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The ROI of Supply Chain Orchestration



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A framework for quantifying the impact of orchestration: the forces behind the shift, four value drivers with formulas you can run on your own data, and a worksheet to total your number.

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Built by people who ship freight for a living

This framework reflects what we see across Moddule's customer base: BCOs, brands, 3PLs, and LSPs modeling orchestration against their own operations.



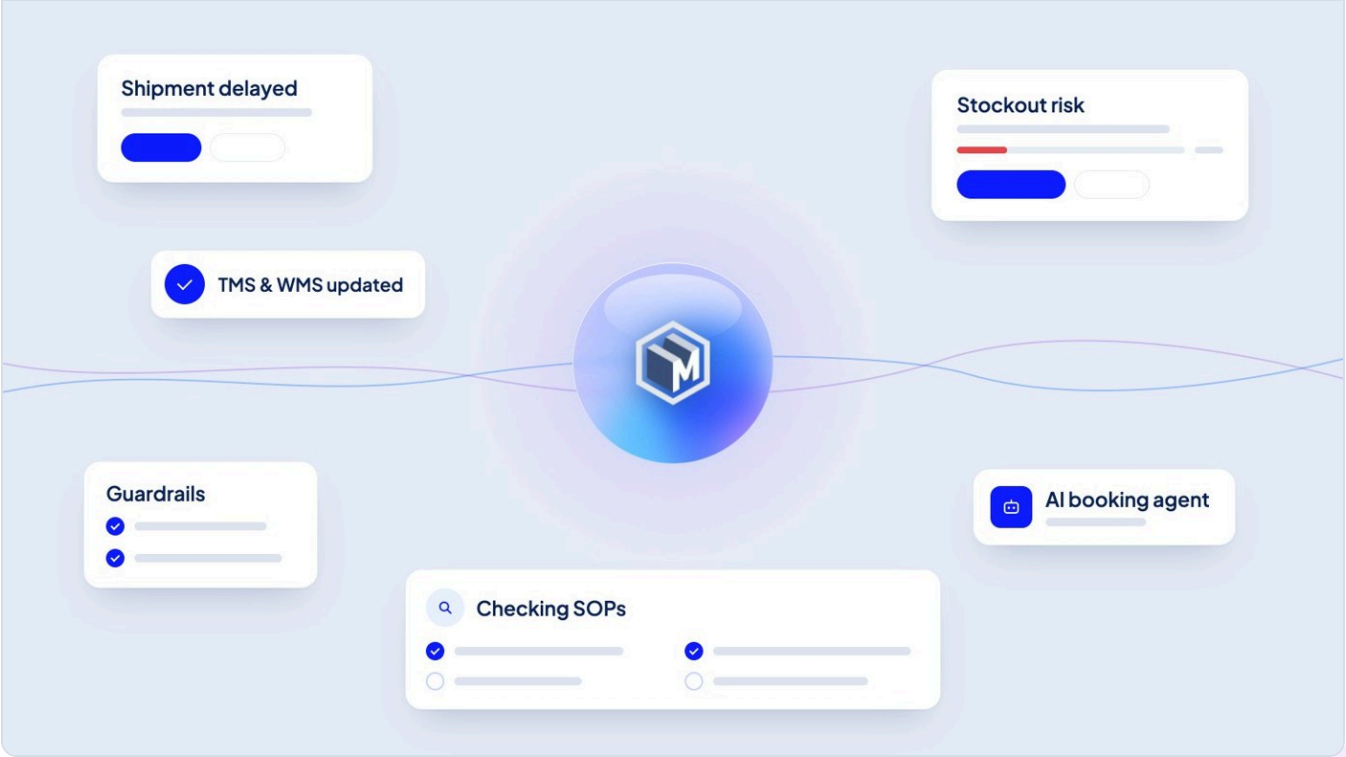
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Built customer experience across Maersk and MSC, organizations where execution quality is mission-critical. Lauren leads onboarding and long-term customer success at Moddule.

Where Moddule fits

We don't replace your TMS, WMS, or ERP. We sit above them, build one trusted view from conflicting data sources, and move you from visibility to predictive intelligence to autonomous execution.



