Benchmarking Order Fulfillment Operations: How Do You Stack Up?

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Presenter

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Session Objectives

- Review real world examples of how other organizations are handling order fulfillment
- Benchmark metrics you can use to compare your current order fulfilment operations
- Learn how to calculate additional revenue opportunities after implementing automation

My goal is to provide you relevant information that you can apply to your operations.
Stay In Your Neighborhood

4 Days On Zillow

HOUSE FOR SALE
$319,900 3 bds • 2 ba • 1,318 sqft
317 Islington Ln, Schaumburg, IL
RE/MAX AT HOME

27 Days On Zillow

HOUSE FOR SALE
$1,874,900 5 bds • 7 ba • 4,242 sqft
195 Old Green Bay Rd, Glencoe, IL
@properties
Know Your Neighborhood

• B2B, B2C or Both
• Industry
• Warehouse Size
• SKU Count
• Order Volume
• Order Profile
• Etc…
So Many Metrics...

- Revenue per sq. ft: revenue vs warehouse sq. ft.
- On-time delivery: orders on-time vs total orders
- Cost per order: warehouse cost vs number of orders
- Perfect orders: correct orders vs number of orders
- Inventory accuracy: actual quantity vs items recorded quantity
- Inventory value: inventory vs inventory value
- Damaged inventory: occupied cu. ft. vs total cu. ft.
- Line accuracy: error lines vs total line
- Order accuracy: error-free orders vs orders shipped
- Order fill rate: orders complete vs orders shipped
- Orders per hour: orders picked vs labor hours
- Labor cost per order: cost of labor vs number of orders
- Storage utilization: occupied cu. ft. vs total capacity cu. ft.
- Employee mix: temp employees vs total employees
The BIG FOUR Benchmarking Categories

1. Space
2. Throughput
3. Accuracy
4. Labor

What Is It & How To Calculate It?
Why It’s Important?
How Facilities Are Performing?
Calculating Space

• The Footprint & Capacity Of The Warehouse

• How To Measure
  • Warehouse Footprint (Expressed As A Cost)
    • 30,000 Sq. Ft. x $4.52 per Sq. Ft. = $135,600 Yearly

<table>
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<th>Avg Asking Rent</th>
<th>Northeast</th>
<th>Midwest</th>
<th>South</th>
<th>West</th>
<th>US Avg</th>
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</thead>
<tbody>
<tr>
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<td>$4.52</td>
<td>$4.31</td>
<td>$4.17</td>
<td>$7.55</td>
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<tr>
<td>Distribution</td>
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<td>$4.09</td>
<td>$4.44</td>
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</table>

• Warehouse Usage

\[
\frac{4,260 \text{ Cu. Ft. Occupied}}{4,320 \text{ Total Cu. Ft. Available Capacity}} = 98.6\% \text{ Warehouse Usage}
\]
Why Space Is Important To You

• Space costs money
• Most facilities are at or near capacity
• Valuable (revenue producing) activities need more room
• You’re being tasked to make more efficient use of the space you currently have
Case Study: DC Dental

- Dental supply distribution
- 20,000 Sq. Ft. Facility
- 20,000 SKUs
- 2,500 lines/day
  - ability to pick 3,500 lines/day
- 480 orders/day
Using automation, we consolidated roughly 13,000 square feet of shelving into 3,500 square feet. This allowed us to resign our lease for 20,000 square feet instead of 30,000 square feet – saving us nearly $1 million in rent and utilities over the next 10 years.”

- Howie Friedman, CFO/COO
Throughput
Calculating Throughput

• How many (parts, lines, orders) completed in a specific timeframe (hour, day) or by number of people

• Orders picked per hour
  
  139 orders per shift
  8 hours per shift

  = 17 orders per hour

• Lines picked per operator

  400 lines per shift
  2 operators per shift

  = 200 lines per operator
Why Throughput Is Important To You

• The throughput of an picking operation must be high enough to keep up with demand... and demand is increasing!

• Customer expectations around delivery times are bleeding from B2C into B2B

Before
  • On Time
  • In Full
  • Not Damaged

Now
  • On Time
  • In Full
  • Not Damaged
  • Faster
  • More Frequent Orders (LEAN)
  • Lower Quantities
  • Custom Labeling & Documentation
  • Electronic Delivery Tracking
Case Study: Value Drug Mart

- Central distribution center for pharmacy & front store items to over 300 retail stores
- 18,000 SKUs
- 60,000 Sq. Ft Warehouse
VALUE DRUG MART

CONSOLIDATION

5 BULK RACK ZONES
50 LINES/HOUR

9 FLOW RACK ZONES
3 LEVELS
60 LINES/HOUR

2 HORIZONTAL CAROUSEL ZONES
AVERAGE 460 LINES/HOUR

12 SHELVING ZONES
50 LINES/HOUR

60,000 SQ. FT. WAREHOUSE ZONE PICKING STRATEGY

28 ZONES

SHIPPING
“With shelving we were picking as fast as staff, shelving and technology would permit, but it wasn’t fast enough. In the two horizontal carousels zones we are picking 90% faster.”

