

# Designing the Supply Chain for CanDi

*From 3PL Dependence to an Optimized Distribution Network*

Supply Chain Analytics — Final Project

**\$22.2M**

Annual Revenue

**329K**

Bags / Week

**110**

SKUs

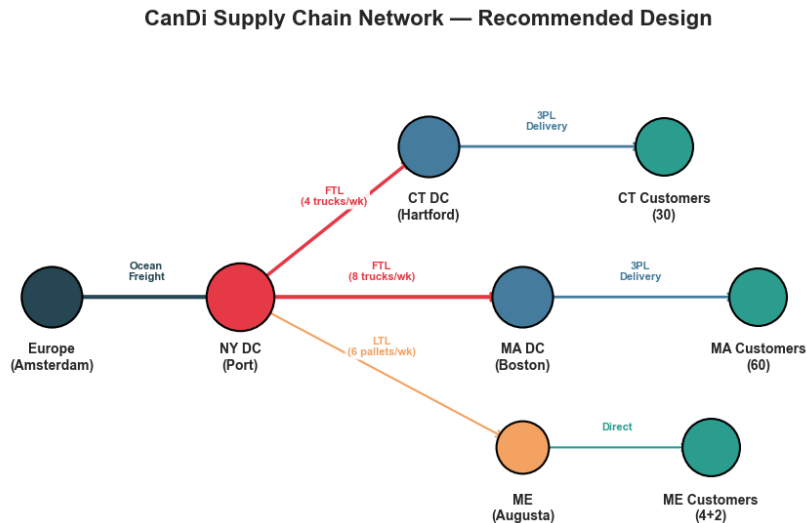
**3**

States Served

# Our Recommendation: Open CT + MA DCs

~\$1M/yr

savings vs. direct delivery from NY



- ✓ CT + MA DCs: \$1.67M/yr total cost
- ✓ FTL trunk-line: \$0.02/bag vs \$0.15 LTL
- ✓ 3PL handles last-mile coordination
- ✓ Periodic Review (R,S) — weekly cycle
- ✗ Maine DC not justified (\$200K for 9 pallets/wk)
- ✗ All-direct from NY: \$2.7M — too expensive

*ME served via weekly leased truck from NY (\$93.6K/yr) — far cheaper than a \$200K DC for only 4% of volume.*



# The CanDi Challenge

After 2 years using expensive 3PL distributors, CanDi must build its own supply chain — deciding where to place warehouses, how to ship, and what to stock where.



## FTL is Point-to-Point

Full trucks go to ONE destination. Max customer = 3.4 pallets vs. 20-pallet truck.



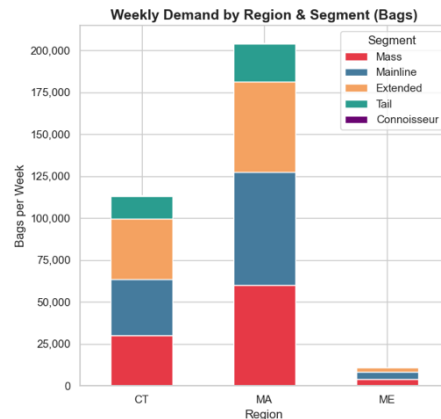
## \$200K/yr Per DC

Each regional DC has a steep fixed cost. Volume must justify investment.

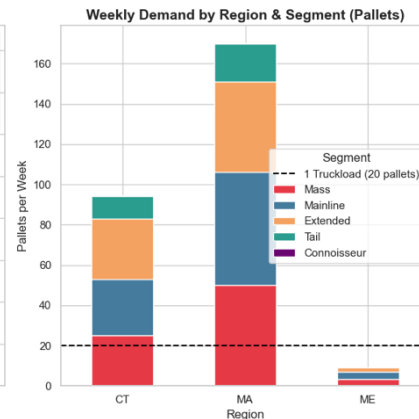
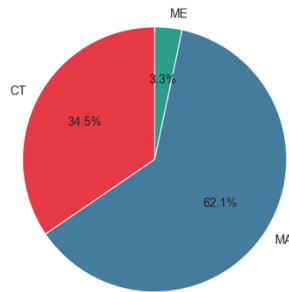


## \$1/box Surcharge

Mixed pallets at DCs incur a hidden \$1/box fee — devastating for low-volume SKUs.



