AVLINO

Leveraging AI to Maximize Container Terminal Profitability

www.avlino.com

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Who is Avlino?

We deliver adaptive **AI solutions** that enhance operational systems and decision-making, to increase **Container Terminals productivity and efficiency**

Our **AICON solution Suite** is unique to the industry as it provides directly embedded intelligent answers that help client realize operational KPIs

We **combine domain knowledge and analytical thinking with innovative technology** that continually self-adjusts to the most demanding and dynamic conditions

AVLINO

Headquarters
New Jersey, USA

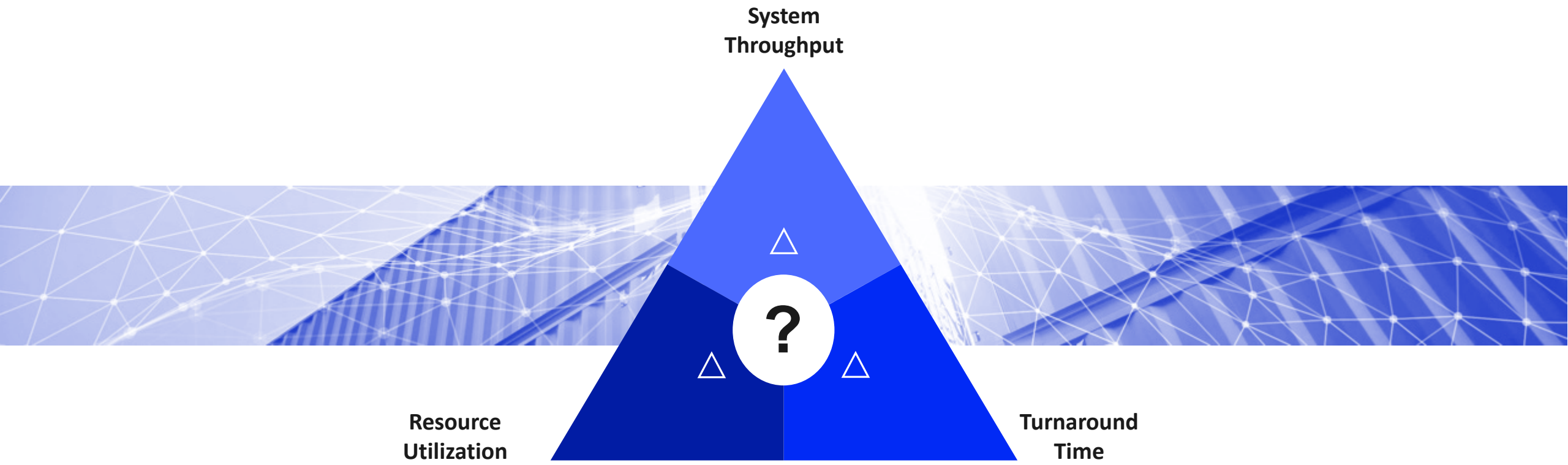
Design Centers
Bengaluru, India
Porto, Portugal

Expertise
Artificial Intelligence
Machine Learning
Operations Research
Big Data Engeneering
Cloud Infrastructure

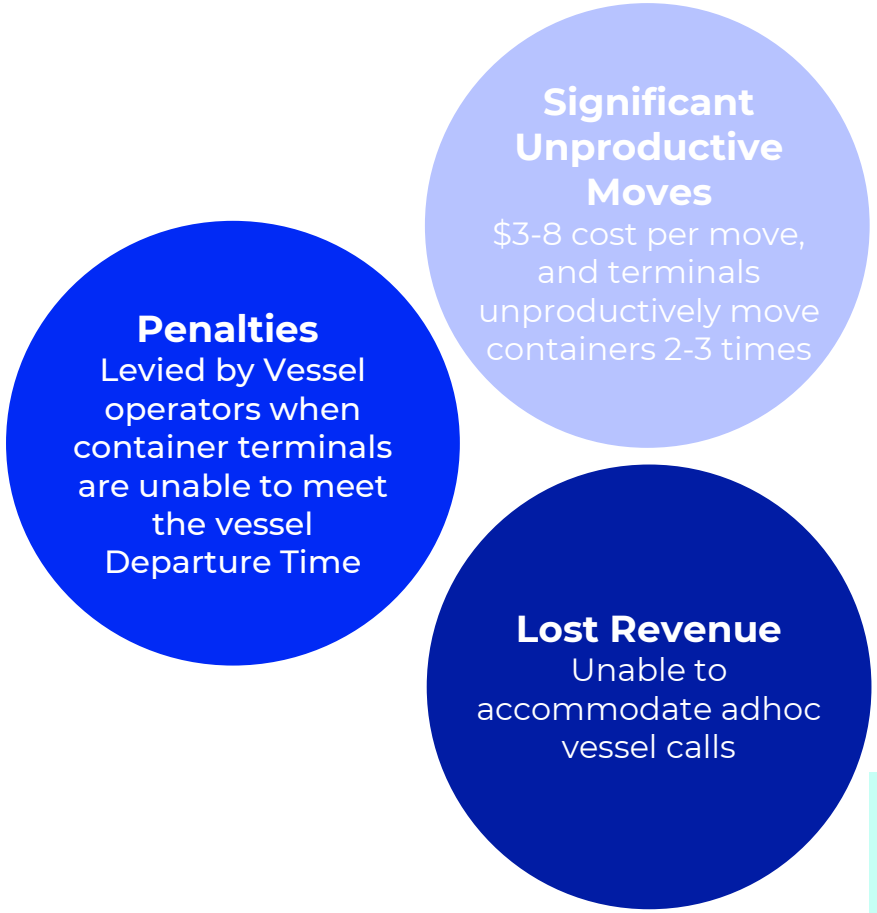
Revenue Model
Sotfware-as-a-Service

The conflicting business goals in Supply Chain systems

Supply Chain companies, such as Container Terminals, struggle to balance Throughput (Revenue), Resource Utilization (Profitability), and Turnaround time (Velocity)



Quantifying the Challenge in Container Terminals



Estimated loss in revenue and the increased operational expense for 1M throughput Container Terminal:

