



# PROMAT®

2015

McCormick Place South | Chicago

March 23-26, 2015

[promatshow.com](http://promatshow.com)

## **WMS vs. WCS:** *Where and When to Apply Warehouse Management Systems and Warehouse Control Systems for Optimal Results*

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## Today's Agenda:

WMS and WCS Defined

Day in the Life of an Order

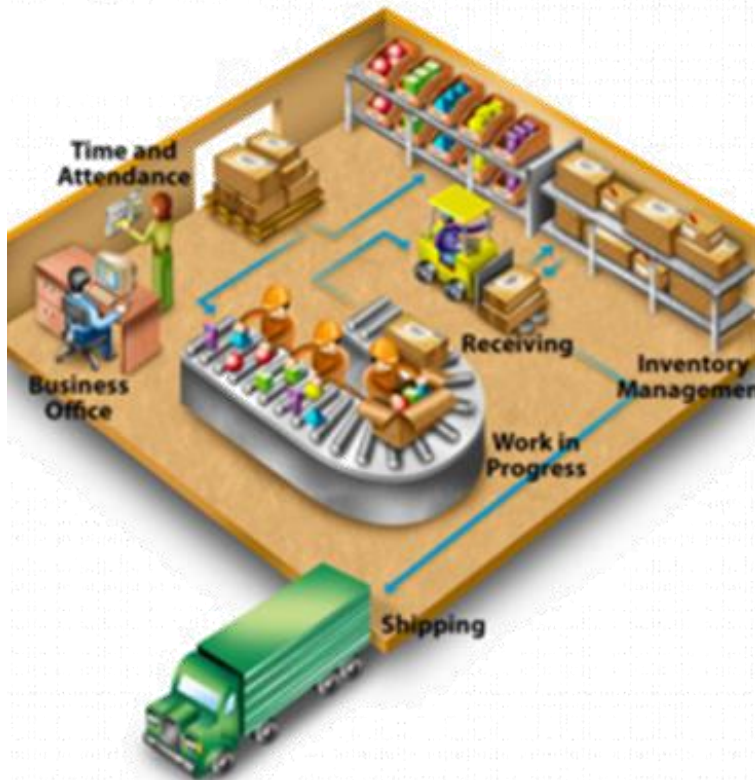
Standard Interface Architecture

Case Studies

Questions



## What Is a WMS?



- A highly specialized business application whose purpose is to control the flow of inventory into, within and out of a company's distribution center (DC)
  - Four Walls
  - Between Multiple DCs
- WMS knows where all products are at all times

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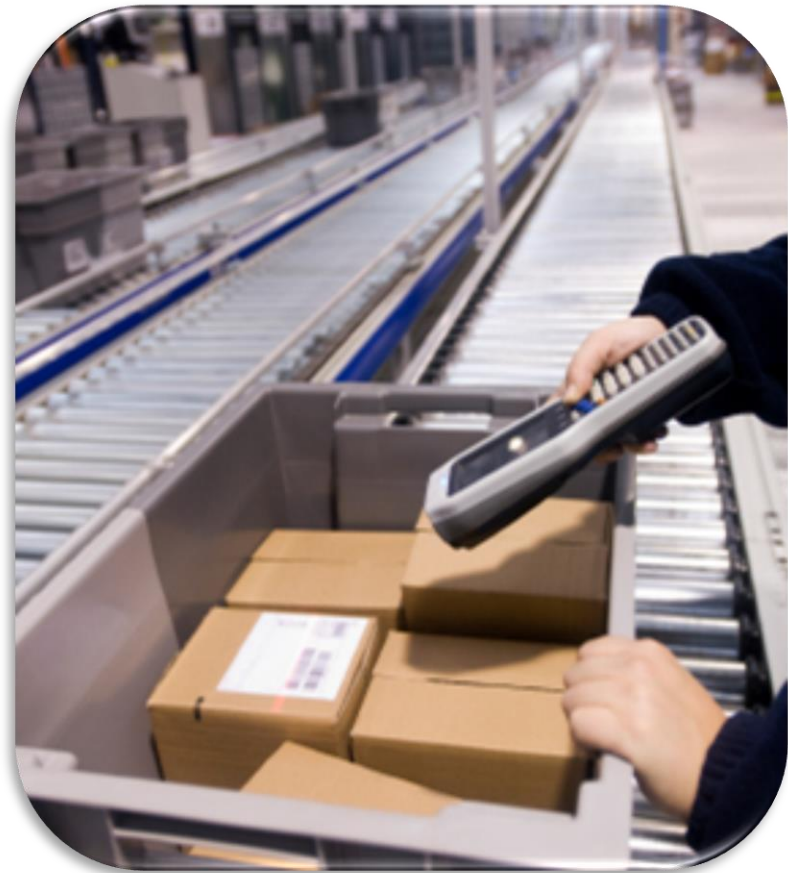
## A Real Time Environment





