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Microsoft Business Applications Summit

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Dynamics 365 Supply Chain Management: Best practice recommendations for Warehouse Management implementations

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Agenda

Implementation Guidance

Testing Strategies

Complex Implementations

Business Applications

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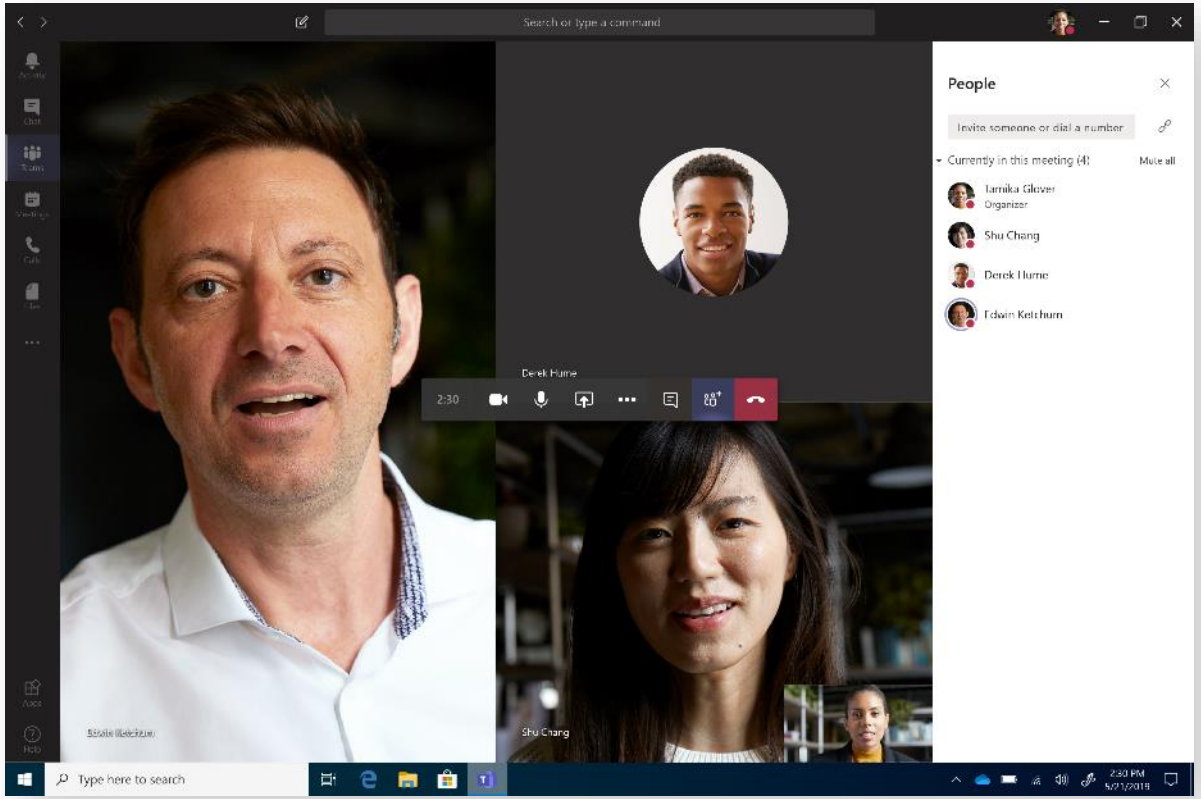

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Microsoft Dynamics 365

Microsoft Power Platform

Online Communities

community.dynamics.com

community.powerplatform.com

User Groups

www.d365ug.com

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Implementation Guidance

Warehouse Implementations

- No different than other ERP implementations
- Must define required business processes
  - Do not just copy existing legacy system
- Document current processes
- Document to-be processes

