

11*i* Managing Demand in a Flow Environment

Student Guide

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Preface

Profile

Before You Begin This Course

Before you begin this course, you should have the following qualifications:

- Thorough knowledge and proficiency in navigating Oracle applications
- Working experience with *a working knowledge of the manufacturing business process*

Prerequisites

- *Oracle Inventory*
- *Oracle Bills of Material and Oracle Engineering*

How This Course Is Organized

This is an instructor-led course featuring lecture and hands-on exercises. Online demonstrations and written practice sessions reinforce the concepts and skills introduced.

Related Publications

Oracle Publications

Title	Part Number
<i>Oracle Inventory User's Guide</i>	<i>A83507-01</i>
<i>Oracle Bills of Material User's Guide</i>	<i>A75087-01</i>
<i>Oracle Master Scheduling/MRP and Oracle Supply Chain Planning User's Guide</i>	<i>A82941-01</i>
<i>Oracle Work in Process User's Guide</i>	<i>A83598-01</i>
<i>Oracle Flow Manufacturing User's Guide</i>	<i>A69396-01</i>

Additional Publications

- System release bulletins
- Installation and user's guides
- *read.me* files
- *Oracle Magazine*

Typographic Conventions

Typographic Conventions in Text

Convention	Element	Example
Bold italic	Glossary term (if there is a glossary)	The <i>algorithm</i> inserts the new key.
Caps and lowercase	Buttons, check boxes, triggers, windows	Click the Executable button. Select the Can't Delete Card check box. Assign a When-Validate-Item trigger to the ORD block. Open the Master Schedule window.
Courier new, case sensitive (default is lowercase)	Code output, directory names, filenames, passwords, pathnames, URLs, user input, usernames	Code output: <code>debug.set ('I', 300);</code> Directory: <code>bin (DOS), \$FMHOME (UNIX)</code> Filename: Locate the <code>init.ora</code> file. Password: User <code>tiger</code> as your password. Pathname: Open <code>c:\my_docs\projects</code> URL: Go to <code>http://www.oracle.com</code> User input: Enter <code>300</code> Username: Log on as <code>scott</code>
Initial cap	Graphics labels (unless the term is a proper noun)	Customer address (<i>but</i> Oracle Payables)
Italic	Emphasized words and phrases, titles of books and courses, variables	Do <i>not</i> save changes to the database. For further information, see <i>Oracle7 Server SQL Language Reference Manual</i> . Enter <code>user_id@us.oracle.com</code> , where <i>user id</i> is the name of the user.
Quotation marks	Interface elements with long names that have only initial caps; lesson and chapter titles in cross-references	Select "Include a reusable module component" and click Finish. This subject is covered in Unit II, Lesson 3, "Working with Objects."
Uppercase	SQL column names, commands, functions, schemas, table names	Use the SELECT command to view information stored in the LAST_NAME column of the EMP table.

Convention	Element	Example
Arrow	Menu paths	Select File—> Save.

Brackets	Key names	Press [Enter].
Commas	Key sequences	Press and release keys one at a time: [Alternate], [F], [D]
Plus signs	Key combinations	Press and hold these keys simultaneously: [Ctrl]+[Alt]+[Del]

Typographic Conventions in Code

Convention	Element	Example
Caps and lowercase	Oracle Forms triggers	When-Validate-Item
Lowercase	Column names, table names	SELECT last_name FROM s_emp;
	Passwords	DROP USER scott IDENTIFIED BY tiger;
	PL/SQL objects	OG_ACTIVATE_LAYER (OG_GET_LAYER ('prod_pie_layer'))
Lowercase italic	Syntax variables	CREATE ROLE <i>role</i>
Uppercase	SQL commands and functions	SELECT userid FROM emp;

Typographic Conventions in Navigation Paths

This course uses simplified navigation paths, such as the following example, to direct you through Oracle Applications.

(N) Invoice > Entry > Invoice Batches Summary (M) Query > Find (B) Approve

This simplified path translates to the following:

1. (N) From the Navigator window, select Invoice > Entry > Invoice Batches Summary.
2. (M) From the menu, select Query > Find.
3. (B) Click the Approve button.

Notations :

(N) = Navigator

(M) = Menu

(T) = Tab

(I) = Icon

(H) = Hyperlink

(B) = Button

Typographical Conventions in Help System Paths

This course uses a “navigation path” convention to represent actions you perform to find pertinent information in the Oracle Applications Help System.

The following help navigation path, for example—

(Help) General Ledger > Journals > Enter Journals

—represents the following sequence of actions:

1. In the navigation frame of the help system window, expand the General Ledger entry.
2. Under the General Ledger entry, expand Journals.
3. Under Journals, select Enter Journals.
4. Review the Enter Journals topic that appears in the document frame of the help system window.

Getting Help

Oracle Applications provides you with a complete online help facility.

Whenever you need assistance, simply choose an item from the Help menu to pinpoint the type of information you want.

To display help for a current window:

1. Choose Window Help from the Help menu, click the Help button on the toolbar, or hold down the Control key and type 'h'.

A web browser window appears, containing search and navigation frames on the left, and a frame that displays help documents on the right.

The document frame provides information on the window containing the cursor. The navigation frame displays the top-level topics for your responsibility, arranged in a tree control.

2. If the document frame contains a list of topics associated with the window, click on a topic of interest to display more detailed information.

3. You can navigate to other topics of interest in the help system, or choose Close from your web browser's File menu to close help.

Searching for Help

You can perform a search to find the Oracle Applications help information you want. Simply enter your query in the text field located in the top-left frame of the browser window when viewing help, then click the adjacent Find button.

A list of titles, ranked by relevance and linked to the documents in question, is returned from your search in the right-hand document frame. Click on whichever title seems to best answer your needs to display the complete document in this frame. If the document doesn't fully answer your questions, use your browser's Back button to return to the list of titles and try another.

11*i* Managing Demand in a Flow Environment

Chapter 1

11i Managing Demand in a Flow Environment

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Objectives

After completing this lesson, you should be able to do the following:

- **Understand the role of Demand Management in Flow Manufacturing**
- **Understand the use and function of Product Families**
- **Create and maintain Product Family forecasts**
- **Understand how and when Product Family forecasts are consumed**
- **Understand the role of MDS/MPS in Flow Manufacturing**
- **Understand the purpose and functionality of tolerance fences**

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Agenda

Agenda

- Overview
- Demand Management business scenario
- Using product families in a flow environment
- Forecasting product families
- Associated functionalities

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Agenda

Agenda

- **Overview**
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Overview

Goal of Demand Management:

Be able to define the anticipated market share percentage in terms of a product mix.

Once the product mix is defined, the products can be grouped into families based on the communality of processes that they go through.

After families are created the production lines are designed to build all the items in that family in a mix model basis.

Oracle Flow Manufacturing enables you to analyze demand, group products into product families, and manage demand on a day by day basis.

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Agenda

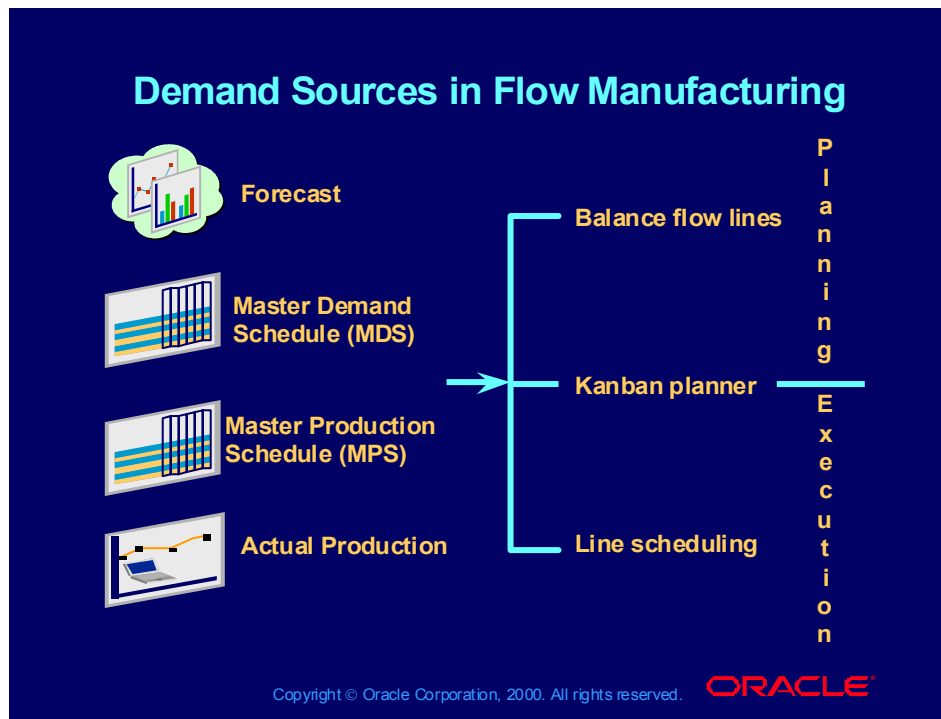
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Demand Sources in Flow Manufacturing



Demand Sources

Demand sources are used in Flow Manufacturing during both the design phase and during manufacturing execution.

During the design phase they are used for:

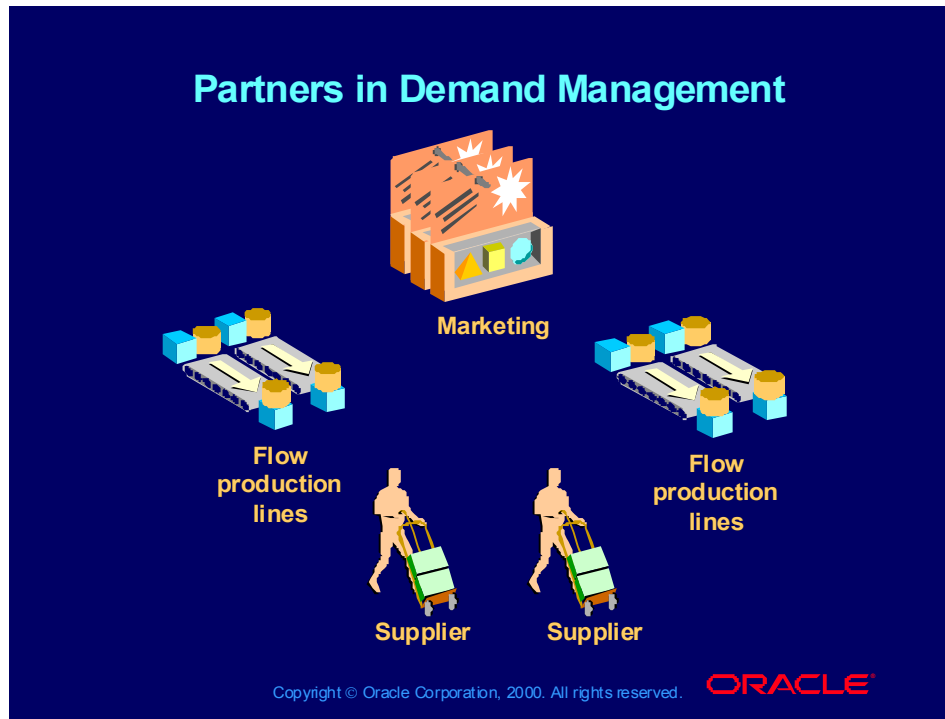
- Defining the design capacity of the flow lines and establishing line TAKT.
- Sizing and stocking kanban containers to support the design and customer demand.

During execution customer orders or planned orders are scheduled for production on the flow line. Once scheduled, that demand can be used for:

Comparing the mix and demand of the schedule to the balanced line to determine bottlenecks and resource requirements.

- Comparing the schedule to the production kanbans to determine if component supplies are adequate.

