Product Storage Definition
- PP/DS optimization run with the storage constraint
- Manual rescheduling

Product Storage Definition

A new master data element in SAP SCM, Product Storage Definition, defines storage options and thus the modeling of enhanced product flow. It supports both sources of supply types, production process model (PPM) and production data structure (PDS). This master data can be integrated with the product flow data from SAP ERP. You can set priorities for container resource alternatives.

Resource Master Data

Selecting the *Allow Multiple Products* checkbox allows multiple products to be stored together at the same time in a container resource, without generating an alert. Selecting the *Set Remaining Fill Levels to Zero* checkbox allows the system is to assume zero of a product in a container resource so it can be filled with a different product thereafter. Not selecting the checkbox means that the planned level must be zero in order to fill the resource with a different product.

PP/DS optimization run with the storage constraint

The PP/DS optimization run respects the maximum fill level of container resources as an additional constraint in concert with such other constraints as requirement due dates, capacity, or work time calendars. The optimization strategy determines if container resource properties such as maximum fill level are considered as constraints or not.

Orders may be created or deleted, or order quantities (lot sizes) adjusted during optimization.

The optimization does not support the generation of production campaigns while considering container resource constraints or creating orders.

Filling and withdrawing material into or from a container resource is modeled as immediate, not as continuous material flow for the optimization run. Draining is considered the start of the activity; filling is the end.

The optimizer supports simple mixing scenarios, but does not support chemical conversions (reactions) in container resources.

The result is a finite schedule whose optimization model takes into account the major scheduling constraints, and which is close to the theoretically optimal plan (depending on user-defined settings, weights, and priorities). Users can use their experience and knowledge of the current plant environment to refine this schedule manually.

Manual rescheduling

Pegging logic conforms to the cotnainer resources and is stored as a new setting in the product master. This feature can be disabled.

Alerts are generated for any container resource constraint violation, which allows the user to quickly identify and resolve those issues manually.

The Detailed Scheduling Planning Board in SAP SCM is the recommended tool for interactive manipulation of the production schedule.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP SCM Optimizer 7.0	X	
SAP ERP 6.0		X

For more information about the installation of these components, see section System Landscape in this guide.

3.5.4 Production Scheduling with Resource Networks

Description

Resource networks simplify the modeling of resource restrictions for consecutive operations/orders. For process industries in particular, certain production restrictions often apply. For example, if an operation takes place on a resource such as a reactor or blend vessel, then only a limited set of successor resources (such as storage tanks for intermediates or finished bulk products or filling lines) can be used for the successor operation.

With resource networks, you will be able to model existing production constraints more precisely, with the objective of creating a finite and technically feasible production schedule. Resource networks also reduce the combinatorial complexity of mode coupling as an alternative way of modeling resource connections and availability.

Resource networks are intended to define allowed physical connections between resources. They basically represent pipes or other means of transport to move products produced by one resource to another resource where it is consumed. A product flow in this application is a real product flow, meaning that it may not necessarily be a product known within the system (PEGID) that is transported, but may be an intermediate product that exists between the operations or phases within an order.

The business process Production Scheduling with Resource Networks contains the following processes:

- Definition of resource networks
- PP/DS (Production Planning/Detailed Scheduling) optimization run with resource network constraints
- Manual rescheduling (resource networks within orders)

Definition of Resource Networks

The resource network is a new business object in SAP APO. It is defined by a positive list of allowed directed connections between two or more resources. (A “directed connection” means that the connection from resource 1 to resource 2 is not the same as the inverse connection from resource 2 to resource 1.)

Priorities are defined for resource linkages, and a resource can be a member of more than one resource network. By default, a resource is connected to itself, but this setting can be overridden.

Defining resource networks as separate business objects reduces the number of master data permutations in the PPM and PDS by eliminating the need for mode coupling.

A resource network's data needs to be created and maintained in APO, and can be modified at any time. There is no integration to resource networks that can be defined as part of a master recipe in SAP R/3 PP-PI (Production Planning — Process Industries).

PP/DS Optimization Run with Resource Network Constraints

The PP/DS optimization run respects resource networks as additional constraints in concert with such other constraints as requirement due dates, capacity, or work time calendars. The optimization strategy defines resource linkages within orders, and allows for deactivating this constraint as well.

The result is a finite schedule that considers all major scheduling constraints as part of the optimization model, and is close to the theoretically optimal plan (depending on user-defined settings, weights, and priorities).

Users can refine this schedule manually based on their experience and knowledge of the current plant environment.

Manual Rescheduling (Resource Networks Within Orders)

The SAP liveCache applications scheduler respects all resource network constraints within orders and between orders.

Alerts are generated for any resource network violation, allowing the user to quickly identify and rectify the issue(s) manually.

The Detailed Scheduling Planning Board in SAP SCM is the recommended tool for interactive manipulation of production scheduling.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP SCM Optimizer 7.0		X
SAP ERP 6.0		X

For more information about the installation of these components, see section System Landscape in this guide.

3.6 Order Fulfillment

The process group Order Fulfillment contains the following business processes:

- *Sourcing* [page 85]
- *Supersession* [page 86]

3.6.1 Sourcing

Description

You can use this business process to answer the critical question "Do I have stock to sell?" in all its complexities. In most businesses, across all industries, it is not an easy question to answer. Some customer orders may have priority over others. A material may be maintained in some locations, but not in others. So the simple question "Do I have stock to sell?" quickly evolves into "Do I have stock to sell in the location closest to the customer, and if not, can I find stock somewhere else in my supply chain?" or "Do I have stock that has been promised to another customer that I would be willing to sell to this other customer instead?"

This process enables better visibility of material activity, clearly showing and guiding the processes of material sales, transfers between internal locations, and use of

materials in manufacturing processes. With clear visibility, better business decisions can be made, answering other key questions. For instance: "Are we selling too many products to one-time customers while neglecting our established customer base?" The benefits of being able to intelligently and knowledgeably answer these questions are felt through-out the supply chain, often resulting in higher customer-satisfaction ratings, higher fill-rates, and lower shipping costs.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.
The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP ERP 6.0		X

For more information about the installation of these components, see section System Landscape in this guide.

3.6.2 Supersession

Description

You can use this business process to enable chains of product substitution. In many business scenarios, particularly those in manufacturing, it is common for parts to be discontinued and replaced by one or more other parts. Part B replaces Part A, and eventually, Part C replaces Part B. Using supersession chains in SAP SCM, it is possible to create and maintain this relationship among parts. When an ATP check is performed in gATP (from a sales order) for Part A after it has been replaced by Part B, Part B will be the part sold.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP ERP 6.0		X

For more information about the installation of these components, see section System Landscape in this guide.

