

# Production Planning



## Lesson 9 : Repetitive Manufacturing

# Lesson Objectives

- Objectives -On successful completion of this training module, you should have:
- Understood the basics of Repetitive Manufacturing
- Master data required for Repetitive Manufacturing
- Process flow diagram
- Basic terminology of repetitive manufacturing & their definitions



# Training Agenda

- What is Repetitive Manufacturing?
- master data required for Repetitive Manufacturing
- Process flow diagram
- Repetitive manufacturing Profile
- Basic terminology of repetitive manufacturing & their definitions

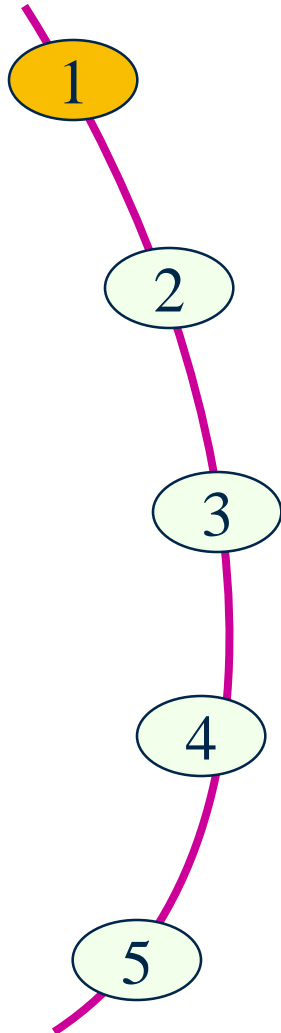


# Training Agenda

- Price release-CK24
- Single Item-Multi Level MRP Run – MD02
- Repetitive manufacturing Back flush
- Stock Overview – MMBE
- Frequently Used Transactions for REM



# Repetitive Manufacturing



PrepareMe

TellMe

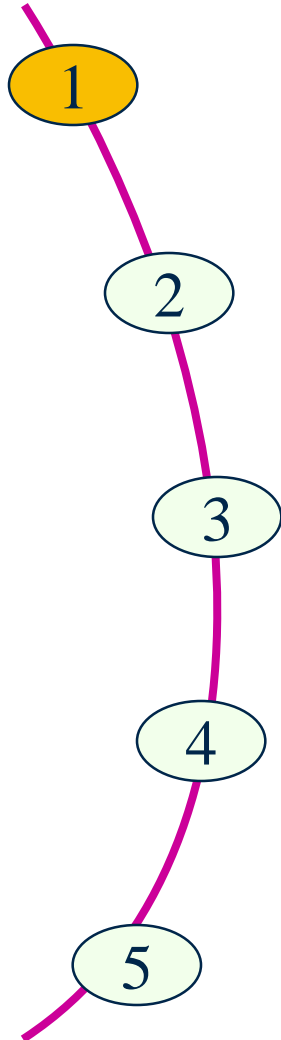
ShowMe

LetMe

HelpMe



# Repetitive Manufacturing



PrepareMe

TellMe

ShowMe

LetMe

HelpMe



# Introduction

- Repetitive Manufacturing is commonly used when a production process meets the following criteria:
  - The same or similar products are produced over a lengthy period of time.
  - The products produced are not manufactured in individually defined lots. Instead, a total quantity is produced over a certain period at a certain rate per part-period.
  - The products produced always follow the same sequence through the machines and work centers in production.
  - Routings tend to be simple and do not vary much



# Master Data

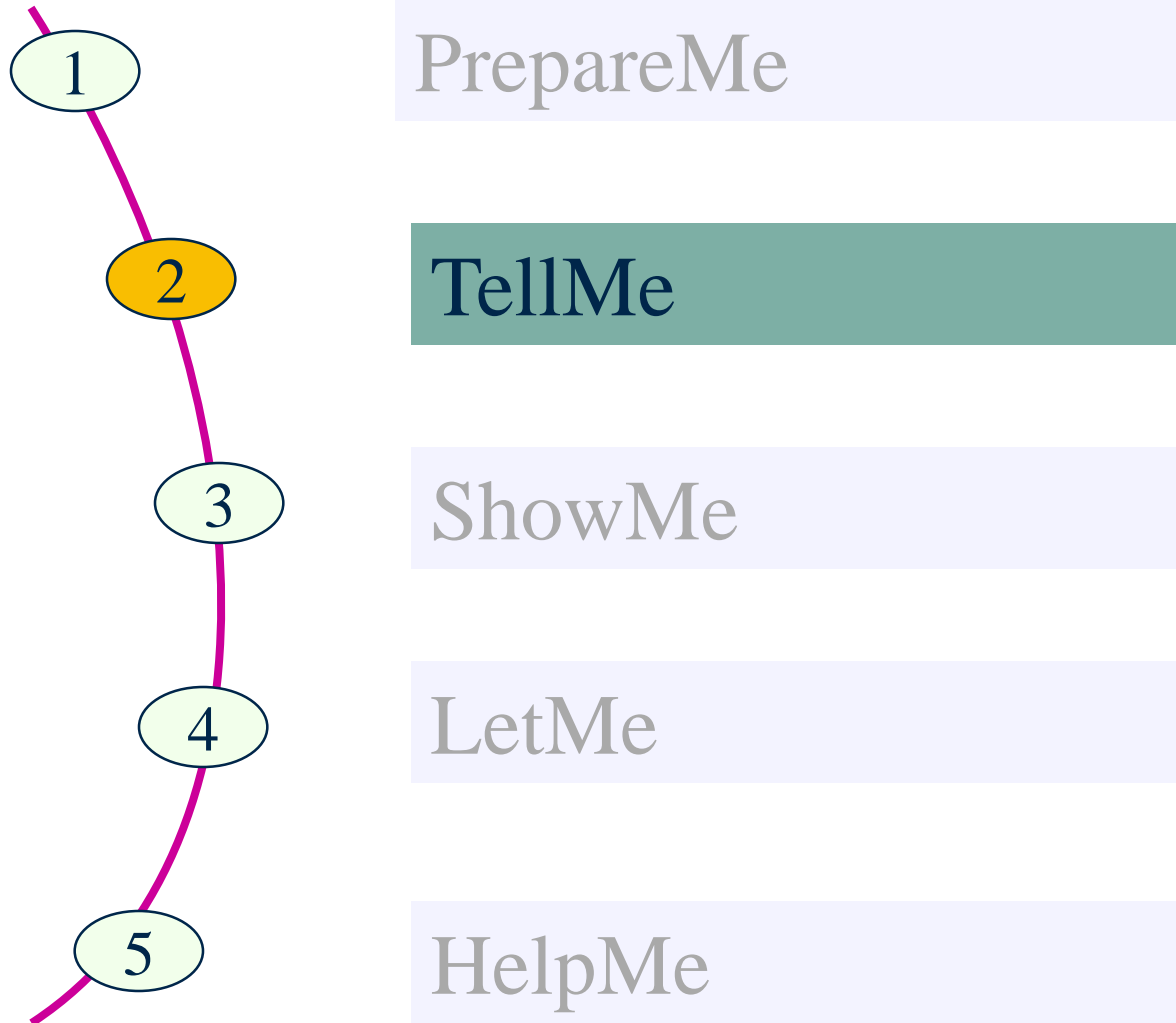
- The following master data required for REM:
  - REM Profile
  - Production Version
  - Rate Routing/Routing
  - Product Cost Collector
  - Standard Cost Estimate



