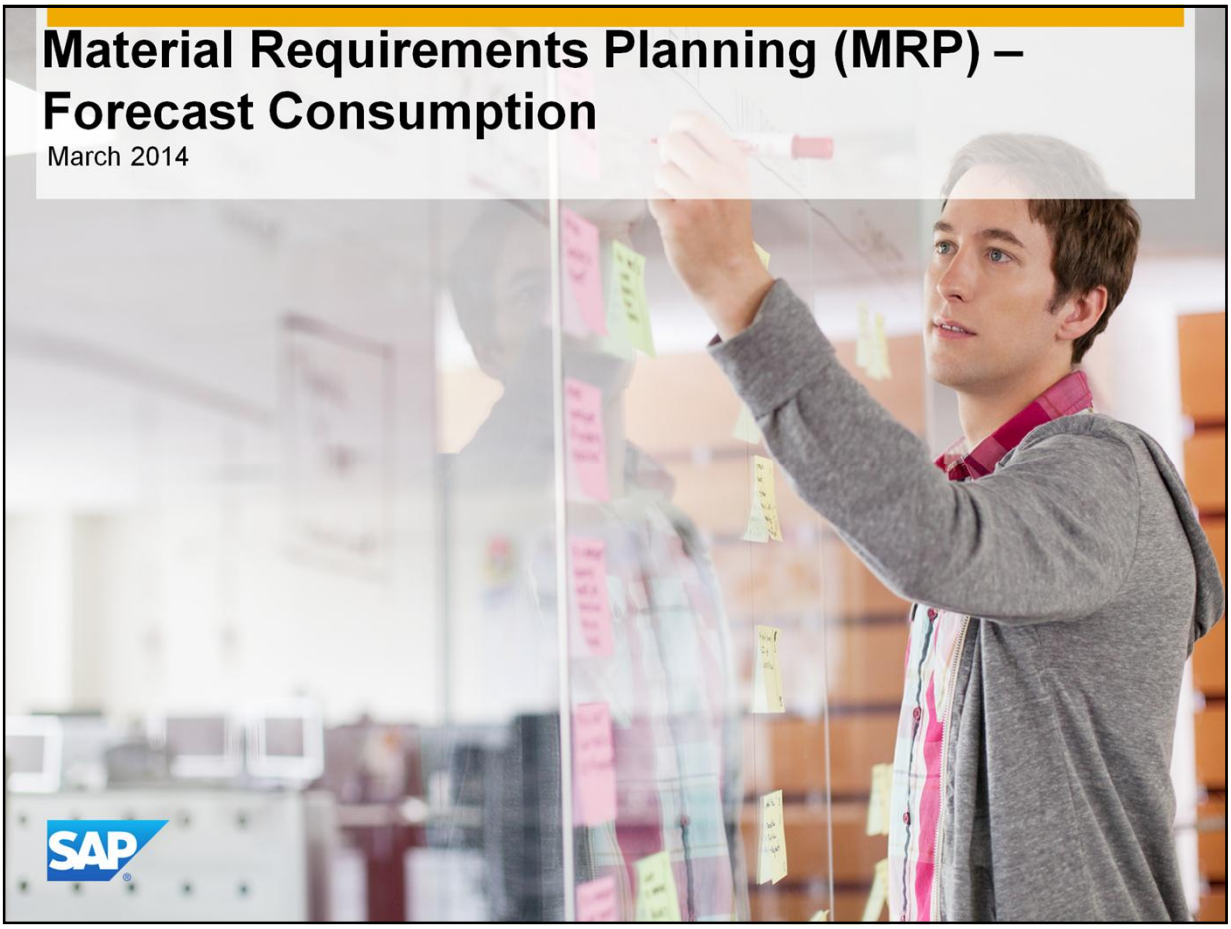

- Welcome to the **MRP – Forecast Consumption** course unit.
- This is the second course out of three available for the MRP topic.
- You must be familiar with the **MRP Process** course unit before going through this unit.

Objectives

At the end of this unit, you will be able to:

- Define a forecast consumption method
- Explain the MRP results when using the forecast consumption functionality

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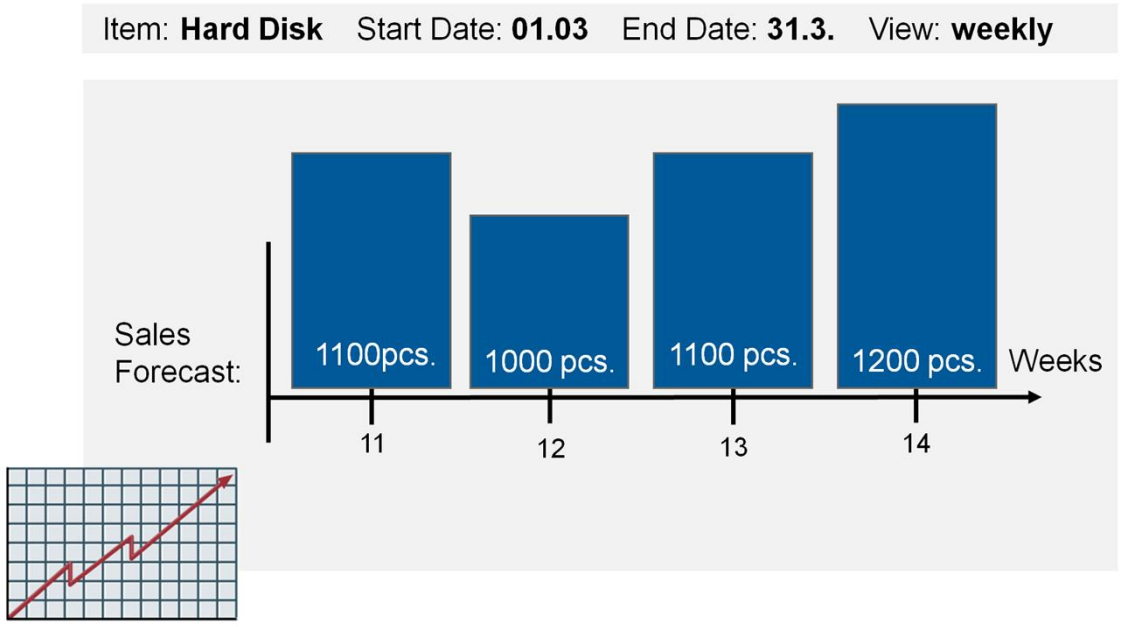
At the end of this course, you will be able to:

