

Production Planning

Lesson 7 :Production Order Management

Lesson Objectives

- Objectives -On successful completion of this training module, you should have:
 - Production Order Management
 - Use of Production Order management
 - Production Order in the PP process flow



Training Agenda

- What is production Order Management
- What is Use of Production Order management
- Position of production Order in the PP process flow
- Production Order Cycle
- Production Order Creation
- Goods Movements with respect to Production Order



Training Agenda

- Goods issue to Production Order
- Goods Receipts for Production Orders
- Master Data/Material Master/Bill of material/Routing
- MB1A- Withdrawals for the order
- CO11N- Production Order Confirmation
- COGI-Error Handling
- KKS2- Variance Calculation

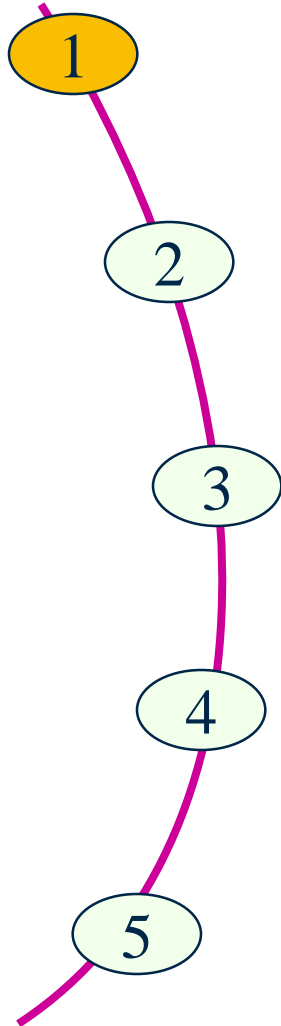


Training Agenda

- KO88-Cost settlement
- Cost Analysis
- MD04- Stock/Requirement list
- Configuration Tips and Transactional code tables



Production Order Management



Introduction

TellMe

ShowMe

LetMe

HelpMe



Production Order Management

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Purpose

“A production order specifies which material is to be produced, at what time and how much work is required, where it is to be produced, which operations are required to do this. It also defines how the order costs are to be settled. “



Use

- You can use the production order to specify:
 - What is to be produced
 - When production is to take place
 - Which capacity is to process the order
 - How much production costs



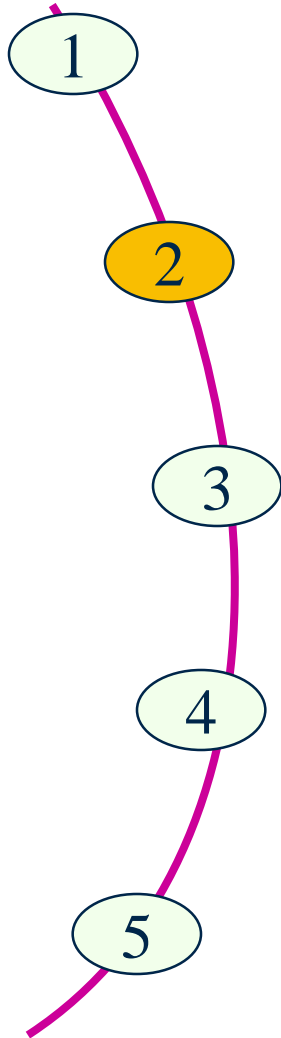
“Production orders are used to control production within a company and also to control cost accounting”

Challenges

- Creating lists for controlling purposes
 - planned data control
 - actual scrap > planned scrap
 - actual start/finish time > planned start/finish time
- Creating lists as a basis for operative decisions
 - critical order control
 - selecting orders in delay
 - selecting orders with missing parts status
- Creating lists to perform business transactions
 - missing parts control
 - check availability



Production Order Management



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Process Flow

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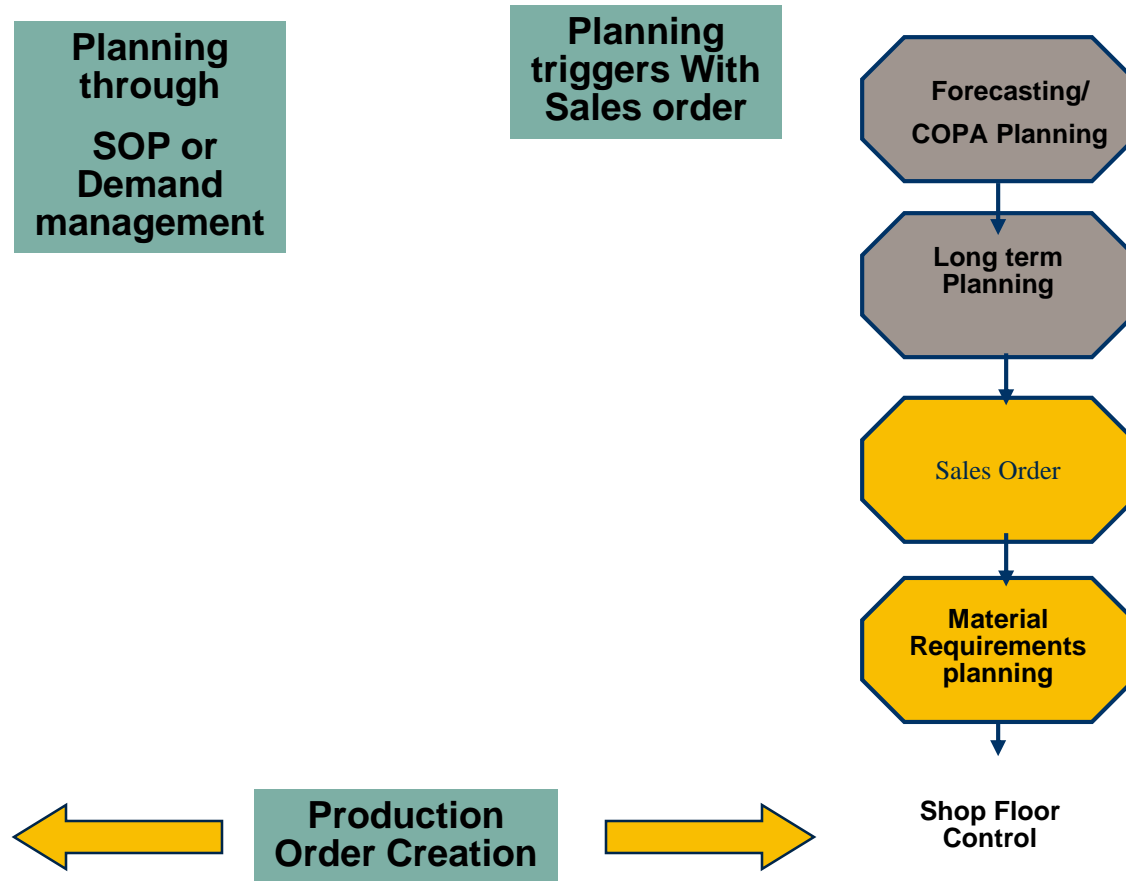


