Operational Success = Audits, Metrics And Right Technology

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Seminar Overview

Abstract

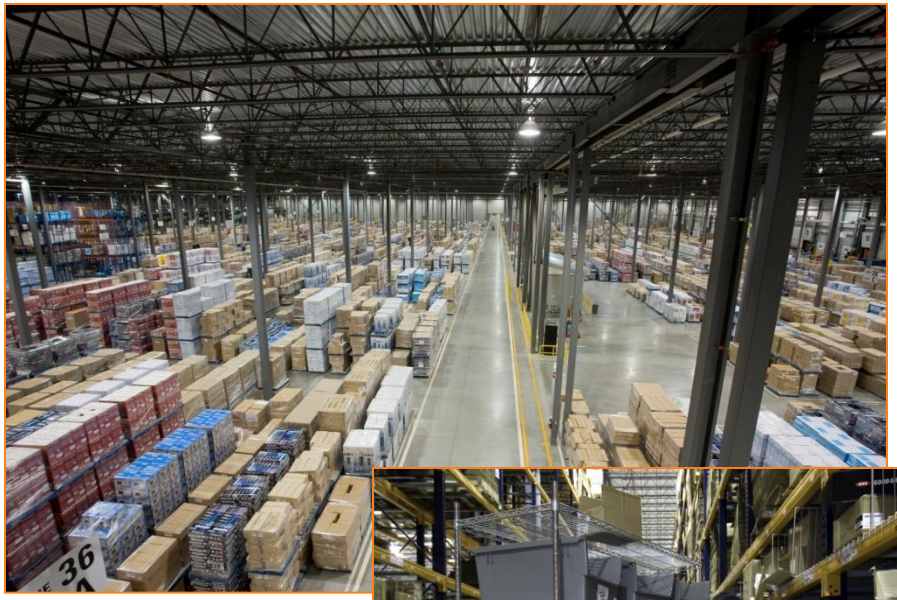
This seminar will discuss how identifying the right metrics and examining current processes through regular operational audits can help distribution and fulfillment facilities implement the right processes, software, and technologies for improved performance and ROI.

Key topics

- Learn how operational audits can identify key areas for process improvement with software/hardware enhancements that drive productivity

Common operational challenges

- Lack of labor
- Labor cost
- Accuracy
- Space
- Bottlenecks, congestion
- Facility consolidation
- Customer demands
  - Value added services
- Increasing throughput demands
- Data → information
- Site locations
- Supply chain uncertainty



What, When and Why

Audits

What is an operational audit?

- A proven, results oriented, evaluation of your entire system:
  - Assess operational designs versus achieved metrics
  - Troubleshoot operational challenges or flow bottlenecks
  - Support continual evolvement of supply chain processes, practices, operations and systems.

- Combination of research analysis and on-site fact finding
  - Determining what exactly your operational performance is now
  - Identifying any immediate areas of improvement opportunity
  - Projecting what you need to do to meet or exceed future goals

Why do an operational analysis?

- Identify productivity, accuracy, cycle time, and other KPI opportunities and implement corrective action
- Utilize operational space more efficiently and identify factors contributing to inefficiency
- Increase capacity of orders processed and quality of orders processed
- Streamline workflow processes, minimize unnecessary workflow touches
- Achieve higher profits and identify opportunities to lower costs

When do you perform an operational audit?

- Comprehensive reviews should occur at least once per year
  - Stay focused on new customer requirements
  - Accommodate changes in company growth projections
  - Outpace your competitor's improvements
  - Ensure you are prepared for whatever the other teams in the company dream up for you
    - Marketing

What are the bottom line benefits of an operational audit?

- Benefits
  - Maximize return on operational assets
  - Enhance customer satisfaction
  - Improve competitive advantage
  - Increase employee satisfaction
  - Identify opportunities to maximize throughput, accuracy and asset utilization

What are industry experts saying?

