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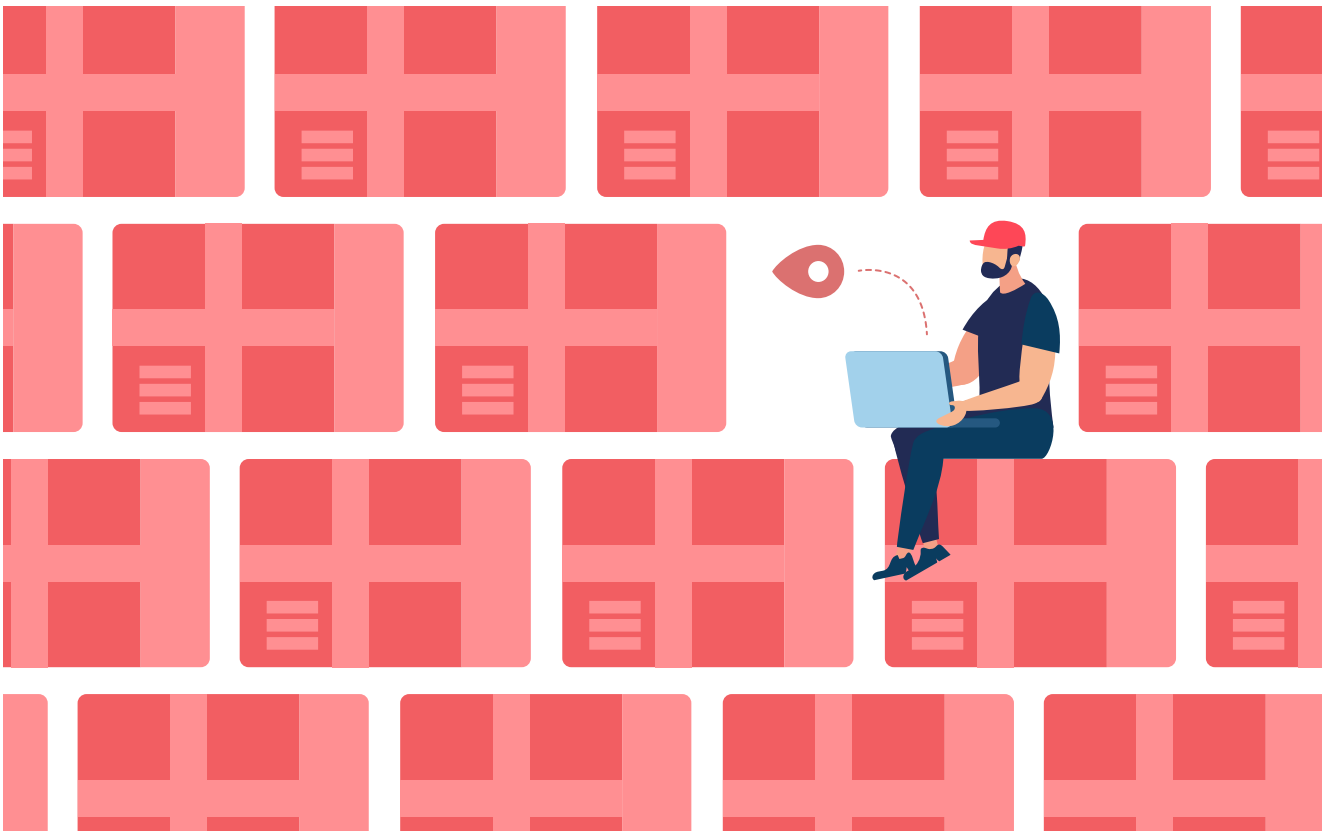


WAREHOUSE PRODUCTIVITY IMPROVEMENTS

IN THIS DOCUMENT

ECOM CHALLENGES

Modern fulfillment centers (FCs) are increasingly focused on e-commerce. They handle large numbers of small orders from customers and business partners. This requires appropriate process modelling and use of effective software solutions, IT infrastructure, labor, and material handling systems.

Three of the key problems faced by today's fulfillment centers are:

- Picking productivity issues.
- Lack of wave planning tools to optimize the utilization of labor and equipment.
- Lack of workload balancing on the warehouse floor.

In a typical large FC, hundreds of thousands of orders are fulfilled daily. Most of the facilities use one or other form of batch picking process and even then, pick paths are excessively long, resulting in low productivity. Most of the facilities do not have an intelligent work planning solution to enable density picking in a way that optimizes the work at a wave level maximizing the units the pickers can pick for each location visit.

Batch picking, when done correctly, optimizes efficiency and allows pickers more defined routes throughout the warehouse, without the need to trace back and forth through the aisles to pick items later. Facilities also lack an intelligent wave planning tool which enable intelligent order selection for planning the work by selecting specific distribution of Orders type, priority, or product type in terms of units or percentages. This leads to lot of inflexibility in how orders are selected by wave process.

For Example – Wave planners today cannot plan a wave such that only 10% of capacity of wave is used for a specific selling channel every time the wave is submitted. This leads creation of multiple wave templates and Orders selection rules using permutations and combinations of order attributes resulting in inefficiencies.