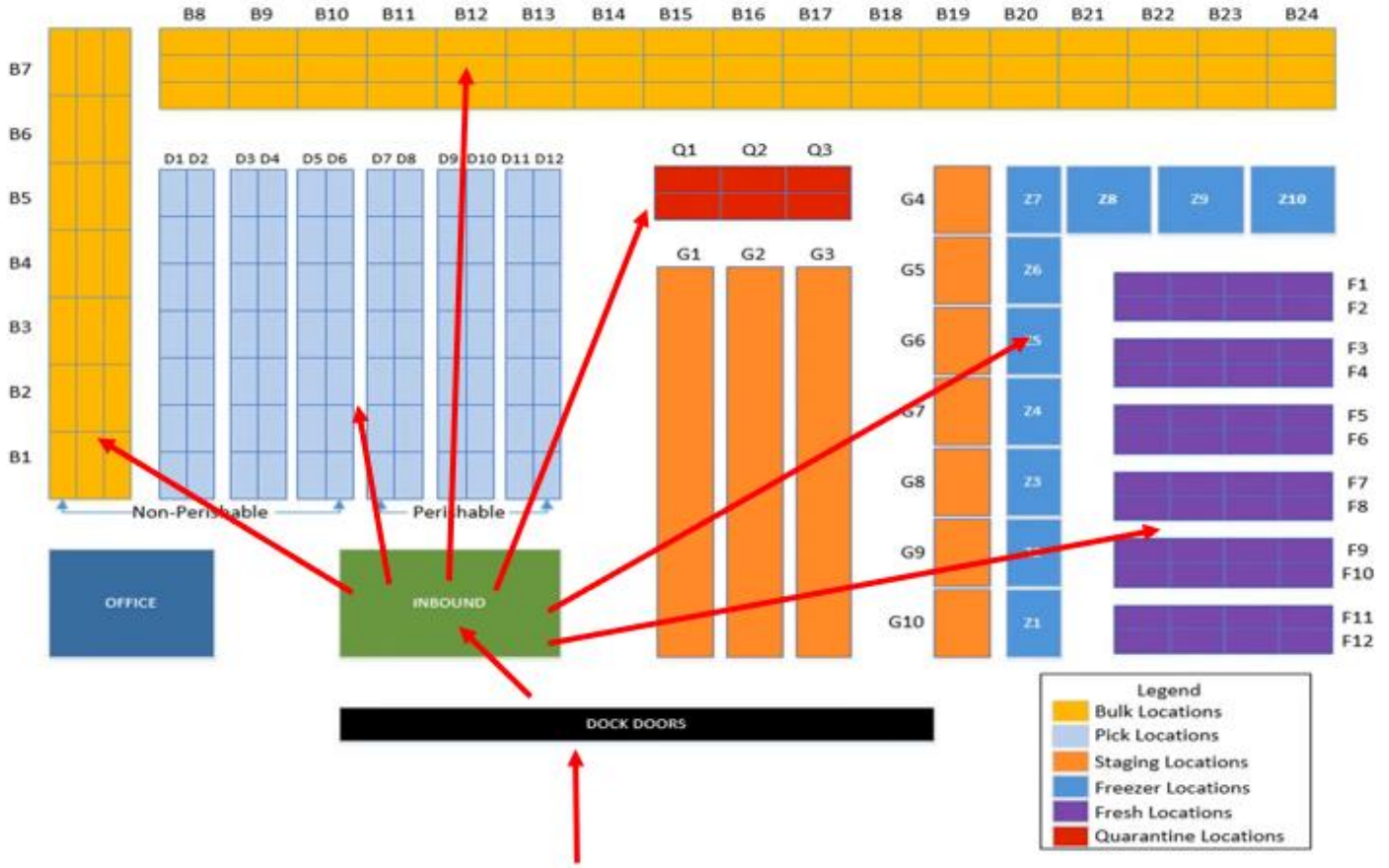
Warehouse Implementations – Physical Space

- Important to understand physical layout
  - Inbound, outbound, QC, returns, claims, etc.
  - Identify major zones
    - Inbound put away
    - Outbound picking
    - Replenishment
    - Packing
    - Temperature-controlled
  - Look at location sizing, item storage strategies and handling units
- Identify hardware used
  - View the aisle configuration, racking equipment
  - Know what picking equipment, material handling / automation is used (and why)
  - Understand the labor and workforce environment - who can operate what equipment

