MODDULE®

The ROI of Supply Chain Orchestration

Quantify Moddule's impact on your operations

Most logistics leaders guess at savings. Stop guessing — model the exact impact using our four value driver framework, customized to your shipment volume, D&D rates, and inventory structure. Walk away with a number you can defend.

3:1–8:1	6–14 wks	$53B
Typical ROI	Payback period from go-live	Annual spend on agentic supply chain software by 2030

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A framework for quantifying orchestration's impact — 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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ABOUT THE AUTHORS

Written by the team that ships 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.



David Marshall

Chief Operating Officer · Moddule

Led multi-region business at DHL, Flexport, and CEVA Logistics. One of the few people who has operated freight at scale across three of the industry's most demanding environments.



Ben Jones

Co-founder & Head of Sales · Moddule

Spent his career inside DSV and Royale building the commercial relationships Moddule now sells into. Knows the buyer because he was the buyer.



Lauren Chambers

Head of Customer Success · Moddule

Built customer experience across Maersk and MSC — organisations where execution quality is mission-critical. Leads onboarding and long-term customer success at Moddule.

Moddule sits at the center of the shift

We don't replace your TMS, WMS, or ERP. We sit above them, unify trust across 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

Supply chain management software with agentic AI will grow to **$53 billion** in annual spend by 2030, according to Gartner's April 2026 forecast. This shift is driven by three forces — each with a measurable impact on your operation.

Increasing complexity

Global logistics networks require real-time decision-making across disconnected systems.

Margin pressure

Manual approaches don't scale. Orchestration enables growth without proportional headcount increases.

Working capital optimization

Better predictability directly improves cash flow and reduces inventory carry. CFOs prioritize this.

HOW TO USE THIS CALCULATOR

ROI isn't one-size-fits-all. This framework shows the formulas and breaks down where the value comes from. Plug in your numbers to see what **Visibility Platform**, **ETA IQ**, and **Moddule OS** can deliver for your operation.

4

core value drivers, modeled on your data

VALUE DRIVER 01

Manual work elimination

01

Your teams spend **30–40%** of their time chasing shipment status across disconnected systems, reconciling contradictory data, and escalating exceptions manually. This is high-cost, low-insight work. Orchestration automates it.

FORMULA · ANNUAL MANUAL WORK SAVINGS

FTEs in tracking & reconciliation × % 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 on manual tracking vs. planning.

Loaded cost
Salary + benefits + 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**

Estimate **60–70%** of this time is eliminated — realize **$138,600 to $161,700** in productivity gains in year one.

VALUE DRIVER 02

D&D reduction

02

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

FORMULA · ANNUAL D&D REDUCTION VALUE

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

PREVENTION STACKS ACROSS THE PRODUCT SUITE



WORKED EXAMPLE

Annual shipments	10,000	Avg. cost per incident	$2,600
Current D&D incidence rate	20%	Expected reduction (conservative)	35%

Annual D&D reduction value **$1,820,000**

The most leveraged driver. Each **1%** increase in baseline D&D rate multiplies prevention value by **25%**.

VALUE DRIVER 03

Inventory optimization

03

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

FORMULA · 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) × avg. pipeline days.

Safety stock %
Portion held as a buffer — often 10–25%.

Carrying cost rate
12–15%: storage, financing, insurance, obsolescence.

WORKED EXAMPLE

In-transit inventory value	$575M
Safety stock buffer	18%
Carrying cost rate	13%
Reduction from better ETA	7%

Annual carrying cost reduction **$9.44M**

Often the **largest driver** for shippers and large BCOs — where CFOs see the biggest bottom-line impact.

VALUE DRIVER 04

Freight cost optimization

04

Better performance visibility into carriers enables smarter routing, consolidation, and mode selection. Orchestration lets you see which carriers perform best on which lanes — and automate the decisions that follow.

FORMULA · 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

Varies by baseline optimization and carrier-mix flexibility. Tight, locked contracts limit headroom; **annual or spot freight** allows more.

Total your number

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

STEP 1 — SUM YOUR VALUE DRIVERS

1	Manual work elimination	$
2	D&D reduction	$
3	Inventory carrying cost reduction	$
4	Freight optimization	$
=	Your total annual value	$

06 · ADDITIONAL VALUE DRIVERS

Depending on your operation, these may apply

SLA compliance recovery

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

18 × $5,000 × 75% = $1.35M / yr

Cash flow & working capital

Annual inbound shipments × shipment value × days of visibility improvement × cost of capital.

50,000 × $3,500 × 1 day × 5% = $8.75M

Compliance & exception prevention

For regulated industries. Historical annual loss from compliance failures × prevention rate.

$2.5M × 40% = $1.0M (pharma, perishables)

VALIDATE YOUR NUMBERS

Three assumptions drive most of the variance

If D&D incidence rate is higher

Each 1% increase multiplies prevention value. A 25% baseline instead of 20% increases D&D savings by 25% — the most common scenario where ROI exceeds projections.

If manual work is underestimated

Audit for one to two weeks — time 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 (1–1.5%) and adjust based on your carrier market and contract flexibility.

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 complete.** Unified tracking goes live. Manual work starts to drop.
Weeks 3–6	**ETA IQ deployed.** Predictive exceptions surface. D&D prevention begins.
Weeks 7–12	**Moddule OS live.** Routine decisions automated. SLA compliance improves.
Months 4–6	**Orchestration fully embedded.** 60–70% of year-one value realized.

60–70%

of year-one value typically realized by **month six**.

Month 12

orchestration is fully embedded and value **compounds**.

WHAT'S NEXT

Ready to model your ROI?

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

Visibility Platform | ETA IQ | Moddule OS

Schedule a 30-minute session ↗

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