≈ $5 - 8M
Annual Revenue Lost

≈ $6 – 10M
Annual Excess Cost Incurred

AICON Solutions prevent the revenue loss, and eliminates the excess cost

AICON SOLUTION SUITE

IDOLS based Autonomous Operational Logic for Container Terminals

AVLINO

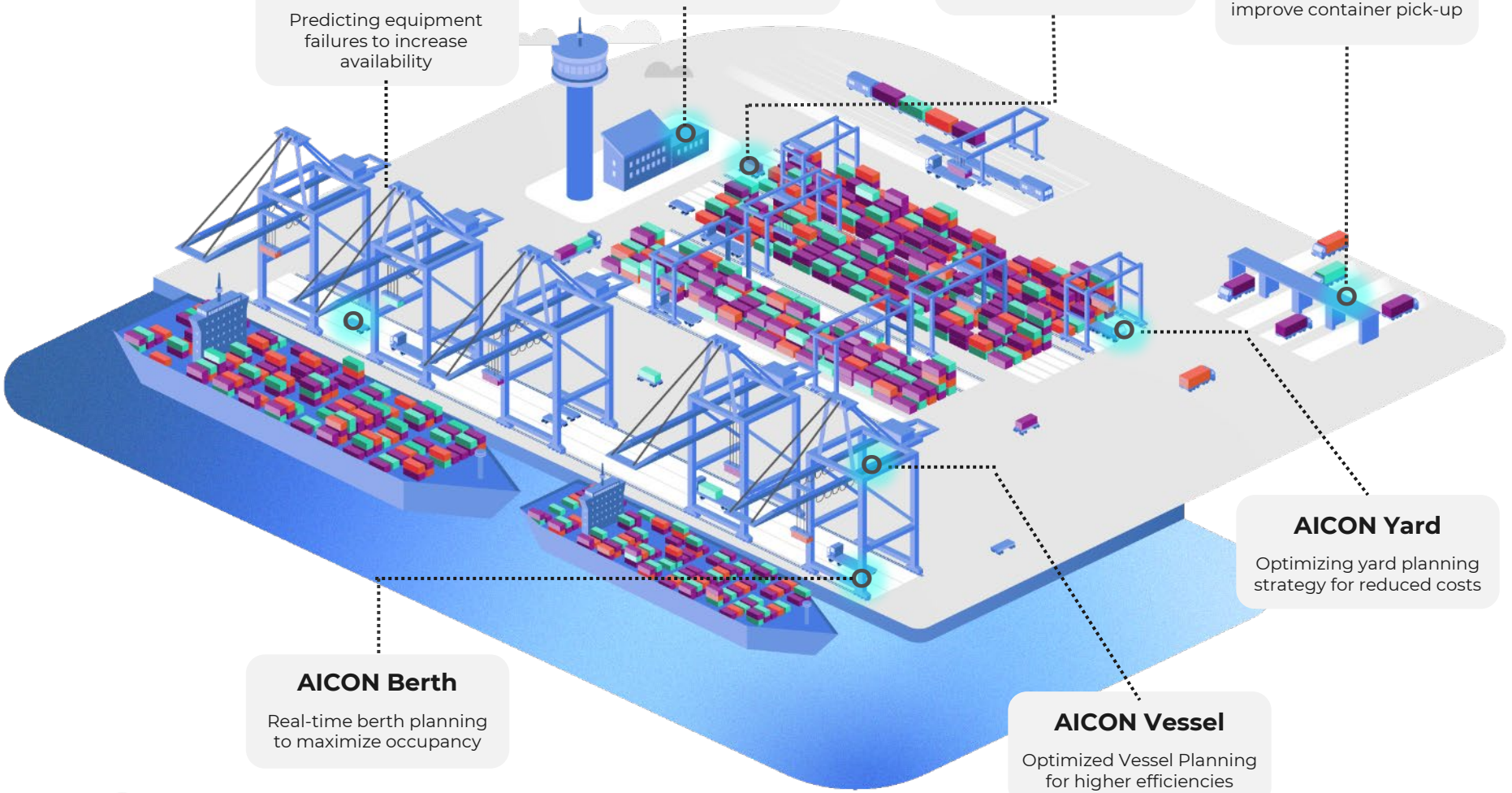
What is AICON Solution Suite?

AICON Solution Suite is overlay system to the workflow software that operates Container Terminals.

AICON plans **and** executes the entire operational aspects of Container Terminals, including:

1) Predicting the arrival time and determine the berthing location for deep-sea vessels
2) Stacking Import, Export, and Transshipment containers in the Yard
3) Planning, Scheduling and Dispatching all the Container moving equipment
4) Rostering Human and Equipment requirements
5) Planning and arrangement of Container Terminal Yard
6) Scheduling, receiving, and delivering to/receiving from external trucks and trains

