

Reading Sample

This chapter highlights the business processes enabled by SAP S/4HANA, such as master data simplifications, improvements to manufacturing functionality, and reporting.

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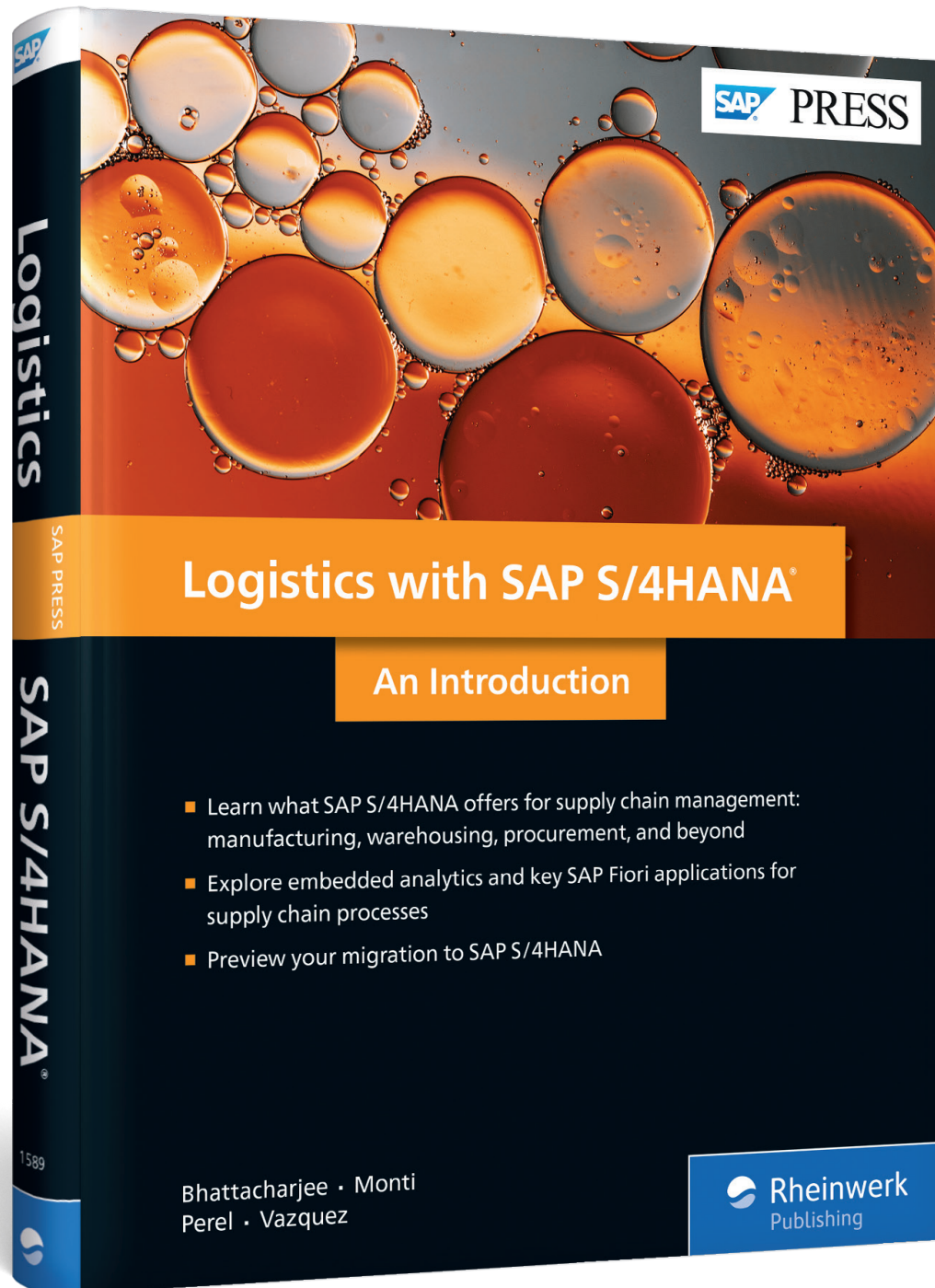
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Chapter 3

Manufacturing

Most of the functionality enabled via SAP S/4HANA in the manufacturing space falls in the traditional SAP ERP Production Planning module. In some cases, the functionality is very similar to the SAP Business Suite but has been enabled via SAP Fiori apps. However, some new functionality has been added to enhance planning and production execution business processes.

Today's manufacturing world faces numerous challenges, such as short lead times with end customers and ever-increasing complexity in customer requirements, rapid changes in manufacturing technologies, and growing numbers of regulations.

SAP S/4HANA offers many great tools to help the manufacturer adapt to the always-changing manufacturing landscape. SAP S/4HANA allows for more modern and advanced planning tools so organizations can better plan, manage, and monitor production. Performance improvements in traditional MRP programs allow for planning departments to see data in near real time and react accordingly. These performance improvements also allow planning departments to perform more what-if analysis.

In discussing manufacturing, this chapter highlights the business processes enabled by SAP S/4HANA's manufacturing functionality. It begins with an overview of the manufacturing process and explains important master data simplifications (the material master and bill of materials [BOM]). The chapter then explores the manufacturing functionality (material requirements planning [MRP] and production), calling attention to places where substantial improvements have taken place and to relevant operational and analytical reports and SAP Fiori apps. The chapter ends with an explanation of the manufacturing reports on equipment effectiveness and real-time manufacturing the data.

3.1 Manufacturing Basics

Within SAP S/4HANA, the fundamental Production Planning functionality hasn't changed. SAP S/4HANA offers enhanced functionality to make the processes more robust, and the addition of the SAP Fiori apps allows for an improved end-user experience. These SAP Fiori apps address the traditionally limited functionality in SAP ERP, such as capacity planning and MRP exception management.

3.2 Master Data Simplifications

This section highlights specific master data functionality in SAP S/4HANA. Within manufacturing in SAP S/4HANA, changes have been introduced to the material master format and some of the structured data on the MRP views. A significant change with SAP S/4HANA is the requirement in Production Planning to have production versions for all produced materials.

3.2.1 Material Master

A number of changes have been made to the material master within SAP S/4HANA. The first change is the ability to determine material master character length. This is a configurable value that defaults to 18 characters but can be extended to as many as 40 characters.

The configuration can be edited via **Logistics General • Material Master • Basic Settings • Define Output Format of Material Number** (see Figure 3.1).

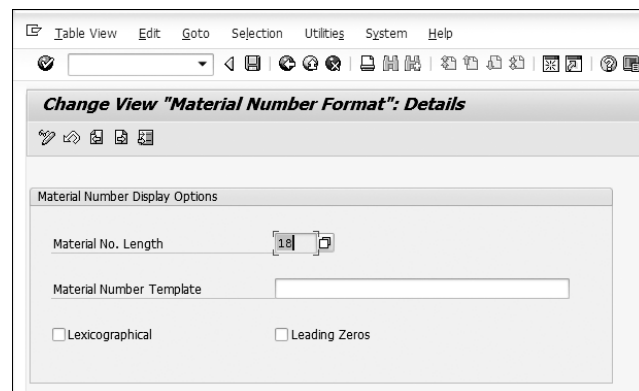


Figure 3.1 Configuration Settings for Material Master Character Extension

Additional changes exist in the material master on the **MRP** tabs. On the **MRP 1** tab, the **Lot Size Unit of Measure** group has been removed. Within the retail industry set, this functionality is still enabled, as shown in Figure 3.2.

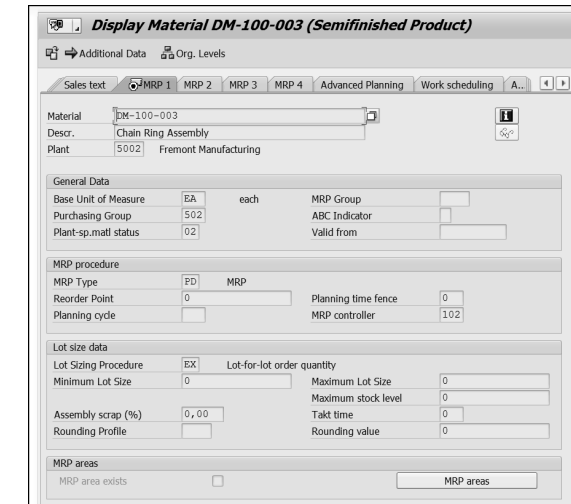


Figure 3.2 Material Master MRP 1 View

On the **MRP 2** tab, the **Quota Arrangement** field has been removed as SAP S/4HANA always considers quota arrangements active. As shown in Figure 3.3, the **MRP 2** view doesn't contain the **Quota Arrangement** field.

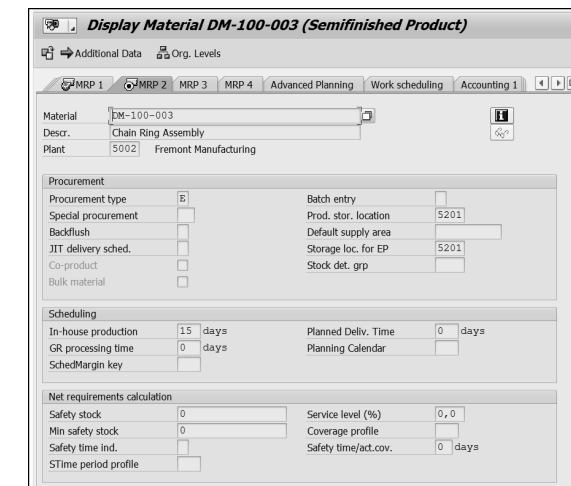


Figure 3.3 Material Master MRP 2 View

Changes in the **MRP 4** view include the addition of the **Repetitive manufacturing/ assembly/deployment strategy** grouping (see Figure 3.4).