3.7 Manufacturing (Planning & Operations)

The process group Manufacturing (Planning & Operations) contains the following areas:

- *Production Planning (Process Manufacturing)* [page 87]
- *Production Planning (Discrete Manufacturing)* [page 90]
- *Production Planning (Repetitive Manufacturing)* [page 95]
- *Production Scheduling* [page 99]
- *Manufacturing Execution* [page 105]
- *Cross-Location Planning with PP/DS* [page 110]
- *Replenishment Planning with PP/DS* [page 111]

3.7.1 Production Planning (Process Manufacturing)

The area Production Planning (Process Manufacturing) contains the following business processes:

- *Production Planning (Process Manufacturing) MTS in SCM* [page 88]
- *Production Planning (Process Manufacturing) MTO in SCM* [page 89]

3.7.1.1 Production Planning (Process Manufacturing) MTS in SCM

Description

You use this business process to carry out make-to-order production in SAP SCM. Make-to-order production is carried out without reference to a sales order.

This business process is used in process industries. This includes the chemical and pharmaceutical industries, food and beverage industry, and the process-oriented electronics industry.

The requirement quantities for the finished products are determined in demand planning. Incoming sales orders are delivered from the warehouse.

The order is used to plan material requirements across all BOM levels, based on the requirements for the finished products and components (from the forecast and demand plan, or when the threshold value for the available stock falls short (reorder point)). These orders represent receipt elements for in-house production and external procurement.

In process industries, make-to-stock production is frequently used at the bulk ware level (unpackaged goods), whereas finished products are normally manufactured with make-to-order production.

The business process includes analysis, planning according to MRP logic, and evaluation of the planning results. It is normally carried out in Production Planning and Detailed Scheduling (PP/DS) in SAP SCM. Extensive planning steps such as material planning (MRP) normally run in the background in the production planning run; they can also be carried out manually.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	

Component	Mandatory	Optional
SAP SCM Optimizer 7.0		X
SAP ERP 6.0		X

For more information about the installation of these components, see section System Landscape in this guide.

3.7.1.2 Production Planning (Process Manufacturing) MTO in SCM

Description

You use this business process to carry out make-to-order production in SAP SCM. Make-to-order production is carried out with reference to a sales order, meaning that, as a rule, the items in a manufacturing order are only manufactured for a certain customer.

This business process is used in process industries. This includes the chemical and pharmaceutical industries, food and beverage industry, and the process-oriented electronics industry. The order is used to plan material requirements across all BOM levels, based on the customer requirements for the finished products and components. These orders represent receipt elements for in-house production and external procurement.

In the process industry, make-to-order production is frequently used for finished products only (such as packaged goods), while raw materials and unpackaged goods (bulk ware) are often produced with make-to-stock production. After the sales order has been received, the bulk ware is packaged for the customer; in some cases, the bulk ware is packaged using customer-specific packing materials.

The business process includes analysis, planning according to MRP logic, and evaluation of the planning results. It is normally carried out in Production Planning and Detailed Scheduling (PP/DS) in SAP SCM. Extensive planning steps such as product planning (MRP) normally run in the background in the production planning run; they can also be carried out manually.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP SCM Optimizer 7.0		X
SAP ERP 6.0		X

For more information about the installation of these components, see section System Landscape in this guide.

3.7.2 Production Planning (Discrete Manufacturing)

The area Production Planning (Discrete Manufacturing) contains the following business processes:

- *Production Planning (Discrete Manufacturing) MTS in SCM* [page 90]
- *Production Planning (Discrete Manufacturing) MTO in SCM* [page 92]
- *Production Planning (Discrete Manufacturing) CTO in SCM* [page 93]
- *Production Planning (Discrete Manufacturing) ETO in SCM* [page 94]

3.7.2.1 Production Planning (Discrete Manufacturing) MTS in SCM

Description

You can use this business process to carry out make-to-stock production in SAP SCM.

Make-to-stock production is carried out without reference to a sales order. The requirement quantities for the finished products are determined in demand planning. Incoming sales orders are delivered from the warehouse.

This business process is used in discrete industries. This includes the consumer products industry, mechanical engineering, metal and paper production, and the electronics industry.

You can use the order to plan material requirements across all BOM levels, based on the requirements for the finished products and components from the forecast and demand plan, or when the threshold value for the available stock falls short (reorder point). These orders represent receipt elements for in-house production and external procurement.

This business process includes analysis, planning according to MRP logic, and evaluation of the planning results. It is normally carried out in Production Planning and Detailed Scheduling (PP/DS) in SAP SCM. Extensive planning steps, such as product planning (MRP), normally run in the background in the production planning run; although they can also be carried out manually.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP SCM Optimizer 7.0		X
SAP ERP 6.0		X

For more information about the installation of these components, see section System Landscape in this guide.

3.7.2.2 Production Planning (Discrete Manufacturing) MTO in SCM

Description

You can use this business process to carry out make-to-order production in SAP SCM.

In make-to-order production, the in-house production or procurement of products is only started when the sales order has been received.

This business process is suitable for products with short replenishment lead times for the finished product and for all incoming assemblies and components.

This business process is useful if the costs of procurement and production of assemblies and components is high. With this business process, additional storage costs can be avoided if incorrect forecasts have been made.

In case of long replenishment lead times for assemblies and components and low costs, forecasting for assemblies is useful to reduce the delivery time for the sales order.

This business process is used in discrete industries such as consumer products (high-quality consumer products), machine construction, metal and paper production, and electronics. You can use the generated orders to plan material requirements across all BOM levels, based on the sales orders. These orders represent receipt elements for in-house production and external procurement, and can be displayed according to the customer. The material flow between the BOM levels can be coordinated.

This business process includes analysis, planning according to MRP logic, and evaluation of the planning results. Extensive planning steps, such as material requirements planning usually run in the background although they can also be planned manually.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP SCM Optimizer 7.0		X
SAP ERP 6.0		X

For more information about the installation of these components, see section System Landscape in this guide.

3.7.2.3 Production Planning (Discrete Manufacturing) CTO in SCM

Description

You use this business process to carry out configure-to-order production in SAP SCM. In make-to-order production, the in-house production or procurement of products is only started when the sales order has been received. The product characteristics are determined when creating the sales order.

This business process is suitable for identical products with characteristics that the customer can define when creating the sales order. Therefore, it is not useful to plan at the finished product level. You can implement planning at the assembly level for the assemblies that are not influenced by customer requirements. This affects assemblies that contain a large number of finished products.