Warehouse Physical Layout

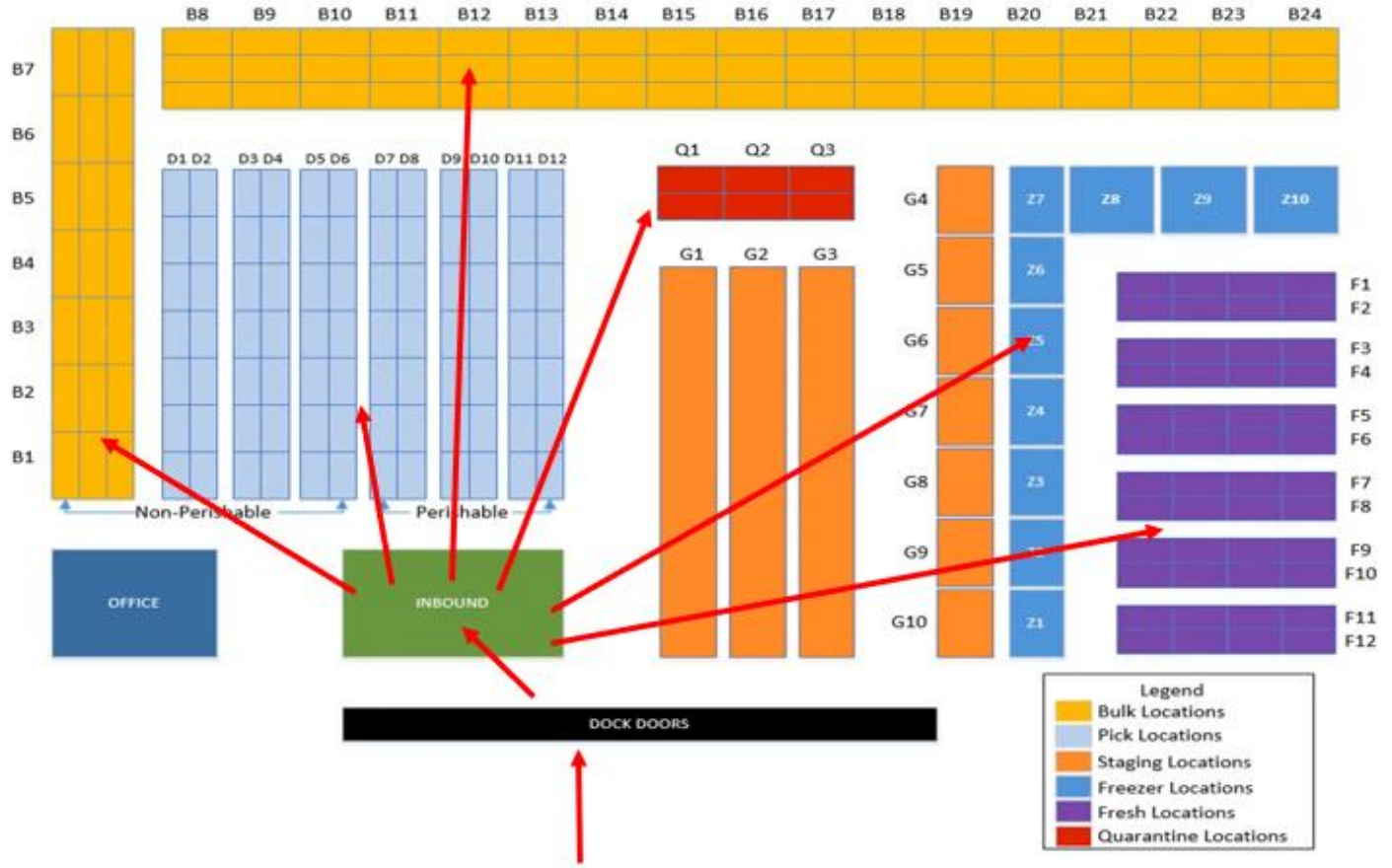
- Map distinct physical zones to location profiles

- Receiving
  - Typically LP controlled
  - Mixing allowed – no system limits
- Bulk
  - Typically non-LP controlled
  - No mixing (items, status, batch)
  - Sometimes requires special equipment
- Pick face
  - Typically LP controlled
  - Mixing – depends on space restrictions
  - Define max qty or volumetrics
  - Typically allow cycle counting
- Staging / Outbound Dock
  - Typically LP controlled
  - Mixing allowed
  - Typically no max qty defined
  - Dock Management Profile – exclude order / load mixing



Zoning

- Defining Zone/Zone Groups
- More flexible than Location Profiles
  - Can cross types
- Useful for reporting / location directives



Warehouse Implementations – Material Handling

- Important to identify material handling requirements
  - Typical picking quantities vs size of picking locations
  - Replenishment strategies
  - Short picking strategies
- How are labels used
  - GS-128 requirements?
  - Printing requirements?
- How are new items defined?

Warehouse Implementations – Investigation

- Important to fully understand processes
- Some sample leading questions:
  - How many order lines are processed in normal vs peak day?
  - How large are picking routes, how many items will a typical worker pick per order?
  - Do you have more products than locations in your warehouse?
  - How many items can location store, are there any limits there?
  - Do you have A/B/C classifications on your products?
  - How full will locations typically be before you consolidate?
  - What is the historical picking performance?
  - Are our warehouse workers experienced?
  - How many pallets/shipments do you receive in average per dock?
  - Can you perform all outbound picking for a day without replenishment? If not, how often does replenishment need to execute in a day?
  - What special equipment is required in the warehouse and are there restrictions on who can operate it?
  - Do you assign warehouse workers to across different working stations and tasks or do they work with same area each day?
  - How long do we expect each steps in the inbound and outbound workflow to take?
  - Will there be a 3PL integration?

WMS Best Practices - Usability

Minimize the number of different warehouses at a physical site.

Minimize the number of mobile device menu items.