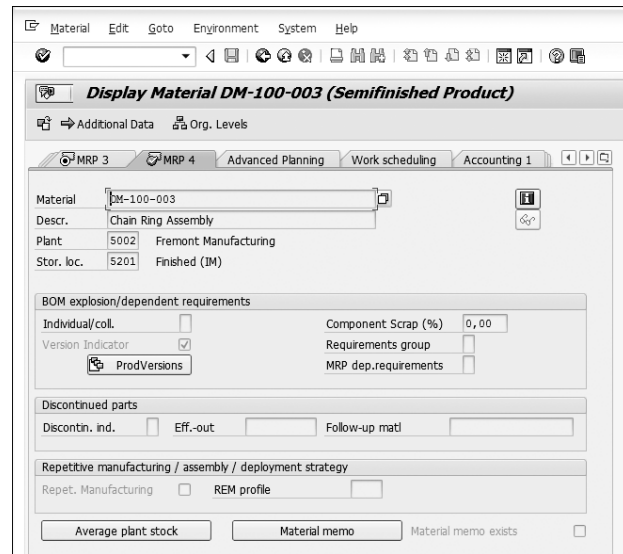


Figure 3.4 Material Master MRP 4 View

The following fields have been removed from the MRP views: **Action Console**, **Fair Share Rules**, **Push Distribution**, and **Deployment Horizon**.

3.2.2 Bill of Materials and Production Version

A very significant change has been made in SAP S/4HANA regarding the usage of BOMs and production versions. Going forward, BOM determination can only occur via a valid production version. Customizing for date validity determination is no longer leveraged for the BOM explosion. Only BOMs with valid production versions are considered during a BOM explosion. Therefore, a valid production version is needed for BOM explosion.

Maintaining the production version helps combine BOM and routing data, which allows for more streamlined processing in the future.

The Customizing that determines the items valid for BOM explosion now has the default value of **2 (Version with latest valid-from date)**, as shown in Figure 3.5. This Customizing is available in **Production • Define Modification Parameters • Basic Data • Bill of Material • Control Data for Bills of Material**.

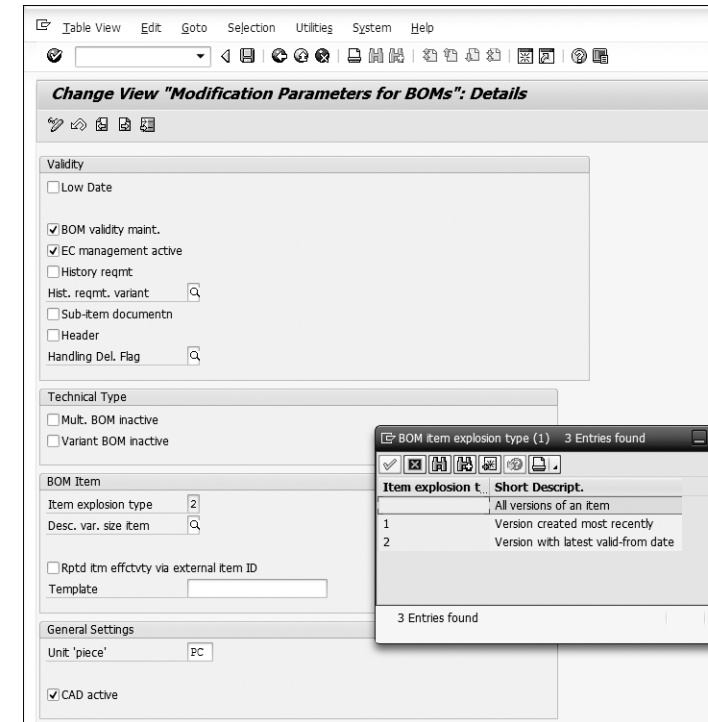


Figure 3.5 Customizing BOM Parameters

The BOM functions remain the same in SAP S/4HANA and leverage the same existing transaction codes. Figure 3.6 shows a BOM from the GUI.

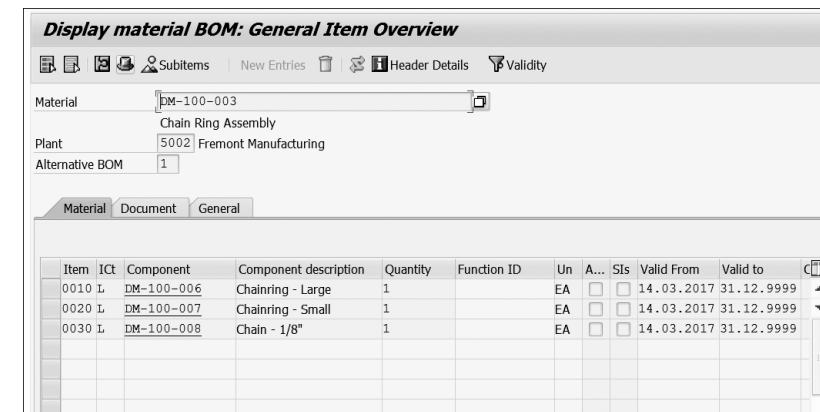


Figure 3.6 View of BOM in SAP S/4HANA

3.2.3 Work Centers

An SAP Fiori app called **Work Center** has been developed to help display and manage work centers. It provides detailed information for each work center and helps manage capacity, existing and upcoming operations, and queuing operations. The Work Center app provides detailed information such as plant and work center category, as well as overview information such as current capacity utilization (see Figure 3.7).

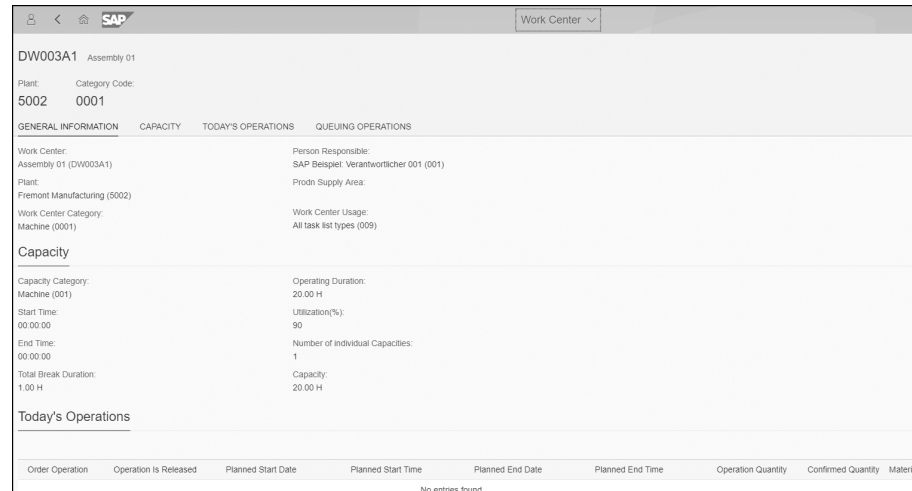


Figure 3.7 Work Center App: General Information Tab

The Work Center app also provides information on what operations are scheduled for the work center for that day on the **Today's Operations** tab, as shown in Figure 3.8.

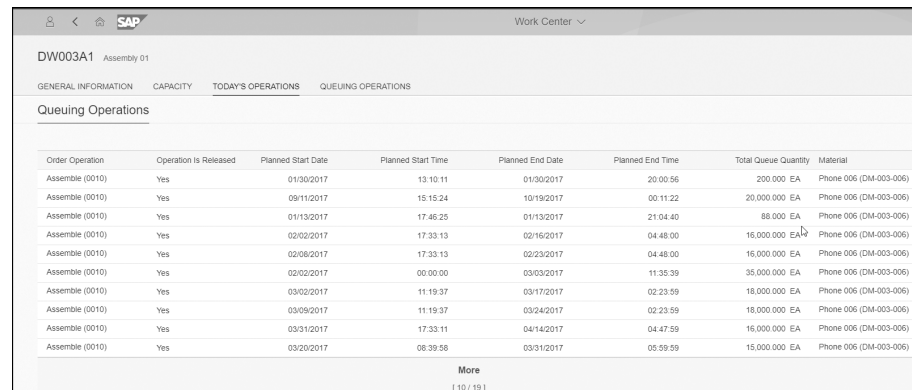


Figure 3.8 Work Center App: Today's Operations Tab

Modifications and management of work center data are still available in the SAP Business Suite by using the existing work center management transactions, as shown in Figure 3.9.

