



eAi7 SUPPLY CHAIN OPTIMIZATION ANALYSIS

# How to Cut Freight Costs with Data-Driven Insights



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# Agenda

- 01** What is Supply Chain Optimization?
  - 02** The first step: benchmarking
  - 03** Live data: automating savings detection
  - 04** Measuring success: case studies
  - 05** Coming up next
  - 06** Key takeaways
- Q&A



# Poll

Do you feel that inefficient planning is costing you more than high freight rates?

01

# What is Supply Chain Optimization?



# What is Supply Chain Optimization?

A supply chain is a network of organizations getting a product from raw materials to consumers. Each node manages competing objectives based on customer and product needs.

## Manufacture

### What & how much do I make?

#### Decisions

- Demand profile: Seasonal, viral, or steady?
- Model: Push vs. Pull strategy

## Transport

### How & when do I move goods?

#### Decisions

- Mode selection: Air, ocean, rail, truck
- Service: Premium vs. standard

## Store

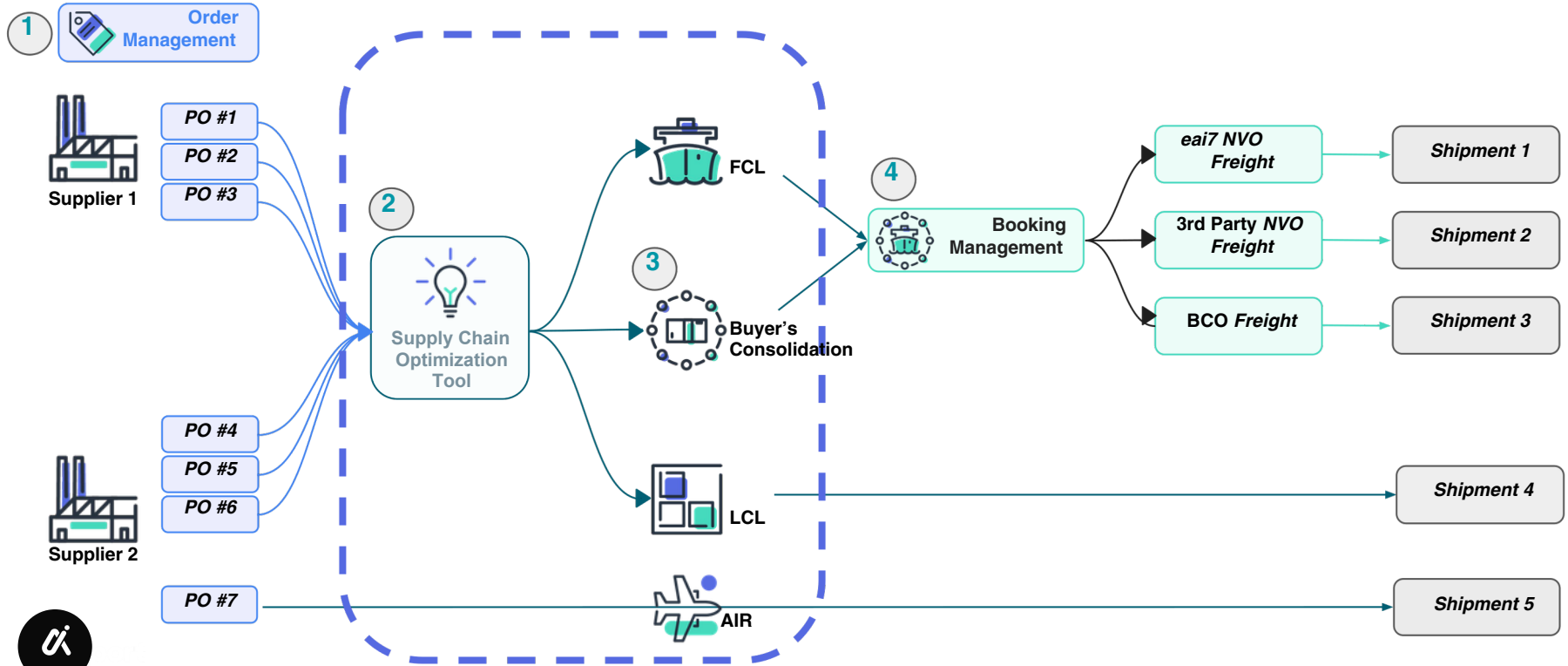
### How much & where do I store it?

