Production Planning and Execution (PP) Case Study

This case study explains an integrated production planning and execution process in detail and thus fosters a thorough understanding of each process step and underlying SAP functionality.

MOTIVATION
The data entry requirements in the production planning exercises (PP 1 through PP 6) were minimized because much of the data already existed in the SAP system. This stored data, known as master data, simplifies the processing of business transactions. Examples for this were material master data, bills of materials, and routings.

In this case study, we will create consumption values for a finished product to plan and process a complete manufacturing cycle.

PREREQUISITES
Before you use this case study, you should be familiar with navigation in the SAP system.

In order to successfully work through this case study, it is not necessary to have finished the PP exercises (PP 1 through PP 6). However, it is recommended.

NOTES
This case study uses the Global Bike data set, which has exclusively been created for SAP UA global curricula.
CASE STUDY

Process Overview

**Learning Objective** Understand and perform a manufacturing process cycle.

**Scenario** In order to process a complete manufacturing process you will take on different roles within the Global Bike company, e.g. production supervisor, shop floor worker and plant manager. Overall, you will be working in the Materials Management (MM) and the Production Planning and Execution (PP) departments.

**Employees involved**
- Jun Lee (Production Supervisor)
- Hiro Abe (Plant Manager Dallas)
- Lars Iseler (Production Order Worker)
- Susanne Castro (Receiving Clerk)
- Sanjay Datar (Warehouse Employee)
- Michael Brauer (Shop Floor Worker 4)
- Jamie Shamblin (Cost Accountant)

Before you can start forecasting demand for your touring bike product group changes in the material master record of the bikes need to be maintained.

Afterwards you will create a 12-month sales and operations plan (SOP) for your product group, receive the production relevant goods from the storage location and issue goods to the production order.

In the last steps the completeness of the production is confirmed, produced goods are received in the storage location and costs assigned to the production order are reviewed.
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CASE STUDY

Step 1: Change Material Master Record

**Task** Prepare a material master record for Demand Planning.

**Short Description** In order to plan Global Bike’s deluxe touring bikes (black, silver and red) prepare their material master records by changing the MRP 3 and Forecast view.

**Name (Position)** Jun Lee (Production Supervisor)

To change a material’s view, follow the menu path:

**Menu path**

**Logistics ► Production ► Master Data ► Material Master ► Material ► Change ► Immediately**

In the Material field, find and select your red Deluxe Touring bike first.

If you do not remember its material number, position your cursor in the Material field and click on the search icon or press **F4**. Make sure you are on the Material by Material Type tab. Select Material Type **Finished Product** (FERT) and enter **###** in the Material field. Remember to replace ### by your three-digit number given by your instructor, e.g. *005 if your number is 005. Then, press Enter and select the red Deluxe Touring bike with a double click.

When your material number (DXTR3###) is entered in the Material field, click on ✓ or press Enter.

On the following screen, select **MRP 3 and Forecasting**.

Then, press Enter or click on ✓. The following screen will appear.
Find and select the Global Bike manufacturing facility in Dallas (DL00). Then, enter its Finished Goods Stor. Location (FG00). Press Enter or click on 

In the MRP 3 view, enter Strategy group 40 (Planning with final assembly), Consumption mode 1 (Backward consumption only) and Bwd.consumption per. 30.

Click on ☑️ to continue to the forecasting tab. Then, press Enter to acknowledge the warning message to check the consumption periods.

On the Forecasting tab, select Initialization pds 12, uncheck Reset automatically, check Param.optimization, select Optimization level F (Fine), Alpha factor 0.20, Beta factor 0.10, Gamma factor 0.30, and Delta factor 0.30.

Compare your entries with the screen capture shown below.
Historic consumption values already have been entered into the Global Bike system. You can view them on the Forecasting tab, select 
[Consumption values] . If you do not see the Total consumption column, press on [Total consumption] . Within the table you will see the Total Consumption for the periods 04.2010 to 03.2014. These values form the base for later forecasts within this case study.

Please note that within a productive system these values would have been updated based on the goods moved out of storage.

Click on [Main Data] to return to the overview.

Click on [ ] to save your entries for the red bike.

Repeat the same procedure for the silver and the black deluxe touring bike material master. Start with the silver bike (DXTR2###), then modify the black bike (DXTR1###).

Click on the exit icon [ ] to return to the SAP Easy Access screen.
## Step 2: Change Routing

**Task** Change a routing for a finished good.  

**Short Description** Change the routing for your red Deluxe Touring bike.  

**Name (Position)** Jun Lee (Production Supervisor)  

After the operational steps are laid out, the components must be allocated to the individual operations. This is a progressive process where each operation builds off the materials that entered production in the previous operations.

To change a routing, follow the menu path:

**Logistics ► Production ► Master Data ► Routings ► Routings ► Standard Routings ► Change**

Enter the material number for your red Deluxe Touring bike (DXTR3###). In the Plant field, enter Global Bike’s Dallas plant number (DL00). Please ensure that the Group field is empty. Then, press Enter or click on .