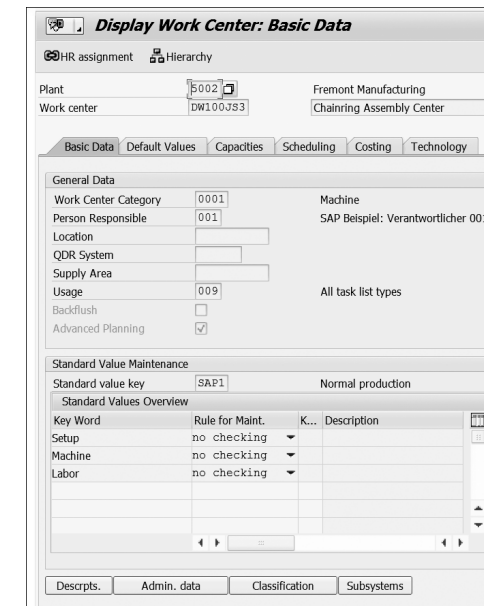


Figure 3.9 View of a Work Center in the SAP S/4HANA GUI

Standard routing functionality exists via the GUI, which includes creation, change, and display of routings for a produced material (see Figure 3.10).

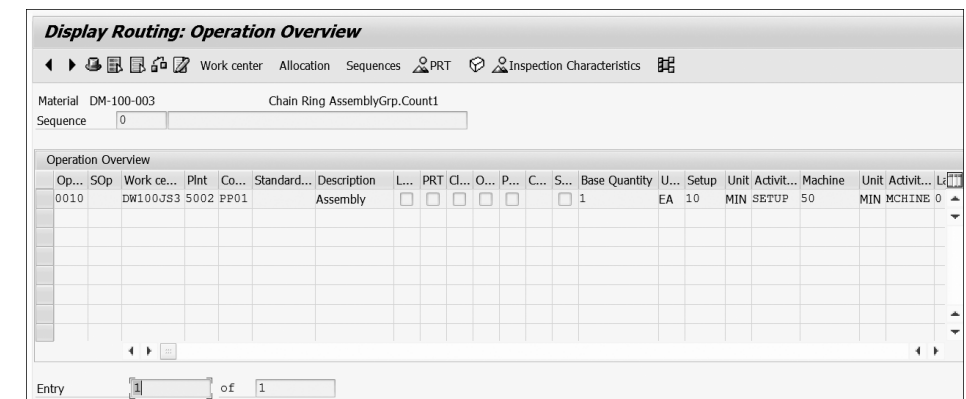


Figure 3.10 View of Routing in SAP S/4HANA

3.2.4 Removed and Interim Solution Manufacturing Functionality

A few functions in manufacturing have been removed in SAP S/4HANA. Storage location MRP isn't possible in SAP S/4HANA. SAP S/4HANA can plan only at the plant and MRP area level. In addition, net change planning inside the planning horizon (processing key NETPL) isn't available in SAP S/4HANA.

Functionalities that haven't been removed but are considered interim solutions include Logistics Information Systems (LIS); Sales & Operations Planning (S&OP), which is replaced with IBP; and forecast-based planning (MRP type **VV**), which is replaced with MRP Type Planning.

3.3 Material Requirements Planning

MRP has been completely overhauled in SAP S/4HANA. MRP is an established technology used by many companies over many years that is dependent on long-running jobs and only provides static information on a daily or weekly basis. With the performance enhancements to the MRP job and the introduction of the SAP Fiori app MRP Cockpit, the planning function has been redefined in SAP S/4HANA.

This section highlights the performance changes and their impacts on how MRP is run, as well as the simplified sourcing functionality. We'll also deep dive into the new SAP Fiori apps used within the MRP Cockpit and how they influence planner operations.

3.3.1 Performance Improvements

Many factors influence the duration of an MRP run, such as the number of materials, the complexity of the BOMs, and the total dependent requirements. To speed up the performance of the MRP runs, SAP has removed the aggregation functions traditionally stored in tables `ROHD` and `RQIT` in addition to the table `MDRI`.

3.3.2 Simplified Sourcing

With SAP S/4HANA, the process of source determination has been simplified significantly. The possible sources of supply have been reduced to the following: production versions, delivery schedules, purchasing contracts, and Purchase Info Records (PIRs).

Here are some examples of functional changes. Production versions are the only source of supply for in-house production materials. The material master attribute selection method has been removed (table field `MARC-ALTSL`). Subsequently, routings are determined via the production version versus previously allowed functions in the SAP Business Suite logic.

For purchased materials, the functionalities for source list and quota arrangements have also been changed. Quota arrangements are always considered, and source list management has changed. If a valid purchasing contract or info record exists, MRP will consider this record even if it's not updated in the source list.

3.3.3 Material Requirements Planning Cockpit

Redefining the MRP process includes more than changes to the technical mechanics of the MRP run; it also includes a completely redefined user experience for the material planners. The MRP Cockpit is a series of SAP Fiori apps developed to provide the planning group with all relevant information in one convenient location. The MRP Cockpit can be customized for each MRP controller.

Within this SAP Fiori app, the material planner can view and react to all material planning situations, including material shortages, upcoming material shortages, delayed inbound material, and current stock situations.

Manage Material Coverage App

The Manage Material Coverage app is very similar to the traditional MRP stock requirements list view transactions. This SAP Fiori app allows planning to see the current stock situation for a material in a linear model. It shows all planning objects in SAP S/4HANA and allows the planner to make decisions on material positions (see Figure 3.11).

The Manage Material Coverage app also offers a display of the inventory position in a chart format (see Figure 3.12). The chart format display shows a linear model by day of inventory positions. When the inventory positions drop below zero, this acts as an indicator to the planning group that action is needed to resolve the potential shortage.

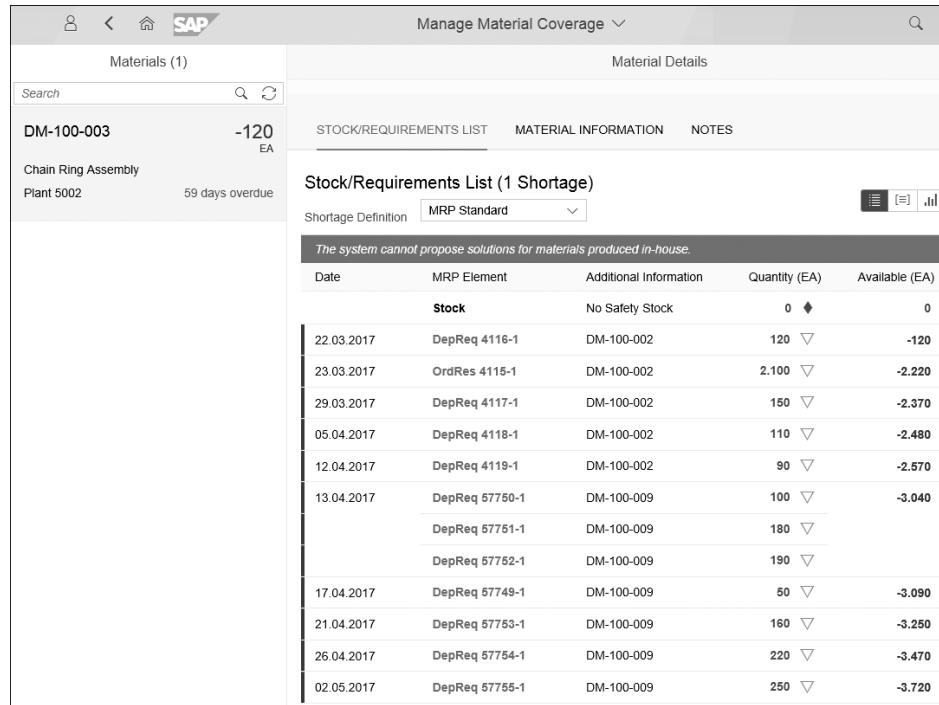


Figure 3.11 Manage Material Coverage App

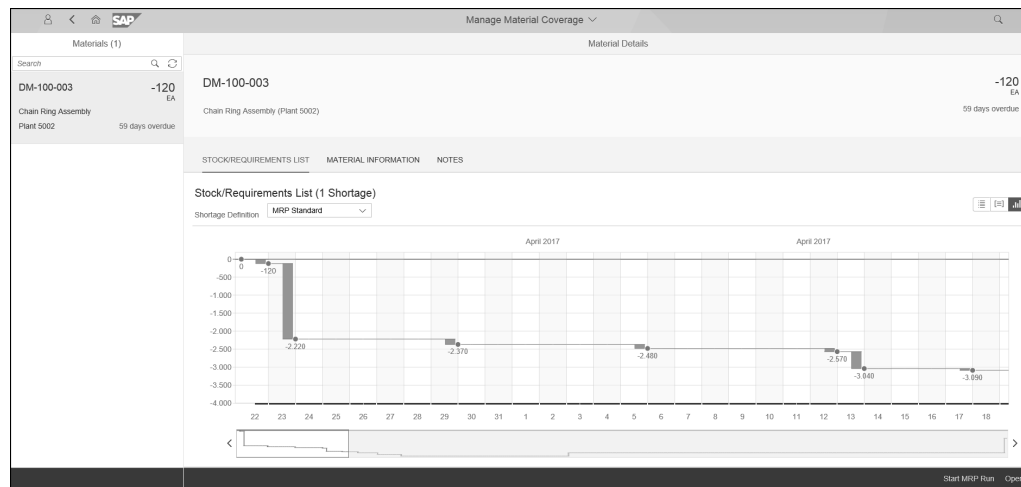


Figure 3.12 Manage Material Coverage App: Table View

This SAP Fiori app also offers material information. The **Material Information** tab shows the inventory position via a **Stock Availability** status bar (Red – Yellow – Green), as shown in Figure 3.13. This inventory position status bar is a common tool offered in numerous planning apps.