- Define a forecast consumption method
- Explain the MRP results when using the forecast consumption functionality

Forecast Concept



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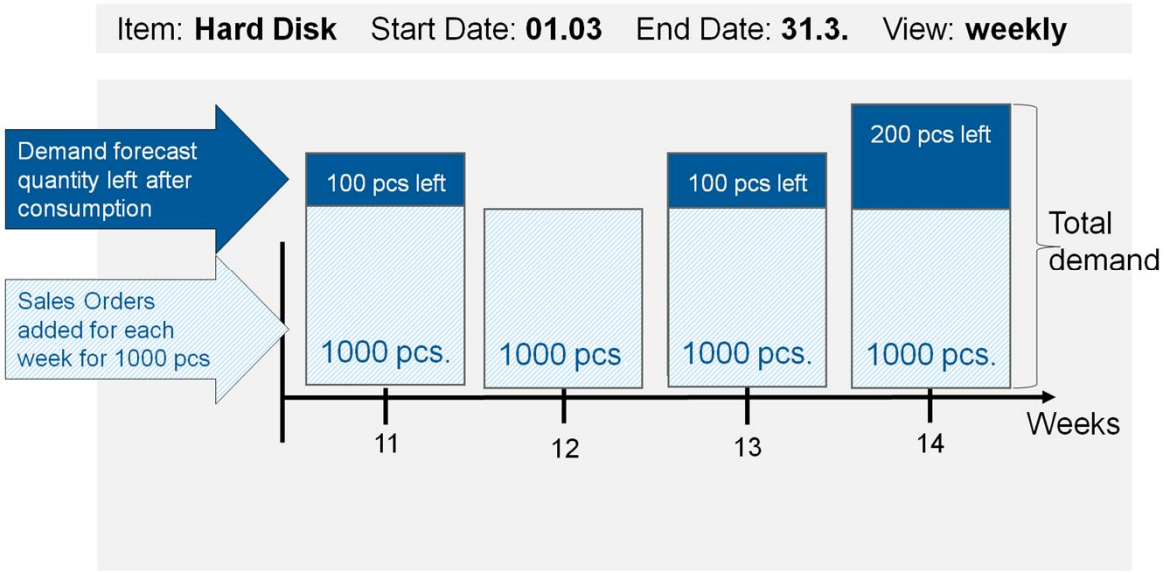
- Before we dive into forecast consumption rules let us go over the main forecast principles as described in the **MRP Process** course unit.
- You can create forecasts to plan purchasing, production or transfers in advance, even before you receive other actual requirements like sales orders.
- By using a forecast, you can purchase or produce items according to the forecast demand. When the actual sales orders arrive, you are able to supply the goods even at short notice.
- In the image we see an illustration of a weekly forecast for the **hard disk** item. Each week has a different forecasted quantity.

Forecast Consumption Concept



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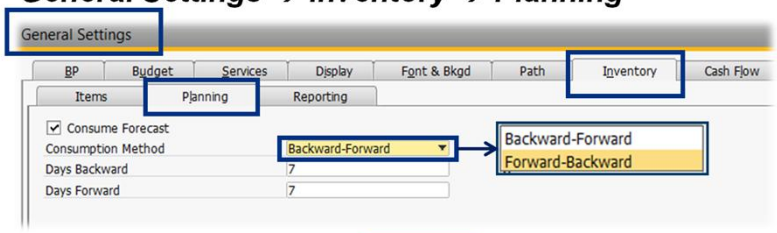
- Now, let us talk about forecast consumption.
- We already learned that the forecast appears on the demand row of the MRP report, much like the sales order.
- But when the purpose of the forecast is to anticipate sales orders before they arrive, we would like to subtract the sales order quantity from the forecast to avoid duplication of demand.
- SAP Business One allows consumption of sales orders from the forecast. This means that if in a certain period there is a demand from both a forecast and sales orders, the system subtracts the sales order quantity from the forecasted quantity. Then the system displays the quantity left from the forecast after consumption as a demand in addition to the sales order quantity. When a forecast is fully consumed it is not shown in the MRP report.
- In the image we see an illustration of a forecast consumption. Let us assume that a sales order was added for each week for **1000** units. We can see that the sales order consumes the forecast of each week. The quantity left (in blue) will be displayed as the forecast demand in the MRP report.
- In the demand row of the MRP report, we will see a total demand of **1100** units in week 11, **1000** in week 12, **1100** in week 13 and **1200** in week 14.
- Note that the consumption do not change the actual forecast defined, only the demand displayed in the MRP report.