-Bill Bilawchuk, Operations Manager
Accuracy
Calculating Accuracy

• Inventory Accuracy
  • Having the right inventory on-hand and recorded
    120 SKU discrepancies
    \[ \frac{from \ physical \ inventory}{4,500 \ SKUs \ in \ Inventory} = 0.026 \ - \ 1 = 97.4\% \ Inventory \ Accuracy \]

• Picking Accuracy
  • Picking the correct item from inventory & getting it to the correct place at the correct time
    17 Picking Errors/Day
    \[ \frac{1,350 \ Picks \ per \ Day}{1,350 \ Picks \ per \ Day} = 0.013 \ - \ 1 = 98.7\% \ Pick \ Accuracy \]

Can also do this by Order
Why Accuracy Is Important To You

• Inventory discrepancies cause short picks and can stop production or cause multiple shipments – adding cost
• Accounting likes accurate inventory counts 😊
• Pick accuracy directly impacts the manufacturing process (wrong parts at point of use can lead to unplanned downtime)
• Pick accuracy directly impacts customer satisfaction in a distribution environment
Case Study: Flight Safety

• Manufacturer of full flight simulators, visual systems & displays
• 690 Sq. Ft. Stockroom
• 8,000 SKUs
• 100 Orders per Day
• 480 lines/day
690 SQ. FT. STOCKROOM

FINISHED ORDERS SENT TO KITTING VIA CONVEYOR

10 POSITION BATCH STATION

STORED FOR 60-90 DAYS UNTIL NEEDED

KITS ARE PULLED AND TAKEN TO MANUFACTURING AS NEEDED

ORDER PICKING

VLM

VLM

VLM

VLM
When the wrong part makes it to manufacturing, it used to cause a shutdown – with the VLMs that doesn’t happen now, accuracy is at 99.9%”

- Mike Halsey, Director of Manufacturing & Material Management
Labor
Calculating Labor

- Refers to the cost of the personnel required to manage picking operations

- How to Calculate
  - Total Labor Cost
    - $42,000 Annual Salary Fully Burdened \(\times\) 8 People Required = $336,000 Labor Cost/Year

- Labor Cost per Order
  \[
  \frac{336,000 \text{ Yearly Labor Costs}}{236,800 \text{ Orders Filled per Year}} = \$1.42 \text{ Labor Cost per Order}
  \]

Can also calculate this per Line
Why Labor Is Important To You

• Labor is generally the most expensive part of the order fulfillment operation and is scrutinized closely
• Difficult to manage fluctuations in demand – ex Holidays

When surveyed, over 250 top logistics & supply chain managers said their biggest workforce challenges are:

1. Finding & keeping qualified & dependable workers (62%)
2. Increasing workforce productivity (57%)
3. Controlling labor costs (45%)
Case Study: Hauni

• Global Manufacturer Of Production Equipment
• 3,180 Sq. Ft. Stockroom
• 16,000 SKUs
3,180 SQ. FT. STOCKROOM

VLM  VLM  VLM

15,000 SKUS

VLM  VLM  VLM

18 POSITION BATCH STATION

BULK OVERFLOW
1,000 SKUS

SHIPPING  KITTING
The previous system required 17 workers and 3,200 overtime hours a year. With the VLMs, we require 9 workers and virtually no overtime.”
- Clarence Cox, Divisional Manager
So Now What?

1. Space
2. Throughput
3. Accuracy
4. Labor
Start Benchmarking Your Operations

• Figure Out **What** You Want to Measure
• Determine **How** You Will Measure It
• Decide **When** You Will Measure It
Resources for Benchmarking

• Using Technologies to Increase Perfect Order Metrics
• DC Measures
• SCORmark Process
• Industry Experts & Consultants: Find a Partner!
• Further Reading:
  • Top KPIs for Your Order Fulfillment Operation
  • Benchmarking Metrics of Warehouse Operations
  • Top Warehouse Performance KPIs
  • How to Benchmark Your Warehouse
  • The Warehouse KPIs You Need to Know
Resources for Improvements

• Once You Establish Your Metrics —> Find Ways To Improve Them
• The Experts Are Here — Use Them!
• Project Calculators
• Further Reading:
  • 55 Warehouse & Distribution Best Practices to Improve Your Warehouse
  • How To Manage (and Improve) Your Warehouse Operations
Rome wasn’t built in a day... but they were laying bricks every hour.
For More Information

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