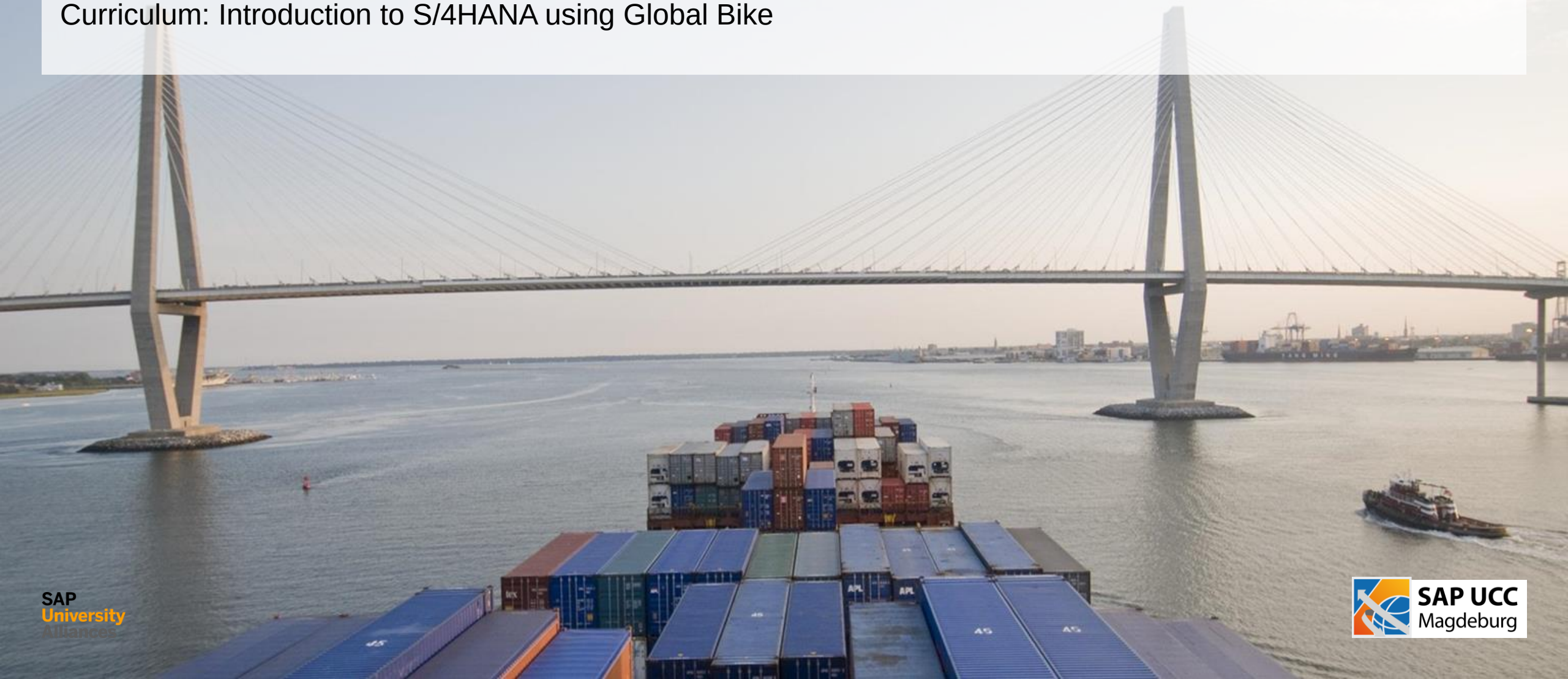
Warehouse Management (WM)

Curriculum: Introduction to S/4HANA using Global Bike



SAP University Alliances

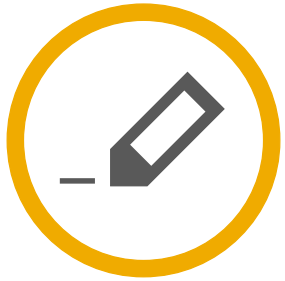
SAP UCC Magdeburg

Teaching material - Information

Teaching material - Version

- 3.3 (July 2019)
- Software used
  - SAP S/4HANA 1809
- Model
  - Global Bike
- Prerequisites
  - No Prerequisites needed

Module Information



Authors

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Target Audience

- Beginner

Module Information

Learning Objectives

You are able to

- name some functionalities of the WM module.
- define the central organizational structures of the WM module.
- summarize the master data which is most important for the WM module.
- explain standard Warehouse Management processes.

Functionality

- Goods Receipt
- Goods Issue
- Picking
- Packing
- Shipping
- Physical Inventory

Agenda

- WM Organizational Structure
- WM Master Data
- WM Process Management and Control
- Innovations in S/4HANA

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- WM Process Management and Control
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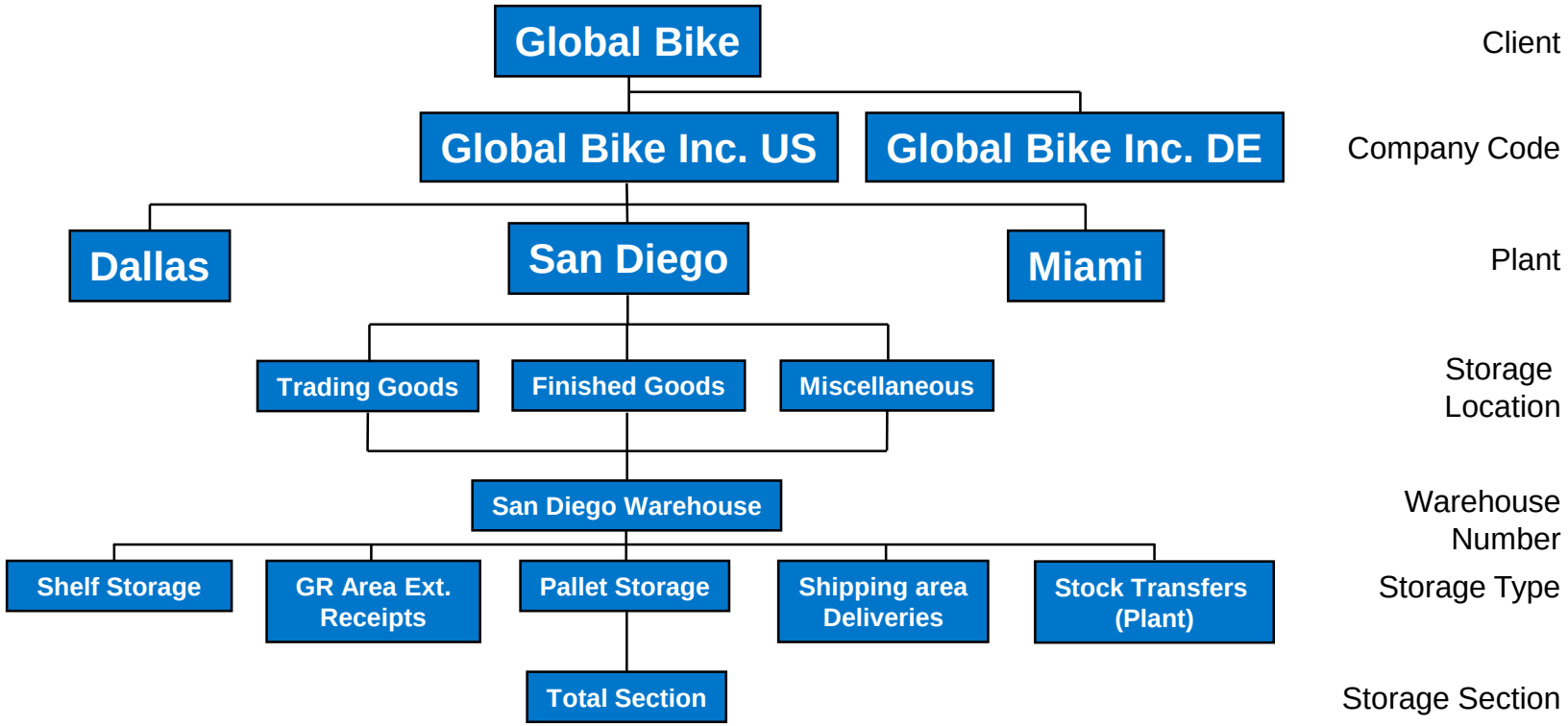
WM Organizational Structure



WM Organizational Structure

- Client
  - An independent environment in the system
- Company Code
  - Smallest org unit for which you can maintain a legal set of books
- Plant
  - Operating area or branch within a company
    - Manufacturing, distribution, purchasing or maintenance facility
- Storage Location
  - An organizational unit allowing differentiation between the various stocks of a material in a plant