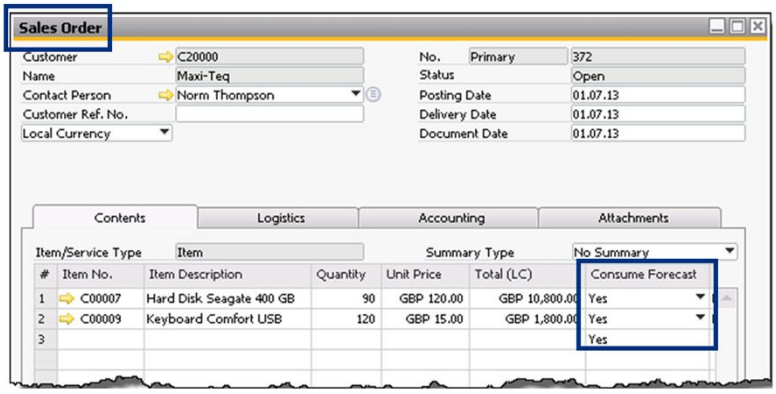
Consume Forecast
Definitions

General Settings → Inventory → Planning



- Consumption rules set at the company level
- Default for new sales orders

- Can also be changed per sales order



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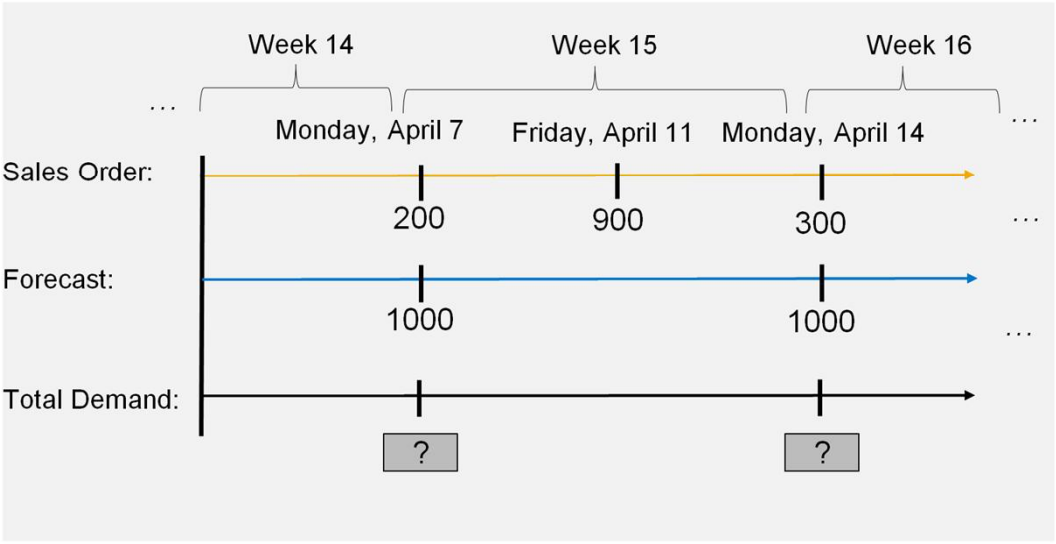
- Let us get to know the consumption definitions.
- You can activate forecast consumption at the company level but you can also define it for each row in the sales order.
- Look at the image. In the *Planning* tab of the *General Settings* window you can define whether forecasts are to be consumed by sales orders. This will be the default for all new sales orders. If you wish to prevent the consumption of a certain sales order, choose *No* in the *Consume Forecast* column of the sales order.
- After you have decided to consume a forecast, how does the system know which forecast to consume? Is it the forecast you defined for the week before the due date of the sales order or maybe it is the forecast of the week after?
- This is controlled by the *Consumption Method* and the *Days Backward* and *Days Forward* parameters.
- We will now explain how these definitions affect forecast consumption by using two scenarios.

Consume Forecast
Scenarios

- Forecast periods = weekly
- Total demand displayed by weekly intervals



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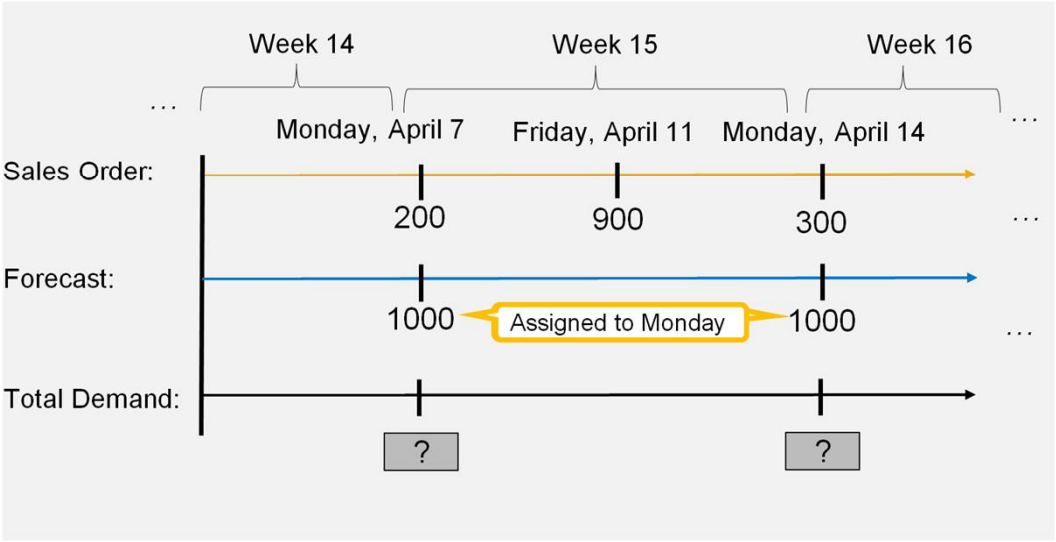
- Let assume that we have entered a weekly forecast with a fixed quantity of **1,000** units per week.
- In the image we can see there are three sales orders, with three different dates. The first two sales orders are within week 15 and the third is in week 16.
- If sales orders were not set to consume forecasts, then the total demand is simply the sales order quantity plus the forecasted quantity. In this case the total demand for week 15 would be **2,100** and **1,300** for week 16.