Position of production Order in the PP process flow

Make to stock

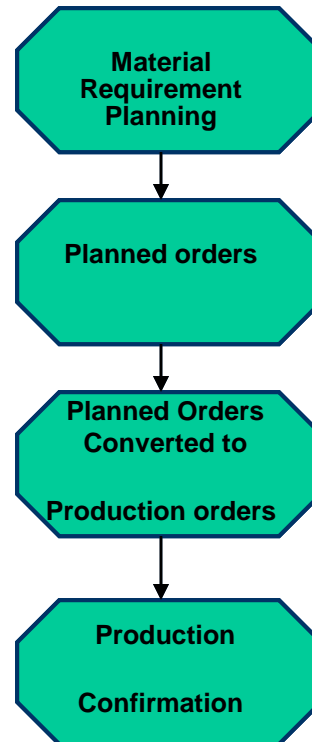


Make to order

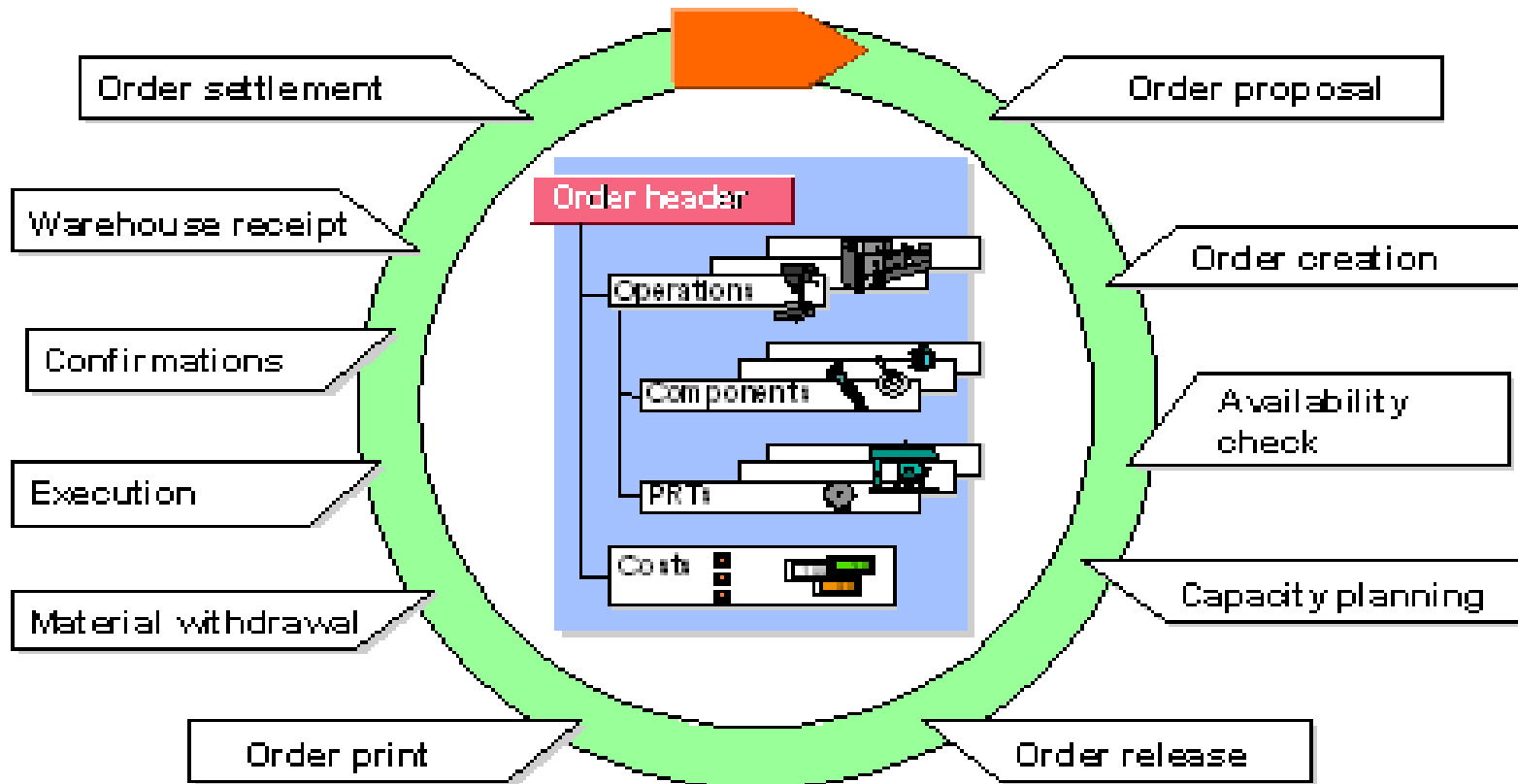


Position of production Order in the PP process flow

Process Flow:



Production Order Cycle



Production Order Creation

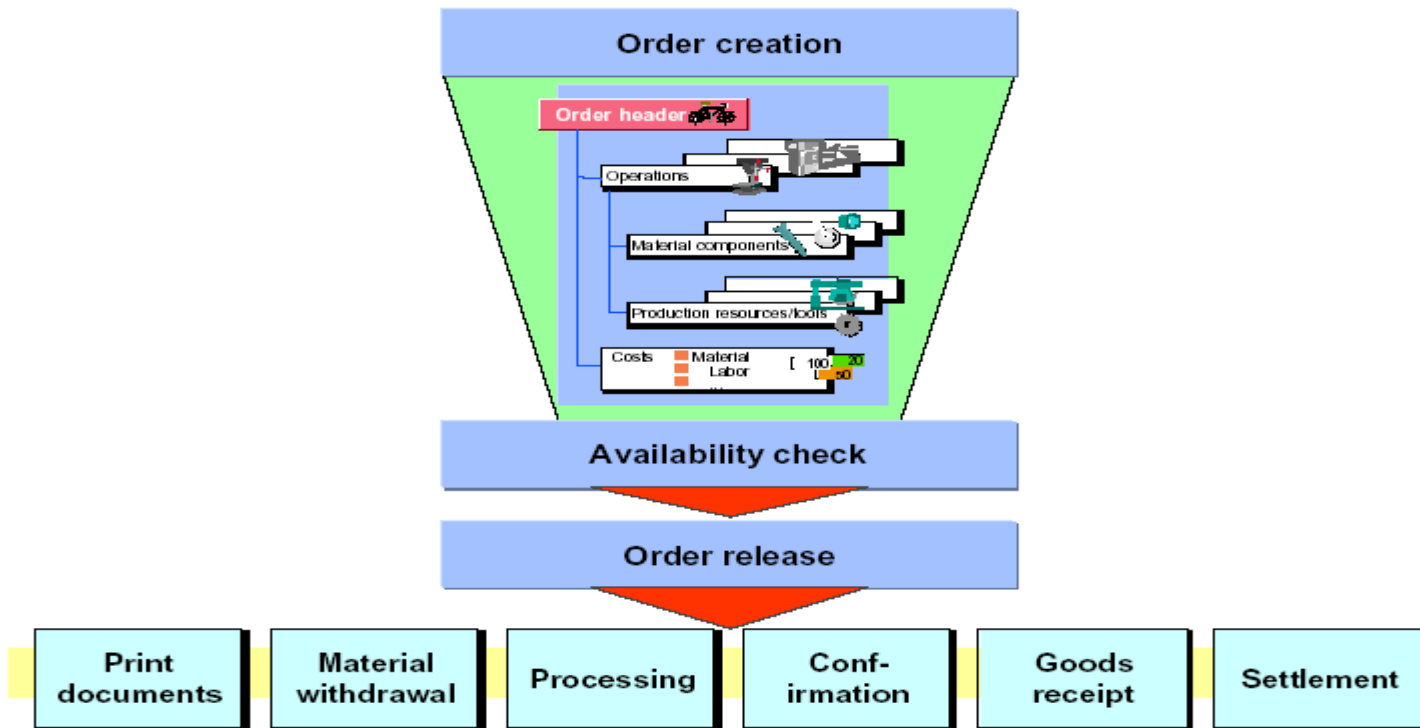
- Planned orders generated in the MRP run can be converted individually or collectively to production orders.
- You can convert a planned order to a production order individually, for example, using the stock / requirements list or the MRP list.
- You can convert planned orders to production orders collectively, for example, based on MRP controller, MRP list or sales order
- The entire planned data like planned target times, activities database, master data, planned costs are available in production order