AICON Product Proposition



AICON Equipment
Predicting equipment failures to increase availability

AICON 360
Exploring port analytics for informed decision-making

AICON Dispatch
Synchronizing and scheduling equipment for efficient use

AICON Gate
Coordinating operations to improve container pick-up

AICON Yard
Optimizing yard planning strategy for reduced costs

AICON Berth
Real-time berth planning to maximize occupancy

AICON Vessel
Optimized Vessel Planning for higher efficiencies

AI enabled AICON Modules

Integrates with TOS and sub-systems and makes smarter operational decisions

Adapts dynamically to changing input conditions

Learns from the past and eliminates inefficiencies before they arise

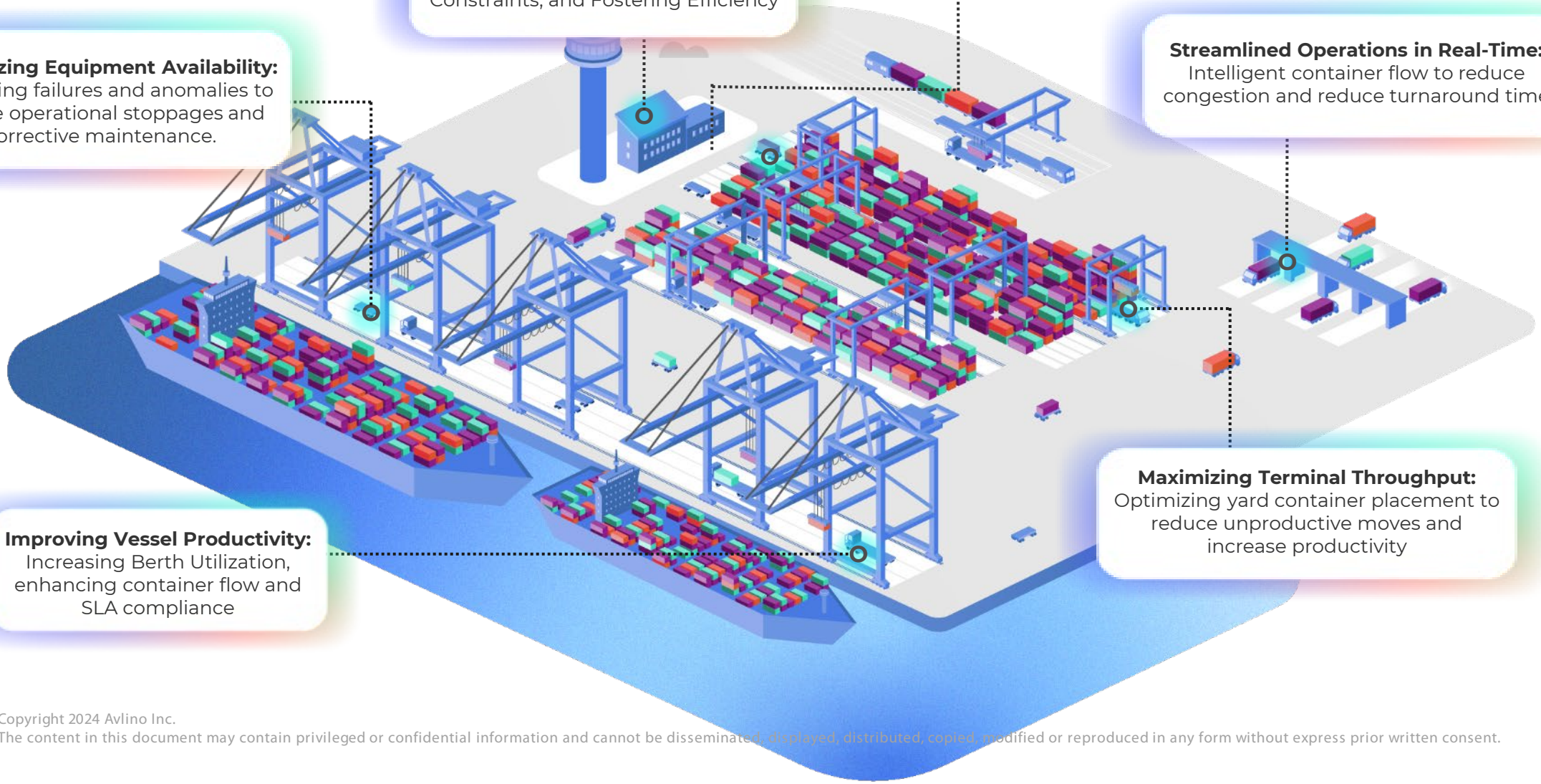
AICON Value Proposition

Enhanced Resource Management:
Ensuring optimal equipment deployment and utilization to reduce operational cost

Driving Continuous Improvement:
Monitoring KPIs, Identifying Constraints, and Fostering Efficiency

Maximizing Equipment Availability:
Predicting failures and anomalies to reduce operational stoppages and corrective maintenance.

Streamlined Operations in Real-Time:
Intelligent container flow to reduce congestion and reduce turnaround time



Maximizing Terminal Throughput:
Optimizing yard container placement to reduce unproductive moves and increase productivity

Improving Vessel Productivity:
Increasing Berth Utilization, enhancing container flow and SLA compliance

Case Study #1

1M TEU Manual RTG Terminal

Customer Pain Point

Yard and Equipment Productivity

Business Objectives

- Reduce Overhead Moves
    - Import/Export Rehandles
- Optimize Equipment Usage
- Improve Truck Turnaround Time

Solution

AICON Yard

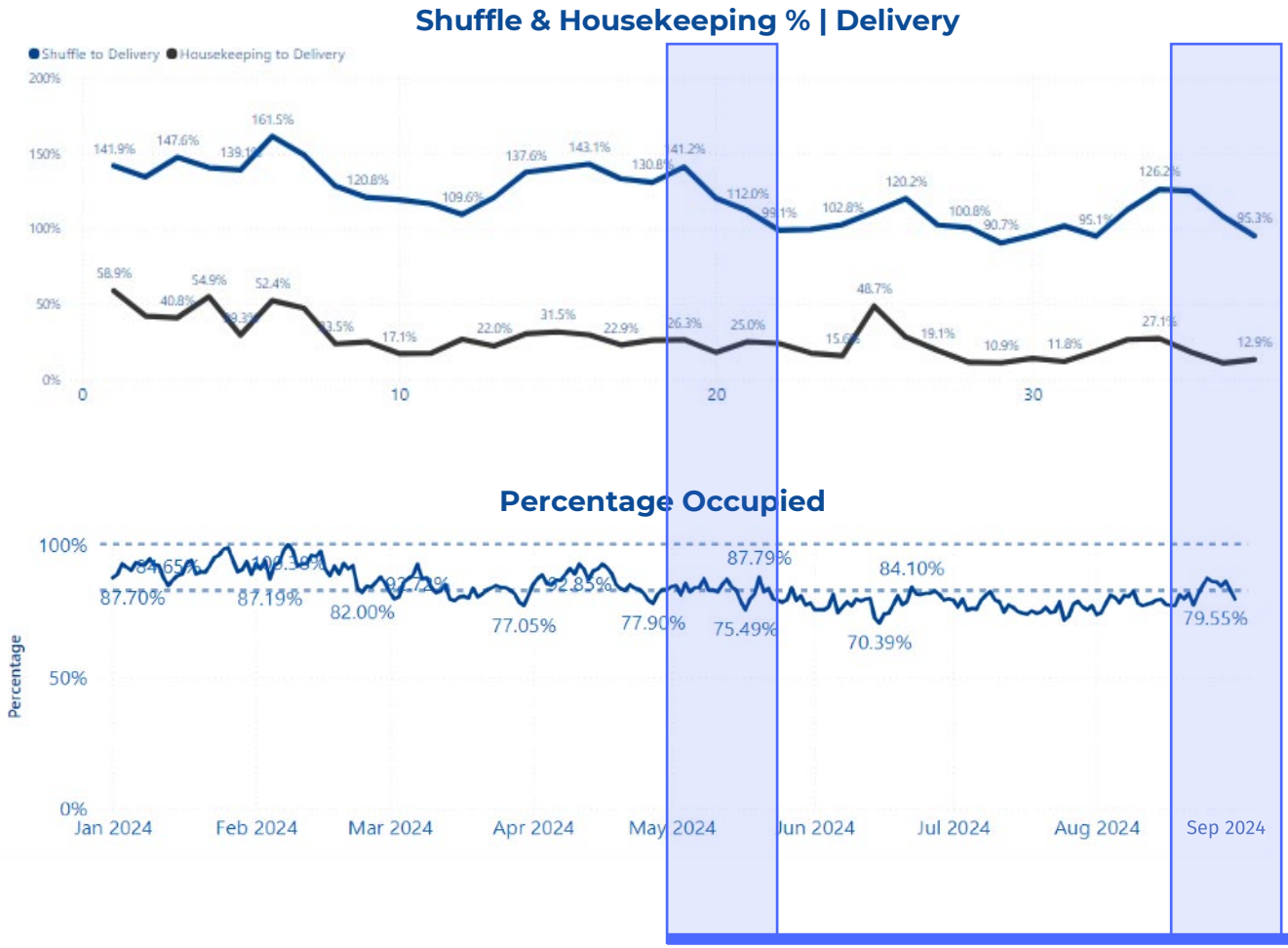
Use AICON Yard stacking strategy and housekeeping to balance current and future CHE load, improve yard stacking quality and reduce overheads for export and transship containers.