## Supporting a Real Time Environment

- Most WMSs incorporate
  - Wireless Data Terminals (RF Devices)
  - Bar-Coded Pallets, Cases and Item Labels
  - Radio Frequency Identification Tags (RFID)
  - Conveyor Systems / Material Handling Equipment
  - Voice Enabled RF Devices



## What Is a WCS?

- A Warehouse Control System (WCS) is a **real-time integrated control** solution that manages many types of automated equipment: conveyor, sorters, ASRS, Pick to Light, Carrousels, Print and Apply
- WCS exchange real-time communications (milliseconds), command processing, discrete equipment signals, and the optimization of material (multiple UOML: units, cartons and pallets)



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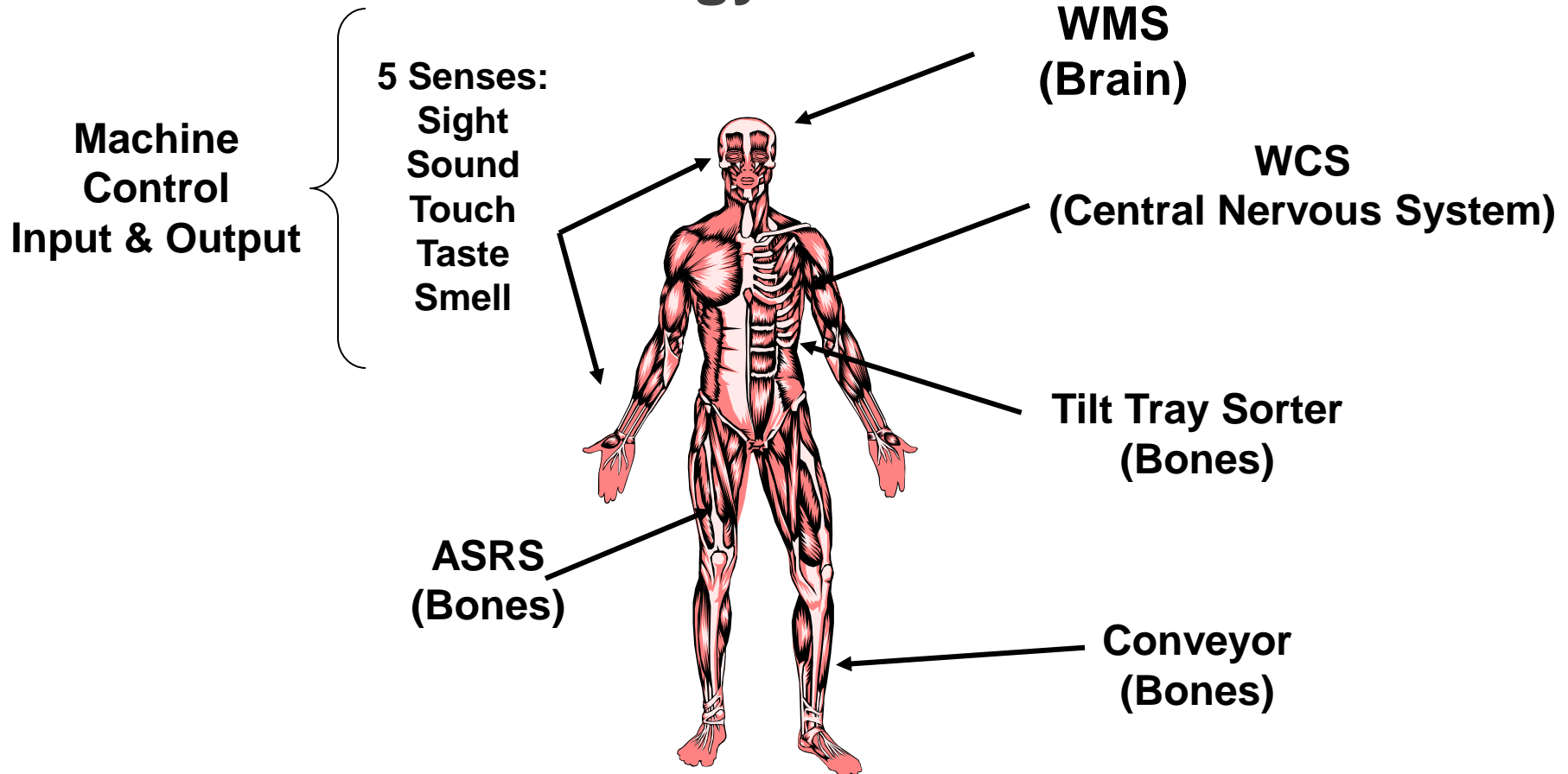
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## WMS vs. WCS Analogy





