

SOLVE FOR X.

Order Streaming: A New Take on Fulfillment

Presented by:

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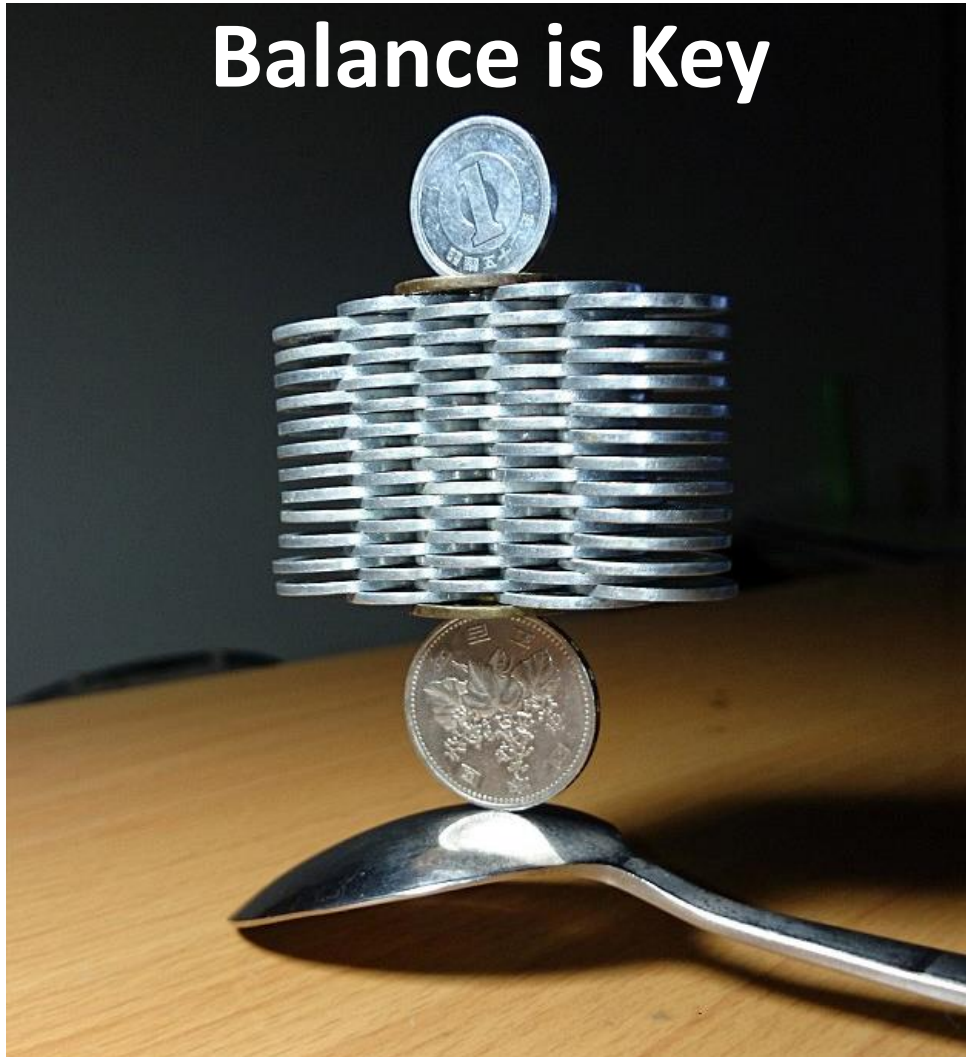


Question of the Day:

How can you maximize the return on your investments in a highly automated direct to consumer DC?