WM Organizational Structure

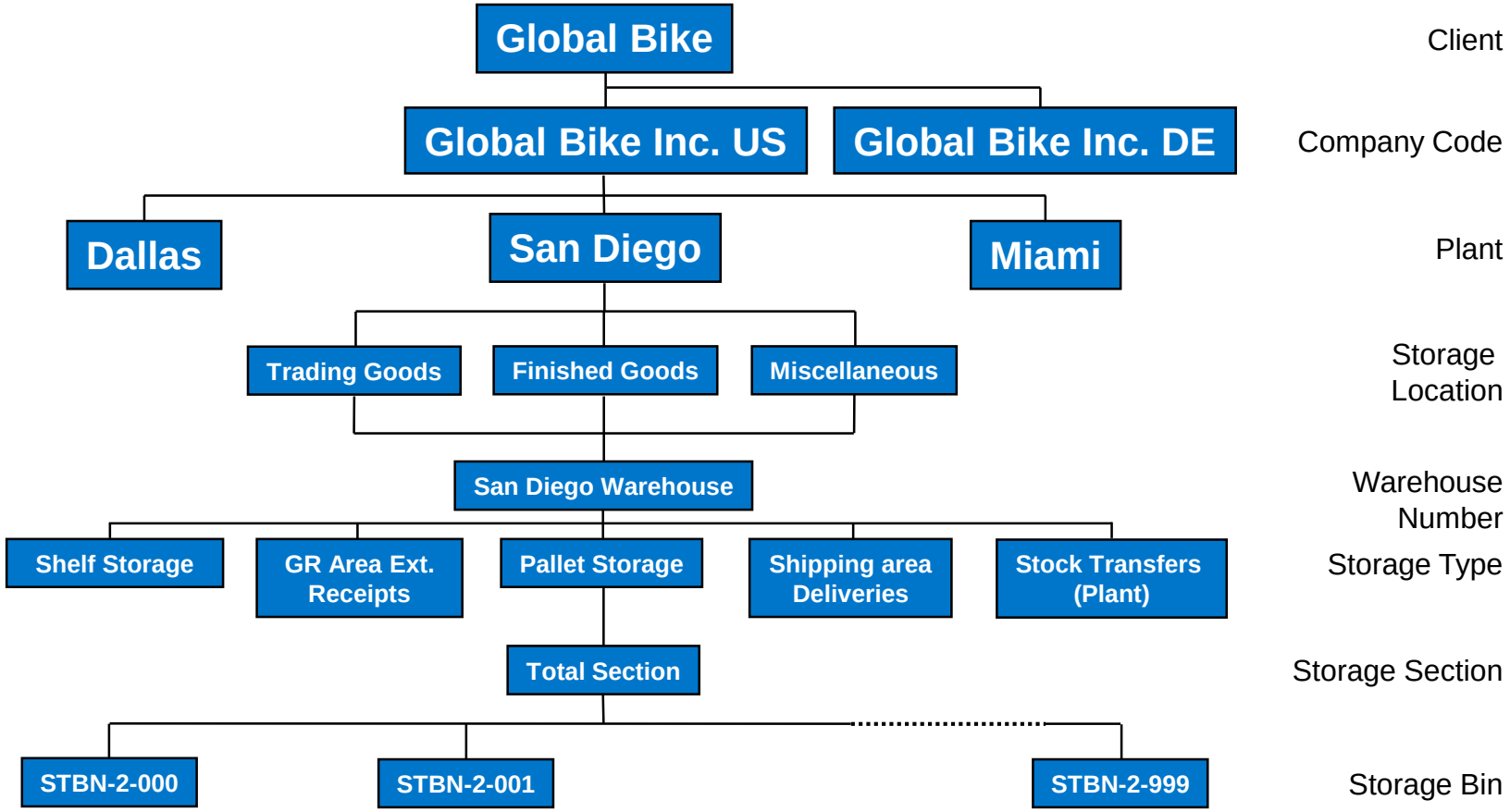
- Warehouse Number
  - Number that identifies a complex, physical warehouse structure within the warehouse management system
- Storage Type
  - Subdivision of a complex, physical warehouse
  - Is identified by its warehousing technique, form of organization, or its function
- Storage Section
  - Logical or physical subdivision of a storage type
  - Groups together a series of similar storage bins
- Picking Area
  - Groups storage bins together from the standpoint of picking strategies

WM Organizational Structure

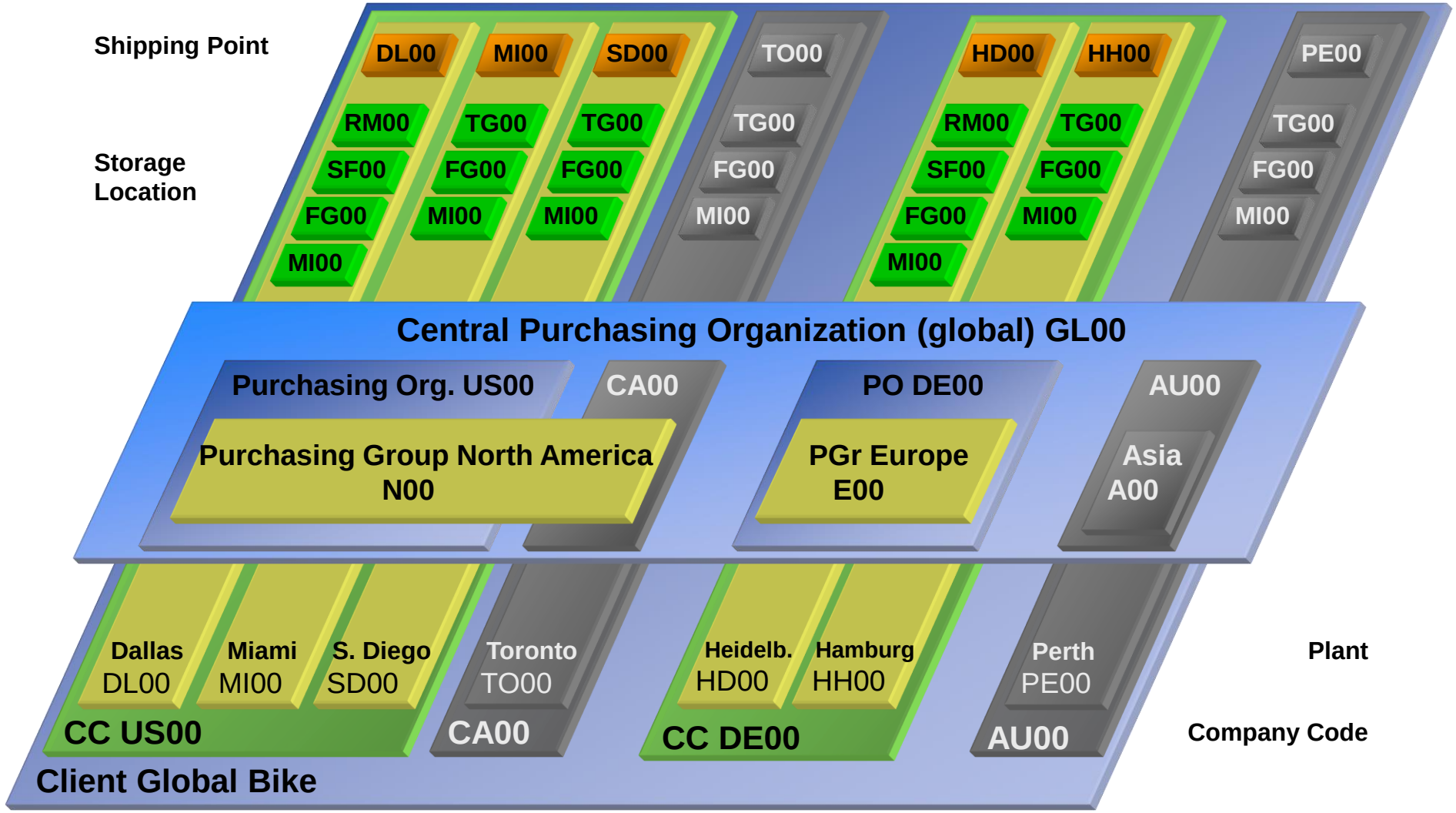
- Warehouse door
  - Marks the point where the means of transport changes to an internal transportation
- Allocation Zone
  - Temporary storage of goods, which have just arrived or will be shipped soon
- Shipping Point
  - Is the part of the company responsible for the type of shipping, the necessary shipping materials and the means of transport
- Storage Bin
  - Smallest addressable unit in a warehouse, which identifies the exact location in the warehouse where goods can be stored

→ Master Data

Global Bike Structure for Warehouse Management



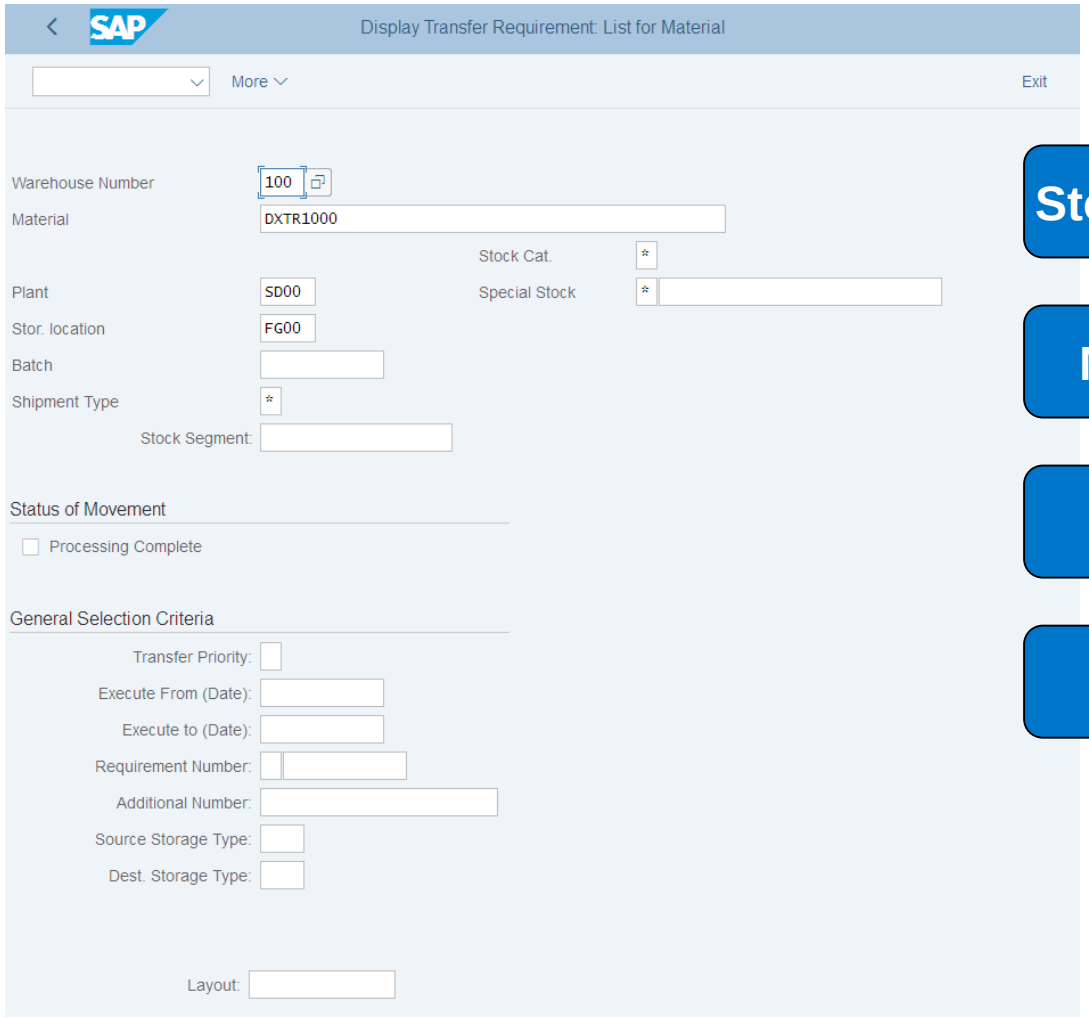
Global Bike Enterprise Structure in SAP ERP (Logistics)



Agenda

- WM Organizational Structure
- WM Master Data
- WM Process Management and Control
- Innovations in S/4HANA