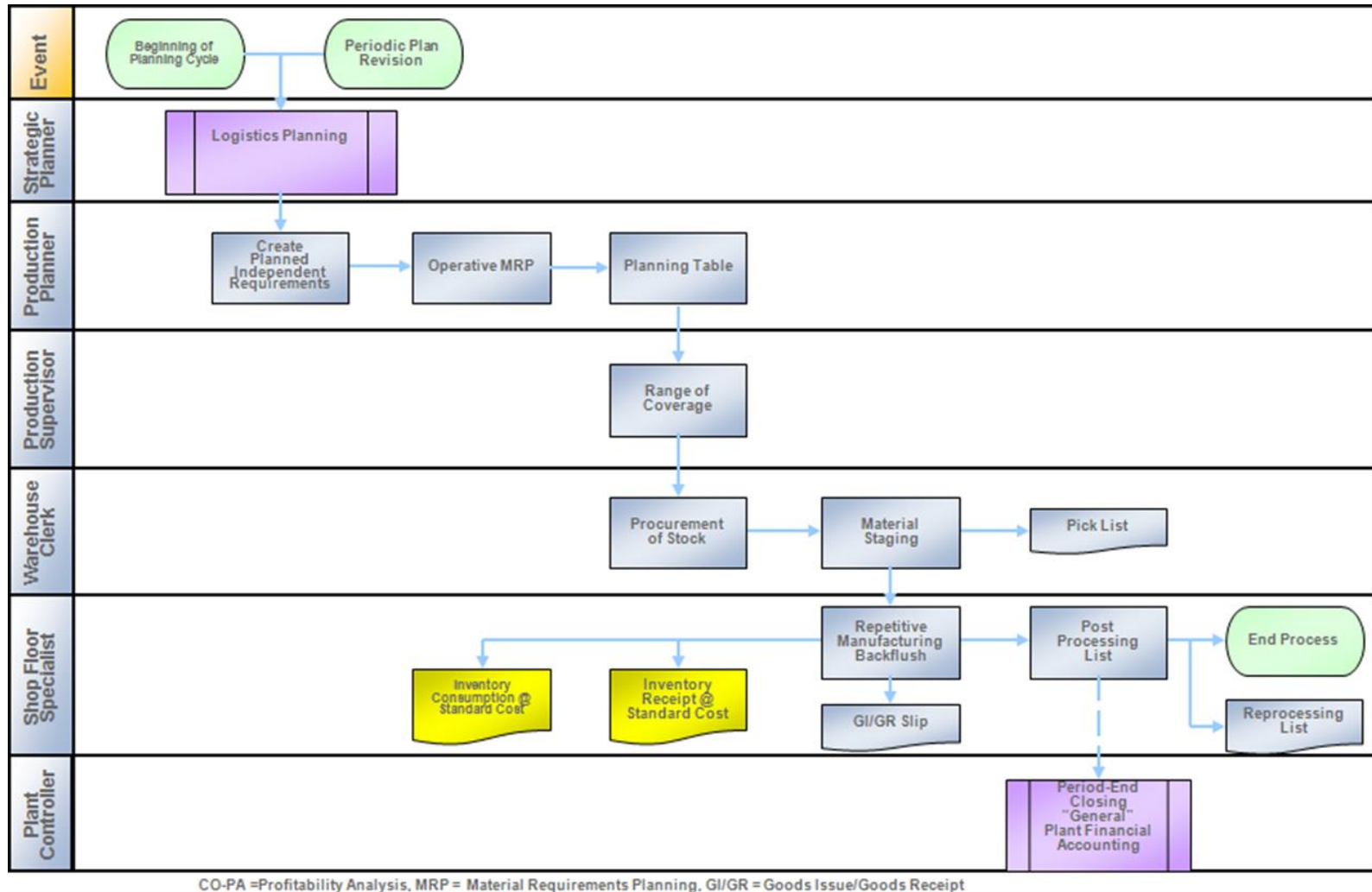
# Key Process Steps

- Creating Planned Independent Requirements
- Material Requirements Planning at Plant Level
- In-House Production
- Confirming Assembly Activities