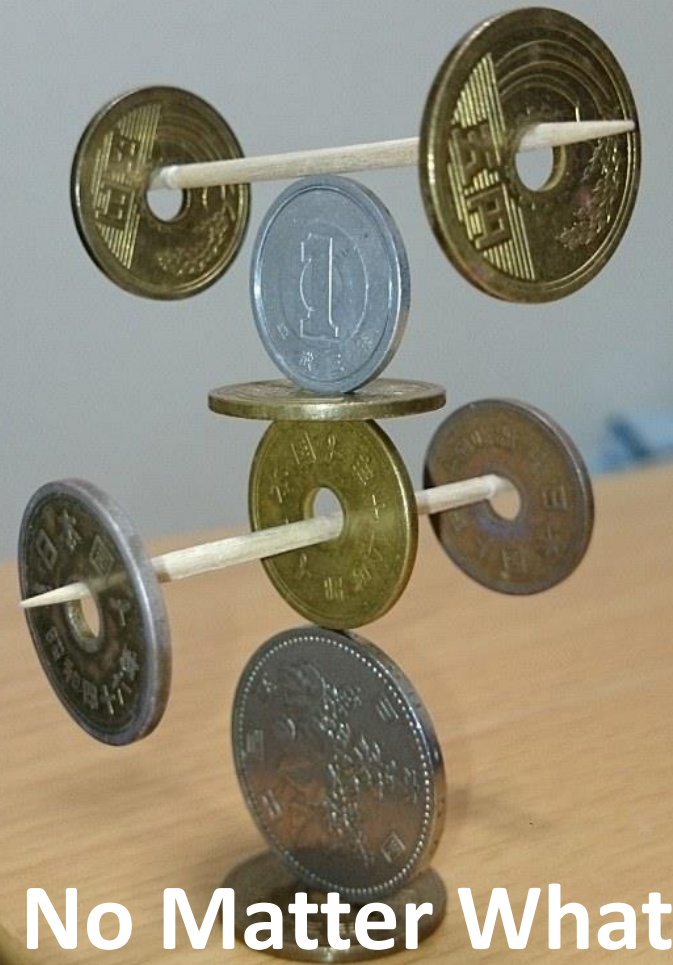
SOLVE FOR X.