Partners in Demand Management



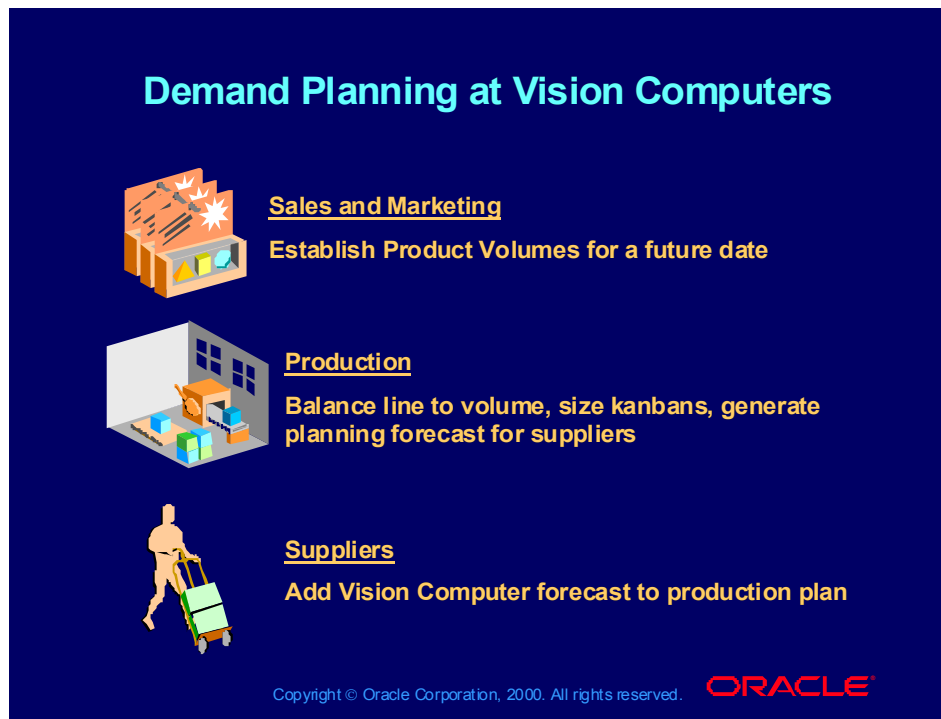
Demand Management

In Flow Manufacturing, the need to create a partnership between Sales and Marketing, production and suppliers becomes essential to success. Strategy must be developed to synchronize the flow of products from supplier to the flow line, to the distribution network, and finally to the customer.

In determining the demand schedule, the following factors should be taken into account:

- Product volume
- Factor pricing and promotions within the product volume
- Supplier relationships developed to support product volume
- Predicted growth patterns
- New product introductions

Demand Planning at Vision Computers

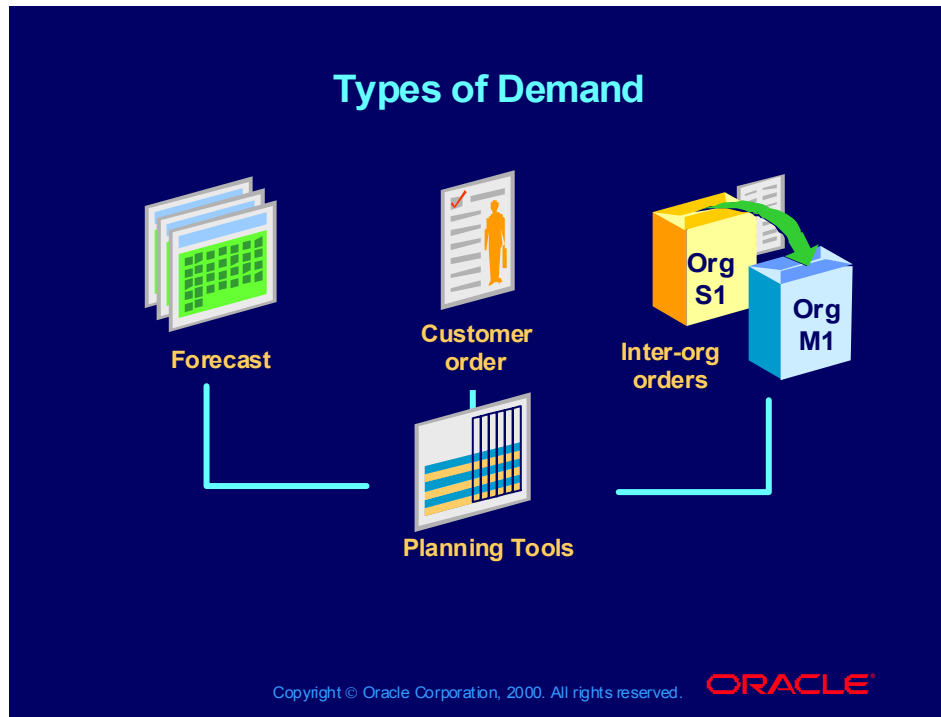


The Partnership at Vision Computers

Production volume was negotiated for the Laptop Product Family at a rate of 1,000 per manufacturing day. Each partner supported this agreement in the following ways:

- Sales and Marketing:
 - Marketing its laptop product line at the rate of 55,000 for the quarter
- Production:
 - Balancing the flow line to 1,100 a day, with allowable flex percentages
 - Determining Kanban requirements
 - Communicating component requirements to the suppliers via the WEB
- Suppliers:
 - Adding Vision Computer's component forecast to their production plan, thereby reserving capacity for their strategic partner.

Types of Demand



Types of Demand

Oracle Flow Manufacturing uses the *Demand Management* tools provided in *Oracle APS*, *MPS/MRP*, or *Supply Chain Planning* to plan production.

Types of Demand include:

- Forecasts: By Product Family or Finished Goods
Note: Product Family forecasts cannot be generated from member item shipments
- Customer orders
- Inter-org transfer orders
- Manual MDS entries
- Manual MPS entries

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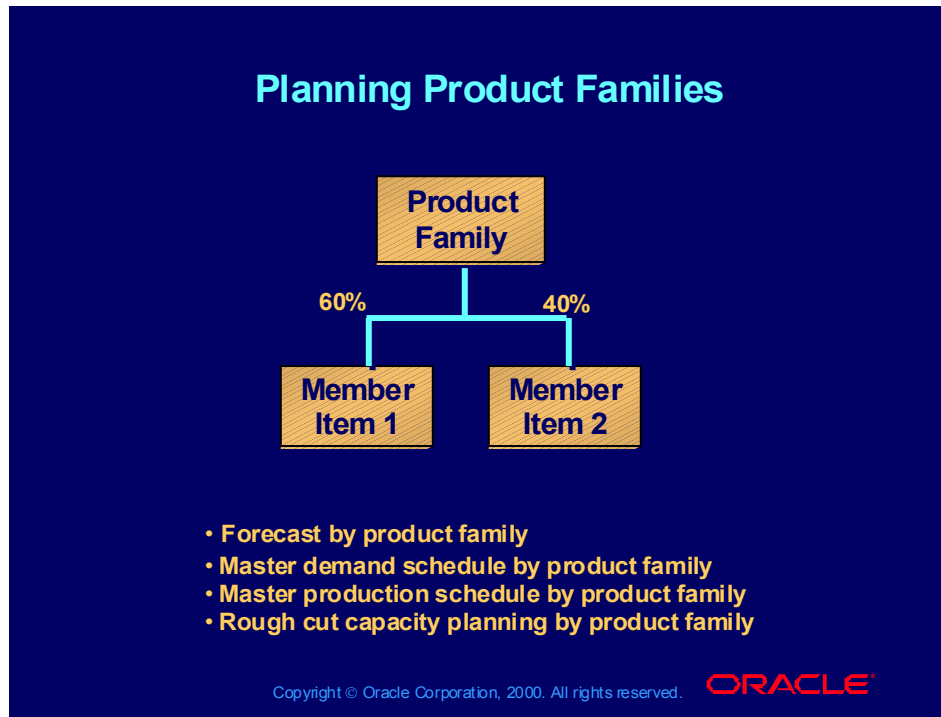
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Planning Product Families



Planning for Product Families

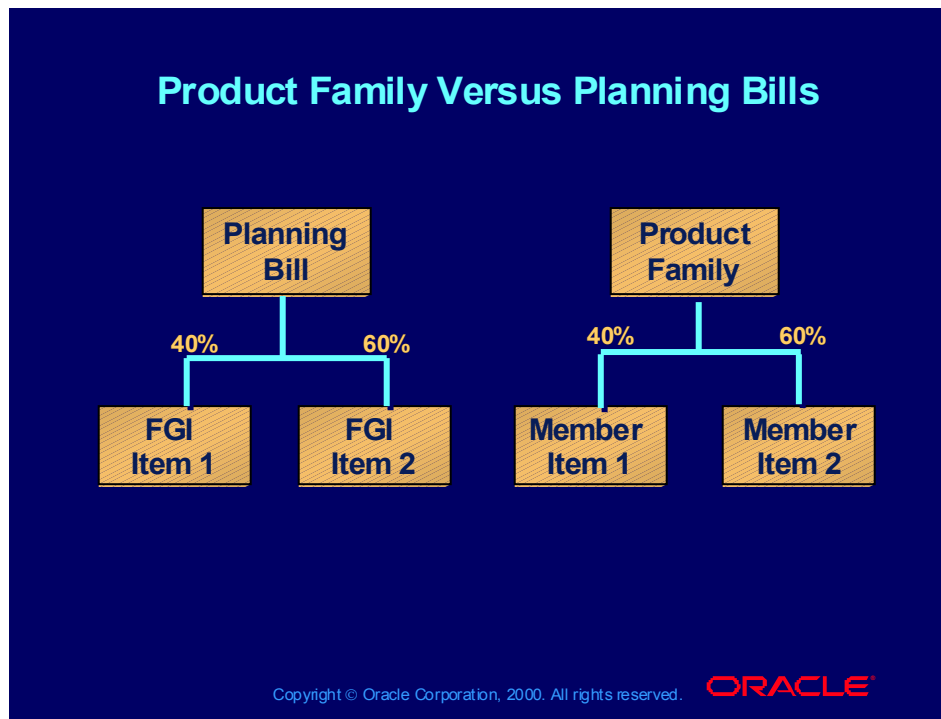
In Flow Manufacturing where mixed model production is supported, planning at the aggregate level of product family yields greater accuracy. To plan production for a flow line by product family:

- Forecast by product family
- Schedule for product family
- Plan material for product family

Note: Typically, a Flow Line is designed for one specific product family containing a mix of products. However, flow lines can be designed for multiple product families.

Note: Product families are not required for flow manufacturing.

