



PROMAT 2015

McCormick Place South | Chicago
March 23-26, 2015
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Eliminating the Gray Space Between WCS and WMS

Sponsored by:



Retrotech

A **SAVOYE** COMPANY

Presented by:

Richard Lanpheare of Retrotech

Greg Offutt of Honeywell

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Key Takeaways

- Clarification of the roles of a WMS and WCS
- Where functionality resides
 - General Functions for a WMS and WCS
 - Cross over functionality (Gray Space)
- Maximizing the value of a WCS and WMS
 - Viewpoint from Greg Offutt of **Honeywell**
 - The value of standardization
 - Balancing the right functionality

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Business Challenges

- Fulfillment Speed
- Space and Storage Constraints
- Obsolete Equipment
- Manual Processes
- Inventory Management
- Changing Business Needs
- Obsolete Warehouse Software
- Slotting....What's that?
 - “We do that once a year with a spreadsheet, right??”



Business Challenges

- Fulfillment Speed
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- Slotting....What's that?
 - “We do that once a year with a spreadsheet, right??”
- Decisions being made manually
 - “Fred is the best at running the operation because he has his finger on the pulse of the system, he’s the warehouse whisperer”





Common Responses

- Reorganize the Facility
- Expand the Warehouse
- Hire More Labor
- Buy More Hardware
- Replace Equipment
- Hire Consultant
- Clone “Fred”
- Lower the Customer’s Expectations???

**All are potentially
disruptive... and don't
always address the
underlying issue**



Common Responses

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- Lower the Customer’s Expectations???

- **How about “*Improve Software Capabilities?*”**



What Does WMS Stand For???

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A **warehouse management system** (WMS) is a **software** application that supports the day-to-day operations in a **warehouse**. WMS programs enable centralized **management** of tasks such as tracking **inventory** levels and stock locations.

[What is warehouse management system \(WMS\)? - Definition searchmanufacturingerp.techtarget.com/definition/warehouse-management-...](#)

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What Does WMS REALLY Stand For???

Warehouse Management SYSTEM
(processes, people, software, hardware, etc.)

OR

Warehouse Management SOFTWARE
(a standardized software component of the system
managing non-automated resources, invoicing, order
creation, management of inventory within the supply chain)

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What Does WCS Stand For?



WCS Definition



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A **warehouse control system (WCS)** is a **software** application for orchestrating activity flow within a warehouses or distribution center. The **WCS** coordinates material handling sub-systems such as conveyer belts, carousels, scales and sorters.

[What is Warehouse control system \(WCS\) ? - Definition from ... searchmanufacturingerp.techtarget.com/definition/Warehouse-control-syste...](#)

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What Does WCS REALLY Stand For???

Warehouse Control SYSTEM
(processes, people, software, hardware, etc.)

OR

Warehouse Control SOFTWARE
(a software component of the system that primarily manages real time connectivity to automation, EXECUTES workload release and allocation, proactively monitors and directs work flow based on resource availability/capacity.)



Aspects of a Warehouse Management SYSTEM

Warehouse Management Software

Business Planning

Invoicing

Multiple Facilities

Warehouse Control Software

Equipment Planning

Real-Time Data and Comms

Within 4 Walls

Machine Controllers

PLC's

Proprietary Microcontrollers

Motion Controllers



WMS

A planning system

Inbound PO's & Receiving

Inventory Control (single site)

Inventory Control (multi site)

Order Management

Manual and Directed Pick

Post-Pick / Kitting, etc.

