



# Inventory & Warehouse Goods Movement

LOG-IM/WM-002

October 15, 2008

# LaGOV

Version 2.02

Updated: 11/7/2008 8:58 AM

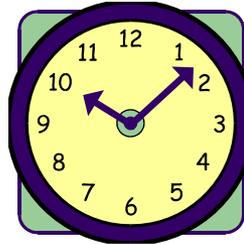


# Agenda

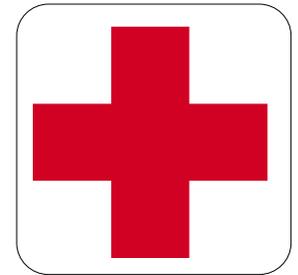
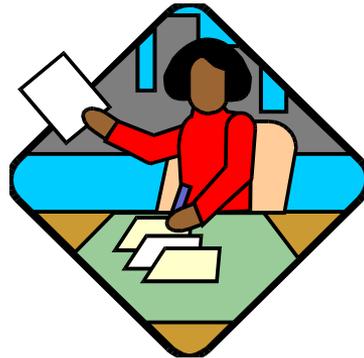
- Logistics, Ground Rules & Introduction
- Workshop Objectives
- Project Overview/Timeline
- Business Process Review
  - SAP terms glossary
  - As Is Process Discussions
  - Process improvement opportunities
  - SAP concepts & functionality
  - Leading practices
  - Enterprise readiness challenges
- Action Items
- Questions



# Logistics



**Before we get started ...**





# Ground Rules

- Has everybody signed in?
- Everybody participates – blueprint is not a spectator sport
- Silence means agreement
- Focus is key – please turn off cell phones and close laptops
- Challenge existing processes and mindsets
- Offer suggestions and ideas
- Think Enterprise
- Ask questions at any time
- One person at a time please
- Creativity, cooperation, and compromise





# Introduction

## ■ Roles

- **Process Analyst and Functional Consultant (IBM)** – lead and facilitate the discussions and drive design decisions
- **Documenter (State Employee)** – take detailed notes to support the formal meeting minutes to be sent by the Process Analyst to all participants for review and feedback
- **Team Members (LaGov)** – provide additional support for process discussions, address key integration touch points
- **Subject Matter Experts** – advise team members on the detailed business process and participate in the decisions required to design the future state business process

### ***Round the Room Introductions***

***Name***

***Position***

***Agency***



## Blueprint Schedule - Tentative

- Please refer to the handout for the upcoming Blueprint Sessions



# Blueprint Objectives

1. Review and discuss the current or As-Is Business Processes
2. Define Master Data – Info Record, Source List, Quota Arrangement
3. Define Future or To-Be Business Processes
4. Identify Development Requirements:
  - Forms
  - Reports
  - Interfaces
  - Conversions
  - Enhancements
  - Workflow
5. Understand and communicate any Organizational Impact / Enterprise Readiness Challenges
6. Gather system Security Authorizations and State-wide Training Requirements



# TODAY'S WORKSHOP OBJECTIVES

## Topics to be Discussed

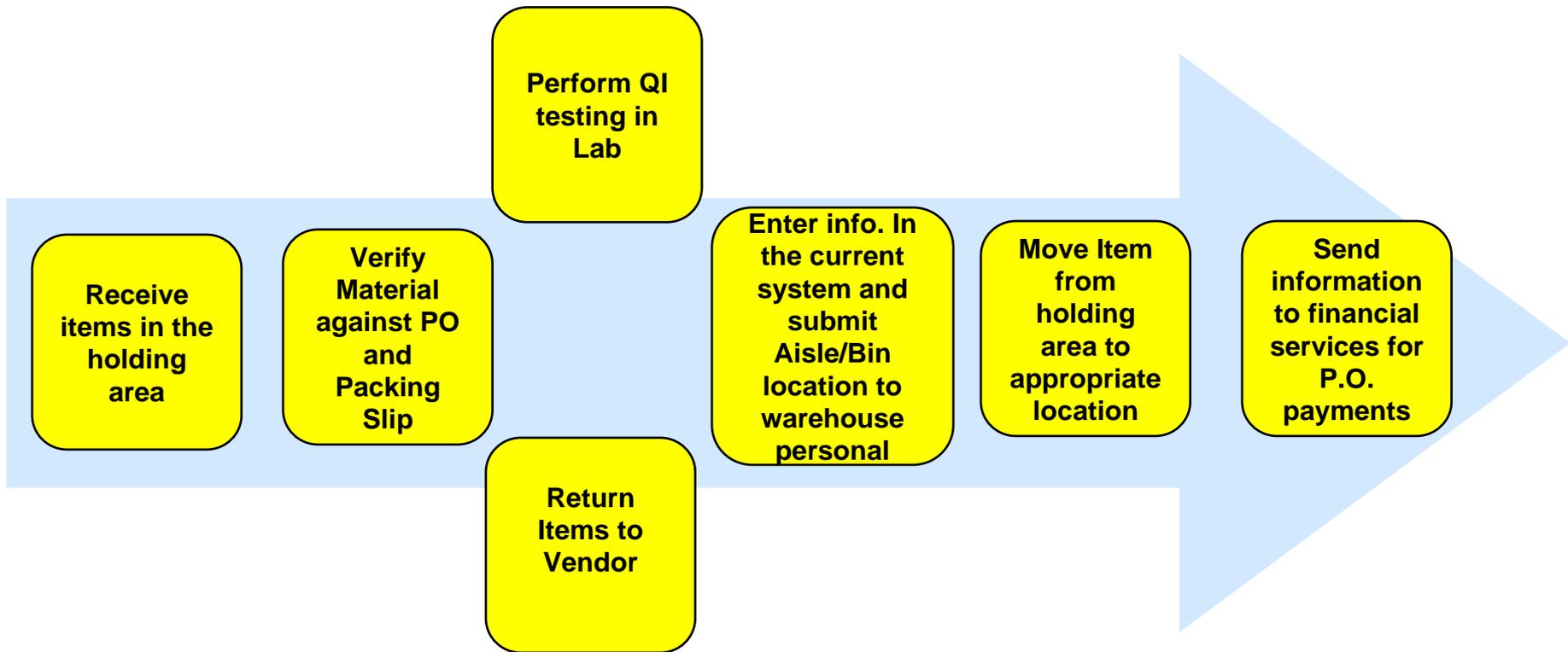
- **Goods Receipt**
- **Transfer options between storage locations within a plant**
- **Transfer options between plants**
- **Goods issue for Cost Center, Sales Order and Plant Maintenance Work Order**
- **Scrapping**
- **Status change - e.g. transfer between Unrestricted, Quality Inspection Stock and Blocked Stock**
- **Control data in Account Determination for Inventory Management**



# AS-IS Process Flows

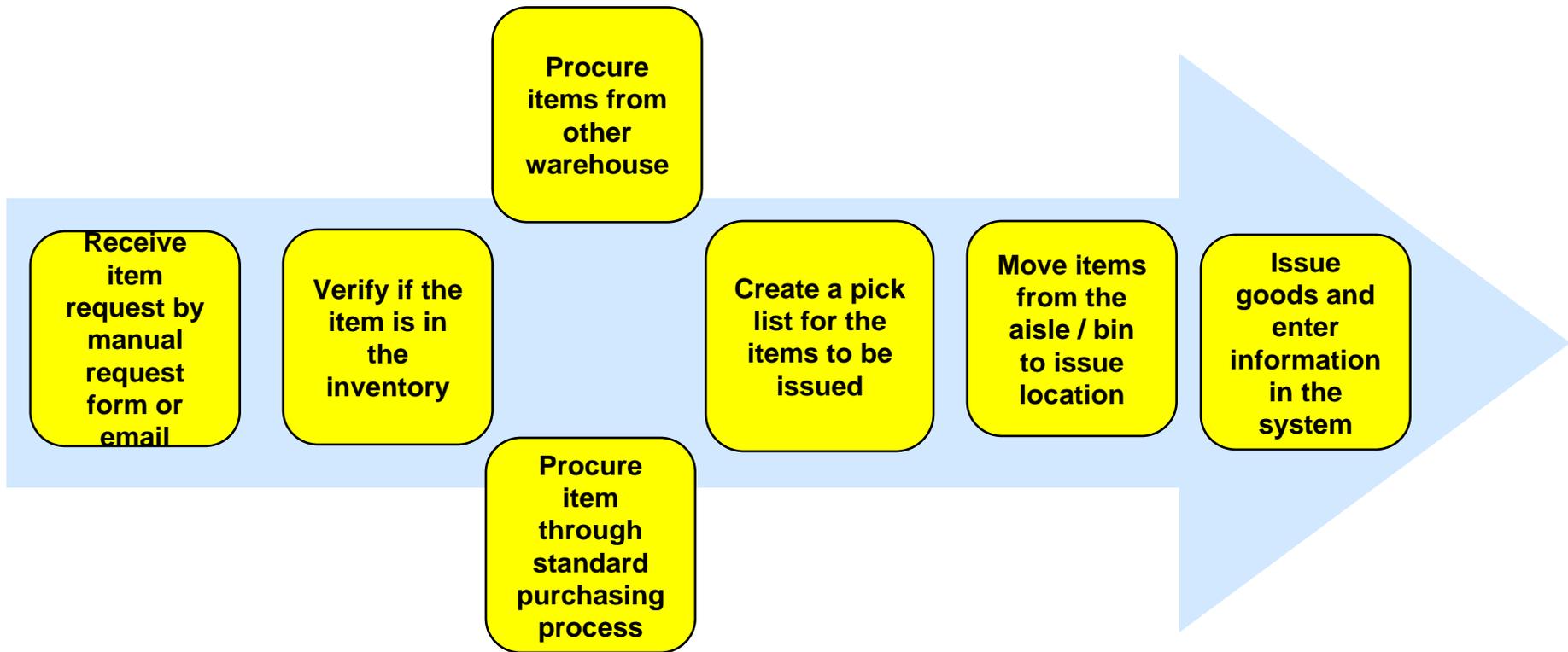


# As-Is Goods Receipt Process



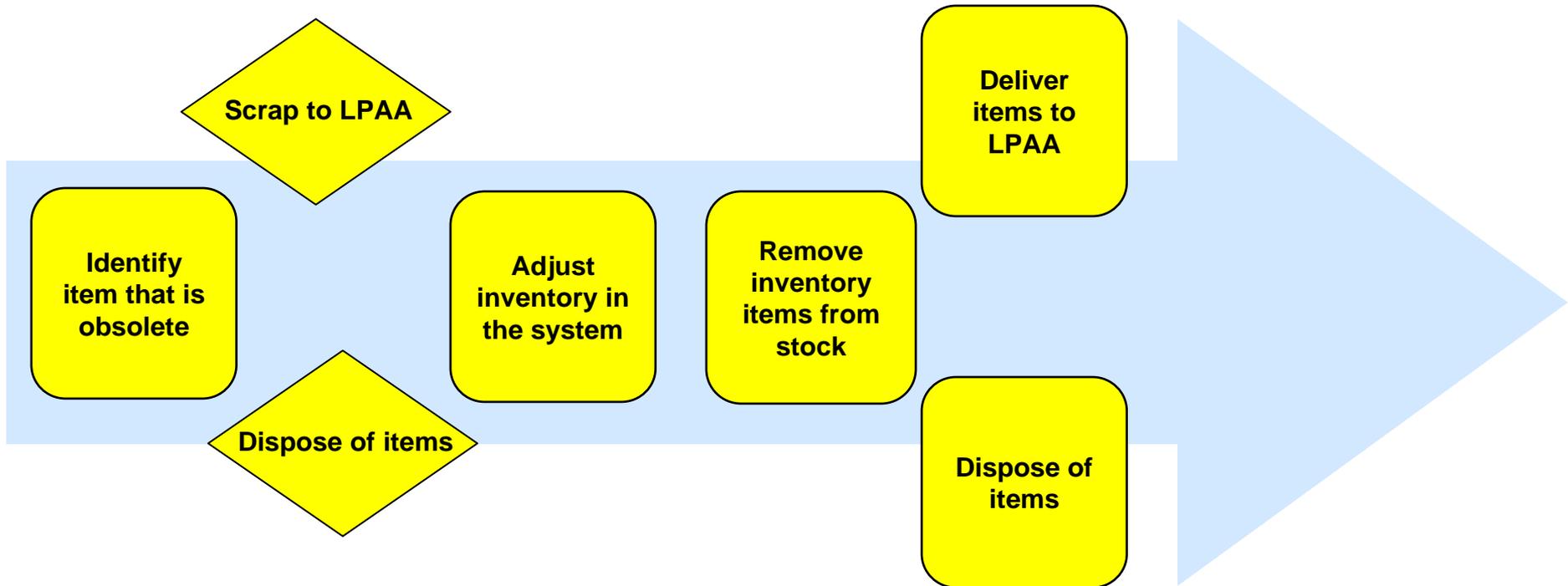


# As-Is Goods Issue Process





# As-Is Obsolete/Scrap Process





# GLOSSARY



# Glossary

- **Goods Movement Type** – When you enter a goods movement in the system, you must enter a movement type to differentiate between the various goods movements. A movement type is a three-digit identification key for a goods movement.
- **Goods Receipt** – Posts the receipt of goods from an external vendor or from production. A goods receipt leads to an increase in warehouse stock.
- **Goods issue** – Posts a material withdrawal, a material issue, or a shipment of goods to a customer. A goods issue leads to a reduction in warehouse stock.
- **Container List** - List of items contained inside the container (e.g. One box containing 10 pens and 5 markers).
- **Packing List** - List of goods and packaging (e.g. 15 cartons containing 1500 plain white envelopes).
- **Stock Transfer** – Removes materials from storage in one storage location and places them in another storage location. Stock transfers can occur either within one plant or between two plants or company codes.
- **Transfer Posting** – Usually refers to a change in a material's stock such as release from quality inspection or putting in blocked stock. In a transfer posting, the material can remain in its original storage location or be transferred.
- **Reservation** – Request to the warehouse to keep materials ready for withdrawal at a later date and for a certain purpose.



# Glossary

- **Material Document** – In the Inventory Management system, when a goods movement is posted, a material document is generated that serves as proof of the movement and as a source of information for any applications that follow.
- **Accounting Document** – If the movement is relevant for Financial Accounting (that is, if it leads to an update of the G/L accounts), an accounting document is created parallel to the material document.
- **Batch** – The structure of the material master record allows you to manage inventory of a material by value at plant level or company code level and by quantity down to storage-location level. Under certain conditions, it is necessary to make further subdivisions for a material and manage quantities in batches.
- **Serial Number** – Identifies and differentiates individual items of material. This component supplements the material master record, which may contain all data for describing and managing a piece of material, but which does not enable you to differentiate between individual items of that material.



# Glossary

- **Authorization** – Allowing a person, system, or module to have specified access limitations. An authorization specifies one or more permissible values for each of the authorization fields that are listed in an authorization object.
- **Background Processing** – To schedule a process to happen without coming onto the screen. Data can be processed in the background while other functions are being carried out in parallel on the screen. Some programs can be scheduled to run on weekends at a particular time. This is particularly useful for batch processing, performing back-up of data, etc.
- **Batch Processing** – The procedure to process large volumes of data at once. This processing can not be modified once processing has begun.
- **EDI** – Electronic Data Interchange. The way to transfer the data from one system to another system electronically.
- **IDOC** – Intermediate Document. Data container for data exchange between SAP systems or between SAP system and a Non-SAP system.
- **Job** – A continuous chain of programs using control commands.
- **Zero Stock Check** – Check or inventory procedure used to increase the level of accuracy in stock figures. If a storage bin becomes empty after a goods movement, the bin is checked as to whether it is really empty or not.