Product Family Versus Planning Bills



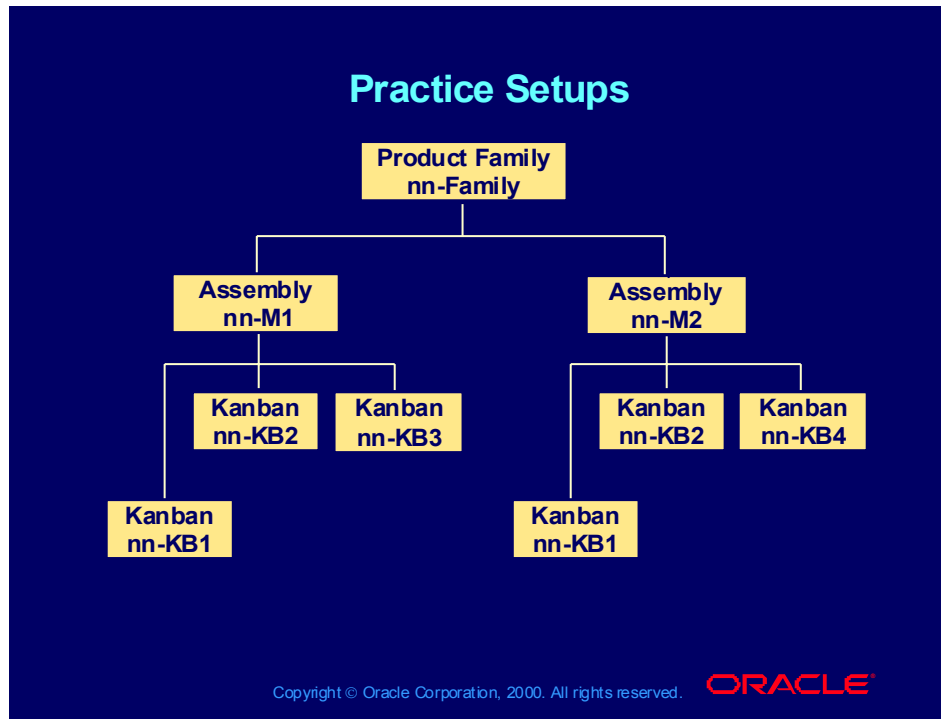
Forecast Explosions

- Product families are like planning bills in the following ways:
- Both are nonbuildable items
- Both group items for forecasting purposes
- Both are used to enter forecasts
- Both explode their forecasts to their member items

How Product Families Differ from Planning Bills

- Product family forecast is consumed by member item sales orders.
- Planning bills add their components in the bill define window, product family members are assigned in the assign members window.
- Planning bills distribute their forecasts based on planning percentage in BOM, product families distribute their forecasts based on allocation percentage.
- Product family member allocations can be phased in with effectivity dates, and planning bill components planning percentage can change with ECO implementation.

Practice Setups



Product Family Structure

To support the practice exercises, we need to set up a product family consisting of two finished assemblies, each with a corresponding bill of material.

Unless otherwise noted, all organization assignments are for M1, Seattle Manufacturing.

Save your work at the end of each step.

Practice Setups DM-1

Instructions:

Using the following information, perform the setup.

Replace *nn* with your initials.

Finished Goods Models and Bills of Material

1. Create two finished assembly products
2. Create four kanban component items
3. Create a Bill of Material for the finished assemblies

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1. Create Two Finished Assembly Products

Product 1: nn-M1

Manufacturing and Distribution Manager Responsibility

Flow Manufacturing (N) Products and Parts > Master Items

Description = Assembly 1

Template = Finished Goods

Organization Assignment = M1 Seattle Manufacturing

Product 2: nn-M2

Description = Assembly 2

Template = Finished Goods

Org-level Attribute Setting:

Planning Method = MRP Planning

Forecast Control = None

Release Time Fence = Kanban (Do Not Release)

2. Create Four Kanban Component Items

Kanban Items: nn-KB1 through nn-KB4

Manufacturing and Distribution Manager Responsibility

Flow Manufacturing (N) Products and Parts > Master Items

Description = nn Kanban Item (1 through 4)

Template = Purchased Item

Org-level Attribute Setting:

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Practice Setups DM-1

Instructions:

Using the following information, perform the setup.

Replace *nn* with your initials.

Finished Goods Models and Bills of Material

1. Create two finished assembly products
2. Create four kanban component items
3. Create a Bill of Material for the finished assemblies

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2. Create Four Kanban Component Items (continued)

Planning Method = MRP

Forecast Control = None

Release Time Fence = Kanban (Do Not Release)

WIP Supply Method = Assembly Pull

WIP Supply Subinventory = RIP

3. Create a BOM for Each of the Products That You Created in Step 1.

Product 1 BOM

Manufacturing and Distribution Manager Responsibility

Flow Manufacturing (N) Bills > Bills

Parent = nn-M1

Component = nn-KB1; qty = 1; backflush material subinventory = RIP

Component = nn-KB2; qty = 2; backflush material subinventory = RIP

Component = nn-KB3; qty = 1; backflush material subinventory = RIP

Product 2 BOM

Parent = nn-M2

Copy Bill from... nn-M1

Replace component nn-KB3 with nn-KB4; qty = 1

Set component nn-KB1 backflush material subinventory = Stores

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Practice Setups DM-2

Instructions:

Using the following information, perform the setup.

Replace *nn* with your initials.

Product Family

1. Create a Product Family
2. Create Product Family Members

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1. Create a Product Family

Manufacturing and Distribution Manager Responsibility

Flow Manufacturing (N) Products and Parts > Product Family

The product family template is applied.

Note: You are not required to use the product family template. If you choose not to use a template, make sure that you define the correct product family attributes. Specifically, the item must be an inventory item and the BOM Item Type must be Product Family. The item must also be BOM allowed.

Product Family Name = nn-Family

Enter a description.

Organization Assignment = M1 Seattle Manufacturing

2. Create Product Family Members

Manufacturing and Distribution Manager Responsibility

Flow Manufacturing (N) Products and Parts > Product Family Members

Family Member, nn-M1

- Member Item = nn-M1
- Allocation Planning % = 60

Practice Setups DM-2

Instructions:

Using the following information, perform the setup.

Replace *nn* with your initials.

Product Family

1. Create a Product Family
2. Create Product Family Members

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2. Create Product Family Members (continued)

Family Member, nn-M2

- Member Item = nn-M2
- Allocation Planning % = 40

Navigate to the Product Family window, and your select a product family item. Select item members for the product family. The description, type, forecast control, and planning method for the member items are displayed for the items selected.

Note: When an item is included in a product family, it is automatically assigned to the same category as the family item.

Commit the record by selecting Save from the File menu.

Note: You can commit a record without assigning planning percentages. The default planning percentage is 100. The default effectivity date is the system date.

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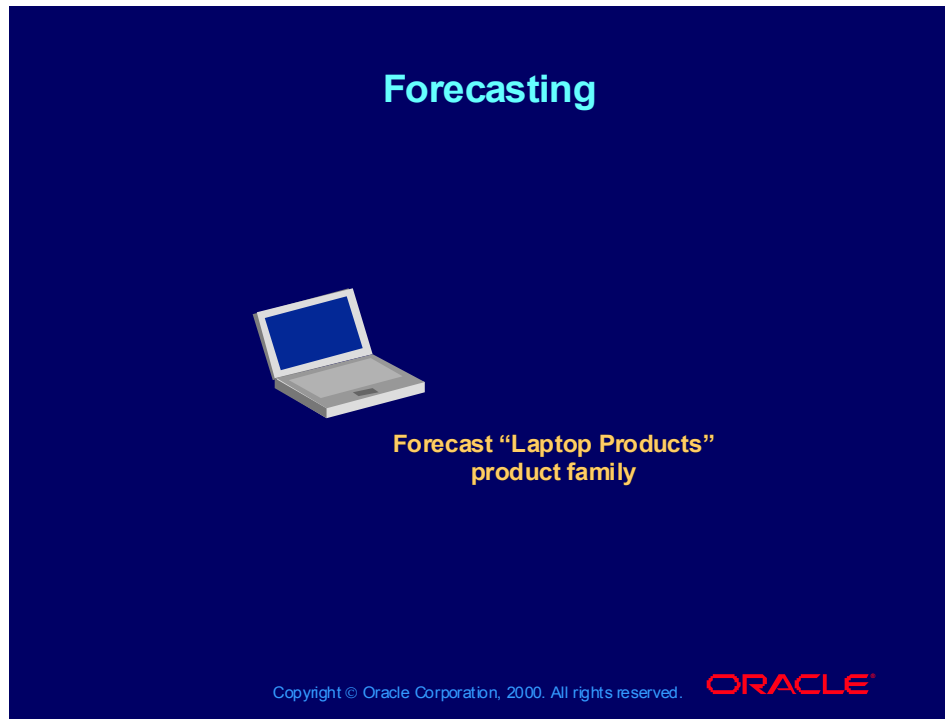
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Forecasting



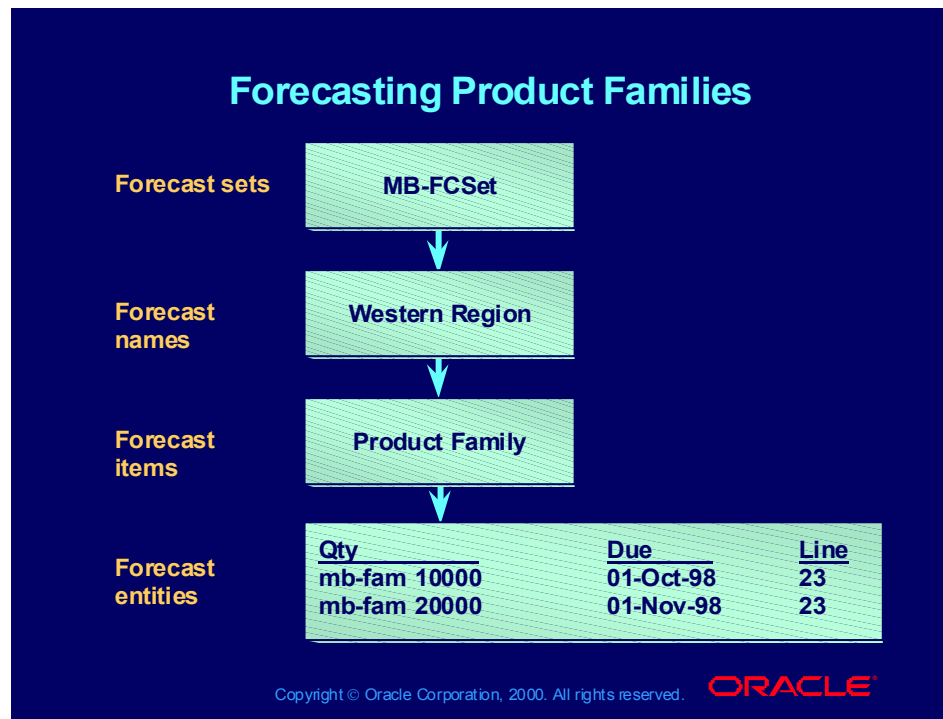
Forecasts

A forecast shows predicted future demand for items over time.

You can forecast at the aggregate level using product family forecasts. With each forecast entry, you enter the days, weeks, or periods and the quantities that you expect to ship. The product family forecast is then exploded to its members.

You can load forecasts, together with sales orders, into master demand and production schedules, and use the master schedules to drive line design, kanban requirements and planned material requirements.

Forecasting Product Families



Forecasting for Product Family

Forecasts for product families are created like any other manual forecast. You must:

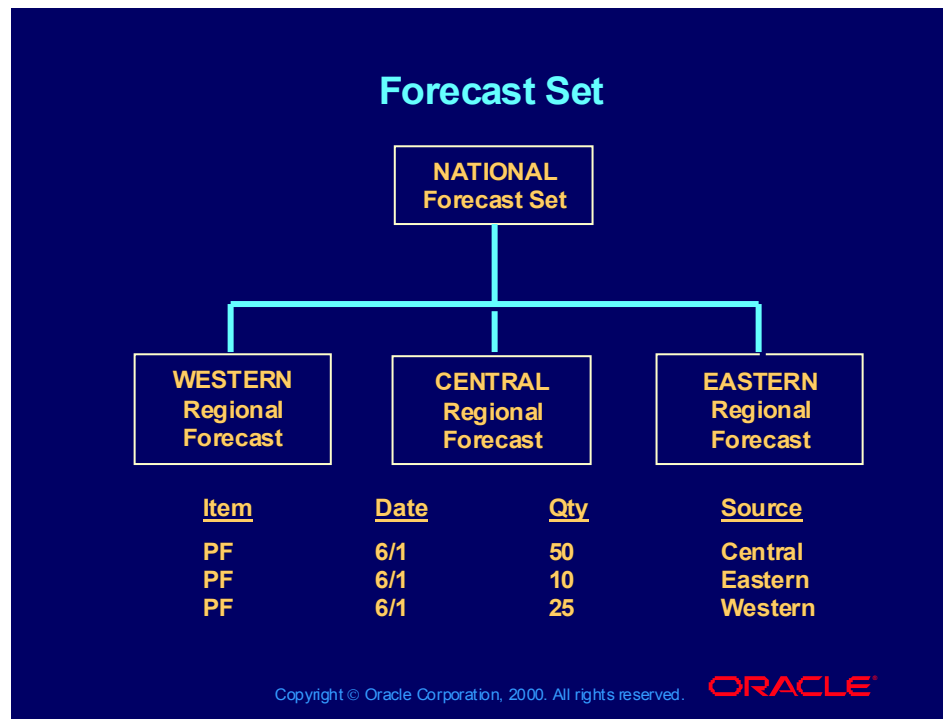
- Create a forecast set.
- Create one or more forecast names.
- Add product family items to forecast names.