This business process is used in discrete industries. This includes the machinery and automotive industries, the aerospace and electronics industries, and component supplier industries. Orders are generated that are used to plan material requirements across all BOM levels, based on the sales orders. These orders represent receipt elements for in-house production and external procurement, and can be displayed according to customer. The material flow between the BOM levels can be harmonized.

The business process includes analysis, planning according to MRP logic, and evaluation of the planning results. Extensive planning steps such as material requirements planning usually run in the background, although they may also be planned manually.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP SCM Optimizer 7.0		X
SAP ERP 6.0		X

For more information about the installation of these components, see section System Landscape in this guide.

3.7.2.4 Production Planning (Discrete Manufacturing) ETO in SCM

Description

You can use this business process to carry out engineer-to-order production in SAP SCM.

Engineer-to-order production is carried out with reference to a project from the project system; that is, the items in a manufacturing order are manufactured for a specific project.

This business process is used in discrete industries. This includes the machinery and plant engineering and construction industry, and the aerospace industry.

You can use the order to plan material requirements across all BOM levels, based on the requirements for the finished products and components required in the project. These orders represent receipt elements for in-house production and external procurement.

This business process includes analysis, planning according to MRP logic, and evaluation of the planning results. Extensive planning steps, such as material requirements planning, usually run in the background, although they can also be planned manually.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.
The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP SCM Optimizer 7.0		X
SAP ERP 6.0		X

For more information about the installation of these components, see section System Landscape in this guide.

3.7.3 Production Planning (Repetitive Manufacturing)

The area Production Planning (Repetitive Manufacturing) contains the following business processes:

- *Production Planning (Repetitive Manufacturing) MTS in SCM* [page 95]
- *Production Planning (Repetitive Manufacturing) MTO in SCM* [page 96]
- *Production Planning (Repetitive Manufacturing) CTO in SCM* [page 98]

3.7.3.1 Production Planning (Repetitive Manufacturing) MTS in SCM

Description

You use this business process to create a production plan for repetitive manufacturing. Repetitive manufacturing is suitable for companies that manufacture similar products in large quantities, which are not based on sales orders. The requirement quantities for the finished products are determined in demand planning. Incoming sales orders are delivered from the warehouse.

This business process is used in discrete industries. This includes the consumer goods industry, the machine construction and automotive industries, the electronics industry, and the component supplier industries. The system generates orders for finished products and components to cover the requirements across all BOM levels, based on planned independent requirements such as forecast values, demand plan, or when the stock level falls short. These orders represent receipt elements for in-house production and external procurement.

The main aims of repetitive manufacturing are to evenly schedule resources and simplify order processing in production. The material flow between the BOM levels can be harmonized.

This business process includes procurement planning, analysis, and evaluation of planning results. Extensive planning steps such as material requirements planning usually run in the background, although they may also be planned manually.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP SCM Optimizer 7.0		X
SAP ERP 6.0		X

For more information about the installation of these components, see section System Landscape in this guide.

3.7.3.2 Production Planning (Repetitive Manufacturing) MTO in SCM

Description

You use this business process to create a production plan for repetitive manufacturing.

In make-to-order repetitive manufacturing, the in-house production or procurement of products is only started when the sales order has been received. This business process is suitable for products with short replenishment lead times for the finished product and all incoming assemblies and components. This business process is useful if the costs of procurement and production of assemblies and components is very high; additional storage costs can be avoided in case of incorrect forecasts. In case of long replenishment lead times for assemblies and components and low costs, forecasting for assemblies is useful in order to reduce the delivery time for the sales order.

This business process is used in discrete industries. This includes the machine construction and automotive industries, the electronics industry, and the component supplier industries. The system generates orders based on the sales orders to cover the requirements across all BOM levels. These orders represent receipt elements for in-house production and external procurement, and can be displayed according to customer.

The main aims of repetitive manufacturing are to evenly schedule resources and simplify order processing in production. The material flow between the BOM levels can be harmonized.

This business process includes procurement planning, analysis, and evaluation of planning results. Extensive planning steps such as material requirements planning usually run in the background, although they may also be planned manually.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP SCM Optimizer 7.0		X
SAP ERP 6.0		X

For more information about the installation of these components, see section System Landscape in this guide.

3.7.3.3 Production Planning (Repetitive Manufacturing) CTO in SCM

Description

You use this business process to create a production plan for configurable products that are manufactured with repetitive manufacturing.

In make-to-order repetitive manufacturing with configurable products, the in-house production or procurement of products is only started when the sales order has been received. You define the product characteristics when creating the sales order.

This business process is suitable for identical products with characteristics that the customer can define when creating the sales order. Therefore, it is not useful to carry out forecasting at the finished product level. You can implement forecasting at the assembly level for the assemblies that are not influenced by customer requirements. This affects assemblies that contain a large number of finished products.

This business process is used in discrete industries. This includes the automotive industry, the electronics industry, and the component supplier industries. The system generates orders based on the sales orders to cover the requirements. These orders represent receipt elements for in-house production and external procurement. The main aims of repetitive manufacturing are to evenly schedule resources, to simplify order processing in manufacturing, and reducing setup times. The material flow between the BOM levels can be harmonized.

The business process includes procurement planning, and takes into account capacities, and the analysis and adjustment of planning results. Extensive planning steps such as material requirements planning usually run in the background, although they may also be planned manually.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP SCM Optimizer 7.0		X
SAP ERP 6.0		X

For more information about the installation of these components, see section System Landscape in this guide.

3.7.4 Production Scheduling

The area Production Scheduling contains the following business processes:

- *Production Scheduling (Manual Scheduling)* [page 99]
- *Production Scheduling with Scheduling Heuristics* [page 100]
- *Production Scheduling Optimization* [page 101]
- *Production Scheduling with Block Planning* [page 102]
- *Production Scheduling with Production Campaigns* [page 104]

3.7.4.1 Production Scheduling (Manual Scheduling)

Description

In production planning, detailed scheduling is combined with procurement planning. Detailed scheduling is used to compare the capacity requirements from the manufacturing orders with the available production capacity. Different planning methods and strategies can be combined with one another depending on what is required by the user.

Detailed scheduling with manual scheduling can be used for all industries; it can also be combined with other variants in detailed scheduling, such as optimization.

The business process includes problem analysis, scheduling and creating orders and operation sequences and the analysis and evaluation of planning results. The business

process is carried out in the component Production Planning and Detailed Scheduling in SAP APO.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.
The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP SCM Optimizer 7.0	X	

For more information about the installation of these components, see section System Landscape in this guide.