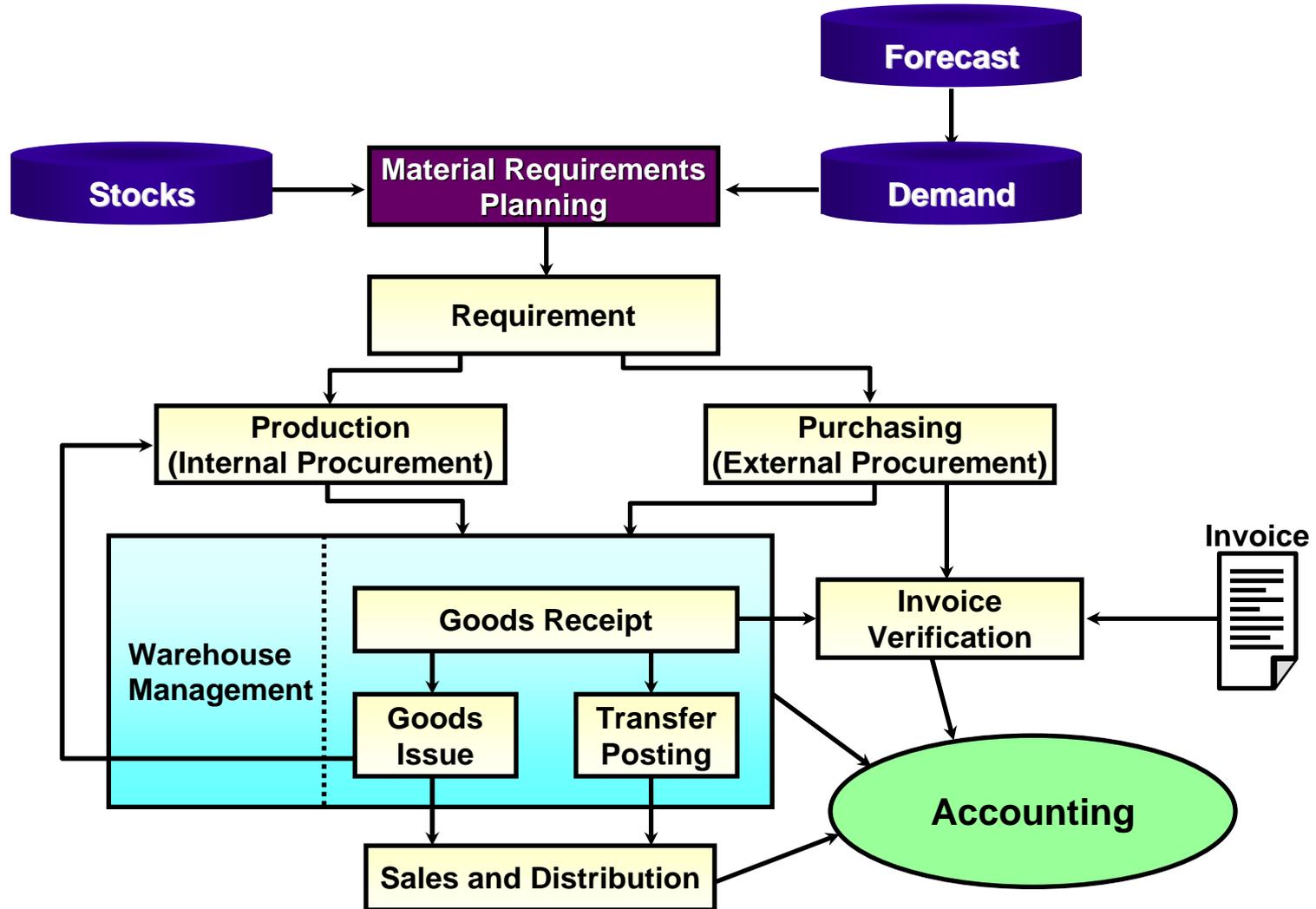


# Glossary

- **Quarantined** – A status designated for batches found in the middle of a production process or quality check. A batch that is quarantined can not be released in Sales Documents or Purchase credit notes.
- **Shipment** – The grouping together of goods at a transportation planning point, which have been transported together from the respective points of departure.
- **Delivery** – Process for receiving, sending or transferring goods. The delivery can be either an inbound or an outbound delivery.
- **EAN** – European Article Number (EAN). The number category defines which check criteria an EAN of this category must satisfy.
- **Scrapping** – A posting in the inventory management system that is made if a material can no longer be used. This occurs, for example, if a material has deteriorated in quality or becomes obsolete due to having been kept in storage for too long. Both the intentional and unintentional destruction of a material also have to be posted in the system as “scrapping”.



# General MM Overview

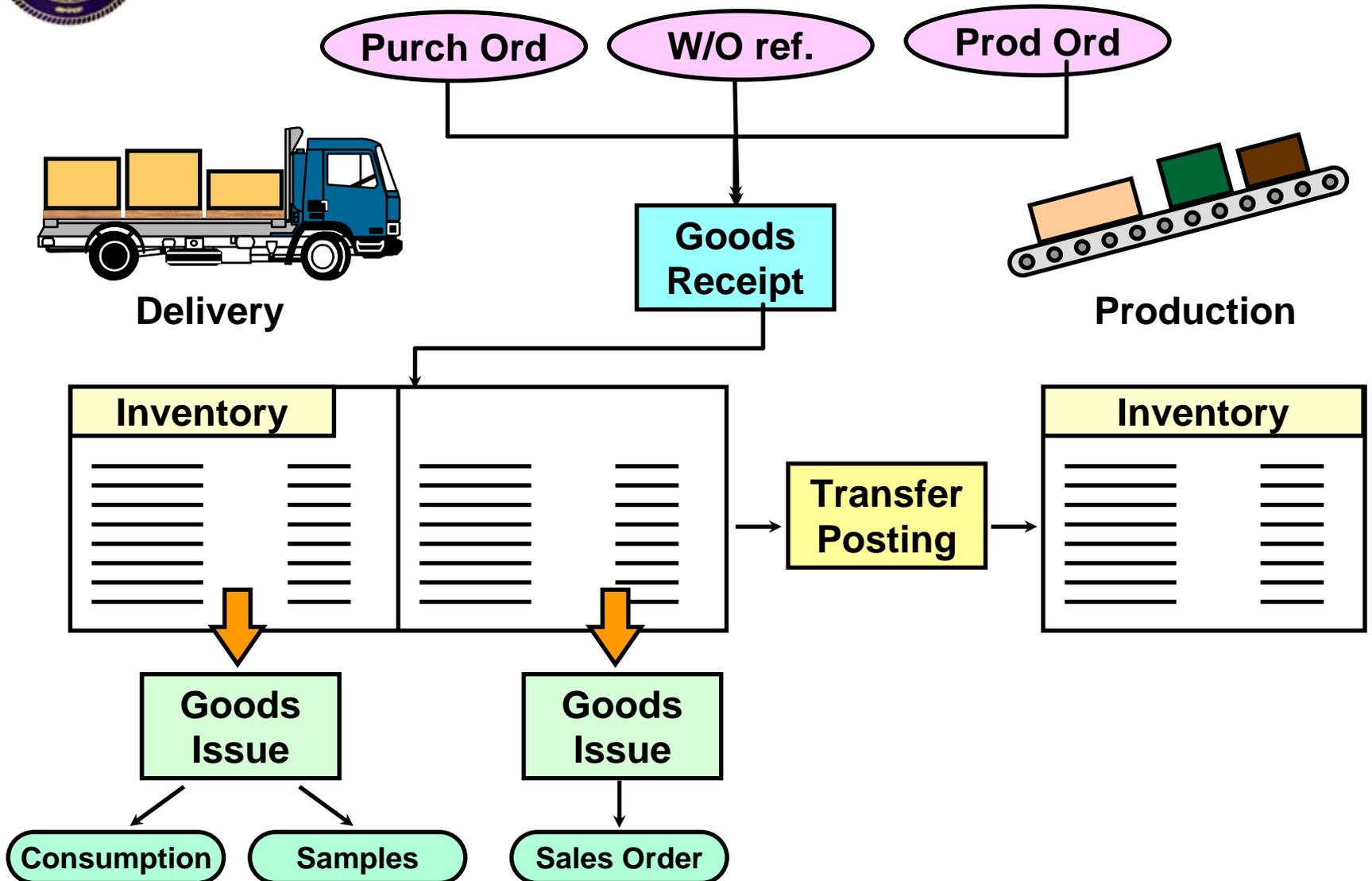




# Inventory Management Only

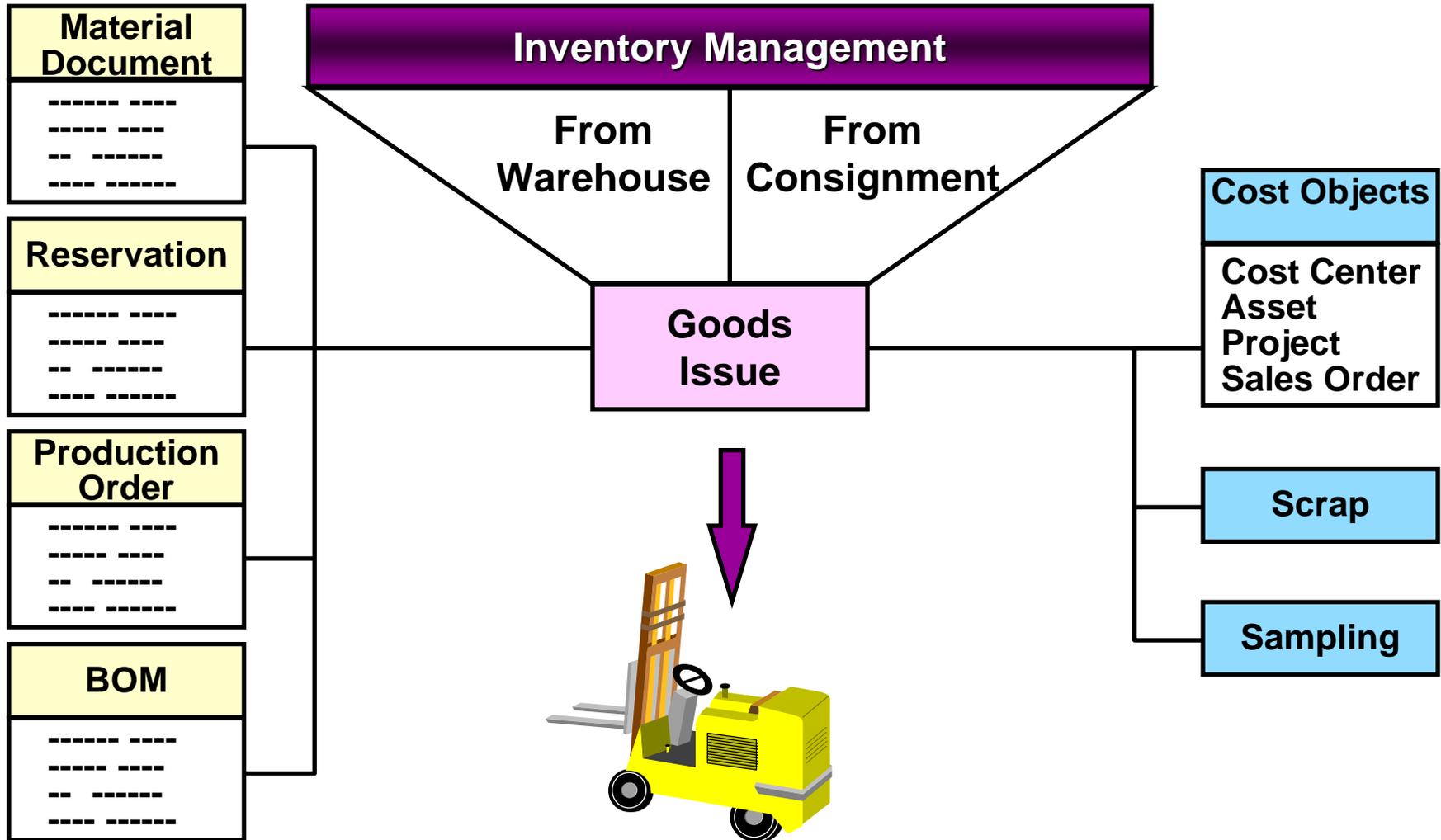


# IM Goods Movement





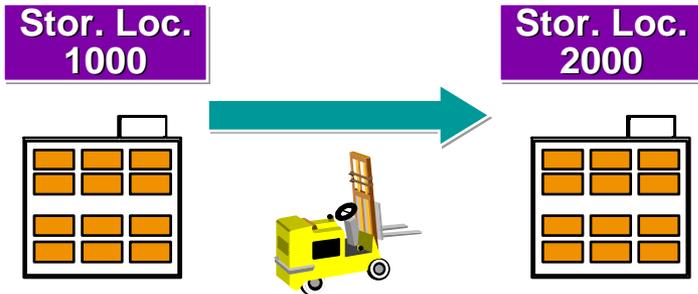
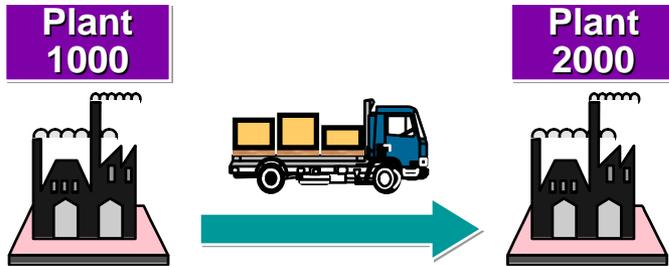
# IM Goods Issue



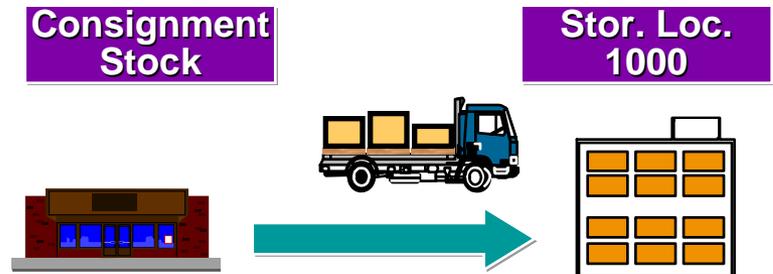
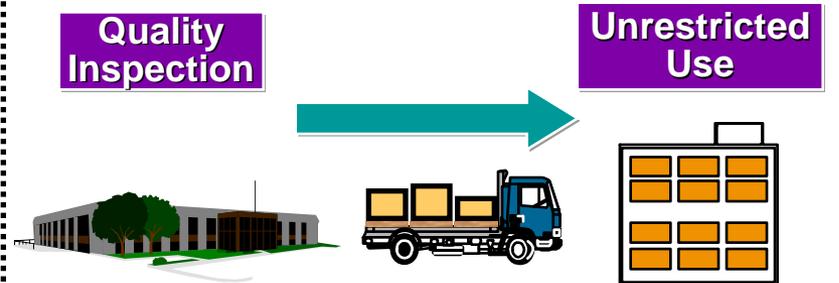