# Repetitive Manufacturing



# Process Flow Diagram

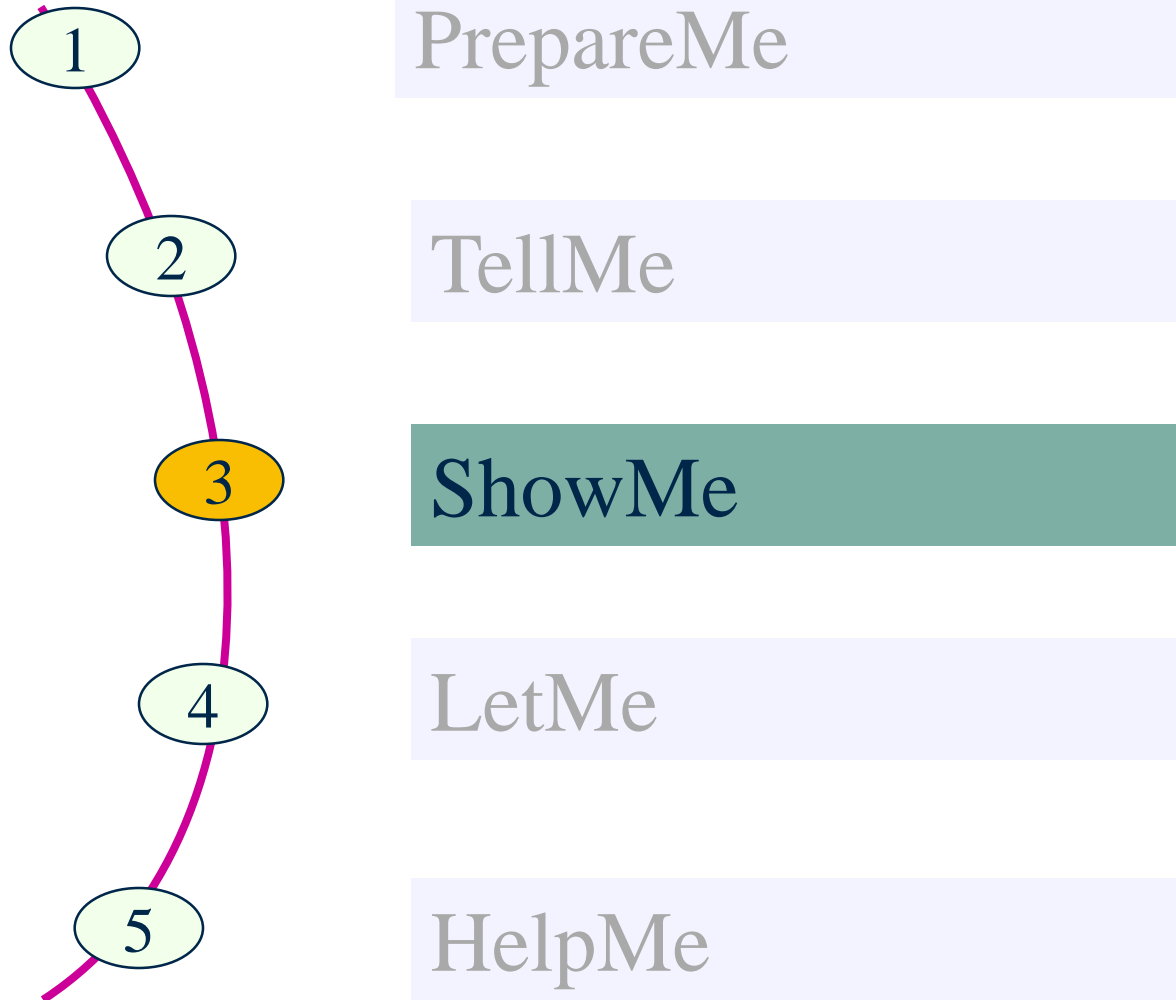


CO-PA = Profitability Analysis, MRP = Material Requirements Planning, GI/GR = Goods Issue/Goods Receipt

# Process flow

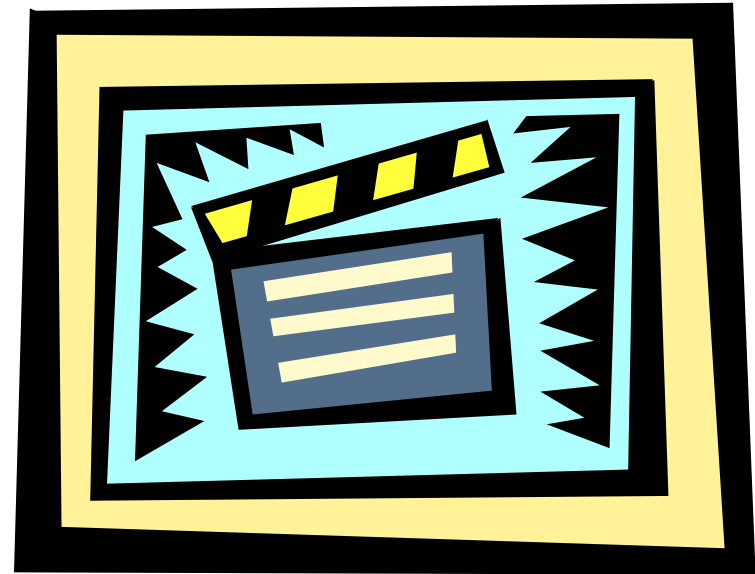
- 1. First, you must make certain settings in the material master data and Configuration.
- 2. Create Planned Independent Requirement.
- 3. Carry out MRP run.
- 4. Production will start and when the product is finished, you carry out the back flush. Back flushing includes posting the
- goods receipt for the product, the goods issue for the components.
- 5. At the end of a settlement period, you carry out a period-end closing

# Repetitive Manufacturing



# Show Me....

- Environment
- Prerequisites of REM
- Basic Terminologies used in REM & their Definitions
- Master Data and Customizing
- Process



# Show Me....

## Environment

The Environment in which REM runs is SAP R/3 under PP module.