WMS Best Practices – Wave Processing

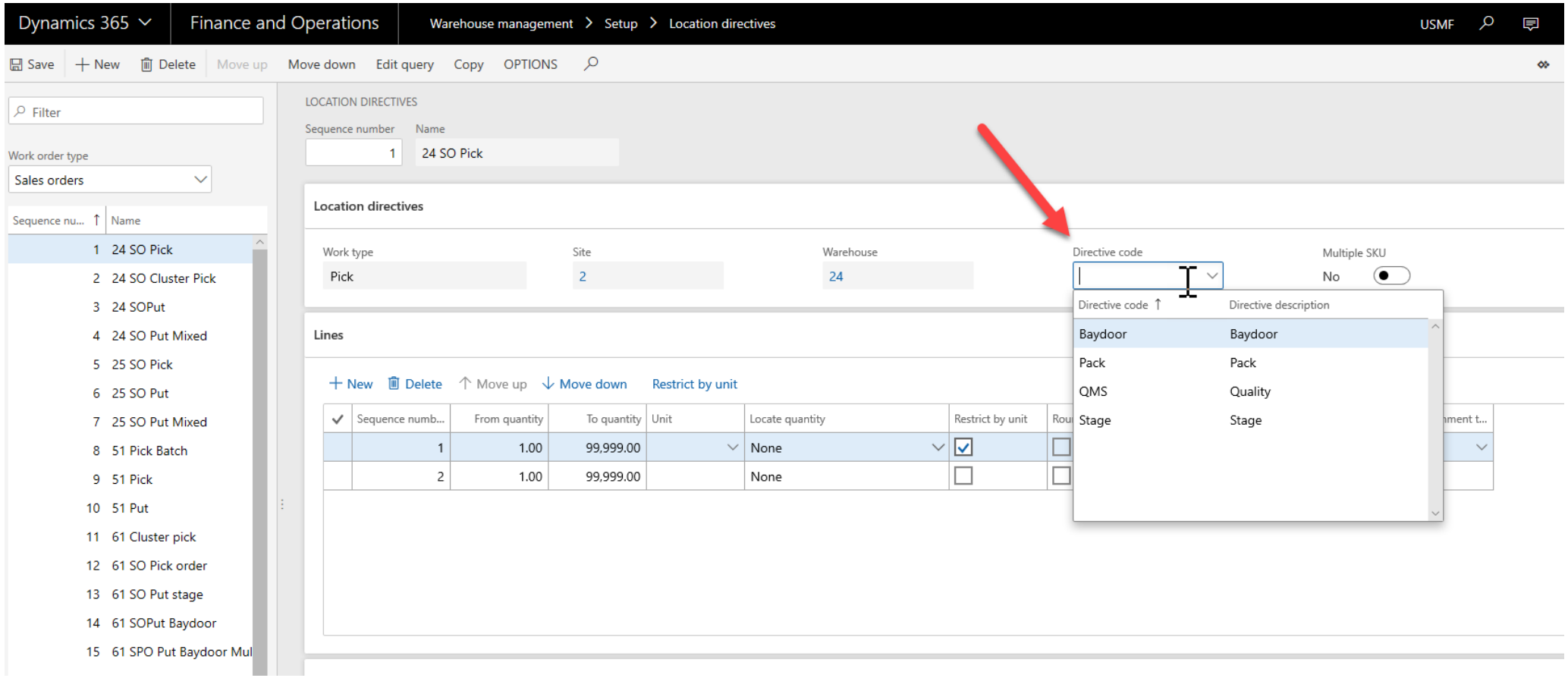
Utilize Min/Max Replenishment in conjunction with demand replenishment to improve wave processing time.

Utilize multiple wave processing tasks to improve wave processing performance.

https://learning.eventbuilder.com/event/9262

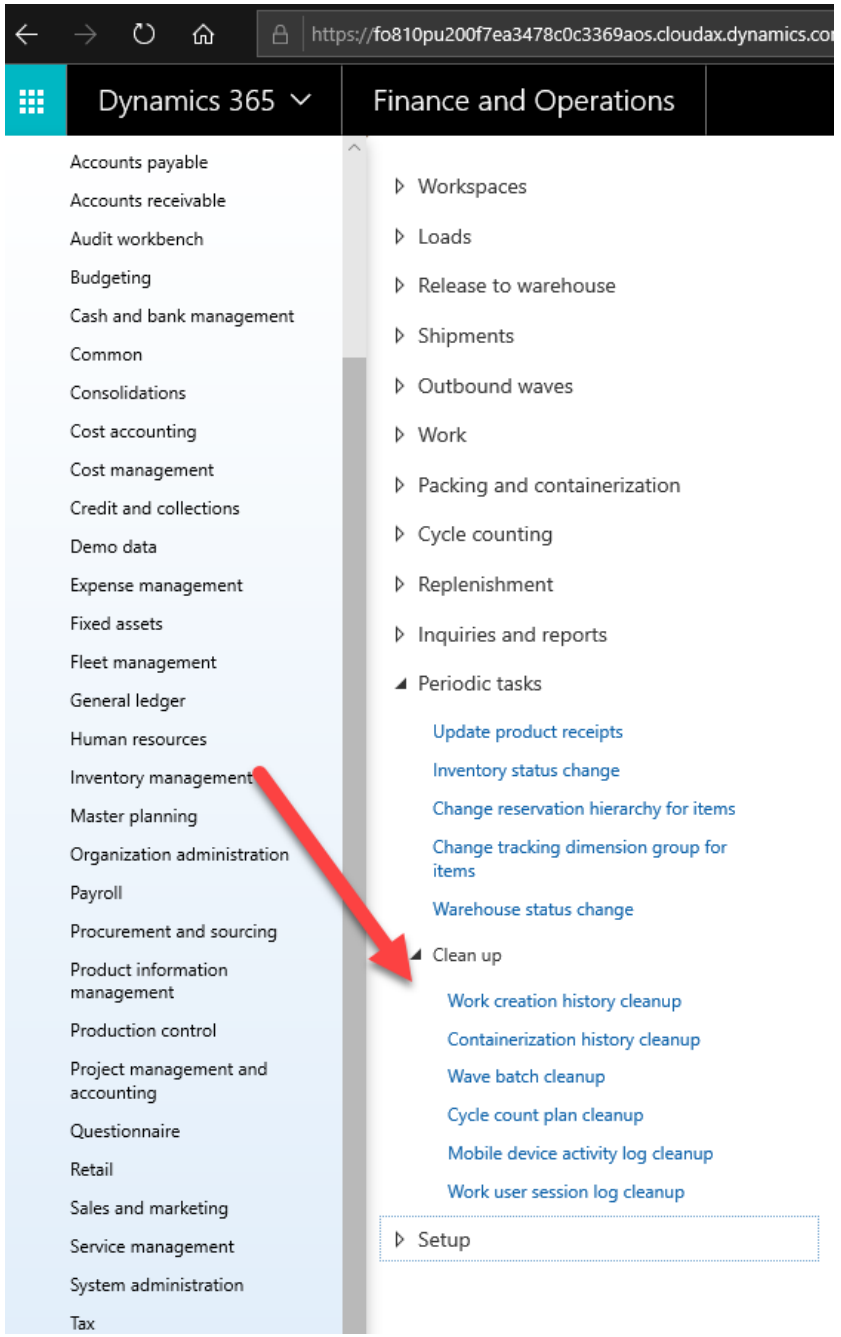
WMS Best Practices – Location Directives