#### Decisions

- Inventory position & strategy
- Target Customer Service Level (CSL)

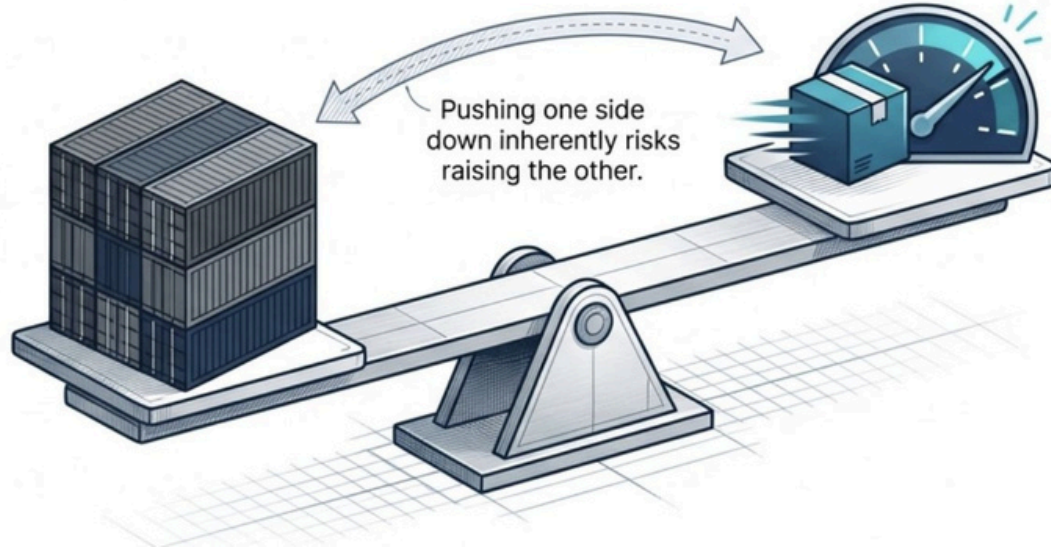


# For today we're going to focus on the mode selection and shipment allocation



# A supply chain is also a continuous battle of competing tradeoffs

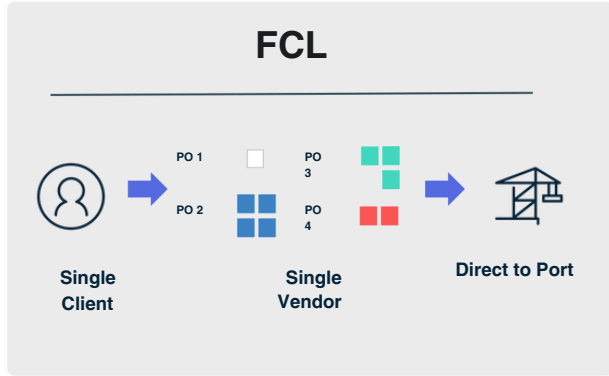
Move goods at the **lowest cost** and lowest CO2 emissions.



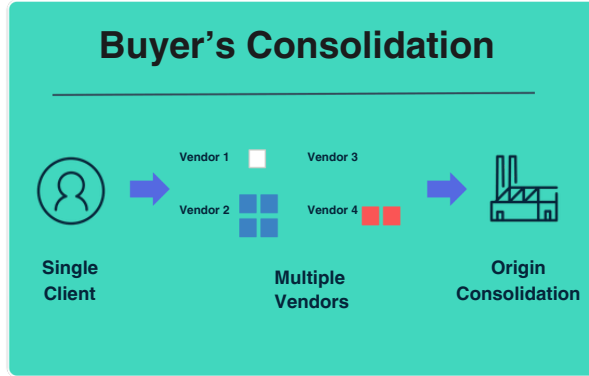
Maximize **on-shelf availability** and **customer service level**.