WM Master Data



Storage Bin Master Data

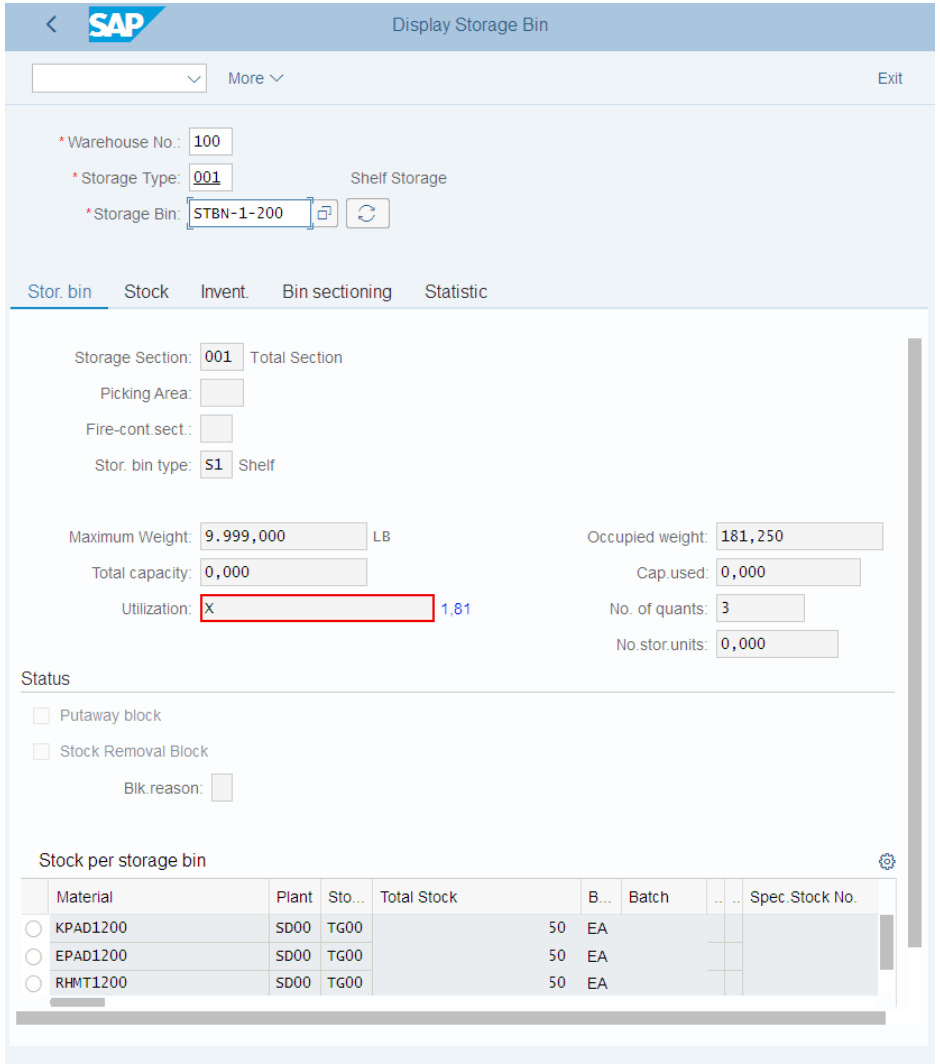
Material Master Data

Hazard Master Data

Batch Master Data

Storage Bin Master Data

- Storage Bin Master Data
  - Two different organizational levels
    - Warehouse Level:
      All indicators and fields which are valid for the whole warehouse
    - Storage Type Level:
      All indicators which are only valid for specific storage types
  - Also includes Storage Bins and Quants



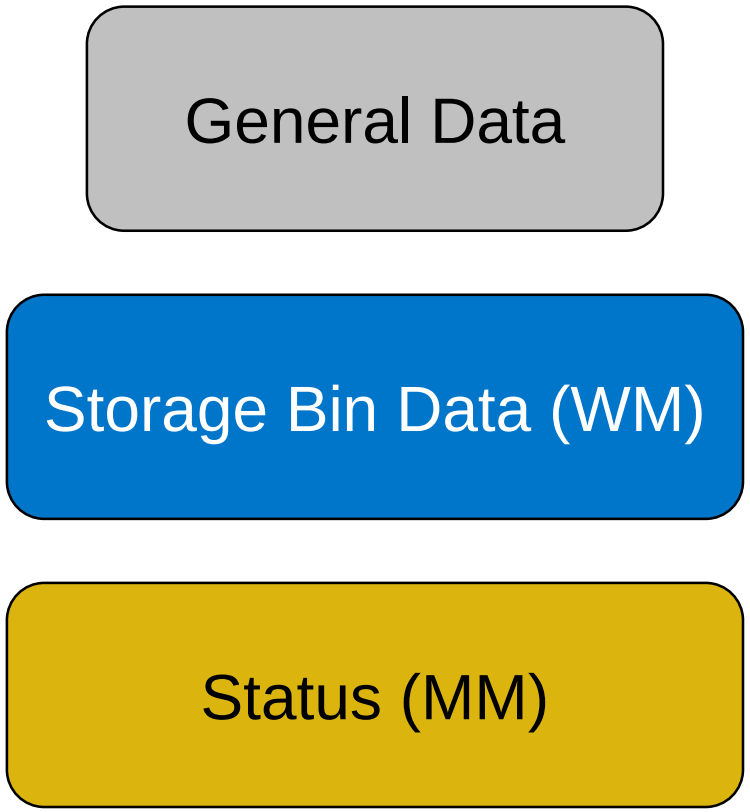
Storage Bin Master Data

- Storage Bin
  - Smallest addressable unit in a warehouse

  - General Data
    - Warehouse
    - Storage type
    - Storage bin number

  - Storage Bin Data
    - Storage section
    - Picking area
    - Fire-containment section
    - Bin type
    - Max. weight

  - Status
    - Blocked for putaway
    - Stock removal block
    - Blocking reason



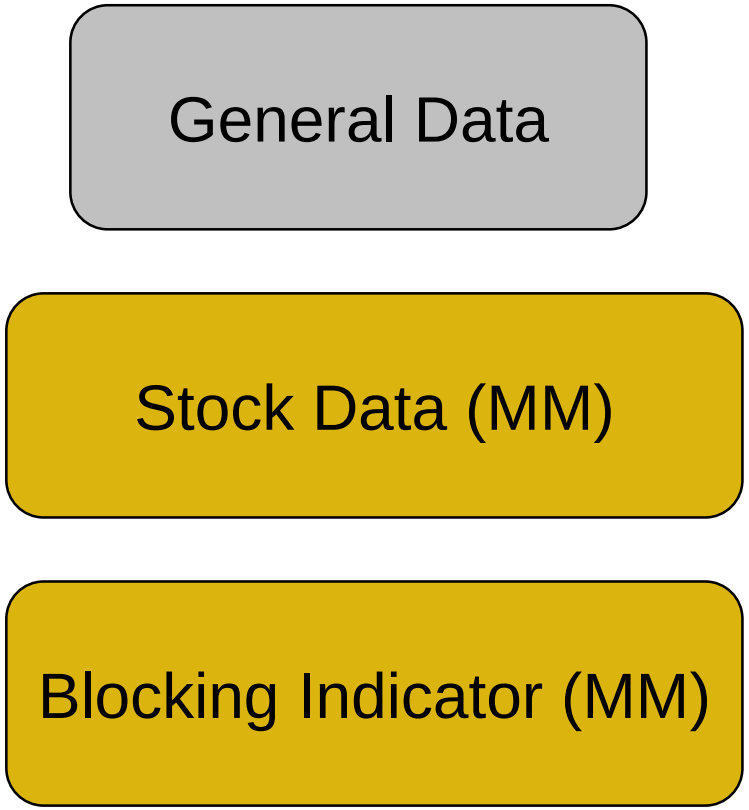
Storage Bin Master Data

- Quant
  - Smallest addressable unit of measure for a material in SAP S/4HANA

  - General Data
    - Material
    - Plant / Storage location
    - Batch
    - Warehouse
    - Storage type
    - Storage bin

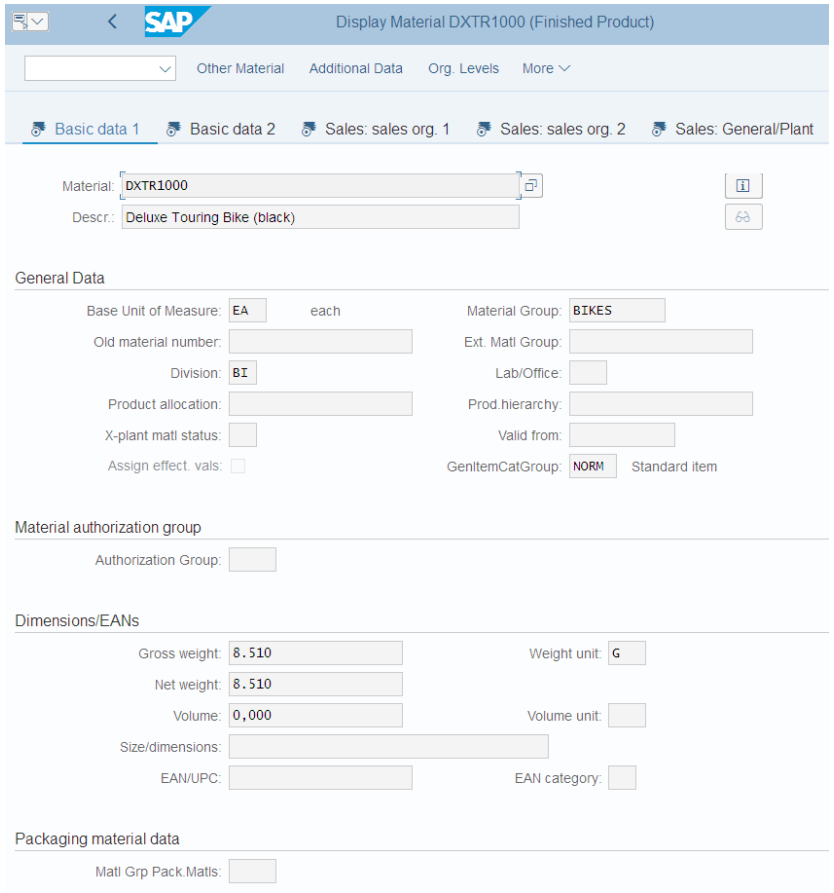
  - Stock Data
    - Total stock
    - Available stock