Note: You can add forecasts for any item, along with product family forecasts.

- Add forecast entries for product families items.

Optionally, assign product family forecast entries to a specific flow line. If left blank, then the system looks for a flow routing to determine the line.

Forecast Set



Forecast Sets

Forecast sets are used to group one or more forecasts. Each regional forecast may contain specific forecasts for product families, family members, and spare parts.

Before you define a forecast, you first define a set. Forecast sets:

- Group complementing forecasts that sum to a meaningful whole
- Group forecasts that represent different scenarios

You can associate a forecast to one forecast set only.

Some forecast set information—such as forecast level—defaults to the forecasts you create within the set. You can keep or override these defaults for a specific forecast.

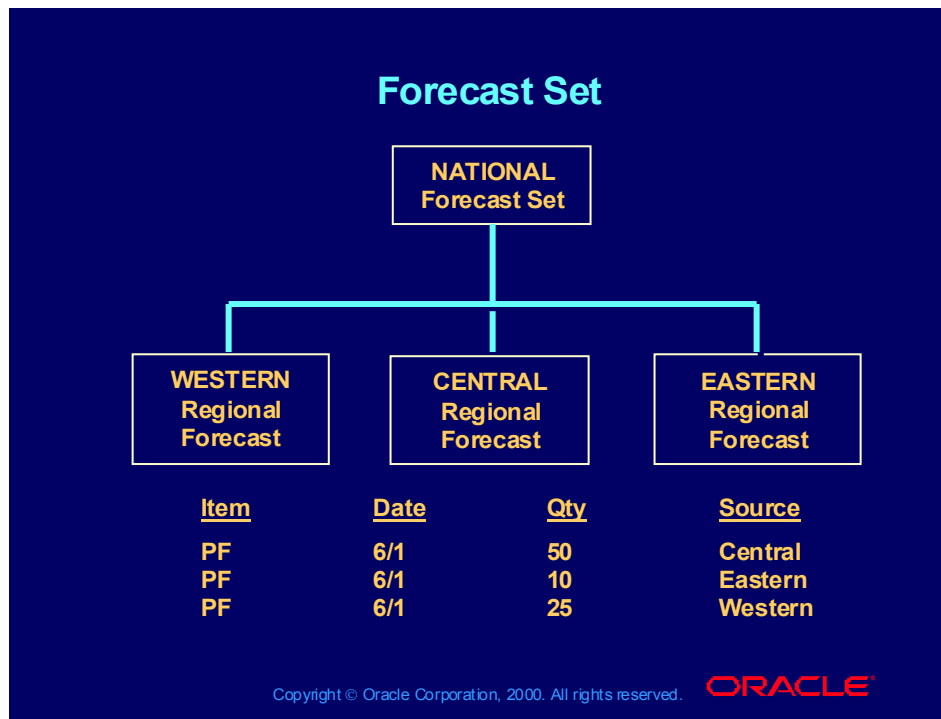
Forecasts and Sets

Forecast sets consist of one or more forecasts. Sets group complementing forecasts into a meaningful whole. For example, a forecast set could contain separate forecasts by region.

Forecast Names

Each forecast inherits the forecast level, consumption options, and other defaults defined for the set. You can override these defaults for each forecast name in a set.

Forecast Set



Forecast Items

The items to be forecasted are added to each forecast name. In flow, this is typically the product family product. You can also add forecasts for any other item to cover such things as spare part inventories.

Forecast Entries

You can enter specific forecast information including dates and quantities. It is in this form that the flow line may be specified.

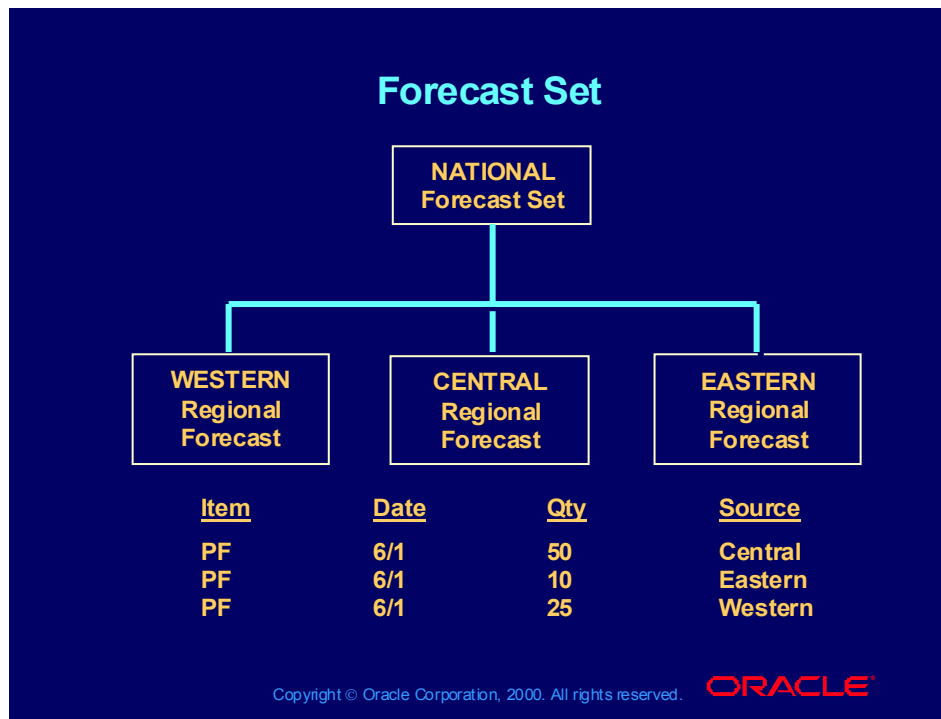
Time Buckets

You can forecast with daily buckets in the short term, weekly buckets in the midterm, and periodic buckets in the longer term.

Consumption

You can manually or automatically consume forecasted demand with sales order (actual) demand. Consumption follows a forecast explosion and can be done prior to, or during, the MPS plan generation.

Forecast Set



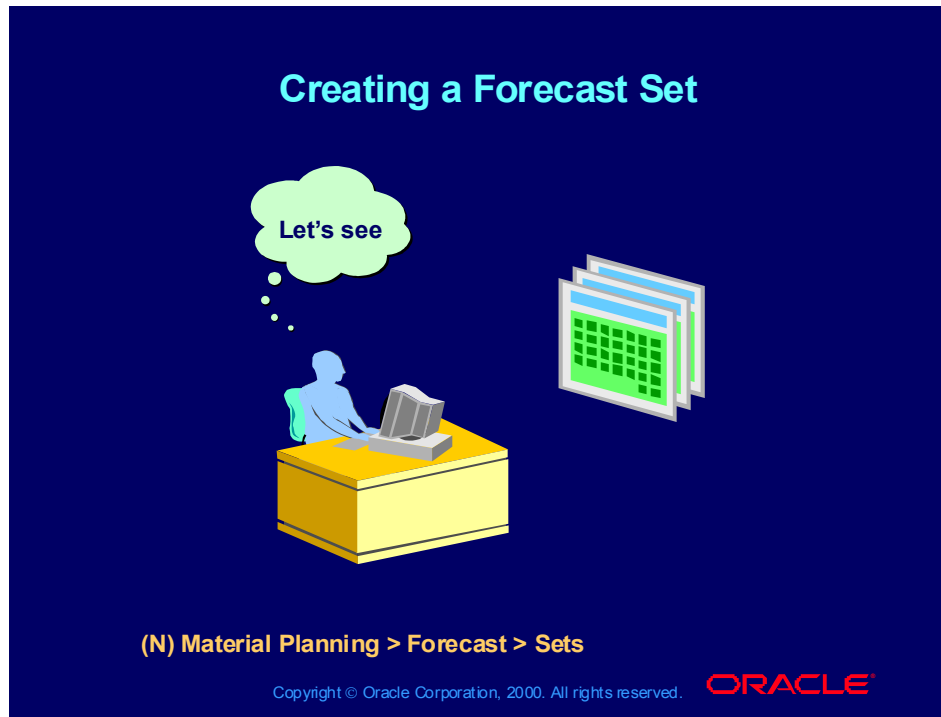
Consume by Demand Class

You can define demand classes that represent groupings of similar customers or order types. This allows you to consume forecasts by sales orders of a specific demand class, for example.

Consume by Item, Customer, Bill-to Address, or Ship-to Address

You can consume forecasts at four different forecast levels: item, customer, bill-to address, or ship-to address forecast levels. This allows you to consume forecasts by sales orders for a specific customer, for example Project and Seiban References. If you are working in a project-based or Seiban environment, you can include project/Seiban and task references to your forecast entries if organizational parameters allow. These references will accompany forecast copies, loads, merges, and explosion.

Creating a Forecast Set



Forecast Sets

(Help) Oracle Manufacturing Applications > Oracle Forecasting >
Defining a Forecast Manually > Defining a Forecast Set

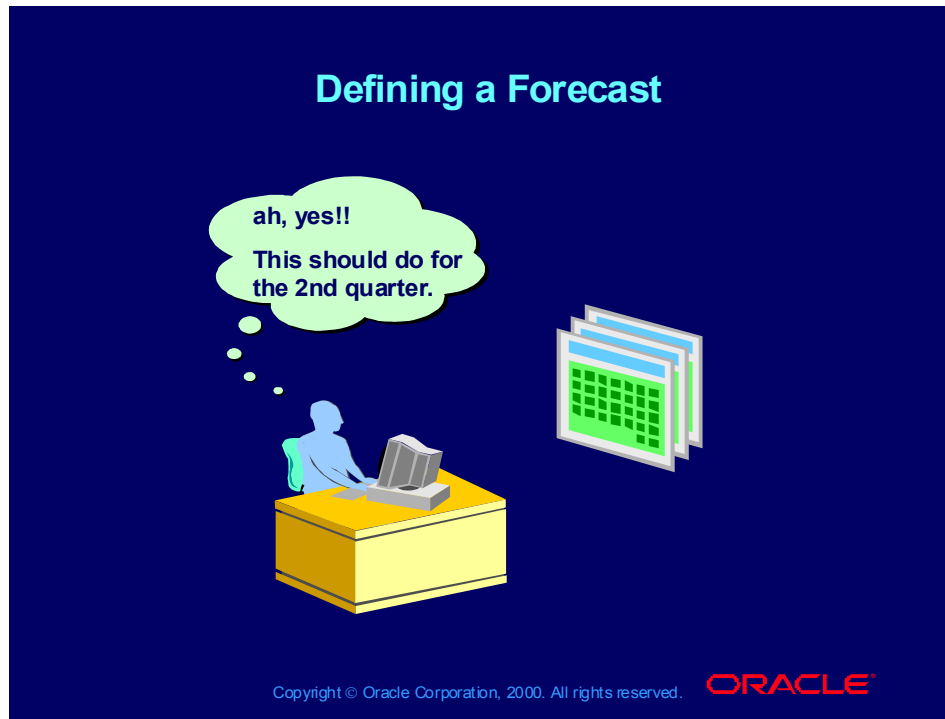
To Define a Forecast Set

- 1 Navigate to the Forecast Sets window.
- 2 Enter a unique Forecast Set name.
- 3 Select a bucket type to group forecast entries by days, weeks, or accounting periods.