Balance is Key



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Balance is Key



No Matter What

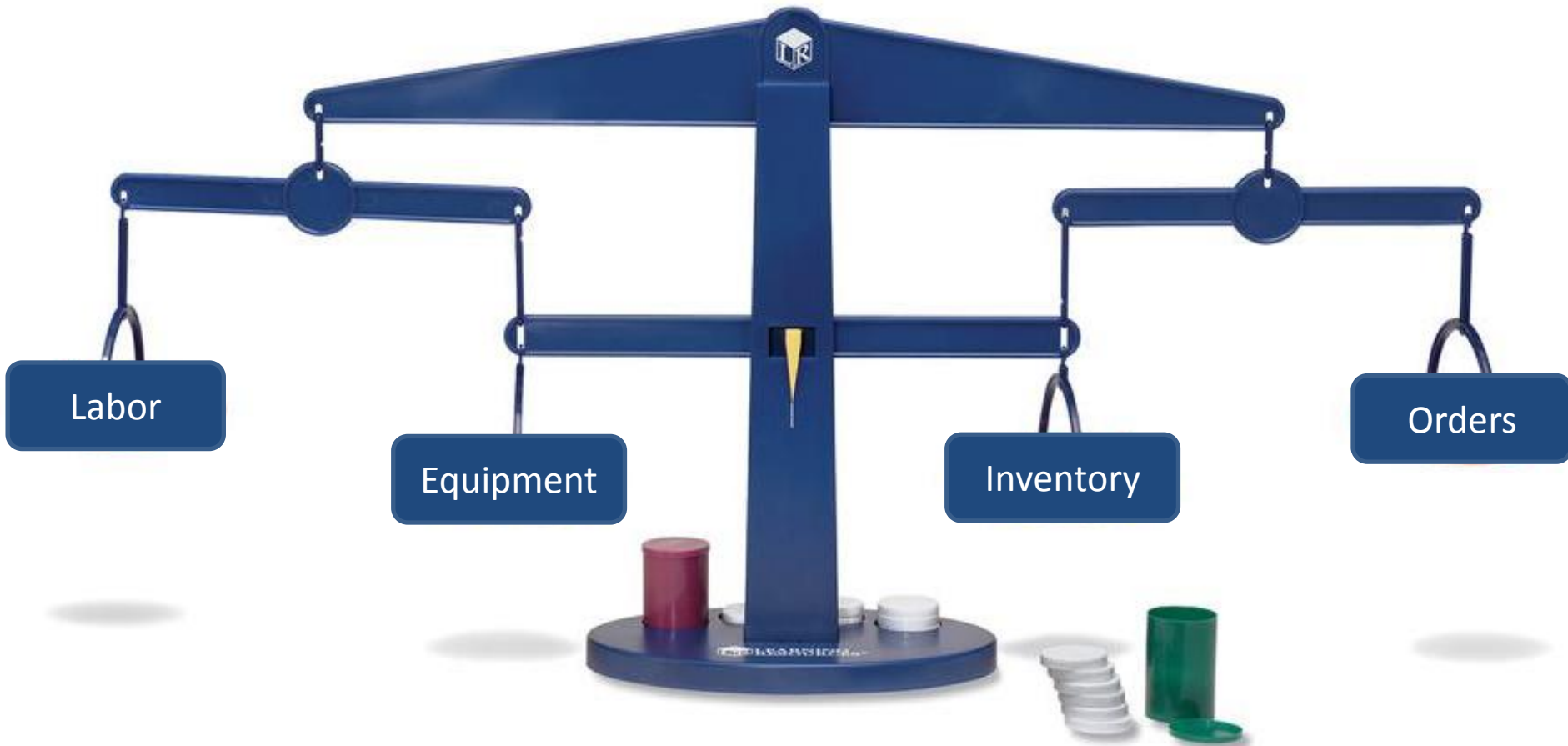


MHI.

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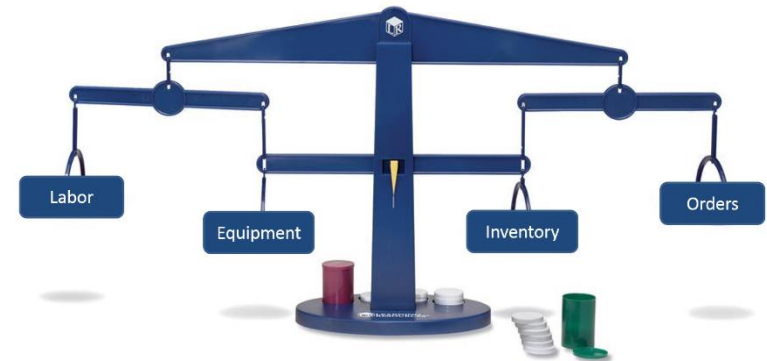
Fulfillment requires balance



Fulfillment requires balance

- Management, balance, and optimization of the primary “Natural Resources” in the DC
- Plus vital functionality to support important DC operations
- Highly automated DC Recipe for Success:

ERP + WMS + WCS



What if the resources aren't balanced?

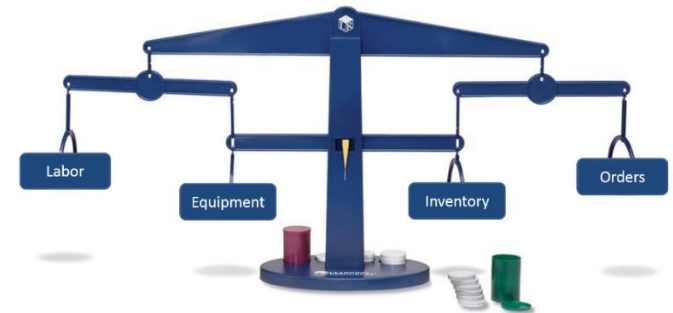
- Orders vs Inventory
 - Higher order cycle times due to inventory shortages
 - OR
 - Higher inventory carry costs
- Labor vs Equipment
 - \$\$\$
 - OR
 - \$\$\$
- Getting each of those right by themselves doesn't guarantee an optimal result!!!
- Execution is key!