  - Block Indicator
    - Block
    - Putaway/removal status

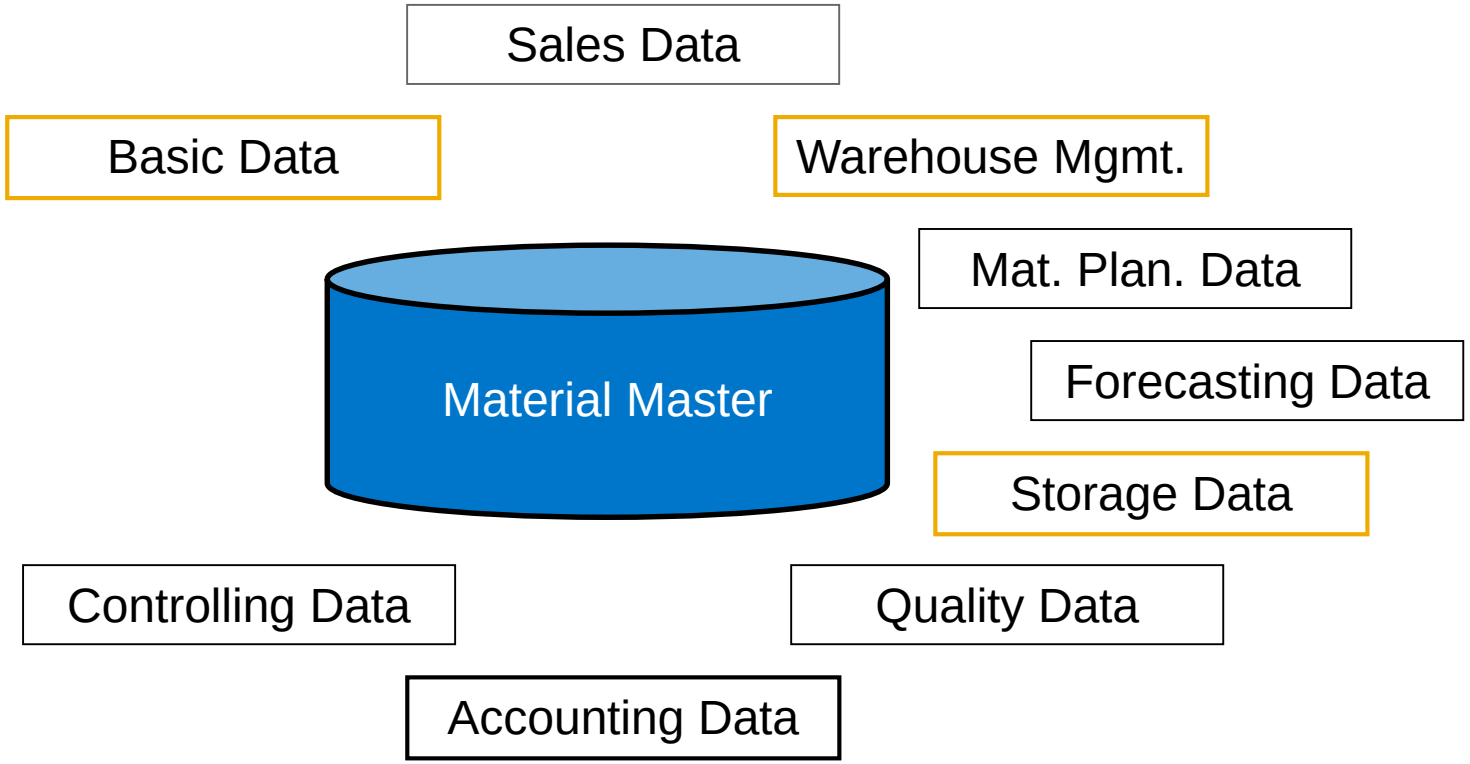


Material Master Data

- Material Master
  - Contains all the information a company needs to manage a material
  - It is used by most components within the SAP system
    - Sales and Distribution
    - Materials Management
    - Production
    - Plant Maintenance
    - Accounting/Controlling
    - Quality Management
  - Material master data is stored in functional segments called Views

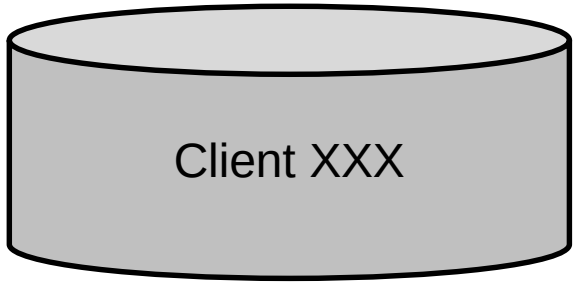


Material Master Views



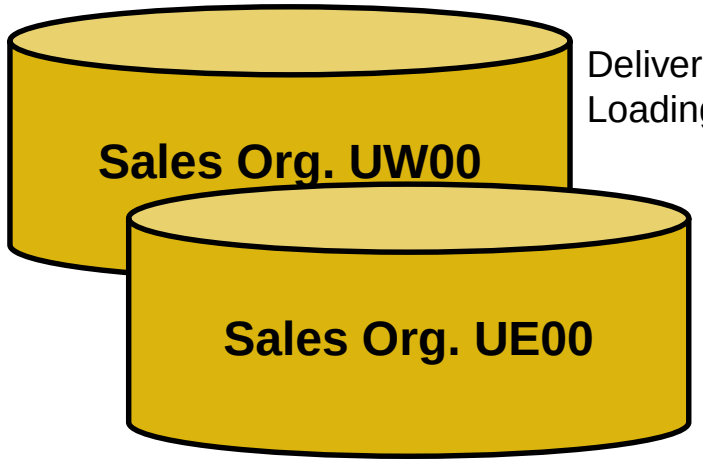
Material Master

General Information relevant for the entire organization:



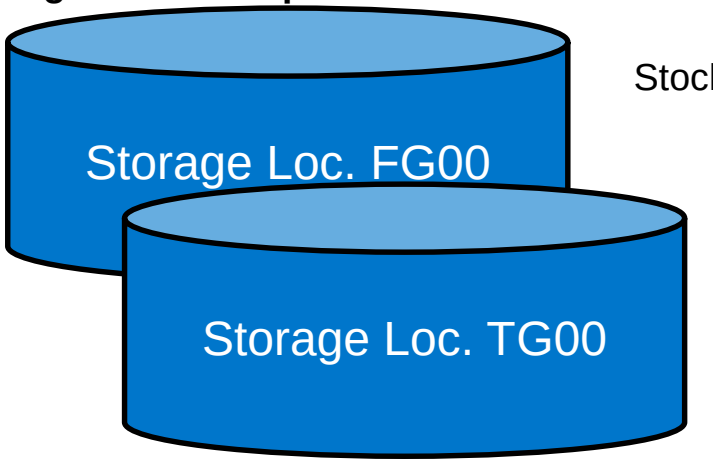
Name
Weight
Unit of Measure

Sales specific information:



Delivering Plant
Loading Grp

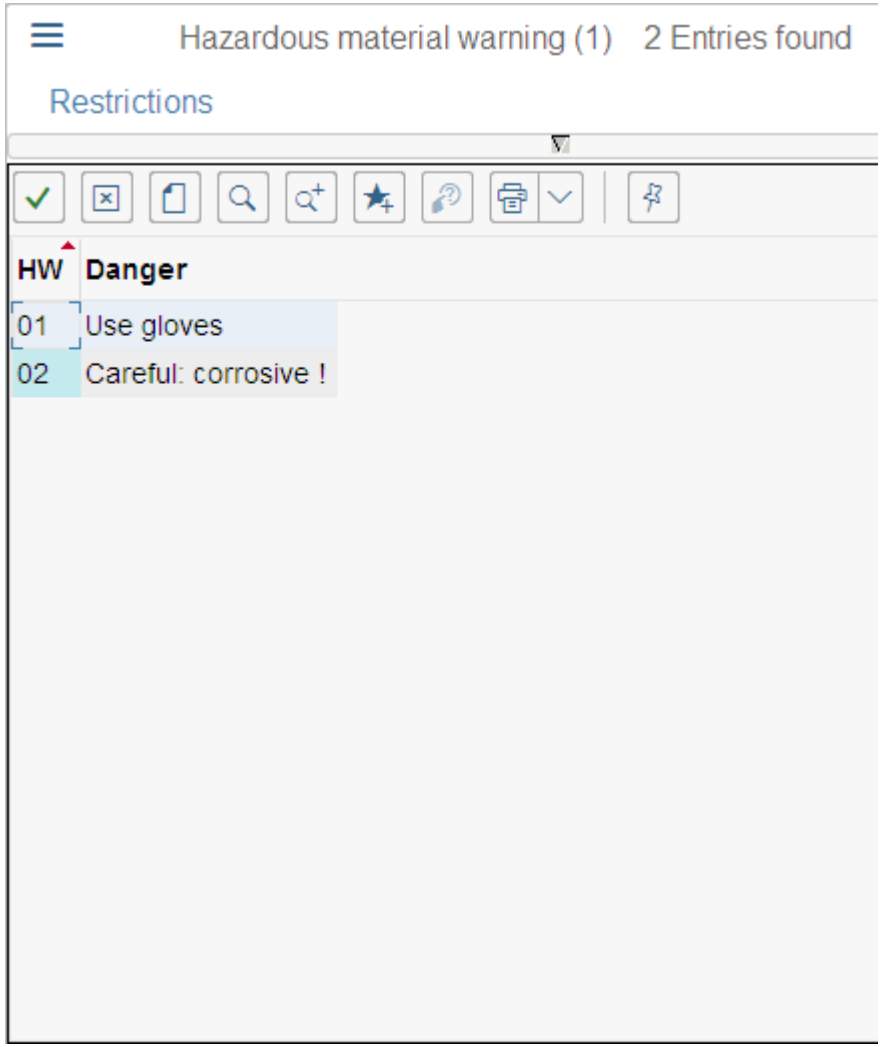
Storage Location specific information:



Stock Qty

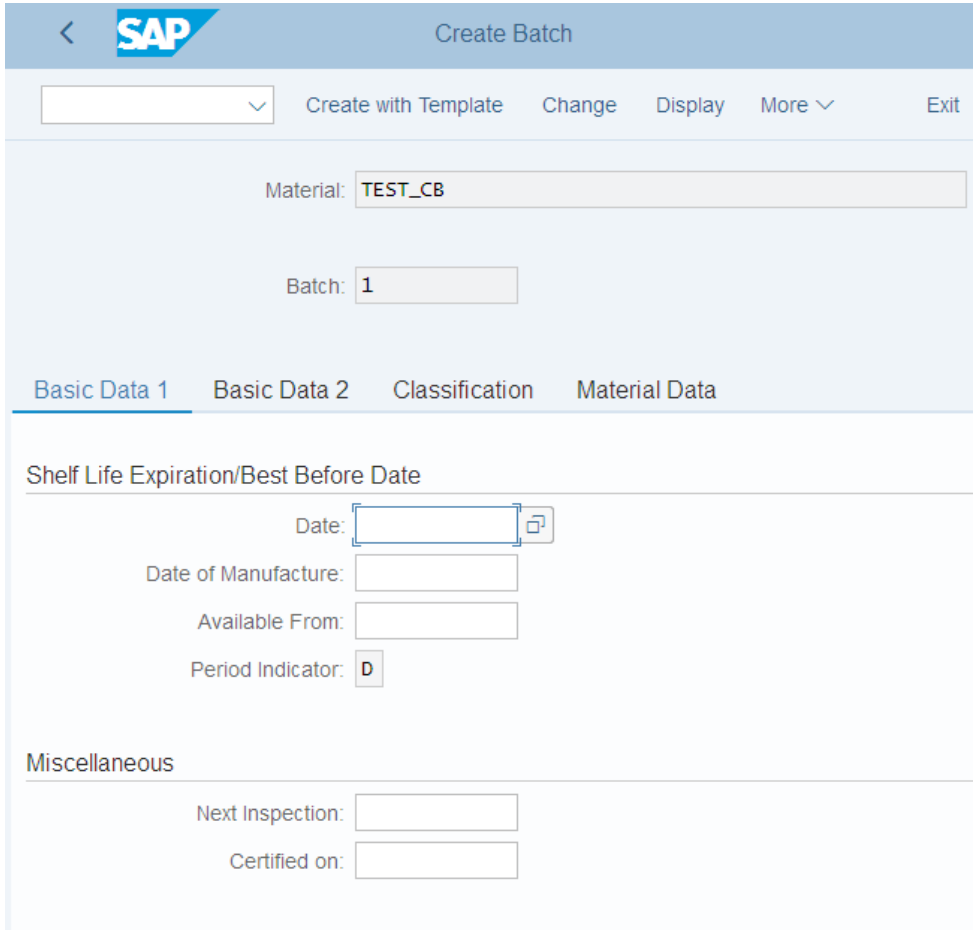
Hazard Master Data

- Storage area for hazardous materials
  - Flammable liquids
  - Toxic materials
  - Radioactive materials
- General Data
  - Storage class
  - Water pollution class
  - Flash point
  - Aggregate state
  - Hazardous material warning
  - Hazardous substance number



Batch Master Data

- Subset of Material
  - homogeneous series of unreproducible units with a unique specification
- Basic Data 1 & 2
  - Expiration date
  - Inspection date
  - Trading data
  - Administration data
  - Text data
- Classification of Batch
- Material data



Agenda

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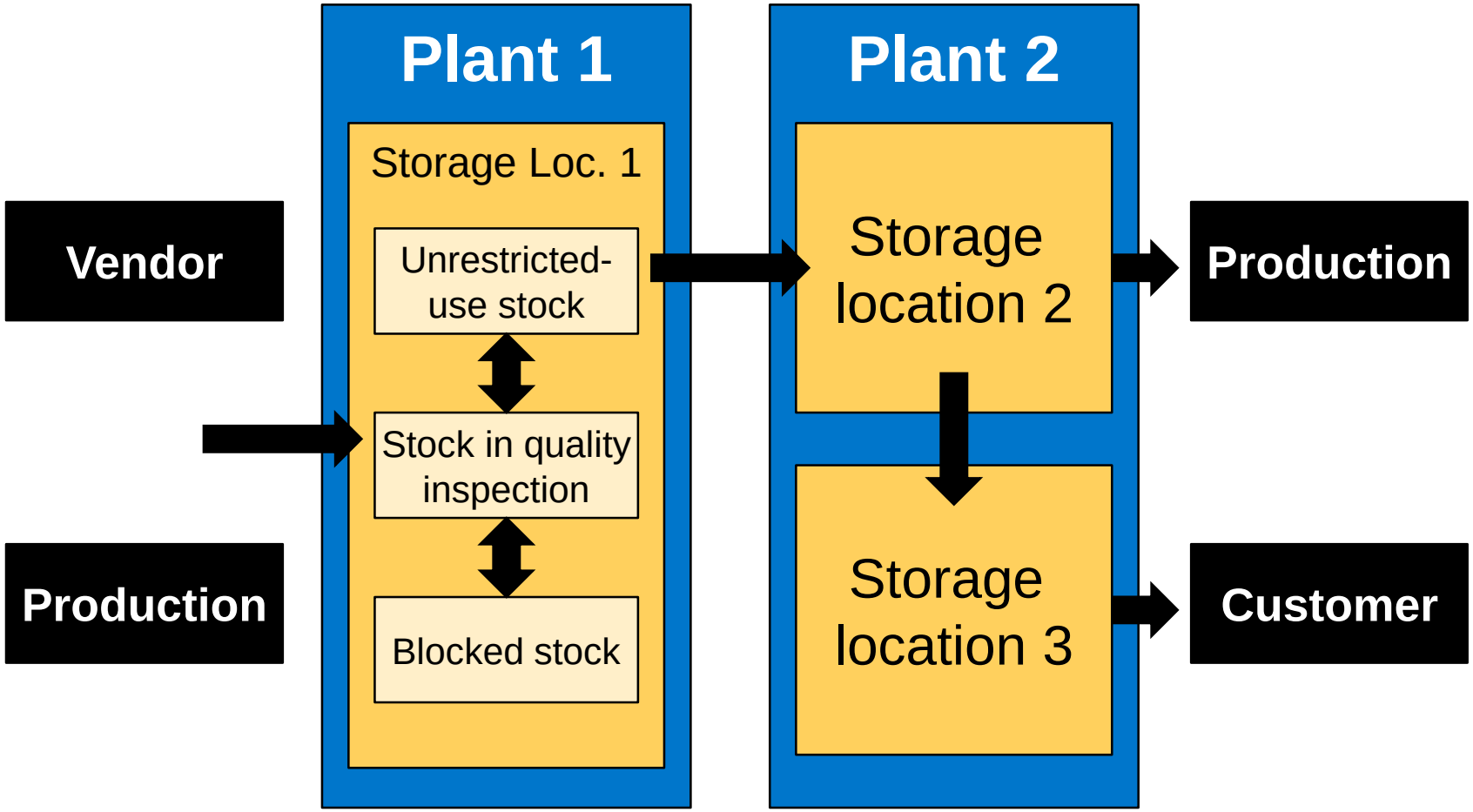
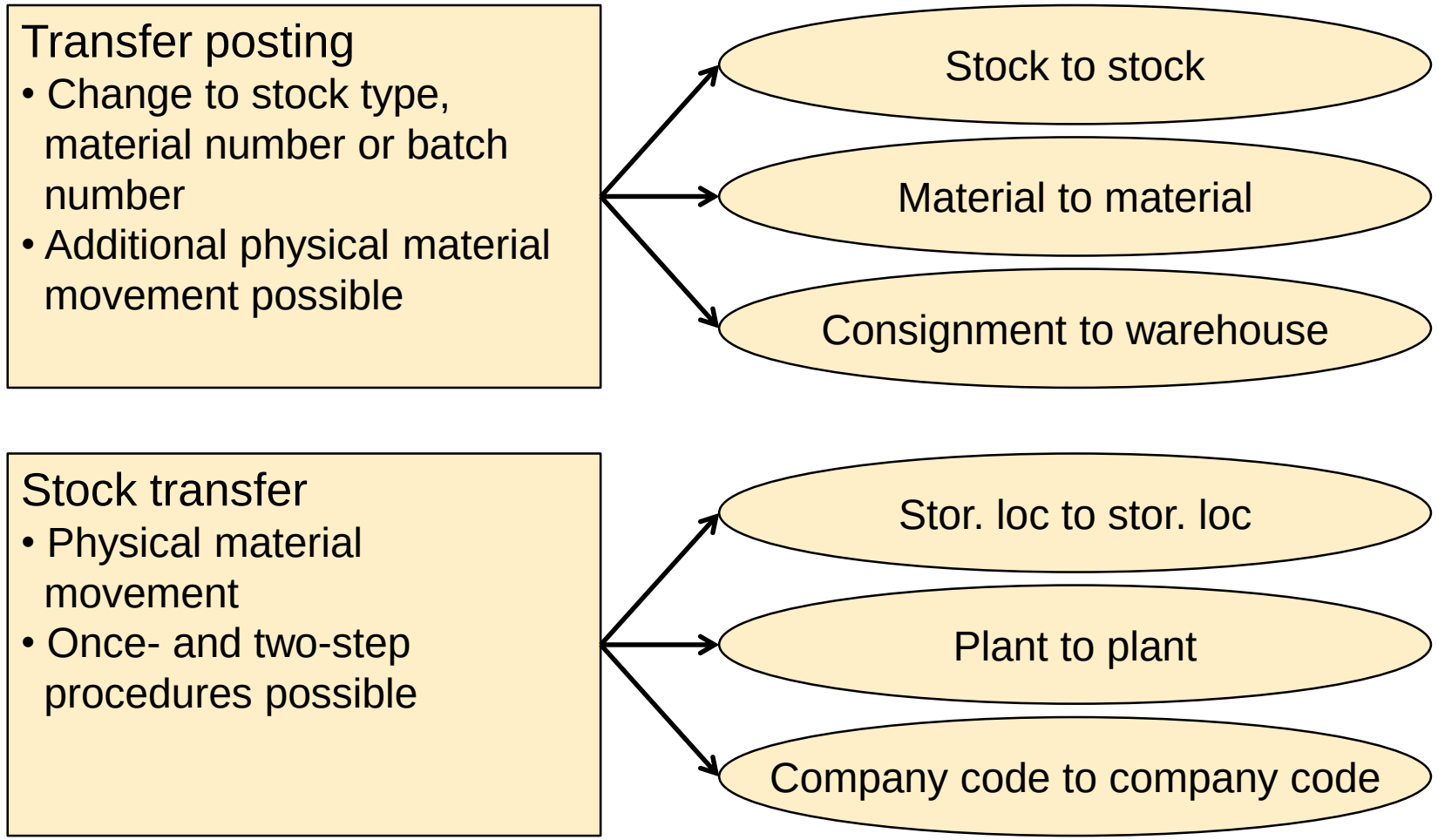
- WM Process Management and Control
- Innovations in S/4HANA