Select the level that determines how forecasts in the set are defined and consumed.

- Ship-To: Item, customer, and shipping identifier
- Bill-To: Item, customer, and billing identifier
- Customer: Item and customer
- Item: Without *Oracle Order Management* or *Oracle Receivables*, “item” is the only option you can choose

Defining a Forecast



To Define a Forecast Set (continued)

4 Select consumption options.

- If you turn consumption on, sales orders consume forecast entries in this set.
- The outlier update is the maximum percentage of a forecast entry that a single sales order can consume.
- Forward and backward days describe the number of work dates from the sales order schedule date that forecast consumption searches backward or forward for a forecast entry to consume. Non-workdays are not counted in these calculations.

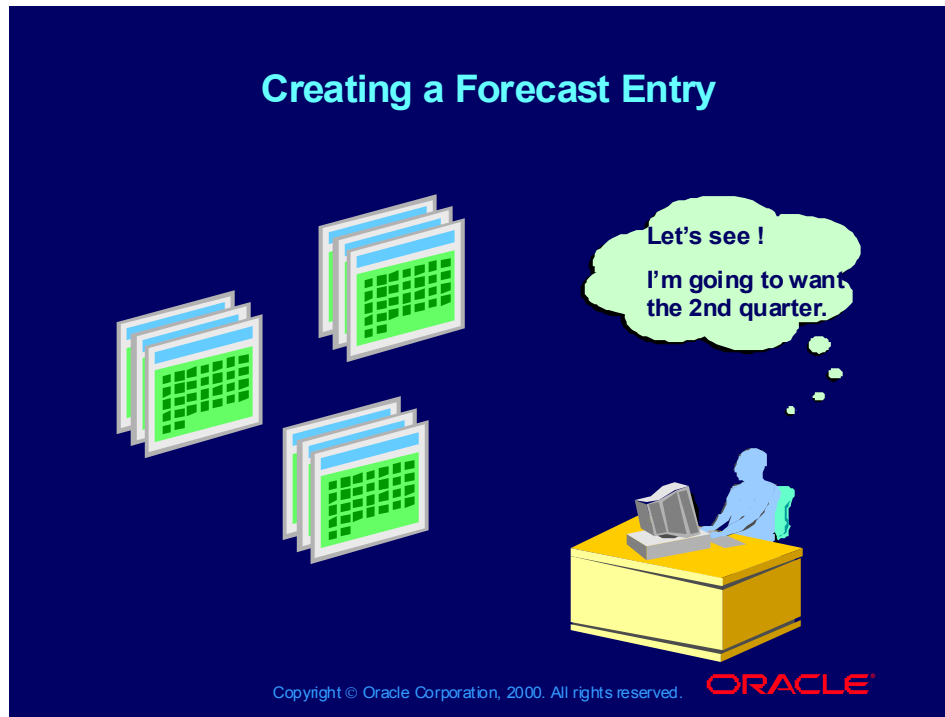
5 Save your work.

You can now define one or more forecasts for this set.

To Disable a Forecast Set

Note: You can view disabled forecasts but not modify them. Enter a disable date. After this date, you can no longer define a forecast name for the set.

Creating a Forecast Entry



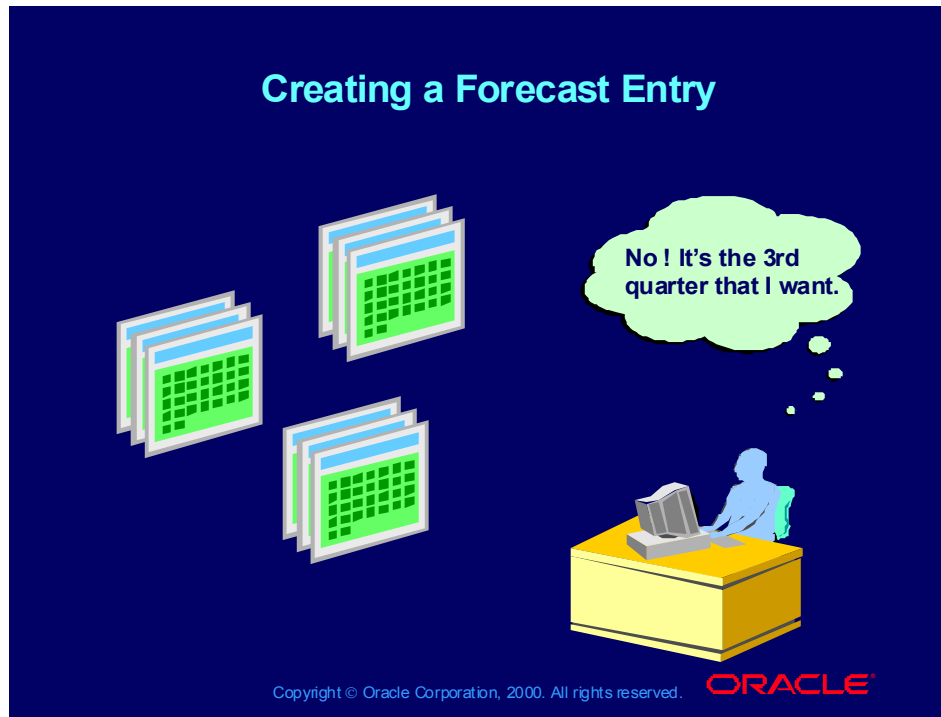
Prerequisites

Define at least one forecast set.

To Define a Forecast

- 1 Navigate to the Forecast Sets window.
- 2 Query a forecast set.
- 3 Enter a unique name and description for the forecast.
- 4 Choose the Forecast Items button to open the Forecast Items window.
You can choose the Folder menu to customize your display.
- 5 Enter an item.
- 6 Choose the Detail button to open the Forecast Entries window.
- 7 Select a bucket type of days, weeks, or accounting periods.
- 8 Enter a date. This is typically the date you expect to ship the item or the beginning of the week or period that you expect to ship the item.

Creating a Forecast Entry



To Define a Forecast (continued)

- 9 Enter an optional End Date. This creates forecast entries of the same quantity for each day, week, or period until the end date. A forecast entry without an end date is valid just for the date and time bucket specified.
- 10 Enter a current quantity. This also becomes the original quantity. Forecast consumption reduces the current quantity. Forecast consumption plus the current quantity equals the original quantity.
- 11 Enter an optional confidence percentage that the forecasted item will become actual demand. *Oracle Master Scheduling/MRP and Supply Chain Planning* multiplies this percentage by the forecast quantity when you load it into a master schedule.
- 12 Optionally, enter the flow line where the product family is to be built.
Note: If left blank, the flow line is derived from the routing.
- 13 If you are working in a project environment, enter a valid project and task reference. After entering a valid reference, you can select a price list and an average discount in the flexfield.
- 14 Save your work.

Practice DM-3

Instructions:

Using the following information, perform the setup.

Replace *nn* with your initials.

Product Family Forecast

1. Create a Forecast Set
2. Add a Forecast Name
3. Add the Forecast item and forecast
4. Add a second Forecast Name for an explosion

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1. Create a New Forecast Set, nn-fset, Accept the Defaults.

Manufacturing and Distribution Manager Responsibility

Material Planning (N) Forecasts > Sets

- Enter a unique name and description.
- Select a bucket type to group forecast entries by days.
- Select the level that determines how forecasts in the set are defined and consumed. **Item:** Without *Oracle Order Management* or *Oracle Receivables*, this is the only option you can choose.
- Select consumption options.
- If you turn consumption on, sales orders you create consume forecast entries in this set.
- The outlier update is the maximum percentage of a forecast entry that a single sales order can consume.
- Forward and backward days describe the number of work dates from the sales order schedule date that forecast consumption looks backward or forward for a forecast entry to consume.
- Save your work.

2. Add the forecast Name = nn-fc.

- Enter a description for the forecast.
- Save your work.
- Choose the Forecast Items button to open the Forecast Items window.

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Practice DM-3

Instructions:

Using the following information, perform the setup.

Replace *nn* with your initials.

Product Family Forecast

1. Create a Forecast Set
2. Add a Forecast Name
3. Add the Forecast item and forecast
4. Add a second Forecast Name for an explosion

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3. Add the Product Family as the Item.

- Add the product family, nn-Family, as the item.
- Save your work.
- Choose the Detail button
- Add the entries below for your Product Family:

Time Bucket	Start Date	End Date	Original Qty
-------------	------------	----------	--------------

Day	Today	Today + 60	40
-----	-------	------------	----

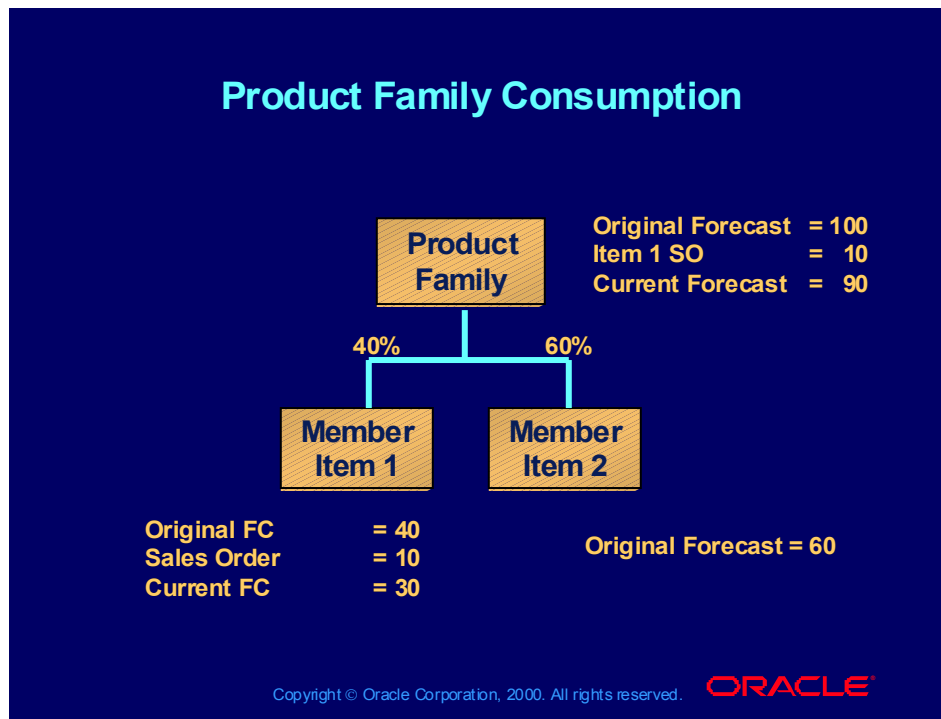
- Save your work.

Note: Remember your Product Family Allocation is set to 60% for your nn-M1 item and 40% for your nn-M2 item.

4. Add Another Forecast Name to the Above Set, Called nn-fexp

Save your work.

Product Family Consumption



Overview of Forecast Consumption

Forecast consumption replaces forecasted demand with actual sales order demand. Each time you create a sales order line, you create actual demand. If the actual demand has already been forecasted, the forecast demand must be subtracted by the sales order quantity to avoid counting the same demand twice.

The Planning Manager is a background concurrent process that performs automatic forecast consumption as you create sales orders.

Forecast consumption relieves forecast items based on the sales order line schedule date. When an exact date match is found, consumption decrements the forecast entry by the sales order quantity. Other factors that may affect the forecast consumption process are backward and forward consumption days and forecast bucket type.

Note: When you create a product family forecast and explode it to product family members, both the product family and the member item forecast are decremented.