# IM Transfers

## Stock Transfers



## Transfer Postings



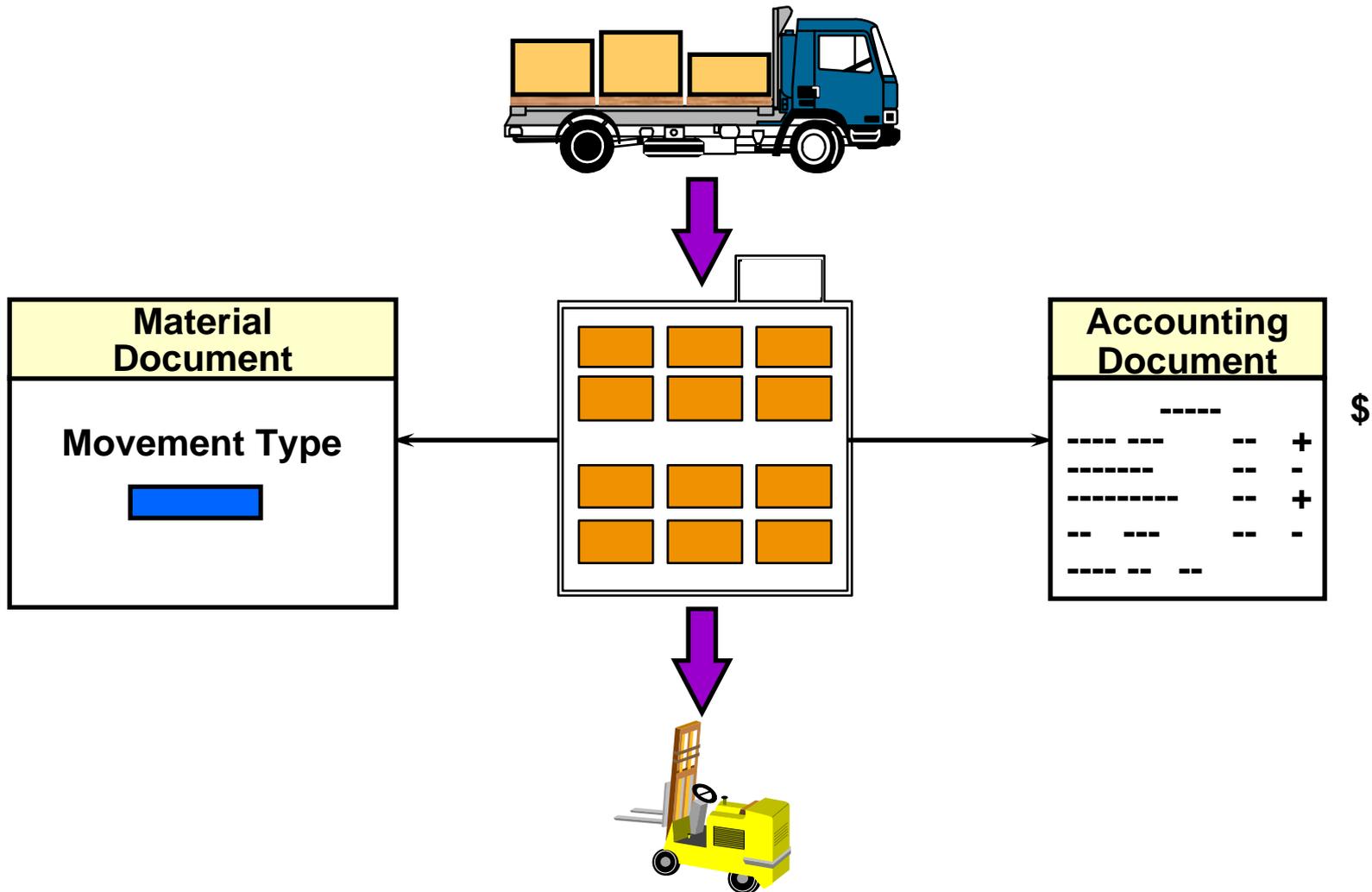


# IM Goods Movement - Summary

- The three types of Goods Movements are:
  - Goods Receipt
  - Goods Issue
  - Transfers
  
- When a goods movement is entered:
  - Stock records are updated
  - Documents are created to record the event

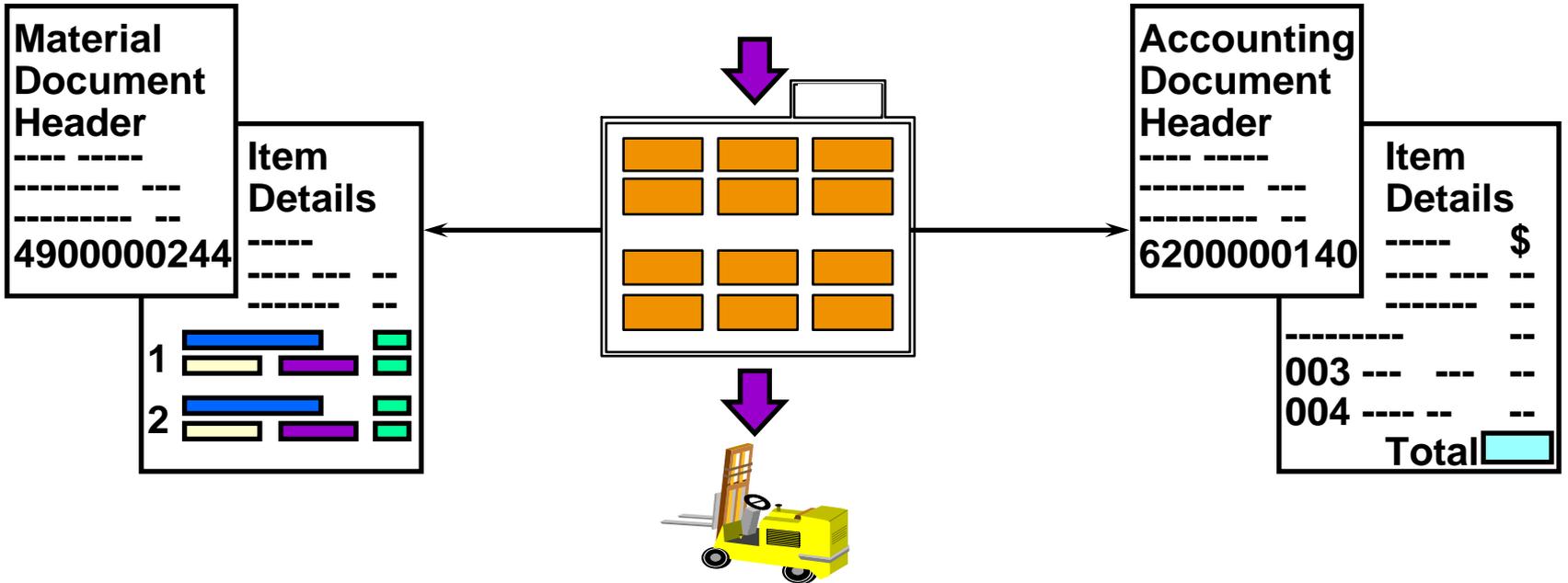


# Documents for IM Goods Movements





# IM Material and Accounting Documents



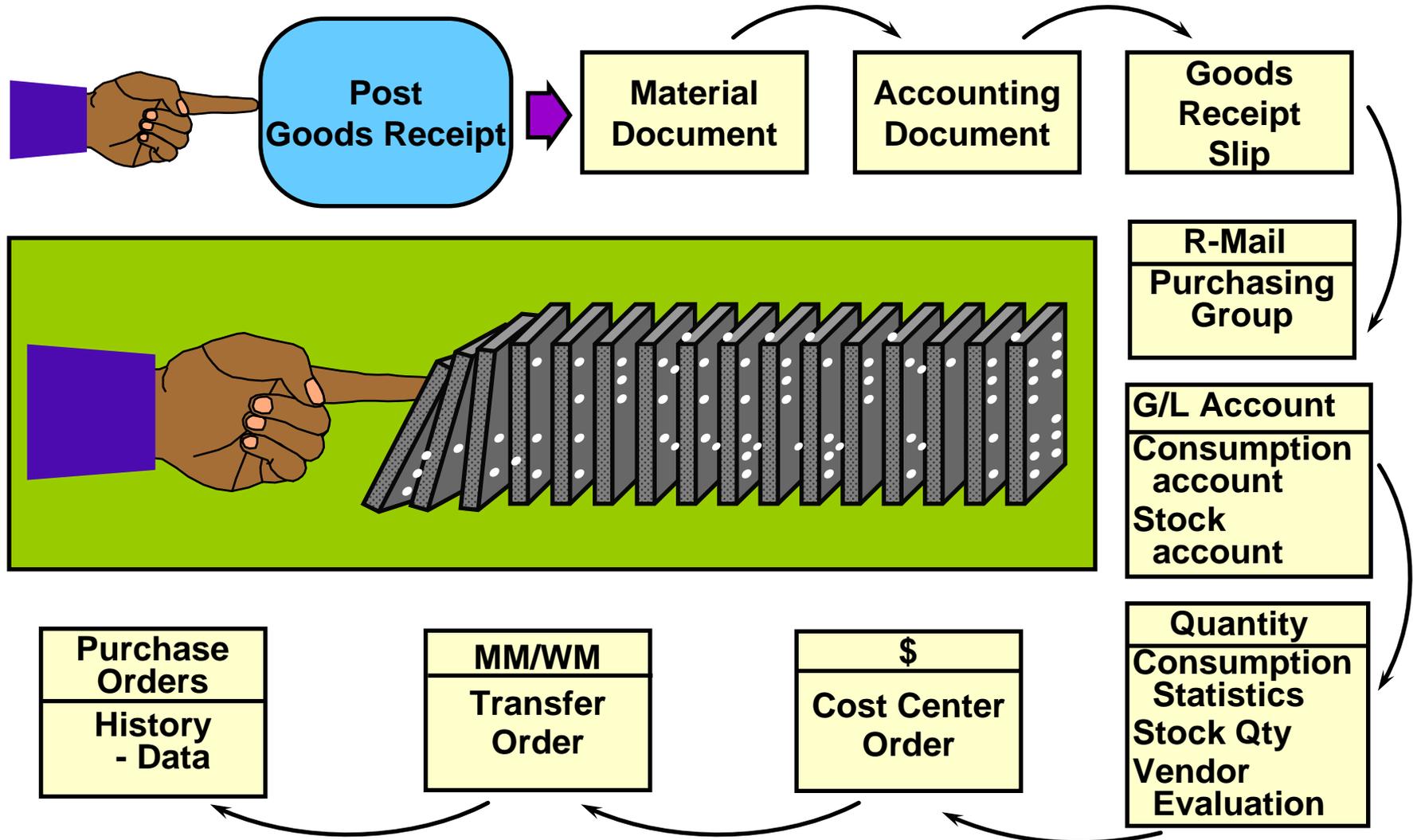
<b>Material Document Header</b>		<b>Item Details</b>	
-----	-----	-----	-----
-----	---	-----	---
-----	--	-----	--
4900000244		-----	--
		-----	--
1			
2			

<b>Accounting Document Header</b>		<b>Item Details</b>	
-----	-----	-----	-----
-----	---	-----	---
-----	--	-----	--
6200000140		-----	\$
		-----	--
		-----	--
		003	---
		004	---
		<b>Total</b>	

<u>Item</u>		<u>6200000140</u>	
1		001 99 300000	40.00
		002 81 400000	-40.00
2		003 99 300000	5.00
		004 81 400000	- 5.00



# Effects of an IM Goods Receipt Posting





# Purchase Order History

<b>Order History for Purchase Order 4500000001 Item 10</b>						
<b>Category</b>	<b>Document No.</b>	<b>Item</b>	<b>Movement Type</b>	<b>Posting Date</b>	<b>Quantity in OUM</b>	<b>Value</b>
<b>GR</b>	<b>50000050</b>	<b>001</b>	<b>101</b>	<b>01/15/08</b>	<b>4 pcs.</b>	<b>\$20</b>
<b>GR</b>	<b>50000051</b>	<b>001</b>	<b>101</b>	<b>01/17/08</b>	<b>2 pcs.</b>	<b>\$10</b>
<b>Total Goods Receipts</b>					<b>6 pcs.</b>	<b>\$30</b>
<b>IR</b>	<b>5100000000</b>	<b>001</b>		<b>01/18/08</b>	<b>6 pcs.</b>	<b>\$30</b>
<b>Total Invoice Receipts</b>					<b>6 pcs.</b>	<b>\$30</b>

Category GR = effects of Goods Receipt  
 Category IR = effects of Invoice Receipt



# IM Goods Receipt Document - Summary

- Effects of a Goods Receipt posting include:
  - Accounting document is created
  - Material document is created
  - Stock quantity is updated
  - G/L accounts are updated
  - Goods receipt slip can be printed (optional)
  - Purchasing data is updated (purchase order history)

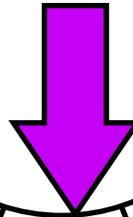


# Stock Types

 Valuated Stock

 Inventory

 Non-Valuated Stock



Unrestricted-Use Stock	
Qty:	<input type="text"/>

GR Blocked Stock	
Qty:	<input type="text"/>

Stock in Quality Inspect.	
Qty:	<input type="text"/>

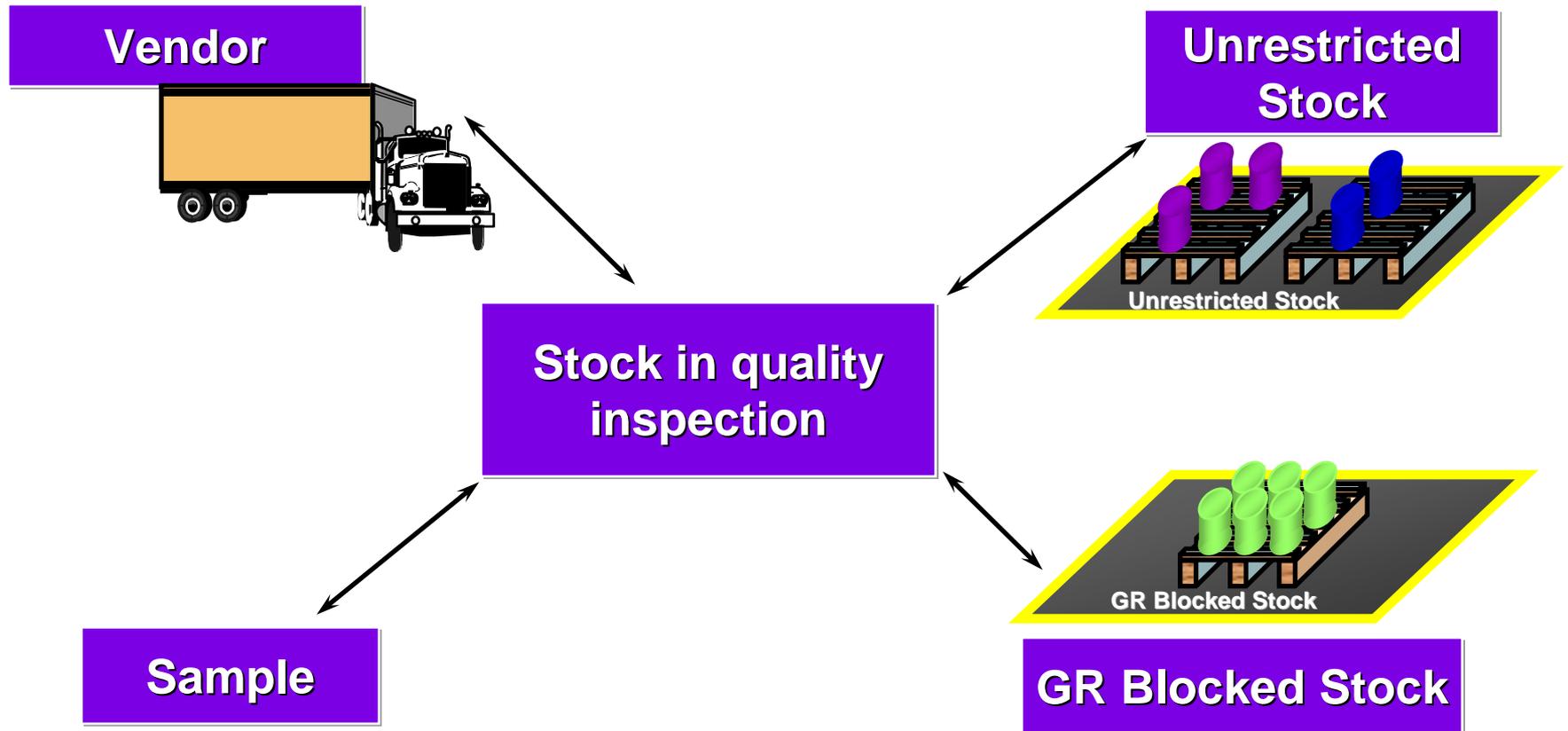
Stock in Transfer	
Qty:	<input type="text"/>