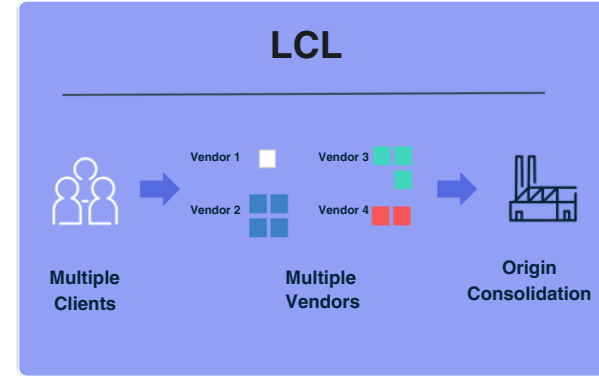
# Aligning volume and urgency: The right mode for every shipment



Great for high-volume cargo



Buyer's Consolidation (BC) combines small freight from multiple local vendors;



LCL manages small, non-urgent volumes as a cost-effective alternative to air



Combining modes to balance cost + transit time



02

Where to begin?  
The first step: benchmarking

# Poll

Have you conducted a historical analysis of your shipments to identify savings opportunities?



# Start with your historical analysis

CONTROL TOWER | SUPPLY CHAIN OPTIMIZATION (SCO)

**And started looking into cost avoidance related to moving from air to ocean.**

The following example looks at Taiwan to Michigan (TPE to SFO) shipments from the last 12 months.

Category	Description	Transportation Cost (\$)	Transit Time (days)	CO2 Emissions (tCO2) (4)
Base Case - All Air	333,000 kg	\$1.8M	8	2,700
Air + FCL & BC (1)	57 TEU + 41,280 kg air	\$0.7M	-30-35 (3)	400

**Notes:**

- In air to ocean conversion, F subject with LCL, retained or due to longer transit time.
- Cost includes Origin + Main Freight + Destination from TOWER to US/AS/OS/EMEA. The highest rates was used in the above analysis.
- Transit time for BC requires additional time for origin consolidation of shipments across multiple suppliers.
- CO2 emissions for air are based on actuals.

**Key Takeaways:** The longer we can wait to consolidate shipments either from the same supplier (to generate FCL) or from multiple suppliers (to generate Buyer's Consolidation), reducing overall transport cost and CO2 emissions; however, the trade-off is longer transit time.

Bespoke Studies

**SCO Analysis Overview**

This section compares your historical (base case) shipping performance with the optimized results from the SCO model, organized into three focused areas.

**FCL & BC Metrics**

	Base Case (FCLs) / Utilization	BCO Optimized (Counts) / Utilization	Delta % / Trend	Counts	Delta % / Trend	Utilization
Total Containers	63 (18%)	12 (2%)	-81.2%	10	23.7%	15%
20GP Containers	48 (15%)	10 (7%)	-45.8%	80	23.2%	14%
40GP Containers	15 (5%)	2 (1.4%)	-87.3%	20%	18.3%	2%
50GP Containers	0	0	-	0	0%	0%
BC Containers	5 (1.6%)	2 (1.7%)	40.0%	2	6%	6%

**LCL Metrics**

	Base Case	BCO Optimized	Delta % / Trend
LCL Volume (cubic)	81.9	70.2	-14.2% (-17%)
Avg. Consolidation / Dwell Days	3.4	4.8	+43.2% (+1.5)

**Cost & Carbon Metrics**

	Base Case / Total (Per OBL)	BCO Optimized / Total (Per OBL)	Total Delta % / Trend	Per OBL Delta % / Trend
Total Cost (USD)	275,889 (81)	202,171 (68)	-26.9%	-14.3%
Origin Cost (USD)	55,157 (16)	47,852 (14)	-13.2%	-12.2%
Freight Cost (USD)	190,732 (56)	148,846 (42)	-22.7%	-14.2%

Existing Clients In-App

Report

**Buyer's Consolidation Recommendations**

The SCO suggests to consolidate shipments from multiple suppliers to generate Buyer's Consolidation.