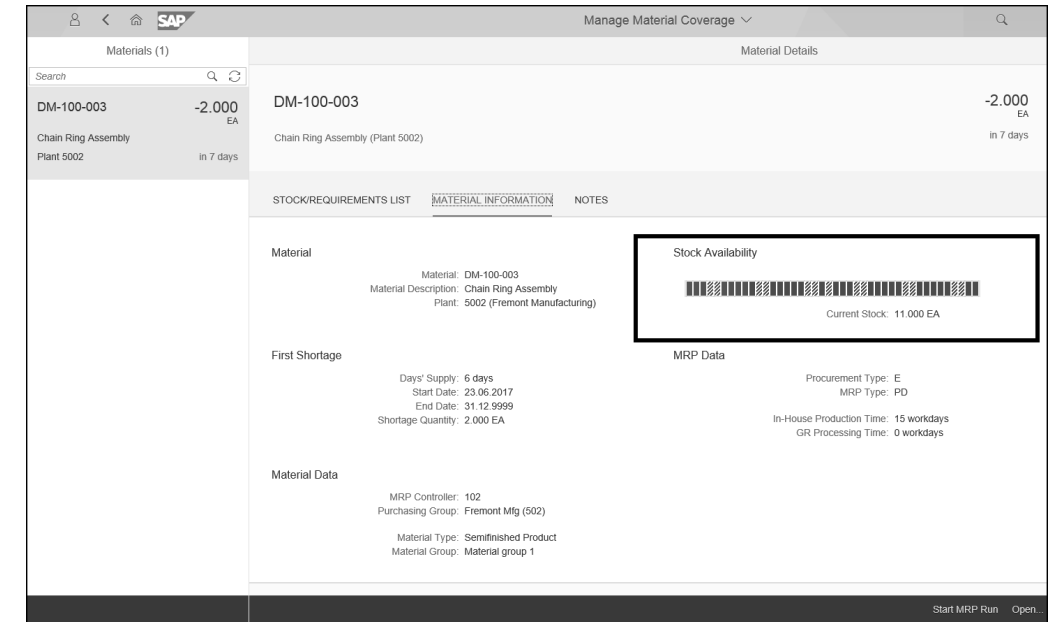


Figure 3.13 Manage Material Coverage App: Material View

The Change Planned Order app in SAP S/4HANA allows the planner to change planned orders directly from the app landing page (see Figure 3.14).

All of the standard functionality to modify a planned order in the SAP Business Suite exists in the Change Planned Order app. Functions such as firming the planned order or changing the dates are all available in the app (see Figure 3.15).

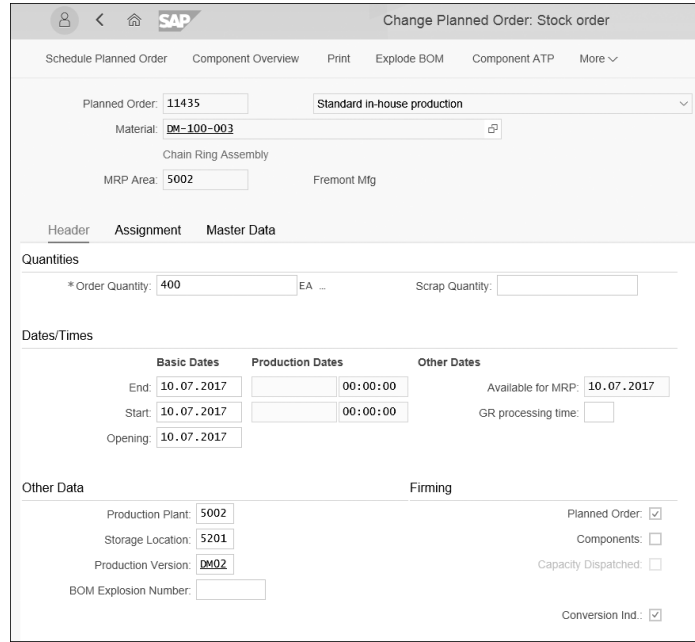


Figure 3.14 Change Planned Order App

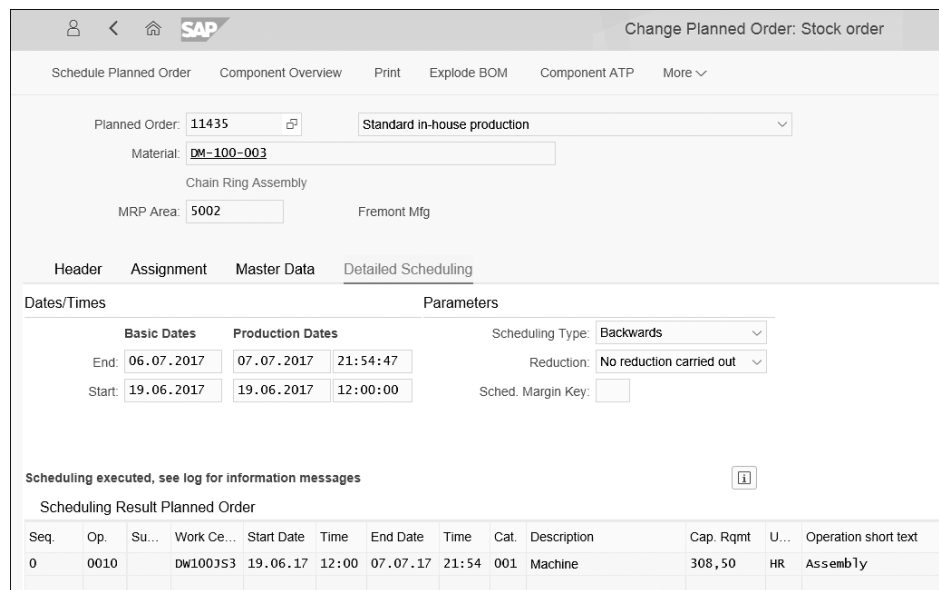


Figure 3.15 Change Planned Order Detailed Scheduling Tab

The Display Production Orders app in the SAP S/4HANA allows the planner to view existing production orders (see Figure 3.16). This app is very similar to Transaction CO03.

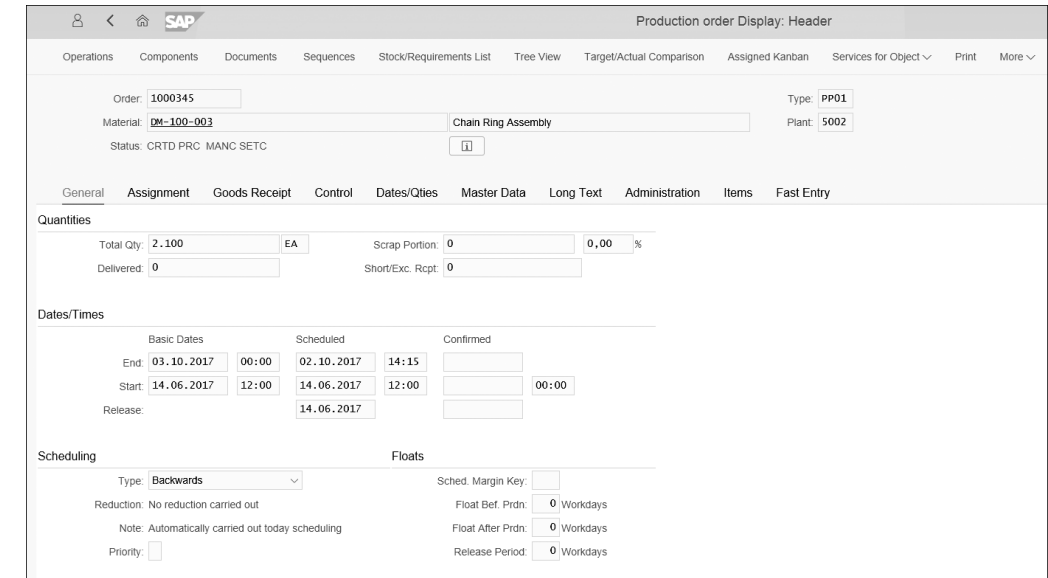


Figure 3.16 Display Production Orders App

Monitor Production Orders

The Monitor Production Orders app is provided to allow a planner to view relevant production orders to determine if all production is on schedule for completion (see Figure 3.17).

Monitor Internal Requirements

With the Monitor Internal Requirements app shown in Figure 3.18, you can ensure that components are available in the right quantity and in time so that internal requirements originating from production orders, process orders, maintenance orders, and network orders can be fulfilled. You can specify a shortage definition to determine which receipts and requirements are included in the coverage calculation as well as a time horizon to limit the scope you want to check.