Pack

Ship Planning

Ship Execution

- A Planning Tool
 - Supply Chain Management
 - Supply Chain Inventory
- Determines Distribution Points
- Manages Non-Automated Resources
- Manage Orders and Inventory for Single or Multiple facilities
- Challenges with Real-Time Information

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WCS

An Execution System

- An Execution Tool
 - Controls Automated Equipment
 - Coordinates Movement Between Various Automated systems
- Demand Driven
- Modular
- More Customized to Warehouse Operations
- Real-Time Data and Decision Making

Equipment Communication
& Control

Real-Time Workflow Management

Dynamic Allocation

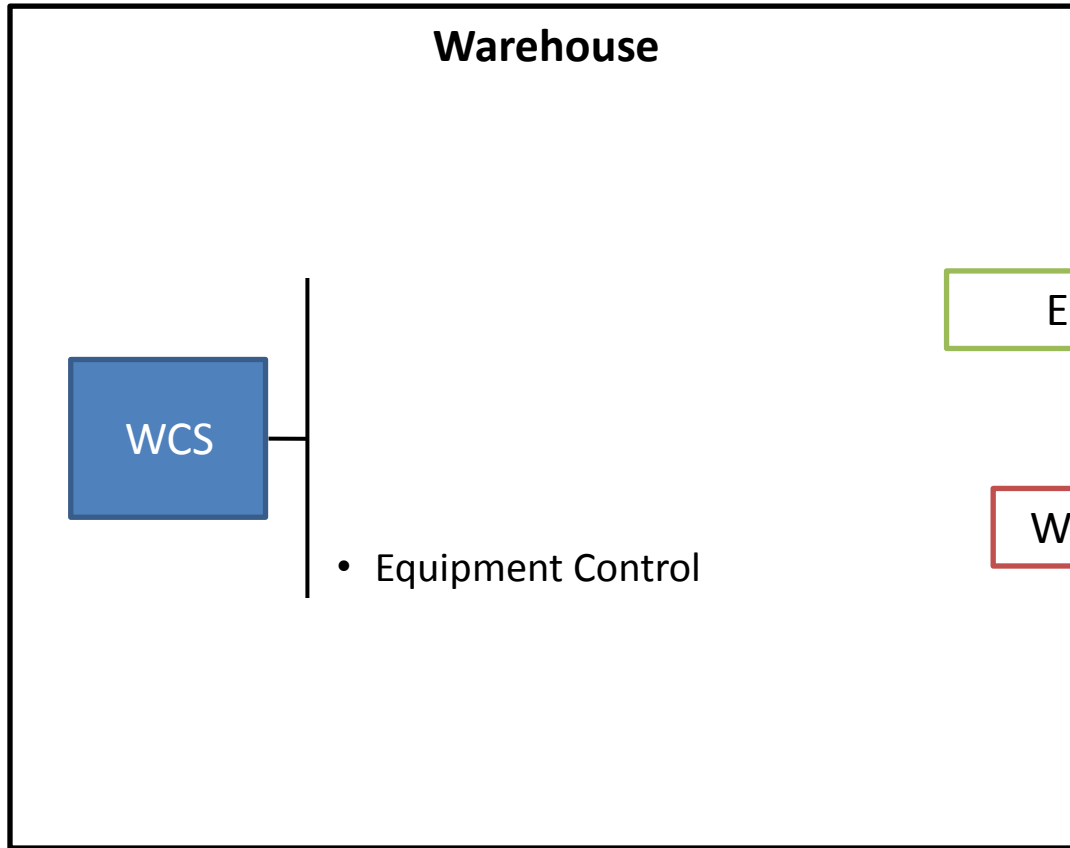
Dynamically Optimize Material
Movement

Real-Time Data Management

Exception Alerts and Response



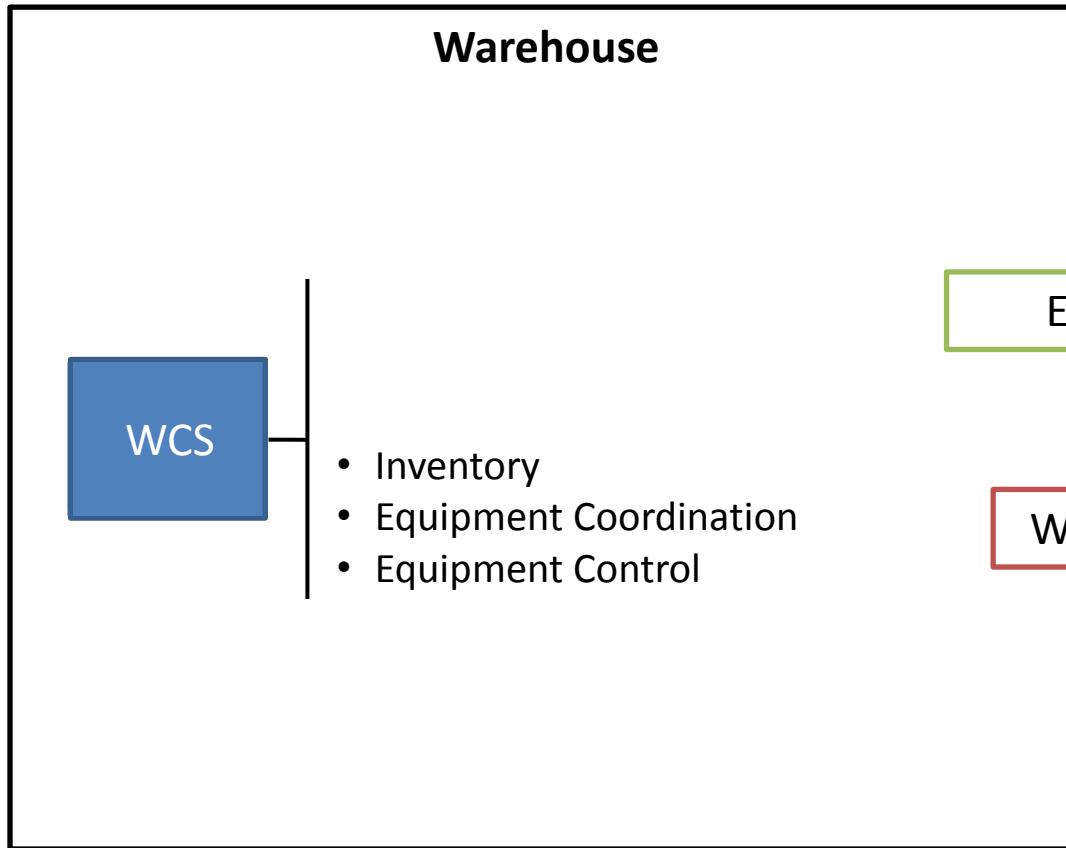
Evolution of WCS



Simple automation brings a WCS



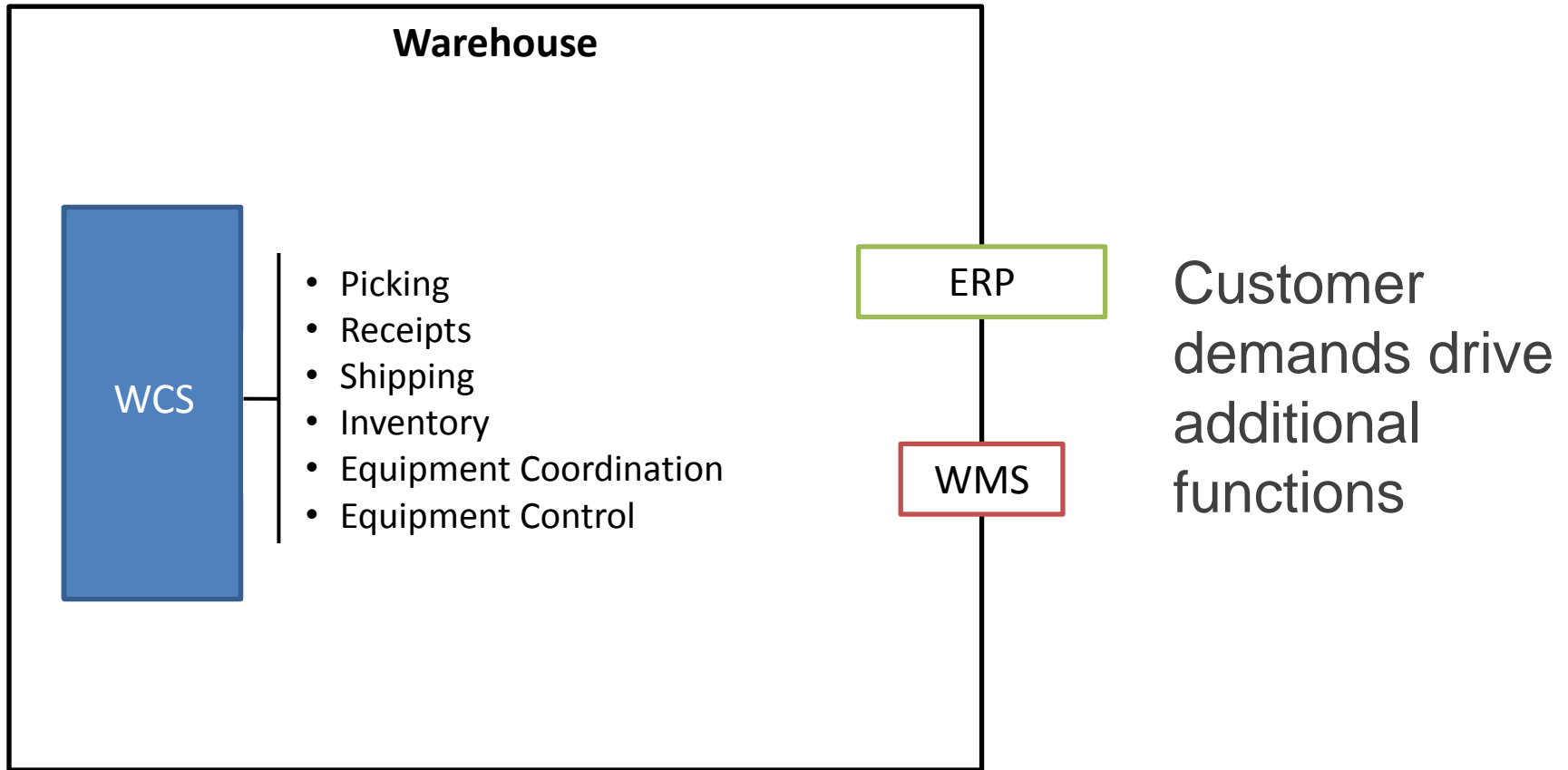
Evolution of WCS



Additional Automation Islands require more real-time material control



Evolution of WCS





Evolution of WCS

- With automation came a WCS and the need to work with a WMS
- As WCS controlled more equipment, more functions were added
 - Inventory within the automation
 - Material flow throughout the warehouse
 - Material receipts and shipping
 - Real time reporting
- As business demands increase, more functions are added to the real-time control of the warehouse