**Summary**

Consolidation Summary	Aug 01, 2023	Aug 01, 2023	Aug 01, 2023	Aug 01, 2023	Aug 01, 2023
Consolidation Summary	Aug 01, 2023	Aug 01, 2023	Aug 01, 2023	Aug 01, 2023	Aug 01, 2023

**Shipments to be suggested consolidation**

Supplier	Ship Date	Ship Type	Weight (kg)	Volume (cbm)	Cost (USD)	CO2 (t)	Transit Time (days)	ETA
Supplier A	Aug 15, 2023	20GP	10,000	1.0	\$1,000	10	10	Aug 25, 2023
Supplier B	Aug 15, 2023	20GP	10,000	1.0	\$1,000	10	10	Aug 25, 2023
Supplier C	Aug 15, 2023	20GP	10,000	1.0	\$1,000	10	10	Aug 25, 2023

Forward Looking:  
In-App

Help decide strategy

Executing in real time



# Define constraints, analyze shipment data & ship more effectively

## Identify company goals and constraints

Define business goals and rules to create parameters for the analysis and optimize for the desired outcome.

## Analyze historical data

Analyze optimal mode solutions for each shipment/PO based on constraints.

## Identify optimization opportunities

Cost saving opportunities from mode selection improvement, PO resizing, and routing changes are shared.

## Actualize savings

Execute smarter shipment planning that will drive logistics cost savings and carbon emission reduction.

We will identify savings by optimizing for:



**Purchase  
Order Sizes**



**Buyer's  
Consolidation**



**Mode  
Selection**



**Reducing Premium  
Shipments**



**Dynamically  
deciding FCL vs. LCL**



**Supplier Locations &  
Routings**



# Supply Chain Optimization helps clients reduce freight costs using different strategies.

Consolidate air shipments for “deferred” air service levels

Optimization Category	Base Strategy	Optimized Strategy	Delta
Total Air Shipments	1433	1097	-336 (-23%)
Average Shipment Weight (KG)	140	182	43 (30%)
Air Origin Bill Cost	360K	284K	-76K (-21%)

Shift from air to Premium Ocean to save up to 60% cost



**\$170k**  
Air Cost

**\$71k**  
Premium  
LCL Cost

Use Buyer’s Consolidation to combine shipments into an FCL box

Single Client → Multiple Vendors → Origin Consolidation

After origin consolidation, BC moves as a normal FCL shipment saving up to 15% of transportation costs.

## Freight + Omni Network Design

Service Level	Case	Estimated Cost to Fulfillment Center	
		Estimated Total Cost	Per unit (carton) Cost
Fast Transit Time	1	\$5,278,637	\$14.86
	2	\$3,360,194	\$9.46



03

Live data: automating savings  
detection



# Poll

Are you currently using  
spreadsheets for your shipment  
planning?



# Planning today

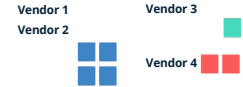
Planning today might be a set of heuristics, orchestrating multiple spreadsheets, requesting multiple quotes to identify what's the best way to ship.

IF volume < 15 CBM  
THEN ship LCL.  
IF volume > 15 CBM  
THEN ship 20' FCL.

**Static rules** cannot adapt to dynamic market rates or volatile demand. They force you to operate at a local optimum, ignoring real-time context.