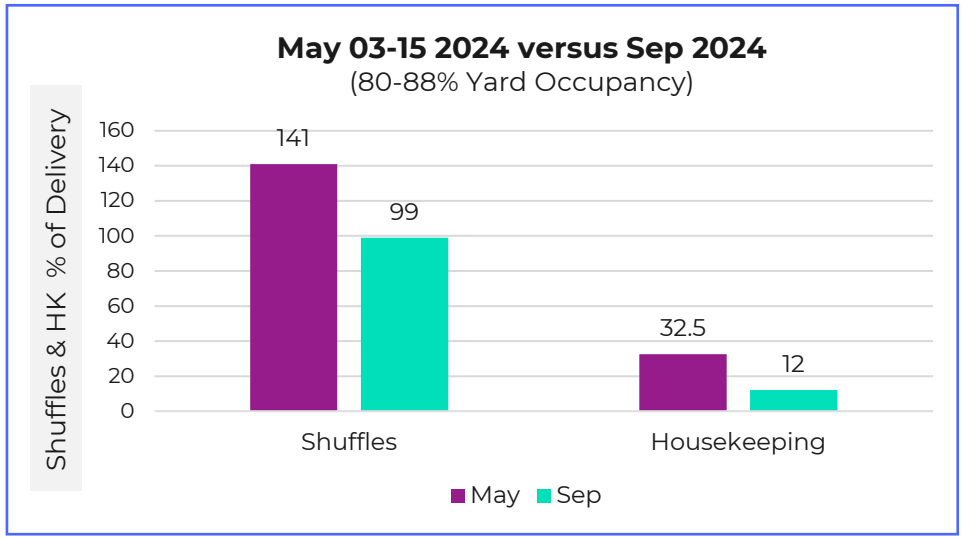
Success metrics

- Rehandle Count
- RTG Gantry Travel
- Improve QC GMPH

Import Rehandle Metrics

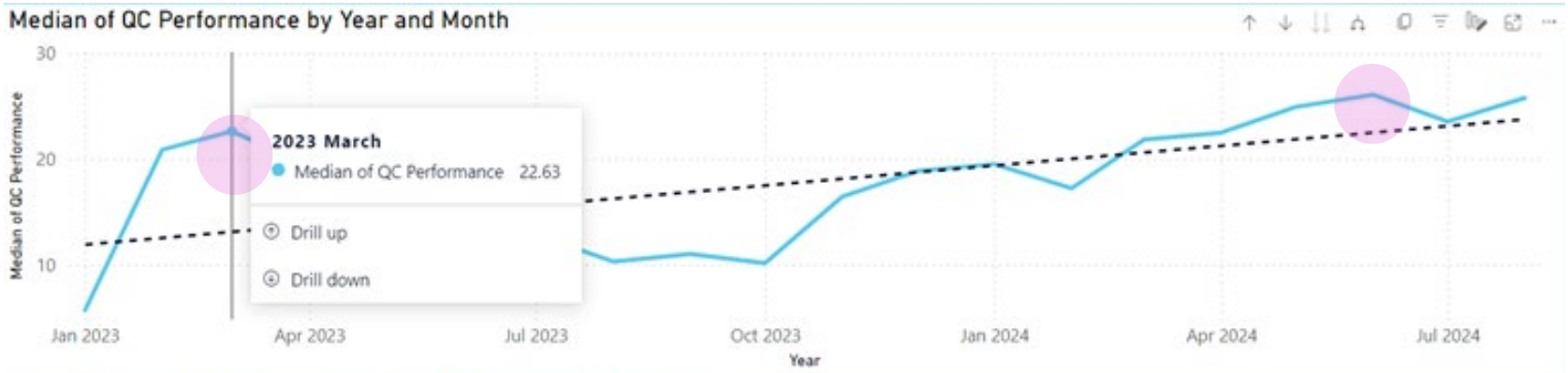
May 2024 versus Sep 2024: 30% reduction

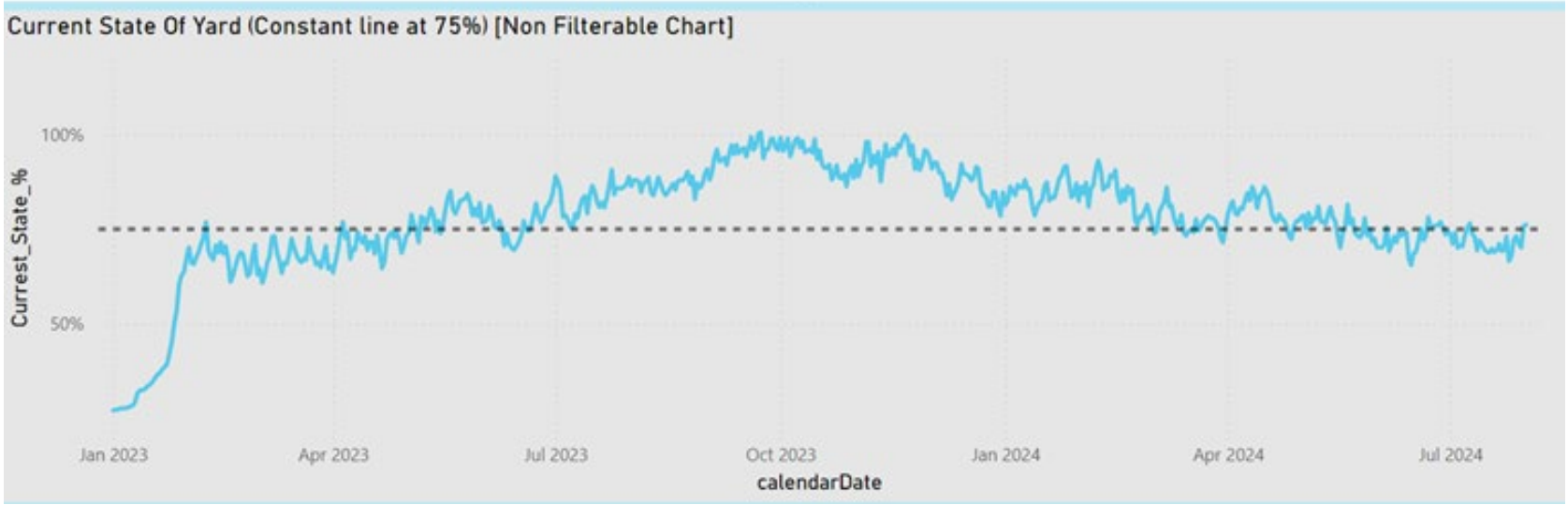




QC GMPH Comparison

Apr-May versus Jul-Aug: 3 GMPH Increase (15% improvement)