The right systems are key

- Which entity is best positioned to provide balance across all 4 critical natural resources?
- The answer lies in the system that has the best line of sight
 - Labor – **WMS**
 - Equipment – WCS
 - Inventory – **WMS**
 - Orders – **WMS** and ERP
- Highly automated DC Recipe for Success:

ERP + WMS + WCS



eCom fulfillment presents 7 unique challenges

- Use of expensive equipment - need to maximize throughput
- Peaks and valleys in labor utilization
- Ebb and flow of amount of orders
- Changing order priorities
- Constant influx of orders
- Smaller order sizes
- More rapid order fulfillment cycle

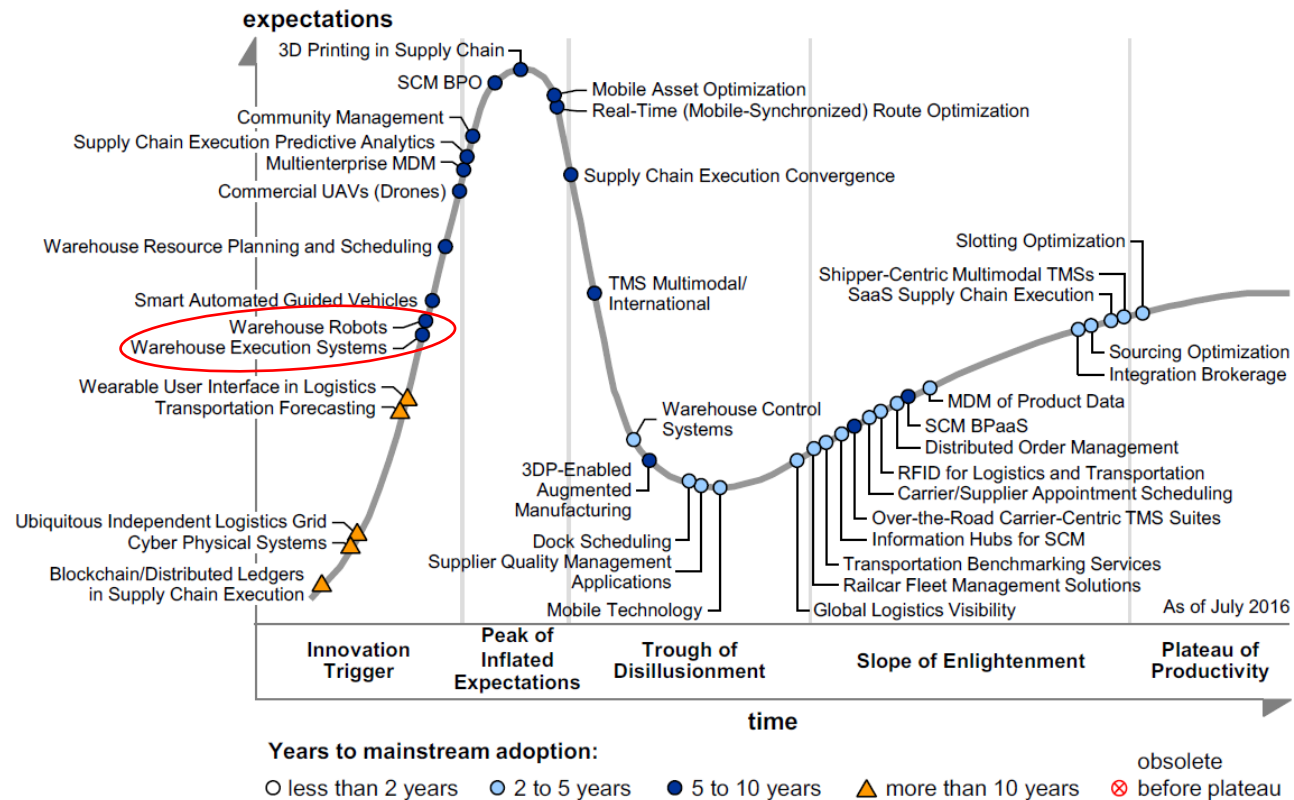


“To address their needs for fast-paced and agile fulfillment, warehouse leaders are being forced to invest in new processes and technologies for managing orders..”