Status	Material	Start	End	Open Quantity	Order Status	Material Delay (Working Days)	Missing Components	Component Coverage (Working Days)	Delay in Process (Working Days)
Released	SC-001-003 Blue	28.02.2017	06.03.2017	2,000 EA	Released	80	1	75 days late	75
Released	DM-003-002 Phone 002	20.03.2017	21.03.2017	1 EA	Released	58			61
Released	DM-100-002 Bicycle	23.03.2017	27.07.2017	2,100 EA	Released	91	2	58 days late	58
Released	DM-004-0024 Headset	24.03.2017	28.03.2017	1 EA	Released	65	3	57 days late	57
Released	DM-004-0024 Headset	29.03.2017	30.03.2017	1 EA	Released	57	12	54 days late	54
Released	DM-004-0024 Headset	29.03.2017	30.03.2017	1 EA	Released	57	12	54 days late	54
Released	DM-004-0026 Audio - Noise cancellation	29.03.2017	30.03.2017	1 EA	Released	54	2	54 days late	54
Released	DM-004-0026 Audio - Noise cancellation	29.03.2017	30.03.2017	1 EA	Released	54	2	54 days late	54
Released	DM-105-002	04.04.2017	05.04.2017	9 EA	Released				50

Figure 3.17 Monitor Production Orders App

Component	Requirement Date	Quantity Overview	Open Quantity	Missing Quantity	Coverage Status (Working Days)	Affected Order
SC-002-003 Blue RM	28.02.2017	2,000 EA	2,000 EA	75 days late		PrdOrd-1000100 SC-001-003
DM-100-004 Bicycle Frame	23.03.2017	2,100 EA	1,900 EA	58 days late		PrdOrd-1000201 DM-100-002
DM-100-005 Bicycle Wheels	23.03.2017	4,200 EA	3,700 EA	58 days late		PrdOrd-1000201 DM-100-002
DM-007-901 Battery 007-901	05.04.2017	10 EA	10 EA	49 days late and uncovered		PrdOrd-1000241 DM-007-010
DM-007-903 Packaging Kit 007-903	05.04.2017	10 EA	10 EA	uncovered		PrdOrd-1000241 DM-007-010
DM-004-0028 DM-004-0028	08.05.2017	400 EA	400 EA	28 days late		PrdOrd-1000305 DM-004-0027
DM-004-0028 DM-004-0028	08.05.2017	4 EA	4 EA	28 days late		PrdOrd-1000305 DM-004-0031
DM-008-011 Base 011	17.05.2017	990 KG	990 KG	uncovered		PrdOrd-1000311 DM-008-010
DM-008-011 Base 011	30.05.2017	198 KG	198 KG	uncovered		PrdOrd-1000323 DM-008-010

Figure 3.18 Monitor Internal Requirements App

Monitor External Requirements

With the Monitor External Requirements app shown in Figure 3.19, you can monitor the uncovered requirements originating from sales orders and stock transport orders in a selected area of responsibility. You can specify a shortage definition and a time horizon to determine which uncovered external requirements you want to check.

Material	Requirement Date	Quantity Overview	Open Quantity	Missing Quantity	Coverage Status (Working Days)	Affected Order
DM-004-AAATP7 Burger AATP demo	28.02.2017	500 EA	500 EA	75 days late		CusOrd-128-10 Terre Haute Distribution
DM-010-002 IT - MC40 devices - Cycle Count	01.03.2017	100 EA	100 EA	uncovered		Ord.DS-450000137-10 Memphis Distribution Center
DM-003-001 Phone 001	03.03.2017	500 EA	500 EA	72 days late		Ord.DS-450000258-10 Memphis Distribution Center
DM-003-AAATP TEst for aATP	08.03.2017	1 EA	1 EA	69 days late		Ord.DS-450000166-10 Memphis Distribution Center
DM-003-001 Phone 001	09.03.2017	1,000 EA	2 EA	68 days late		CusOrd-28-10 Terre Haute Distribution
DM-010-002 IT - MC40 devices - Cycle Count	09.03.2017	100 EA	100 EA	uncovered		Ord.DS-450000165-10 Memphis Distribution Center
DM-003-AAATP TEst for aATP	13.03.2017	4,200 EA	4,200 EA	66 days late		CusOrd-136-10 Mount Pleasant Supply
DM-003-AAATP TEst for aATP	13.03.2017	3,000 EA	3,000 EA	66 days late		CusOrd-135-10 Terre Haute Distribution
DM-003-AAATP TEst for aATP	13.03.2017	2,500 EA	2,500 EA	66 days late		CusOrd-134-10 Terre Haute Distribution

Figure 3.19 Monitor External Requirements App

Net Segments and Net/Individual Segments

When using the Net Segments app, all of the planning elements active for that material are summed and displayed as one total line. When using the Net/Individual Segments app, the specific planning elements that are influencing the planning run are displayed on each line.

Monitor Material Coverage

With this SAP Fiori app, you can monitor all the materials in a selected area of responsibility (see Figure 3.20). You can specify a shortage definition to determine which of

the materials have shortages. You can use the default filter **Time till Shortage** to check the coverage of materials within a specific time frame.

Material ID	Description	Vendor	Date	Quantity	
DM-003-AA TP	TEst for aATP	3 Vendors	13.03.2017	1.796 EA	
DM-100-002	Bicycle		20.03.2017	2.100 EA	
SC-002-002	Yellow RM		21.03.2017	18.000 EA	
SC-002-001	Green RM	Bunzl (Fixtures and Equipment)	21.03.2017	16.858 EA	
DM-05-01	Motor 001	Fremont Manufacturing	A002	21.03.2017	9.975 EA
DM-100-008	Chain - 1/8"		21.03.2017	380 EA	
DM-100-007	Chainring - Small		21.03.2017	80 EA	
DM-003-002	Phone 002		21.03.2017	11 EA	
DM-100-006	Chainring - Large		22.03.2017	70 EA	
DM-100-005	Bicycle Wheels		23.03.2017	3.940 EA	
DM-100-004	Bicycle Frame		23.03.2017	2.020 EA	
DM-003-019	Chip 19		24.03.2017	26.367 EA	
DM-003-018	Board 18		24.03.2017	26.317 EA	
DM-007-901	Battery 007-901	5001	A001	05.04.2017	10 EA
DM-007-903	Packaging Kit 007-903			05.04.2017	10 EA
DM-007-010	Tablet 007-010			05.04.2017	3 EA
DM-100-009	Mountain Bike			10.04.2017	2.100 EA
DM-003-006	Phone 006			17.04.2017	888 EA
DM-004-AA TP7	Burger ATTP demo			17.04.2017	500 EA
DM-500-501	Headset	Fremont Manufacturing	A002	28.04.2017	500 EA
DM-004-0031	DM-004-0027			01.05.2017	100 EA
DM-004-0028	DM-004-0028			08.05.2017	804 EA
DM-008-011	Base 011			17.05.2017	990 KG
DM-004-0027	DM-004-0027			01.06.2017	100 EA

Figure 3.20 Monitor Material Coverage App

Display MRP Material Issues

With this SAP Fiori app, you can view materials which has issues in the last MRP run (see Figure 3.21). This tool is used by production planners to verify that all materials in their scope of planning have been planned. Certain data settings or unintentional system settings can prevent items from being planned. This app shows what materials were excluded from the planning run. This app also includes the needed information to address the issue that prevented the item from being planned.

Section	Details
Material	DM-006-001
Material Description	Tablet 006-001
Plant	5002
Plant Name	Fremont Manufacturing
Message	Message: No valid production version found, BOM explosion not possible
Message Type	Warning
Message ID	PPH_MRP
Message Number	226
MRP Controller	101
MRP Controller Name	Finished Good
Last MRP Time	06/21/2017, 12:21:58
Last Ping File Entry Update	04/06/2017, 15:17:34
MRP Type	MRP
Lot Sizing Procedure	Lot-for-lot order quantity

Figure 3.21 Display MRP Material Issues App

3.3.4 Management of Change Requests

Management of change requests is a suite of SAP Fiori apps that allow for a smooth handoff between planning and procurement. This function allows planners to view procurement items and propose changes to the purchased items. These changes go to the procurement department and/or vendor for approvals.

With the Manage Change Request app, you can follow up on changes you've requested from your vendor as well as place requests for changes you've collected. You create change requests when using the apps for managing materials or uncovered requirements. You can request that the vendor change the quantity or delivery date in a purchase order or stock transport order so that material availability can be ensured and customer requirements can be fulfilled. At the end of the process, you either apply the changes, which automatically updates the order, or you discard the request.

The change requests are managed in three statuses: **New**, **Requested**, and **Answered**. There is a unique SAP Fiori app for each status in addition to an app for all statuses (see Figure 3.22).

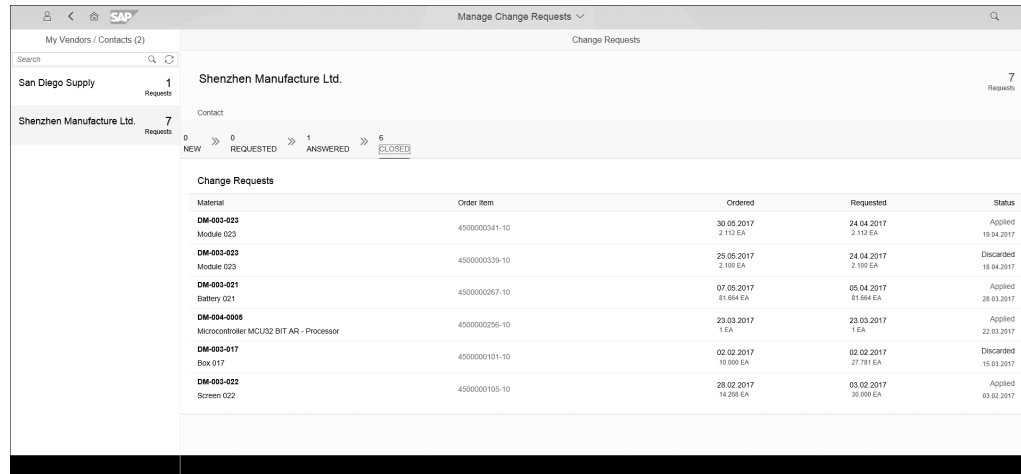


Figure 3.22 Manage Change Requests: All App

3.3.5 Integrated Production Planning and Demand Scheduling

Another major advancement in SAP S/4HANA is the inclusion of the traditional Advanced Planning and Optimization (APO) Production Planning and Demand Scheduling (PP/DS) functionality. This functionality is included in the standard SAP S/4HANA offering. This embedded functionality still requires the Core Interface (CIF) to send master data to PP/DS, but the transactional data and execution are available in PP/DS in real time. In addition, a number of SAP Fiori apps have been included to help manage the PP/DS functionality.