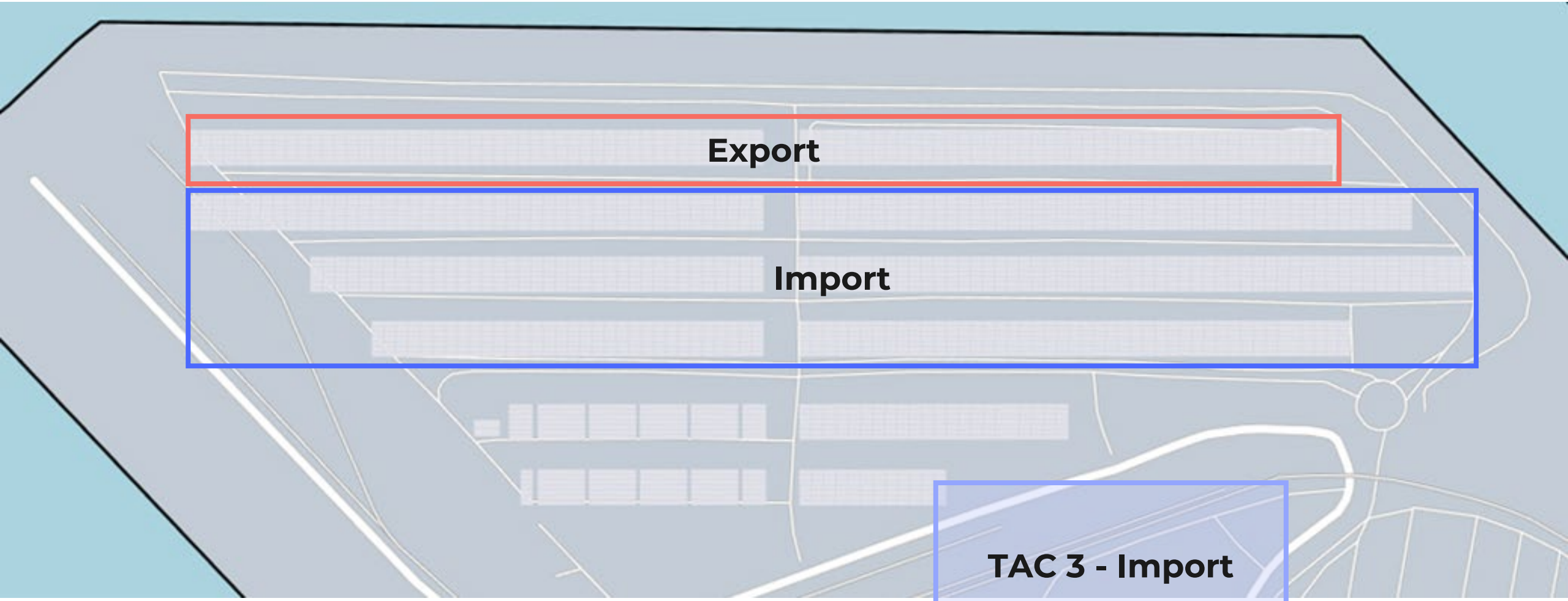


HOW?

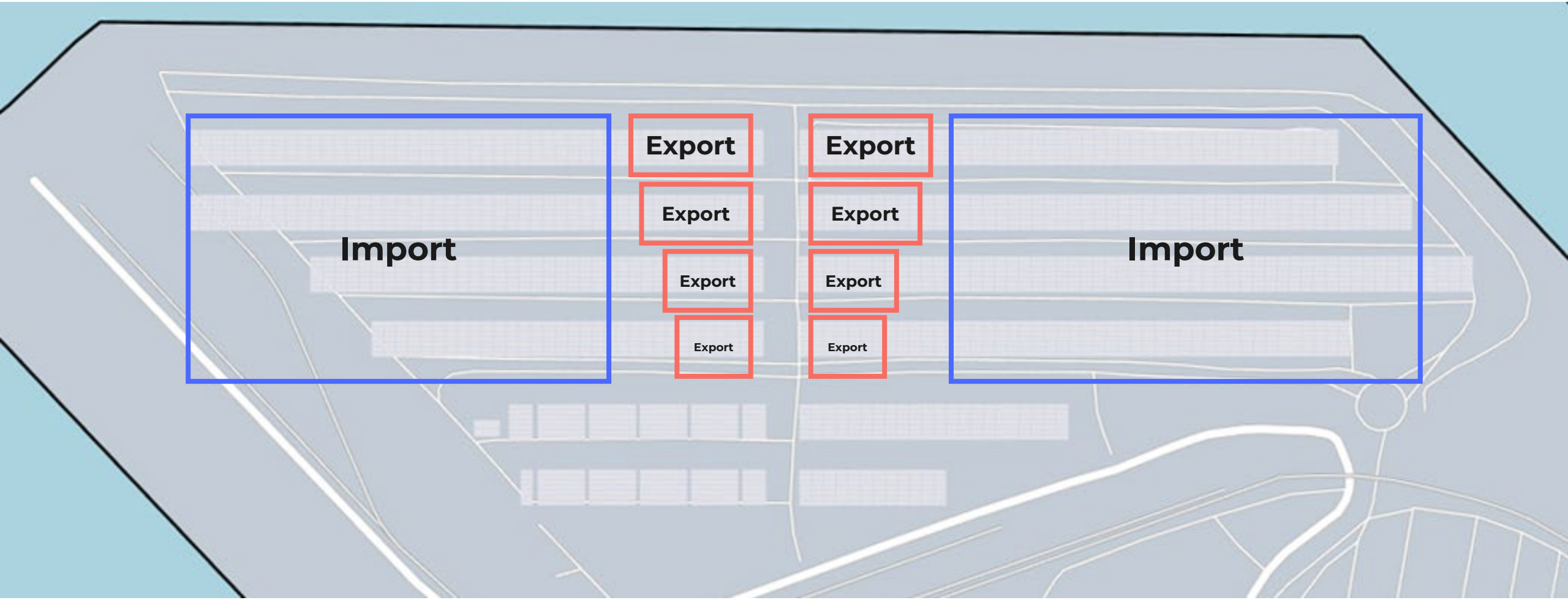
What was effecting the Terminal profitability?

1) Disparate Equipment – each with different performance and maintenance issues?
2) Unpredictable container flow?
3) Manual mode of operations, with numerous planners, each trying for “local maxima”?
4) Challenging Yard Topology (e.g., disconnected Yard, Lane restrictions etc.)?