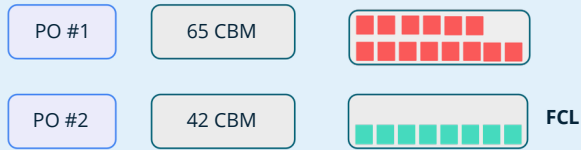


# Supply Chain Optimization (SCO) uses a proprietary algorithm to reduce logistics costs while meeting transit times

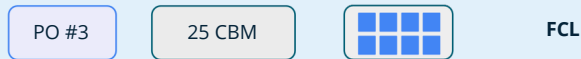


## Baseline scenario

### SUPPLIER A



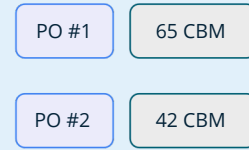
### SUPPLIER B



Total 3 Containers  
Avg Utilization at 78%  
Costs \$9,000

## Recommended scenario

### SUPPLIER A



### SUPPLIER B



SCO

### SUPPLIER A



### SUPPLIER A+B



Total 2 Containers  
Avg Utilization at 86%  
Costs \$6,300



04

DEMO of In-App SCO



# Hello Ryan!

[Book a shipment](#)[Search freight rates](#)

There are 3 overdue tasks and 3 are due today

## Shipments

### 415

87 with exceptions

Location

Milestones

Exceptions

Supply Chain Optimizations

Quotes & Bookings

## Products

### 2589

204 missed cargo ready date

Purchase Cost

Purchase Orders

Order Exceptions

## Containers

### 567

\$3,598 Est. past free time...

Demurrage & Detention

## Customs Declarations

### 316

18 under hold or exam

Customs Release Status

Customs Exceptions



Reset

## Supply Chain Optimization

### Available consolidation opportunities

Recommendations requiring review

### 5

Est. Savings available

### \$6,351.45

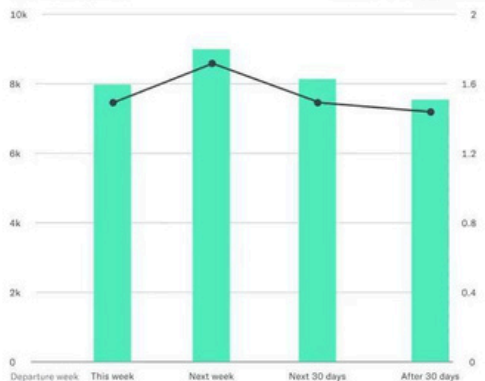
Est. Carbon reductions available

### 1.55 tCO<sub>2</sub>e

### Departing consolidations

Est. cost saving in USD

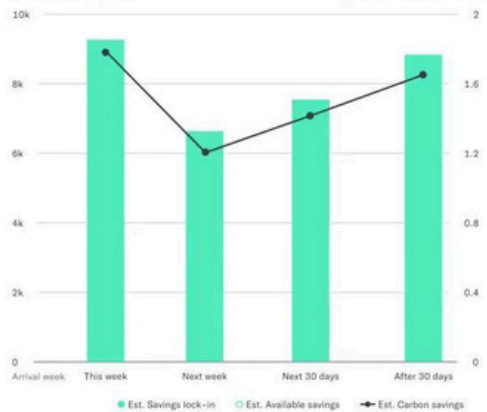
Est. tCO<sub>2</sub>e saving in tonnes



### Arriving consolidations

Est. cost saving in USD

Est. tCO<sub>2</sub>e saving in tonnes



Analytics timespan

Last 6 months



# Setup SCO & BC configuration

Configure the parameters that fits your operational requirements

## Settings

Company Users Notifications API Webhooks Shipment Preferences ERP Integration Shipment Preferences **Supply Chain Optim**

### Supply Chain Optimization

Define your optimization preferences to ensure Flexport's transportation analysis identifies opportunities that maximize space and reduce costs.