Production Order Creation

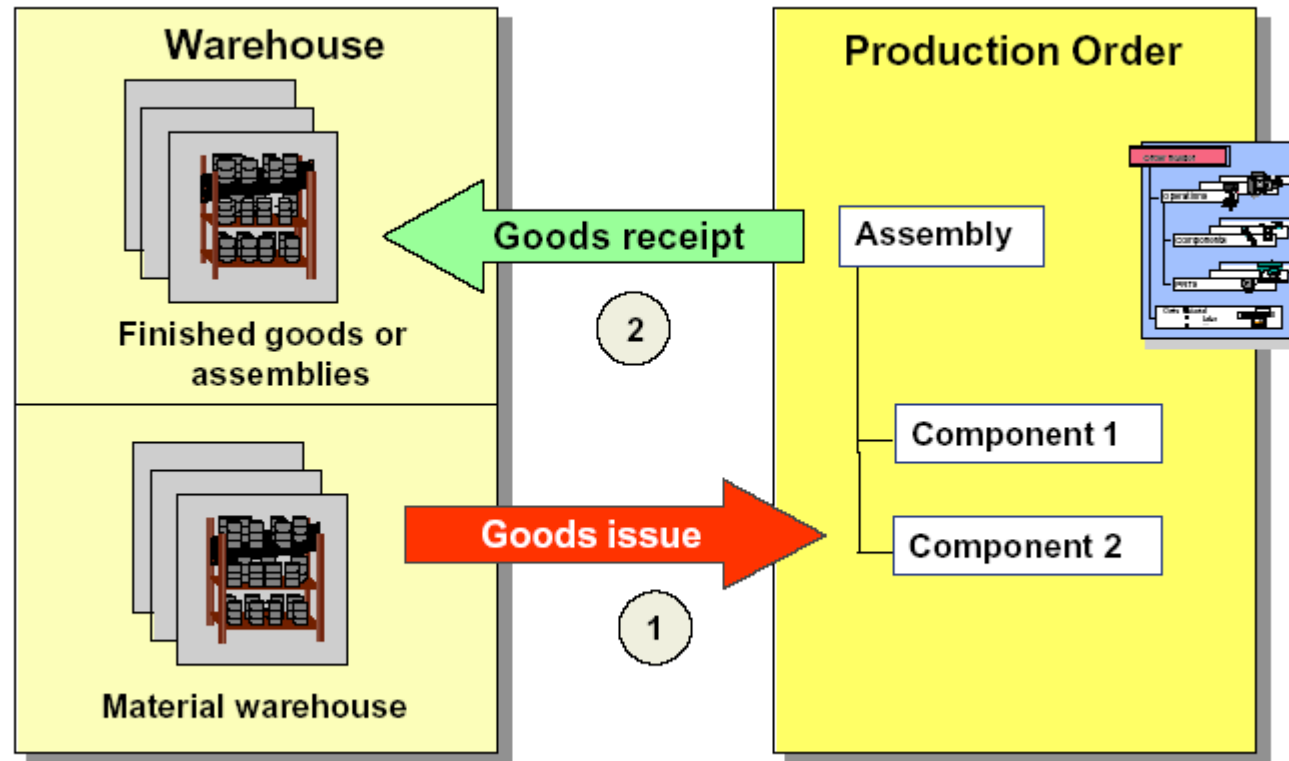
- The production order copies the following data from the routing:
 - Operations
 - Data on external processing
 - Work centers
 - Standard Values
 - Activity types
 - Bill of material assignments
 - Assignments of production resources/tools
- Availability for the components and capacity is checked
- When a planned order is converted to a production order, the dependent requirements of the components are converted to reservations

Production Order Release

- Order release enables stock movements, printing of shop paperwork, confirmations



Goods Movements with respect to Production Order



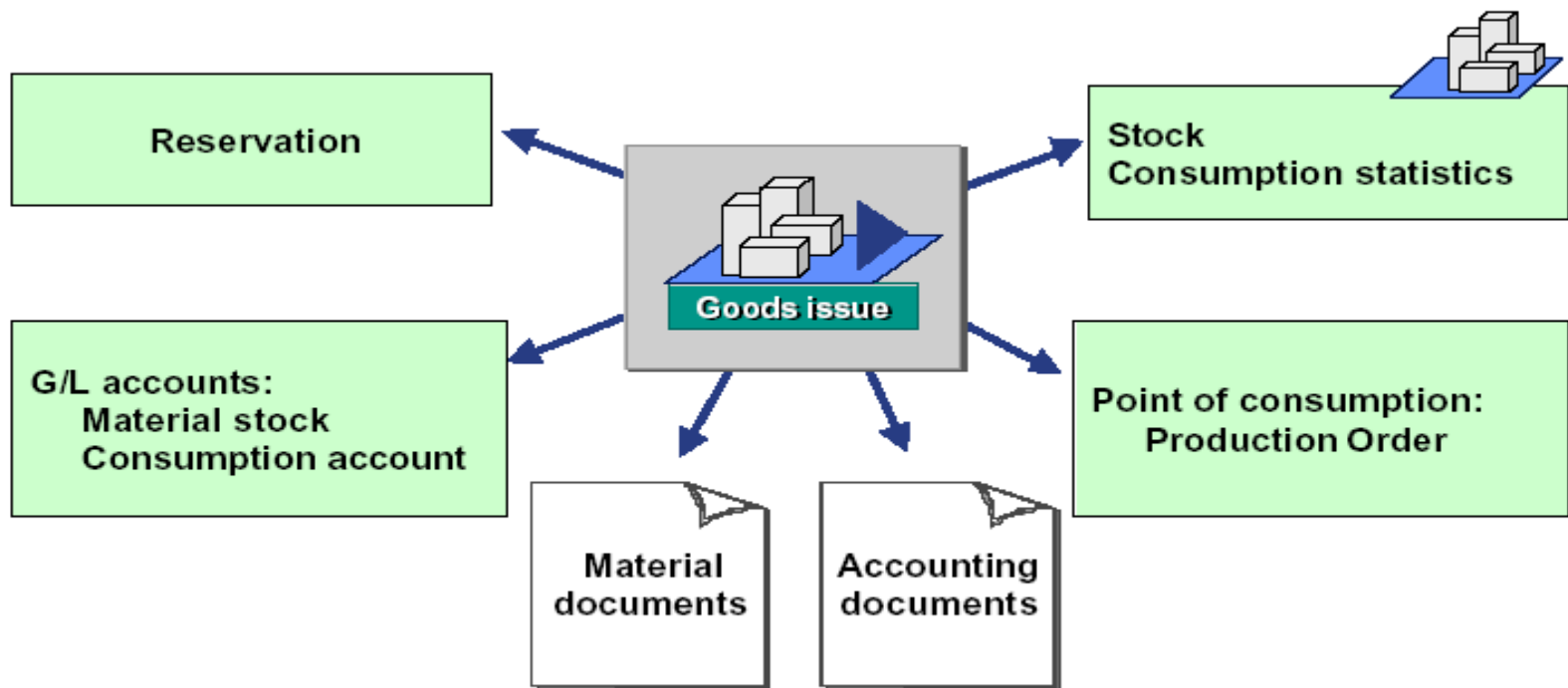
Goods Movements with respect to Production Order

- 261- Back flushing/Component Withdrawal from plant storage location
- 101- Goods Receipt of Finished goods into storage location.