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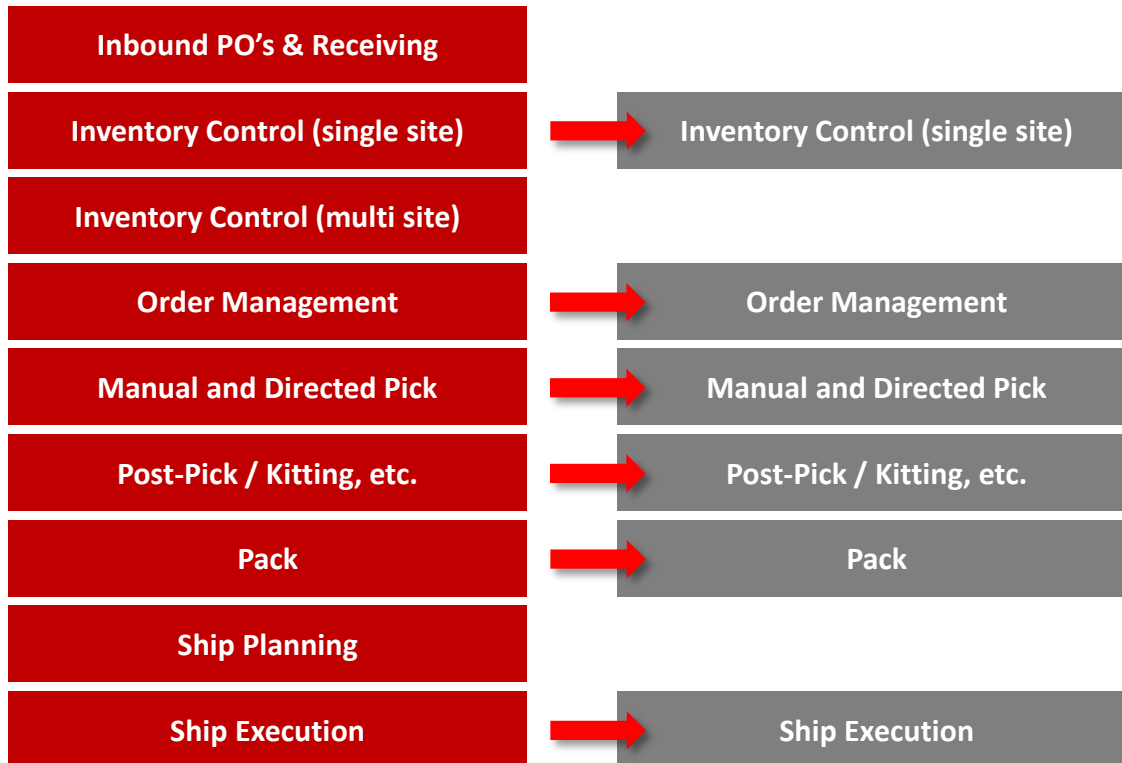
Real-Time Data Management

Exception Alerts and Response



WMS

A planning system



WCS

An Execution System





The Gray Space Functions

Inventory Control (single site)
Order Management
Manual and Directed Pick
Post-Pick / Kitting, etc.
Pack
Ship Execution

- Order Management & Pre-Planning
- Releasing and managing workload to the automation
 - Includes reallocation of work based on availability and capacity
- Managing the efficiency of the automation
- Management of the inventory at the location level within the entire facility (for putaways, replenishments and picking)



What created the Gray Space?

Inventory Control (single site)
Order Management
Manual and Directed Pick
Post-Pick / Kitting, etc.
Pack
Ship Execution

- The evolution of technology capabilities
 - Increase in computing technologies
- Supplier capabilities
 - Standardized software skills
 - Custom software skill set
- Supplier business models
 - Configurable and highly repeatable
 - Tailored solutions

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What is the correct choice?

It Depends...

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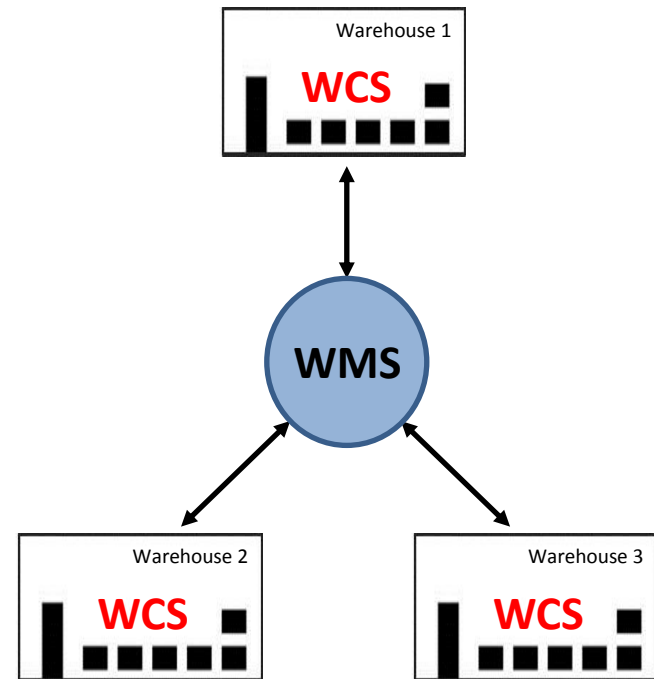
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It Depends on...