<table>
<thead>
<tr>
<th>Operation</th>
<th>Description</th>
<th>Sequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>0010</td>
<td>Material staging</td>
<td>0</td>
</tr>
<tr>
<td>0020</td>
<td>Attach seat to frame</td>
<td>1</td>
</tr>
<tr>
<td>0030</td>
<td>Attach handle bar assembly</td>
<td>2</td>
</tr>
<tr>
<td>0040</td>
<td>Attach derailleur gear assembly to wheel</td>
<td>3</td>
</tr>
<tr>
<td>0050</td>
<td>Attach front and rear wheel to chain</td>
<td>4</td>
</tr>
<tr>
<td>0060</td>
<td>Attach handlebars</td>
<td>5</td>
</tr>
<tr>
<td>0070</td>
<td>Attach pedals</td>
<td>6</td>
</tr>
<tr>
<td>0080</td>
<td>Tent bike</td>
<td>7</td>
</tr>
<tr>
<td>0090</td>
<td>Disassemble</td>
<td>8</td>
</tr>
<tr>
<td>0100</td>
<td>Pack bike</td>
<td>9</td>
</tr>
<tr>
<td>0110</td>
<td>Move to storage</td>
<td>10</td>
</tr>
</tbody>
</table>

Choose and select the following two materials.

<table>
<thead>
<tr>
<th>Item Overview</th>
<th>Quantity</th>
<th>Short String</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 0 0030 TRFR3###</td>
<td>2</td>
<td>EA L</td>
</tr>
<tr>
<td>0 0 0050 TRFR3###</td>
<td>1</td>
<td>EA L</td>
</tr>
<tr>
<td>0 0 0050 DG3###</td>
<td>1</td>
<td>EA L</td>
</tr>
</tbody>
</table>

Once you have selected the red touring frame (TRFR3###) and the touring seat kit (TRSK1###), choose .
In the following screen, in the Activity field enter operation **0020** and press Enter. Back on the Material Component Overview screen, you see that now both components have been assigned to operation 0020.

Repeat the same process for the other components and assign them to operations as shown below.

<table>
<thead>
<tr>
<th>Component</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRHB1### (touring handle bar)</td>
<td>0030</td>
</tr>
<tr>
<td>TRWA1### (touring aluminum wheel assembly)</td>
<td>0040</td>
</tr>
<tr>
<td>DGAM1### (derailleur gear assembly)</td>
<td>0040</td>
</tr>
<tr>
<td>CHAN1### (chain)</td>
<td>0050</td>
</tr>
<tr>
<td>BRKT1### (brake kit)</td>
<td>0060</td>
</tr>
<tr>
<td>PEDL1### (pedal assembly)</td>
<td>0070</td>
</tr>
<tr>
<td>WDOC1### (warranty document)</td>
<td>0100</td>
</tr>
<tr>
<td>PCKG1### (packaging)</td>
<td>0100</td>
</tr>
</tbody>
</table>

Click on and save your entries with .

Click on the exit icon to go back to the SAP Easy Access Menu.
**Step 3: Display Product Group**

**Task** Display a product group.

**Short Description** Display the product group (product family) for all your Deluxe Touring bikes.

**Name (Position)** Jun Lee (Production Supervisor)

A product group (product family) supports high-level planning. This way, it is not necessary to delve into the minutia of creating planning forecasts for every material in the company.

To display the deluxe touring bike product group, follow the menu path:

**Logistics ➤ Production ➤ SOP ➤ Product Group ➤ Display**

In the *Display Product Group: Initial Screen*, in the Product group field find and select your group for deluxe touring bikes. In order to do so, press the search icon (or pressed F4), enter ###* in the Material description field. Remember to replace ### with your three-digit number, e.g. enter 009* if your number is 009.

Then, press Enter or click on to display the search results. You should see five product groups already defined for your set of material master data (compare with the screen shown below).
Double-click on the line for deluxe touring bicycles to select the group.

Now that the correct product group (PG-DXTR###) is filled in, make sure that Plant DL00 is entered. Then, press Enter to display the product group details.

On this screen you can see that this product group defines proportions for three different bikes: the black, silver and red deluxe touring bike. For the black bike a share of 40% will be considered and 30% for the silver and the red bikes each.

Click on the exit icon (ลา) to return to the SAP Easy Access screen.
Step 4: Create Sales and Operations Plan

**Task** Create a sales and operations plan for a product group.

**Short Description** Create a 12-month sales and operations plan (SOP) for your product group.

**Name (Position)** Jun Lee (Production Supervisor)

A sales and operations plan (SOP) is a planning tool used to consolidate data for forecasting future sales and production levels as well as the methods needed to meet those requirements. In this task, our SOP will be based on historical consumption values taken from a fixed period. This is in contrast to forecasting within a real life system which would base the prediction on previous periods and their respective consumption.