A $53 billion shift with a direct line to your bottom line

Gartner's April 2026 forecast puts annual spend on supply chain management software with agentic AI at $53 billion by 2030. Three forces are driving the shift, and each one has a measurable impact on your operation.

Increasing complexity

Global logistics networks need real-time decisions across systems that don't talk to each other.

Margin pressure

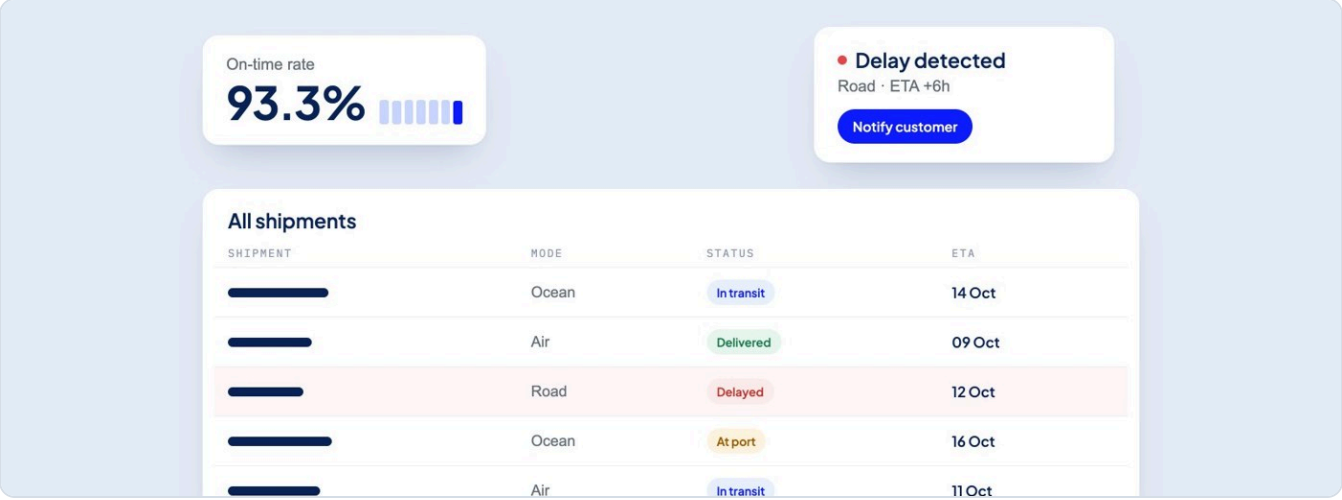
Manual approaches don't scale. Orchestration lets you grow volume without growing headcount at the same rate.

Working capital

Better predictability improves cash flow and cuts inventory carrying costs, which is why CFOs prioritize it.

How to use this framework

ROI depends on your operation. This framework sets out the formulas and shows where the value comes from. Plug in your own numbers to see what the Visibility Platform, ETA IQ, and Moddule Orchestration can deliver.



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Manual work elimination

Your teams spend 30–40% of their time chasing shipment status across disconnected systems, reconciling contradictory data, and escalating exceptions by hand. It's expensive work that produces little insight, and orchestration automates it.

Annual manual work savings

FTEs in tracking and reconciliation × % of time on manual work × annual fully loaded cost per FTE

What to measure

FTEs tracking status

People in carrier portals pulling data and checking ETAs.

Time allocation

Share of the day spent on manual tracking rather than planning.

Loaded cost

Salary, benefits, and overhead. Standard: 1.3–1.5× base.

Worked example	
Logistics coordination FTEs	6
Time on manual tracking	35%
Annual cost per FTE (loaded)	$110,000
Annual manual work savings	**$231,000**

- Assume 60–70% of this time is eliminated. That's $138,600 to $161,700 in productivity gains in year one.

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D&D reduction

Delay and disruption incidents cascade. A missed port deadline becomes a customer penalty, and a customs delay becomes an inventory backup. Predictive intelligence catches these before they escalate and cuts the time your team spends firefighting.