- Utilize Directive Codes to limit the query selection



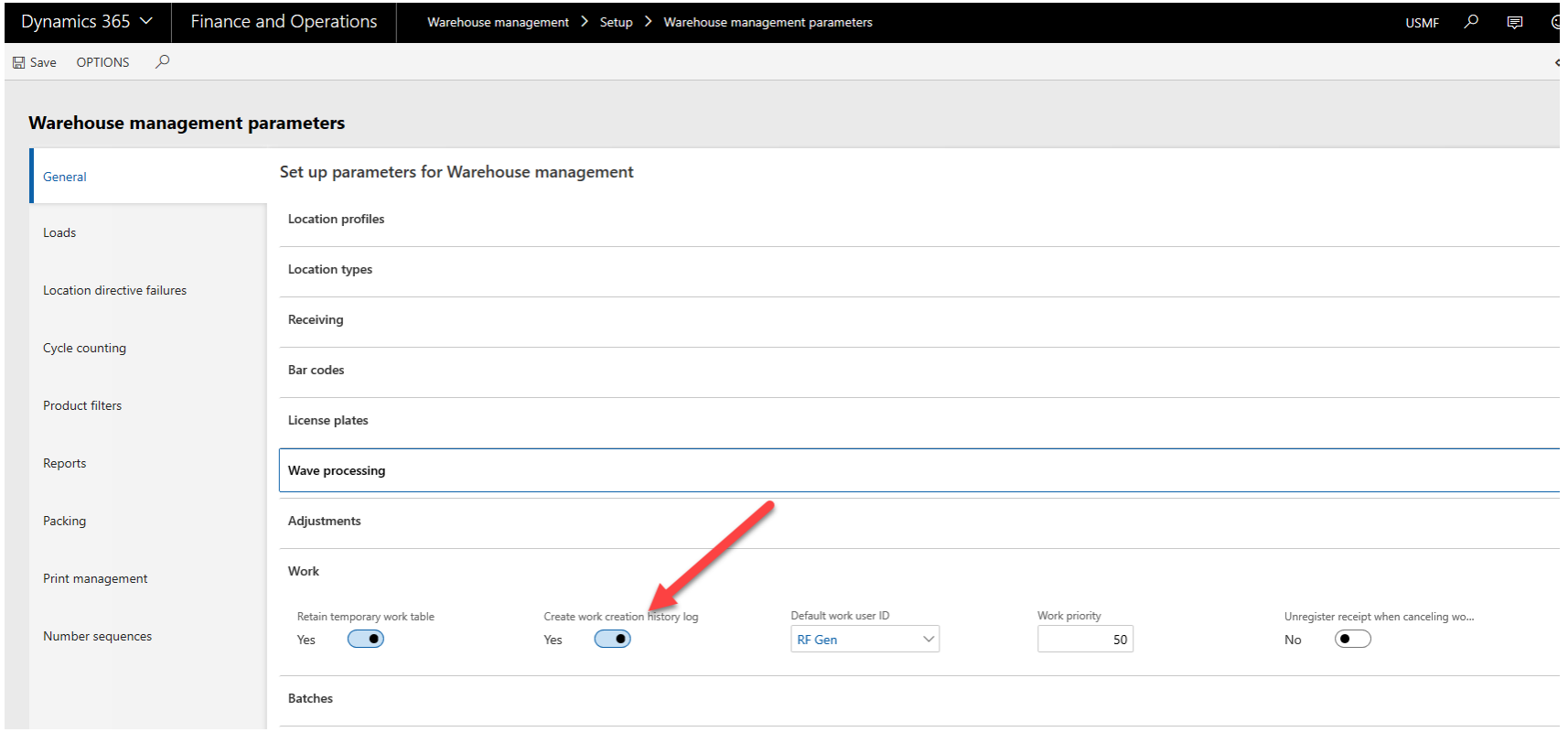
WMS Best Practices - Performance

- Configure the clean-up jobs in the PRODUCTION environment to improve system performance.
  - https://aka.ms/WHSCleanup



WMS Best Practices – Performance

- **Don’t** leave the work creation history logs enabled in the production environment. These should only be used for testing/tracking configuration changes. Once work is being created as expected, disable these parameters.