To create an SOP, follow the menu path:

**Menu path**

Logistics ► Production ► SOP ► Planning ► For Product Group ► Change

Make sure that Product group PG-DXTR### and Plant DL00 are entered. Then, select **Active version**. Record the version number: ________

In the system menu, select:

**Edit ► Create sales plan ► Forecast…**

Select **Period intervals**, Forecast from **current period/current year** to **previous period/next year**. Historic Data from **04/2010** to **03/2014**, Forecast execution **Aut. model selection**. Compare your screen with the one below before clicking on **Forecasting**.
If needed, click on ☑️ and continue through warning messages.

The system selected Trend and season. Click on ☑️ Forecasting.

You can see that the system tested and found Seasonal and Trend tendencies in the past consumption data and has applied a Seasonal Trend Model.

Click on ☑️ (Copy and Save). The sales forecast is copied into your Sales and Operations Plan.

As Target day’s supply enter 5 for each forecasted period (a total of 12 months).
In a production plan, you plan the quantities you need to produce in order to meet your sales plan. The system then calculates stock levels and days’ supply for each period on the basis of the sales and production quantities and any target data. There are several different planning strategies available, which differ in the production values and the stock level changes.

As the SOP is a high level planning, discrete production values are not necessary. The SAP system calculates discrete numbers once the SOP is transferred to the Demand Management.

In the system menu, select:

**Edit ► Create productn plan ► Synchronous to sales**

Note the change in the Production and in the Stock level lines. The production plan is created to match the sales forecast.

In the system menu, select

**Edit ► Create productn plan ► Target day’s supply**

Note the impact on the production plan and stock levels. Production levels are generated to match the sales plus produce enough to put into stock to meet the target days of supply specifications.

Review the Planning Table (your numbers may be different).

Click on [Characteristic](#) to review a graphic representation of your planning table.
Note Although the screen displays integer production values, the SAP system calculates with decimal accuracy. You can display the decimal places by highlighting a row and pressing F8 and enter the amount of decimal places required. Then (re)create the production plan.

You may click on **Legend** to display a legend for this graphic.

Click on **to go back and save with**

Click on the exit icon **to return to the SAP Easy Access screen.**
Step 5: Transfer SOP to Demand Management

**Task** Transfer SOP to Demand Management.

**Short Description** Transfer the Sales and Operations Plan to Demand Management.

**Name (Position)** Jun Lee (Production Supervisor)

Demand Management is the tool used to disaggregate planning data from high-level plans down to the detailed planning level. For this task, planning for the Deluxe Touring Product Group will be broken down into the individual components that belong to this group.

To transfer the SOP to Demand Management, follow the menu path:

**Logistics ► Production ► SOP ► Disaggregation ► Transfer PG to Demand Management**

Enter Product group **PG-DXTR###**, Plant **DL00**, and the version saved in the previous task (**A00**).

**Transfer Planning Data to Demand Management**

Select **Prod.plan for mat. or PG members as proportion of PG and Active**. Then, deselect the **Invisible Transfer** indicator to present the disaggregation results on another screen allowing the planner to modify the results before saving them manually to Demand Management.

Select **Transfer now** and examine the Planned Independent Requirements generated for **DXTR1###**.
Then, click on ❯ to save.

Examine the Planned Independent Requirements generated for **DXTR2###** and save them with ✅.

Finally, examine the requirements for **DXTR3###** and save them with ✅.

**Note** DXTR1### makes up 40%, DXTR2### makes up 30% and DXTR3### another 30% of the production plan created in your Sales and Operations Plan.

Click on the exit icon 🔖 to return to the SAP Easy Access screen.
CASE STUDY

Step 6: Review Demand Management

**Task** Review the requirements for a product group.

**Short Description** Review the requirements for the product group to ensure that there are production requirements for the individual production items.

**Name (Position)** Hiro Abe (Plant Manager Dallas)

To review planned requirements, follow the menu path:

**Menu path**

Logistics ► Production ► Production Planning ► Demand Management ► Planned Independent Requirements ► Display

**Display Planned Independent Requirements: Initial Screen**

Select the **Product group** indicator, enter Product group **PG-DXTR###**, Plant **DL00**, and select ✔ (Enter).

On the Table tab, review the Planned Independent Requirements for the Deluxe Touring bike product group by material.

On the Sched. lines tab, review the requirement dates, planned quantities, values, and total planned quantities.
Select (Next item) to move to the next material.

Click on the exit icon ▲ to return to the SAP Easy Access screen.
### Step 7: Run MPS with MRP

**Task** Run Master Production Scheduling (MPS).

**Time** 10 min

**Short Description** Run Master Production Scheduling (MPS) to generate a series of planned orders that satisfy the requirements from SOP and demand management. Concurrently with MPS, the MRP materials will be processed leading to the generation of planned orders for dependent requirements that have been created by the BOM explosion process.