Yard Segregation – Current Operations



Yard Segregation – Export Transposing



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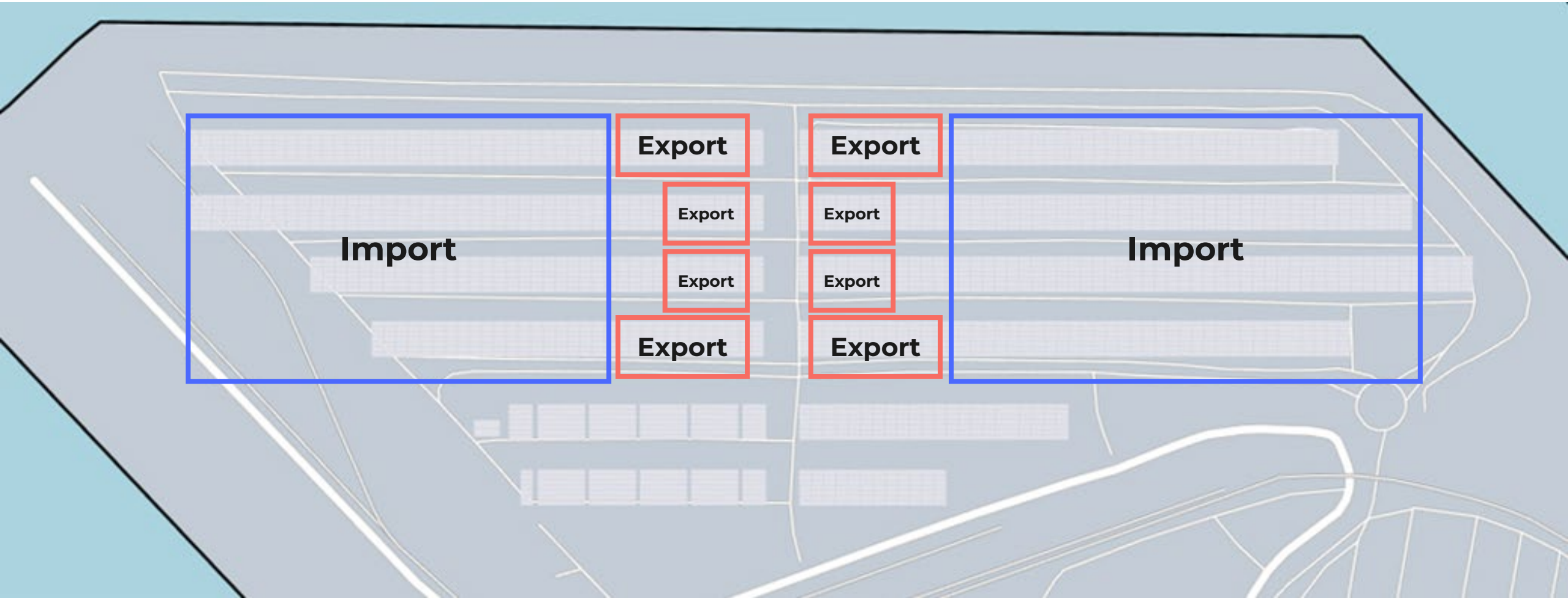