Goods Movements with respect to Planned Order (Repetitive mfg)

- 261- Back flushing/Component Withdrawal from plant storage location
- 131- Goods Receipt of Finished goods into storage location.

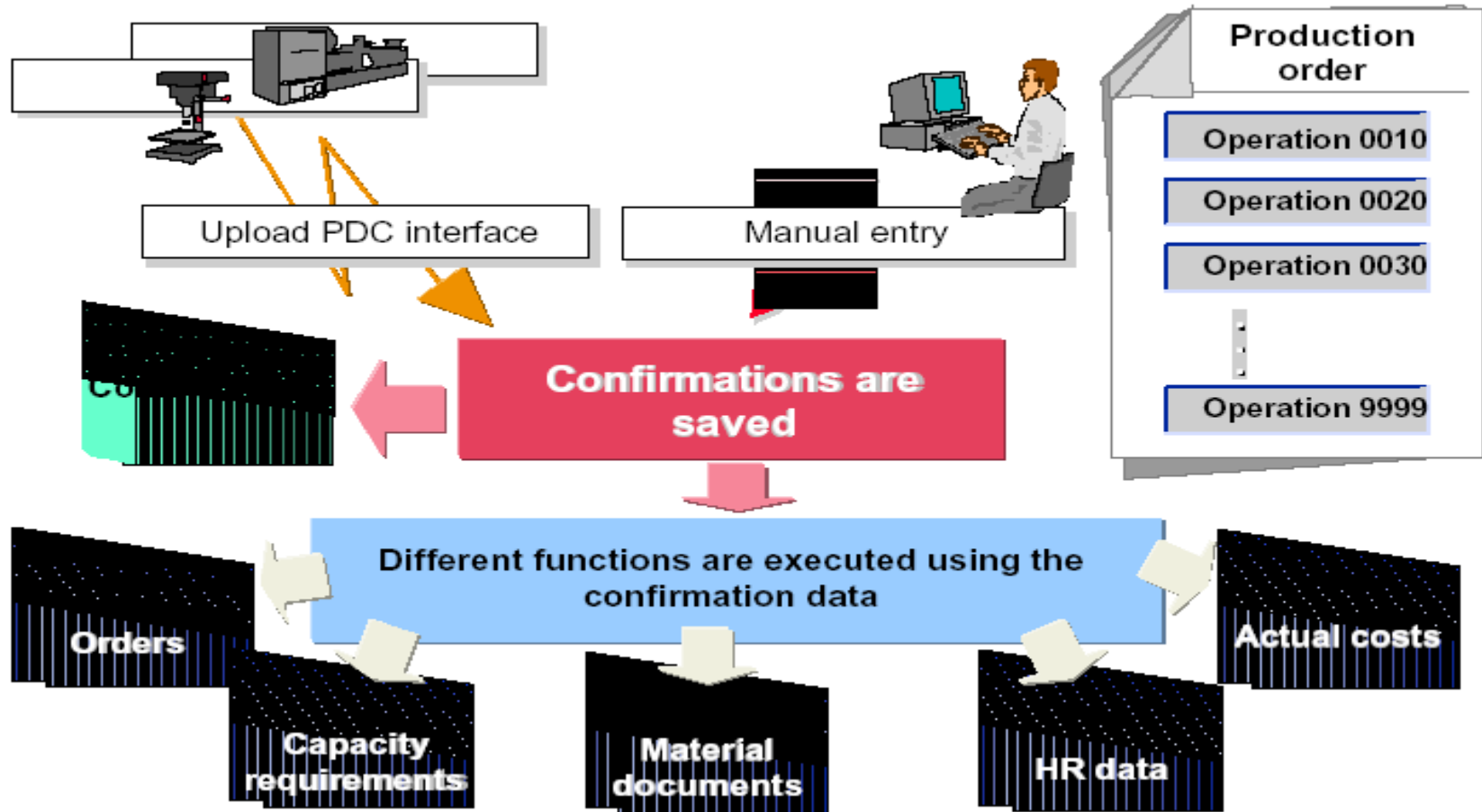
Goods issue to Production Order



Goods issue to Production Order

- With respect to reservation and production order
- After the goods issue the reservation is closed

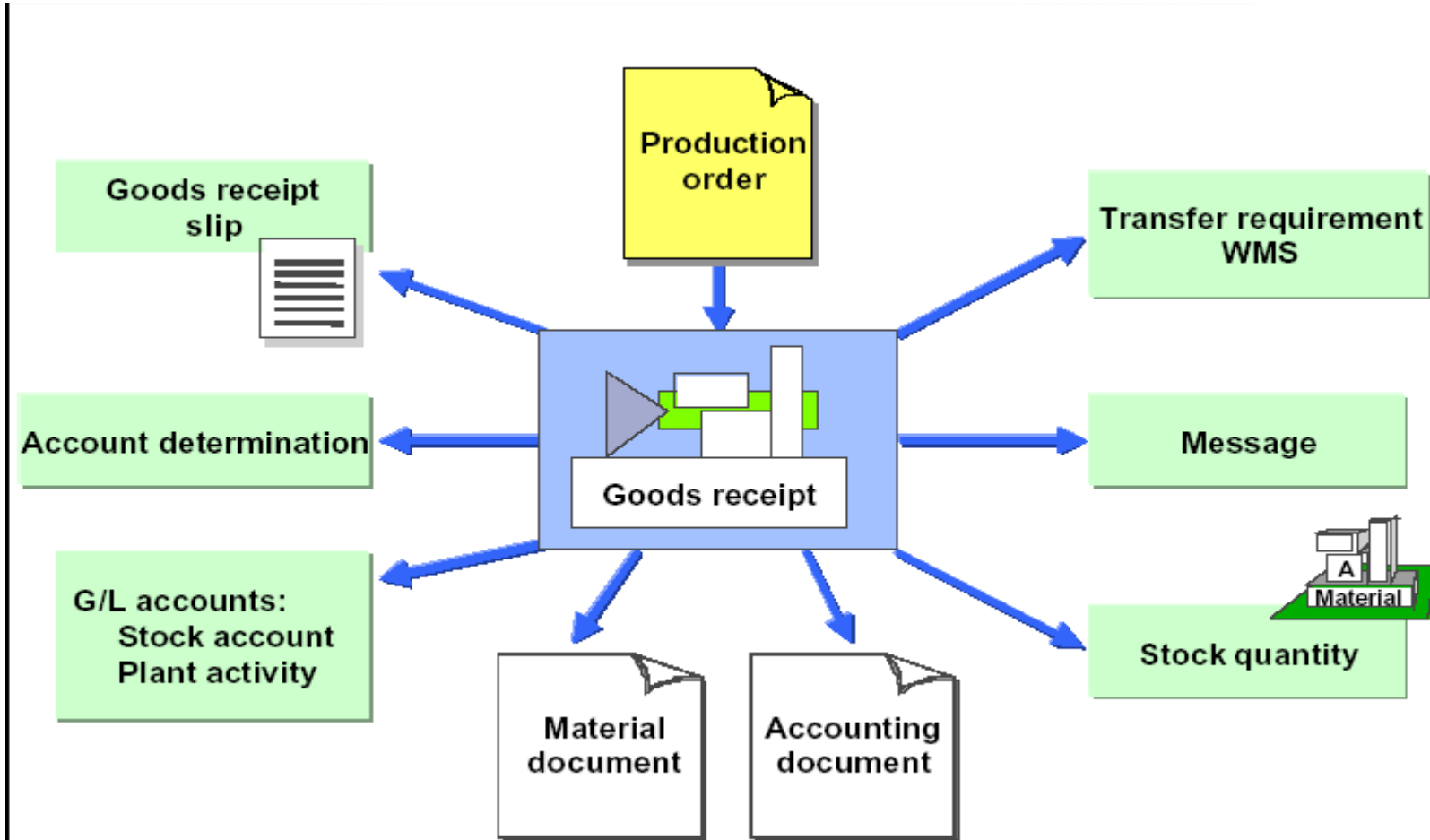
Production Order Confirmation



Production Order Confirmation

- Report Quantity that was produced as yield, scrap and the quantity to be Reworked
- Actual work done or activity performed
- Which work center was used for the operation
- Who carried out the operation
- If back flushing and auto goods receipts are allowed the goods issue and goods receipts are performed automatically on confirmation
- Due to all the above inputs the system calculates the actual costs incurred for the production order