Consignment Stock	
Qty:	<input type="text"/>

Blocked Stock	
Qty:	<input type="text"/>



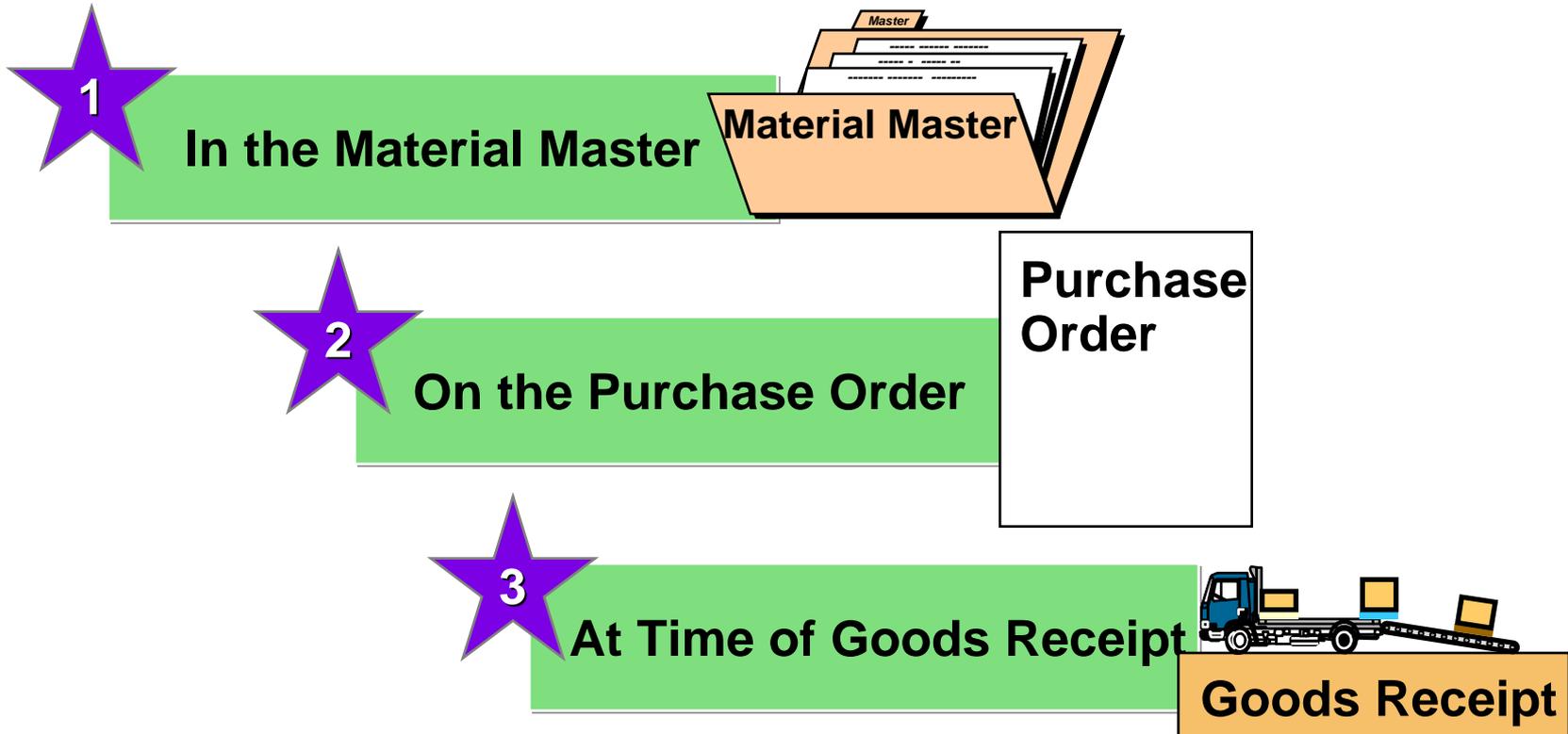
# IM Goods Movement and Stock in Quality Inspection





# IM Goods Receipt into Quality Inspection

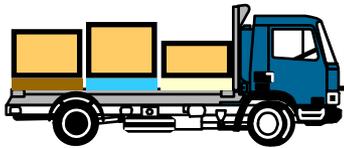
**3 Places where the Quality Inspection Indicator can be set:**





# IM Reversal (Reversing Entry) and Return Delivery

Reversal due to an entry error



<b>Goods Receipt</b>
101 MvT
103 MvT

<b>GR</b>
102 MvT
104 MvT
<b>Reason for MvT</b>
Optional

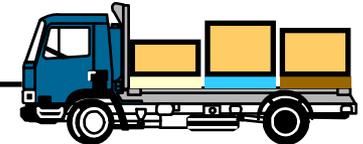
Wrong:  
Location  
Qty  
PO #  
Line #  
etc

No Return Slip Printed

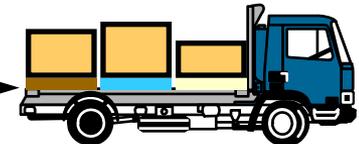
Items returned to a vendor

<b>GR</b>
105 MvT

<b>Goods Receipt</b>
101 MvT
103 MvT



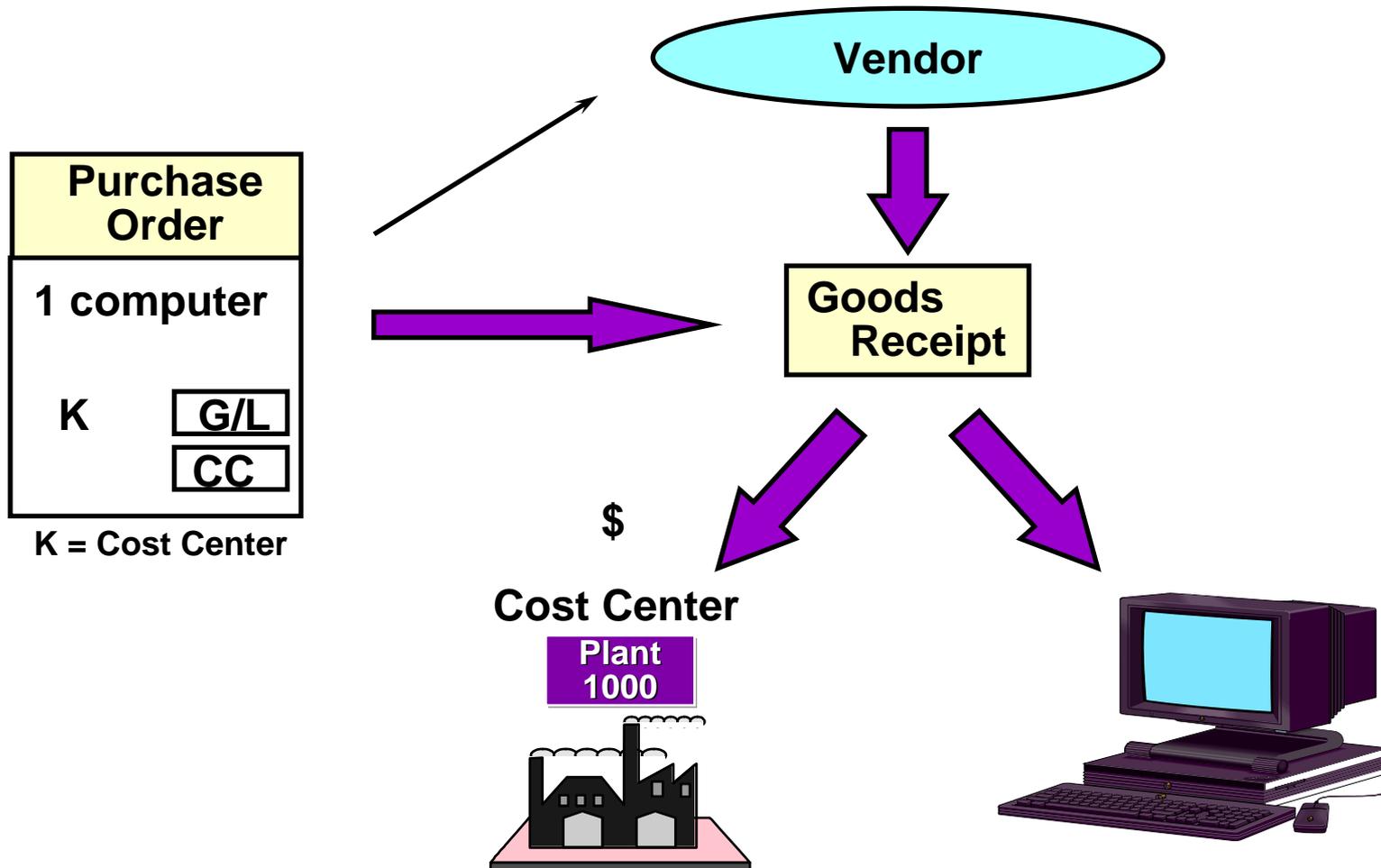
<b>GR</b>
122 MvT
<b>Reason for MvT</b>
Mandatory



Return Slip Printed



# IM Goods Receipt against a Purchase Order Assigned to an Account – No Inventory Update





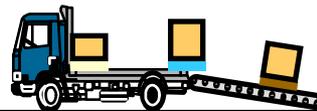
# Setting the “Delivery Complete” Indicator

Can be set via one of the three options below:



**1**

Automatically if full quantity received



**Goods Receipt**

**2**

Manually at time of Goods Receipt

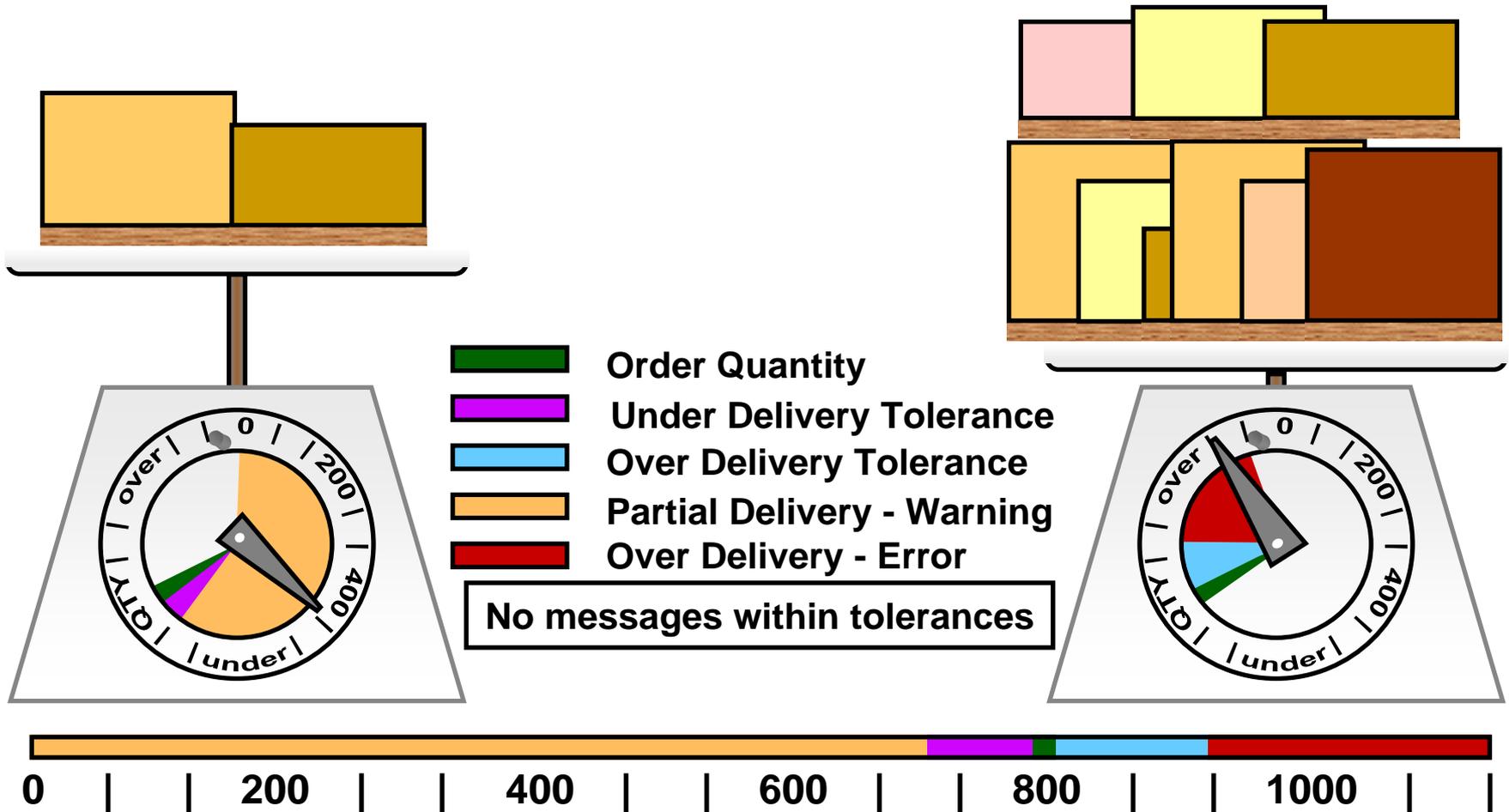
**Purchase Order**

**3**

Manually in the Purchase Order



# Under Delivery and Over Delivery Quantity Checks





# IM Goods Receipt - Summary

- A goods receipt into "GR Blocked Stock" is used when the goods are temporarily placed in a quarantine area before they are officially accepted. No valuation (and thus no accounting document) occurs.
- Posting to "blocked stock" is used to perform a small quality inspection on the goods before they are moved to unrestricted use. This "blocked stock" is valued.
- A Reversal is used when a mistake was made in entering the movement. For example, the goods were received into the wrong storage location.
- A Return Delivery is used when we wish to return goods to the vendor. On this movement, the "reason for movement" is a mandatory entry and allows an analysis to be carried out.



# IM Goods Receipt - Summary

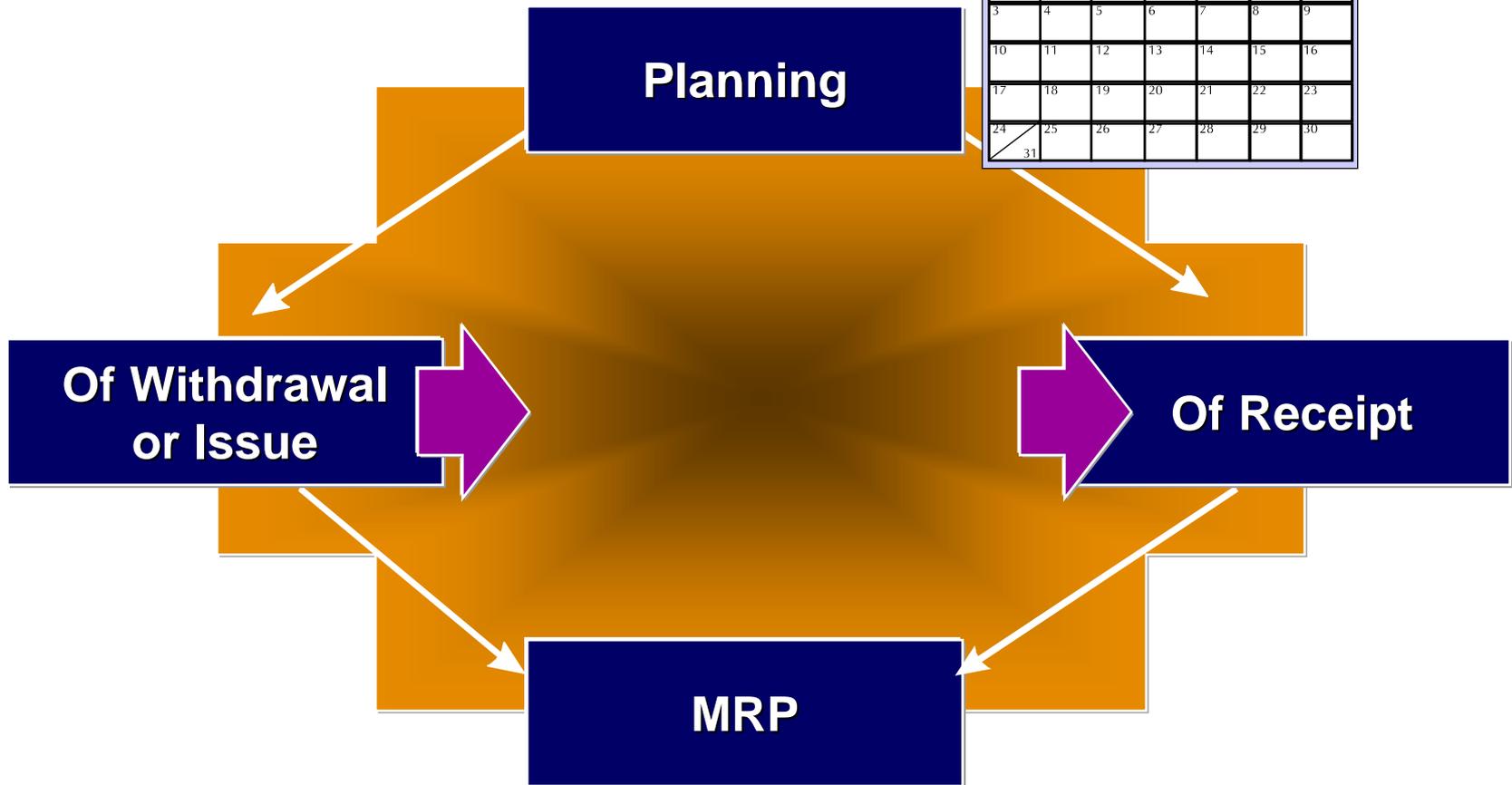
- If a goods receipt is done for a purchase order with an account assignment, no inventory updating takes place
- A quality inspection indicator may be set in 3 different locations to ensure receipt into stock quality inspection
  - Material master
  - Purchase order
  - At time of goods receipt
- The Delivery Complete indicator specifies whether or not a further goods receipt is expected
- When you enter a GR item, the system compares the GR quantity with the open purchase order quantity to identify any over deliveries or under deliveries. You can enter under delivery and over delivery tolerances in the info record or directly in the purchase order.
- Valuation and Invoice Verification is based on the goods receipt quantity and the order unit price