Dwight Klappich, Gartner
Transform Automated Warehouses With Warehouse
Execution Systems to Master High-Velocity Order Fulfillment
April 2015

Gartner Hype Cycle for SCE Technologies (July 2016)

Figure 1. Hype Cycle for Supply Chain Execution Technologies, 2016

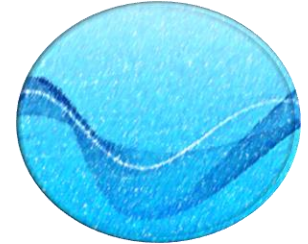


Source: Gartner (July 2016)

“Initially, WCS vendors will innovate and continue to add business logic... In parallel, some thought-leading WMS vendors will (...) build their WMSs to reach further into the automation layer.”

Dwight Klappich, Gartner
Gartner Hype Cycle for SCE Technologies
July 2016

Order Streaming – What Is It?



- Waveless Order Fulfillment
 - Continuous evaluation & optimization of the order pool
 - Orders are actioned immediately upon arrival in the WMS
 - Strikes a balance between Inventory, Orders, and Replenishment needs
- Pull Model (vs. Push)
 - Balances Labor & Equipment against Orders – availability dictates assignment of work
 - The goal is higher asset utilization
- Delayed Decisions / Commitments = Better Results
 - Work is dynamically assembled into tasks and assigned to users and/or equipment when the tasks can be actioned
 - Batches of sequential tasks are not stacked into a static task queue
 - The highest priority work is assigned based on “then current” conditions

Wave Processing vs. Order Streaming

Wave Processing

Batches of Orders,
Released Manually

Large Pool of Orders =
Efficient Picking

Some asset utilization
peaks and valleys

Sub-Optimal for Individual
Orders (Static, Pre-
Determined Sequencing)

Order Streaming

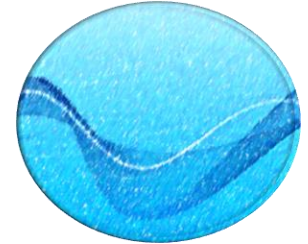
Automatic Order
Evaluation & Release

Proactive
Replenishment

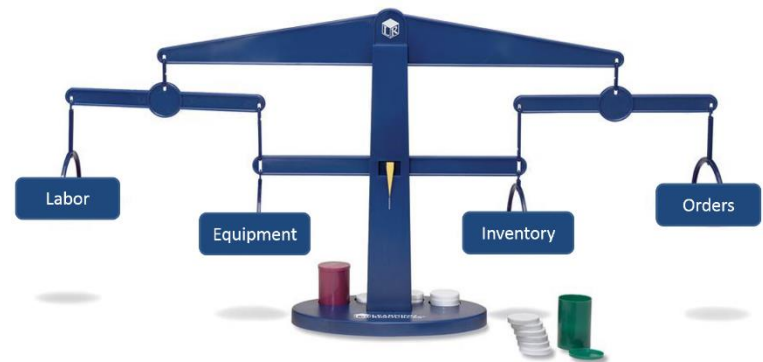
More constant asset
utilization

Optimal Individual Order Throughput
(Dynamic, Real-time Task Assembly
& Assignment)

Order Streaming – Why Use It?