# Prerequisites of REM

## Prerequisites of REM

- System Configuration
- Master data like
  - a. REM Profile
  - b. Product Cost Collector
  - c. Material With production Version



# Basic Terminology used in REM & their Definitions

## Basic Terminology used in REM & their Definitions

- Planning table
- Sequencing
- Pull list
- Back flushing
- Cost Object Controlling



# Planning table

## ■ Planning table

Within the framework of repetitive manufacturing, planning and control is carried out on the basis of time buckets. Starting from the existing requirements situation, you can plan production quantities based on periods. The scheduling data for products and product groups is thus broken down into a series of time buckets, the user being presented with period views for the purposes of checking and revision.

# Sequencing

- **Sequencing**
- You can use Sequencing to carry out task-based scheduling which determines the sequence in which planned orders are produced on the production line. Sequencing simplifies the dispatching process, especially for high order volumes, and enables you to display them in a graphic.

# Pull List

- **Pull List**

- You can use the pull list to control in-house material flow, supplying production with materials. The pull list checks the stock situation at the production line, calculates the missing parts for the components and triggers replenishment for these missing parts.

# Back Flushing & Cost object controlling

## Back flushing:

Production completion confirmations are simplified and are made with reference to the material being produced. The completion confirmation usually includes the back flushing of components and the posting of production costs.

## Cost Object Controlling

In REM, you usually determine costs per material or per production version via a product cost collector (product cost per period).

# Master Data & Configuration

## Master Data and Configuration

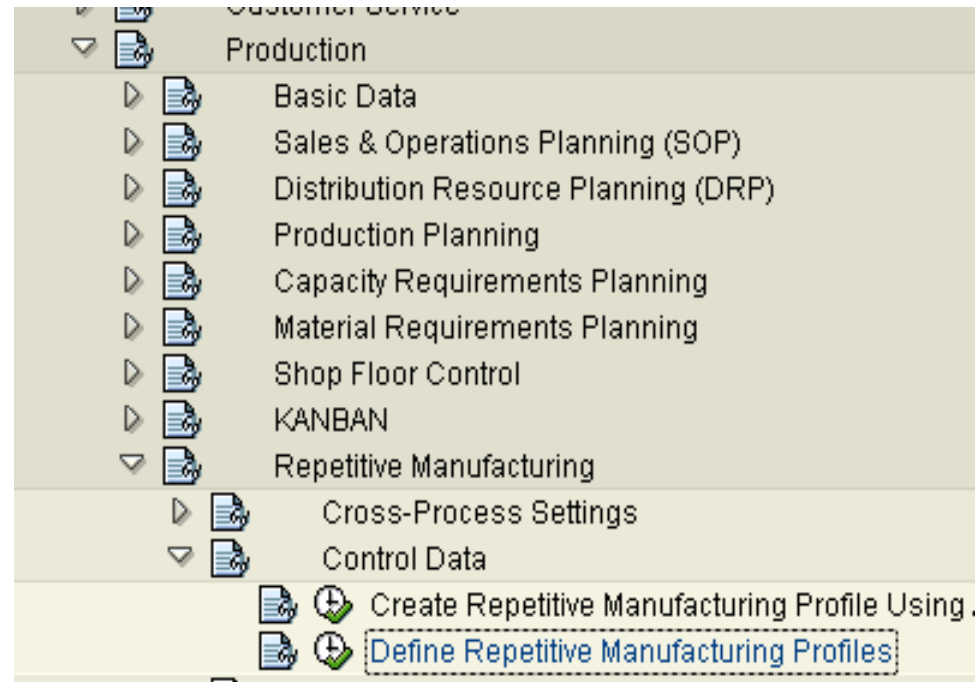
- 1.REM Profile (Configuration )
- 2.Material Master
- 3.Production Version
- 4.Product Cost Collector

# REM profile

## REM Profile

T Code- OSP2

Menu Path: Logistics → Production → Repetitive Manufacturing → Control Data → Define Repetitive Manufacturing Profile



# Show Me....

REM profile  Desc.REM profile

Production type

Control data 1 Control data 2 Movement types

**General**

☒ GI backflush at GR posting

☐ RP backflush

☐ Mandatory ☐ Optional

☐ Automatic GR posting at last RP when backflushing

Process control

**Error Correction for Backflushing**

☒ Create cumulated postprocessing records

☐ Also create individual postprocessing records

☒ Execute correction in dialog mode

☐ Mandatory ☒ Optional

**Cost Accounting**

☒ Post activities

☒ Backflush using standard cost estimate for material

☐ Using data from prelim. costing f. prod. cost collector

**Batch Where-Used List**

☐ Update Batch Where-Used List

REM profile  Desc.REM profile

Production type

Control data 1 Control data 2 Movement types

**Planned Orders**

**Planned Order Reduction**

☒ Reduce planned orders assigned to version

☐ Plus planned orders not yet assigned

☐ Plus planned orders assigned to other versions

Reduction period  Days

**Firming Logic**

☐ Do not firm ☒ Always firm ☐ Firm within

**Creating Planned Orders when Reversing**

☒ Create planned orders when reversing

☒ For the GR amount of the current day

☐ By requirement (asynchronous MRP run)

**Material Requirements**

Stock determination rule

Batch search procedure

☐ Aggregate reqmts

☒ Create reqmts for phantom assemblies



# Show Me....

REM profile	Z001	Desc.REM profile	REM Profile
Production type	PKMN		

Control data 1	Control data 2	Movement types
----------------	----------------	----------------

Movement types			
Goods issue	261	Goods issue/reversal	262
Goods receipt	131	Goods receipt/reversal	132
Scrap	551	Scrap/reversal	552
By-product	531	By-product/reversal	532

Additional movement types relevant for make-to-order scenario			
GR indiv.sales order	571	GR ind.sales ord./reverse	572
GI ind.stck/salesOrd	572	GI ind.stck/salesOrd/rev.	571
GI plntstk/salesOrd.	291	GI plntStck/salesOrd/rev.	292

# Material Master – MM01

## ■ *Material Master*

- T. Code- MM01
- **Menu Path:** Logistics → Production → Repetitive Manufacturing → Master Data → Material → Create (General)