3.7.4.2 Production Scheduling with Scheduling Heuristics

Description

In production planning, detailed scheduling is linked to procurement planning. Detailed scheduling is used to compare the capacity requirements from the manufacturing orders with the available production capacity. You can combine different planning methods and strategies depending on what the user requires. Heuristics are planning functions that carry out scheduling for selected objects (products, resources, operations, or line networks for each planning focus) based on rules that are stored in the function. This includes sort and priority rules. In detailed scheduling, planning mostly focuses on resources and operations.
Detailed scheduling with heuristics can be used for all industries; it can also be combined with other variants in detailed scheduling, such as optimization. For special planning problems, there are branch-specific heuristics available (such as for the metal and paper industries).

The business process includes problem analysis, scheduling in detailed scheduling, and the analysis and evaluation of planning results. It is executed in the component Production Planning and Detailed Scheduling in SAP APO.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.
The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP SCM Optimizer 7.0	X	

For more information about the installation of these components, see section System Landscape in this guide.

3.7.4.3 Production Scheduling Optimization

Description

In production planning, detailed scheduling is combined with procurement planning. Detailed scheduling is used to compare the capacity requirements from the manufacturing orders with the available production capacity. Detailed scheduling with optimization generates a production plan that is optimized according to certain business criteria. Different criteria (such as setup time and lead time optimization) can be combined with one another according to what the user requires.
Detailed scheduling with optimization can be used for all industries; it can also be combined with other variants in detailed scheduling, such as manual scheduling.
The business process includes problem analysis, optimization of the production plan, and the analysis and evaluation of planning results. It is executed in the component Production Planning and Detailed Scheduling in SAP APO.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP SCM Optimizer 7.0	X	

For more information about the installation of these components, see section System Landscape in this guide.

3.7.4.4 Production Scheduling with Block Planning

Description

In production planning, procurement planning is followed by detailed scheduling. You can use detailed scheduling to adjust capacity requirements from manufacturing orders to the available production capacity.

Detailed scheduling with block planning completes the different types of detailed scheduling (detailed scheduling with manual scheduling, heuristics, and optimization). Detailed scheduling with block planning entails forecasting or preassigning resources for products with certain properties for better utilization of capacities.

In industries such as metal and paper, orders are scheduled based on predefined planning as well as on delivery dates, priority, and availability. You define which product types and products are combined according to their production requirements. The reason for this is that combining these products for production can take advantage of the same production setup and reduce the number of production runs. Specified product sequences and maintenance required in fixed intervals are important, especially for block durations. Blocks can also represent

production cycles and periods in which only certain products can be manufactured (planning at characteristics level). Block definitions are determined by technical conditions for production, for example, steel type A is only manufactured every first week, and steel type B every second week.

Block planning has no effect on a sequence defined by a setup key. It runs in the blocks.

Detailed scheduling with block planning is normally used in the metal and paper processing industries, but it can also be used in other industries, such as food processing, where products with certain characteristics must be grouped into predefined blocks.

This business process covers block definitions, scheduling, and analyzing and evaluating planning results. It is carried out in the following components of SAP APO:

- Production Planning and Detailed Scheduling (PP/DS)
- Multilevel Supply and Demand Matching (SDM) in the planning application Capable-to-Match (CTM)

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP SCM Optimizer 7.0		X

For more information about the installation of these components, see section System Landscape in this guide.

3.7.4.5 Production Scheduling with Production Campaigns

Description

In production planning, detailed scheduling is combined with procurement planning. Detailed scheduling is used to compare the capacity requirements from the manufacturing orders with the available production capacity.

A production campaign is a combination of orders that are required to manufacture products on a production line without having to perform major setup activities. Generally, setup and clean-out activities are required on the production resources between two campaigns.

In SAP APO, the planned and manufacturing orders are combined for manufacturing one or more products.

Detailed scheduling with production campaigns is mostly used in the process industries (such as chemical, pharmaceutical, and food industries). However, it can also be used in industries in which several orders are grouped together based on certain criteria, and must be maintained together.

The business process includes pre-processing setup and clean-out orders, creating the production plan, campaigns, setup and clean-out orders, analyzing and evaluation planning results, and managing the production campaigns. It is executed in the component Production Planning and Detailed Scheduling (PP/DS) in SAP APO.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP SCM Optimizer 7.0		X

For more information about the installation of these components, see section System Landscape in this guide.

3.7.5 Manufacturing Execution

The area Manufacturing Execution contains the following business processes:

- *Manufacturing Execution (Process Manufacturing)* [page 105]
- *Manufacturing Execution (Discrete Manufacturing)* [page 107]
- *Manufacturing Execution (Repetitive Manufacturing)* [page 108]
- *Cross-Location Planning with PP/DS* [page 110]
- *Replenishment Planning in PP/DS* [page 111]

3.7.5.1 Manufacturing Execution (Process Manufacturing)

Description

You can use process manufacturing with process orders in process industries for batch-oriented manufacturing based on recipes. This business process is used in industries such as the chemical and pharmaceutical industries, food and beverage industries, and the process-oriented electronics industry, where production control and internal activity planning and accounting for products is carried out using orders. In addition to these orders, you get an object that helps you to track your work in process (WIP). The so-called WIP batch comprises the quantity of material being produced and describes the state of the material between the individual production operations. In production, you can use the WIP batches not only to document the progress made in production on a quantity basis (via confirmations) but also to record the current properties/characteristics of the material that is to be produced.
In addition, the WIP batch ensures end-to-end batch tracking because the system can automatcially record n:m relationships between input and goods receipt batches with this function.
Whether or not it would make sense to use WIP batches depends on the business scenario in your enterprise.
You can define the following with a process order:

- Which product is to be produced
- When production is to take place

- What capacity is to be used
- What production will cost

As soon as a planned order or another request is generated from material requirements planning, the information is passed on to shop floor control. The order-relevant data is also added to ensure complete order processing.

You use process orders to monitor production and control cost accounting within a company.

Process manufacturing supports the following:

- Production campaigns (equal distribution of setup and clean-out costs)
- Joint production
- Mass processing of process orders
- Active ingredient management and material quantity calculation (cost and quantity calculation is dependent on batch characteristics such as concentrations)
- HTML-based PI sheets (integrated interface for creating and processing various production-relevant data)
- Electronic batch records to continuously document the production process (to meet FDA/GMP regulations)
- In-process monitoring (inspection results in quality management)
- Integration at field device level (for example, bar code scanners)
  - Asynchronous via the PI-PCS interface/SAP XI
  - Synchronous via OPC interface (Open Process Connectivity)

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0		X
SAP liveCache 7.0		X
SAP ERP 6.0	X	

For more information about the installation of these components, see section System Landscape in this guide.

3.7.5.2 Manufacturing Execution (Discrete Manufacturing)

Description

You can use this business process to carry out work-to-order manufacturing based on bills of material and routings. This business process is used in industries with discrete manufacturing, such as the automotive industry and mechanical engineering, where production control, internal activity planning, and accounting for materials and assemblies is carried out using orders.