Goods Receipts for Production Orders



Goods Receipts for Production Orders

- Process of taking Finished material into company's own stock
- Control key of an operation decides whether or not automatic goods receipts of finished material is allowed on confirmation
- Automatic goods receipt can only be posted for the final operation of the order

Production Order Settlement

- Settlement of an order means ending a production order from a logistical viewpoint.
- The actual costs incurred for the order are settled to one or more accounts
- If the costs for the production order are settled to a material account, the order is credited each time material is delivered to stock. The material stock account is debited accordingly.
- If the costs for the production order are settled to another receiver (for example to a sales order), the order is credited automatically at the time of settlement. The cost-objects are debited accordingly

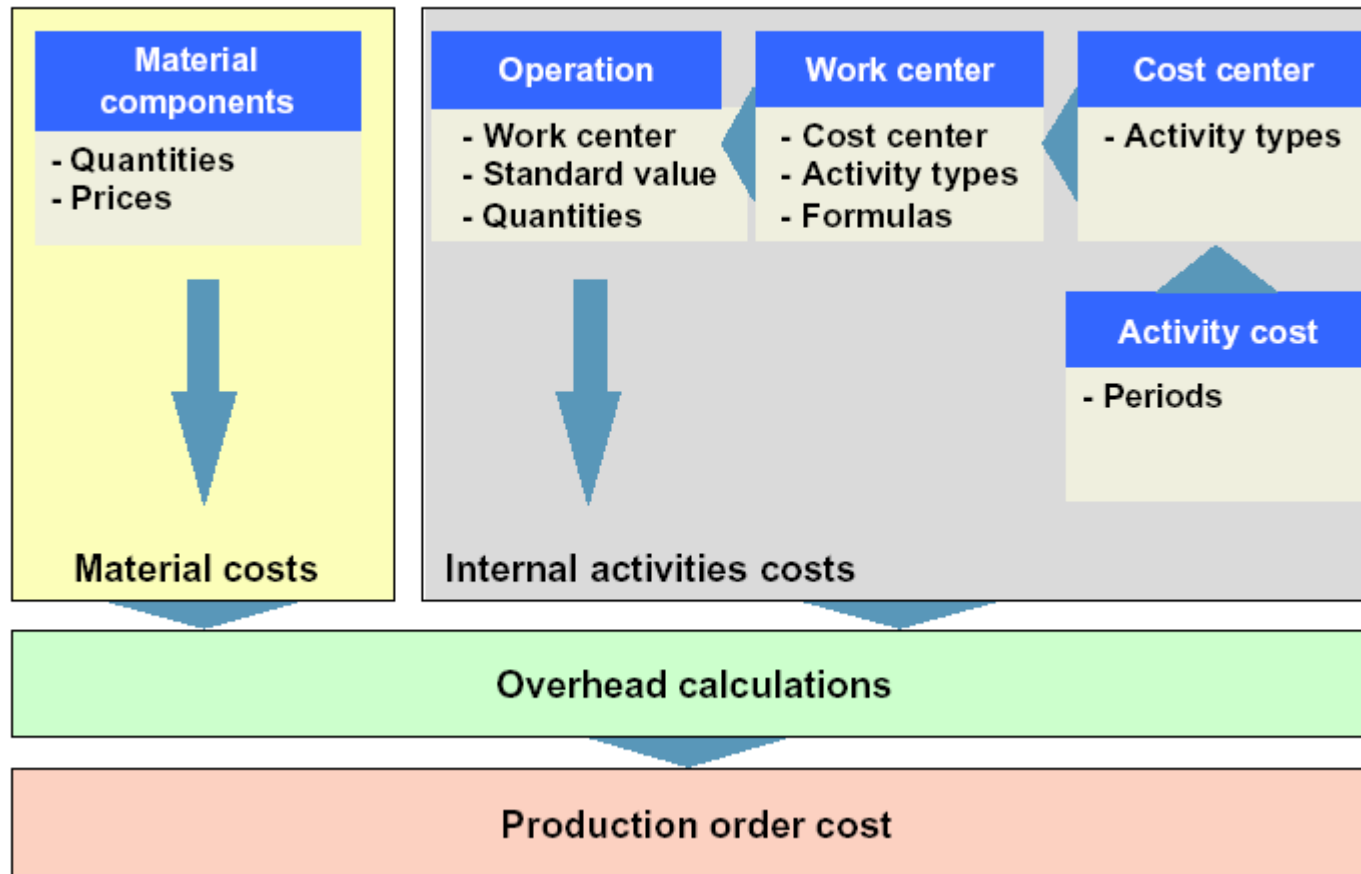
Production Order Settlement

- Configuration for Settlement
 - Settlement Profile.
 - Settlement Structure
 - Settlement Rule

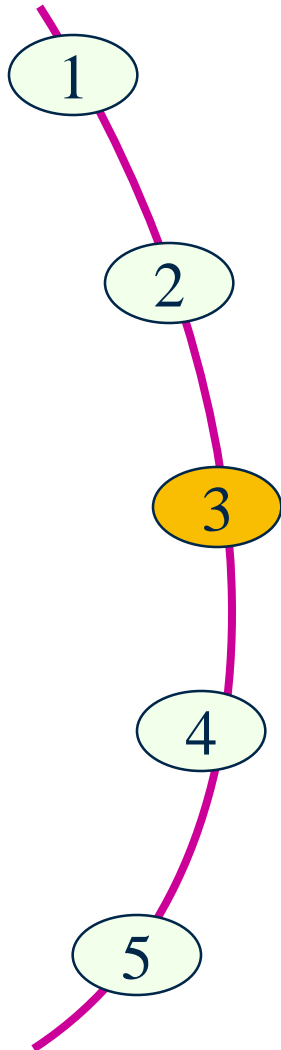
- System automatically assigns a default settlement rule to the production order when the order is created.

- The distribution rule consists of a cost receiver, a settlement share and a settlement type

Production Orders: Costs



Production Order Management



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Environment

The module in which production order runs is SAP R3 under Production Planning Module.