- Need for Automation
- Number of Facilities
- Evolving Business Models
- Need for Real-Time...
 - Information
 - Decision Points
 - Workflow Management

First Questions to Evaluate WMS or WCS

- Are the functions to be performed Interlogistics or Intralogistics?
 - **Inter** = *between or among multiple facilities*
 - WMS is likely the most viable solution
 - **Intra** = *within or inside the four walls of the facility*
 - WMS or WCS are both viable solutions





Some WMS Guidance

- If you have multiple sites, a WMS can coordinate between multiple WCS installations
- With a stable order profile and only manual functions, a WMS alone may be enough
 - But those places are becoming more rare



Some WCS Guidance

- If you have automation, a WCS is needed to optimize the equipment
- With automation in a single facility, a WCS with additional functions may be all you need
 - WCS interfaces directly with the ERP/Business system
 - WCS is more easily customized to match the facility

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Value of WCS and WMS Integration

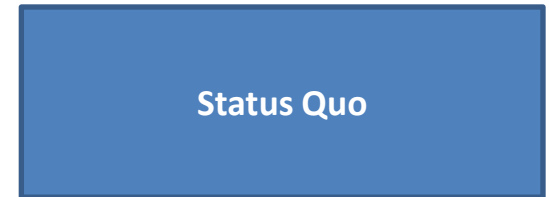
Honeywell

Greg Offutt



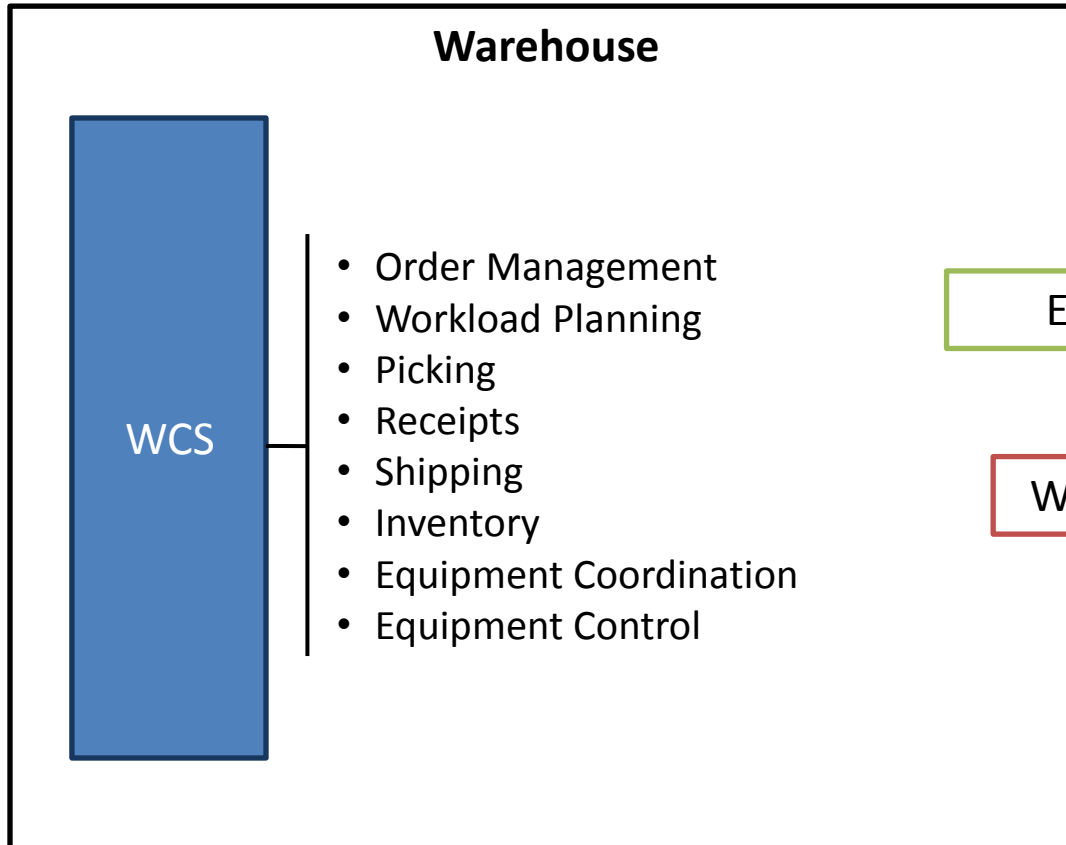
Three main options within the 4 walls

- ERP/WMS Only
 - No automation
- ERP/WMS and WCS
 - Automation
 - Multisite
 - Negotiate the Gray Space
- WCS Only
 - Increasing role of automation
 - Increasing order volatility
 - Gray Space eliminated