**Name (Position)** Jun Lee (Production Supervisor)

To run Master Production Scheduling, follow the menu path:

**Menu path**

Logistics ► Production ► Production Planning ► MPS ► MPS ► Single-Item, Multi-Level

Enter your material DXTR3###, Plant DL00, Processing key NETCH, select 2 (Purchase requisition in opening period), 3 (Schedule lines), 1 (MRP list), 1 (Adapt planning data (normal mode)), and 1 (Determination of Basic Dates for Planned). Then, select Display material list.

<table>
<thead>
<tr>
<th>Single-Item, Multi-Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
</tr>
<tr>
<td>Plant</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scope of Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Product group</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MRP Control Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processing Key</td>
</tr>
<tr>
<td>Create Purchase Req.</td>
</tr>
<tr>
<td>5A Daily, Schd. Lines</td>
</tr>
<tr>
<td>Create MRP List</td>
</tr>
<tr>
<td>Planning mode</td>
</tr>
<tr>
<td>Scheduling</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Net Change in Total Horizon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase requisitions in opening period</td>
</tr>
<tr>
<td>Schedule Lines</td>
</tr>
<tr>
<td>MRP list</td>
</tr>
<tr>
<td>Adapt planning data (normal mode)</td>
</tr>
<tr>
<td>Determination of Basic Dates for Planned</td>
</tr>
</tbody>
</table>

Select ☑ (Enter). A warning message will appear asking you to check input parameters. Press Enter to confirm and bypass the warning message.

To start the planning run, click on ☑ (Continue) and review the planning details from the List Display.
### CASE STUDY

Click on the exit icon 🚪 to return to the SAP Easy Access screen.
**Step 8: Review Stock/Requirements List**

**Task** Review the Stock/Requirements List.  

**Short Description** Review the Stock/Requirements List for your deluxe touring bike.

**Name (Position)** Lars Iseler (Production Order Worker)

The Stock/Requirements List is a dynamic list which dynamically changes whenever a transaction occurs using the given material. Display and review the Stock/Requirements List for all materials of the red deluxe touring bike on hand and the demand that exists against these products. The report shows that there is no stock and therefore nothing is available for use at this time.

To review the Stock/Requirements List, follow the menu path:

**Logistics ► Production ► Production Planning ► MPS ► Evaluations ► Stock/Reqmts List**

*Stock/Requirements List: Initial Screen*

<table>
<thead>
<tr>
<th>Individual access</th>
<th>Collective access</th>
</tr>
</thead>
</table>

Material: DXTR3###  
Plant: DL00  

Deluxe Touring Bike (red)  
Plant Dallas

On the Individual access tab, enter Material **DXTR3###** and Plant **DL00** and click on **(Enter).**

*Stock/Requirements List as of 13:49 hrs*

Choose **(Switch to Period Totals).** This will allow you to see the planned independent requirements, planned receipts, and ATP quantities based on time; days, weeks, or months.
Select to go back to the individual lines.

To view the details of the first planned order (PldOrd), select (Element Details).

Select (Pegged Requirements).

You can see that this planned order is to fulfill our Safety Stock and the first planned independent requirement that was created when we disaggregated our SOP.

Select (Graphic) to see a graphical view of this information.

Click on the exit icon twice to return to the SAP Easy Access screen.
Step 9: Convert Planned Order into Production Order

**Task** Convert a planned order into a production order.

**Short Description** Convert a planned order generated in the MPS/MRP run to a production order. The stock requirements list displays the suggested planned orders from the MPS run.

**Name (Position)** Lars Iseler (Production Order Worker)

To convert planned orders into production orders, follow the menu path:

![Menu path](logistics►production►mrp►evaluations►stock/requisitions list)

Enter Material DXTR3###, Plant DL00, and click on (Enter). Then, double-click on the second planned order.

<table>
<thead>
<tr>
<th>Material</th>
<th>Plant</th>
</tr>
</thead>
<tbody>
<tr>
<td>DXTR3###</td>
<td>DL00</td>
</tr>
</tbody>
</table>

In the Additional Data screen, click on (Convert planned order to production order).

**Production order Create: Header**

**Note** At this point, please note down the total quantity in your production order. You will need it later when confirming your order.

Determine the status of your order by clicking on.

**Note** When you converted the planned order to a production order scheduling takes place, an availability check was automatically carried out and a reservation was placed on the materials specified within the bill of materials. The order was also automatically released when the production order was created.
Click on  to go back to the header screen and save your production order with .

**Note** When you save the production order the system will automatically calculate the planned costs for the production order and the production order is given a number.

Make sure you record your production order number.

Select  (Refresh) to refresh the Stock/Requirements List. In the MRP Element column the planned order PldOrd that you selected should now have changed into a production order PrdOrd.