Forecast Control Attribute

- Manage products entirely independently
- Manage products independently, but reduce data entry and gain aggregate reporting using forecast explosions
- Manage products aggregately using production planning and two level scheduling

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Attribute Settings

Setting the Forecast Control Attribute on the MPS/MRP region of the Item Master determines if an item *can* receive forecasts, *how* the item receives its forecast, and with product family members, *when* the item receives its forecast.

Product Family Settings

- If you set the product family forecast control attribute to *none*, you disable its unique function and it operates like a planning bill.
- Set the product family forecast control attribute to *consume*, or *consume and derive*. Both enable the same functionality.

Forecast Control Attribute

- Manage products entirely independently
- Manage products independently, but reduce data entry and gain aggregate reporting using forecast explosions
- Manage products aggregately using production planning and two level scheduling

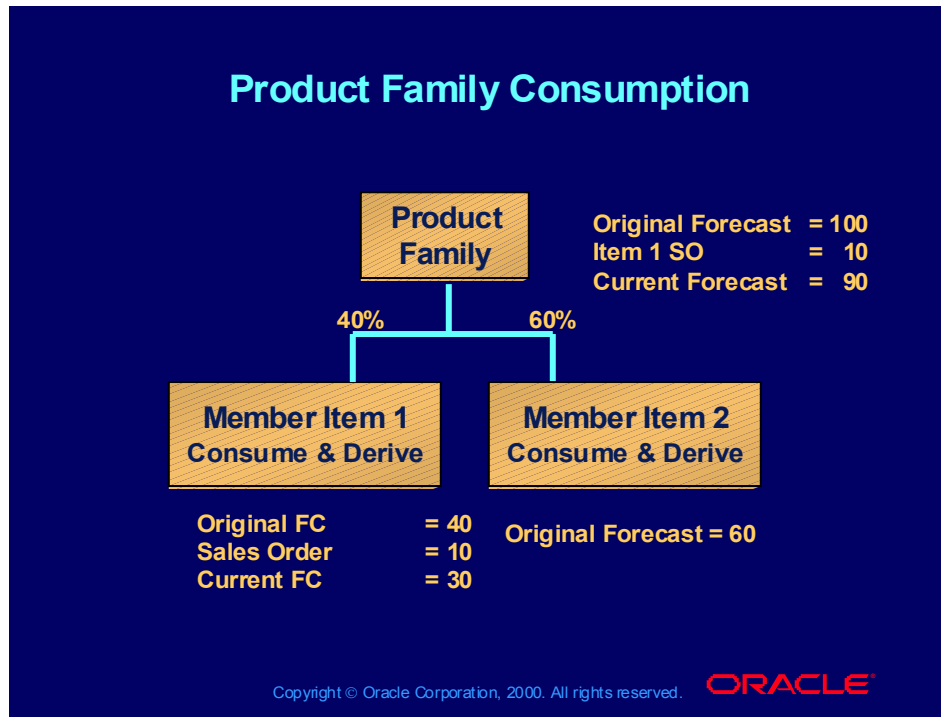
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Member Item Settings

- Set Member item's forecast control attribute to Consume if you want to manage each member item independently instead of part of the family.
- Set member item's forecast control attribute to Consume and Derive if forecasts come from *both* product families and its own independent forecasts. When planning plans for an item with the forecast control attribute set to consume and derive, the assumption is made that forecast explosion has been done. Dependent demand is not passed from product families to items with this attribute setting.
- Set member item's forecast control to None if all of its forecasts come from product family forecast explosions *and* you wish the explosion and consumption to take place during the MPS production plan. When planning plans for an item with the forecast control attribute set to None, the assumption is made that forecast explosion has not been done. Dependent demand is passed from product families to items with this attribute setting. Demand for the family members is calculated based on unconsumed forecast for the product families, and sales orders for the specific family members.

Product Family Consumption



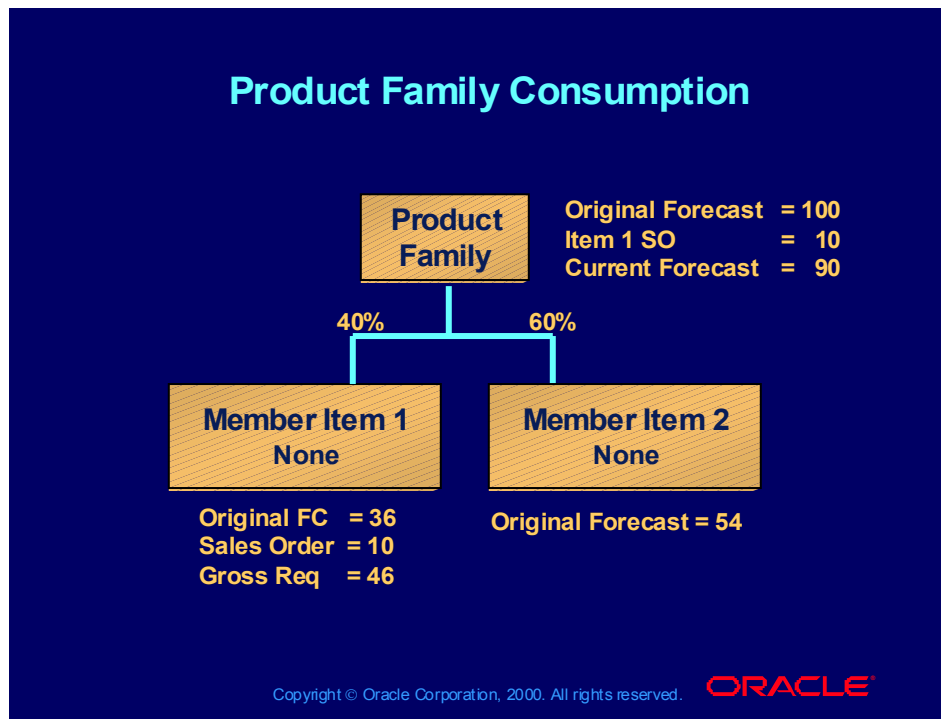
Member forecast control attribute set to Consume and Derive

Original product family forecast quantity of 100 and the product family percentages are used to explode an original forecast of 40 for Item 1, and 60 for Item 2.

Note: This pre-explosion happens during forecast and explosion / or MDS load

The sales order for 10 of Item 1 consumes the forecast at both the item and the family level.

Product Family Consumption



Member forecast control attribute set to None

Product family forecasts are not Pre-Exploded to Member items. Instead, the current product family forecast (original product family forecast quantity – sales orders for member items) is used to explode quantities to the members at the time of planning.

In this case, the current product family forecast requirement is 90. This is exploded to determine the forecast percentages for Item 1 of 36% and Item 2 of 54%

The forecast is calculated, then added to Gross Requirements (though this is not visible in FC forms).

This method preserves the probability that the next sales order received will still have a 60/40 chance between the two models, M1 and M2.

Test Your Understanding

Using the previous example of PF forecast of 1000, create a 75/25 split and book sales orders for M1 of 125, and for M2 of 250.

What is the Current Forecast Quantity for the product family? _____

What will be the forecast for M2 once the MPS has completed? _____

Practice DM-4

Instructions:

Forecast Explosion

1. Explode the Product Family Forecast into Member Item Forecasts.
2. What resulting percent of demand will nn-M2 get after the explosion into nn-fexp for the first week?

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1. Select the Copy/Merge Button From the Forecast Form.

Enter the following parameters:

Destination: nn-fexp

Source Type: Specific Forecast

Org: M1

Forecast: nn-fc

Overwrite: All

- **All Entries:** Deletes everything on the forecast before merging new information.
- **No:** Deletes nothing and adds new entries to existing entries during the merge. Schedule entries are not combined. You can get multiple forecast entries for the same item on the same day.
- **Same Source Only:** Deletes the entries that have the same source as those you merge. You can replace entries on the forecast that were previously loaded from the same source without affecting other entries on the forecast.
- **Dates:** Today, Today + 120

Explode: Yes

Qty Type: Original

Practice DM-4

Instructions:

Forecast Explosion

1. Explode the Product Family Forecast into Member Item Forecasts.
2. What resulting percent of demand will nn-M2 get after the explosion into nn-fexp for the first week?

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Enter the following parameters (continued):

- **Current:** The current forecast quantity is the original forecast quantity minus any consumption quantities. When you choose this option, you cannot choose to consume the forecast since the forecast quantities already reflect sales order demand that has been placed.
- **Original:** This is the quantity of the forecast without any consumption. When you choose this option, you should choose to consume the forecast if you intend to generate a master schedule using forecasts and sales orders. Consuming the original forecast ensures that demand is not overstated by balancing the forecast and sales order demand.
- **Consume:** No
- accept other defaults, then submit the request.
- Make a note of the concurrent request number. _____

2. What resulting percent of demand will nn-M2 get after the explosion into nn-fexp for the first week? _____

Practice DM-5

Instructions:

Forecast Explosion

1. What resulting percent of demand did nn-M2 get after the explosion into nn-fexp for the first week?
2. Why is it zero?

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The Forecast Control Attribute for nn-M2 Is Set to “None.”

When *Oracle Planning* plans for an item with the forecast control attribute set to None, the assumption is made that forecast explosion has not been done. Dependent demand is passed from models or product families to items with this attribute setting.

Note: This was a forecast explosion, not a planning run.

Practice DM-6

Instructions:

Forecast Explosion

1. Change the forecast control attribute on nn-M2 to Consume and Drive.
2. Re-explode the Product Family Forecast into Member Item Forecasts.

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1. Change the Forecast Control Attribute

Manufacturing and Distribution Manager Responsibility

Flow Manufacturing (N) Products and Parts > Master Items

Product 2: nn-M2 Forecast Control = Consume and Derive

2. Repeat the explosion practice step DM-4. Step 1.

Agenda

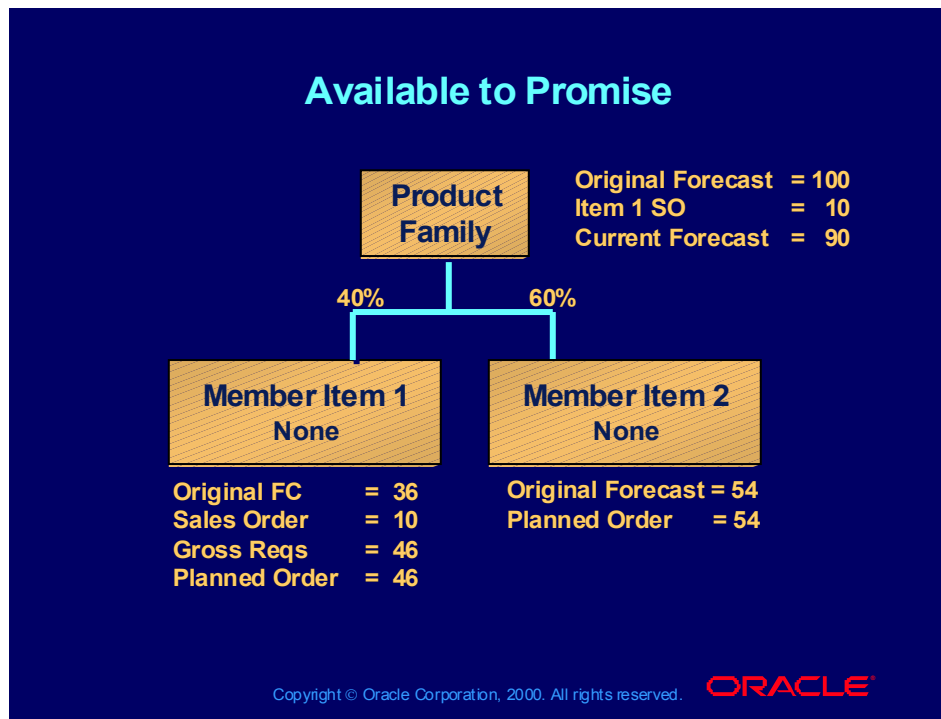
Agenda

- Overview
- Demand Management business scenario
- Using product families in a flow environment
- Forecasting product families
- **Associated functionalities**