# Reservations

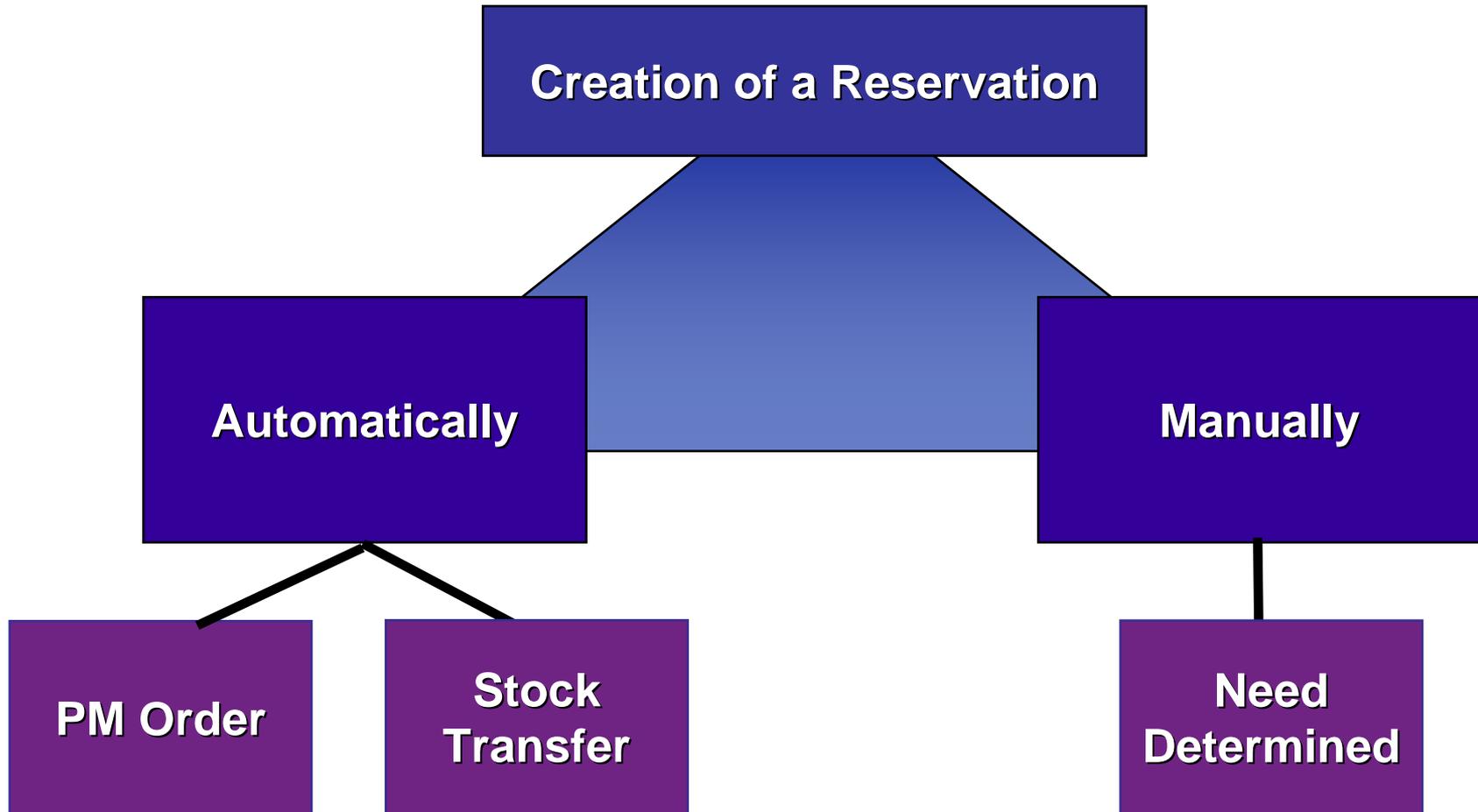
August 2008

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						





# Reservations



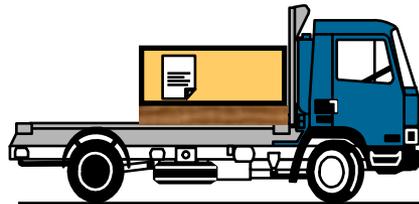


# Reservations

- Reservations are requests to the warehouse to have materials ready for issue at a specific date
- Reservations can also be thought of as the pre-planning of a particular movement type



# IM Goods Issue



**Goods Issue**

**From Warehouse**

**From Consignment Stock**

**Order**

**Cost Center**

**Sales Order**

**Sample**

**Scrap**



# Creating IM Goods Issues

## Without Reference

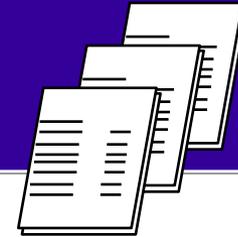
Unplanned



Individual Entry



Collective Entry



## With Reference

Planned

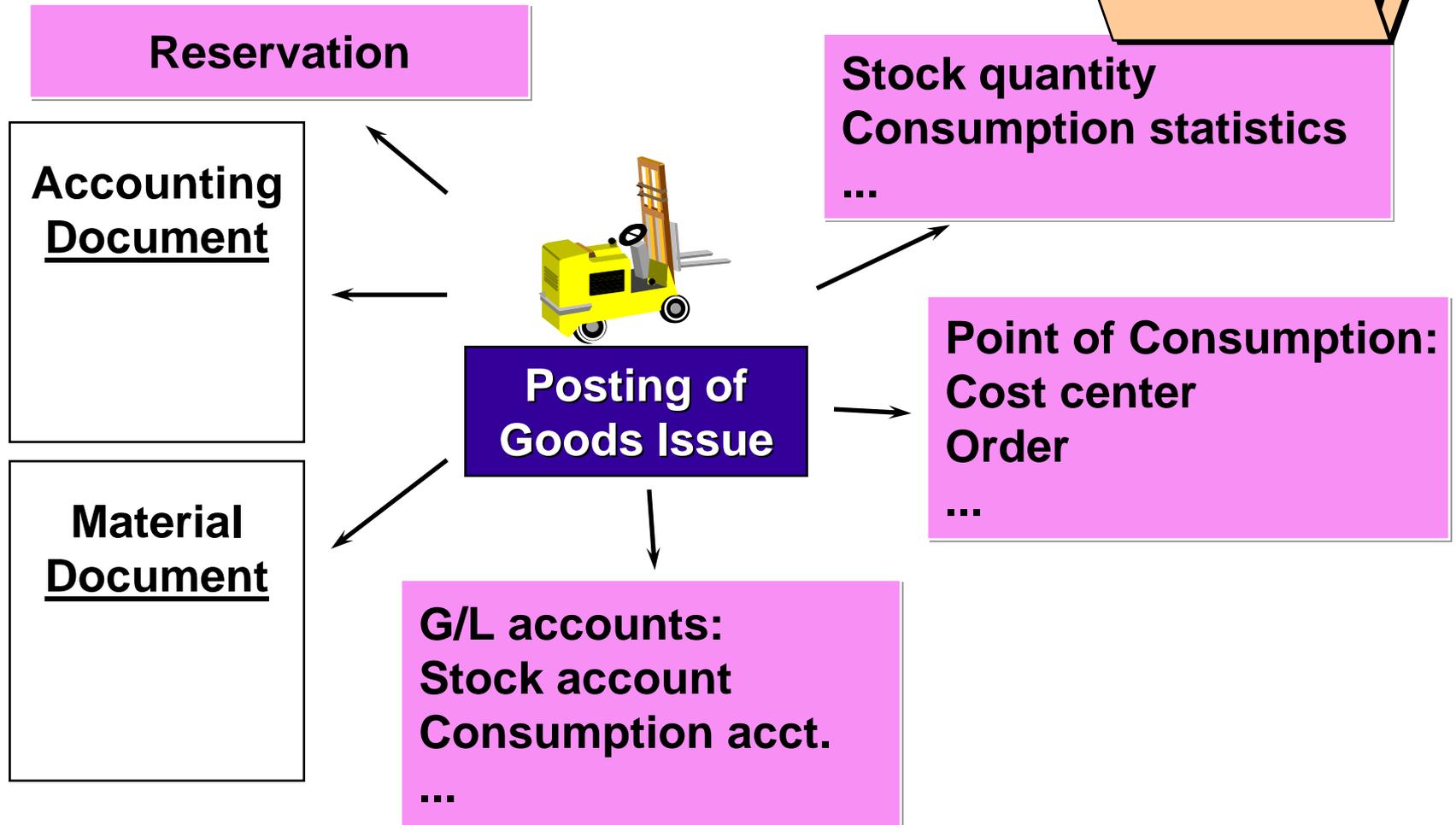
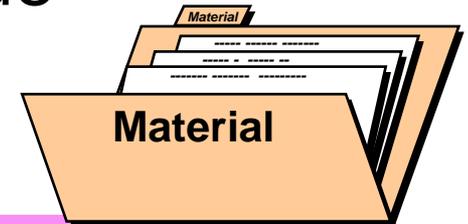


To Material Document

For Reservation



# Effects of an IM Goods Issue



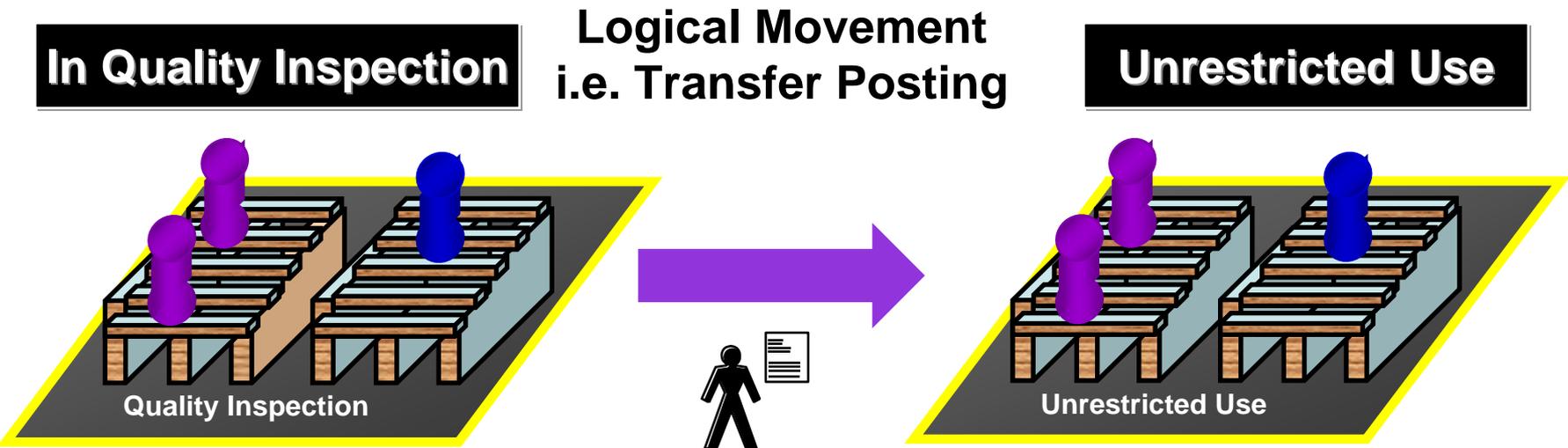
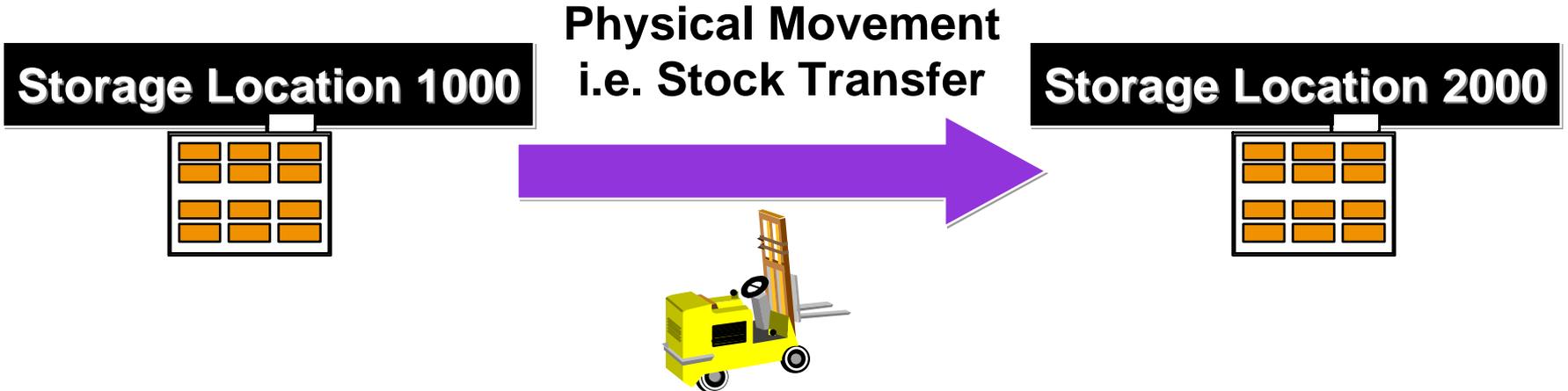


# IM Goods Issue - Summary

- Effects of a Goods Issue include:
  - Accounting document is created
  - Material document is created
  - Stock quantity is updated
  - G/L accounts are updated
  - Reservation is updated (if applicable)
  - Point of consumption is updated (if applicable) - cost center, etc.
- Goods Issues can be either planned or unplanned. Examples of planned goods issues include: delivery to customer, return delivery to vendor, or reservations. Examples of unplanned goods issues include issues to scrap or drawing of a sample.
- Goods Issues can be created via individual entry or collective entry. Goods Issues can also be created with reference to a material document or a material reservation.