Configuration

- Production order type
- Order type dependent parameters
- BOM and Routing Selection
- Confirmation parameters
- Settlement profile and rule
- Availability check

Master Data

- Material Master (MRP Views, Work Scheduling View)
- Bill of Material (Components)
- Routing (Operations)

Material Master

- Material master contains all the basic data, Sales data, Purchasing data, Planning data and Finance & Accounting related data.
- MRP 1, MRP 2, MRP 3, MRP 4 & Work Scheduling views are very important since these decide the behavior of the material in planning

Bill of Material

- A bill of material decides what are the raw materials or semi-finished components are required to manufacture a finish product

Display material BOM: General Item Overview



The screenshot shows the SAP 'Display material BOM: General Item Overview' interface. At the top, there is a toolbar with icons for navigation and actions, including 'Sub-items', 'New entries', 'Header', and 'Effectivity'. Below the toolbar, the material details are displayed in a form:

Material	135	test
Plant	T280	TTE Polska Sp. z o.o.
Alternative BOM	1	

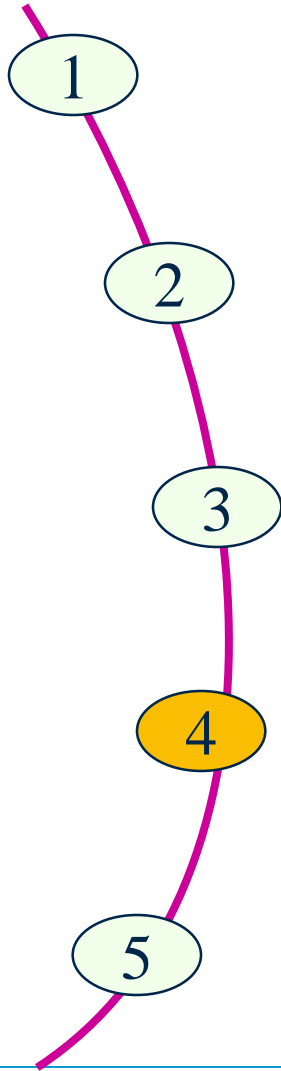
Below the form, there are three tabs: 'Material', 'Document', and 'General'. The 'Material' tab is currently selected. At the bottom, there is a table showing the bill of material components:

Item	ICt	Component	Component description	Quantity	Un	A...	Sl	Valid From	Valid To
0010	L	10276500	SWITCH-MAIN PUSH 25...	2.000	PC			10.01.2006	31.12.9999

Routing

- Routing contains information about the operations being performed on the work centers / resources to produce a material
- Time required to manufacture the Finished Product
- Components to be consumed during operation
- Which work center will be used

Production Order Management



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References

MD04 – Stock / Requirement list

SAP

List Edit Goto Settings Environment System Help

Stock/Requirements List as of 05:14 Hrs

Show Overview Tree

Material I-F100 Pump PRECISION 100
 MRP area 1000 Hamburg
 Plant 1000 MRP type PD Material type FERT Unit PCE

A...	Date	MRP ...	MRP element data	Reschedul...	E...	Rec./reqd.qty	Available qty	Sto...
	06.03.2006	Stock					0	
	18.07.2005	IndReq	VSF			10-	10-	
	01.08.2005	IndReq	VSF			100-	110-	
	01.09.2005	IndReq	VSF			111-	221-	
	06.12.2005	IndReq	VSF			222-	443-	
	28.12.2005	PrdOrd	000060003225/PP01/RE	18.07.2005	10	5	438-0002	
	06.03.2006	PlOrd	0000037641/STCK	18.07.2005	30	5	433-0002	
	27.03.2006	PlOrd	0000037642/STCK	01.08.2005	30	100	333-0002	
	28.03.2006	PlOrd	0000037643/STCK	01.09.2005	30	111	222-0002	
	25.04.2006	PlOrd	0000037644/STCK	06.12.2005	30	222	0 0002	

Additional Data for MRP Element

Plnd order 0000037641 Make-to-stock Order finish 06.03.2006 GR pr.time 0
 Order qty 5 PCE Order start 27.02.2006 Proc. type E
 Scrap 0 Planned opening 13.02.2006 Order type LA
 Exception 30 = Plan process according to schedule (18.07.05)
06 = Start date in the past

-> Prod.ord -> PartConvProdOrder -> Proc.ord. -> SubProcOrd -> Pur.req.

Convert planned order to production order (Ctrl+F1)

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MD04 ntbomsap12 INS

Production Order Creation

Order Functions Edit Goto Header Environment System Help

Production order Create: Header

Release order (Ctrl+F1) 0001 Type PP01

Material T-F100 Pump PRECISION 100 Pint 1000

Status CRTD MACM SETC

General Assignment Goods receipt Control data Dates/qty's Master data Long text Administration SAP Event Mgmt

Quantities

Total Qty	5	PCE	Scrap portion	0.00	%
Delivered	0		ExpectYieldVar	0	

Dates

	BasicDates		Scheduled		Confirmed	
Finish	06.03.2006	13:58	06.03.2006	13:58		
Start	06.03.2006	07:00	06.03.2006	07:00		00:00
Release			27.02.2006			

Scheduling

Type	4 Current date
Reduction	Reduction level 2
Note	No scheduling note
Priority	

Floats

Scheduling margin	001
Float bef. prod	2 Workdays
Float after pro.	1 Workdays
Release period	5 Workdays

All checked materials in order are available

CO40 ntboomsap12 INS

Production Order Release

Order Functions Edit Goto Header Environment System Help

Production order Create: Header

Material Capacity

Order: %000000000001 Type: PP01
Material: I-F100 Pump PRECISION 100 Pint: 1000
Status: REL|PROC SER MACM SETC
User Status: RLAL

General Assignment Goods receipt Control data Dates/qty's Master data Long text Administration SAP Event Mgmt

Quantities

Total Qty	5	PCE	Scrap portion		0.00	%
Delivered	0		ExpectYieldVar	0		

Dates

	BasicDates		Scheduled		Confirmed	
Finish	06.03.2006	13:58	06.03.2006	13:58		
Start	06.03.2006	07:00	06.03.2006	07:00		00:00
Release			27.02.2006		06.03.2006	

Scheduling

Type	4 Current date
Reduction	Reduction level 2
Note	No scheduling note
Priority	

Floats

Scheduling margin	001
Float bef. prod	2 Workdays
Float after pro.	1 Workdays
Release period	5 Workdays

Release carried out

CO40 ntbornsap12 INS

MB1A- Withdrawals for the order

SAP

Goods Issue Edit Goto Movement Type Environment System Help

Enter Goods Issue: Selection Screen

Post (Ctrl+S)

Adopt + Details

Movement Type 261 GI for order

Business Area 1000

Cost Center

Order 60003566

Recipient

Reservation 26614

Items

Item	Material	Quantity	UnE	SLoc	Batch	Re	Plnt	Itm	FIs
<input checked="" type="checkbox"/>	1 T-B100	5	PCE	0001		1000	6		<input type="checkbox"/>
<input checked="" type="checkbox"/>	2 T-B200	5	PCE	0001		1000	7		<input type="checkbox"/>
<input checked="" type="checkbox"/>	3 T-B300	5	PCE	0001		1000	8		<input type="checkbox"/>
<input checked="" type="checkbox"/>	4 T-B400	5	PCE	0001		1000	9		<input type="checkbox"/>
<input checked="" type="checkbox"/>	5 T-T300	40	PCE	0001		1000	10		<input type="checkbox"/>

Entry 1 of 5

MB1A ntbomsap12 INS

CO11n- Production Order Confirmation

Confirmation Edit Goto User settings Environment System Help

Save (Ctrl+S)

Enter time ticket for production order

Goods movements Actual data

Confirmation 86394
 Order 60003566 Material T-F100 Pump PRECISION 100
 Oper./activity 0060 Sequence 0 Ab liefern an Lager
 Work center T-P00 Plant 1000 Production inspection II