SupplyChainDigest™
Your First Stop for Supply Chain Information

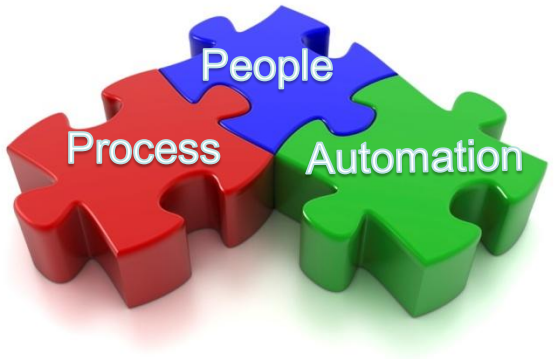
“Consider Contracting for Audits for Several Years at the Time of a New System Implementation: There is a certain institutional resistance to audits…. **The best time to solidify future operations audits of new systems/facilities is generally at the time of the original project.** Doing so with the appropriate materials handling vendor, WMS provider, or consultant involved in the system not only establishes the mindset that audits will become a regular operational process, but you may be able to negotiate more favorable pricing at the time, when the vendor wants the overall business.”

HVACR HARDI
Distribution Business

“…**the health and robustness of a distribution center operation often depends upon regular checkups** to ensure the facility and operations are consistently performing at the peak of their potential…evaluate what the operation could be doing better, where it is falling short of customer requirements and where it may be in danger of being outperformed by the competition's operation”

Focus areas to improve operational efficiency

- The process side of the business
  - Observe and understand all tasks performed
  - Identify all tasks associated with each process
  - Map all touch points within the process
    - Value added and non-value added
- The people side of the business
  - Train, train and train again
  - Raise the bar
- The technology side of the business
  - Remove barriers to success



Identify and Examine

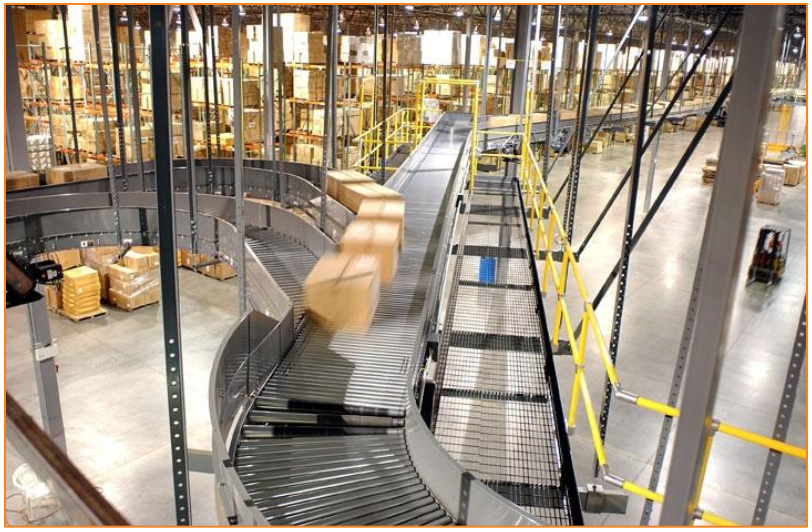
Metrics

How do you know if your facility is out of control?

- Data analysis and trends
  - Productivity
  - Accuracy (inventory and order)
  - Cycle time
  - Costs
- Observation of product flow
  - Bottlenecks causing work stoppage or waiting
- Space Constraints
- Customer complaints and returns
- Interviews and feedback
- Behind organizational goals or facility design capabilities

First things first

- Audit your operation
  - Is the operation doing and performing the way you thought?
- What are your metrics compared to others
- Where are your opportunities



"The significant problems we face cannot be solved at the same level of thinking we were at when we created them."

- Albert Einstein

Key areas for improvement

Metrics

- Identify potential areas for improvement focus
- Tools to measure and provide feedback
  - What is tracked today or should be tracked to improve future performance?
  - How often is this data reviewed with management and associate teams?
  - Are individual or team goals created from these metrics?

Key performance indicator (KPI) measurements

Accurate Measures

- Generate useful data
- Excellent way to reduce costs
- Improve customer service
- Meet or exceed organizational goals
- Improve profitability

We are data rich and information poor!

Key areas for improvement

Measure and Manage

- Units of measure are tracked and recorded:
  - Each, cases, lines, pallets, pounds, hours, dollars
- Accuracy
  - Error rates are below .05%
- Productivity
- Cycle times
  - Measured in minutes not hours or days
- Costs

KPI's are not just about keeping score, they are about managing actions that make the score bigger!