## Warehouse Management Systems

WMS Do Not control machine language (ladder logic and PLCs)

WMS Do Not control machine control (starters and motors)

WMS Do Not control Put Light, Sorters, Conveyors, Print and Apply and ASRS

WMS Do Not don't track carton level LPNs on automation equipment

WMS Do Not provide a GUI (ACAD) layout of your automation system



## Warehouse Control Systems

WCS Do Not interface with your ERP (typically, there are exceptions)

WCS Do not hard allocate inventory in reserve or forward pick locations

WCS Do not support wave management strategies

WCS are not your inventory of record (4-walls inventory)

WCS Do not support extensive cycle counting and physical inventory Processes.

WCS Do not support labor management and allocation

WCS Do not support Transportation Planning and Shipping Execution

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## WMS vs. WCS Functionality

Functionality	WMS	WCS (PC Based) with Independent Data Base
ASN Receiving	■	■
PO Receiving	■	■
Base Case and Pallet Receiving	■	■
Discipline Cross Docking	■	Contingent upon HOST
Directed Put-away	■	
Suggested or Manual Put-away	■	■
Advanced Put-away configuration	■	
Advanced Replenishment Strategies	■	
Base Picking	■	■
Advanced Picking	■	
Wave Management	■	■
Advanced Allocation Logic	■	
Cycle Counting	■	■
Trailer Build and Load	■	
Carrier Compliance (BOL and Parcel)	■	
Direct Machine Control (I/O)		■
Tilt Tray Sorter Store to Chute Assignment		■
Dynamic Chute Allocation		■
Report Building	■	■
RF Work Directives	■	■
Task Management	■	
User Configuration	■	■
Human Machine Interface (HMI)		■
Yard Management	■	