Click on the exit icon  to return to the SAP Easy Access screen.
Step 10: Receive Goods in Inventory

**Task** Receive goods in the Dallas plant.  

**Time** 10 min

**Short Description** Receive enough goods in the Dallas storage locations to start the production process.

**Name (Position)** Susanne Castro (Receiving Clerk)

Usually, at this point the purchasing department in Dallas would take over and procure enough raw materials from vendors to fill the inventory so that the production process can be initiated. In this case study, we are bypassing this procurement process (this process is explained in the MM unit in detail). Because the inventory for all DXTR3### components is empty, we will assume that we find 500 pieces each in the storage location.

To receive goods in the inventory, follow the menu path:

**Menu path**

- **Logistics**
- **Materials Management**
- **Inventory Management**
- **Goods Movements**
- **Goods Receipt**
- **Other**

Make sure you click on **Other** and not on **Other (MIGO)**. This should produce the following screen.

**Enter Other Goods Receipts: Initial Screen**

<table>
<thead>
<tr>
<th>Document Date</th>
<th>Posting Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>06/20/2016</td>
<td>06/20/2016</td>
</tr>
</tbody>
</table>

Enter **today** as Document and Posting Date, Movement Type **561** (Receipt per initial entry of stock balances into unr.-use), Plant **DL00**, and leave Storage Location blank. Then, press Enter or click on **✓**.

In the **Enter Other Goods Receipts: New Item** screen, enter the following data. Each one of these ten materials are components that you later on need in your production order. Note that all materials are stored in the raw materials storage location in Dallas except the touring wheel assembly (first component in the list) which is a semi-finished good.
Before pressing Enter compare your screen with the screenshot shown below. Remember that your material numbers are different.

If there are not enough rows for all materials, click on (New Items).

Save your goods receipt with and record the material document number. Then, click on the exit icon to return to the SAP Easy Access screen.
Case Study

Step 11: Issue Goods to Production Order

**Task** Issue goods to a production order.

**Short Description** Now that all necessary components are on stock issue them to your production order in precise quantity.

**Name (Position)** Sanjay Datar (Warehouse Employee)

The goods issue process is fully defined in the production order, BOM, and routing. The quantities and the materials are reserved for this specific production order, will be withdrawn with reference to the order number, and will be used to assign actual costs to the production order for managerial accounting purposes.

To issue goods to a production order, follow the menu path:

**Logistics ► Production ► Shop Floor Control ► Goods Movements ► Goods Issue**

This should produce the following screen.

**Enter Goods Issue: Initial Screen**

- **Document Date**: 06/20/2016
- **Posting Date**: 06/20/2016
- **Movement Type**: 261
- **Plant**: DL00
- **Storage Location**: 
- **Reason for Movement**: 
- **Special Stock**: 
- **Suggest Zero Lines**: 

Enter **today** as Document Date and Posting Date, Movement Type **261** (Consumption for order from warehouse), Plant **DL00**, and leave Storage Location blank. Then, click on the [To Order...] button.

Enter your **production order number** from two tasks back.

If you have not written down your production order number you can find it in the system. In order to do so, in the Order field press **F4** or click on the search icon ⬩. In the Order Number (1) screen, use the icon on the far right ⬨ to display a list of all tabs. Please select the **Production orders using the info system** tab. On this tab, enter your material **DXTR3###** in the Material field and click on ⬩. Double-click on the result row to adopt your production order number into the initial screen.
Once you have found and entered your production order number, click on 

An itemized list will appear. It lists all the materials and their respective quantities that need to be issued to your order. You need to tell the system what Storage Location the materials should be withdrawn from. For the wheel assembly (TRWA1###), enter SF00 (Semi-finished goods) and for all other materials RM00 (Raw materials) in the SLoc fields. Before pressing Enter compare your screen with the one shown below.

<table>
<thead>
<tr>
<th>Items</th>
<th>Item Material</th>
<th>Quantity</th>
<th>Unit</th>
<th>SLoc Batch</th>
<th>Re Plot</th>
<th>Yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TRWA1000</td>
<td>184</td>
<td>EA</td>
<td></td>
<td>3100 1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>TRFR3000</td>
<td>92</td>
<td>EA</td>
<td></td>
<td>3100 2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>DGAM1000</td>
<td>92</td>
<td>EA</td>
<td></td>
<td>3100 3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>TRSK1000</td>
<td>92</td>
<td>EA</td>
<td></td>
<td>3100 4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>TRHE1000</td>
<td>92</td>
<td>EA</td>
<td></td>
<td>3100 5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>PFCG1000</td>
<td>92</td>
<td>EA</td>
<td></td>
<td>3100 6</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>CHAM1000</td>
<td>92</td>
<td>EA</td>
<td></td>
<td>3100 7</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>BFRP1000</td>
<td>92</td>
<td>EA</td>
<td></td>
<td>3100 8</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>SMDC1000</td>
<td>92</td>
<td>EA</td>
<td></td>
<td>3100 9</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>PCK61000</td>
<td>92</td>
<td>EA</td>
<td></td>
<td>3100 10</td>
<td></td>
</tr>
</tbody>
</table>

Click on the button. A series of screens will appear asking you to copy in the requirements for each of the dependent requirements. Click on to accept the details for each material.