#### Optimization

**Optimization recommendations**  
When enabled, this will generate consolidation recommendations and overrule your Buyer Consolidation (BC) approval settings.

#### Approval Thresholds

**Minimum container utilization before approval**  
Set the minimum container capacity required for automatic approval. Shipments under this utilization threshold will require manual review.

**Maximum dwell time before approval**  
Specify the maximum days cargo can wait at origin for automatic approval. Shipments exceeding this dwell time will require manual review.

#### Supported Lanes

Port Pairings

## Supported Lanes

Port Pairings

Only shipments moving along these allowed pairs will be eligible for optimization.

### Container Groups

#### Group Settings

Configure physical capacity limits and equipment types to ensure automated load plans remain within the practical volume and weight constraints of your chosen lanes.

Group 1	Target utilization	Loading factor	Weight limitation	Max No. Pallets	<input type="button" value="Edit"/>	<input type="button" value="X"/>
20ft	85.6%	65.0 cbm / 75.9cbm	19,500 kg	20		
40ft	85.6%	65.0 cbm / 75.9cbm	19,500 kg	20		

Supporting Lanes (2)

Group 2	Target utilization	Loading factor	Weight limitation	Max No. Pallets	<input type="button" value="Edit"/>	<input type="button" value="X"/>
20ft	85.6%	65.0 cbm / 75.9cbm	19,500 kg	20		
40ft	85.6%	65.0 cbm / 75.9cbm	19,500 kg	20		
45ft	85.6%	65.0 cbm / 75.9cbm	19,500 kg	20		
40ft HC	85.6%	65.0 cbm / 75.9cbm	19,500 kg	20		

Supporting Lanes (6)

- Qingdao, China → Los Angeles, CA
- Shanghai, China → Los Angeles, CA
- Yantian, China → Los Angeles, CA
- Yantian, China → Rotterdam, Netherlands
- Yantian, China → Toronto, Canada

#### Delivery Constraints

Define the boundaries for timing, delays, and deadlines.

**Target arrival date**  
Specify whether Flexport must respect your required arrival dates to ensure that optimization opportunities do not cause shipments to deliver past their deadlines.

**Late arrival penalty per day**  
Set the daily cost for late arrivals to let the algorithm weigh potential penalties against consolidation savings.

**Drayage days from Port to Destination**  
Specify the number of days required for inland transport from the arrival port to the final destination to ensure the algorithm accurately calculates the total transit time.



# Client review & approval

The intuitive, data-supported view streamlines complex shipment approvals with One-Click Consolidation Approval.

### Review Consolidation Recommendations

You are Logged in as Jesse Pinkman from PO Management Test Consignee  
[Go Back To Core](#)

**CNSHG → USLAX**  
FCL Consolidation  
Due: Jan, 23, 2026

**Consolidation Summary**

Est. container size	Est. arrival	Est. weight	Est. cubic meters	Est. utilization rate	Est. cost saving	Est. carbon emissions saved
40 ft HC	Apr 20, 2026	103.6 KG	62.5	82%	\$2220.00	0.00 Co2

**Shipments in the suggested consolidation**

Size	Flex ID	CRD	Volume (CBM)	Weight (KG)	Original Cost	Est. revised cost	Est. cost savings	Target Delivery	Target Delivery Delta	Actions
FCL	<a href="#">FLEX-3700798</a> test 1234	Mar 23, 2026	31.27	51.8	\$2590.00	\$1480.00	\$1110.00	May 5, 2026	15 days earlier	<a href="#">Omit</a>
FCL	<a href="#">FLEX-3700820</a> test 1234	Mar 24, 2026	31.27	51.8	\$2590.00	\$1480.00	\$1110.00	May 6, 2026	16 days earlier	<a href="#">Omit</a>