In addition, the WIP batch ensures end-to-end batch tracking because the system can automatcially record n:m relationships between input and goods receipt batches with this function.

Whether or not it would make sense to use WIP batches depends on the business scenario in your enterprise.

You use a production order to determine the following:

- Which material/product is to be produced
- When production is to take place
- Which capacity is to be dispatched
- What production will cost

As soon as a planned order or other request is generated from material requirements planning, the information is passed on to shop floor control. The order-relevant data is also added to ensure complete order processing.

Production orders are used to control and monitor production within a company and also to support cost accounting.

Production order processing supports the following:

- Collective orders (planned orders or production orders that are linked to one another over several production levels)
- Joint production

- Batch-specific material unit of measure (product quantity management)
- Assembly orders (the system can create an assembly order automatically when you create a sales order)
- Order splits
- Mass processing of production orders
- In-process monitoring (inspection results in quality management)

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0		X
SAP liveCache 7.0		X
SAP ERP 6.0	X	

For more information about the installation of these components, see section System Landscape in this guide.

3.7.5.3 Manufacturing Execution (Repetitive Manufacturing)

Description

You can use repetitive manufacturing for production planning and control within repetitive manufacturing and flow manufacturing environments. The main areas of use are industries with discrete manufacturing such as the automotive industry, or industries with continuous production processes, such as the chemical industry.

The aims of repetitive manufacturing are:

- Creation and revision of production quantities on a period and quantity basis (reduction in individual lot and order-specific processing)
- Reduction of work in production control and simplification of the back flush

You can implement repetitive manufacturing if the following applies to your production process:

- You produce the same or similar products over a lengthy period of time.
- You do not manufacture in individually defined lots. Instead, you produce a total quantity over a certain period of time, for example, at a certain rate per part or period.
- Your products always follow the same sequence through the machines and work centers in production.
- Routings tend to be simple and do not vary much.
- The costs are settled per material or per version using a product cost collector (product cost by period), and you do not need to perform controlling based on production orders.

ERP supports the following variants:

- You only use repetitive manufacturing for make-to-stock production. This means that production is controlled without a direct reference to a sales order. Run schedule quantities determine the dates and quantities. The requirements are generated by demand management. Sales order quantities are delivered from stock and consume the planned independent requirement quantities in demand management according to the planning strategy you select. A product cost collector is used to collect actual data and to settle costs.
- You use repetitive manufacturing in a make-to-order production environment. The system creates one or several planned orders that directly reference the sales order item, on the basis of which material is manufactured. Production is triggered by sales orders. If you are a repetitive manufacturer and work in a make-to-order environment with valuated sales order stock, you create a product cost collector for the material that is delivered to the sales order stock. The costs incurred for the production of the inventory are collected by the product cost collector and can be analyzed there.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0		X
SAP liveCache 7.0		X
SAP ERP 6.0	X	

For more information about the installation of these components, see section System Landscape in this guide.

3.7.6 Cross-Location Planning with PP/DS

Description

With this set of business processes, Production Planning and Detailed Scheduling (PP/DS) supports the following cross-location planning functions:

- Demand Propagation
  This cross-location planning function enables you to propagate demand across locations connected by transportation lanes. For example, from distribution center to plant.
- Descriptive Characteristics Propagation
  This function enables you to propagate the descriptive characteristics associated with the demand across locations. It can be used in several scenarios, including forecast consumption and capacity reservation.
- Interactive Sourcing
  This function enables you to interactively decide the locations of supply from which procurement proposals must be sourced. Information on key resources and key components for each source location are displayed.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP ERP 6.0		X

3.7.7 Replenishment Planning in PP/DS

Description

With this set of business processes, the following replenishment planning tasks can be performed:

- Characteristics-based PP/DS Deployment

  With the help of deployment heuristics for PP/DS, you can create confirmed stock transfer requisitions (STR) only when the characteristics of a planned STR match those of the available-to-deploy quantity (ATD). The characteristics to be considered during deployment can be maintained in the deployment characteristics profile.

  If the characteristics profile is not specified, confirmed STRs are created according to the ATD receipts in the source location.

  > **NOTE**
  >
  > Only pull deployment is supported. This is valid for both MTO and MTS scenarios.

- Characteristics-based splitting of STRs and conversion to Transport Load Builder orders (Optional)

  Transportation Planning/Vehicle Scheduling (TP/VS) can be used for splitting orders based on characteristics. In this special case, TP/VS uses STRs created by PP/DS deployment as input. These split STRs can be converted to stock transfer orders (or Transport Load Builder orders) as a next step.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP liveCache 7.0	X	
SAP ERP 6.0		X

For more information about the installation of these components, see section System Landscape in this guide.

3.8 Procurement

The business process group Procurement contains the following business processes:

- *Purchase Order Processing for Service Parts* [page 112]
- *Release Processing for Service Parts* [page 113]

3.8.1 Purchase Order Processing for Service Parts

Description

You use this business process to send out purchase orders and collaborate with the external supplier on confirmations and ASNs. Purchase orders are generated as part of the distribution requirements planning run, sent to the supplier, and published in SAP Supply Network Collaboration (SAP SNC). Suppliers can monitor the purchase orders in SAP SNC, confirm them, enter or send advanced shipping notifications (ASNs), and ship the required parts.

The main business value is derived from the fact that the parts purchase orders can be communicated accurately and in real-time to the supplier, replacing older methods, such as paper-based, phone, fax, or e-mail. Suppliers can access SAP SNC using a web browser and are pro-actively alerted to exception situations. Suppliers can respond to the requirements quickly and accurately by using confirmations and ASNs.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP ERP 6.0	X	
SAP enhancement package 1 for SAP NetWeaver 7.0 usage type PI	X	
SAP SNC 7.0	X	

For more information about the installation of these components, see section System Landscape in this guide.

3.8.2 Release Processing for Service Parts

Description

You can use this business process to send out scheduling agreement releases and collaborate with the external supplier on confirmations and advanced shipping notifications (ASNs). The system generates scheduling agreement releases as part of the distribution requirements planning run, sends them to the supplier and publishes them in SAP Supply Network Collaboration (SAP SNC). Suppliers can monitor the releases in SAP SNC, confirm them, enter or send ASNs and ship the required parts. The main business value is derived from the fact that the releases can be communicated accurately and in real-time to the supplier, replacing older methods, such as paper-based, phone, fax, or e-mail. Suppliers can access the SAP SNC system through a web browser and are proactively alerted to exception situations. Suppliers can respond to the requirements quickly and accurately by means of confirmations and ASNs.