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## WMS and WCS Convergence



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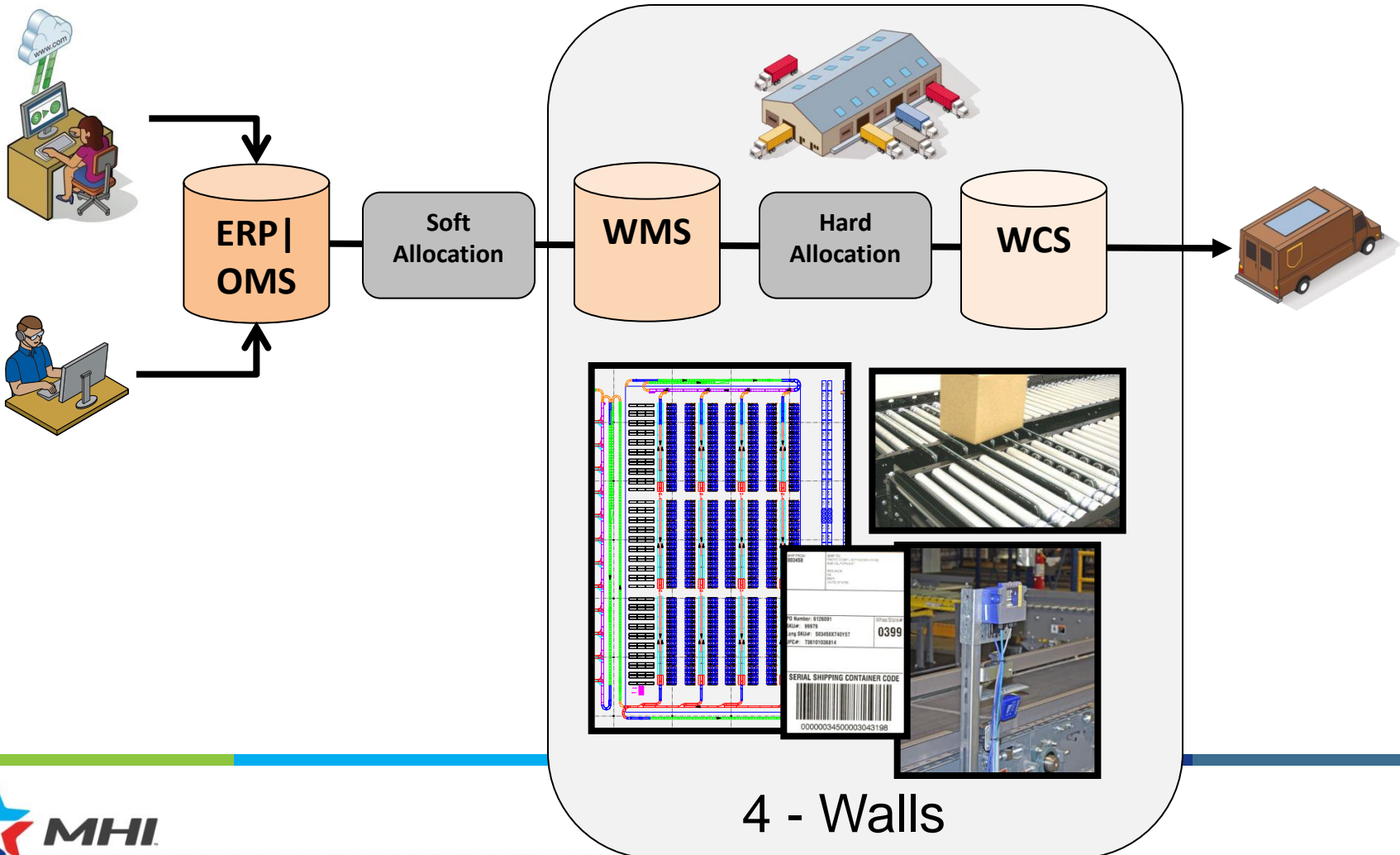
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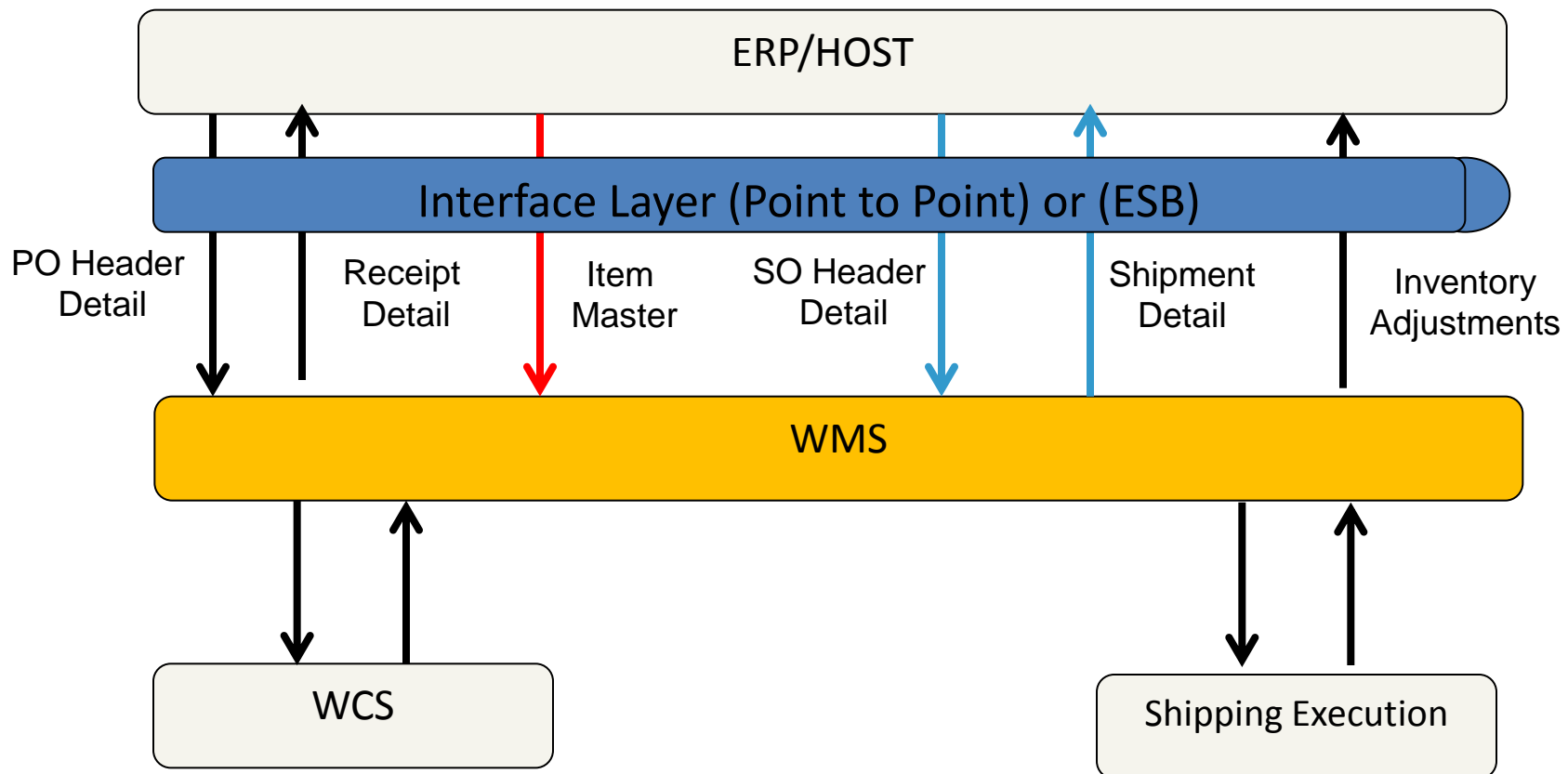
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## Case Study 1

- \$800M Fashion Apparel Company
- Tier 1 WMS
- WCS Required for Put to Light and Conveyor
- However the WCS was used for discrete order picking.....
- WCS assumed inventory was always in the forward pick location and did not manage, allocate or control the inventory



## Case Study 2

- \$4B Shoe Retailer (Highly Automated)
  - Tier 1 WMS
    - Managed IB Receipts
    - Inventory Control
    - Replenishment to the Tilt Tray
    - Forward picking for accessory items
    - Allocation
  - WCS for Conveyor and Print and Apply
    - 8 inbound lanes with 2 to 1 merge
    - Put-away loop with sortation
    - 17 outbound lanes for pool point shipment
  - Separate Controls for the Tilt Tray



## Lessons Learned

- Understand who (WMS vs. WCS) does best for your business.....lines are getting blurred
- Understand how the physical movement of inventory (UOM) moves through your facility
- Use a solutions architect that knows both technologies....
  - Happy Path work flows but more importantly.....
  - Exception Management

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## ***For More Information:***

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