WMS Best Practices – Latest news and how-to guides

- **Do** join the Dynamics AX WHS TMS feedback community on Yammer!

https://www.yammer.com/dynamicsaxfeedbackprograms/

Testing Strategies

Different Types of Testing

Unit Testing

Process Testing

System/Integration Testing

Performance/Load Testing

Mock Go-Live

Regression Testing

Unit Testing

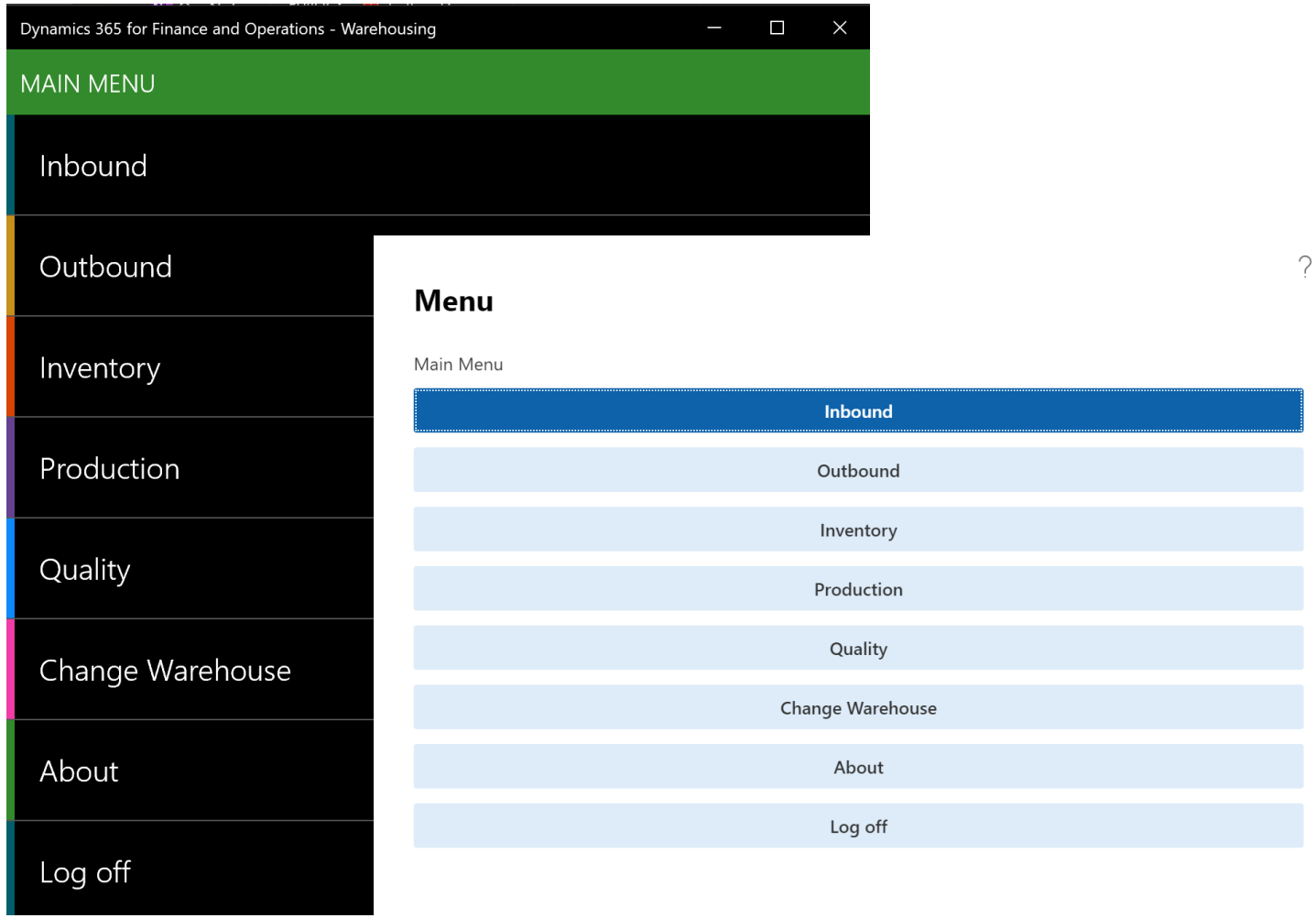
Lowest level – typically developer or consultant

Testing single workflow or functionality

Important to consider edge cases and unexpected input

Emulator vs. Warehouse Mobile App

- Test on the warehouse mobile app whenever possible vs. using the built-in emulator.
  - There are differences between them
  - Don’t do all your testing on the emulator, then go-live with the mobile app!