Technical System Landscape

The following software components are either mandatory or optional, as indicated below, for the technical implementation of this process.

The following table provides just one way to implement the business process. For other combinations, see SAP Service Marketplace at http://service.sap.com/scl.

Component	Mandatory	Optional
SAP SCM Server 7.0	X	
SAP ERP 6.0	X	
SAP enhancement package 1 for SAP NetWeaver 7.0 usage type PI	X	
SAP SNC 7.0	X	

For more information about the installation of these components, see section System Landscape in this guide.

4 Solution-Wide Topics

4.1 SAP Solution Manager

SAP provides the SAP Solution Manager as a highly recommended platform to efficiently support the implementation of your solution. Using SAP Solution Manager significantly accelerates the implementation process and helps you achieve your business goals. At the same time, SAP delivers Support Services based on the business scenarios designed and documented in SAP Solution Manager. Implementation content for your solution may further accelerate the implementation process. For information about availability of content specifically tailored to your solution, see SAP Service Marketplace at `http://service.sap.com/solutionmanager`.

CAUTION

In the installation or upgrade process, an SAP Solution Manager system is required to generate the SAP Solution Manager Key. Without the SAP Solution Manager Key, you cannot continue the installation process. The generation of the required key is implemented into the SAP Solution Manager as of Release 3.2 SP8. For details, see SAP Service Marketplace at `http://service.sap.com/notes`, SAP Note 811923.

4.2 Extended Implementation Content in SAP Solution Manager

In the business process repository of SAP Solution Manager, you can find high-quality business processes under *Solutions/Applications→Extended Implementation Content for Lines of Business*. These business processes are highly demanded by consultants and

customers and provide optimized configuration information for various lines of business (for example, Finance, Sales, Manufacturing, and Supply Chain). Extended implementation content for lines of business is characterized by carefully drafted configuration information, including the following:

- Configuration information is assigned to all business processes. This process-specific configuration information always contains a clear reference to additional basic configuration settings that are available for the required components of a process. Therefore, when you include a business process in a self-defined scenario, you can easily identify all relevant configuration settings that are relevant for your project.
- Configuration information that is specific for an optional process step is directly assigned to that process step. Therefore, when you remove an optional process step from your project because you do not need it, the corresponding configuration activities are also automatically excluded from your implementation project.

For your implementation project, this means:

- With the extended implementation content, the implementation of a business process is easier than before.
- You can adjust SAP business processes to your own enterprise-specific requirements.
- You can be sure to get all required configuration information if you include an SAP business process in a self-defined business scenario.

4.3 Service-Oriented Architecture (SOA)

SAP´s delivery on SOA (service-oriented architecture) differs from the pure architectural concept of SOA in the delivery of ready-to use enterprise services. Enterprise services are SAP-defined Web services which provide end-to-end business processes or individual business process steps that can be used to compose business scenarios while ensuring business integrity and ease of reuse. SAP designs and implements enterprise service interfaces to ensure semantic harmonization and

business relevance. This section deals with the service-enablement of SAP Business Suite 7.

4.3.1 Service Enablement

The service enablement of SAP Business Suite consists of one or more of the following SAP components:

- **SAP Business Suite 7**

  Enterprise services are an integral part of the software components of the SAP Business Suite applications. Enterprise services are the technical interfaces to the functionality available in the business application.

- **SAP NetWeaver PI 7.0 or higher**

  SAP NetWeaver Process Integration (SAP NetWeaver PI) is an open integration and application platform that provides tools enabling you to set up a service-oriented architecture for business applications. You can use the platform for providing, discovering, and consuming services, integrating applications using the integration server, and managing business processes. Process integration is required in a runtime environment to consume enterprise services in a mediated scenario.

  We recommend that you use the highest version of SAP NetWeaver Process Integration (PI), currently this is **SAP NetWeaver PI 7.3**. For more information, see SAP Note 1515223 and SAP Note 1388258.

  NOTE

  Starting with SAP NetWeaver Process Integration (PI) 7.3, SAP provides a new installation option Advanced Adapter Engine Extended (AEX). Since AEX is based on AS Java alone, it is easier to install and maintain as well as it needs less memory and data storage. Therefore, AEX is a cost-saving option compared to a full installation of SAP NetWeaver PI. For more information about the AEX, see the SAP Library at: `http://help.sap.com/nw73` → *SAP NetWeaver 7.3 Library English* → *SAP NetWeaver Process Integration* → *Concepts*

→ *Installation and Connectivity Options* → *Advanced Adapter Engine Extended* and SAP Note 1573180.

NOTE

Asynchronous services that are enabled for *Web Services Reliable Messaging (WS-RM)* can be called in a point-to-point communication scenario. Otherwise asynchronous services can only be consumed in a mediated scenario.

- **Enterprise Services Repository**

  The Enterprise Services Repository (ES Repository) is the central repository that contains the definition of all enterprise services and models. The ES Repository is shipped with SAP NetWeaver PI and with SAP NetWeaver Composition Environment (CE) starting with SAP NetWeaver PI 7.1 and with SAP NetWeaver CE 7.1. The Enterprise Services Repository is a design time environment that enables you to create and enhance enterprise service definitions and to view enterprise service models.

  NOTE

  In a SAP NetWeaver 7.0x landscape you will require the Integration Repository to create and enhance enterprise service definitions in a design time environment.

- **Services Registry**

  The Services Registry is shipped with SAP NetWeaver PI and SAP NetWeaver CE starting with SAP NetWeaver PI 7.1 and SAP NetWeaver CE 7.1. The Service Registry is required for the publication of enterprise service end-points (Web services) that have been configured and activated in the SAP Business Suite.

- **SAP NetWeaver CE 7.1 or higher**

  The SAP NetWeaver Composition Environment (SAP NetWeaver CE) provides a robust environment for the design and implementation of composite applications.

  The design time environment of SAP NetWeaver CE can be used for the model-driven design and development of composite applications based on enterprise services. SAP NetWeaver CE offers the tools and the environment necessary for running composite applications fast and efficiently in a runtime environment.

- **SAP Solution Manager 7.0 EHP 1**

  The Solution Composer, shipped with SAP Solution Manager 7.0 EHP 1 SP 23, is required to host the enterprise service online documentation.