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Available to Promise



Member Item Available to Promise

ATP (member item) = MPS (member item) – SO (member item) + WIP jobs (member item) + PO (member item) + onhand quantities (member item)

- If FC control set to Consume & Derive, ATP for M1 = 30, M2 = 60
- If FC control set to None, ATP for M1 = 36, M2 = 54

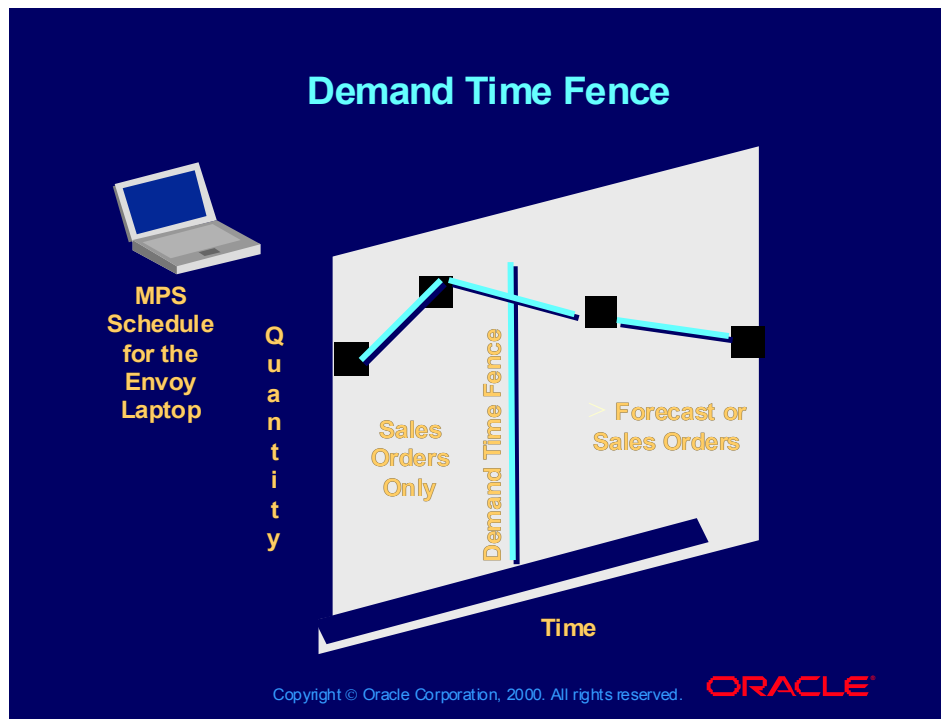
Product Family Available to Promise

ATP (member item) = MPS (product family) – SO (sum of all members)

ATP for both M1 and M2 = 90

Note: By setting a Profile Option, you can perform ATP checks at the product family level. In this case we know that we can easily flex our flow line to produce any of the mix of models assigned to the product family. Therefore, if ATP were performed for either M1 or M2, we could promise another 90.

Demand Time Fence



Using the Demand Time Fence in an MPS

Building to actual customer order demand is a fundamental principle of Flow Manufacturing. Using the Demand Time fence feature of *Oracle Planning*, you can eliminate forecasts from the near planning horizon.

Set the Demand Time fence by item by organization. The length should be set between the total product cycle time and the lead time quoted to the customer.

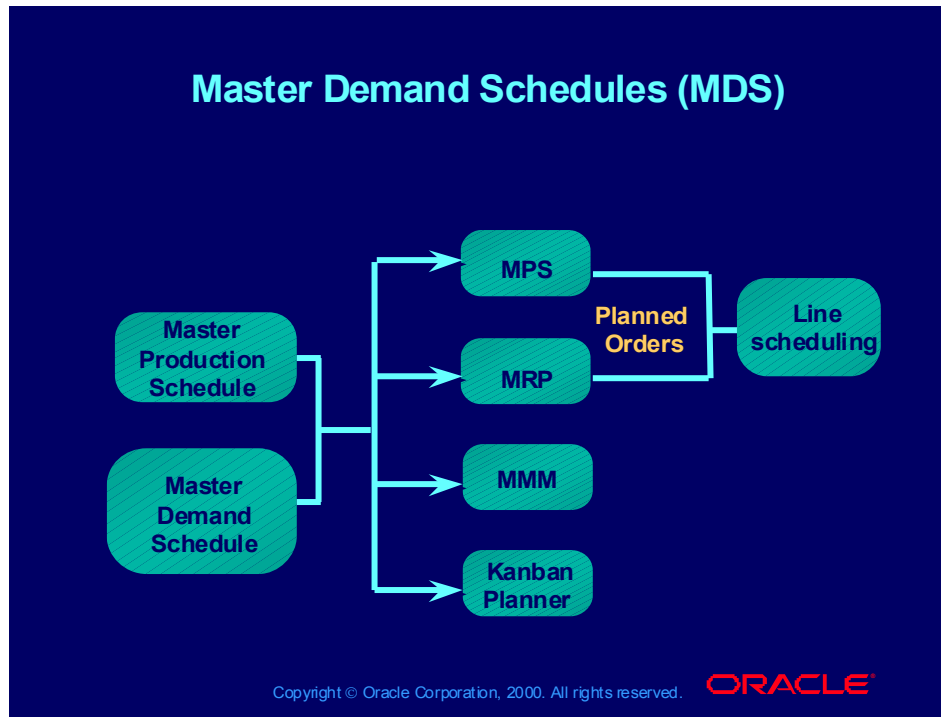
Define Demand Time Fence

Manufacturing and Distribution Manager Responsibility

Flow Manufacturing (N) Products and Parts > Organization Item

- 1 Select MRP/MPS alternate region.
- 2 Select “User Defined” from the Demand Time Fence drop down window.
- 3 Enter the number of days between items TPCT and quoted lead time.
 - **Note:** The line should be balanced before determining TPCT Since the line is usually balanced at peak velocities, you may wish to round up to the day.

Master Demand Schedules (MDS)



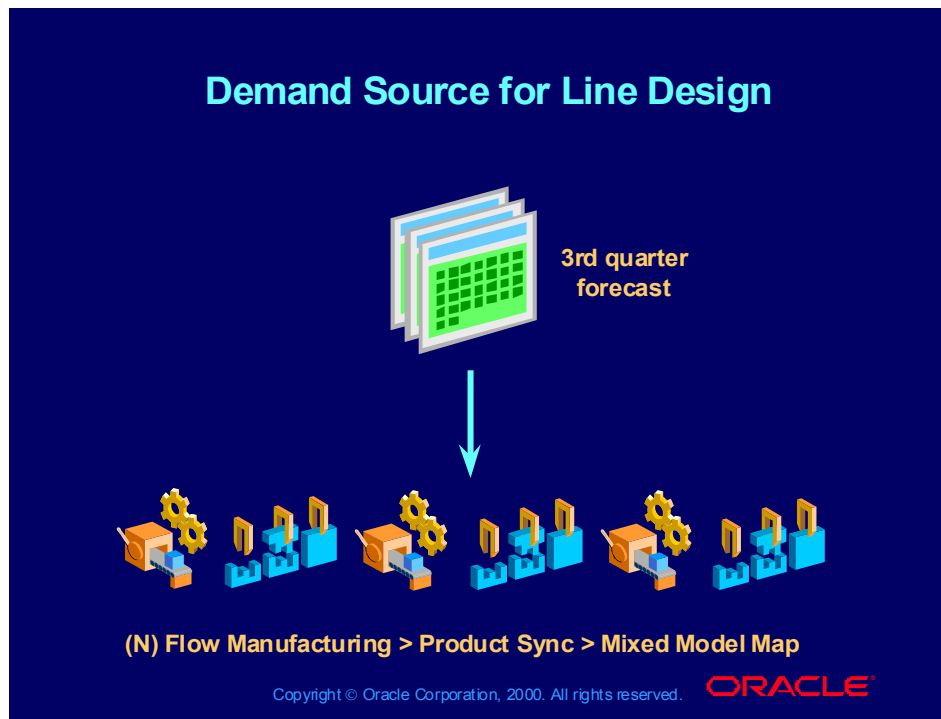
Master Demand Schedule

In a flow environment, a long term forecast is used to design the line, design kanban sizes, and do capacity planning (via the Mixed Model Map). Then, the execution system (line scheduling, MMM, work order-less completions, and kanbans) runs the shop based on actual customer orders. MDS/MPS and MRP are not required to run the daily activities of the shop floor. However, an MPS or MRP plan should be used to get long term visibility of component requirements for kanban items.

Other reasons you may use MDS or MPS:

- You operate in a mixed-mode environment, and you want the MPS to release production for non-Kanban items, or create planned orders for discrete production lines operating in the same organization.
- You want to schedule planned orders to compensate for seasonal industries, spares or internal requisitions.
- You are using Advanced Planning and Scheduling (APS) to optimize your flow schedules.

Demand Source for Line Design



Line Design/Mixed Model Map

(Help) Oracle Manufacturing Applications > Oracle Flow Manufacturing > Mixed Model Map > Entering Mixed Model Map Parameters

The mixed model map is a tool that displays the processes and products for a given line as well as the associated weighted times to complete the process. The mixed model map also displays the labor, machines and In-Process-Kanbans (IPK) resources needed to support forecast demand. This information is used to decide how to regroup events into line operations to balance the line.

Demand Type:

Forecast, MDS, MPS or Actual Production. Typically, you use a forecast to design your line, although you could use an MDS or MPS. Actual Production uses the current flow schedule in the date ranges you specify below. Use actual production when you are operating your line and want to compare actual production mix against your line design.

Demand Source for Kanban Planning



Kanban Plans

In *Oracle Flow Manufacturing*, you are able to create any number of baseline and simulation kanban plans in which you can calculate and store kanban quantities for each item/ kanban location. You are able to calculate optimal kanban quantities based on the demand schedule of your choice. When you create a new simulation plan, you are able to compare the newly calculated kanban quantities to those in the current production system (or any other plan) and make adjustments to the production system at your option.

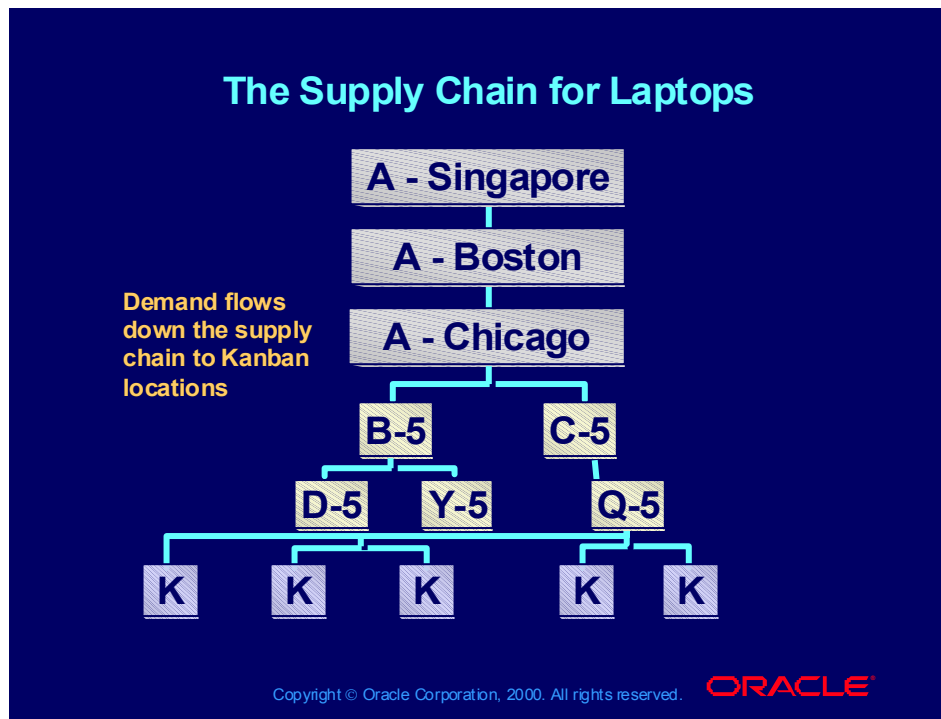
Create Kanban Plan Name

(Help) Oracle Manufacturing Applications > Oracle Inventory >

Inventory Planning and Replenishment > Overview of Kanban Replenishment

All plans are tied to a specific demand forecast, MDS, MPS, or actual production.