Finally, on the **Enter Goods Issue: Overview** screen you will see all of the goods issue quantities for each of the materials.
Click on (Post) and record the material document number.

Click on the exit icon to return to the SAP Easy Access screen.
Step 12: Review Production Order Status

Task Review the production order status.

Short Description Review the current production order with respect to the status of the order.

Name (Position) Michael Brauer (Shop Floor Worker 4)

To display the production order, follow the menu path:

Logistics ► Production ► Shop Floor Control ► Order ► Display

Enter the number of your production order.

If you have not written down your production order number you can find it in the system. In order to do so, in the Order field press F4 or click on the search icon . In the Order Number (1) screen, use the icon on the far right  to display a list of all tabs. Please select the Production orders using the info system tab. On this tab, enter your material DXTR3### in the Material field and click on . Double-click on the result row to adopt your production order number into the initial screen.

When your production order number is entered, click on . Note that the order status has changed and review it by clicking on again.

You did a goods issue to the production order in the last task. Now, you want to review the cost assigned to the order, the material document, and the corresponding accounting document.

In order to do so, click on to go back to the header screen and then in the system menu select:
Here you can see the costs that were assigned to the production order from our goods issue.

Click on the exit icon 🎌 to go back to the SAP Easy Access menu.
Case Study

Step 13: Confirm Production Completion

**Task** Confirm production order completion.

**Short Description** Confirm completion for your production order.

**Name (Position)** Michael Brauer (Shop Floor Worker 4)

When the assembly has been completed for the current production order, we need to confirm that certain procedures and activities have been completed and record the quantity of the end product that has been manufactured.

To confirm production completion, follow the menu path:

- **Logistics** ► **Production** ► **Shop Floor Control** ► **Confirmation** ► **Enter** ► **For Order**

Enter your **production order** number and click on **✓**.

Select **Final Confirm**. and **Clear Reservation**. In the **Yield to conf.** field, enter the **amount** of bikes you were supposed to produce for this order. Remember that your amount might be different from the screen below.

**Confirmation of Production Order Enter : Actual Data**

<table>
<thead>
<tr>
<th>Goods Movements</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Order</td>
<td>L00010000</td>
<td>Status</td>
<td>REL PRO GPMS MANE SE</td>
</tr>
<tr>
<td>Material Number</td>
<td>BXX773000</td>
<td>Deluxe Touring Bike (red)</td>
<td></td>
</tr>
</tbody>
</table>

**Confirmation Type**

- □ Partial Confirm
- □ Final Confirm
- □ Aut. Final Conf.
- ✔ Clear Reservation

**Actual Data**

<table>
<thead>
<tr>
<th></th>
<th>Unit</th>
<th>Confirmed to Date</th>
<th>Planned qty Conf</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yield to conf.</td>
<td>92</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confirmed scrap</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rework</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Then, change the **Execution start** to **1 hour earlier** than the default time.

**To Be Confirmed**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Start Execution</td>
<td>06/22/2016</td>
<td>10:37:37</td>
</tr>
<tr>
<td>Finish Execut.</td>
<td>06/22/2016</td>
<td>11:15:37</td>
</tr>
<tr>
<td>Posting Date</td>
<td>06/22/2016</td>
<td></td>
</tr>
</tbody>
</table>

Click on **✓** and save your entries with **✓**.

**Note** When the confirmation is saved, labor costs for the order are calculated automatically. The quantity yield also establishes the parameters for the goods receipt into Inventory.
Click on the exit icon 🚪 to return to the SAP Easy Access screen.
Step 14: Receive Goods from Production Order

**Task** Post a goods receipt from production order.  
**Time** 15 min

**Short Description** Post a goods receipt from your production order.

**Name (Position)** Susanne Castro (Receiving Clerk)

Receive the completed products into finished goods inventory. Check the quantity purposed against the quantity specified in the production order and the quantity specified during confirmation. If there are any discrepancies, the system will decide if an error or warning message should be generated depending upon the deviation identified.

To post a goods receipt, follow the menu path:

**Logistics ► Production ► Shop Floor Control ► Goods Movements ► Goods Receipt**

This produces the following screen.

**Goods Receipt for Order: Initial Screen**

- **Document Date**: 06/22/2016
- **Posting Date**: 06/22/2016
- **Movement Type**: 101
- **Order**: 1000000
- **Plant**: DL00
- **Stor. Location**: FG00
- **Reason for Movement**: 
- **Suggest Zero Lines**: 

Enter Movement Type **101** (Goods receipt for order to warehouse), your **production order number**, Plant **DL00**, Stor. Location **FG00** (Finished Goods), and select **Adopt + Details**.
Ensure that the quantity to be placed into inventory and the storage location are correct. Then, click on to accept the details for the new bikes received from production.

In the overview screen, review the item to ensure that all the data is correct.