Revenue Share by Region

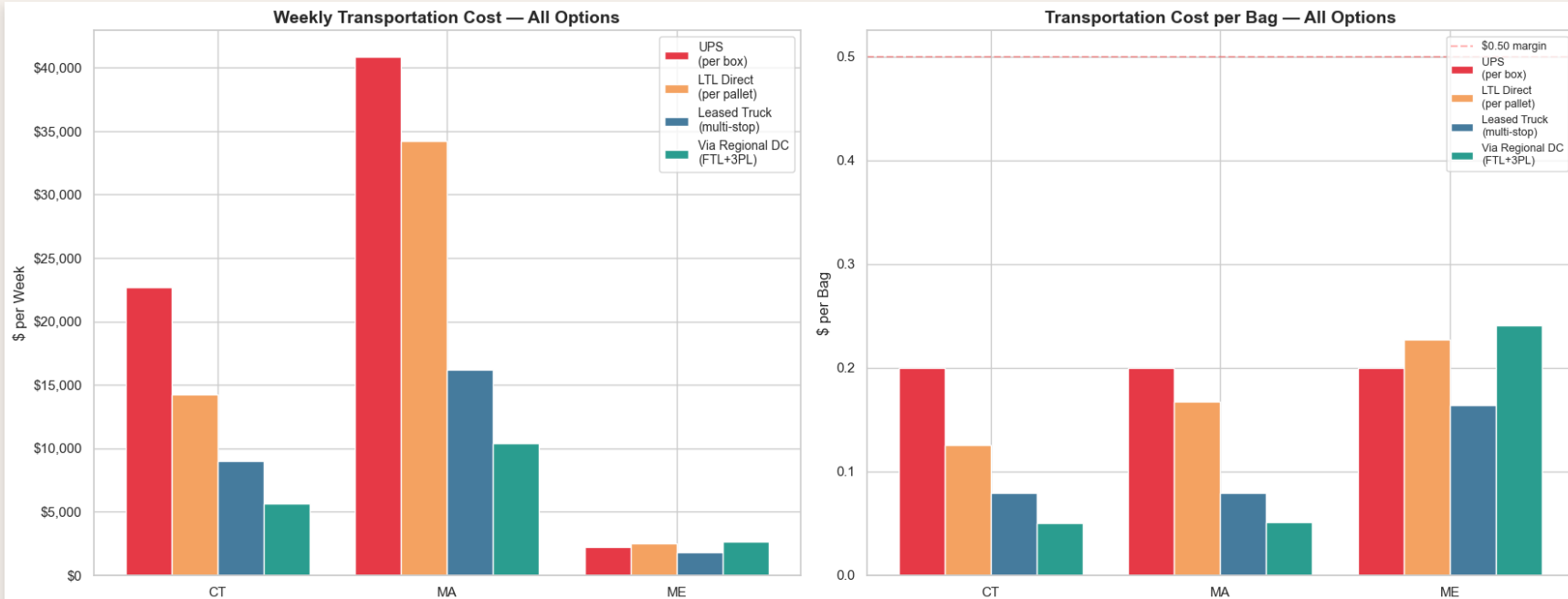


MA dominates with 63% of volume (~163 pallets/wk). ME is only 4% (~6 pallets/wk) — barely one-third of a truckload.