Theory of constraints (TOC)*

- One of the most useful functions of metrics are to help identify constraints, or barriers to success
- DC operational decisions are made every day that impact flow
  - Staffing levels by area
    - Receiving
    - Order fulfillment
    - Shipping
  - Areas active at any time
    - # of pick modules
    - # of shipping doors
- According to TOC, every organization has - at any given point in time - at least one constraint which limits the system's performance relative to its goal
- In order to manage the performance of the system, the constraint must be identified and managed correctly

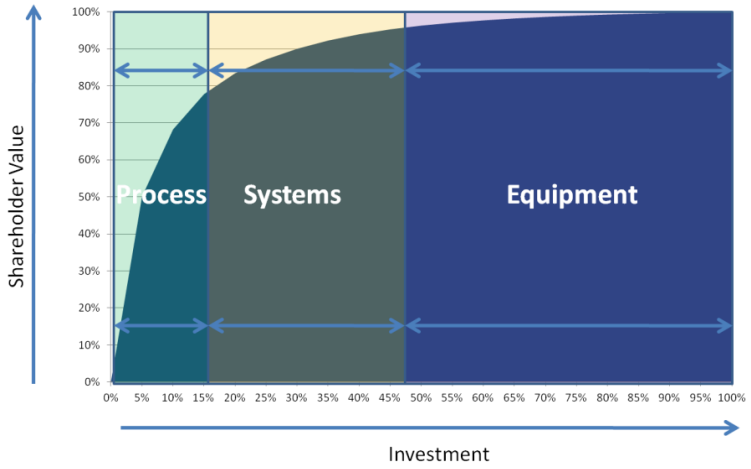
* Cox, Jeff; Goldratt, Eliyahu M. (1986). *The goal: a process of ongoing improvement*. [Great Barrington, MA]: North River Press.

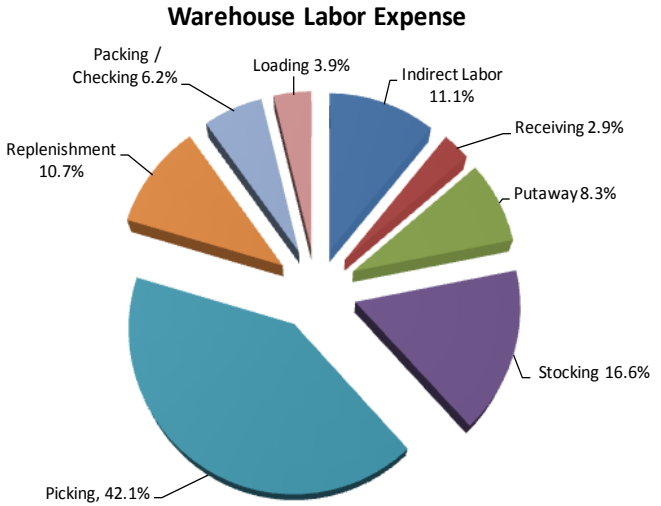
Process, People and Automation

Technologies

Technologies – Process

- Process
  - Highest opportunity for improvement
- Order fulfillment
  - Highest labor costs
  - Highest opportunity for impact





Technologies – People

- How to identify opportunity
  - Observe every shift
  - Map the process
    - Delete or remove unnecessary activities
    - Reduce bad motions
  - Review preparation readiness
    - Picking supplies – labels, pen, scanner, tape, etc.
  - Compare accuracy with productivity rates
    - Quality checks