Monitor Capacity Utilization

The Monitor Capacity Utilization app is included to help monitor resources within a specific responsibility group (see Figure 3.23). The list provides you with a quick overview of which resources are already being fully utilized or have a capacity overload, so you can react quickly to critical situations. Furthermore, you can easily discern which resources have a capacity underload and whose utilization is in the normal range.

Production Scheduling Board

The Production Scheduling Board app provides access to Model Mix planning from PP/DS (see Figure 3.24). This functionality is planned as the long-term replacement for many SAP ERP classic planning functionalities.

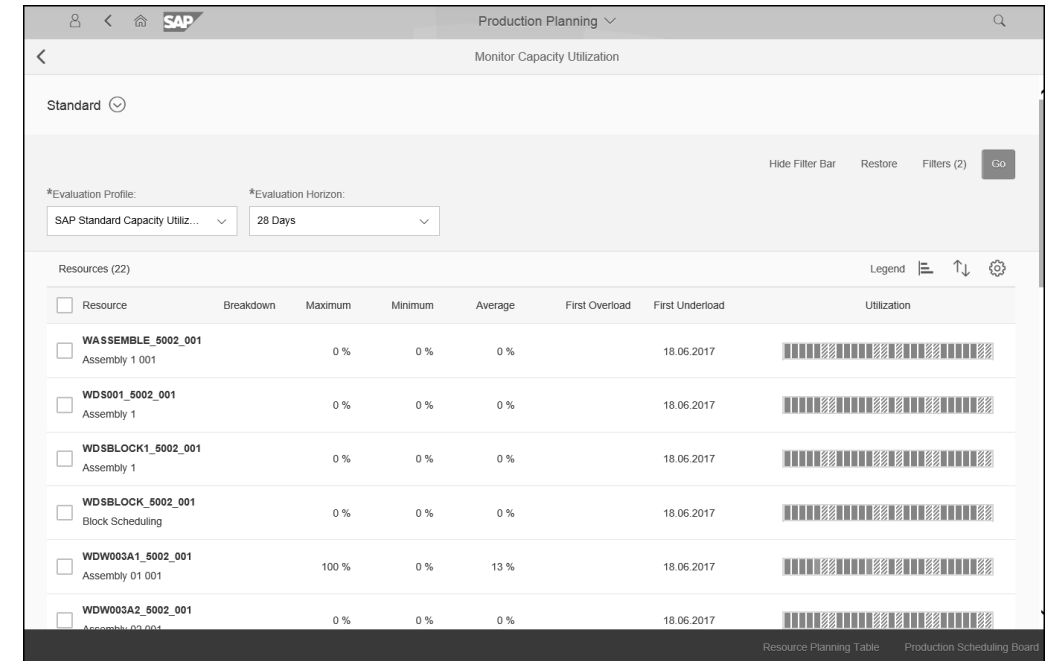


Figure 3.23 Monitor Capacity Utilization App

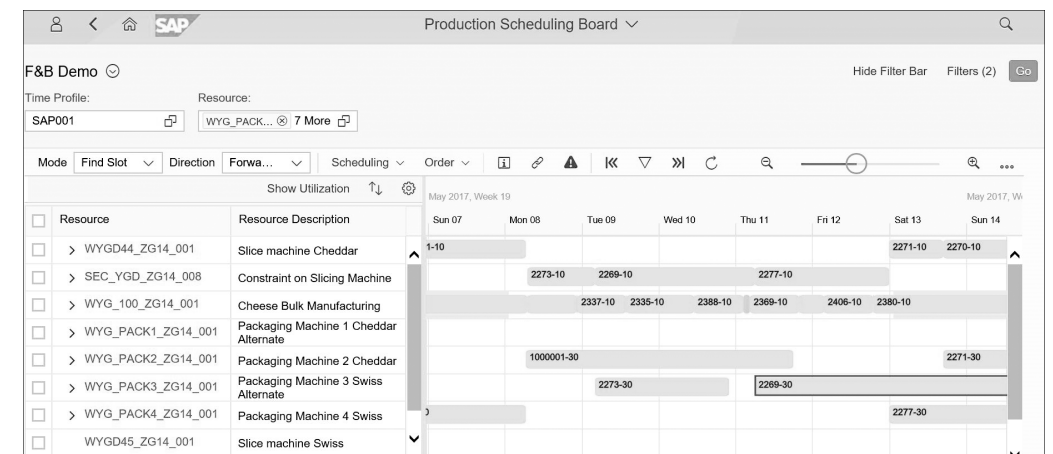


Figure 3.24 Production Scheduling Board App

3.3.6 Demand-Driven Replenishment

SAP S/4HANA introduces the concept of demand-driven replenishment to offer new tools to help modern organizations change.

Demand-driven replenishment provides the ability to classify the products according to demand history versus traditional forecasting.

Demand-driven replenishment consists of a number of steps. First, is the identification and categorization of relevant materials for demand-driven replenishment. Second is the determination of buffer stock levels. Third is the execution of demand driven MRP and review of MRP results.

The steps mentioned above are supported by a number of SAP Fiori apps. The identification and categorization of demand-driven replenishment materials is supported by the Schedule Product Classification, Mass Maintenance of Products, and Schedule Lead Time Classification of Products apps. The determination of buffer stock levels is supported by the Schedule Buffer Proposal Calculation and Manage Buffer Levels apps. The running of demand-driven MRP is executed using the standard MRP cockpit suite of apps.

3.4 Production Execution

Within the SAP S/4HANA offering, there have been a number of updates to the traditional shop floor execution. Most of the core SAP ERP functionality exists as it has over many years, but some critical elements and SAP Fiori apps have been offered to help manage scrap, production orders, and repetitive manufacturing.

3.4.1 Shop Floor Control

To make the end-user interface easier to use, a Production Order Confirmation SAP Fiori app has been provided. In addition, a dashboard application for monitoring production orders has been enabled. In Figure 3.25, the Production Order Confirmation App is displayed for capturing time and materials used in the production process. This app is similar to the traditional Business Suite CO11N transaction code.

With this SAP Fiori app, you can monitor the status of the production orders or process orders. Two tiles are provided for this app, one for each order type. In the list, you can view whether materials will be finished too late for the pegged requirements, whether the components required for these materials won't be available in time, and

whether milestones and operations are delayed. The system determines whether materials will be finished too late based on the shortage definition you select. You can use filters to limit the scope of your selection.

To Be Confirmed		Confirmed to Date		Planned for Conf.	
Date	Time	Date	Time	Date	Time
Start Execution:	00:00:00	00:00:00	00:00:00	02/06/2017	20:31:18
Finish Execut.:	00:00:00	00:00:00	00:00:00	02/06/2017	24:00:00
Forecast End:	00:00:00	00:00:00	00:00:00		

To confirm	Unit	Σ Already confirme	Σ Planned conf.	Unit
Break time:		0.000	0.000	

Figure 3.25 Production Order Confirmation App

3.4.2 Scrap Management

Within SAP S/4HANA, a series of scrap reports and scrap monitoring tools have been enabled that help production leadership in managing the root causes of scrap within the production process.

Scrap Reason

With the Scrap Reason app, you receive alerts on Key Performance Indicators (KPIs), and you can perform a step-by-step data analysis from different perspectives to identify the root causes for scrap in your production process. The report provides you

with information on the distribution of actual scrap recorded in production confirmations in the dimensions of time, work center, material, plant, and reason for variance. As a production engineer, you can analyze this confirmed scrap and rework. By analyzing the reasons or root causes of the greatest loss of production, you can prevent problems in the future.

The initial screen of the Scrap Reason app displays the scrap percentages based on the work centers in the functional area of the app user (see Figure 3.26).