# Why Direct Delivery Fails

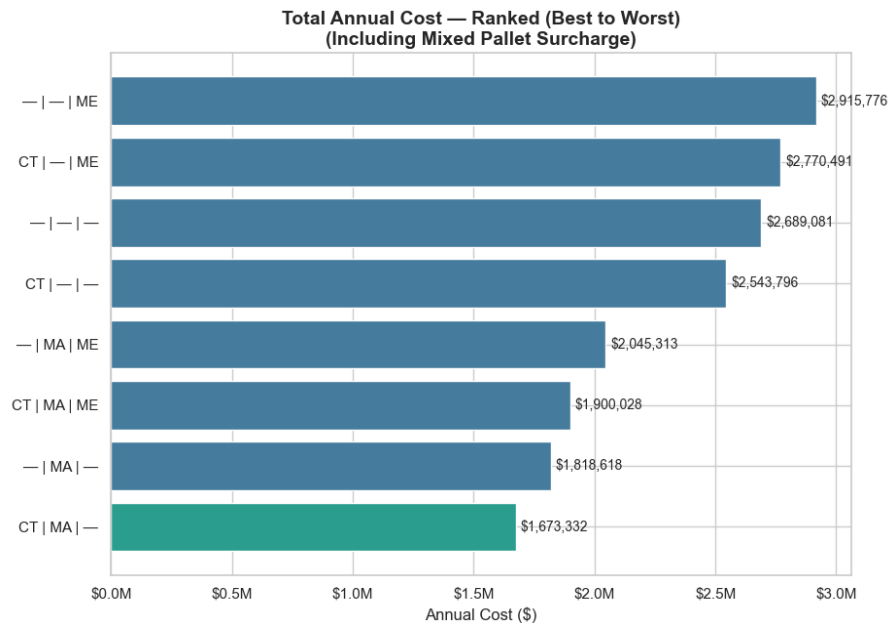
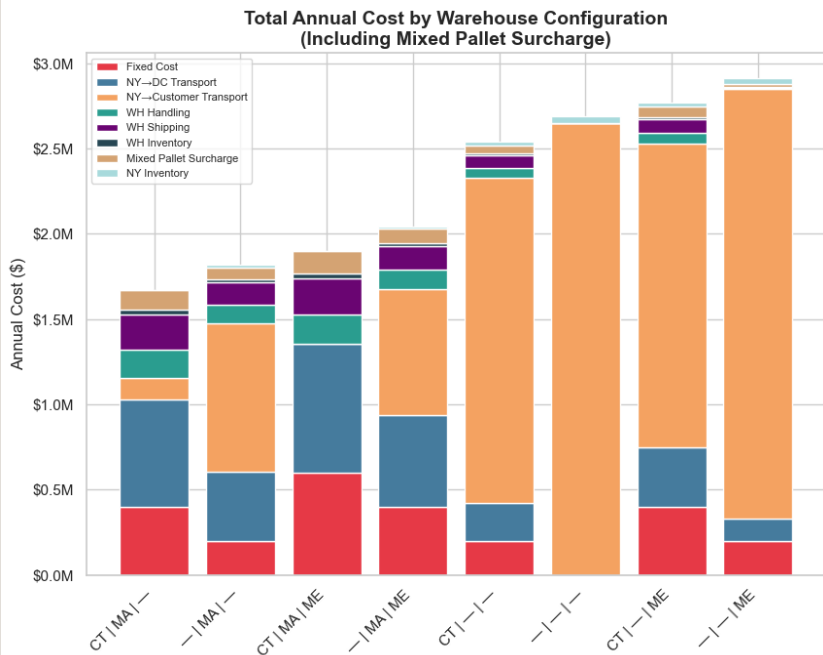
No customer fills even 1/5 of a truck — FTL wastes 83% of capacity. Regional DCs aggregate volume → \$0.02/bag FTL vs. \$0.15/bag LTL.



Left: weekly cost by mode and state. Right: cost per bag vs. the \$0.50 margin. Via Regional DC (green) is cheapest across all states.