The Supply Chain for Laptops



Planning Method Versus Release Method

A Kanban part can be planned by both the MPS/MRP plans, *and* the Kanban planner. Each serve a different purpose.

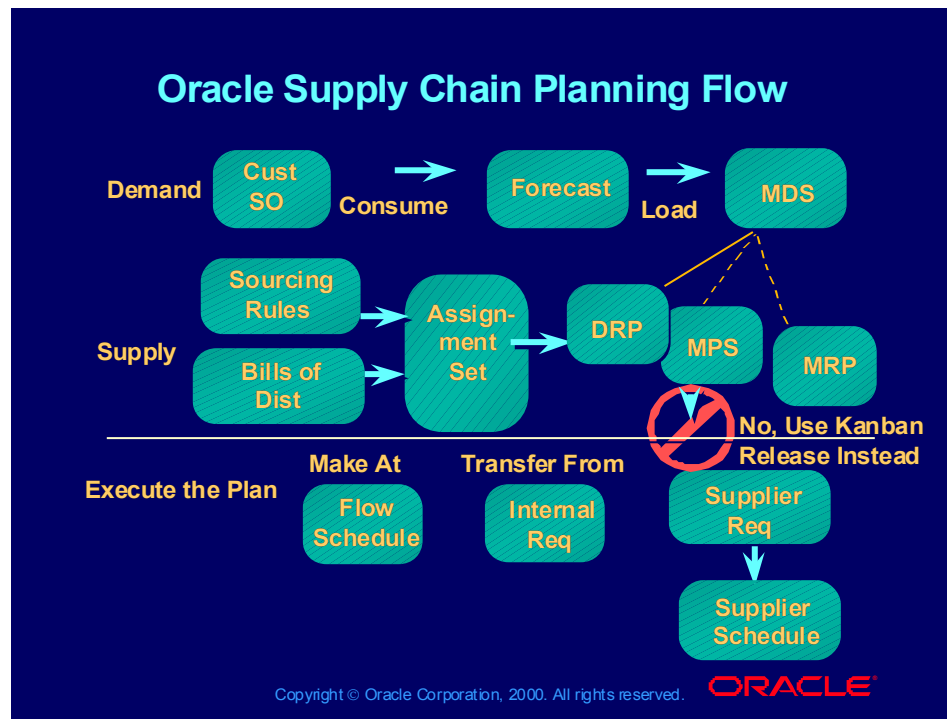
Set the Planning Method to MPS or MRP, and run the material plans as usual. In an Supply Chain plan we can plan all inventory organizations in one plan, driving demand for product down the supply chain to our flow assembly and Kanban items.

Set the Release Time fence to Kanban - Do Not Release to identify an item as Kanban-controlled. This prevents any planned orders from being released from the Planner Workbench, but still allow the planning. Replenishment order is available through Kanban signals only.

Planning for Kanban Items

- MPS/MRP planning: By day, by inventory organization
- Kanban Planner: By day (or fraction thereof), by organization, by subinventory, by locator

Oracle Supply Chain Planning Flow



MPS/MRP Planning of Kanban Items

Use the MPS or MRP plan for Kanban items to be able to see the long term plan. Communicate this plan to your trading partners, including Marketing and Suppliers. Executing the plan is restricted to Kanban signals; you may *not* execute the plan using the Planner Workbench. Instead, material is pulled on the line as needed.

- Use the MPS to:
 - Release production for non-Kanban items
 - Manage long-range capacities with Rough Cut Capacity Planning
- Use the MRP to:
 - Determine component requirements months or years in the future
 - Build supplier partnerships by communicating requirements via a supplier schedule built from planned orders, or WEB inquiry

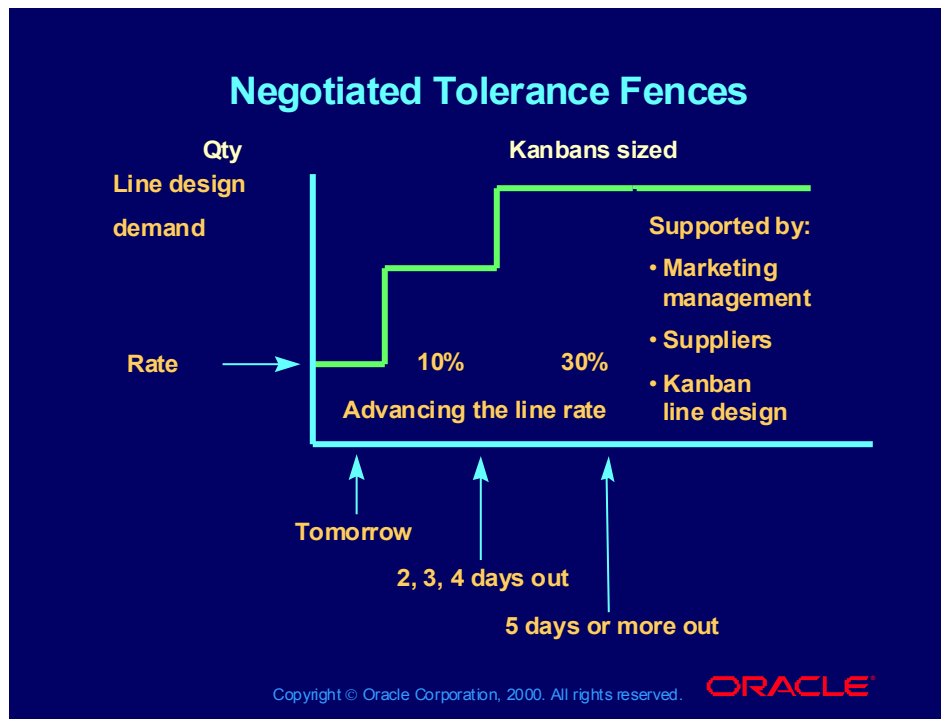
Advance Notice



Managing Demand Within Tolerance Fences

You can specify how much a supplier or a manufacturing line can accommodate demand over its usual capacity when given advance notice. For example, you can specify that a 10 percent increase is allowed when notice is given at least 2 days in advance notice.

Negotiated Tolerance Fences



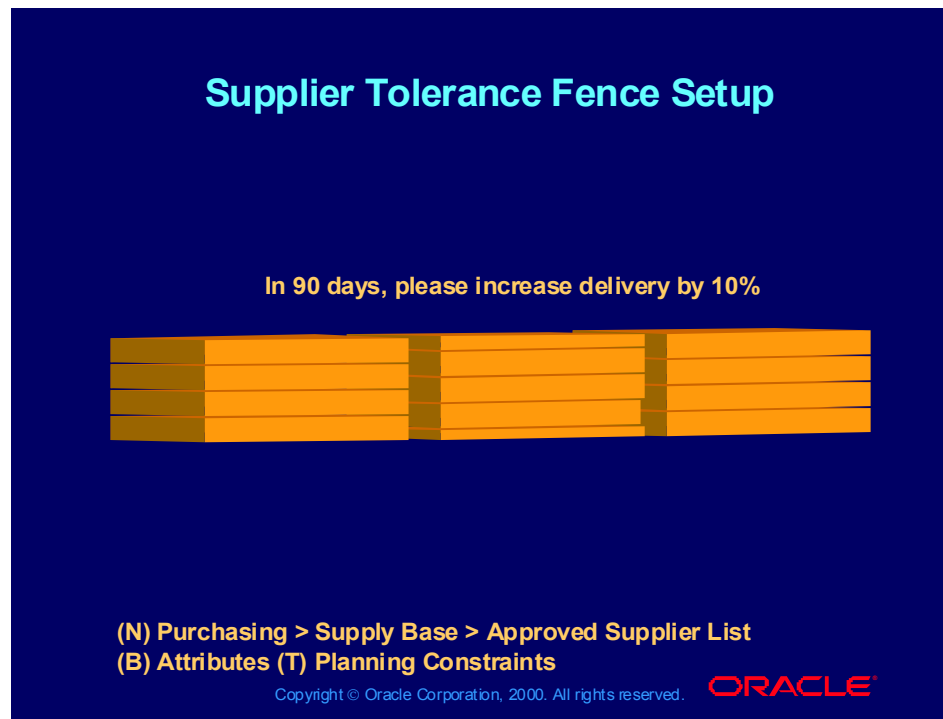
Definition and Business Process

Tolerance fences represent a percent increase to the daily production rate that is allowed for a given amount of time in the future. You can specify tolerance fences for item and supplier combinations that represent the amount of flex negotiated with your suppliers based on an advance notice given to them. You can also apply tolerance fences to your manufacturing lines. These values are used in determining when demand on your supplier or manufacturing line can be increased above negotiated limits.

Benefits:

- Allows your supply chain to react to changes in customer demand
- Contributes to fewer stock outs
- Produces lower safety stock levels
- Customer satisfaction due to orders being shipped on time

Supplier Tolerance Fence Setup



Supplier-Item Attributes

(Help) Oracle Purchasing > Supply Base Management > Defining the Supplier/Item Attributes

Setup

In the Supplier-Item Attributes window under the Planning Constraints tab, you can enter the following in the Tolerance Fences region:

- Number of days in advance
- A tolerance percentage

Note: These are not required fields. Once you have entered them, you can update them at any time.

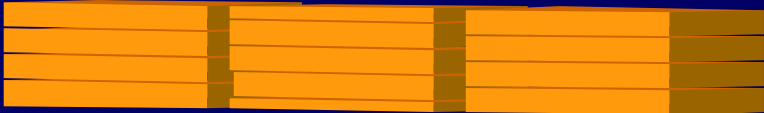
Considerations

Tolerance fences are designed to work with APS and Supply Chain Planning. They inform the supplier of an anticipated increase in demand at some point in the future. The supplier in turn uses this information for planning purposes. The actual commitment to purchase these increased quantities is not made until a purchase order is issued or a release against a blanket purchase order is released. During implementation, when you decide to use these tolerance fences, you can establish these constraints based on discussions and negotiations with your suppliers.

Manufacturing Line Tolerance Fence Setup

**Manufacturing Line
Tolerance Fence Setup**

Because of the increase in widget demand, we'll have to start making 20% more in 60 days.



(N) Flow Manufacturing > Lines > Lines
(B) Tolerance Fences

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Tolerance Fences

(Help) Oracle Manufacturing Applications > Oracle Flow Manufacturing >

Setup

In the Tolerance Fences window, you can enter the following data:

- Number of days in advance
- Tolerance percentage

Note: These are not required fields. Once you have entered them, you can update them at any time.

Considerations

Tolerance fences are designed to work with APS and Supply Chain Planning. During implementation, when you decide to use these tolerance fences, you can establish these values based on discussions and negotiations with your manufacturing personnel. The values are also applied during line scheduling, if sufficient demand exists at the future date, the line rate is increased accordingly.

Summary

In this lesson, you learned how:

- **Demand Management plays a role in Flow Manufacturing.**
- **To create and maintain product family forecasts .**
- **Product Families and member items are consumed.**
- **To create demand sources for line design and kanban planning.**
- **MDS/MPS function in Flow Manufacturing.**
- **The use of tolerance fences can smooth increases to your customer demand.**

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