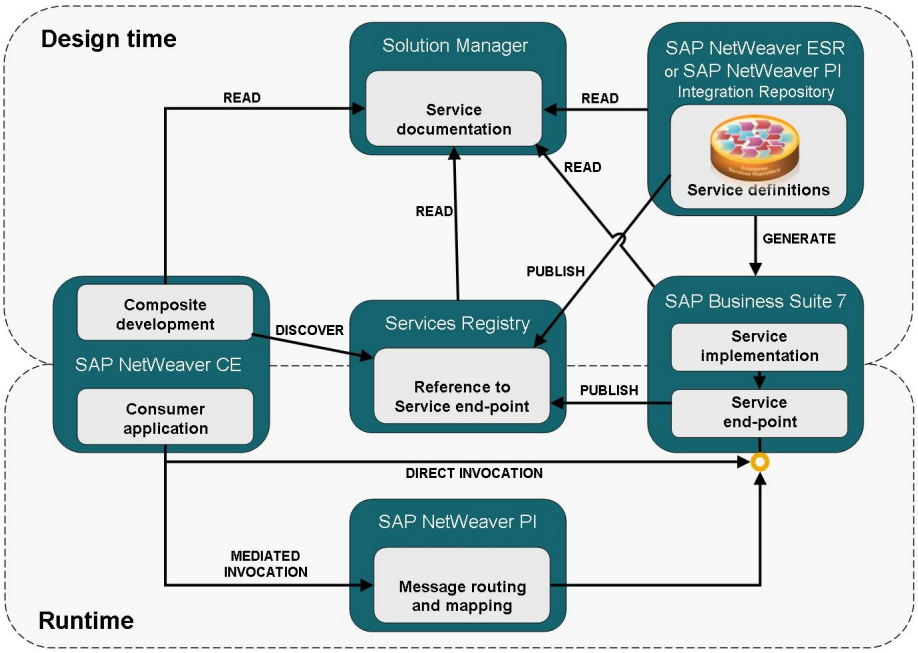

Figure 3: Overview: SAP's Applications for SOA Enablement

The following table describes the SAP applications required or recommended for different runtime and design time use cases:

	SAP Applications					
	SAP Business Suite	SAP NetWeaver PI 7.0x (Integration Repository)	SAP NetWeaver PI 7.1 or higher (ES Repository)	SAP NetWeaver CE 7.1 or higher (ES Repository)	SAP Solution Manager 7.0 EHP1 or higher (Solution Composer)	SAP NetWeaver 7.1 or higher Services Registry
Runtime Usage:						
Enterprise Service Provisioning	Required					Optional
Process integration and mediated communication		One option required				

Design Time Usage:						
Create and enhance enterprise service definitions	Required	One option required			Recommended	
View enterprise service models			One Option Required		Recommended	
Design and develop composite applications				Required	Recommended	Recommended
Enterprise service online documentation					Required	
Publications of enterprise service end-points					Optional	Required

4.3.2 Installation of the Service-Oriented Architecture (SOA)

The installation of service interfaces, and therefore the service enablement of SAP Business Suite, consists of one or more of the following phases:

- **Identification of software components and required business functions**
  You use the technical data section of the enterprise service documentation to identify the following data for each enterprise service:
  - the software component version with which the service was shipped
  - the business function(s) required to be activated
- **Identification of technical usages** (relevant for SAP ERP only)
  SAP Note 1566412 provides a mapping of business functions and software component versions to technical usages. You use this documentation to identify the required technical usages for your list of software component versions and business functions.

- **Installation of the software component ECC-SE** (relevant for SAP ERP only)
  The software component ECC-SE contains service implementations for ECC (the ERP Central Component). This component must be explicitly installed if you intend to use enterprise services for ECC functionality. In this case you must also select the technical usage "ESA ECC-SE" during the enhancement package installation.
- **Selection and installation together with the other parts of the enhancement package**
  In the enhancement package installation process you must select all the technical usages you have identified for service enablement together with the technical usages you identified for enhanced features in SAP Business Suite. The selected technical usages will install the corresponding software components that contain the enterprise services interfaces and implementations.
- **Enterprise service definitions for SAP NetWeaver PI 7.0x or ES Repository (SAP NetWeaver 7.1 or higher)** (optional)
  To install the content required for the enterprise service definitions you must select the technical usage "XI Content" in the enhancement package installation process. This usage type downloads the content files for SAP NetWeaver 7.0 or higher. Unpack the ZIP file and copy the tpz files corresponding to your SAP NetWeaver version into the import directory of your Integration Repository (for SAP NetWeaver PI 7.0x) or Enterprise Services Repository (for SAP NetWeaver ES Repository 7.1 or higher). Use the import function to import the content files into the corresponding repository (Integration Repository or Enterprise Services Repository). (Choose ▶ *Tools* → *Import Design Objects* ↵)
- **Enterprise service models for ES Repository (SAP NetWeaver 7.1 or higher)** (optional)
  To install the content required for the enterprise service models you must select the technical usage "ESR Content" in the enhancement package installation process. This usage type downloads the content files for SAP NetWeaver ES Repository 7.1 or higher. Unpack the ZIP file and copy the tpz files into the import directory of your Enterprise Services Repository. Use the import function to

import the content files into the Enterprise Services Repository. (Choose ▶ *Tools* → *Import design objects* ↵)

> **NOTE**
>
> The enterprise service models are not available for the Integration Repository (SAP NetWeaver PI 7.0x)

- **Enterprise service online documentation for Solution Composer** (optional)
  To install the content required for the enterprise service online documentation you must download the content file for the corresponding Business Suite application product version from the Service Marketplace. Then you must import the content file into your Solution Composer. Refer to SAP Note 1224284 for further information.
- **Services Registry** (optional)
  The services registry is shipped starting with SAP NetWeaver PI 7.1 and CE 7.1. You must install the services registry and then publish the enterprise services from the Business Suite application to the registry using the transaction `SOAMANAGER` in the backend.
  For further information regarding the installation of SAP NetWeaver PI, CE and ES Repository, refer to the corresponding SAP NetWeaver Installation and Master Guides.

4.3.3 Related Documentation

For more information about the service-oriented architecture (SOA), see the following information sources:

- SDN Community in the SAP Network at `https://www.sdn.sap.com/irj/sdn/soa` (registration required)
- The SAP Enterprise Service Workplace at `http://ESWorkplace.sap.com`
- The Enterprise Services Wiki in the SAP Network at `https://wiki.sdn.sap.com/wiki/x/LQ0` (registration required)

- SAP Note 1224284: Enterprise Services, Installing and Accessing the SOA Documentation
- SAP Note 1359215: Technical prerequisites for using enterprise services (relevant for *ERP* only)
- SAP note 838402: Problems with non-Unicode system landscapes

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A Appendix

A.1 Tools and Resources for Planning Your System Landscape

To plan your system landscape, you can use a few tools and resources that are available to you as SAP customer.