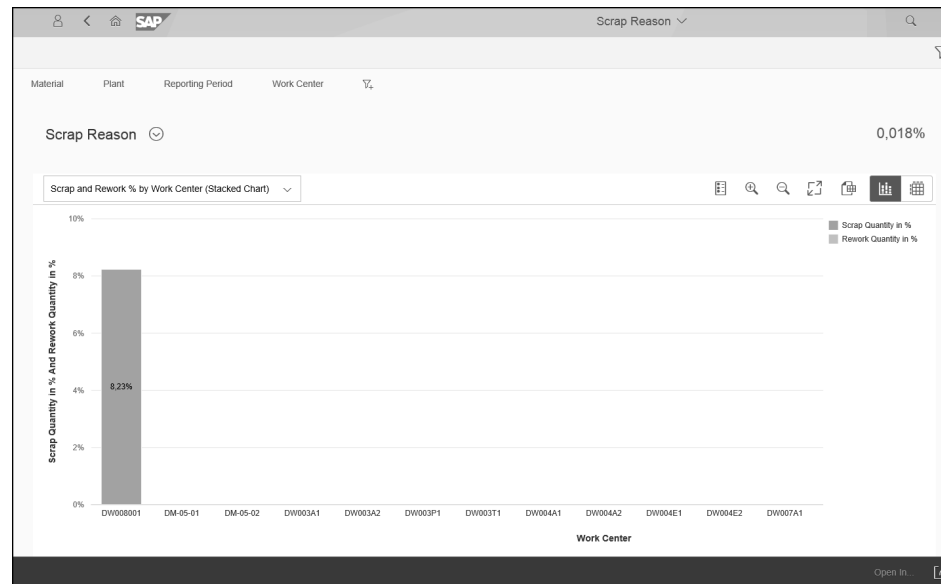


Figure 3.26 Scrap Reasons App

The Scrap Reasons app can be manipulated in a number of ways. First, you have a number of alternative data points. The following is a list of standard scrap reporting metrics offered in the Scrap Reasons app (see Figure 3.27):

- **Scrap and Rework % by Work Center (Stacked Chart)**
Displays the total of scrap and rework material issued to production orders for the corresponding work center in bar chart format.
- **Yield, Scrap, and Rework Qty by Entry Time (Line Chart)**
Shows the three critical production outputs—production yield quantity, scrap quantity, and rework quantity—in one line chart. This output aggregates the total quantities based on the selection criteria.

- **Yield, Scrap, and Rework % by Entry Time (Line Chart)**
Shows the three critical production outputs—production yield percentage, scrap percentage, and rework percentage—in one line chart. This output aggregates the total quantities based on the selection criteria.
- **Work Center: Scrap and Rework Qty (Stacked Chart)**
Shows the scrap and rework quantities per work center in a bar chart format.
- **Material: Scrap and Rework Qty (Stacked Chart)**
Shows the scrap and rework quantities per material in a bar chart format.
- **Material: Scrap and Rework % (Stacked Chart)**
Shows the scrap and rework percentage per material in a bar chart format.
- **Scrap by Reason Code (Donut Chart)**
Shows total scrap as a percentage based on the scrap reason code entered in a pie chart format.
- **Material Scrap by Reason Code (Tabular View)**
Shows total scrap as a percentage based on the scrap reason code entered in a table view format.
- **All Measures and Dimensions (Tabular View)**
Shows the yield, scrap, and rework values across all impacted work centers in a table view format.

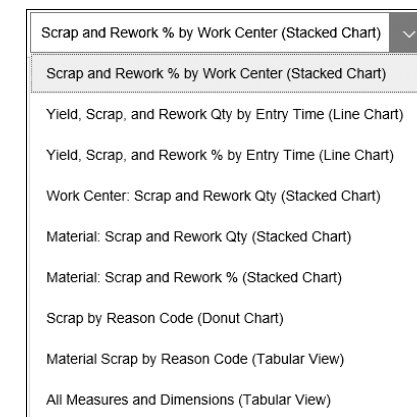


Figure 3.27 Display Options for the Scrap Reasons App

The reports can be displayed in both bar and line chart format (see Figure 3.28). The reports can be filtered based on a number of criteria, such as material, plant, reporting period, and work centers.

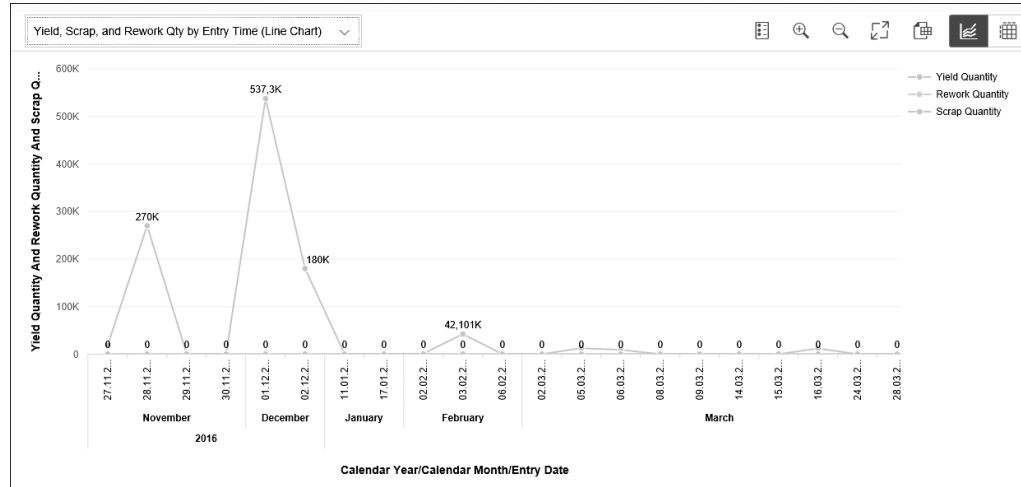


Figure 3.28 Scrap Reason Line Chart View

Material Scrap

With the Material Scrap app, you can compare actual scrap figures recorded in the production confirmations with the expected scrap that was defined in the material (see Figure 3.29). It allows you to implement a feedback loop for updating the expected scrap percentage in the material. The app shows the materials where the expected scrap percentage most differs from the actual scrap percentage.

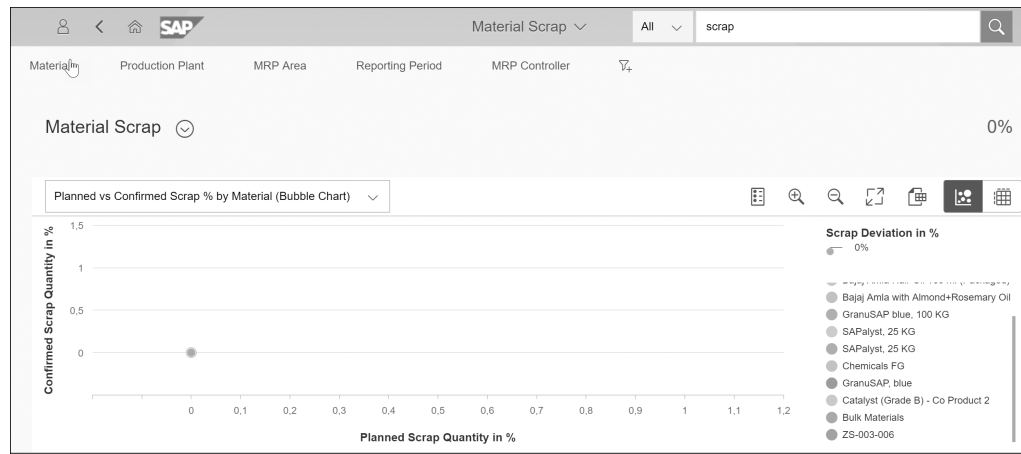


Figure 3.29 Material Scrap App

Operation Scrap

With the Operation Scrap app, you can compare actual scrap figures recorded in the production confirmations with the expected scrap that was defined in the routing operation (see Figure 3.30). It allows you to implement a feedback loop for updating the expected scrap percentage in the routing operation. The Operation Scrap app shows the work centers where the expected scrap percentage most differs from the actual scrap percentage.

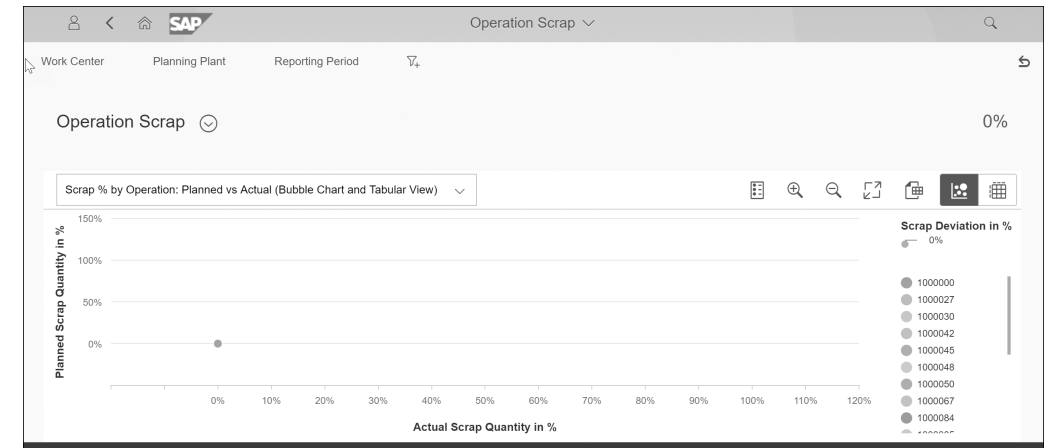


Figure 3.30 Operation Scrap App

Excess Component Consumption

With the Excess Component Consumption app, you can compare the expected component scrap percentage defined in the BOM item with the actual excess consumption recorded in the production confirmation. You can analyze the problems that created the largest excess component consumption in the past and search for means to prevent these problems in the future. Excess component consumption puts the component supply at risk but can be lowered by using this SAP Fiori app. Starting from the top-three materials with maximum component scrap deviation, you can perform a step-by-step analysis for a specific time period and uncover numerous insights to improve your planning and take other appropriate action to achieve a more reliable component supply for production.

3.5 Reporting in Manufacturing

The majority of the reporting changes in SAP S/4HANA in the manufacturing space are contained in the SAP Fiori apps as described in the preceding sections. This includes enhanced analytics on MRP and scrap measurements.