Consume Forecast
Backward-Forward Scenario (1/4)

- Forecast periods = weekly
- Total demand displayed by weekly intervals
- Days backwards and days forward = **6** days
- Backward-Forward Method



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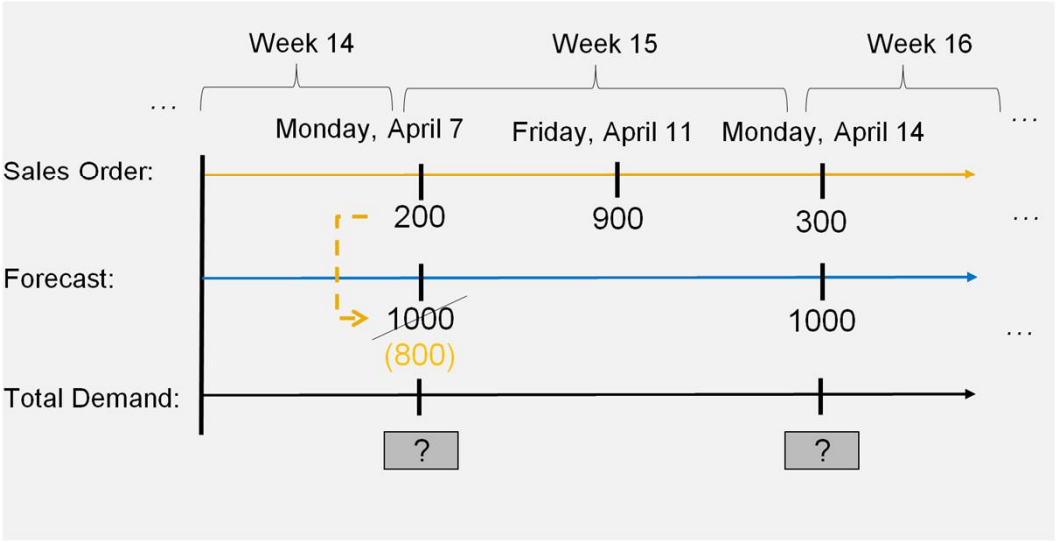
- In the first scenario, demonstrated here, the consumption method is set to *Backward-Forward*.
- And the *Days Backward* and *Days Forward* are both set to **6** days
- Since we do consume forecast in this scenario, we expect the total demand of each week to decrease after consumption.
- In order to understand the total demand calculation, we first need to understand that the periodic forecasted quantity is assigned to the first day of the period. Since the forecast is defined weekly, the quantity is assigned to the first day of the week and in our scenario it is Monday.
- Let us see how this calculation is made in the next slide.

Consume Forecast
Backward-Forward Scenario (2/4)

- Forecast periods = weekly
- Total demand displayed by weekly intervals
- Days backwards and days forward = **6** days
- Backward-Forward Method



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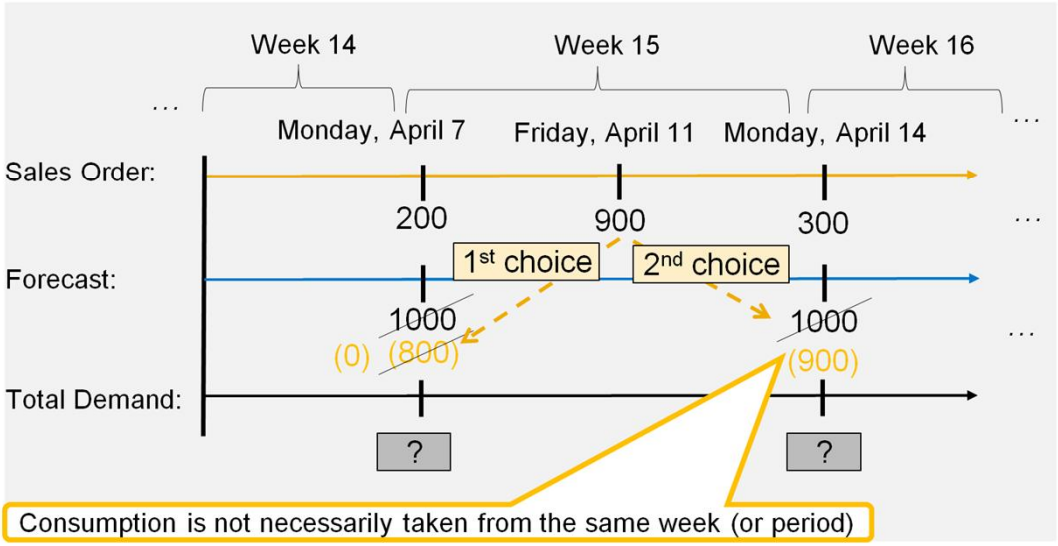
- Since we chose to work with the Backward-Forward method, for each sales order, the system checks **6** days backwards for available forecasts to consume, starting from the sales order due date. If there is no remaining quantity from sales orders to consume, then the system looks **6** days forward for other available forecasts.
- In our case, the first sales order is due on April 7 which is also the first day of the week. This sales order consumes **200** units from the forecast of week 15. Now there are only **800** units left to consume from the forecast of week 15.

Consume Forecast
Backward-Forward Scenario (3/4)

- Forecast periods = weekly
- Total demand displayed by weekly intervals
- Days backwards and days forward = **6** days
- Backward-Forward Method



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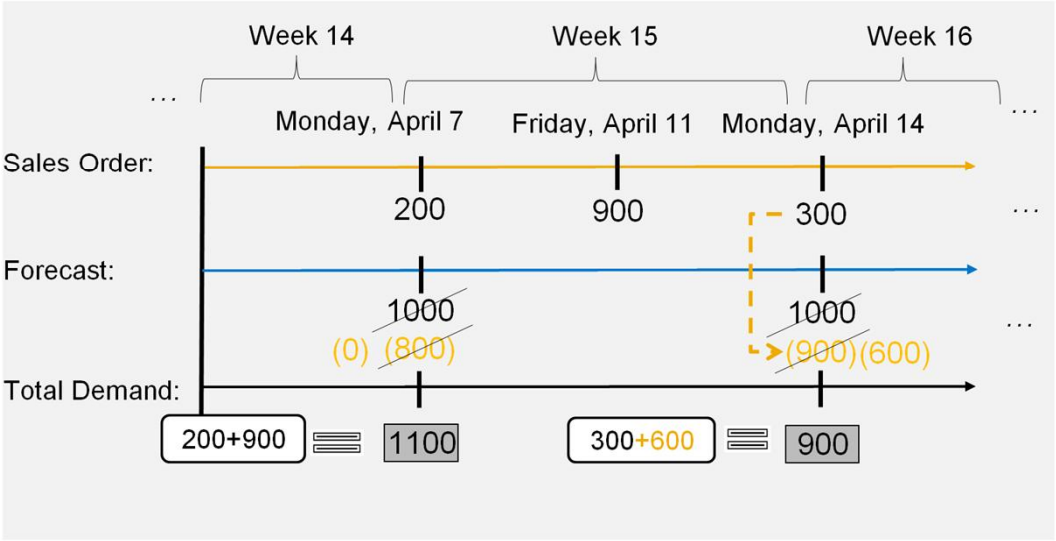
- The next sales order in line is for **900** units and is due on April 11. The system searches back and finds the forecast of week 15, 4 days back (within the **6** days range).
- The sales order consumes the **800** units left to consume from this forecast and looks for another forecast. Since no other forecasts are found backwards, the system searches forwards.
- The system finds the forecast of week 16, 3 days forward, and consumes the remaining **100** units.
- Note that this example demonstrates that consumption is not necessarily taken from the same week (or period).