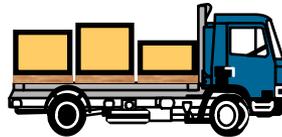
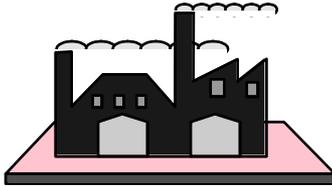
# Transfers



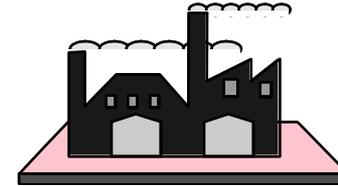


# Physical Stock Transfer

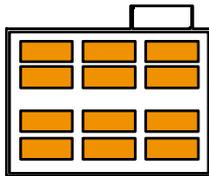
**Plant 1000**



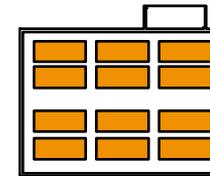
**Plant 2000**



**Stor. Loc. 1000**

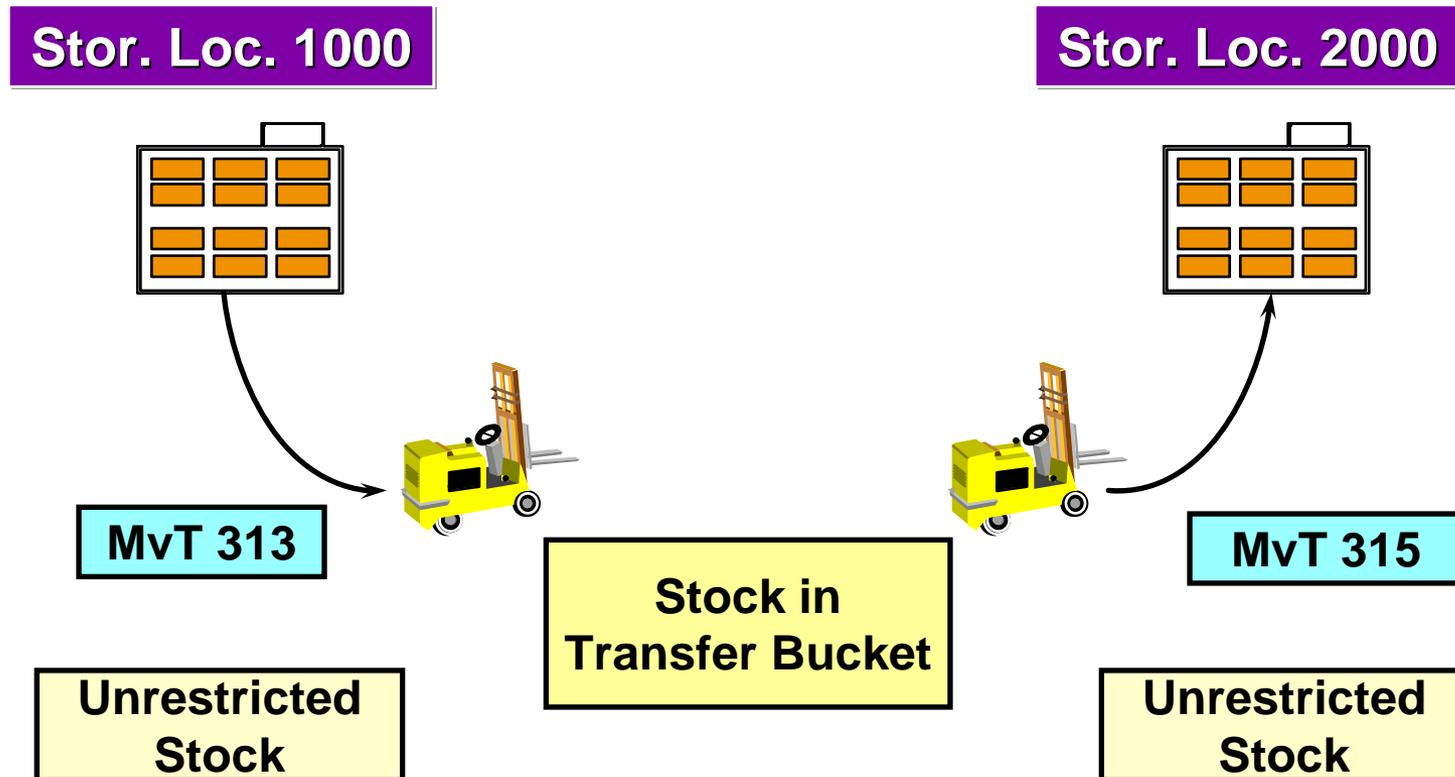


**Stor. Loc. 2000**



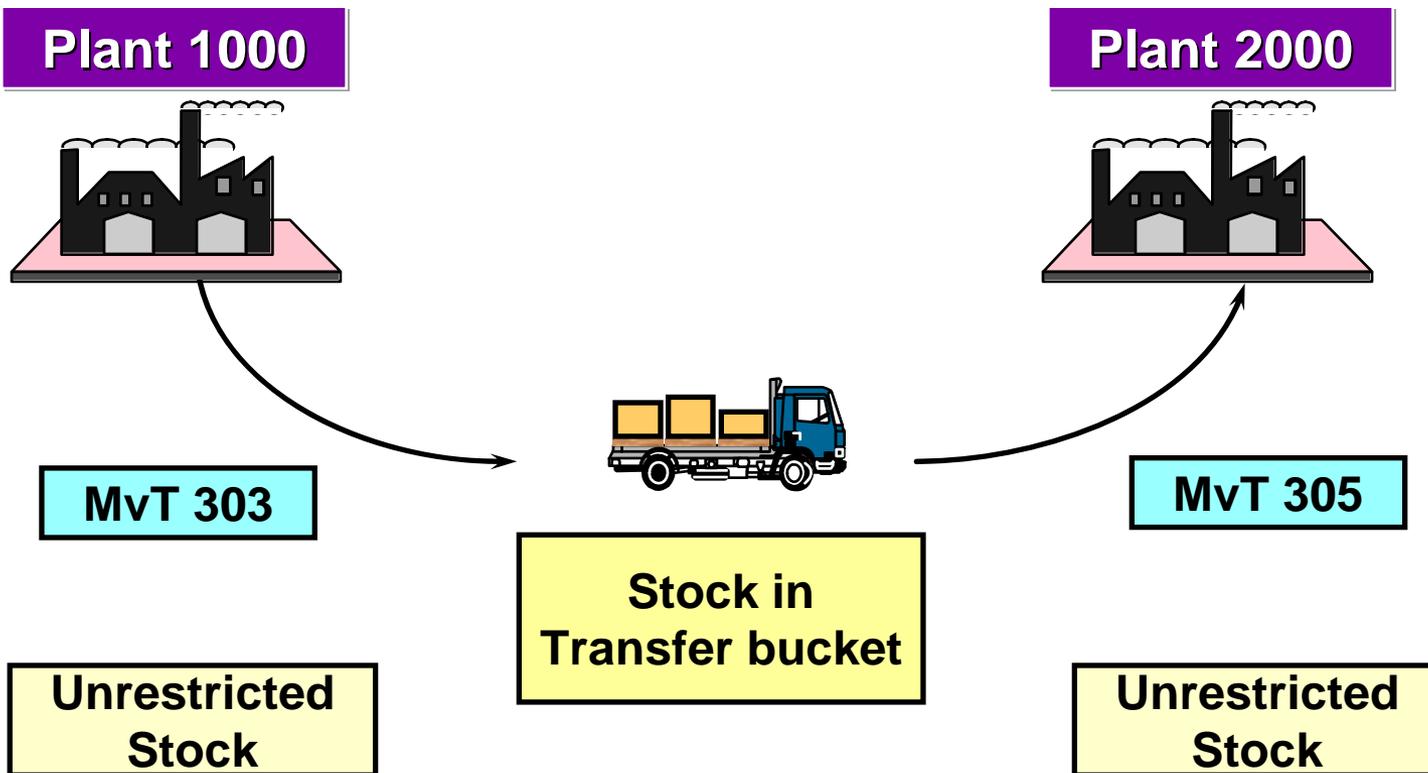


# Stock Transfer from Storage Location to Storage Location Two-Step Procedure



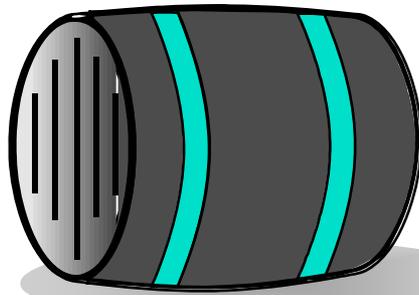
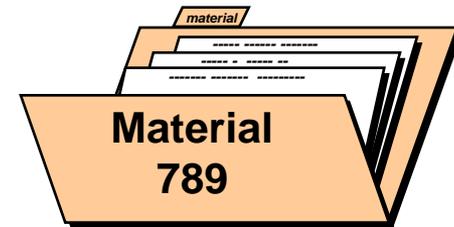
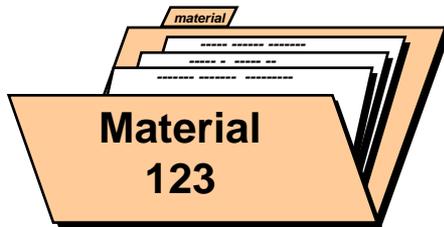


# Stock Transfer from Plant to Plant Two-Step Procedure

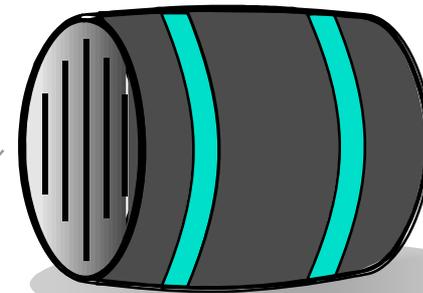
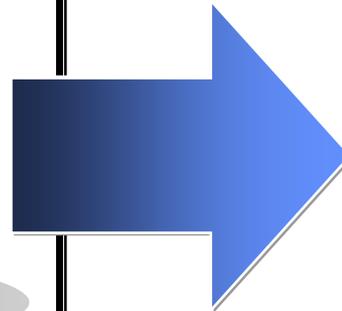




# Stock Transfer Material to Material



**"Young" Wine**



**"Old" Wine**



## Transfers - Summary

- Physical stock transfer - occurs at two different levels:
  - Plant to plant
  - Storage location to storage location
- One-step vs. two-step stock transfer
- Transfer posting – i.e. from Quality Inspection to Unrestricted use
- Material to material transfer - used when the characteristics of two different materials are the same and you want to consolidate into one material number



# Standard IM Movement Types

(See handout for complete listing)

## **MvT      Movement Type Text**

101	GR goods receipt
102	GR for PO reversal
103	GR into blocked stck
104	GR to blocked rev.
105	GR from blocked stck
106	GR from blocked rev.
121	GR subseq. adjustm.
122	RE return to vendor
123	RE rtn vendor rev.
124	GR rtn blocked stck
125	GR rtn blkd stck rev



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# Account Determination

- Valuation Class
  - Used to influence the allocation of a material to a group of G/L accounts in Automatic Account Assignment Process
  - Is established on Accounting view of the material master at the plant level
  - Is driven by material type
  
- ❖ Integration between Inventory Management and Financial Accounting



# Inventory Management and Warehouse Management Integration



# Movement Types Overview

- Inventory Management (IM) is the most important component that is linked to WM. Most activities that take place within WM are initiated in IM. The IM component communicates with WM through interim storage types.
- When a goods receipt is processed in IM and is posted to a WM-managed storage location, the quantity is automatically posted to an interim storage area (i.e. goods receipt area). When this happens, a quant is created in a storage bin in the interim storage area. Afterwards, WM posts the goods to a storage bin in the warehouse. This second step can take place automatically. This increases the total stock quantity in both IM and WM.



# Movement Types Overview

- When a goods issue is processed, the system posts a quantity to an interim storage area (goods issue area or shipping zone). This time, however, a quant with a negative quantity is created since the IM posting reduces the total stock quantity.
- It is through the interim storage areas that the stock quantities remain constant in both IM and WM. The total sum of the stock of all the WM storage areas for a warehouse number, both physical and logical, should always be identical to the sum of the stock in the IM storage location.



# PROCESSES & SCENARIOS

- Truck Unloading
- Goods Receipt
- Putaway
- Cross Dock Non Stocked
- Quality Inspection, Breakage and Obsolete Scrapping
- Goods Issue



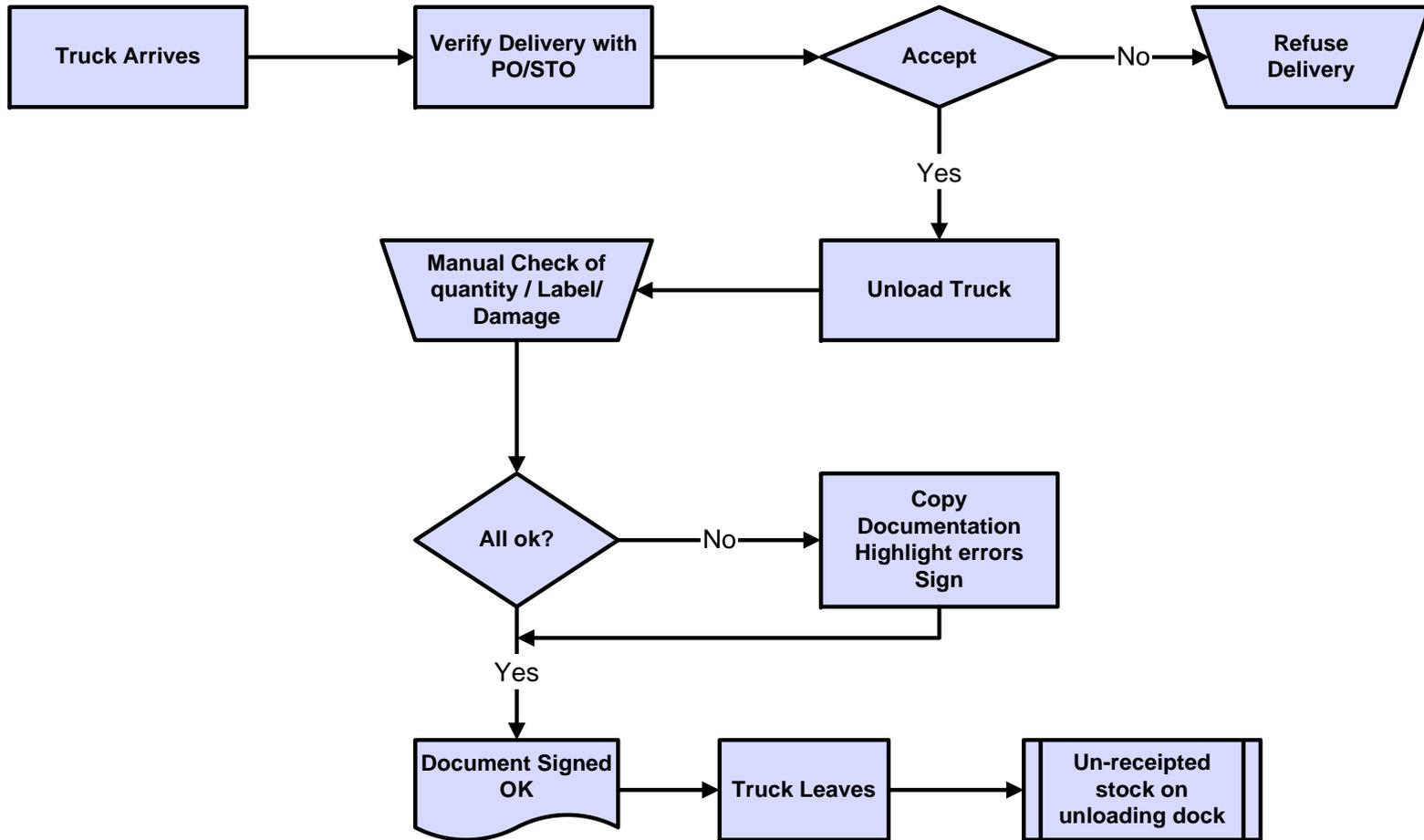
# Truck Unloading

## Receipt of goods onto the loading dock

- Requirements
  - Assignment of truck to unloading area or door
  - Visual check of product received



# Truck Unloading





# WM Goods Receipt

- Transacting the Goods Receipt includes:
  - Quality Inspection
  - Transfer Order Creation



# WM Goods Receipt (Scenario 1)

- Requirements
  - Book goods receipts with reference to PO
  - Scan barcode
  - Quality Inspection (QI) materials follow same goods receipt process, QI flag passed to WM so that QI materials can be identified in bins
  
- Optional Information
  - Barcodes provided by external site or upon receipt
  - Product flagged for QI in purchase order, etc.



