CASE STUDY

Designing for Speed and Scale

Reimagining a Global Distribution Network

INTRODUCTION

A global micromobility company operating across North America and Europe sought to redesign its distribution network. Extended transit times, aggressive inventory reduction targets, and uncertainty around future footprint requirements required a pragmatic, data-backed strategy.

INDUSTRY

Micromobility

SERVICE

Network Design

RESULTS

- Reduced average U.S. transit times by 50% with a right-sized two-DC strategy
- Improved key East Coast market delivery performance by four to five days
- Prevented over-expansion by quantifying utilization risk in 3+ DC scenarios
- Demonstrated that 20%+ inventory reductions preserved existing facility viability
- Delivered a phased, capital-aware roadmap aligned to growth and risk scenarios

Executive Summary

A global mobility and micro-fulfillment organization engaged JBF Consulting to evaluate its North American and European distribution network to determine how to improve service, right-size distribution facilities, and support growth and inventory reduction initiatives. Operating from a single U.S. distribution center and one European hub, the company faced extended transit times to key markets and uncertainty around future footprint requirements.

JBF conducted a detailed transit time and distribution networks analysis, modeling multiple scenarios across 2-, 3-, and 4-DC footprints with varying growth and inventory reduction assumptions. The result was a pragmatic, data-driven roadmap that reduced average U.S. transit times by more than two days in a right sized distribution scenario while providing clear guidance on future facility size and investment decisions.

> *"We knew service times needed improvement, but we didn't want to overbuild. JBF helped us dramatically reduce transit times while protecting utilization and capital."*

Customer Profile

The client is a global mobility company supporting operations across North America and Europe. Its distribution network supplies vehicles, batteries, spare parts, accessories, and supporting infrastructure into dense urban markets.

In North America, distribution was centralized in a West Coast facility optimized for inbound flows. In Europe, a single continental hub supported multi-country distribution. While this configuration simplified operations, it created longer outbound transit times to major demand centers and increased service variability in certain regions.

At the same time, the organization was pursuing aggressive inventory reduction initiatives while evaluating moderate annual throughput growth. Leadership required a pragmatic network design that balances service performance, facility utilization, and future investment risk.

The Challenge

The client's network was efficient for inbound supply but not for outbound service performance across its largest demand markets.

In the U.S., a single-DC site resulted in an average transit time of approximately 4.2 days, with major markets such as Washington, DC and New York City experiencing six- to seven-day delivery windows. In Europe, customs requirements, water crossings, and geographic constraints pushed certain markets into five- to seven-day transit ranges despite seemingly centralized geography.

Complicating matters, the organization was simultaneously targeting inventory reductions of up to 65% while also modeling annual growth scenarios between 0% and 4%. Leadership needed to understand:

> *"The insight around utilization and future footprint risk changed the conversation internally. We avoided expansion for expansion's sake and built a roadmap."*

- How many distribution centers were truly required
- Where they should be located
- What future facility size would be required under various growth and inventory scenarios
- Whether existing assets could support long-term strategy

The objective was not simply to add facilities, but to design a network that improved service, preserved flexibility, and reduced strategic risk.

The Solution

JBF led a comprehensive network design and facility sizing engagement grounded in operational data and real-world constraints.

Using historical shipment data, JBF modeled multiple transit time and distribution network scenarios across North America and Europe, optimized both for total market coverage and weighted demand coverage. Transit times were calculated using road network benchmarks and real-world distance assumptions.

In parallel, JBF developed a facility sizing model that incorporated:

- Cubic throughput growth sensitivities (0%, 2%, and 4%)
- Inventory reduction targets (0–65%)
- Storage media assumptions (bulk vs. racked storage)
- Facility clear height and storage slot utilization

This dual analysis approach allowed leadership to see how network decisions would directly impact facility footprint, storage utilization, and capital exposure. The result was a pragmatic, phased network strategy supported by quantitative analysis rather than assumptions.

Results and Impact

The analysis identified substantial service improvements achievable with limited network expansion.

In the U.S., adding a second centrally located DC r reduced average transit times by 50%, with key East Coast markets improved by up to 75%. High-demand East Coast markets improved by four to five days. Volume was optimally split between the two DCs, dramatically improving responsiveness without requiring immediate further growth in the distribution footprint.

At the same time, models with three or more distribution sites showed incremental transit improvements, but significantly reduced utilization at the West Coast facility. In some cases, the original DC would retain less than 30% of current volume. This insight prevented over-expansion and highlighted the importance of balancing service gains against fixed asset underutilization risk.

> *“What impressed us most was how JBF connected network design with inventory strategy. They showed how service, footprint, and capital investment are interdependent decisions.”*

The network model also demonstrated inventory reduction initiatives above 20% would allow the existing facility to operate efficiently within its current footprint under most growth scenarios. Inventory reductions of 55–65% could reduce required footprint by more than 40%, creating strategic flexibility around vehicle consolidation and 3PL exit strategies.

Lessons Learned and Next Steps

Effective network design must integrate service, inventory strategy, and facility planning. Optimizing one without modeling the others introduces risk.

The engagement demonstrated that incremental expansion can materially improve service, but additional nodes quickly create asset underutilization unless supported by volume growth or structural change.

Future steps include refining facility design should expansion proceed, evaluating cross-docking opportunities, and updating the model with live operational data prior to final real estate commitments.