



# Warehouse Execution System

Warehouse management built for the future

Evolve how you run the warehouse with cognitive capabilities for complex dynamic warehouse operations with endless adaptability and continuous improvement

## Business challenge

Warehouse needs are changing.

Shifting consumer demands and the need to support omni-channel fulfillment are shrinking order sizes and adding pressure to deliver in shorter time frames.

Workforce dynamics are evolving. Higher employee turnover is increasing costs to hire and train staff. Traditional solutions need additional capabilities to support the changing customer demands for delivery, to account for labor issues, to address increasing order volumes, and adapt to unexpected changes during daily operations.

The changing technology landscape is driving higher adoption of autonomous mobile robots (AMRs) and other new automation.

Warehouse operations need technologies to manage a variety of tasks and orchestrate the combination of humans and robots more efficiently towards a common warehouse goal.

## Warehouse Execution System capability

The Warehouse Execution System (WES) is embedded within the Warehouse Management Solution (WMS) unlocking opportunities for greater efficiency, performance and cost reductions across the warehouse.



## Metrics

- Reduced administration costs by **20%**
- Reduced new robot vendor onboarding by **50%**
- Increase units per hour (UPH) by up to **12%**
- Improve pallet pick operations by **6%**

The WES extends and enhances the warehouse management solution by coordinating work across humans, dynamic robots and static automation to assign the right resource, the right work at the right time. This decreases steps, smooths operational capacity and drives excellence in operations.



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## Capability offerings

### Autonomous orchestration

- Warehouse task interleaving enables the most efficient task assignments for all work, with integrated voice or RF-directed interleaving of tasks.
- Tasks are assigned to either robot or human resources and interleaved based on proximity, priority, and permissions to maximize efficiency and service

### Balance priority and proximity

- During dynamic task assignment, establish a balance between the importance of priority versus the proximity of the next task
- Ensure high-priority demands are met during high-volume days, and proximity efficiencies are exploited during typical operations

### Streamlined automation onboarding

- Standardized and public APIs provide flexibility and accelerate onboarding of one or multiple robotic vendors through a completely vendor agnostic solution.
- Provides a one stop shop, which showcases multiple value metrics and provides advanced troubleshooting features to expedite issue resolution across multiple robotics vendors.

### Advanced visibility

- Gives site managers visibility into performance, throughput and bottlenecks along with future needs based on the resource schedule

### Actionable analytics

- Analytical tools define the right parameters for maximum efficiency, so you can employ the right number of workers based on demand

### Agile task assignments

- Tasks are assigned based on the parameters you define, while the engine tracks task-related shift lengths and times the position of labor resources in near real time.

### Flexible allocation

- Using warehouse taskings allocation capabilities, you can reduce travel time and pick items in the most effective way as new assignments come, even in ever-changing conditions.

### Cost state engine and dynamic tour assignment

- Sophisticated method to intelligently plan, replan and dynamically allocate human and equipment resources to the most optimal tasks based on configurable inputs, which ensures the correct work is executed efficiently based on each customer's unique priorities.

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## Key benefits

### Operational efficiency

- Reduce administrative overhead by reducing manual task manipulation and enabling focus on value-added activities.
- Increase efficiency through improved orchestration of warehouse tasks.
- Increase throughput by improving dock utilization and prioritizing nearly completed shipments (in and out).
- Enable upstream decision optimization by leveraging a probabilistic demand forecast.

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## One solution for the entire warehouse

### Priority tie break

- Appointment trailer will be given higher priority than a drop load with all other conditions being equal

### Rolling the dock

- Prioritizes picking tasks for the least effort to complete load (outbound) and to empty a staging lane (inbound)

### Ship to address priority

- Tasks associated with international shipments are prioritized differently from domestic shipments to help ensure customer SLAs are met

### Multi-layer visibility

- Offers high-level operational views down to the individual task as well as lagging and leading views

### Vendor agnostic robotics hub

- Service enables onboarding of multiple robotics vendors in a warehouse

### Vendor agnostic robotics hub

- Reporting across robotics and manual operations

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## One solution for the entire warehouse

Warehouse Execution Systems is just one of the many cognitive capabilities included with Warehouse Management.

Our next generation warehouse management solution builds on 25 years of proven, robust capabilities with paradigm shifting innovation to better predict, plan, adapt, and unify warehouse operations.

**To learn more about building the  
warehouse for the future**

Contact your Solution Rep or visit [blueyonder.com](https://blueyonder.com)