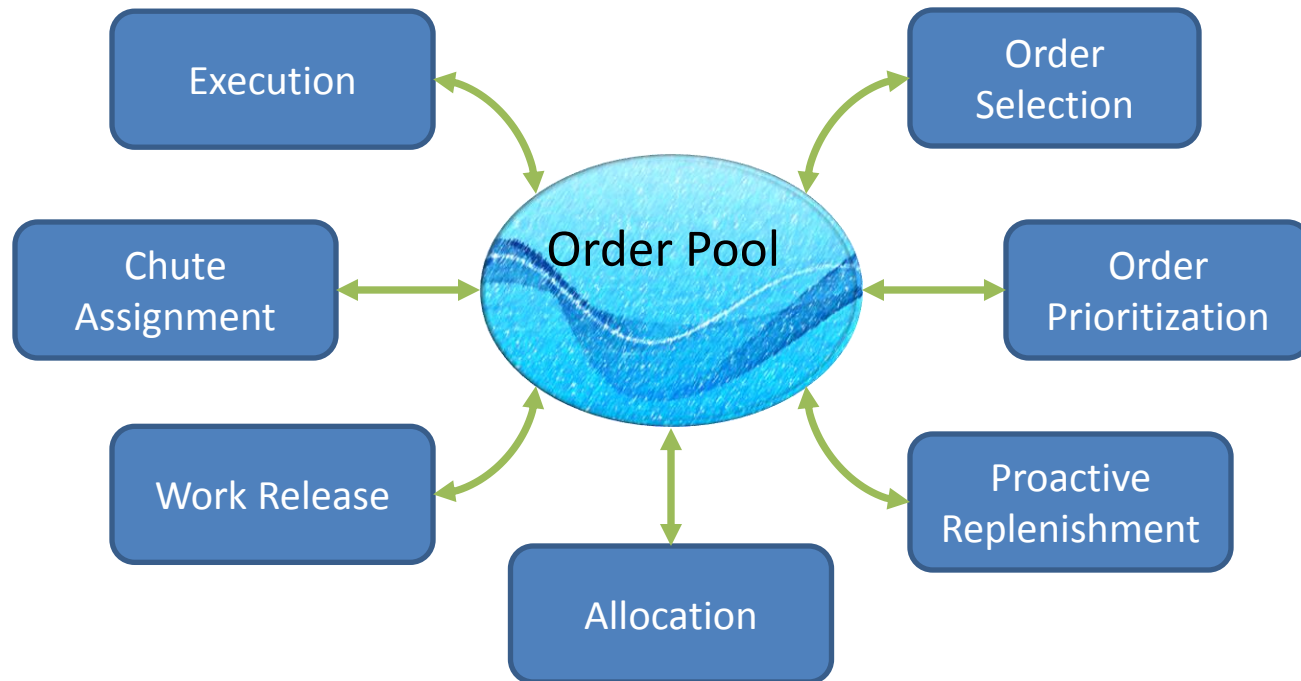


- Great fit for E-Commerce, which continues hyper growth
- Small orders, rapid (same day) fulfillment expectations, fluid demand
- Reduced order cycle times
- Higher and more consistent asset utilization (balancing humans and equipment)
- Co-exists with fulfillment strategies of other channels - i.e., Retail and Wholesale
- Provides balance across the 4 critical Natural Resources

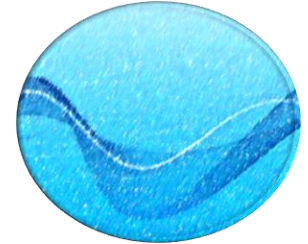


Order Streaming – How Does It Work?

- De-coupled traditional order processing components
- Constant evaluation of orders



Order Streaming – What Is the Value?



- Order Streaming – Saves Time
 - Continuous evaluation of the order pool to prioritize orders and advance orders through the process without human intervention
 - Proactive replenishment of forward locations prevents wasted trips to locations that do not have enough inventory
 - High priority orders are completed in less time
- Order Streaming – Improves Asset Utilization
 - Task Creation & Assignment are delayed until the labor and/or equipment is available
 - Pull-based processing honors capacities and constraints in real-time as compared to a push-based alternative that simply builds a plan (wave/batch) based on static, modeled capacities
- Order Streaming – Increases fulfillment capacity

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Order Streaming leads to:


10% - 15%
improvement in packing
efficiency

5-7%
Improvement in sorter
utilization

15% increase in order
fulfillment capacity



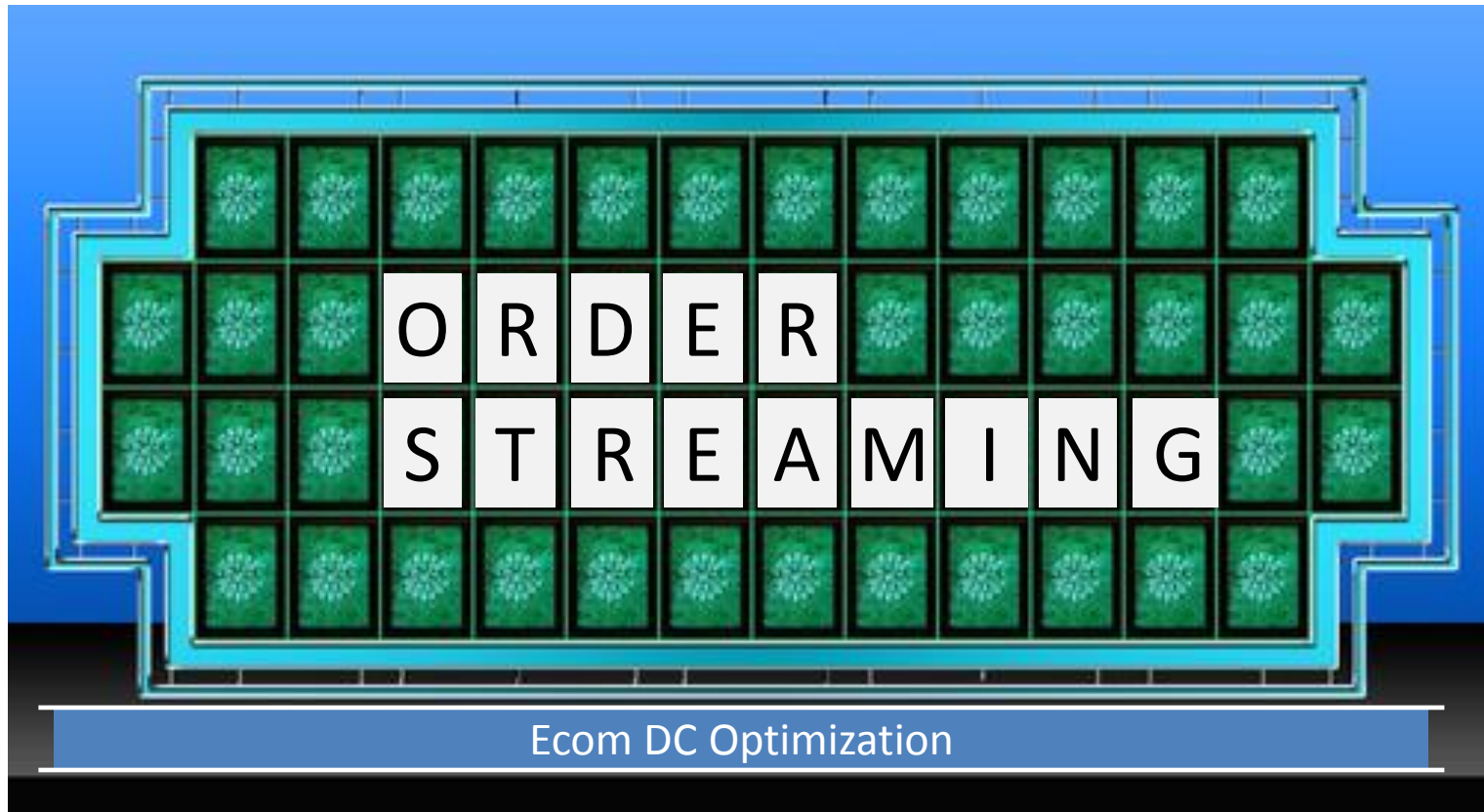
Recommendations Depend on Your Environment

- 
- How many orders processed per day?
 - Number of order lines per order?
 - How much automation exists today? Tomorrow?
 - What is your picking strategy?
 - What selling channels do you utilize?
 - What are your customer's expectations?

Question of the Day:

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RSTLNE

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For More Information:

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Or visit Manhattan Associates at ProMat booth 3983