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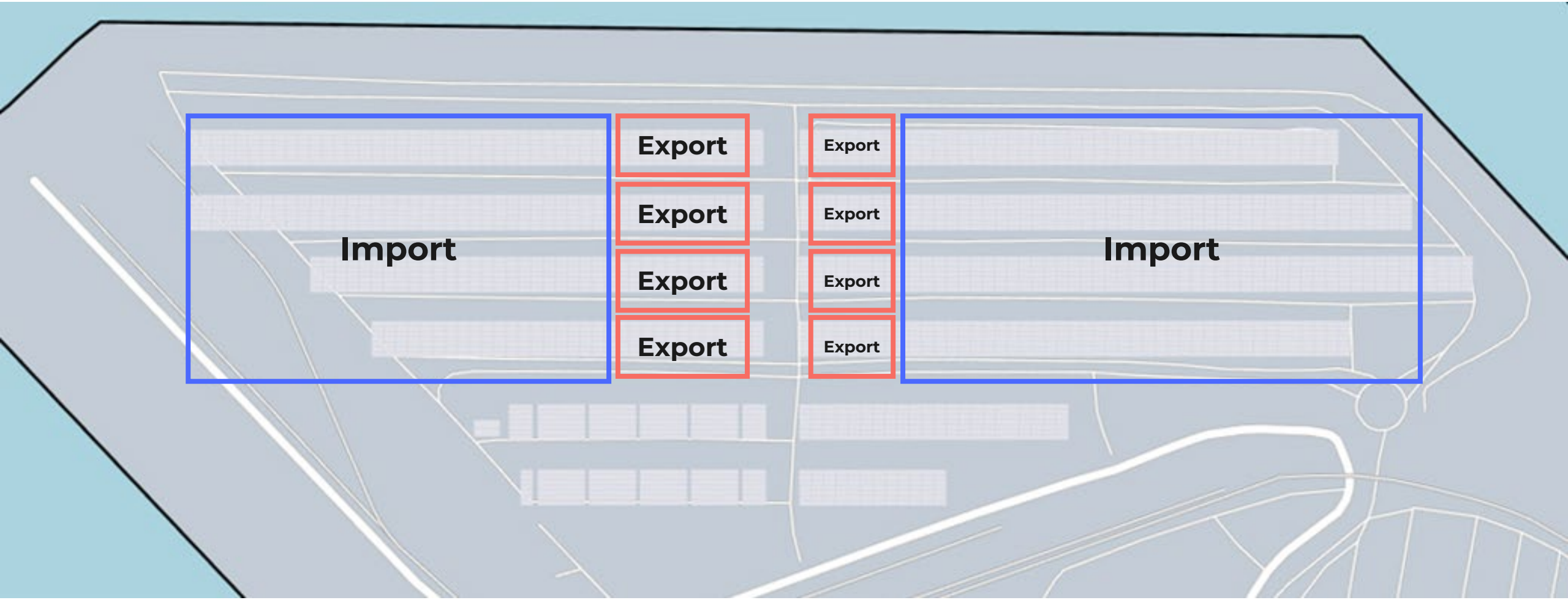
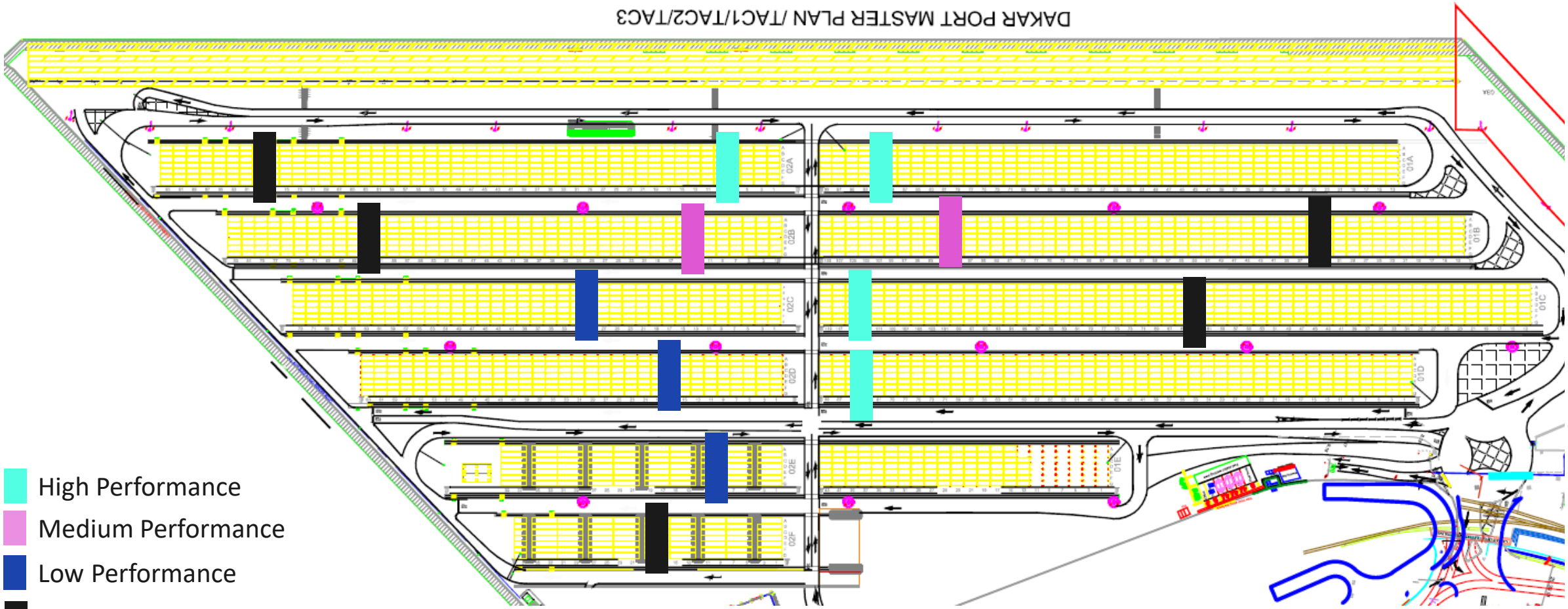
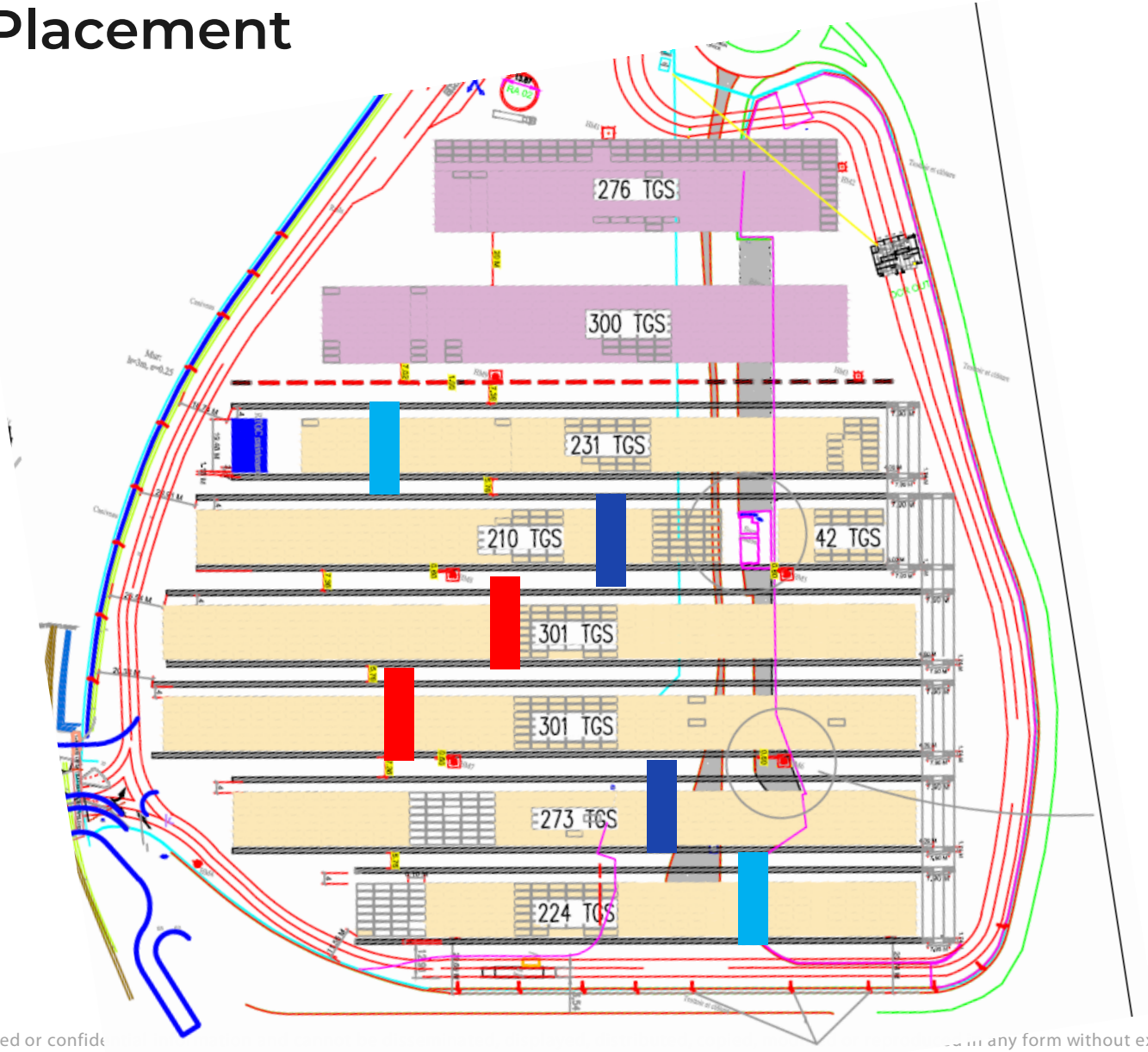