MRP 3 MRP 4 Forecasting Work scheduling

Material A-1000 Final Assembly  
Plant 1000 Werk Hamburg  
Stor. Loc. 0001 Materiallager

**2** BOM explosion/dependent requirements

Selection method Individual/coll. Component scrap  
Individual/coll. Requirements group  
☒ Version Indicator ☐ ProdVersions MRP dep.require

Discontinued parts

Discontin. ind. ☐ Eff.-out ☐ Follow-up matl ☐

Repetitive manufacturing / assembly / deployment strategy

☒ Repetitive mfg REM profile 2001  
Fair share rule ☐ Push distribution ☐

# Production Version- MM02

- *Production Version*
- T. Code- MM02
- Menu Path: Logistics → Production → Repetitive Manufacturing → Master Data → Material → Change

**Change Material A-1000 (Finished goods)**

Additional data | Organizational levels | Production Version Details

Material: A-1000 | Plant: 0001 | Stor. Loc.: 0001

**Production Version** Z002 | Version-2 [REM] | Check | 07.12.2006

**Basic data**

Prod.vers.locked: Not locked | From lot size: 1.000 | To lot size: 99,999,999.000 | Valid from: 2006 | Valid to: 31.12.9999

**Planning data**

	Task List Type	Group	Group Counter	Check stat
Detailed planning	Routing	50001264	1	●●●
Rate-based planning				
Rough-cut planning				

**Bill of material**

Alter	M	BOM Usage	Check stat
1		1	●●●

**Repetitive manufacturing**

✓ REM allowed | Production line: | Planning ID: |

1 / 1 | Contin...

**Click on the push button and create version**

1: BOM explosion/dependent requirements  
2: Selection method  
3: Production Version  
4: Version-2 [REM]  
5: Valid from  
6: Rate-based planning  
7: Alter

# Product cost collector-KKF6N

- Product Cost Collector
- T. Code- KKF6N
- Menu Path: Logistics → Production → Repetitive Manufacturing → Master Data → Product Cost Collector

**Display Product Cost Collector**

Cost Change Costing

Product Cost Collectors

1000

**Selection**

Material **A-1000**

Plant **1000** Werk Hamburg

**Data** **Header** **Production Process**

Profit Center

Business Area

Cstg variant planned

Cstg variant actual

Costing Sheet

Overhead key

Results analysis key

Variance Key

0 Product cost collectors selected

# Show Me....

The screenshot shows the 'Create Product Cost Collector' dialog box in SAP. The dialog has a title bar with icons for file operations and a menu bar with 'Cost', 'Change', and 'Costing'. Below the menu bar is a toolbar with various icons. The main area is divided into sections: 'Selection' (Material, Plant), 'Controlling level for material' (Production version, BOM/routing, Production plant/planning plan), and 'Characteristics for production process' (Planning plant, Production Version). The 'Material' field is set to 'A-1000' and the 'Plant' field is set to '1000' (Werk Hamburg). The 'Order Type' field is set to 'RM04'. The 'Production version' radio button is selected. The 'Planning plant' field is set to '1000' (Werk Hamburg) and the 'Production Version' field is set to 'z002'. A callout box with the text 'Pop-Up appears enter the Values and prod. Version, click on confirm' points to the 'Material', 'Plant', and 'Production Version' fields. At the bottom are 'Confirm' and 'Cancel' buttons.