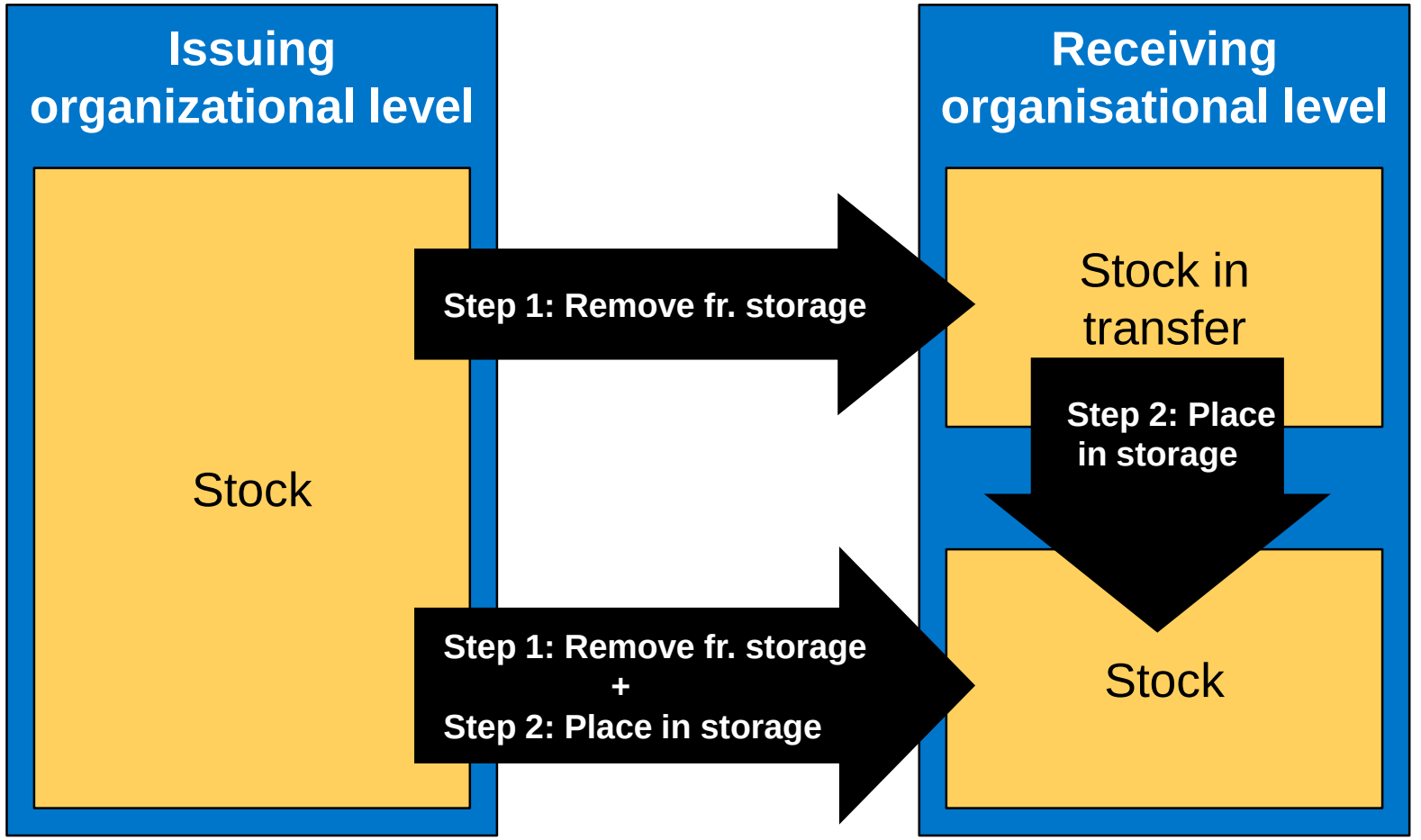
WM Types of goods movements



Transfer posting and stock transfer



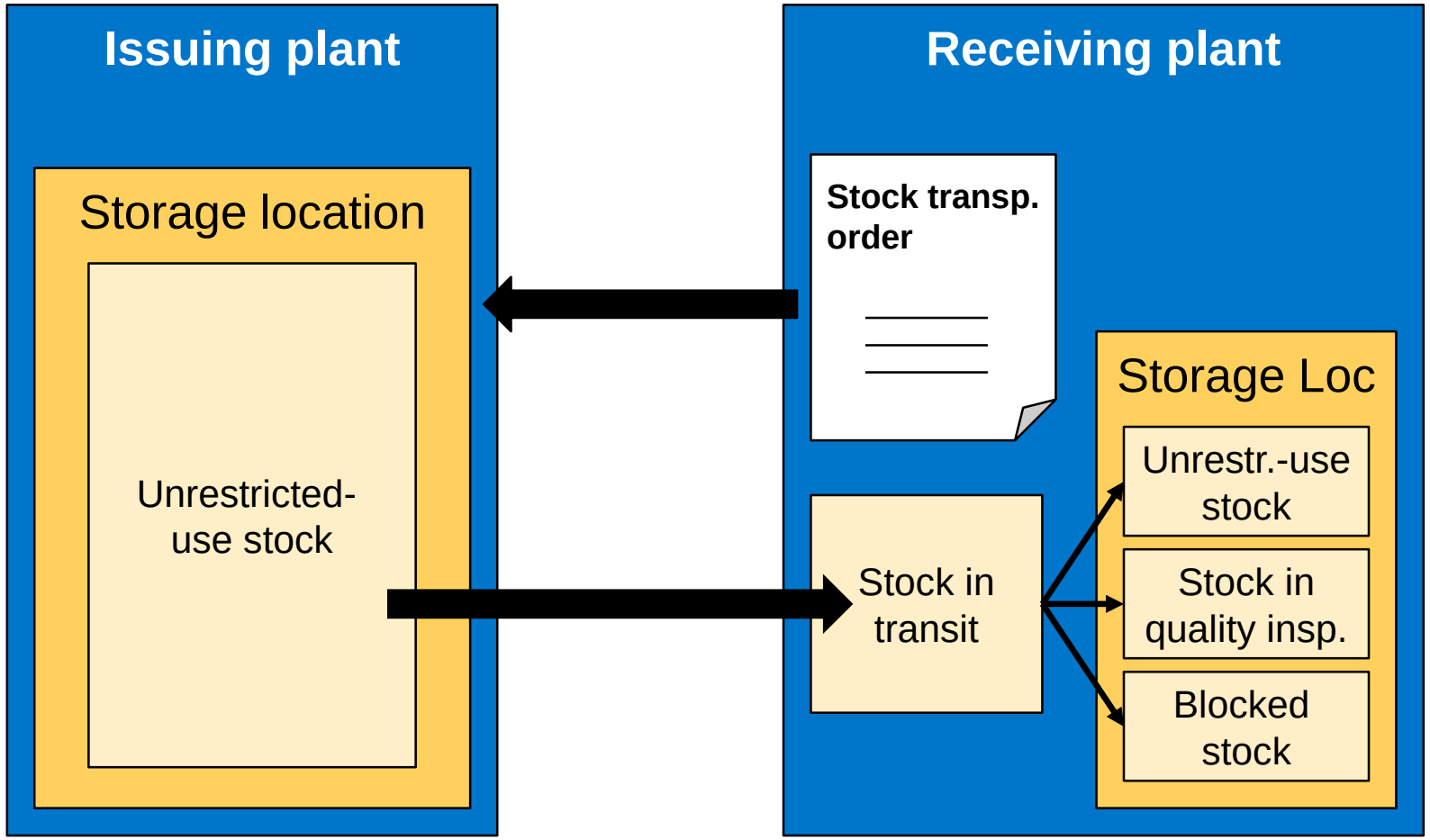
One-Step/Two-Step Procedures



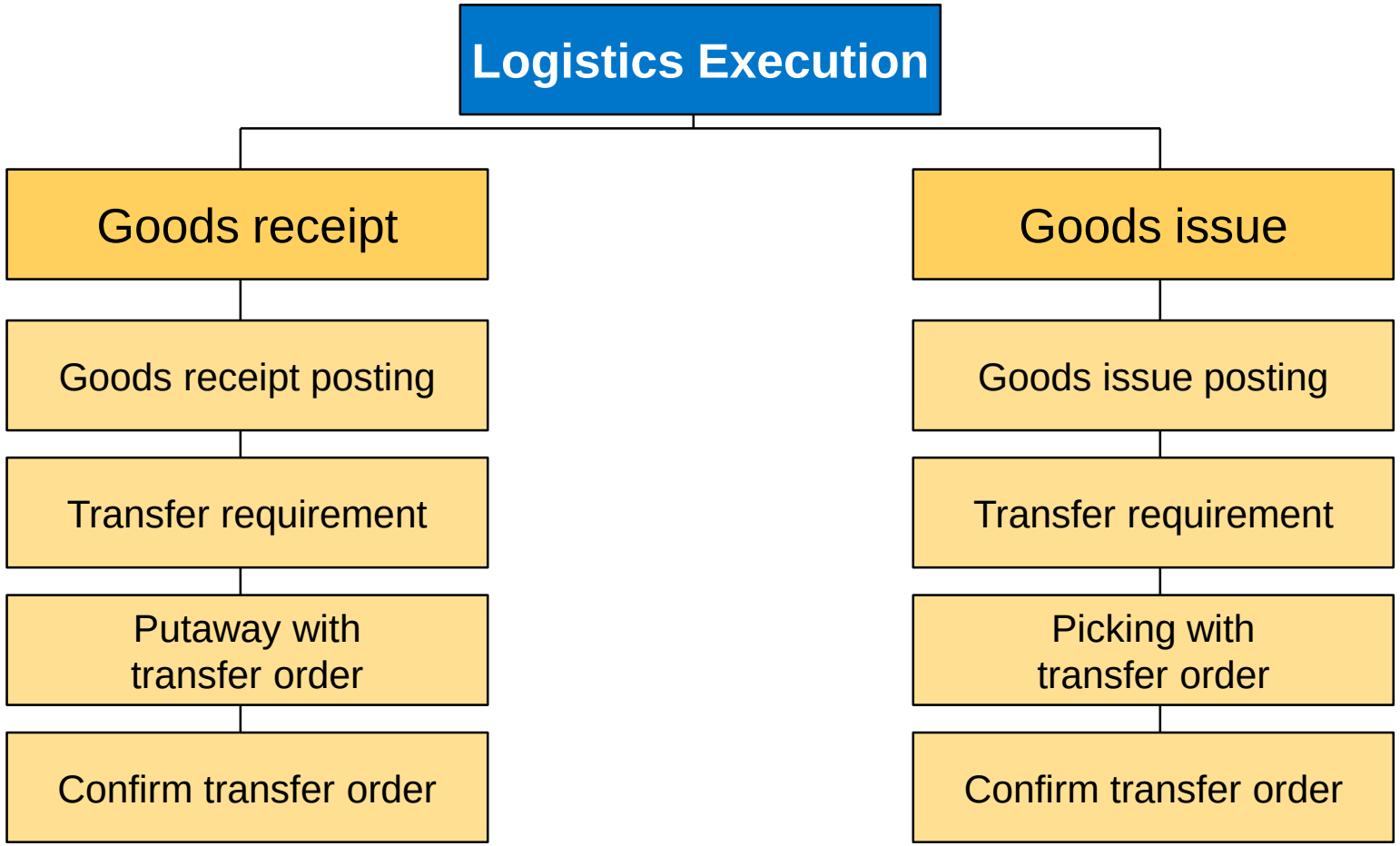
Stock transport order

A Stock Transport Order (STO) is a purchase order used to request or instruct a plant to transport material from one plant to another (that is, to effect a long distance physical stock transfer) within the same corporate enterprise.