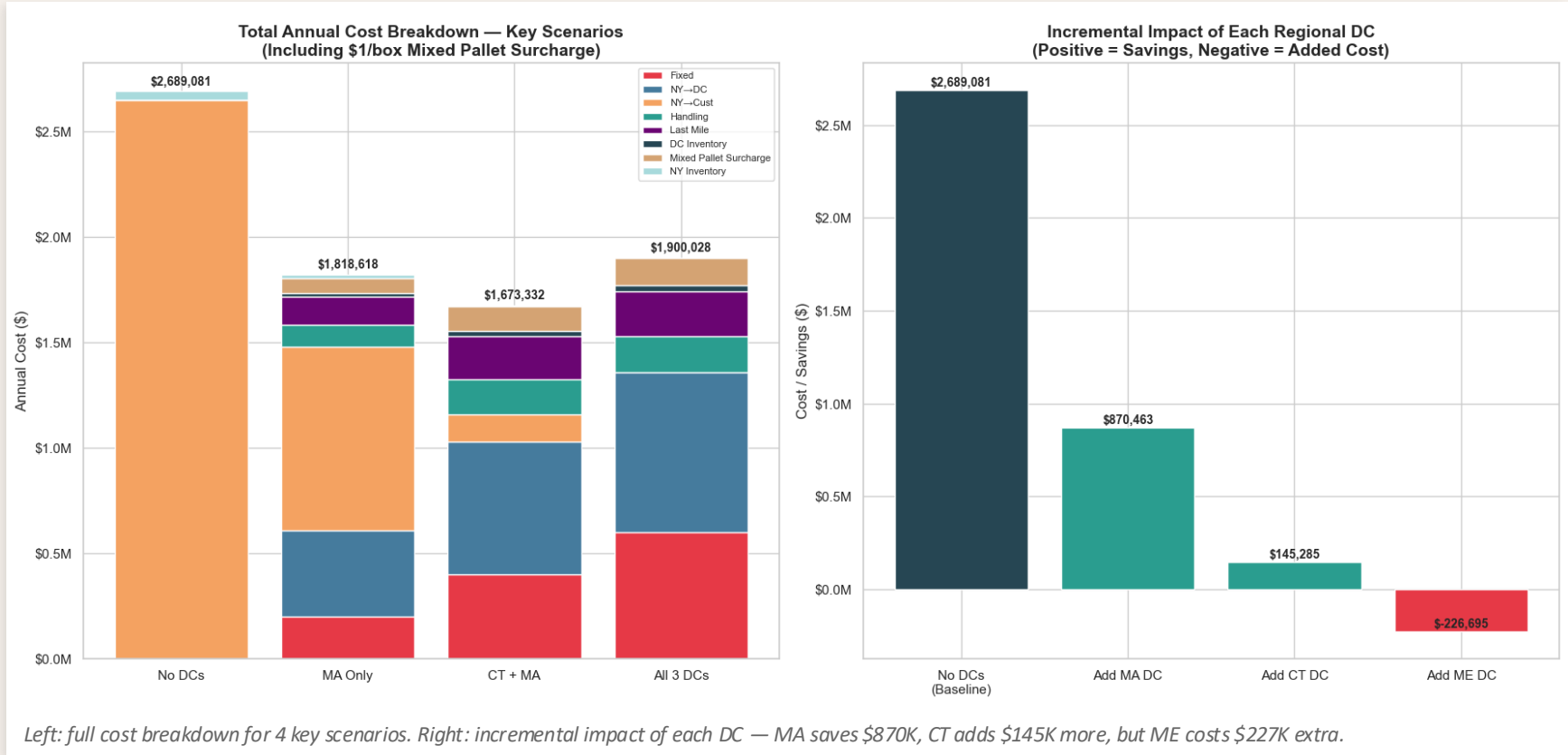
# All 8 Warehouse Configurations



CT + MA is the clear winner at \$1.67M/yr. Adding ME (+\$227K) makes All 3 DCs more expensive. Without any DCs, LTL direct costs \$2.69M.



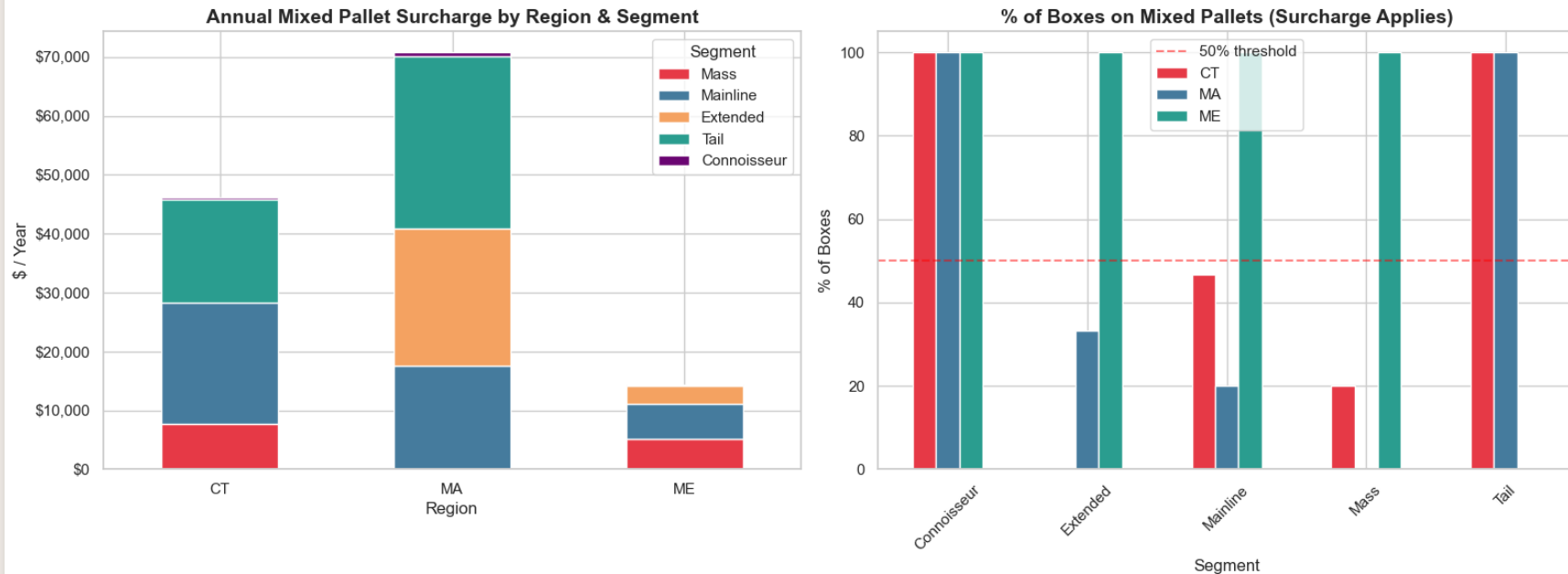
# Where Does the Money Go?