Process Testing

Testing an end-to-end process

Must be done in T2+ environment

Utilize real data

System / Integration Testing

Complete system test – not just warehouse

Must involve users from customer

Scenarios should be documented in and tracked in ADO

Performance / Load Testing

Goal is to simulate go-live usage

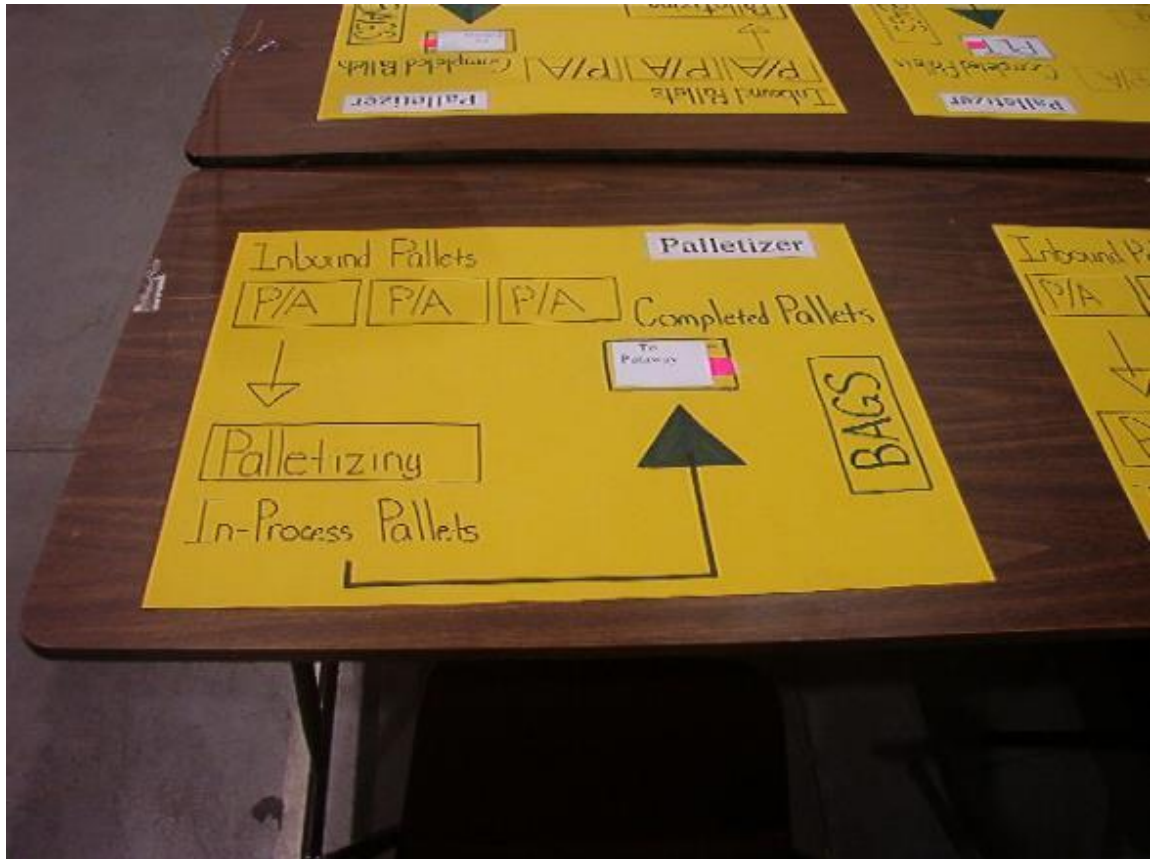
Might involve tooling automation and/or realistic load

Carefully analyze system and database performance

Performance test considerations

- Identify scenarios
- Determine the roles
- Document the expected transaction load and rate
- Generate data to facilitate load testing
  - Data management framework
  - Data expansion tool
- Execute tests at load

Design a “real” performance test



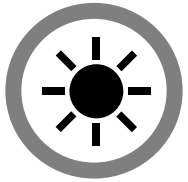
Stations for each role

Design a “real” performance test

Actual Stress Test

8:50	If everything looks like it is a “Go”, Steve will contact Sue and tell her to tell corporate to download order set #R85 which is used to generate the 136 Replens during this scenario. **(Sue)**
8:58	Record the sequence # of the last replen task created using the script provided by Julie for doing this. **(Sue)**
8:58	HQ downloads rush order set #R85
9:00	**GO!** Steve will announce over the radio that Inbound 1 Trial A has started. The participants should begin performing their jobs. Alternates should observe the roles they may have to play should they be needed in the next Trial. **(Steve)**
9:00	HQ downloads Order Set N1 containing 30 minutes of regular orders **(HQ)**
9:01	HQ will download the POs associated with PO Set #P1 **(HQ)**
9:02	Sue will kick off ReplenNeed to create Replens from the RPC01B file.