- Movement Type → 101 (goods receipt into Inventory)
- Storage Location → FG00 (Inventory)
- Quantity should equal the amount that you confirmed in the previous task

Click on to post the goods receipt. When you save this material document the actual value of the material produced was entered into the production order.

Record the material document number.

Click on the exit icon to return to the SAP Easy Access screen.
Task Review costs assigned to your production order.

Short Description Display and review the costs that have been assigned to your production order.

Name (Position) Jamie Shamblin (Cost Accountant)

To display costs assigned, follow the menu path:

Logistics ► Production ► Shop Floor Control ► Order ► Display

Enter your production order number, and click on (Enter).

In the system menu, select:

Goto ► Costs ► Analysis

<table>
<thead>
<tr>
<th>Cost Element</th>
<th>Cost Element (Text)</th>
<th>Origin</th>
<th>Total target costs</th>
<th>Total actual costs</th>
<th>Target/actual var</th>
<th>T% var (%)</th>
<th>Currency</th>
</tr>
</thead>
<tbody>
<tr>
<td>720000</td>
<td>Semi-Finished Consumption Expense</td>
<td>DL00/TVK/A120D</td>
<td>0.00</td>
<td>25,240.00</td>
<td>25,240.00</td>
<td>USD</td>
<td></td>
</tr>
<tr>
<td>741700</td>
<td>Manufacturing Output Settlement Va.</td>
<td>DL00/ordres000</td>
<td>0.00</td>
<td>128,680.00</td>
<td>128,680.00</td>
<td>USD</td>
<td></td>
</tr>
<tr>
<td>600000</td>
<td>Labor</td>
<td>NAV1/000LAB01</td>
<td>0.00</td>
<td>2,301.75</td>
<td>2,301.75</td>
<td>USD</td>
<td></td>
</tr>
</tbody>
</table>

Production:

<table>
<thead>
<tr>
<th>Cost Element</th>
<th>Cost Element (Text)</th>
<th>Origin</th>
<th>Total target costs</th>
<th>Total actual costs</th>
<th>Target/actual var</th>
<th>T% var (%)</th>
<th>Currency</th>
</tr>
</thead>
<tbody>
<tr>
<td>720000</td>
<td>Raw Material Consumption Expense</td>
<td>DL00/DMH/000</td>
<td>0.00</td>
<td>6,500.00</td>
<td>6,500.00</td>
<td>USD</td>
<td></td>
</tr>
<tr>
<td>720000</td>
<td>Raw Material Consumption Expense</td>
<td>DL00/THK/000</td>
<td>0.00</td>
<td>18,480.00</td>
<td>18,480.00</td>
<td>USD</td>
<td></td>
</tr>
<tr>
<td>720000</td>
<td>Raw Material Consumption Expense</td>
<td>DL00/THK/000</td>
<td>0.00</td>
<td>4,660.00</td>
<td>4,660.00</td>
<td>USD</td>
<td></td>
</tr>
<tr>
<td>720000</td>
<td>Raw Material Consumption Expense</td>
<td>DL00/THK/000</td>
<td>0.00</td>
<td>2,300.00</td>
<td>2,300.00</td>
<td>USD</td>
<td></td>
</tr>
<tr>
<td>720000</td>
<td>Raw Material Consumption Expense</td>
<td>DL00/THK/000</td>
<td>0.00</td>
<td>4,540.00</td>
<td>4,540.00</td>
<td>USD</td>
<td></td>
</tr>
<tr>
<td>720000</td>
<td>Raw Material Consumption Expense</td>
<td>DL00/THK/000</td>
<td>0.00</td>
<td>120.00</td>
<td>120.00</td>
<td>USD</td>
<td></td>
</tr>
<tr>
<td>720000</td>
<td>Raw Material Consumption Expense</td>
<td>DL00/THK/000</td>
<td>0.00</td>
<td>6,440.00</td>
<td>6,440.00</td>
<td>USD</td>
<td></td>
</tr>
<tr>
<td>720000</td>
<td>Raw Material Consumption Expense</td>
<td>DL00/THK/000</td>
<td>0.00</td>
<td>50.00</td>
<td>50.00</td>
<td>USD</td>
<td></td>
</tr>
<tr>
<td>720000</td>
<td>Raw Material Consumption Expense</td>
<td>DL00/THK/000</td>
<td>0.00</td>
<td>322.00</td>
<td>322.00</td>
<td>USD</td>
<td></td>
</tr>
</tbody>
</table>

Raw Materials:

<table>
<thead>
<tr>
<th>Cost Element</th>
<th>Cost Element (Text)</th>
<th>Origin</th>
<th>Total target costs</th>
<th>Total actual costs</th>
<th>Target/actual var</th>
<th>T% var (%)</th>
<th>Currency</th>
</tr>
</thead>
<tbody>
<tr>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
</tr>
</tbody>
</table>

Now that the finished products have been received in the Inventory, the Manufacturing Output Settlement Variance has been added. How is this figure calculated by the system?