# The Hidden Cost: Mixed Pallet Surcharge

The \$1/box surcharge adds ~\$117K/year (CT+MA). Tail & Connoisseur segments are 100% mixed — but FTL savings still dominate the economics.



Left: annual surcharge by region. Right: % of boxes on mixed pallets. Mass/Mainline have low surcharge; Tail/Connoisseur are 100% mixed.



# Inventory: Lean & Responsive

**37 pallets**

Safety Stock

**60-93×**

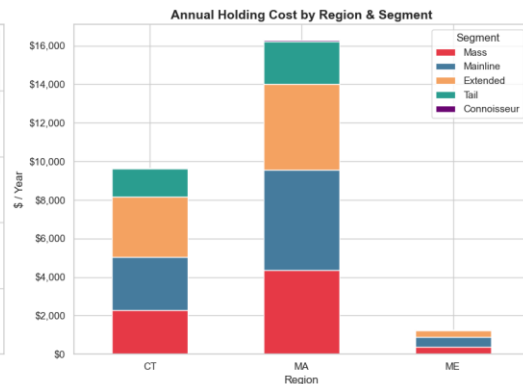
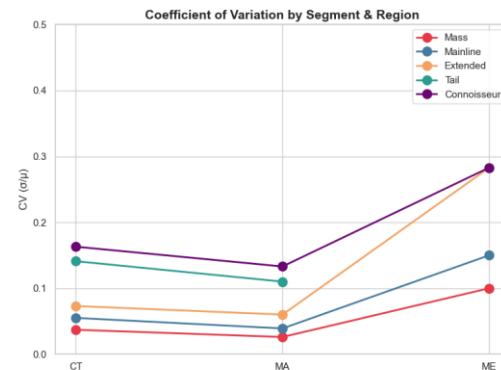
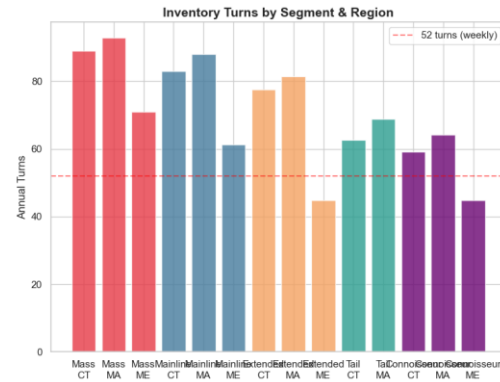
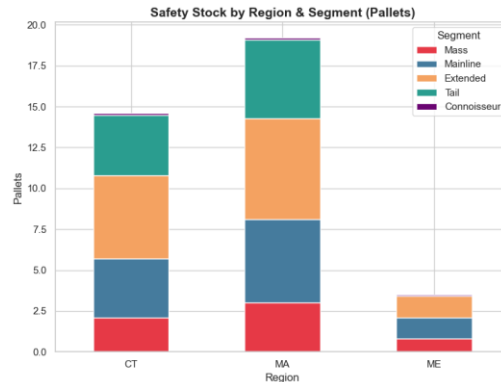
Inv. Turns/yr

**\$27K/yr**

Holding Cost

**95%**

Service Level



Demand pooling at DCs reduces CV → proportionally less safety stock. Periodic Review (R,S) with weekly cycle aligned to customer ordering.