Product Cost Collectors

1000

Create Product Cost Collector

Material A-1000 Final Assembly

Plant 1000 Werk Hamburg

Order Type RM04

Controlling level for material

☒ Production version

☐ BOM/routing

☐ Production plant/planning plan

Characteristics for production process

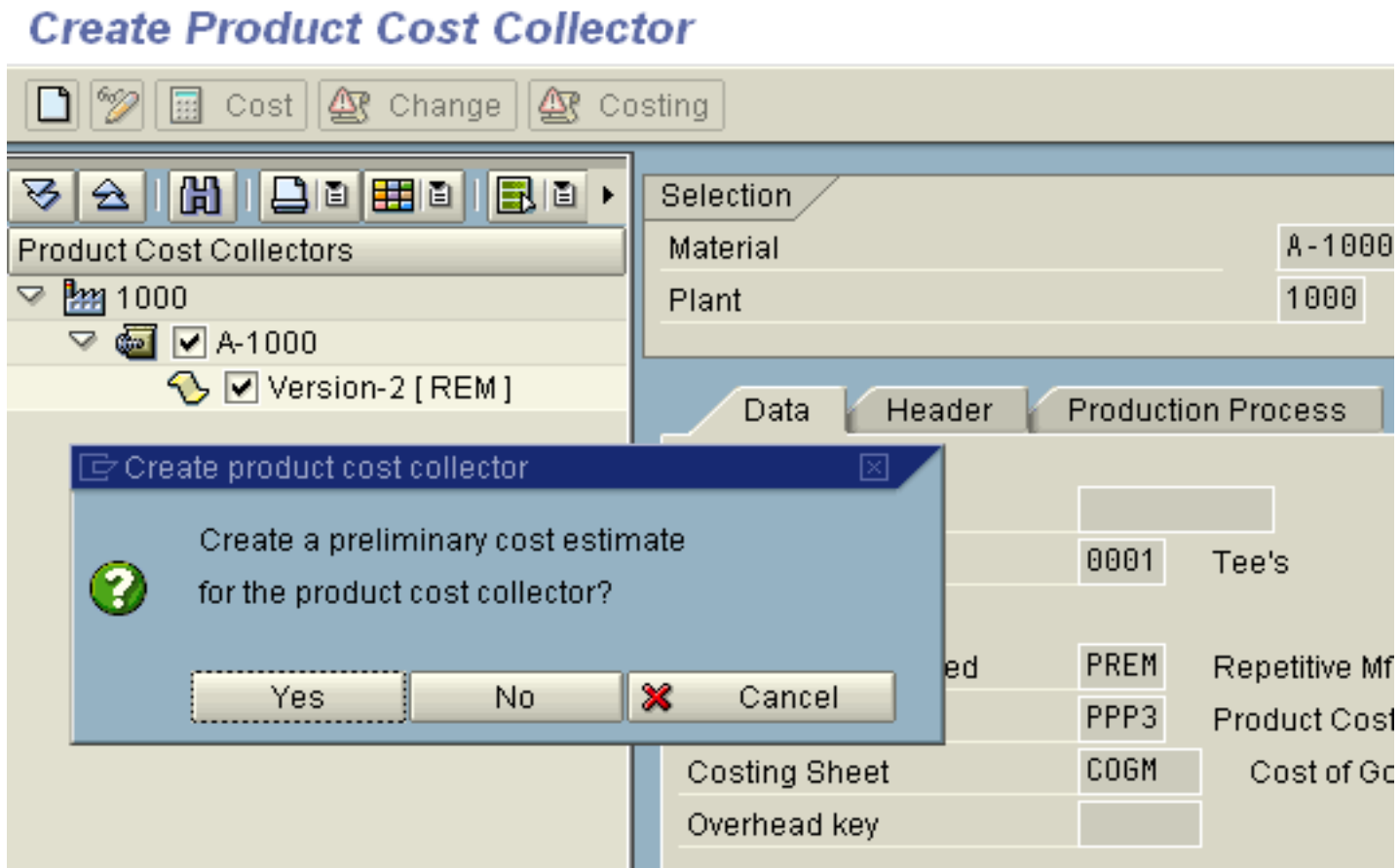
Planning plant 1000 Werk Hamburg

Production Version z002

Confirm Cancel

Pop-Up appears enter the  
Values and prod. Version, click  
on confirm

# Show Me....



# Create Preliminary Cost Estimate – CK11N

## ■ *Process*

### ■ Create Preliminary Cost Estimate – CK11N

**Create Material Cost Estimate with Quantity Structure**

Costing Structure On | Detail List On | Hold

Material: A-1000  
Plant: 1000

Costing Data | Dates | Qty Struct.

Costing Variant: PPC1  
Costing Version: 1  
Costing Lot Size: 1  
Transfer Control: PC01

Enter required values and click on create

# Show Me....

## Create Material Cost Estimate with Quantity Structure

Costing Structure Off Detail List Off Hold

Material A-1000 Final Assembly  
Plant 1000

Costing structure

- Final Assembly
  - Final Assembly
  - Sub Assembly - 1
  - Sub Assembly - 2

Costing Data Dates Qty Struct. Valuation History Costs

Costs Based On Costing Lot Size 1 EA

Cost Component View	Total Costs	Fixed Costs	Variable	Currency
Cost of goods manufactured	19.75	0.00	19.75	EUR
Sales & Distribution Cost	0.00	0.00	0.00	EUR
Cost of Sales	19.75	0.00	19.75	EUR
Material Cost	0.00	0.00	0.00	EUR

Cost of goods manufactured Partner

Itemization for material A-1000 in plant 1000








ItemNo	Resource	Cost Eleme	Σ	Total Value	Σ	Fixed Value	Curr...	Quantity	Un
1	M 1000 A-1000	400000		19.00		0.00	EUR	1	EA
2	M 1000 A1-1000	400000		0.25		0.00	EUR	1	EA
3	M 1000 A2-1000	400000		0.50		0.00	EUR	2	EA






# Price Release-CK24


## ■ Price Release – CK24


**Price Update: Mark Standard Price**

     Release  Other Prices  Log

Posting Period/Fiscal Year    Marking Allownce

Company Code   to  

Plant  to  

Material  to  

**Processing Options**

☒ Test Run

☒ With List Output






☐ Parallel Processing


☐ Background Processing

# Display stock/Requirement list-MD04


- Display Stock/Requirement List – MD04





## Stock/Requirements List as of 14:11 Hrs

Show Overview Tree |     

Material A-1000  Final Assembly

MRP area 1000 Hamburg

Plant 1000 MRP type PD Material Type CFG Unit EA 

	A.. Date	MRP ...	MRP element data	Reschedul...	E..	Rec./reqd.qty	Available qty
	 06.12.2006	Stock					0
	 06.12.2006	IndReq	LSF			25-	25-

# Single item-Multi level MRP run-MD02

## Single Item-Multi Level MRP Run – MD02

**Single-Item, Multi-Level**

Material: A-1000  
MRP area: 1000  
Plant: 1000

Scope of planning  
☐ Product group

MRP control parameters

Processing key	NETCH
Create purchase req.	3
Delivery schedules	3
Create MRP list	1
Planning mode	3
Scheduling	1

Process control parameters

- ☒ Also plan unchanged components
- ☒ Display results before they are saved
- ☒ Display material list
- ☒ Simulation mode

Stock Req. List after MRP Run, Planned order have been created by system with relevant Prod Version

**Stock/Requirements List as of 06:27 Hrs**

Show Overview Tree

Material: A-1000 Final Assembly  
MRP area: 1000 Hamburg  
Plant: 1000 MRP type: PD Material Type: CFG Unit: EA

A.	Date	MRP ...	MRP element data	Reschedul...	E./Rec./reqd.qty	Available qty	Pro...	Sto...
07.12.2006	Stock					0		
06.12.2006	IndReq	LSF			25-	25-		
07.12.2006	PlOrd		0000043860/RS		62	25	0	2002 0001

# Back flush

## ■ REM Back flush – MFBF

**REM Backflush - Transaction Variant: None**

Post with correction | Details | Scrap | Documents | Doc-specific reversal | Doc.-Neutral Revers