Consume Forecast
Backward-Forward Scenario (4/4)

- Forecast periods = weekly
- Total demand displayed by weekly intervals
- Days backwards and days forward = **6** days
- Backward-Forward Method



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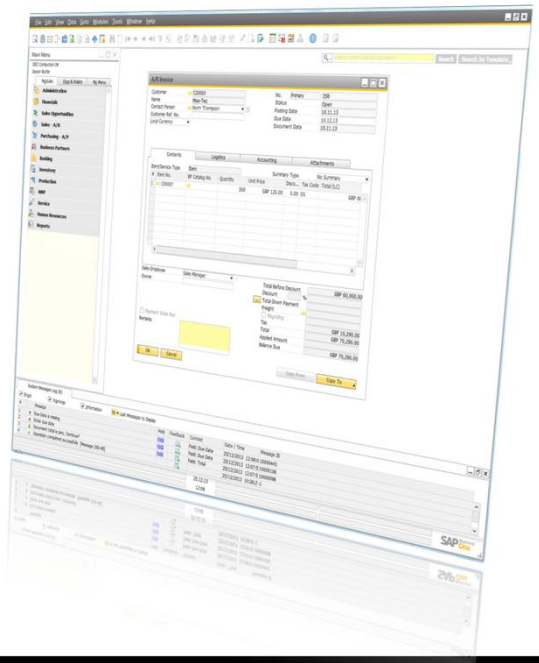
- The third sales order, for **300** units, also consumes the forecast of week 16 and thus leaves only **600** units in the forecast.
- Now, look at the total demand in the image:
  - In week 15, since the forecast was fully consumed, the total demand is the total sales order quantity which is **1,100** units.
  - In week 16 the total demand equals the sales order quantity plus the remaining forecasted quantity of **600** units. This adds up to **900** units.

Demo: Consume Forecast – Backward-Forward Method



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High level demo script notes:

Show the backward-forward definitions in the *General Settings* window.

Make sure there is a sales order that partially consume a forecast that is earlier than the order due date.

Run the MRP with this forecast

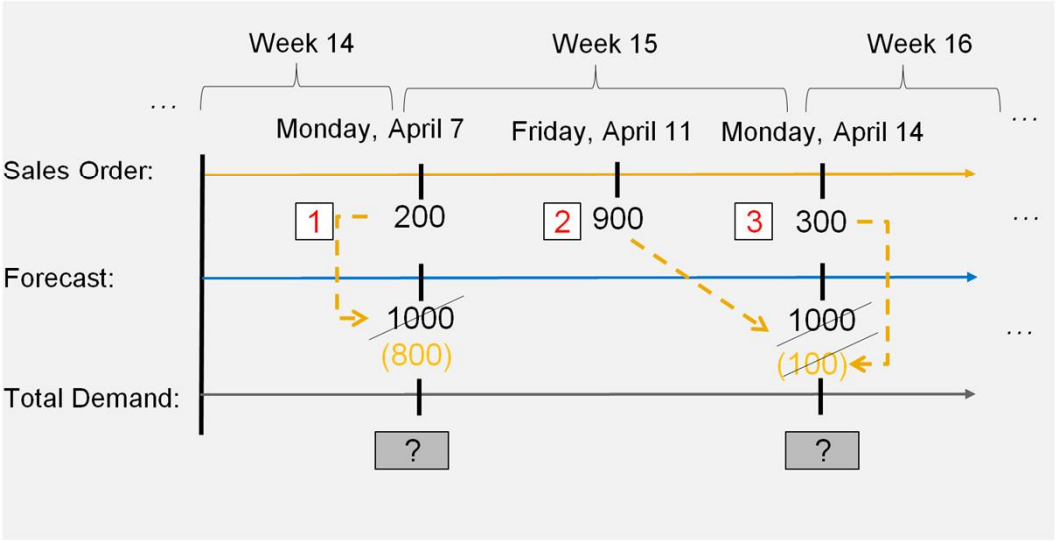
Go to the pegging information and show the forecasted quantity and period of consumption.

Go inside the forecast via the link arrow and show the original quantity is greater then the quantity displayed in the pegging information.

Explain what happened.

Consume Forecast
Forward-Backward Scenario (1/2)

- Forecast periods = weekly
- Total demand displayed by weekly intervals
- Days backwards and days forward = **6** days
- Forward-Backward Method



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- Let us examine the same scenario but this time we set the *Consumption Method* to *Forward-Backward*. The scenario is illustrated in the image from the nearest future on (left to right):