Confirm.type Partial confirmation ☐ Clear open reservations

lot sizes

To confirm Unit
 Yield 5 PCE
 Scrap
 Rework
 Reason for Var.

activities

Power	To confirm	U...	R	Already Confirmed	Planned total	U...
Setup		H	<input type="checkbox"/>	0.000	0.000	H
Machine		H	<input type="checkbox"/>	0.000	0.000	H
Labor	0.417	H	<input type="checkbox"/>	0.000	0.417	H

personal data
 dates
 quality check
 comments

CO11N ntbomsap12 INS

COGI- Error Handling

Program Edit Goto System Help

SAP

Automatic Goods Receipts: Error Handling

Execute (F8)

Enter Records Selection

Plant	1000	to		
Storage Location		to		
Material	t-f100	to		
MRP Controller		to		
Movement Type		to		
Error Record		to		

Additional Conditions

WBS Element		to		
Sales Order				
Error: Work Area/Number		/		
Error date from		00:00:00	To	00:00:00
Posting date from			To	

Selection Criteria for Assembly

Order Category		to		
Order		to		
Material		to		
Production Version		to		
Planning Plant		to		
Production Scheduler		to		
WBS Element		to		
Sales Order				

Output Criteria

Maximum Selected Lines	
<input type="radio"/> Individual Records	

No record was found for selection

COGI ntboomsap12 INS

KKS2- Variance Calculation

Variance Calculation Edit Goto Extras Environment System Help

Variance Calculation: Initial Screen

Order 60003566 Pump PRECISION 100

Parameters

Period 2

Fiscal Year 2006

☐ All target cost vsns 000,001,002

☒ Selected Target Cost Vsns 000

Processing options

☒ Test Run

☒ Detail list

KKS2 ntbomsap12 INS

KO88- Cost settlement

SAP

Settlement Edit Goto Extras Environment System Help

Actual Settlement: Order

Settlement Rule

Order 60003566

Parameters

Settlement period	1	Posting period	
Fiscal Year	2006	Asset value date	
Processing type	1 Automatic		

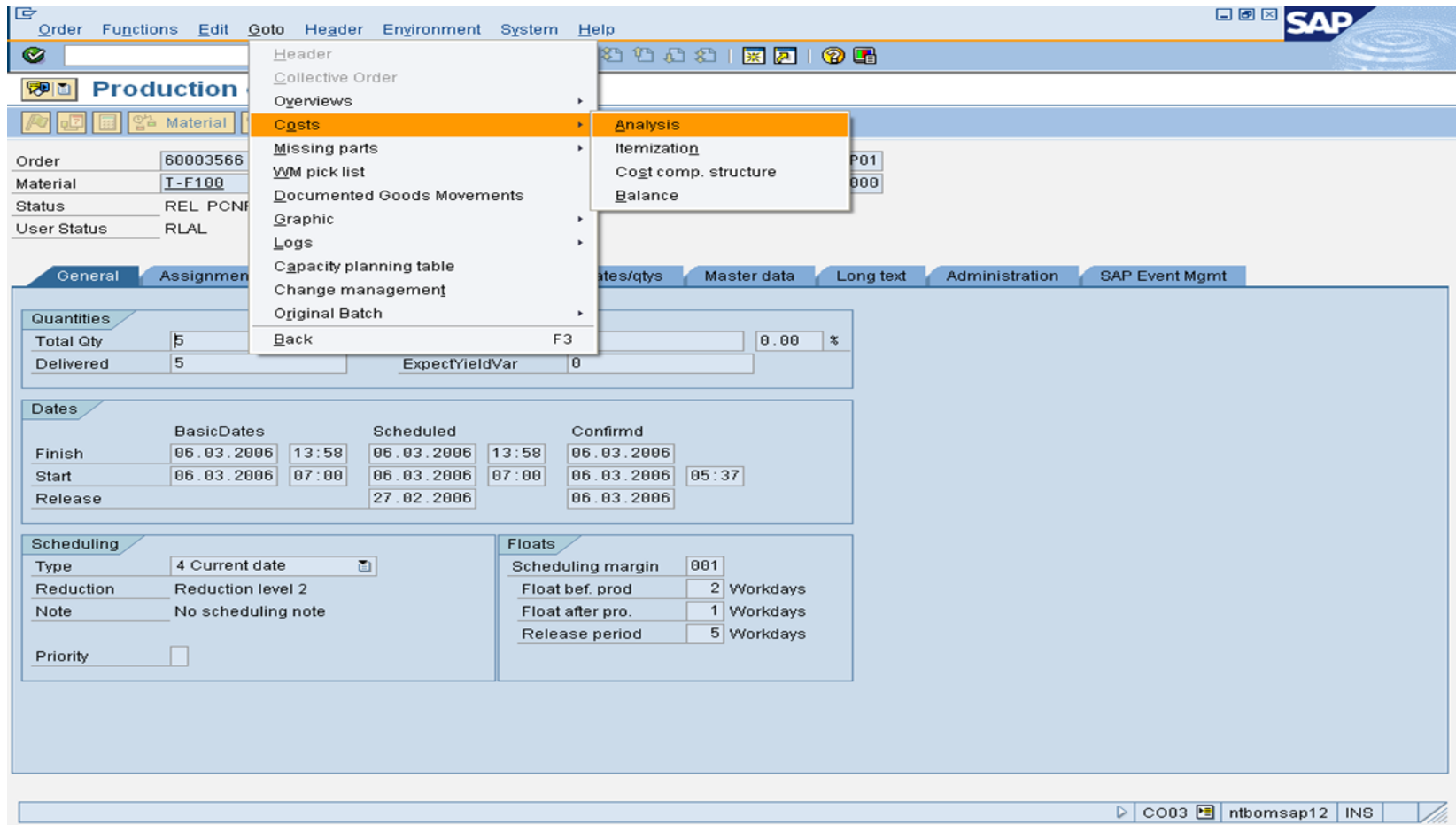
Processing Options

☒ Test Run

☐ Check trans. data

KO88 ntbomsap12 INS

Cost Analysis - Example



The screenshot shows the SAP Production Order Cost Analysis menu. The menu is open, showing the following options:

- Header
- Collective Order
- Overviews
- Costs**
 - Analysis**
 - Itemization
 - Cost comp. structure
 - Balance
 - Missing parts
 - WM pick list
 - Documented Goods Movements
 - Graphic
 - Logs
 - Capacity planning table
 - Change management
 - Original Batch
 - Back

The background shows the SAP Production Order screen with the following data:

Order: 60003566
Material: T-F100
Status: REL PCNF
User Status: RLAL

Quantities

Field	Value
Total Qty	5
Delivered	5
ExpectYieldVar	0

Dates

Field	BasicDates	Scheduled	Confirmed
Finish	06.03.2006 13:58	06.03.2006 13:58	06.03.2006
Start	06.03.2006 07:00	06.03.2006 07:00	06.03.2006 05:37
Release		27.02.2006	06.03.2006

Scheduling

Type: 4 Current date
Reduction: Reduction level 2
Note: No scheduling note
Priority: ☐

Floats

Field	Value	Unit
Scheduling margin	001	
Float bef. prod	2	Workdays
Float after pro.	1	Workdays
Release period	5	Workdays

