

WHY NOW

Supply chain leaders operate in a VUCA environment shaped by tariff volatility, geopolitical fragmentation, and persistently tight labor markets. In a constrained world (time, talent, budget), the bottleneck is often the distance between a question and a trusted answer. Theory of Constraints says performance is limited by a small number of constraints: identify them, focus, and do not let inertia turn old policies into the new constraint.

Goal: Shift from rearview, static reporting to dynamic, reactive, and predictive intelligence. Be more nimble, scenario plan effectively, and maintain a competitive advantage amongst peers in your industry.

Specialized AI that addresses constraint-driven processes within existing enterprise analytics can deliver on this. Success requires systems that are context-aware and responsive to new information. This drives accuracy and earns trust in AI.

1 Warehouse & Distribution Operations**Increase Forward Inventory Allocation Accuracy**

Place inventory into markets, channels, and nodes so it sells before losing economic value. Use staged allocation and predictive signals to commit later, closer to demand.

KPIS

Forward allocation accuracy, shelf life value at risk, inventory productivity

ROIC LEVERS

Reduce write-offs, improve service availability, release working capital

DATA SOURCES

ERP sales/orders, WMS inventory + lot/expiry, demand signals, network constraints

Reduce Cycle Counting Variance + Ensure On-Hand Truth

Identify which locations and items have the highest variance and the patterns behind it (location, time of day, counter, process).

KPIS

Inventory record accuracy, variance rate

ROIC LEVERS

Fewer shorts, fewer rework cycles, better fill rate

DATA SOURCES

WMS inventory snapshots, cycle count logs, transactions

Drive Labor Efficiency by Function (Receiving to Ship)

Compare units-per-labor-hour by function and shift to expose the true constraint driving throughput.

KPIS

UPH by function, labor cost/order

ROIC LEVERS

Staffing fixes, productivity gains, fewer bottlenecks

DATA SOURCES

WMS tasks, LMS/timeclock, engineered standards

Maximize Warehouse Space Utilization + Predict Capacity Needs

Identify constrained vs underutilized zones and predict when you will hit capacity based on inbound and demand signals.

KPIS

Utilization by zone, capacity risk date

ROIC LEVERS

Avoid overflow/premium space, improve slotting/allocation

DATA SOURCES

WMS locations, inbound schedules, demand signals

Improve Inventory Health: Reduce Slow-Moving + Tune Min/Max

Attack non-productive inventory by finding slow movers, then tuning safety stock based on variability and service targets.

KPIS

Inventory turns, % inactive 90+ days, fill rate

ROIC LEVERS

Working capital release, fewer write-offs, higher service

DATA SOURCES

ERP sales/orders, WMS inventory + movement history, item master/lead times

2 Freight & Logistics**Improve Carrier On-Time + SLA Performance by Lane**

See which carriers, modes, and lanes are missing SLAs and why, with drill-downs business leaders can act on.

KPIS

On-time %, SLA variance

ROIC LEVERS

Fewer expedites/chargebacks, higher OTIF

DATA SOURCES

TMS, carrier EDI/API tracking, customer promise windows

Analyze Tender Acceptance Patterns + Anticipate Capacity Tightness

Spot lanes and days where acceptance drops and which contingency options to activate before emergency.

KPIS

Tender acceptance %, spot %

ROIC LEVERS

Reduce spot premiums, protect service

DATA SOURCES

TMS tenders, carrier responses, capacity signals, routing guide

Reduce Cost per Mile/Shipment via Lane Benchmarking

Tie true lane costs to mode, customer, and service level to surface procurement opportunities.

KPIS

Cost/mi, cost/shipment

ROIC LEVERS

Renegotiate rates, redesign lanes, reduce accessorials

DATA SOURCES

TMS, freight invoices/AP, contract rate tables

Expose True Cost-to-Serve + Protect Margin After Logistics

Attribute fulfillment and freight costs to customers and service types so leaders see which accounts destroy margin.

KPIS

Cost-to-serve, margin after freight

ROIC LEVERS

Reprice, change service policy, renegotiate terms

DATA SOURCES

ERP invoicing/COGS, WMS labor/handling, TMS freight cost

Flag Shipments at Risk + Enable Proactive Exception Management

Flag in-transit shipments likely to miss delivery windows, with the "why" and next best action.

KPIS

At-risk shipments, exception resolution time

ROIC LEVERS

Fewer failures, lower expediting, better CX

DATA SOURCES

TMS tracking, appointment windows, carrier events

3 Manufacturing

Strengthen Production Schedule Adherence by Line

Track which products and lines consistently miss targets and identify systemic issues before they cascade downstream.

KPIS

Schedule adherence %, variance by line/product

ROIC LEVERS

Improve downstream reliability, reduce expedites

DATA SOURCES

MES/ERP production orders, planned vs actual, downtime logs

Increase OEE (Overall Equipment Effectiveness) by Line

Decompose availability, performance, and quality to pinpoint where capacity is lost and prioritize improvement.

KPIS

OEE %, availability, performance, quality rates

ROIC LEVERS

Unlock hidden capacity, reduce capital spend

DATA SOURCES

MES, machine sensors/PLC, quality systems, downtime codes

Elevate First-Pass Yield + Improve Defect Traceability

See daily FPY by plant and product line, trace defects to root cause, and close the loop before issues compound.

KPIS

First-pass yield %, defect rate by type, time to root cause

ROIC LEVERS

Reduce rework/scrap, improve quality cost

DATA SOURCES

QMS, MES, inspection logs, batch/lot traceability

Predict Capacity Constraints + Enable Scenario Planning

Predict which lines or plants will become bottlenecks in the next 30 days and enable proactive scheduling or demand management.

KPIS

Capacity utilization %, constraint risk date

ROIC LEVERS

Prevent missed commitments, optimize load balancing

DATA SOURCES

MES, demand signals, maintenance schedule, staffing plans

Assess Incoming Order Workability + Surface Root Cause

Assess whether incoming orders can be fulfilled based on available capacity, materials, and line status. When not workable, instantly surface the constraint blocking execution.

KPIS

Workability rate, orders at risk, time to root cause

ROIC LEVERS

Faster customer commits, avoid missed deliveries, proactive constraint resolution

DATA SOURCES

ERP orders, MES line status/capacity, BOM, inventory/materials availability

What Executives Should Listen For

If the answer requires hours of manual work or multiple systems, you are operating at a structural disadvantage and the gap compounds as volatility increases.