The stock transport order allows delivery costs incurred as a result of the stock transfer to be charged to the material transported.



WM Processes



WM Process Management and Control

- Posting change notice (PCN)
  - Generated by posting change processes in WM-administrated stocks
  - Functionality similar to transfer requests
  - Not necessarily combined with a physical goods movement
- Transfer requirement (TR)
  - A request to transfer materials at a particular time from a source storage bin to a destination storage bin in a warehouse complex
  - Represents the expected and scheduled goods movements in WM
  - Normally generated by postings in the inventory management
  - Consists of transfer request header and line items
- Transfer order (TO)
  - Central documents for WM
  - Every material movement requires a transfer order
  - No difference between real and logical movement

Transfer Order

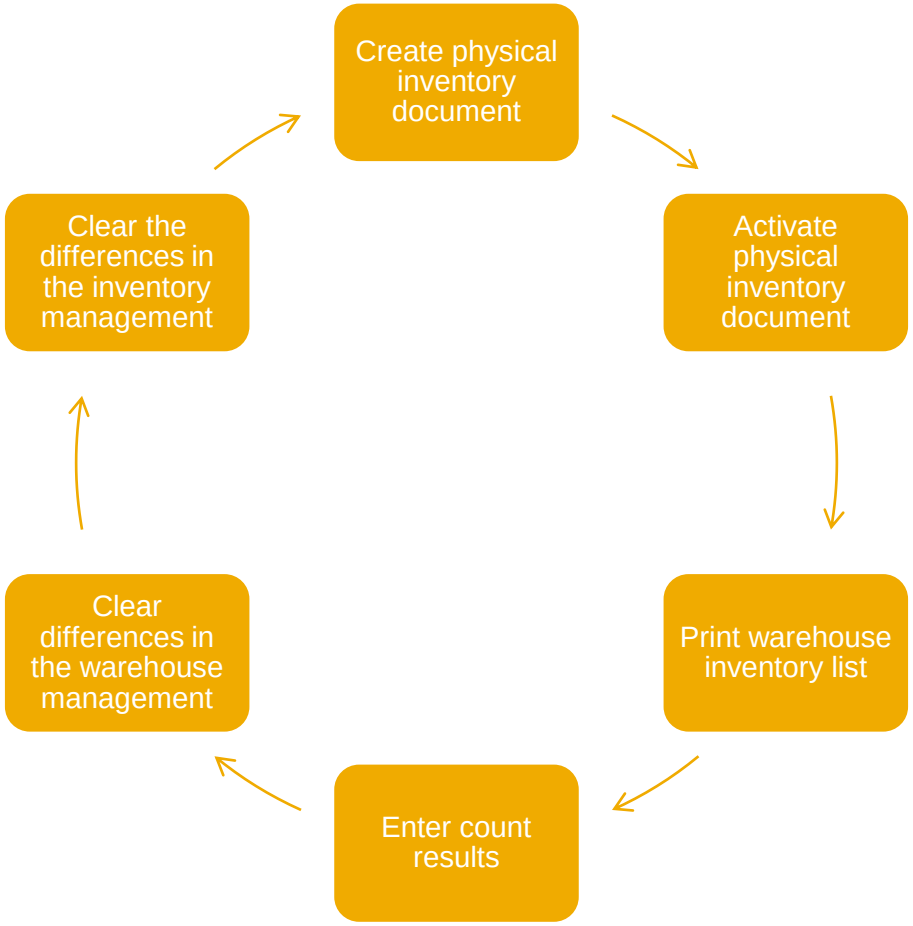
- Creation of transfer order depends on preceding document
  - Transfer request
  - Posting change notice
  - Outbound delivery
  - Inbound delivery

- Types of Transfer Order Creation
  - Manual (TR, PCN, material document)
  - Direct TO-Creation
  - Automatic TO-Creation
  - Manual (Delivery Monitor)

Inventory

- Periodic inventory
- Continuous inventory
- Inventory on putaway
- Zero stock check
- Sample-based physical inventory
- Cycle-Counting

Physical inventory process



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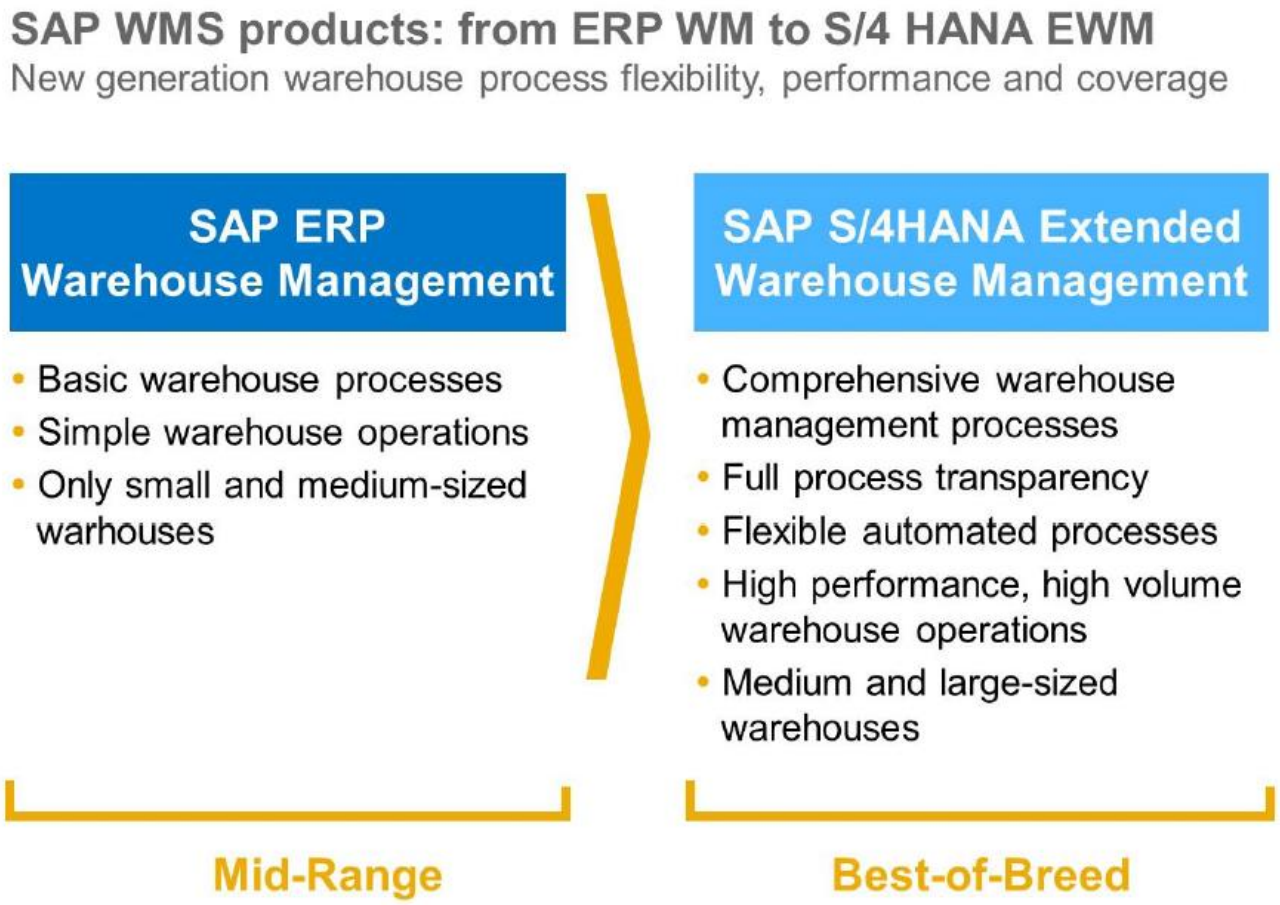
- WM Master Data
- WM Process Management and Control
- Innovations in S/4HANA

Innovations in S/4HANA
Extended Warehouse Management (EWM)

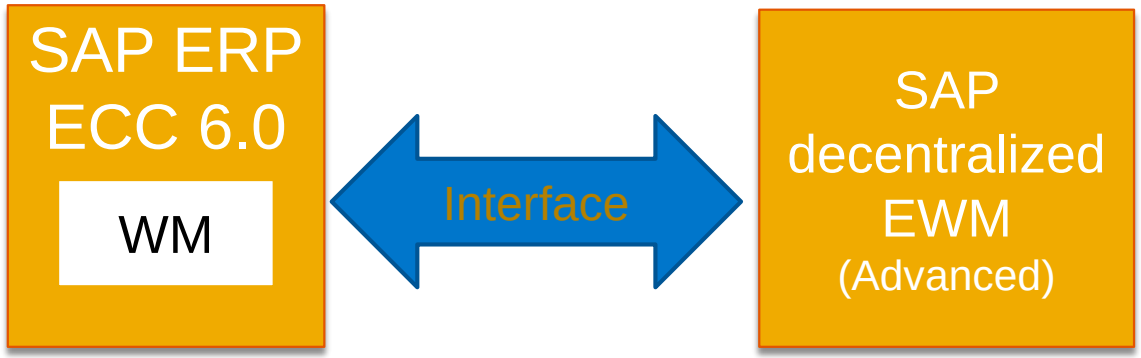
- Long-term the central warehouse management system from SAP
- Part of the Supply Chain Execution (SCE) from SAP in contrast to the WM standard
- Significant difference: WM system concentrates on internal functions
  - Little functionality that provides link to external processes (i.e. contract packaging or transportation)
- In addition to the classical properties for structuring and warehouse control → EWM contains Instruments for strategic placement of the warehouse within the supply chain
- Detailed picture of the complete warehouse complex → improves the overview of the total quantity of the product in the warehouse
- Holdings from several plants can be stored together

Innovations in S/4HANA
Extended Warehouse Management (EWM)