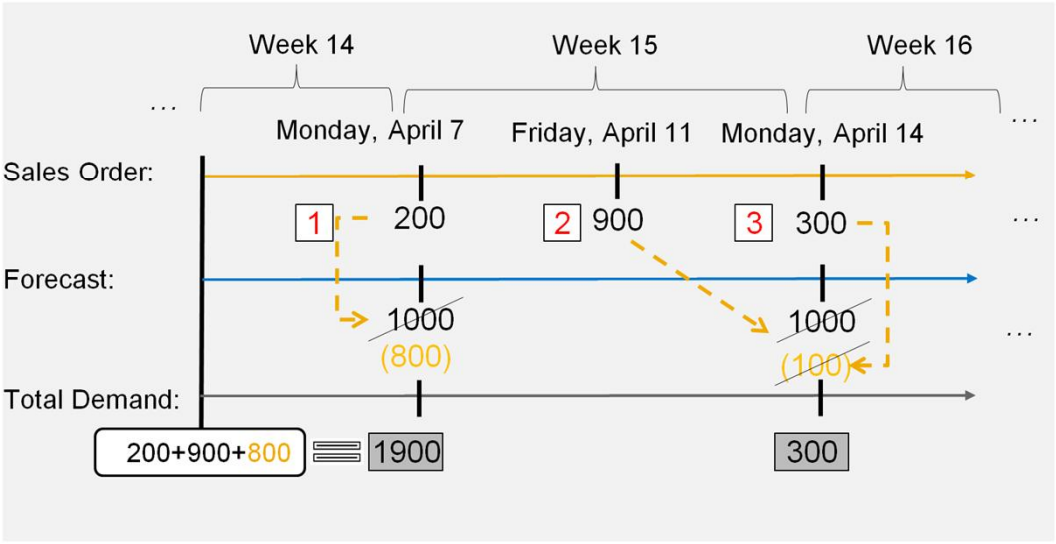
  (1) The sales order from April 7 consumes the forecast of week 15 leaving **800** units in the forecast.

  (2) The sales order from April 11 looks forward and finds the forecast of week 16, 3 days ahead. So **900** units are consumed from this forecast.

  (3) Next, the sales order from April 14 consumes what is left in the forecast of week 16 – another **100** units. The sales order cannot consume the forecast of week 15 because the forecast date is 7 days earlier than the order due date and we defined only **6** days in the *Forward-Backward Days* definition.

Consume Forecast
Forward-Backward Scenario (2/2)

- Forecast periods = weekly
- Total demand displayed by weekly intervals
- Days backwards and days forward = **6** days
- Forward-Backward Method



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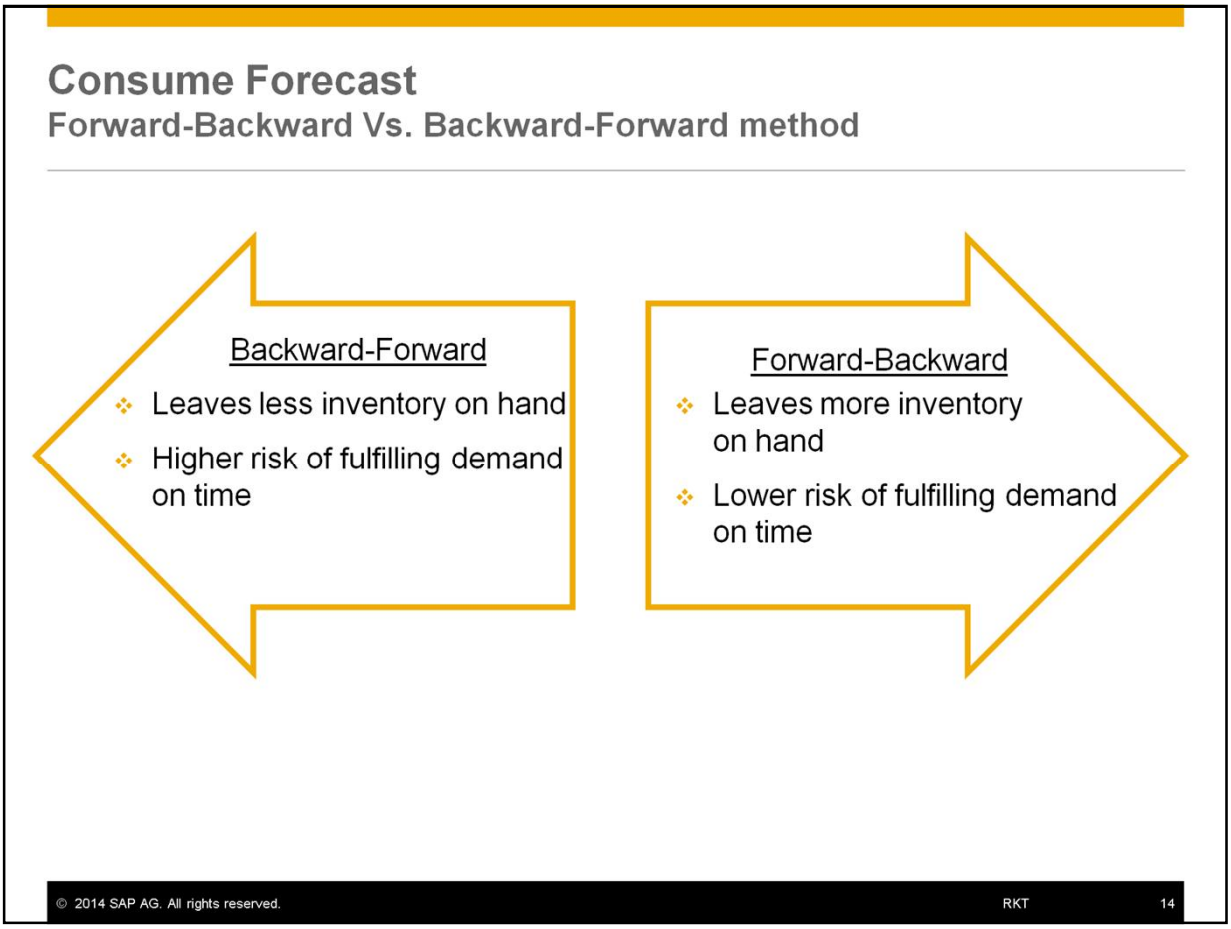
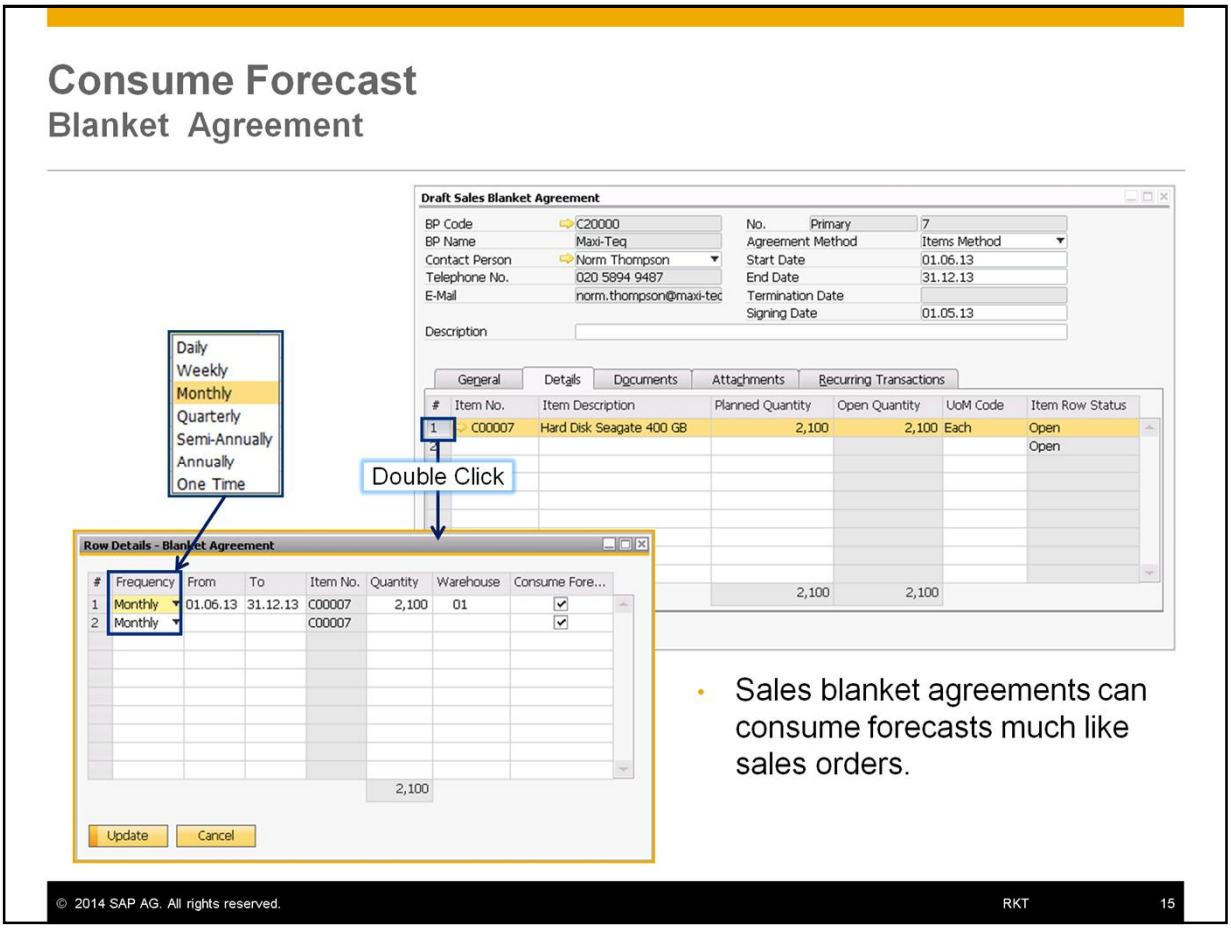
- When we look at the total demand of each week we can see that:
  - In week 15 the total demand is **1,900** units. This quantity is the total of the two sales orders of week 15 (200+900=1,100) plus what is left from week 15 forecast (800).
  - In week 16 the total demand is **300** units. This quantity is the total of the sales order from week 16 plus what is left from the forecast of week 16 which is zero.
- Please note that the total demand of each week varies when we use different consumption methods. In addition, if we sum the total demand of both weeks, we receive a different quantity in each method. In the *Forward-Backward* method the demand of both weeks is **2,200** (1,900+300) units and with the *Backward-Forward* method it is only **2,000** (1,100+900) units. This means that when we come to define the *Forecast Consumption Method* we need to understand the implications of each method and to choose it carefully. Having said that, this definition can be changed at any time. In the next slide we will try to see when it is better to use each method.