**Approve or reject recommendation**

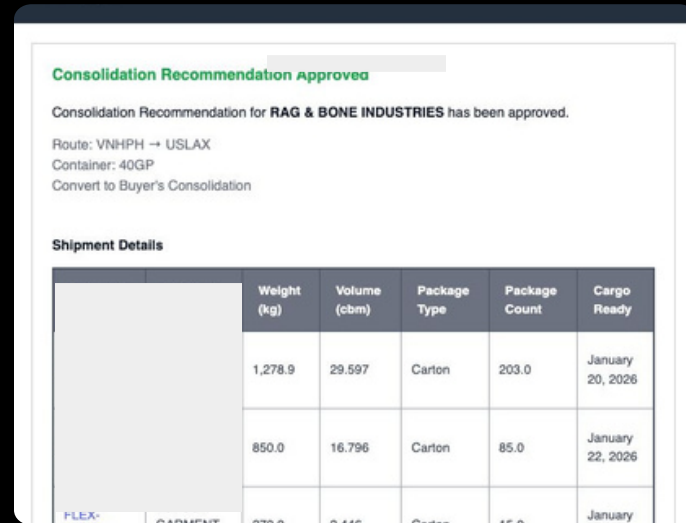
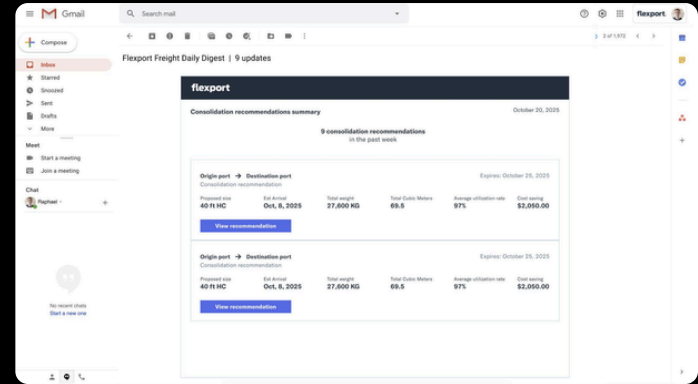
[Reject consolidation](#) [Accept consolidation](#)

**Omit shipments and see how the costs/utilization changes**



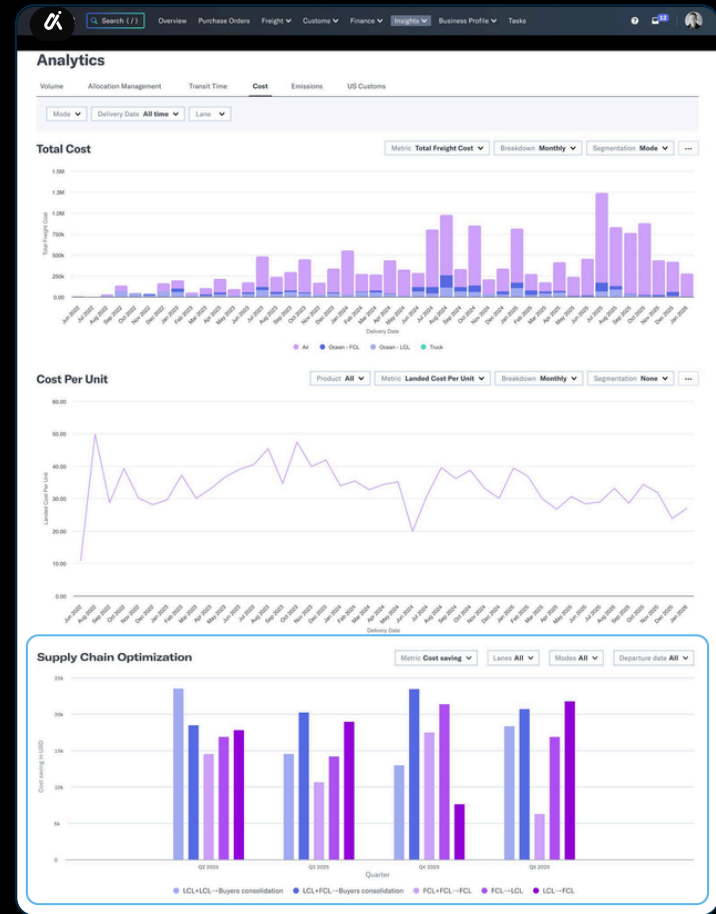
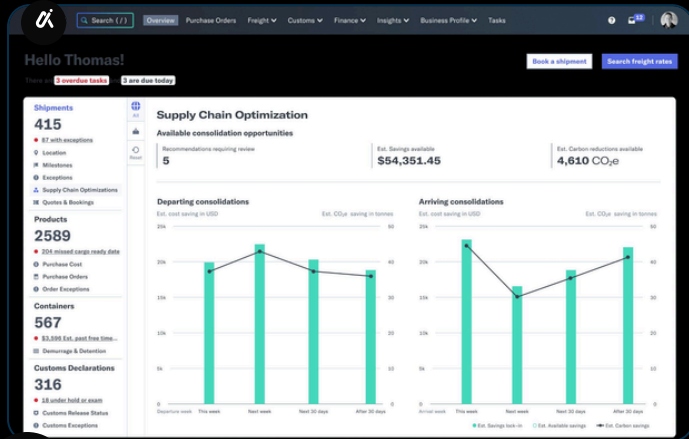
# Email notification & operations execution