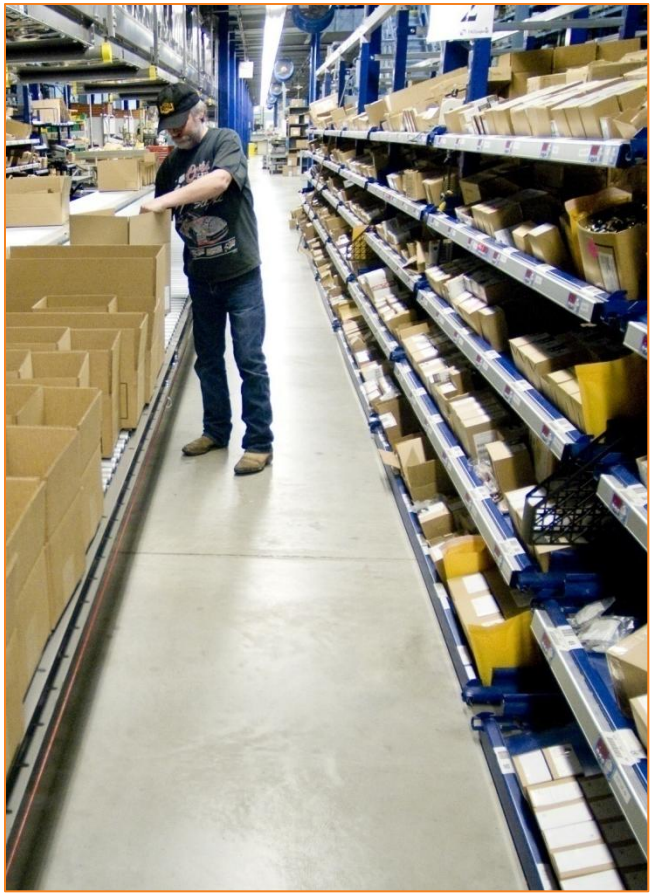
Process opportunities

- Other questions to ask about order fulfillment
  - What's the space, what's the workflow
  - Variation of space through year
  - Unnecessary movement of product or people
  - Slotting effect
  - Order picking supplies
  - Task interleaving
  - Stocking – direct to prime versus reserve

Goal: Keep your order fillers filling.

Pick the right picking technology

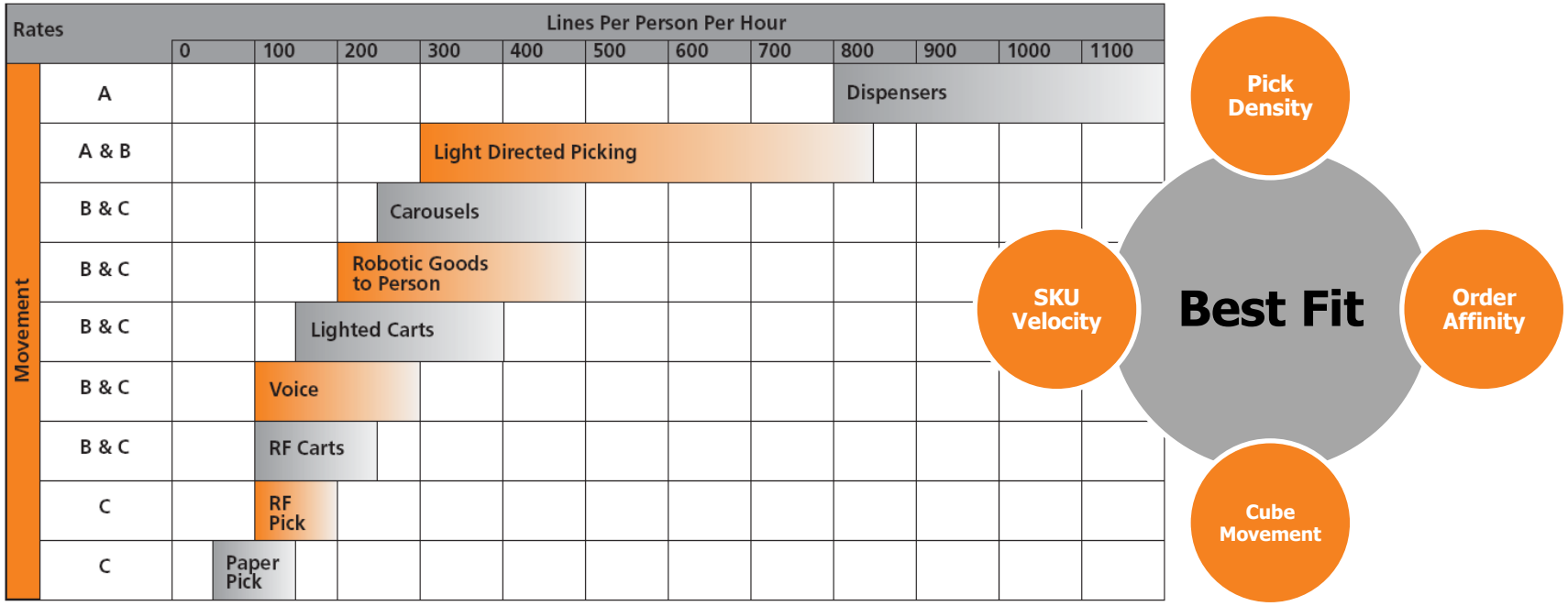
- Technology should be overlaid on current process and existing system
- Designed to
  - increase productivity, accuracy and throughput
  - provide real-time processing
  - move towards paperless operations