Tools

On SAP Service Marketplace, we provide some tools that allow you to look up more detailed information about business scenarios, business processes and implementable steps. These tools include the following:

Tools for Looking Up Information about Business Processes, Scenarios, and Implementable Steps

Tool	Purpose
Business process repository (BPR) viewer	To look up descriptions of business scenarios, business processes, and implementable steps
Scenario and process component list	To look up the required components and releases for a business scenario, business process, or implementable steps

In addition, there are tools in SAP Solution Manager that support you before, during, or after the installation of your SAP product or SAP enhancement package. These tools include:

Tools for Supporting Installations and Upgrades

Tool	Purpose
Solution Manager System Landscape (transaction `SMSY`)	To model and set up your system landscape
SAP Solution Manager Maintenance Optimizer (transaction `DSWP`	To install support packages and SAP enhancement packages
Business process repository	To access configuration documentation, links to

Tool	Purpose
	Customizing activities and master data transactions, specifically tailored for individual business processes, business scenarios, or implementable steps
Business process change analyzer (available with SAP enhancement package 1 for SAP Solution Manager 7.0)	To analyze the effects of transports and support packages as well as activation logs for business functions

NOTE

You require at least one of the following versions of SAP Solution Manager.

- SAP Solution Manager 7.0 EHP1, SPS23 or higher
- SAP Solution Manager 7.1, SPS01 or higher

SAP Solution Manager 7.0 EHP1, SPS23 supports all update and maintenance processes (for example, transaction `SMSY` or `Maintenance Optimizer`) There is no need to upgrade to SAP Solution Manager 7.1.

For more information, see SAP Service Marketplace at `http://service.sap.com/solutionmanager`.

SAP Solution Manager: Implementation Content

To get implementation content that supports you during the configuration of your business processes and business scenarios, you need the SAP Solution Manager add-on *Implementation Content* ST-ICO 150_700 (SP31).

Landscape Verification for SAP Solutions Manager

To verify and correct your system landscape SAP highly recommends that you use Landscape Verification 1.0 for SAP Solution Manager 7.0, which is an add-on to your SAP Solution Manager 7.0 system. This add-on allows you to identify and correct issues in your SAP Solution Manager landscape (transaction `SMSY`) before they cause problems, for example during a system update. Examples for errors are a missing connection to the System Landscape Directory or the wrong assignment of products to technical systems. For each type of error, a generic description for the solution is provided.

For more information about the landscape verification add-on, see SDN at http://www.sdn.sap.com/irj/sdn → *Application Lifecycle Management* → *Technical Enablement* → *Update and Upgrade* → *Related Areas on Upgrade and Update Management* → *Landscape Verification* (http://www.sdn.sap.com/irj/sdn/alm?rid=/webcontent/uuid/70fc3790-7ec9-2d10-57ad-95b2d0d1185d).

SAP Business Suite: Landscape Implementation — Technical Planning Guide

To get an overview of the necessary steps for planning a system landscape, use the *Landscape Implementation — Technical Planning Guide* on SAP Service Marketplace at http://service.sap.com/instguides under *SAP Business Suite Applications*. The guide also provides you with more information about the following:

- Examples of reference system landscapes
- Planning tools such as the business process repository
- Deployment options
- Typical implementation process

A.1.1 Business Process Repository (BPR) Viewer

The business process repository viewer (BPR viewer) is a tool on SAP Service Marketplace that allows you to preview the existing business scenarios, business processes that are shipped as part of SAP Solution Manager content. You can make use of the information in SAP Solution Manager during your implementation project by taking the pre-delivered implementation content as the starting point for your project scope. The implementation content is delivered with the following assigned information:

- Description of the business scenario, process, or implementable step
- Configuration content (Customizing activities or configuration documentation)

A.1.2 Using the BPR Viewer

Procedure

Calling Up the BPR Viewer

You can call up the BPR viewer directly using the Internet address `https://implementationcontent.sap.com/bpr`. Alternatively, you can also call up the Internet address `http://service.sap.com/bpr` first, to see more background information about the BPR viewer and additional material on SAP Service Marketplace.

Working with the BPR Viewer

To call up information about business scenarios, business processes, or implementable steps, navigate the following paths in the BPR viewer:

BPR Object	Location
Business scenario	Under *Solutions/Applications*
Business process	Under *Organizational Areas*
Implementable step	Under *Solutions/Applications*

For each business scenario, business process, or implementable step, you can select between different versions that depend on varying components and releases. To display the descriptions of a business scenario, business process, or implementable step, choose the *Documentation* tab page. To display configuration documentation, choose the *Configuration* tab page.

NOTE

The BPR Viewer displays all descriptions, but only a selection of the configuration documentation. To view all configuration documentation, install and use SAP Solution Manager at your customer site.

A.1.3 Scenario and Process Component List (SCL & PCL)

The scenario and process component list (SCL/PCL) is a tool on the SAP Service Marketplace that allows you to find realization alternatives for SAP solutions, business

scenarios, and processes for your SAP enhancement package installation. You find the tool at http://service.sap.com/scl.

The SCL/PCL helps you to bridge the gap between the business view and the technical view in SAP's products. It shows you which application components are needed to realize a business scenario or a process and which business scenarios are possible with a given set of application components.

A.1.4 Using the SCL/PCL

Procedure

1. Go to SAP Service Marketplace at http://service.sap.com/scl.
2. To start the SCL/PCL, choose *Start Application*.

   The following selection options are provided:

   - SAP Scenarios and Realization Alternatives

     With this option you can browse SAP's solutions, business scenarios, and processes. You can find out which components are needed and the available alternatives.
   - SAP Components and Possible Scenarios

     This option allows you to browse SAP's products and components and to find out, which business scenarios and processes you can realize using the components.

   For more information on how to use the tool, refer to the *Help* section.
3. Select *SAP Scenarios and Realization Alternatives*.

   Select one or several scenarios, processes, and variants you want to realize. You can make your selection by using an alphabetical index or a full-text search. It is also possible to see all scenarios for a certain solution. You will then get a list of the alternative ways to realize these scenarios. You can also search for the identified business functions of a SAP enhancement package.

   In the following steps we chose the scenario *Billing Analysis in ERP* as an example.
4. Add the scenario *Billing Analysis in ERP* to the *Selected Scenarios/Processes/Variants* list and choose *Show Realization Alternatives*. The SCL/PCL then lists the different possibilities. With options like *Validity* you can switch between possible and

impossible realization alternatives. The *Optional Comp.* dropdown list helps you to find the minimum required SAP product versions.

A.2 Media List

You can find the Media List at `http://service.sap.com/instguides` → *SAP Business Suite Applications* → *SAP SCM* → *SAP SCM Server* → *Using SAP enhancement package 2 for SAP SCM 7.0 Server* → *Media List*.

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