**Backflush type**

☒ Assembly backflush    ☐ Component backflush    ☐ Activity backflush

**Yield Backflush**

Backflush qty

**Posting header**

Posting Date 07.12.2006  
Document Date 07.12.2006  
Doc.Header Text

**Make-to-stock**    **Make-to-order**    **Production by lot**

**Material**     **Prod. Version**     **Coll. entry**

**Plant**     **Production Date**     **ShLife Exp.Date**

**Planning plant**     **To batch**

**To location**     **Reporting Point**     **RP stocks**

☐ RP backflush

**Selection data**

**Planned order** 43860     **Revision Level**

**Production line**     **Planning ID**

# Show Me....

## ■ REM Backflush....

**REM Backflush - Transaction Variant: None**

Post with correction Details Scrap Documents Doc-specific reversal Doc.-Neutral Rev

Backflush type  
☒ Assembly backflush ☐ Component backflush ☐ Activity backflush

Yield Backflush  
Backflush qty 25 EA

Posting header  
Posting Date 07.12.2006  
Document Date 07.12.2006  
Doc.Header Text

Make-to-stock Make-to-order Production by lot

Material A-1000  
Plant 1000  
Planning plant 1000  
To location 0001

Final Assembly  
Prod. Version Z002  
Production Date  
To batch

ShLife Exp.Date

☐ RP backflush

Reporting Point

Coll. entry

RP stocks

Selection data  
Planned order 43860  
Production line

Rest of the values will come Automatically, select "Assembly B/F" and click on "Post with correction"

# REM Backflush

**REM Backflush - Transaction Variant: None**

Actual activities

Quantity of Goods Re: 25 EA Yield Backflush

Material: A-1000 Final Assembly

Material	De...	Qu...	E...	Plant	Sto...	Supply Area	Bat...	Item	O...	O...	PDM...	S Sales Ord.	Sales...
A1-1000	Sub...	25	EA	1000	0001			0010	0	0	H261		0
A2-1000	Sub...	50	EA	1000	0001			0020	0	0	H261		0

BOM components and Final GR qty of assly will appear in goods mov. screen

After Saving will appear w

GR and GI with document 4900032859 and activities posted

# Stock overview

- Stock Overview - MMBE

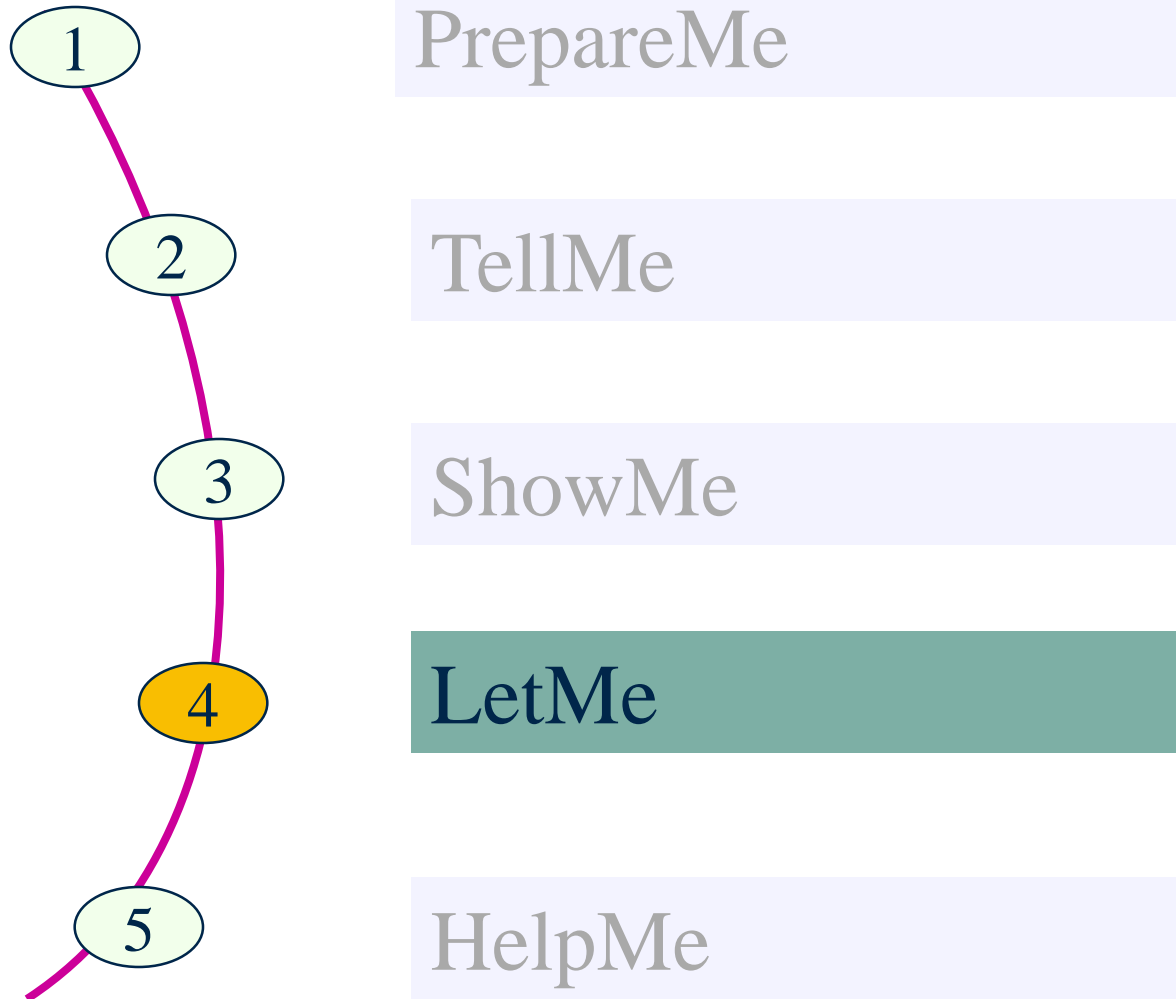
*Stock Overview: Company Code/Plant/Storage Location*

Material A-1000 Final Assembly  
Material type CFG Finished goods  
Unit of measure EA Base unit of mea