# WM Goods Receipt (Scenario 2)

## ■ Requirements

- Automatically putaway T/O creation upon goods receipt. Goods receipt can be split into multiple T/Os or remain together for single putaway. System to propose destination bin and quantity based on material master data (Storage Type).
- Ability to place non-standard pallet quantities into storage. This can be a manual process.
- More than one user can putaway stock at any time

## ■ Optional Information

- Each product can have a standard pallet quantity (master data)
- Product received in non-standard packaging may be repackaged whenever permitted



# WM Goods Receipt

## ■ Example

- Standard pallet quantity = 10
- Goods receipt for 2 pallets with quantities 7 PC and 6 PC
- System proposes putaway for 1 pallet of 10 PC and a pallet of 3 PC
- Exceptions will be handled by a manual process

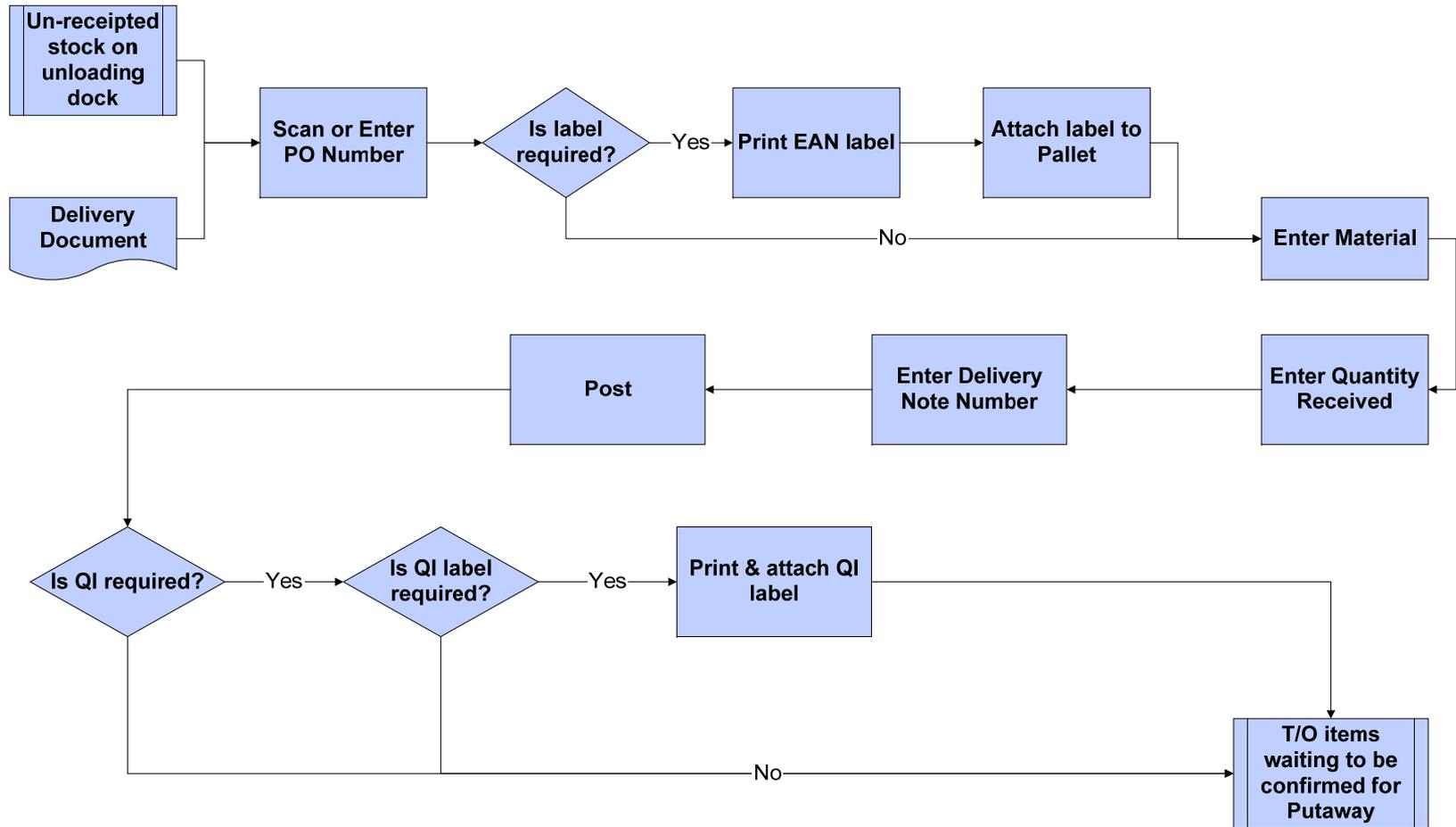


# WM Goods Receipt

- Optional Barcode scanning
  - EAN pallet label – unique EAN indicating material number and quantity
  - EAN label provided by manufacturing plant or vendor
  - Standard pallet quantities by product
  - Define RF transactions with material EAN, quantity, and destination bin

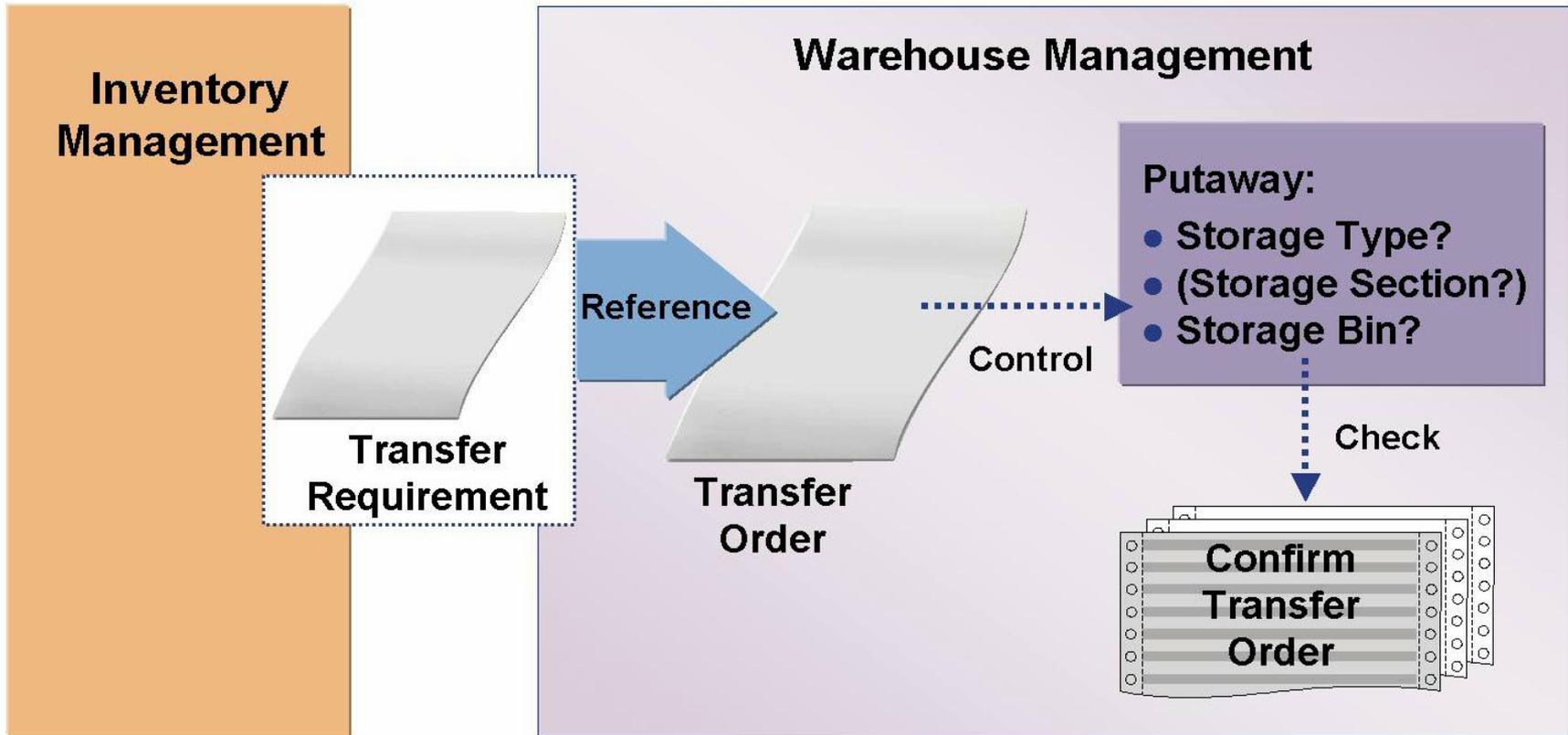


# WM Goods Receipt





# Goods Receipt (IM / WM)



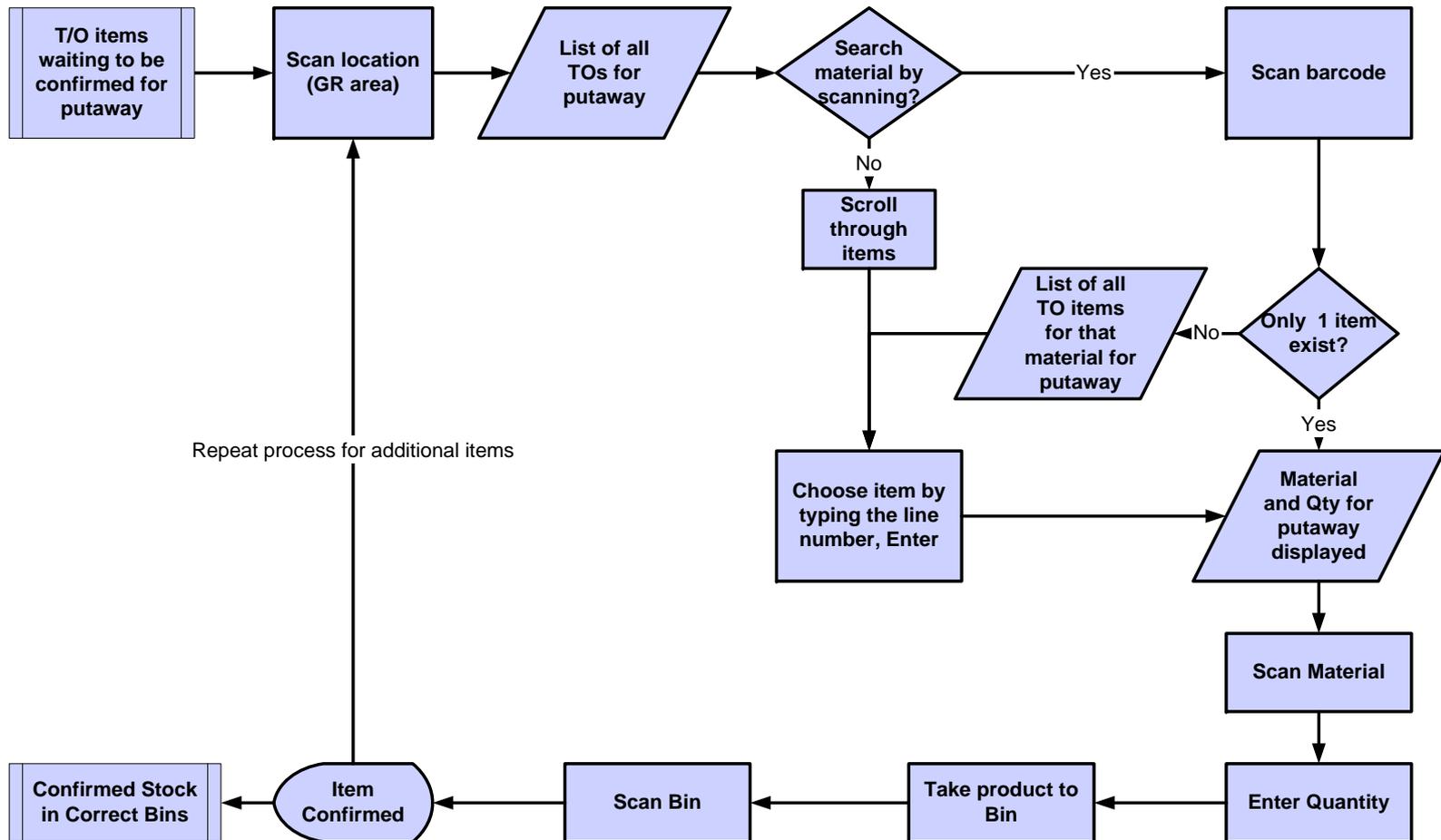


## WM Putaway

- Confirmation that the product has been placed into storage in the correct location
  - Barcode Enabled Functionalities
    - Transactions to be carried out on RF gun
    - Confirmation by scanning “from” and “to” location
    - QI materials follow same process but can be identified in the correct location at any point of time
  - Requirements
    - Barcode labels on pallets (material)
    - Barcode labels on “from” and “to” location (Storage)



# WM Putaway



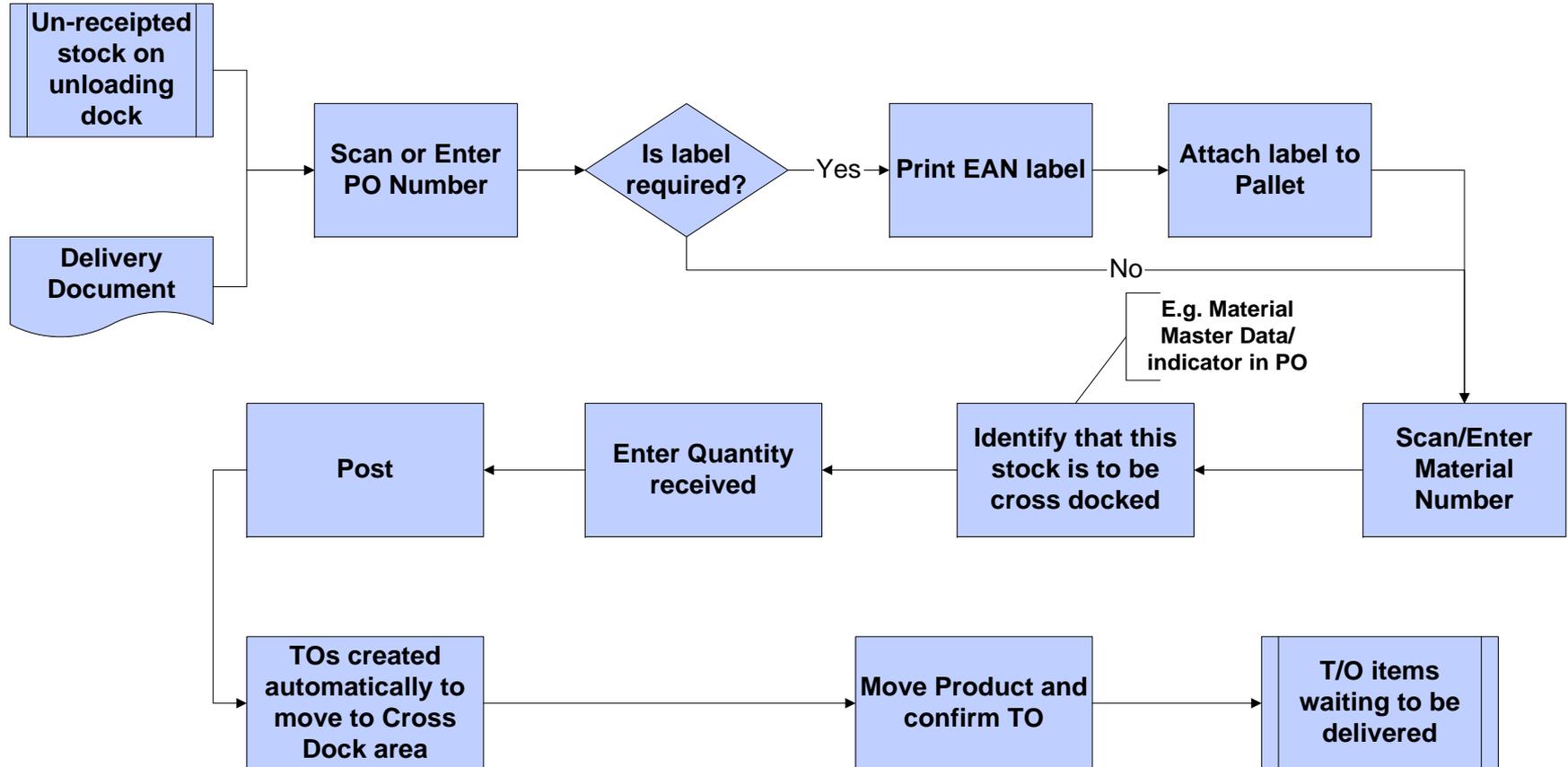


# WM Cross-Docking

- Receiving product and moving it immediately to an outbound area
  - Requirements
    - Cross-dock products identified upon receipt
    - Cross-dock products are not put in to storage
    - System to propose cross-dock area as 'To' location in putaway T/O