Click on the exit icon to return to the SAP Easy Access screen.
Step 16: Settle Costs of Production Order

**Task** Settle costs of your production order.

**Short Description** Settle the costs of your production order. The costs are temporarily captured in the production order and they need to be assigned to an appropriate cost object. Compare the actual costs to the planned costs to identify any deviations or potential problems in this regard.

**Name (Position)** Jamie Shamblin (Cost Accountant)

To settle costs of a production order, follow the menu path:

**Menu path**

Logistics ► Production ► Shop Floor Control ► Period-End Closing ► Settlement ► Individual Processing

If you have to input the Controlling Area, enter **NA00**, and click on ![Checkmark](checkmark).

**Actual Settlement: Order**

- **Controlling Area**: NA00
- **Order**: 1000000

**Parameters**

- **Settlement period**: 06
- **Posting period**: 06
- **Fiscal Year**: 2016
- **Processing type**: Automatic

Enter your **production order number**, the **current month** as Settlement period (e.g., 007 for July), the **current month** as Posting period, and the **current year** as Fiscal year. Make sure that **Test Run** is selected.

Then, click on ![Checkmark](checkmark) (Execute).
Click on (Detail lists). In the system menu, choose:

**Environments ➤ Report**

Then, double-click on **Actual/Plan/Variance** to select the report.

Click on (Detail lists). In the system menu, choose:

**Orders: Actual/Plan/Variance**

Orders: Actual/Plan/Variance
Orders: Actual/Plan/Commitments
Orders: Drilldown by Partner
Orders: Accruals/Category

Orders: Actual/Plan/Variance

Cost Elements | Actual | Plan
---|---|---
720000 | 44,114.00 | 44,114.00
720000 | 20,240.00 | 20,240.00
800000 | 2,501.75 | 2,501.75

Click on (Detail lists) and select (Report). Choose report **Actual/Plan/Variance**.

Deselect **Test Run** and execute again with (Detail lists) and select (Report). Choose report **Actual/Plan/Variance**.
**CASE STUDY**

The manufacturing output settlement is higher than the consumption expenses for raw materials and semi-finished goods? Review and explain the expenses and the settlements of your production order in detail. How is the balance derived?

<table>
<thead>
<tr>
<th>Cost Elements</th>
<th>Actual</th>
<th>Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>720000 RX Consumpt Expense</td>
<td>44,114.00</td>
<td>44,114.00</td>
</tr>
<tr>
<td>720900 SF Consumpt Expense</td>
<td>20,240.00</td>
<td>20,240.00</td>
</tr>
<tr>
<td>800000 Labor</td>
<td>2,301.75</td>
<td>2,301.75</td>
</tr>
<tr>
<td>v Costs</td>
<td>68,655.75</td>
<td>68,655.75</td>
</tr>
<tr>
<td>741700 Xmac Output Sett Var</td>
<td>62,144.25</td>
<td></td>
</tr>
<tr>
<td>v Settled Costs</td>
<td>62,144.25</td>
<td></td>
</tr>
<tr>
<td>741700 Xmac Output Sett Var</td>
<td>128,800.00-</td>
<td></td>
</tr>
<tr>
<td>v Deliveries to Stock</td>
<td>128,800.00-</td>
<td></td>
</tr>
<tr>
<td><strong>Balance</strong></td>
<td>68,655.75</td>
<td></td>
</tr>
</tbody>
</table>

**Note** The manufacturing output settlement is higher than the consumption expenses for raw materials and semi-finished goods? Review and explain the expenses and the settlements of your production order in detail. How is the balance derived?

Click on 🆙 choose Yes and click on 🆙 again to return to the SAP Easy Access screen.
CASE STUDY

PP Challenge

**Learning Objective**  Understand and perform an integrated manufacturing process.

**Motivation**  After you have successfully worked through the *Production Planning and Execution* case study you should be able to solve the following challenge on your own.

**Scenario**  In this challenge you should create sales and operations plan (SOP) for the product group (product family) Mountainbikes. Take into consideration that the materials of the product group have to be assigned to the strategy group. Therefore, enter manually the following sales figures:

<table>
<thead>
<tr>
<th>Period</th>
<th>Sales (volume)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current month + 2</td>
<td>150</td>
</tr>
<tr>
<td>Current month + 3</td>
<td>175</td>
</tr>
<tr>
<td>Current month + 4</td>
<td>200</td>
</tr>
<tr>
<td>Current month + 5</td>
<td>85</td>
</tr>
<tr>
<td>Current month + 6</td>
<td>90</td>
</tr>
<tr>
<td>Current month + 7</td>
<td>115</td>
</tr>
</tbody>
</table>

In addition, you must post the correct goods for Material ORM1### in the storage location in order to be able to produce and settle costs afterwards.

**Task Information**  Since this task is based on the *Production Planning and Execution* case study you can use it as guidance. However, it is recommended that you solve it without any help in order to test your acquired knowledge.