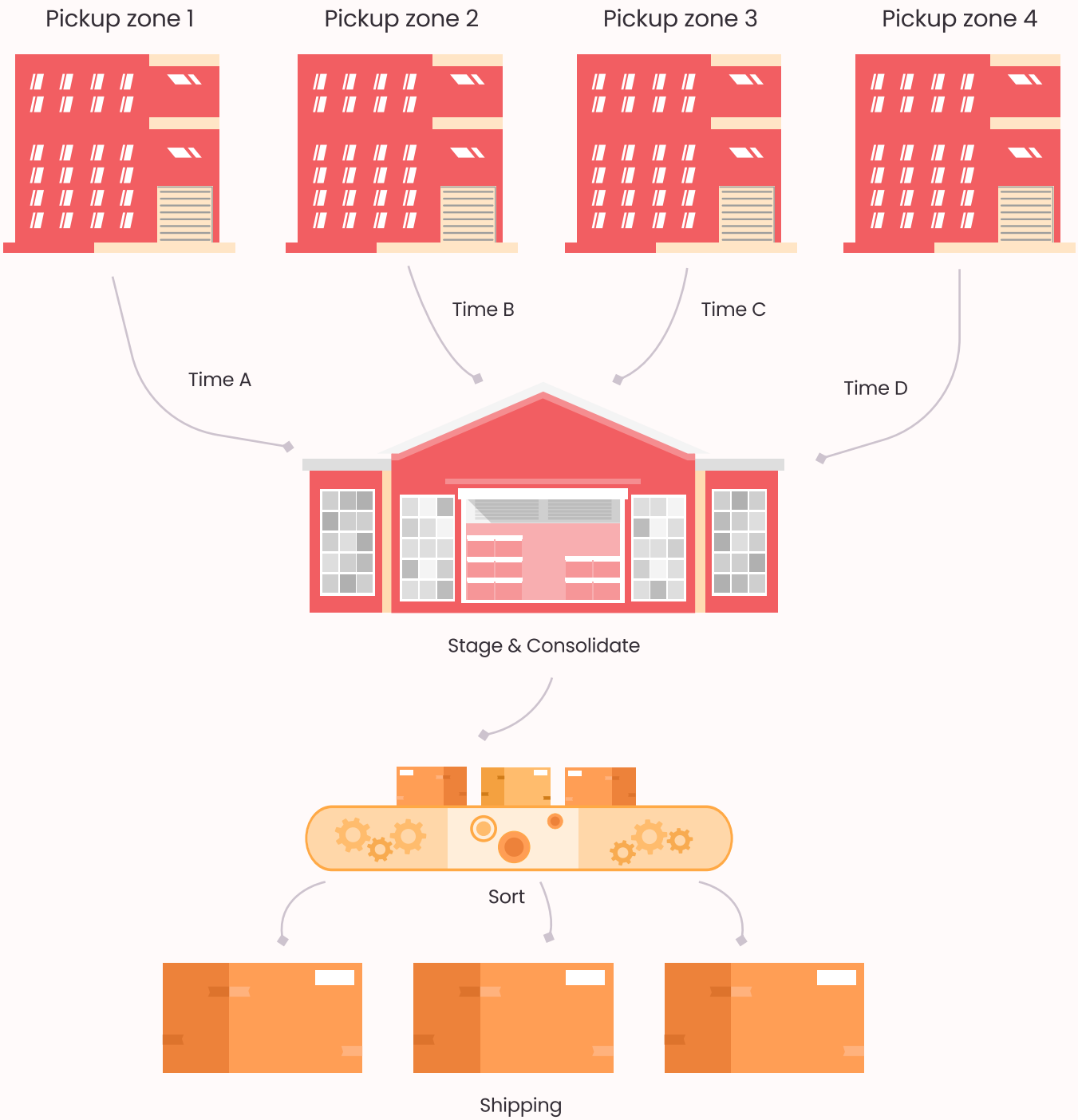
Most facilities plan the placement of the pickers based on the forecasting they receive from Order fulfillment systems. The facility's throughput is good if pickers spend little or no time in non-productive movement. It is also known that to reduce non-productive movement and to increase the throughput of the warehouse there should be a constant stream of work for all the pickers in their assigned zones. If work assignment to pickers is not effectively managed, the warehouse will experience pockets of inefficiencies owing to the non-availability of work. This will also lead to increase in the dwell time of sorting equipment used in the packing process.

Since most facilities use batch picking, appropriate sorting of the picked inventory into specific customer orders is a necessity. Different storage zones have different picking rates, and this creates an uneven length of time to complete the pick tasks for a wave, often resulting in Sorters/putwalls waiting for picked totes to induct/pack orders.

A typical workflow flow of the wave-based fulfillment with the time constraint will look like:

Facilities try to address this problem by creating smaller wave/sortation batches, but this might reduce picking productivity. This is further amplified by the fact that the number of attributes in the orders ranging from priority, marketplace, selling channel, value added processing requirement, type of product mix in the order restrict the way in which the batches can be created and released to the floor.

Moreover, the wave panning and Order selection feature in most WMSs is rule based and does not provide an effective way to choose work stream which balances the picking workload and improves the utilization of downstream systems which fall on the critical path of the warehouse productivity.



COMPANY

As a team, we have the required expertise – both functionally and technically to build a waveless picking system.

As a company we are focused on creating value for customers through building Optimizations, we help customers uncover opportunities within the four-walls of their operations. These opportunities for optimization specifically focus on increasing productivity and reducing cost of processing ecommerce orders.

Some sample opportunities may include:

- Optimizing picking using science-based optimization techniques to increase picking throughput and reducing costs.
- Optimizing warehouse space utilization and reducing storage requirements.
- Building predictive models to forecast labor requirements for handling inbound and outbound workloads.
- Creating graphical workload balancing dashboards which provide actionable insights on redistribution of workers on the warehouse floor.

TEAM

- Our core team of Supply Chain & Retail experts bring in over 100 years of relevant experience.
- Our experiences in retail and supply chain product strategy, technology and operations have helped Organizations succeed in their omni-channel and digital transformation journeys.

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