GR qty transfer posted to un-restricted stock

C1/CC/Plant/SLoc/Batch D	Unrestricted use	Qual. inspection
Total	25.000	0.000
1000 IDES AG	25.000	0.000
1000 Werk Hamburg	25.000	0.000
0001 Materiallager	25.000	0.000
00000000830	25.000	0.000

# Repetitive Manufacturing



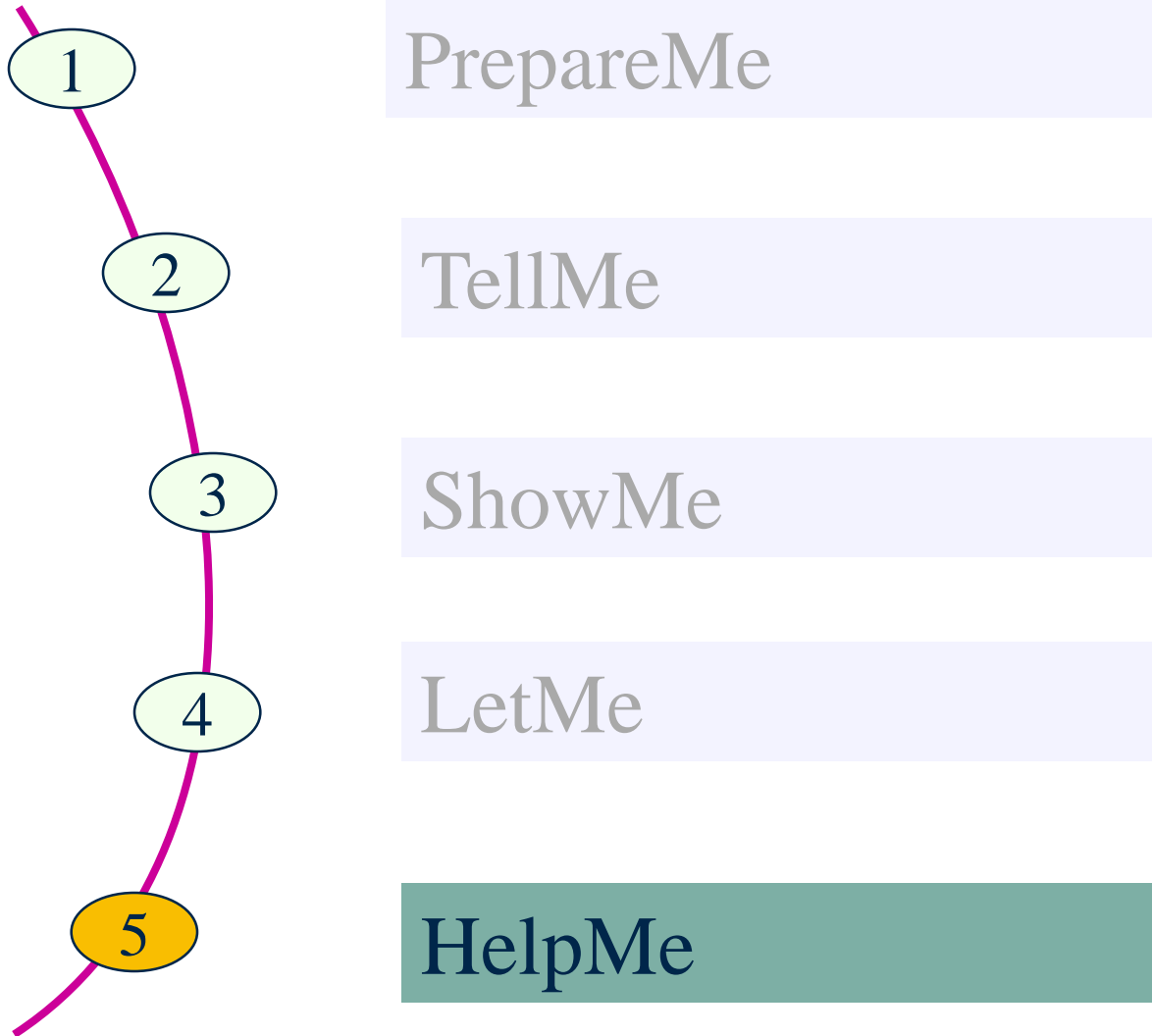


# Let Me....

- Understand the Basic Business scenario of REM
- Understand the Process of REM



# PP1012 -SOP



# Frequently Used Transactions for REM

Practice the following transactions generally used for REM

- MM01/MM02 -Create/Change Material Master
- CS01/ CS02- Create/ Change Bill Of Material
- CR01- Create Work center
- CA21- Create Rate routing
- KKF6N- Create Product Cost Collector
- MF50/MF52- Change /Display Planning Table
- MF60- Pull List
- MFBF- REM Confirmation
- MD61- Create PIR
- MD04- Stock Requirement List
- MD02- Single item Multilevel Planning Run
- KK87- Settlement

# Summary

- Repetitive Manufacturing is commonly used when the same or similar products are produced over a lengthy period of time
- Planning table

Within the framework of repetitive manufacturing, planning and control is carried out on the basis of time buckets. Starting from the existing requirements situation, you can plan production quantities based on periods. The scheduling data for products and product groups is thus broken down into a series of time buckets, the user being presented with period views for the purposes of checking and revision.

- You can use Sequencing to carry out task-based scheduling which determines the sequence in which planned orders are produced on the production line. Sequencing simplifies the dispatching process, especially for high order volumes, and enables you to display them in a graphic.

- Cost Object Controlling

In REM, you usually determine costs per material or per production version via a product cost collector (product cost per period).



# Review Questions

1. REM suitable for products produced always follow the same sequence through the machines and work centers in production.

- a. True
- b. False

2. You can use the pull list to control in-house material flow

Check whether the statement is true or false

- a. True
- b. False

3. In REM, you usually determine costs per material or per production version via a product cost collector (product cost per period).

- a. True
- b. False



# Repetitive Manufacturing

**THANK YOU**