- When you come to decide which method to use, you should consider the following:
  - The *Backward-Forward* method is more suitable for companies that prefer to have less inventory on hand.
  - The *Forward-Backward* method is more suitable for companies who prefer to have a lower risk of fulfilling demand on time.
- In the *Backward-Forward* method you consume the forecast that is defined for the near future first and thus minimizing the demand of the near future. Lower demand leads to a lower recommendation quantity and lower purchase and production.
- The advantage of this method is the low inventory level remaining after the fulfilment of the demand.
- But it also means a higher risk of not fulfilling new demand on time.
- The *Forward-Backward* on the other hand increases the near future recommendations and thus raising inventory level and minimizing the risk of unfulfilled demand.

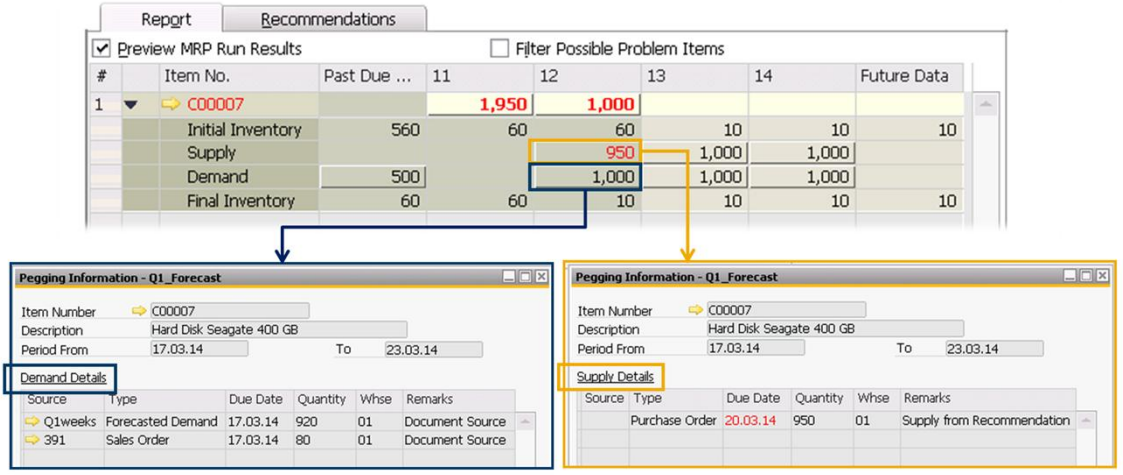


- Sales blanket agreements can consume forecasts much like sales orders.
- The rows of the sales blanket agreement are marked as consumed when the *Consume Forecast* check box in the *General Settings* window is selected. Even if this option is not selected, you can still choose this checkbox for each row in the *Blanket Agreement Row Details* window.
- Just double click the row number to enter the *Row Details – Blanket Agreement* window and select the *Consume Forecast* check box of each relevant row.
- Here is an example of blanket agreement consumption:
  - OEC Computers has a blanket agreement with Maxi-Teq for **2,100** units. Each month they order a fixed quantity of **300** units.
  - In order to calculate consumption, the system calculates the expected sales orders due date and thus sets the consumption date. No matter which frequency we choose in the *Frequency* field, the first consumption day equals the *From Date* in the row. In our example the first consumption of **300** units occurs on the *From Date* - **June 1st**.
  - Then, every other consumption is set to the 1st of each of the following months.
  - If choosing a *One Time* occurrence, the consumption is also due on **June 1st**.
- Note that two conditions have to exist to make sure the MRP run considers these consumptions:
  - First, the sales blanket agreement should be set as *Approved*.
  - Second, a warehouse must be indicated in the row.
- In addition, note that only the open quantity of the blanket agreement row is subtracted from the forecast.

Analysis of the MRP Report

Consume forecast Scenario

Scenario details for Hard Disk item					
Weekly Forecast for weeks 12, 13,14 (pcs):	1000	Lead Time (days):	10	Todays date:	10.3.14
Order Multiple (pcs):	50				



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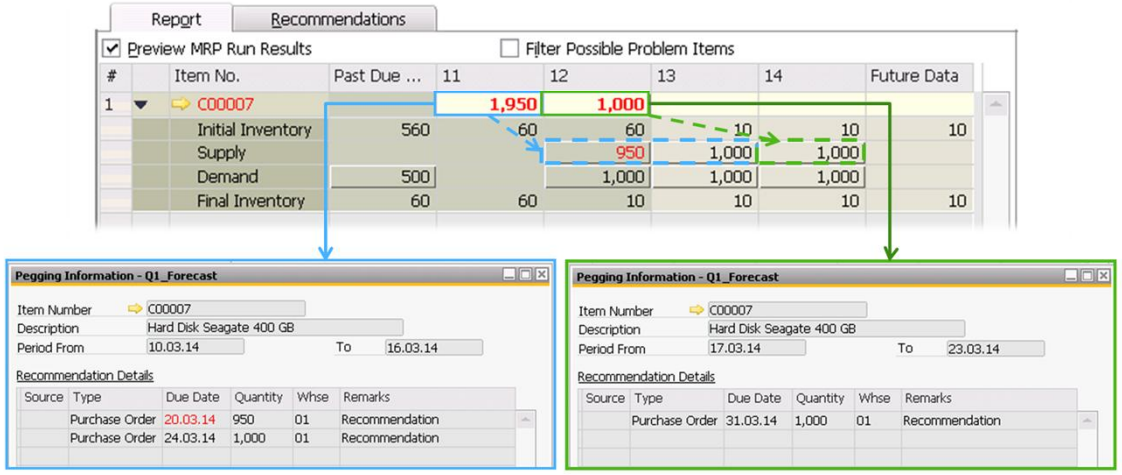
- Let us look at how the forecast consumption is reflected in the MRP Report.
- We run the MRP wizard for the **hard disk** item.
- In this scenario the lead time is **10** days and the order multiples is set to **50**.
- In addition we defined a weekly forecast for weeks 12, 13 and 14. Each for **1,000** units.
- Look at the pegging information of the demand in week 12. We see only **920** units in the forecast of week 12. The reason for that is the fact that there is already a sales order for **80** units that consumes the forecast of week 12.
- When we look at the pegging information for the supply, we see a recommendation for **950** units. In the initial quantity of week 12, we can see we already have **60** units on hand and if we subtract **60** units from the demand of **1,000** units we should have received a recommendation for **940** units**.** The reason the system recommends to purchase **950** units is due to the order multiple definition of **50** units.

Analysis of the MRP Report

Consume Forecast Scenario - Lead Time Calculation

Scenario details for Hard Disk item					
Weekly Forecast for weeks 12, 13,14 (pcs):	1000	Lead Time (days):	10	Todays date:	10.3.14
Order Multiple (pcs):	50				



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- When we look at the recommendation row we see a recommendation for **1,950** units in week 11.
  - This recommendation is derived from the recommended supply of weeks 12 and week 13.
  - Look at the pegging information on the left. The system recommends a purchase order for **950** units with a due date of March 20th,10 days from today. This is the earliest date the demand of the sales order that was due on March 17th can be supplied.
  - The system recommends another purchase order for **1,000** units derived from a recommendation for a purchase order due on March 24th. If we count 10 days back we reach March 14th, still in week 11.
- In week 12 we see a recommended quantity of **1,000** units derived from a recommended purchase order due on week 14. Again, according to defined lead time of the item, the recommendation is given in week 12.

Summary

Key points:

- SAP Business One allows consumption of sales orders and blanket agreements from the forecast.
- The MRP report shows the net recommended quantity of the forecast.
- We can define a consumption method: *Backward-Forward* or *Forward-Backward*.

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Here are some key points to take away from this course:

- SAP Business One allows consumption of sales orders and blanket agreements from the forecast.
- The MRP report shows the net recommended quantity of the forecast.
- We can define a consumption method: *Backward-Forward* or *Forward-Backward*.

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