CO03 ntbomsap12 INS

Cost Analysis - Example

SAP										
Production order Display: Header										
Order 60003566 T-F100 Order Type PP01 Standard Production Order (Int. number) Plant 1000 Werk Hamburg Material T-F100 Pump PRECISION 100 Planned Quantity 5 ST Piece Actual Quantity 5 ST Piece <i>Cumulative Data</i> <i>Legal Valuation</i> <i>Company Code Currency/Object Currency</i>										
Transaction	Cost Ele...	Origin	Origin (Text)	Total plan costs	Ttl actual csts	Plan qty	Actual ...	Plan/act. var.	P/A var(%)	Currency
Goods Issues	400000	1000/T-T300	Hexagon head screw M10	20.40	20.40	40	40	0.00		EUR
	890000	1000/T-B200	Fly wheel	424.90	424.90	5	5	0.00		EUR
	890000	1000/T-B100	Casing	571.00	571.00	5	5	0.00		EUR
	890000	1000/T-B300	Hollow shaft	932.15	932.15	5	5	0.00		EUR
	890000	1000/T-B400	Electronic TURBODRIVE	82.05	82.05	5	5	0.00		EUR
Goods Issues				2,030.50	2,030.50	60	60	0.00		EUR
Confirmations	619000	4220/1421	Pump Production / Wage Hours	29.20	29.20	0.417	0.417	0.00		EUR
	619000	4230/1421	Pump Assembly / Wage Hours	42.78	42.78	4.582	4.582	0.00		EUR
	619000	4280/1421	Quality Control / Wage Hours	2.96	2.96	0.417	0.417	0.00		EUR
	620000	4220/1420	Pump Production / Machine Ho...	14.39	14.39	0.417	0.417	0.00		EUR
	620000	4230/1420	Pump Assembly / Machine Ho...	19.37	19.37	0.833	0.833	0.00		EUR
	625000	4220/1422	Pump Production / Setup Hours	2.80	2.80	0.050	0.050	0.00		EUR
	625000	4230/1422	Pump Assembly / Setup Hours	9.73	9.73	0.417	0.417	0.00		EUR
Confirmations				121.23	121.23	7.133	7.133	0.00		EUR
Goods Receipt	895000	1000/T-F100	Pump PRECISION 100	2,158.60	2,158.60	5	5	0.00		EUR
Goods Receipt				2,158.60	2,158.60	5	5	0.00		EUR
				6.87	6.87	7.133	7.133	0.00		EUR
						55	55			

MD04 – Stock / Requirement list

SAP

List Edit Goto Settings Environment System Help

Stock/Requirements List as of 05:45 Hrs

Show Overview Tree

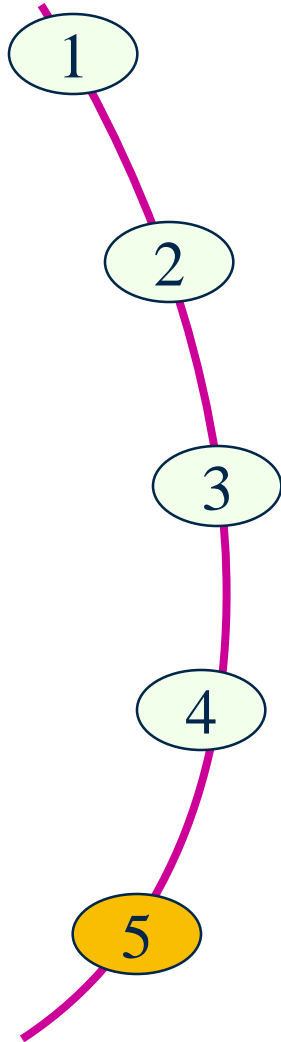
Material **T-F100** Pump PRECISION 100
 MRP area 1000 Hamburg
 Plant 1000 MRP type PD Material type FERT Unit PCE

A.	Date	MRP ...	MRP element data	Reschedul...	E.	Rec./reqd.qty	Available qty	Sto...
06.03.2006	Stock						5	
18.07.2005	IndReq	VSF				10-	5-	
01.08.2005	IndReq	VSF				100-	105-	
01.09.2005	IndReq	VSF				111-	216-	
06.12.2005	IndReq	VSF				222-	438-	
28.12.2005	PrdOrd	000060003225/PP01/Re	18.07.2005	10		5	433-0002	
27.03.2006	PIOrd.	0000037642/Stck	01.08.2005	30		100	333-0002	
28.03.2006	PIOrd.	0000037643/Stck	01.09.2005	30		111	222-0002	
25.04.2006	PIOrd.	0000037644/Stck	06.12.2005	30		222	0 0002	

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References

References

- Tips and Tricks
- Additional Info



CONFIGURATION TIPS

TRANSACTION CODES

Tables

Configuration Tips

1. The Bills of Materials in relation to the Shop Floor Production Order.
2. Define the Production Order Types
3. How to configure the Production Order User Status?
4. Where-is the Production Order Type used?
5. Define the Production Order Type-dependent Parameters

Configuration Tips

1. Define Checking Control
2. Define Confirmation Parameters
3. Define Scheduling Parameters for Production Orders
4. Define Number Range
5. Define selection profiles for the Order Information System
6. Where-is the Selection Profile used?
7. Define the Production Operations Control key

Configuration Tips

1. Where-is the Control key used?
2. Define formula parameters for Work Center
3. Where-is the Work Center Formula Used?
4. Define the Production Scheduling Profile
5. Define Production Scheduler
6. Where-is the Production Scheduling Profile and Production Scheduler Used?

Configuration Tips

1. Define User Exits Selection
2. Select Routing Automatically
3. Where do you define the Usage and Status?
4. Define Default Values If No Routing Exists
5. Define Priorities for BOM Usages
6. Define Applications for BOM Explode

Configuration Tips

1. Define Alternative Determination for Production
2. Define Checking Group
3. Define Checking Rule
4. Define Scope of Check
5. Specify Scheduling Type
6. Define Standard Value Keys

Configuration Tips

1. Where-is the Standard Value Key used?
2. Define Scheduling Margin Key
3. Define Capacity Categories
4. Where-is Capacity Categories used?
5. Define Single Screen Entry for Time Ticket Confirmations

Configuration Tips

1. Maintain Language-Dependent Texts
2. Define Reasons for Variances for Production Scrap
3. Where-is the Production Reason Code used?
4. Define Print Control for Shop Floor Papers

HelpMe

MD04

Converting the Planned Order into a Production Order .

MB1A

Withdrawing the Material for the Production Order

CO11N

Confirming the Production Order

KO88

Checking the Production Order Settlement

Production Planning Tables

MAST	Material BOM
STKO	BOM Header
STPO	BOM Positions (detail)
MAPL	Assignment fo Task Lists to Materials
PLKO	Routing Group Header
PLSO	Routing Group Sequence
PLPO	Routing Group Operations
AFKO	Production Order Header
AFPO	Production Order Position (details)

Summary

- A production order specifies which material is to be produced, at what time and how much work is required, where it is to be produced, which operations are required to do this. It also defines how the order costs are to be settled The function of Demand Management is to determine requirement quantities and delivery dates for finished products assemblies.
- Planned orders generated in the MRP run can be converted individually or collectively to production orders.
- You can convert a planned order to a production order individually, for example, using the stock / requirements list or the MRP list.
- If back flushing and auto goods receipts are allowed the goods issue and goods receipts are performed automatically on confirmation
- Settlement of an order means ending a production order from a logistical viewpoint



Review Questions

1. *The actual costs incurred for the order are settled to one or more accounts*

Check whether the statement is true or false

- a. True
- b. False

2. A production order specifies which material is to be produced

Check whether the statement is true or false

- a. True
- b. False

3. Mov. Type 261- Back flushing/Component Withdrawal from plant storage location

- a. True
- b. False



Production Order Management

THANK YOU