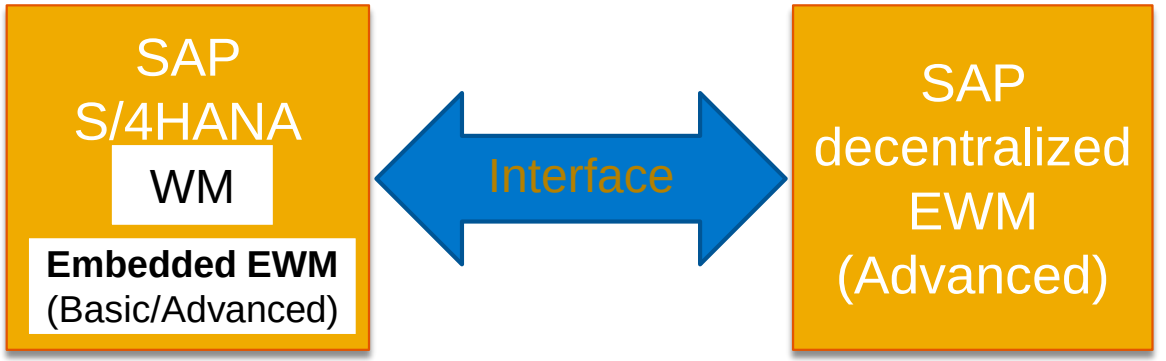
Innovations in S/4HANA
Extended Warehouse Management (EWM)

Scenarios with ECC 6.0



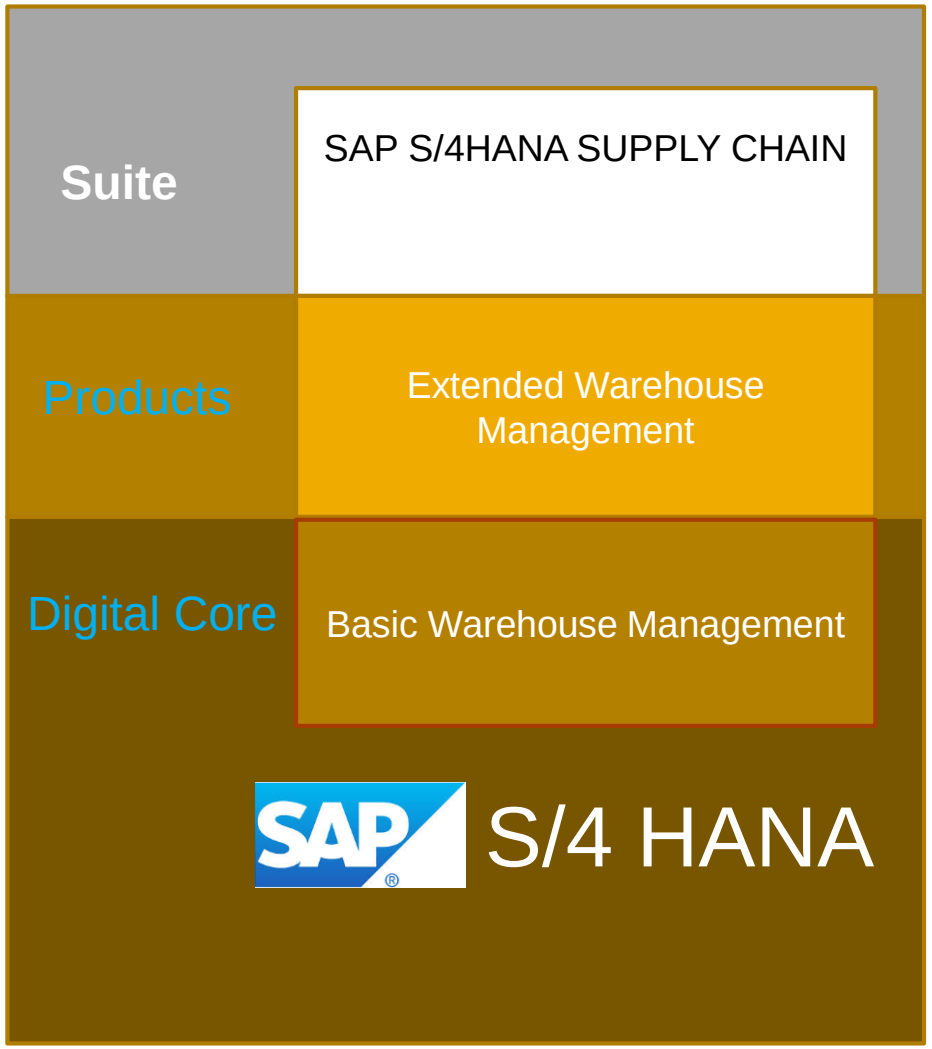
- Classic illustration with an ERP ECC system
- License costs for EWM (decentralized EWM)
- WM can be used indefinitely for new launches (as long as ECC 6.0 is still in use)
- **No SAP support for ERP WM from 2025 onwards**

Scenarios with S/4HANA



- Illustration based on S/4HANA
- No EWM license costs for the „Basic Version“ of the integrated EWM
- **WM usage rights in S/4HANA ends 2025**
- A change from ECC 6.0 to S/4HANA requires a change to EWM from this point onwards

Innovations in S/4HANA
Extended Warehouse Management (EWM)



Extended Warehouse Management

- Optimization of inventory management (e.g., slotting)
- Inbound process optimization (e.g., deconsolidation)
- Outbound process optimization (e.g., wave management)
- Material Flow Control (MFC)
- Yard management (e.g., TU processing, DAS)
- Laboratory management
- Logistic additional services (VAS, for example, Kitting processing)
- Cross docking
- Inventory process cost accounting

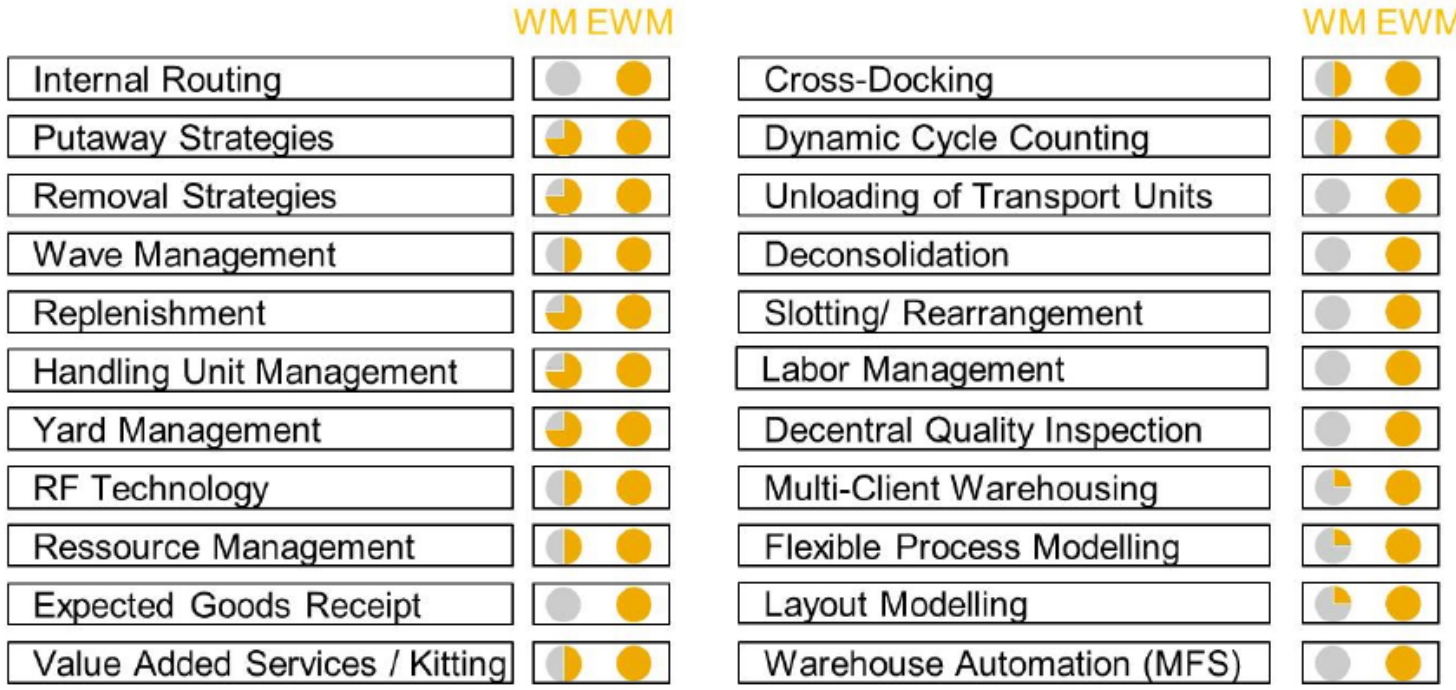
Optimization of warehousing processes

Basic Warehouse Management

- Inventory management
- Inbound processing
- Outbound processing
- Internal stock movements
- inventory procedures
- Reporting

Stock security and transparency

Innovations in S/4HANA
Extended Warehouse Management - Scope of functions



- SAP EWM is the strategic warehouse management solution for SAP S/4HANA
- SAP EWM offers enhanced visibility and flexibility
- Labor Management is part of SAP EWM

Innovations in S/4HANA
Extended Warehouse Management - Scope of functions

- Optimized warehouse space management
  - Different storage facilities (automatic bearings,…) can be arranged in different storage types according to their own requirements
  - Stock movements can be better understood as each storage location is mapped in the system
  - In addition, each product will receive an optimal storage location according to its size and access frequency

- Goods movements
  - EWM is used to process all goods movements that affect the warehouse
  - Storage capacity and material flows are optimized using put away and removal strategies
  - Optimizing takes place individually as required or by using handling units

Innovations in S/4HANA
Extended Warehouse Management - Scope of functions

- Stocktaking
  - Product related or storage related
  - Different monitor with adjustable tolerance groups, over which maximum values can be configured for the calculation of differences
  - Additional extras: automatic close out after time limits, inventory procedures according to different priorities, zero check, low stock control
  - Radio frequency functionality is integrated in for example Cycle Counting

- Planning and monitoring
  - Forward-looking load analysis and early intervention in case of faulty warehouse processes
  - Extensive monitor functions project a up-to-date picture of all activities in the warehouse
  - ➢ Actual work in the warehouse can be controlled this way

Innovations in S/4HANA
Extended Warehouse Management - Scope of functions

- Wireless data connection
  - Controlling the work steps via mobile radio terminals → clear and economical
  - The radio frequency connection (RF connection) for mobile data acquisition ensures a fast data transmission
  - RF devices receive data from the SAP system and transmit data back, e.g. through barcodes

- Warehouse control
  - EWM has interfaces to external systems (storage controllers)
  - ➢ e.g. automated storage and retrieval systems can be integrated for all storage movements

Innovations in S/4HANA
Reasons to Switch to EWM

- Reduce costs through better warehouse efficiency, increased labor productivity, and better space utilzation
- Increase transparency in stock and processes
- Increase flexibility in warehouse process modeling
- Implement customer specific put-away and retrieval strategies
- Quickly onboard new customers
- Better manage value added distribution processes
- Strong integration with other SAP solutions
- Integrated Material Flow System (MFS) for automated storage and retrieval

Thank you!