Annual D&D reduction value

Annual shipments × current D&D incidence rate × average cost per incident × % reduction from early detection

Prevention adds up across the product suite



Worked example	
Annual shipments	10,000
Current D&D incidence rate	20%
Average cost per incident	$2,600
Expected reduction (conservative)	35%
Annual D&D reduction value	**$1,820,000**

- This is the most leveraged driver. A 25% baseline D&D rate instead of 20% raises prevention value by 25%.

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Inventory optimization

You carry safety stock because lead times are unpredictable. Confidence-scored ETAs reduce that buffer, which means less inventory in the pipeline, lower carrying costs, and better cash flow.

Annual inventory carrying cost reduction

In-transit inventory value × % held as predictability buffer × carrying cost rate × reduction from improved ETA confidence

What to measure

In-transit inventory value

(Annual inbound value ÷ 365) × average pipeline days.

Safety stock

The portion held as a buffer, often 10–25%.

Carrying cost rate

Usually 12–15%, covering storage, financing, insurance, and obsolescence.

Worked example	
In-transit inventory value	$575M
Safety stock buffer	18%
Carrying cost rate	13%
Reduction from better ETAs	7%
Annual carrying cost reduction	**$941,850**

- For shippers and large BCOs, this is often where CFOs see the biggest bottom-line impact.

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Freight cost optimization

Better visibility into carrier performance supports smarter routing, consolidation, and mode selection. Orchestration shows you which carriers perform best on which lanes and automates the decisions that follow.

Annual freight savings

Annual freight spend × % optimization improvement

Optimization potential by approach



Worked example	
Annual freight spend	$180M
Optimization potential	1.8%
Annual freight savings	**$3,240,000**

- Results vary with how optimized you already are and how flexible your carrier mix is. Tight, locked contracts limit headroom, while annual or spot freight allows more.

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Total your number

Run each formula on your own data, then add the four results together. Use this worksheet to find your total annual value, ROI, and payback period.

Sum your value drivers

Manual work elimination	$
D&D reduction	$
Inventory carrying cost reduction	$
Freight optimization	$
Your total annual value	**$**

Set it against cost

ROI

(Total annual value − annual platform cost) ÷ annual platform cost

%

Payback

Annual platform cost ÷ (total annual value ÷ 12)

months

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Depending on your operation, these may apply

SLA compliance recovery

For 3PLs and LSPs. Monthly SLA breaches × penalty per incident × 12 × reduction from proactive alerts.

18 × $5,000 × 12 × 75%

$810,000 / yr

Cash flow and working capital

Annual inbound shipments × shipment value × (days of visibility improvement ÷ 365) × cost of capital.

50,000 × $3,500 × (1 ÷ 365) × 5%

$23,973 / yr

Compliance and exception prevention

For regulated industries such as pharma and perishables. Historical annual loss from compliance failures × prevention rate.

$2.5M × 40%

$1.0M / yr

Three assumptions drive most of the variance

If your D&D incidence rate is higher

A 25% baseline instead of 20% raises D&D savings by 25%. This is the most common reason ROI comes in above projections.

If manual work is underestimated

Audit one to two weeks of time spent in carrier portals, spreadsheets, email, and calls. This often reveals 10–20% more cost than the first estimate.

If the freight market is tight

Optimization headroom varies with market conditions. Start conservative, at 1–1.5%, and adjust for your carrier market and contract flexibility.

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Most value accrues in the first six months

Orchestration embeds in stages. Here's a representative timeline from integration to fully autonomous execution.

Weeks 1–2

System integrations are complete and unified tracking goes live. Manual work starts to drop.

Weeks 3–6

ETA IQ is deployed. Predictive exceptions surface and D&D prevention begins.

Weeks 7–12

Moddule Orchestration goes live. Routine decisions are automated and SLA compliance improves.

Months 4–6

Orchestration is fully embedded, and 60–70% of year-one value is typically realized by month six.

Month 12

Orchestration is part of how the operation runs, and the value compounds from here.

Ready to model your ROI?

This framework gives you the formulas, but your ROI depends on your data. The next step is a conversation: we'll walk through your inputs, validate the assumptions, and run a live demo of orchestration against your own shipment data.

Visibility Platform | ETA IQ | Moddule Orchestration

Schedule a 30-minute session

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