All related parties will be notified via email when recommendations are available and on the final decision.



# Analytics panels

Keep track of shipments and associated savings



05

## Measuring Success: Case Studies

# Do any of these challenges resonate?

**Manual planning and replanning reducing frequency of identifying opportunities**



**Siloed departmental goals**



**Operational complexity preventing shipment coordination**



# What are some examples we've seen in the field?

## Up to 15% savings

from adding Buyer's Consolidation into your mode mix solutions.

## Average 50% of 20s

reduced by consolidating underutilized

FCLs + using BC

## Up to 30% of air shipments

to take advantage of HAWB fees and utilizing higher weight breaks. reduced by air consolidations allowing you



06

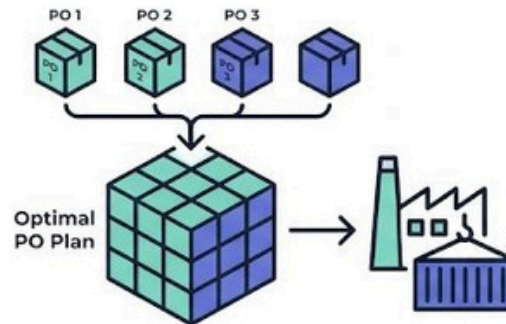
Coming up next



# Coming up!

Moving upstream to purchase order level optimization.

More air opportunities.



*Total paid across  
3 Flex IDs*  
Per KG: \$3541.24  
HAWB costs: \$1,116  
*Total cost: \$4,657.19*



*Total paid across  
1 Master Flex ID*  
Per KG: \$3,260.26  
HAWB costs: \$372  
*Total cost: \$3,632.26*



*Total savings*  
Per KG: \$280.98  
HAWB costs: \$744  
*Total cost: \$1,024.93*



07

Key takeaways



# Key takeaways

## Establish a continuous improvement rhythm

**Quarterly health checks:** Shift from annual reviews to 90-day audits to capture shifting margins and lane patterns.

**Prevent efficiency creep:** Continuously update your "baseline scenario" so optimized savings become your new standard.

## Anticipate strategic network shifts

**Model early:** Start "network design" studies 12 months before warehouse moves or fulfillment center expansions.

**Validate unit costs:** Use data-driven modeling to negotiate future logistics contracts based on projected per-carton costs

## Integrate procurement with logistics

**Optimize at the source:** Align PO sizing to lock in savings before booking.

**Unlock the "double win":** Reduce carbon footprints and costs simultaneously by shifting modes (air to ocean) and maximizing loads.



Thank you!



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