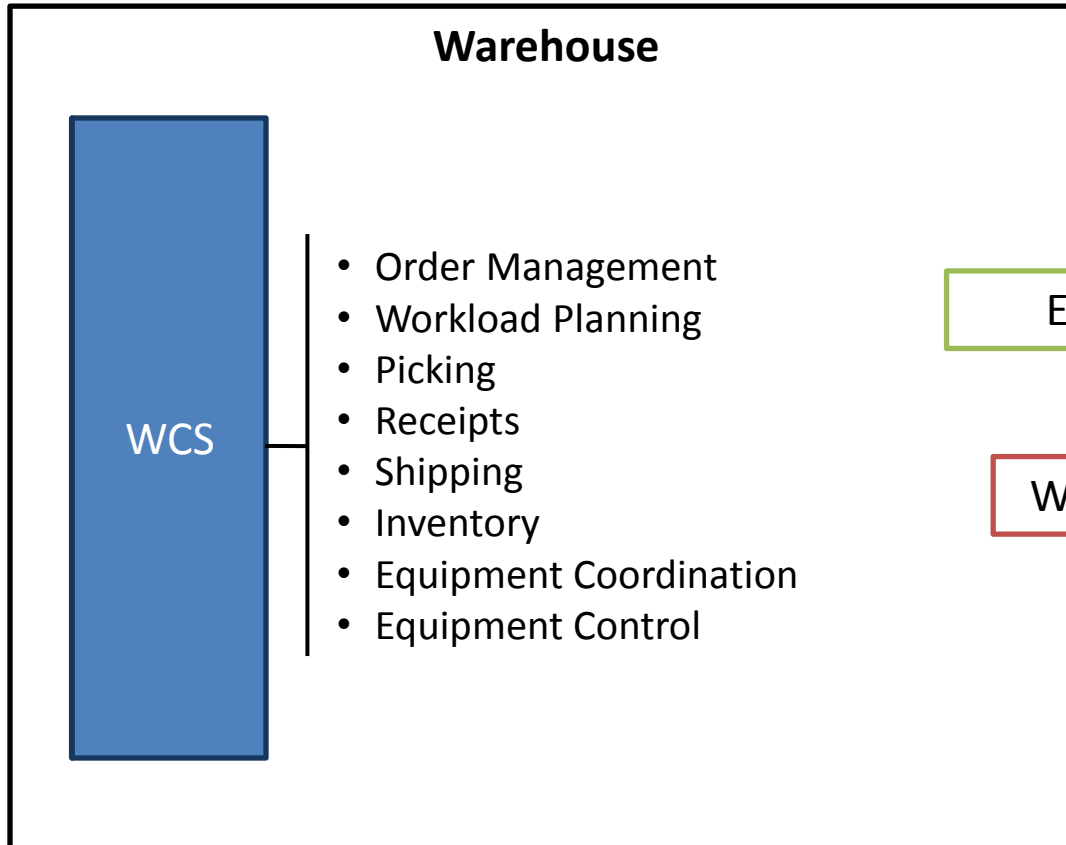
WCS Only



As WCS functions overlap WMS, and can be done more quickly...
what is next?



WCS Only



As WCS functions overlap WMS, and can be done more quickly...
what is next?

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For More Information:

Speaker email: rich@retrotech.com

Website: www.retrotech.com

Speaker email: greg.offutt@honeywell.com

Website: www.honeywell.com

Or visit ProMat 2015 Booth 1041