# WM Cross-Docking





# Quality Inspection Stock

- Quality Inspection stock is:
  - New stock from vendor being tested
  - Physical inspection of stock at the time of receipt from vendor
  - Potential quality issue with existing stock



# Scrapping

- Scrapping can be done from:
  - Unrestricted stock
  - QI stock
  - Block Stock

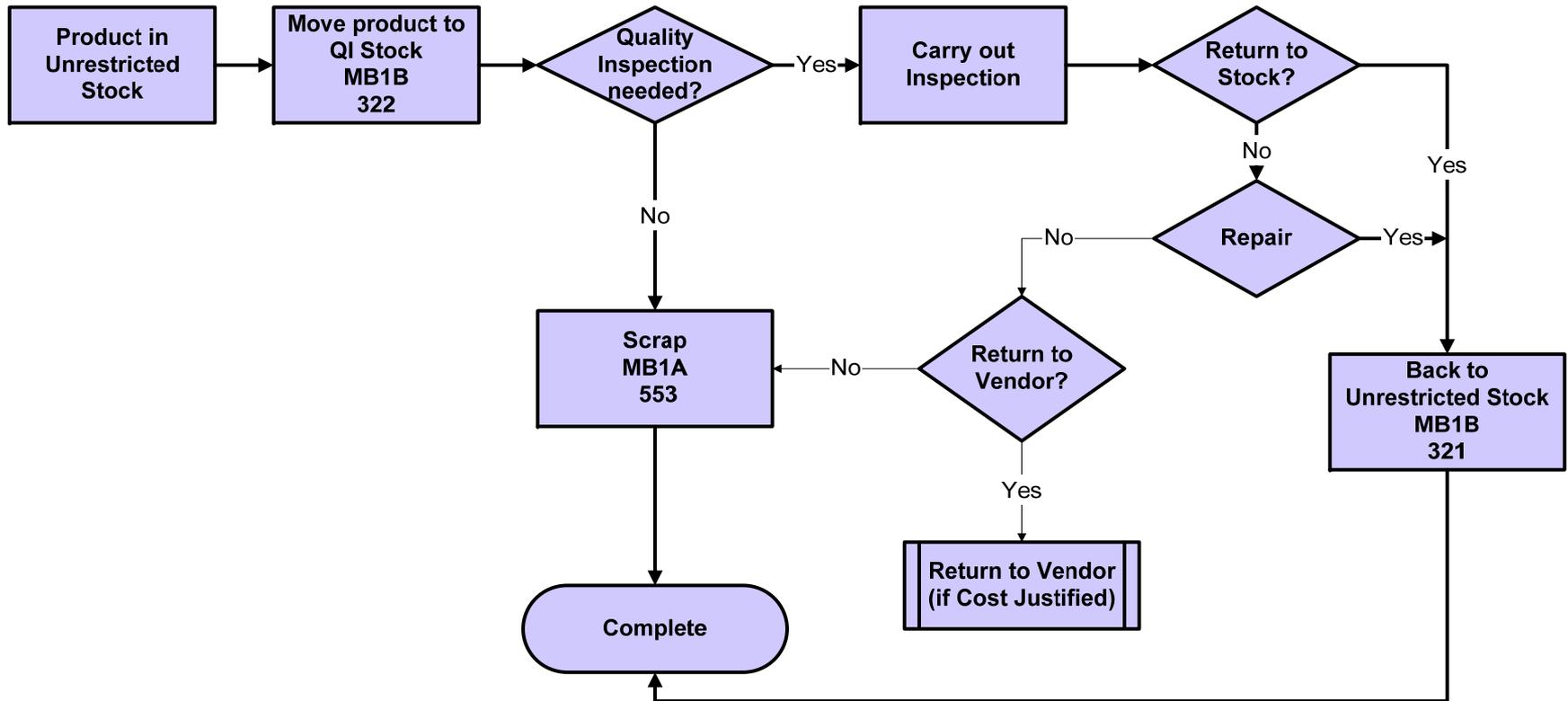


## QI, Breakage and Obsolete Scrapping

- Quality Inspection Scrapping
- Damage or Broken Product Scrapping
- Obsolete Product Scrapping
- All Scrap transactions can be executed through the RF process
- There will be an area for Quality Inspection

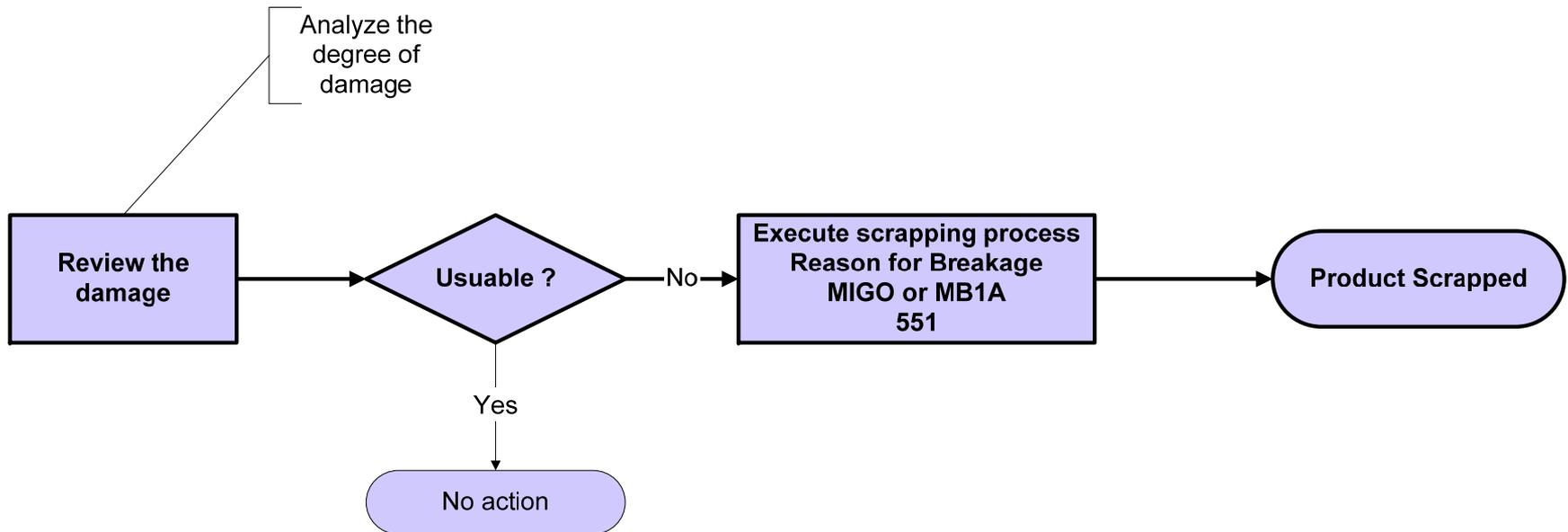


# WM QI Scrapping



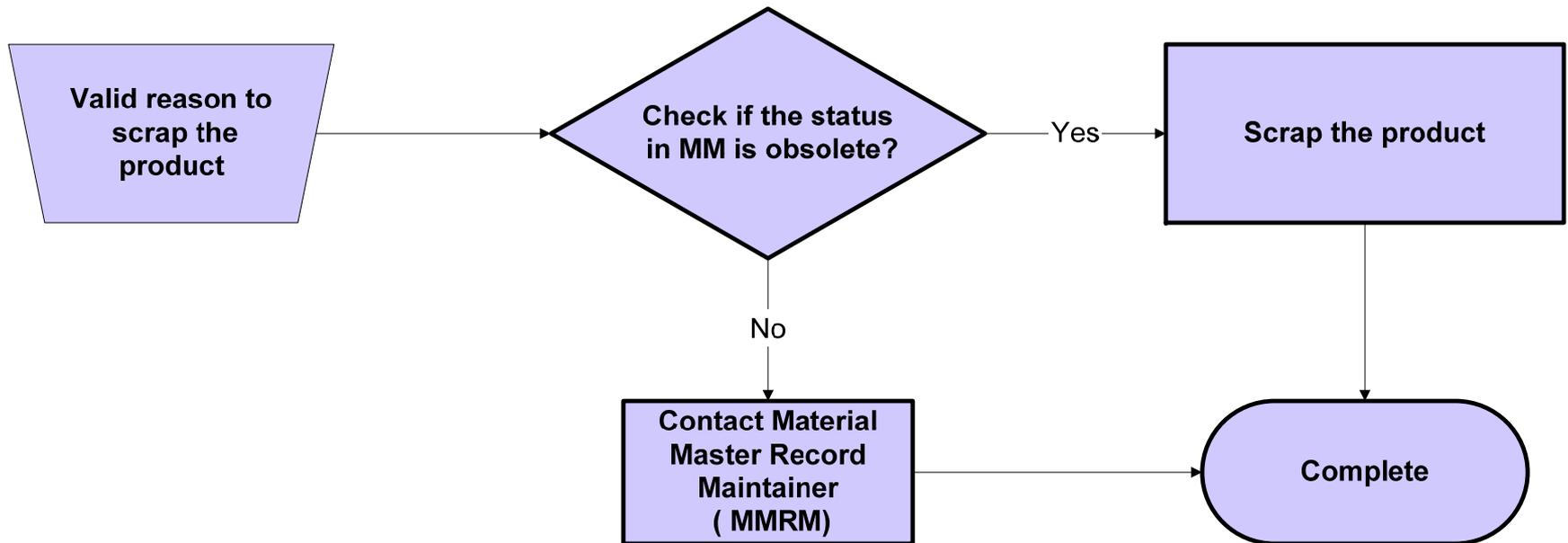


# WM Damage Scrapping





# WM Obsolete Scrapping



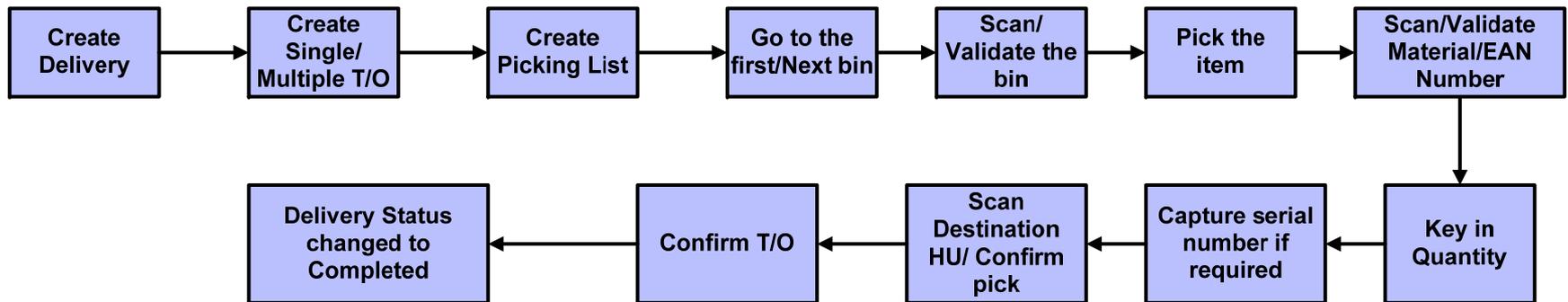


# WM Goods Issue

- Requirements
  - Print Pick list with reference (Outbound delivery)
  - Scan barcodes
  
- Optional functionalities
  - Outbound deliveries can be created automatically or manually
  - Barcoded container list may be printed
  - Packing List should be printed
  - Back Order items can be printed with an indicator



# WM Goods Issue





# WM Movements

Receive Goods against  
PO

Issue Goods

**MvT 101**

**MvT 601**

Interim Storage (Transfer Requirement)  
Storage Type 902  
(GR area)

Interim Storage (Transfer Requirement)  
Storage Type 916  
(GI area)



**Warehouse**

Putaway to Bin  
(Transfer Order)



Create Transfer Order  
against a Delivery note  
For Picking

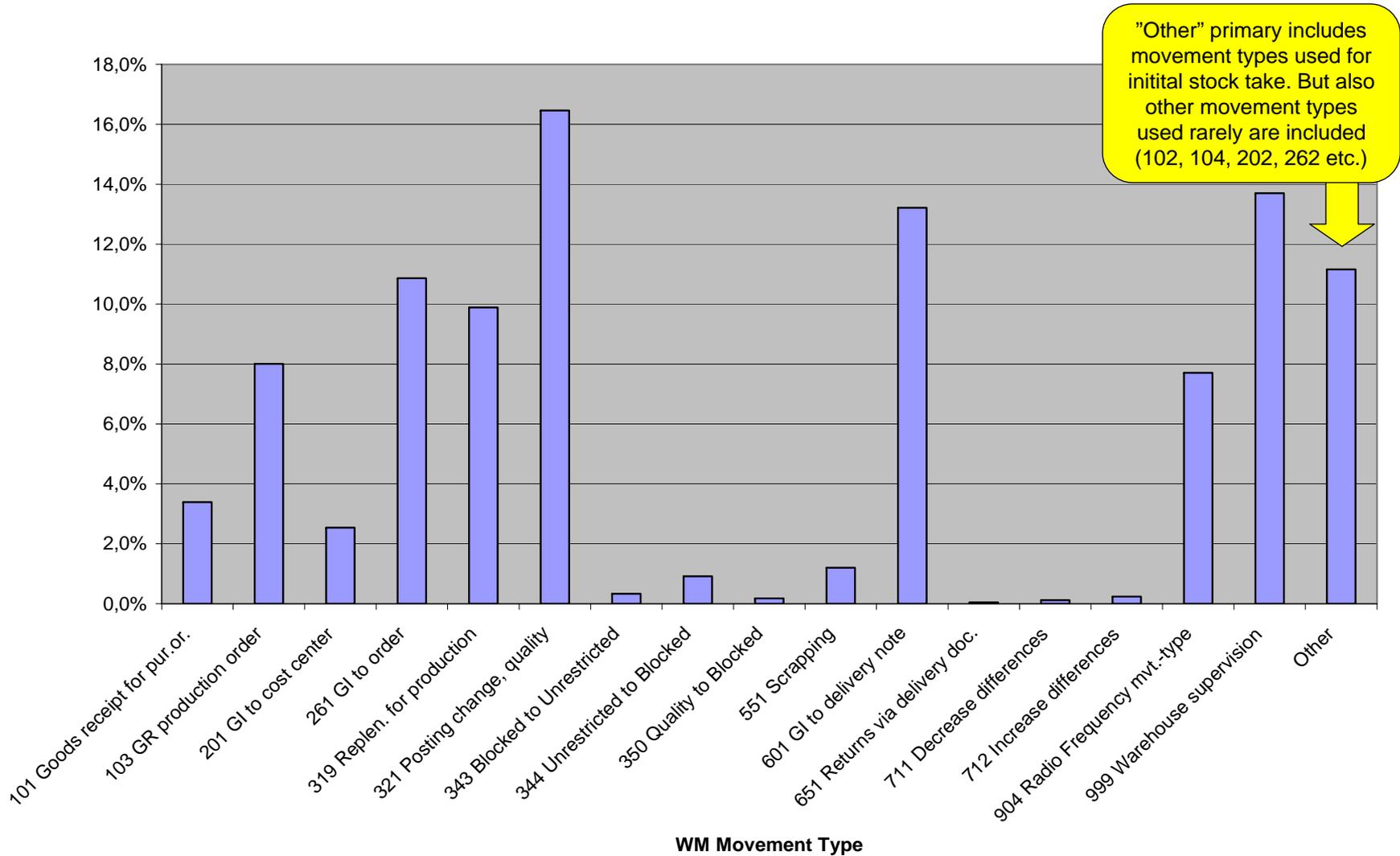
Bin

**MvT 101**

**MvT 601**



# Statistics for WM Movement type usage





# Questions?