Pick the right picking technology

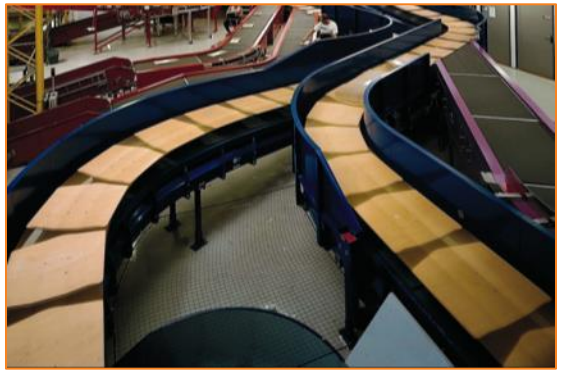
- Workflow flexibility
- Order accuracy
- Selection productivity
- Replenishment and stocking rates

- SKU variability
- Horizontal and vertical space constraints
- Achieving targets now and in the future



Pick the right method for the right technology

- Batch pick and consolidation
- Discrete orders
- Cluster orders
- Clustered picks by location
- Zone routing
- Bucket brigade



Sortation

Voice

Pick Carts

Pick-to-Light

What about the rest….

- Greatest opportunities can be identified by tracking travel and touch times
- What happens when rules are broken
- Ask people on the floor – do not underestimate what you can learn from the ‘doers’
- Small things can have a dramatic effect
- Receiving example
  - Cross dock
  - Lift driver path
  - Number of touches
  - Labels: generic or pre-printed

Improved performance impacts working capital

- Modern distribution and fulfillment center impact on working capital:
  - Improved cycle times
  - Increased inventory turns
  - Reduced inventory levels & safety stock
    - Insurance
    - Shrinkage
    - Damage
    - Carry Costs
  - Improved shareholder value

Improved performance impacts return on assets

- ROA is a ratio of profits / fixed asset value
- Efficiency improvements + improved space utilization + reduced inventory levels
  - Reduces need for outside storage and costs
  - Reduces capital requirements tied up in future distribution centers & equipment (bottom line return on assets)
    - Reduces fixed and variable costs
  - Increases profits (top line return on assets)

Improved performance equals bottom line rewards

- Example:
  - Company XYZ Realizes $10 Profit For $100 Sales = 10%
  - If :
    - Improved Performance Cost Savings = $100,000
  - Then:

$100,000 in improved performance cost savings is equivalent to a sales increase of $1,000,000

Summary

Presentation goal

- Learn how operational audits can identify key areas for process improvement with software/hardware enhancements that drive productivity

What we learned

- Audits identify areas of opportunities
- Metrics Matter
- It's About Process, People and Automation

What to do next

- Take action - audits only identify opportunities – you make them happen
- Not sure how to get it done – engage your suppliers
- Make it part of your culture

Key performance indicators (KPI)

KPI Measurements

Inventory

- Paid inventory ratio
  - On-hand inventory that has been paid against inventory that has not.
- Inventory accuracy %
  - Actual SKU units / system SKU units
- Inventory days on hand
  - Monthly inventory $ (avg) / daily sales per month
- Inventory visibility
  - Inventory system receipt time – physical receipt time
- Damaged inventory %
  - Total damaged inventory $ / total inventory value at cost

Order Fulfillment

- Order fill rate
  - Orders filled complete / total order shipped
- Order accuracy
  - Orders error free / total orders shipped
- Order cycle time (hrs)
  - Actual ship date – customer order date
- On-time delivery
  - Orders on-time / total orders shipped

KPI Measurements

Receiving

- Dock to stock hrs
  - Total dock to stock hrs / total receipts
- $ Value per unit received
  - Total received inventory $ / total units received

Productivity

- Units per labor hour
  - (Orders or units or items or lines) Picked or packed / total DC labor hours
- Sales per labor hour
  - Total sales / total DC labor hours

KPI Measurements

Operational

- Cost labor hour
  - Total variable costs / total labor hours
- Storage utilization %
  - Total cubic feet occupied / total available capacity cubic feet
- Rate
  - Volume / hours worked
- Utilization %
  - Hours worked / hours paid

Operational

- Productivity
  - Rate X utilization
- Costs as % of sales
  - Total costs / total revenue
- Cost per unit or case
  - Total costs / total units or cases shipped
- Controllable cost per unit or case
  - Total controllable costs / total units or cases shipped

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