Execute Mock Go Live



Configuration Deployment

Data Migration / Upgrade

Certification Testing

Day in the Life Test

Final Performance Validation

Regression Testing

Reduce manual testing efforts

Regression Suite Automation Tool (RSAT)

Warehouse App Task Validation Tool for Warehouse regression testing

https://aka.ms/ValidationTechTalk

Complex Implementations

Reduce Risk – Limit Scope

Pilot warehouse

Subset of business processes

Time of year

Focus on the business not the software

Do not replicate legacy functionality

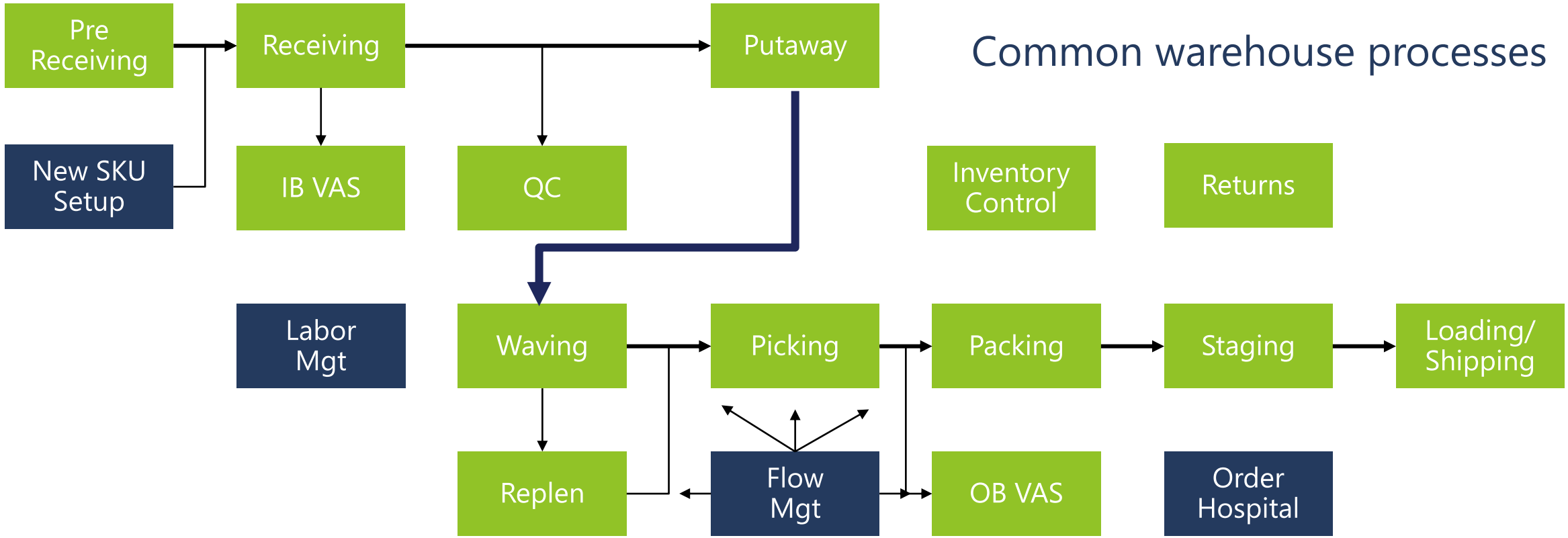
Build modern solutions

Be ready to adapt to changing requirements

Exception management

- Common missed area
- Make sure you have documented and tested:
  - Short picking
  - Cancel picking
  - “Stuck” work
  - Move and consolidate loads and shipments
- Build standard processes for when an order has issues.
  - Order hospital concept

Large warehouses need these 4 processes



4 key processes missing in warehouse implementations

New SKU Setup	The process of defining the attributes of a new SKU including its forward pick location and linking it to the rules that will drive its putaway, allocation
Flow Management	This is the process of releasing work and moving people to maximize the throughput of the site and to meet service level promises.
Labor Management	This is the process of first planning the number of associates you need in each area each day or week and then holding them accountable to minimum levels of performance
Order Hospital	This is the area and the process for repairing outbound orders that are short good merchandise

New SKU Setup

Capture physical dimensions

Quality control

Product attributes

Unit of measures and carton sizes

Flow Management

Demand across different areas of the warehouse

Incoming loads and shipments

Outgoing flow

Reporting and tools

Labor Management

PRODUCTIVITY REPORTS

WHAT IS EXPECTED
NUMBER OF PICKS/HOUR

BUILD MODELS BASED
ON EXPECTED VOLUME

What does an Order Hospital do?

- Holds orders that are deemed incomplete by picking
- Verifies the product is not in the pick face
- Requests “hot” replenishments if necessary
- Tracks those replenishments until they are in the pick face
- Picks the order complete once the product is there or shorts the order.
- In short – it dedicates resources to fixing problems

Review

Implementation Guidance

Testing Strategies

Complex Implementations

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