The SAP Overall Equipment Effectiveness Management report is an enhanced reporting function in SAP S/4HANA. The following subsection will detail the functionality offered for SAP OEE Management reporting.

3.5.1 SAP Overall Equipment Effectiveness Management

SAP OEE Management reporting is an industry standard reporting concept that combines information from production and maintenance to determine how well production operations are performing. Traditional manufacturing metrics focus on yield and scrap performance without taking maintenance or quality results into consideration to get an overall understanding of production. SAP OEE Management reporting attempts to integrate these components to help plant management understand the production throughput, the quality of the goods produced, and the effective management of the equipment used in the production process.

SAP OEE Management reporting attempts to break down complex manufacturing, quality, and maintenance metrics into a few key KPIs, which quickly allow for analysis of the data and corrective action.

The SAP OEE Management offering does require integration into the SAP Manufacturing Integration and Intelligence (MII) software component as a prerequisite for using the SAP Fiori apps offered.

When using the SAP OEE Management reporting tool, the Plant Level Analysis app is run to show the overall performance of the shop floor. This report utilizes predetermined color coding to indicate if a production line is operating effectively. If the color coding is showing as green, then the shop floor operations are executing as expected. If the indicators are yellow or red, this indicates a deviation that should be addressed. Figure 3.31 shows the plant-level indicators.

If you investigate the line level information based on the analysis at the plant level, more detailed information and line specific KPIs are provided (see Figure 3.32). The line-specific KPIs show the line capacity, the quality and performance of the line, and the SAP OEE Management KPI for the line. Based on the information obtained at the

line level, corrective action can be planned, either by changing production utilization on the line or by planning a maintenance on the equipment.

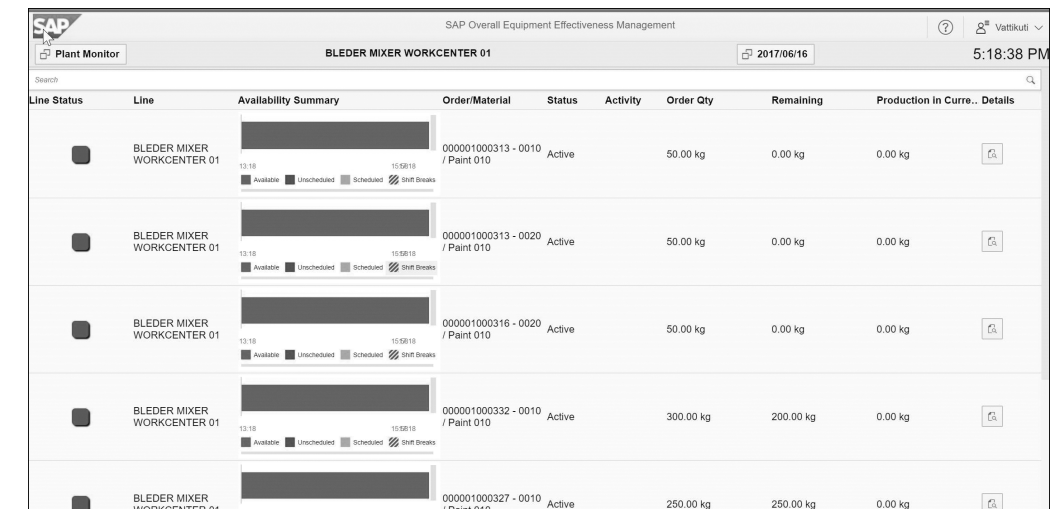


Figure 3.31 Plant-Level SAP OEE Management Reporting

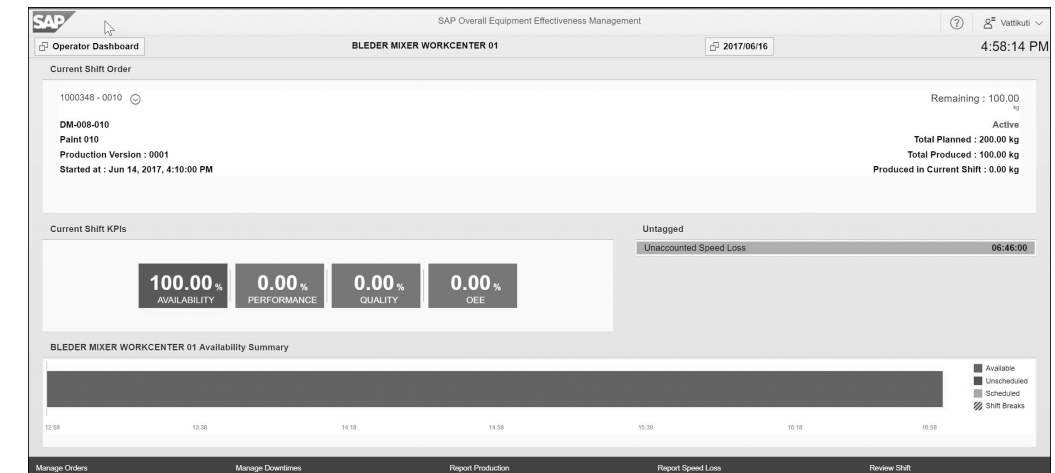


Figure 3.32 Work Center for SAP OEE Management Reporting

SAP OEE Management reporting is a tool that can help manage the shop floor with a focus on integrated and holistic performance. This functionality is enabled via SAP

S/4HANA as a standard offering with the integration of SAP MII. It allows plant leadership to quickly review how the plant is operating and react to data points quickly. It supports lean operations and best practices in the manufacturing space.

3.5.2 Demand-Driven Material Requirements Planning

MRP functionality and technology has been a major tool used by companies for more than 50 years. As businesses change, the technology used to help planning needs to evolve as well. SAP S/4HANA introduces the concept of Demand-Driven MRP (DDMRP) to offer new tools to help modern organizations change.

DDMRP uses strategically placed inventory buffers to decouple demand and supply, breaking the direct connection between dependencies. This dramatically reduces lead times and enables you to plan against actual demand (sales orders). Ironically, to protect and promote flow, you must strategically and purposefully slow or interrupt flow at certain critical points.

3.6 Summary

The manufacturing functionality in SAP S/4HANA has been significantly improved over functionality in the traditional SAP Business Suite. The key changes are the performance improvements to MRP and the corresponding SAP Fiori apps to monitor and enable MRP functionality. The changes in MRP alter the core processes material planners will perform in their daily activities. The changes will allow for real-time interaction with MRP and the ability to react immediately.

The inclusion of the embedded APO PP/DS functionality also allows for production schedulers to interact in SAP in real time.

Finally, the inclusion of the SAP Fiori apps in the manufacturing space have altered the end-user experience and can be tailored to end-user needs. These SAP Fiori apps provide a single point of entry and processing for all production employee needs.

In the next chapter we will discuss Warehouse Management functionality supported by SAP S/4HANA.

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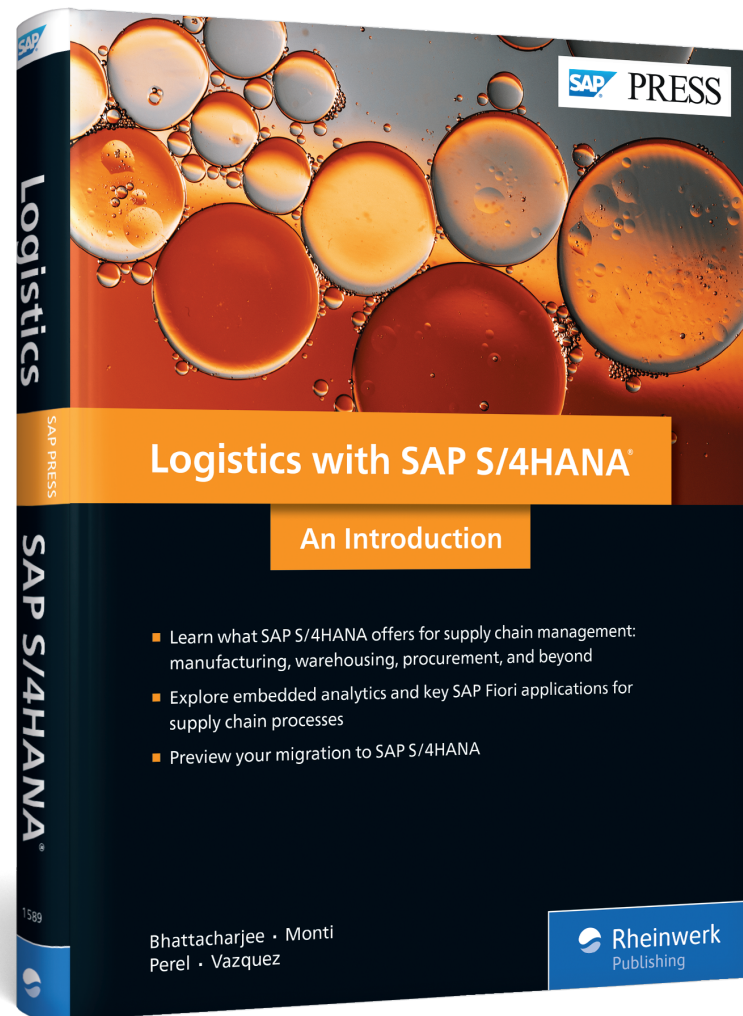
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