RTG Equipment Placement

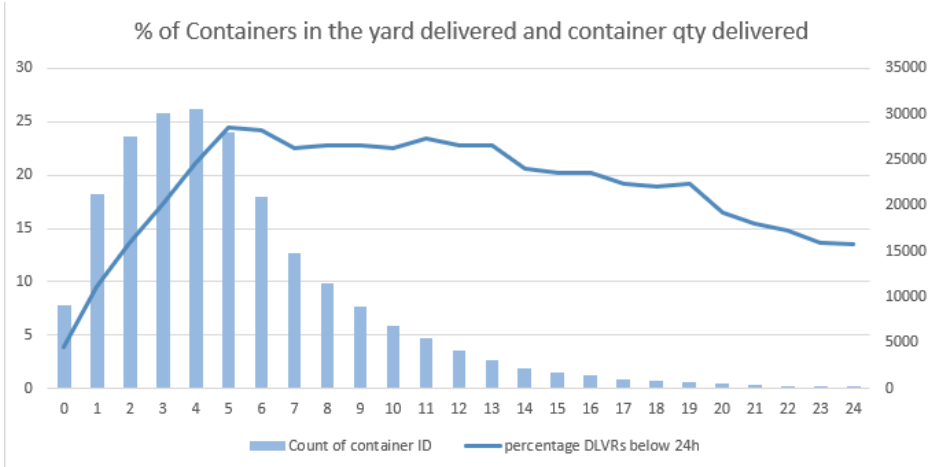


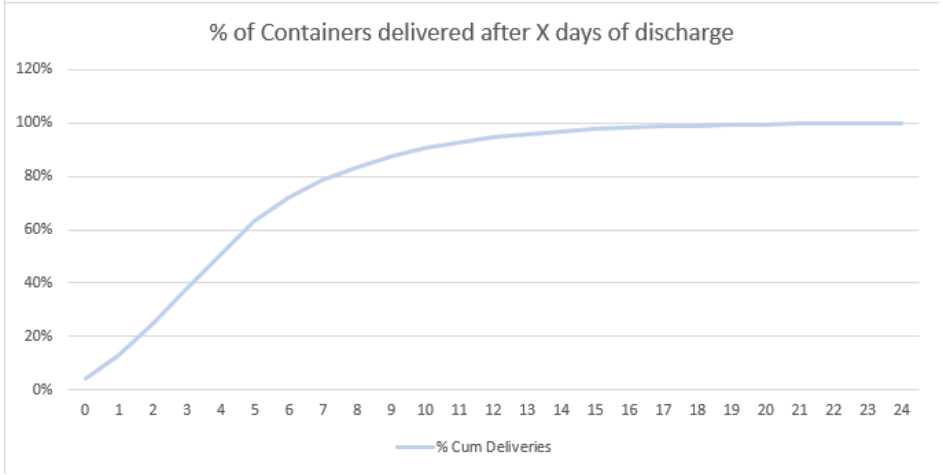
RTG Equipment Placement

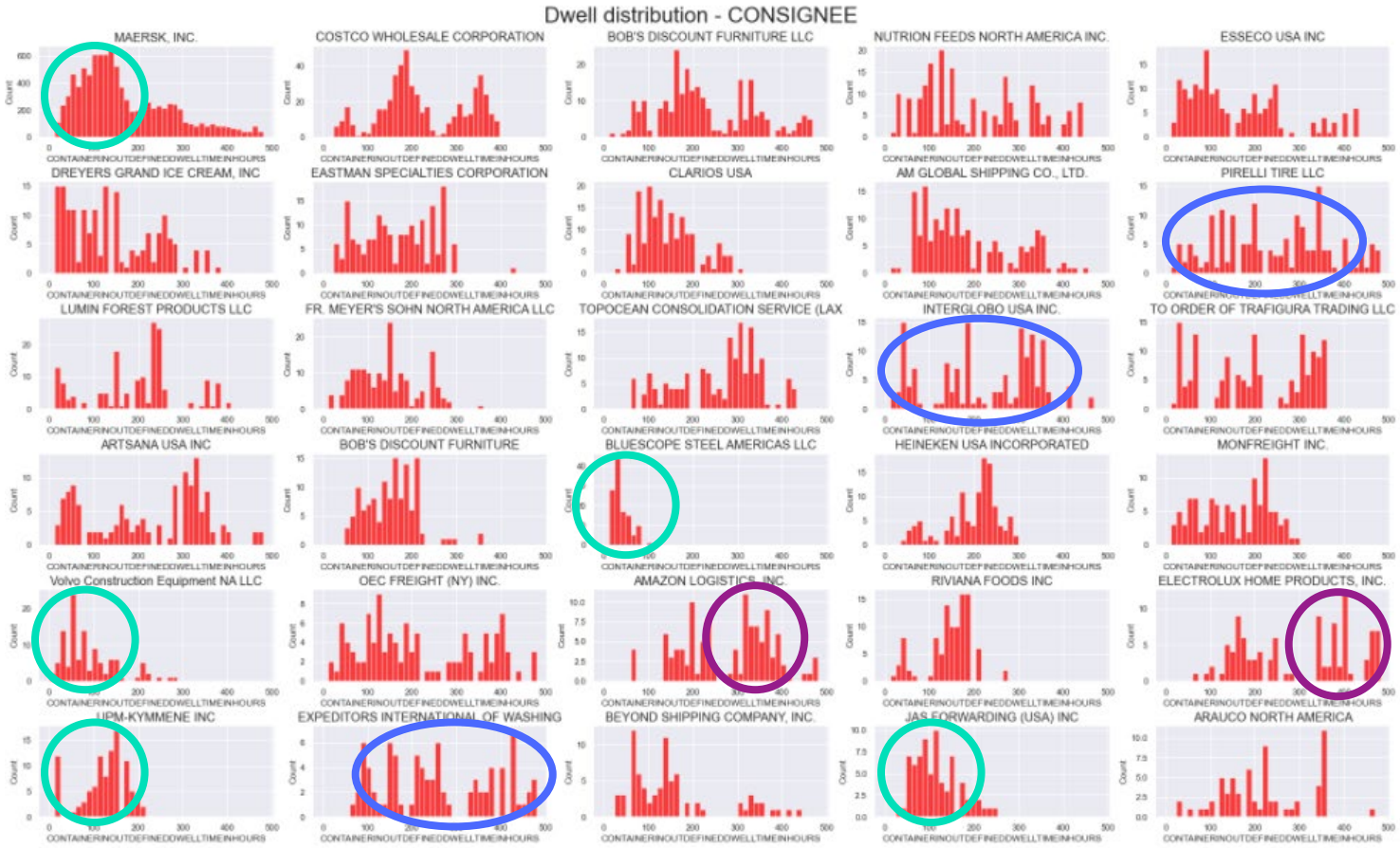
Tag 3 - Import



Import Predictive Dwell by Consignee

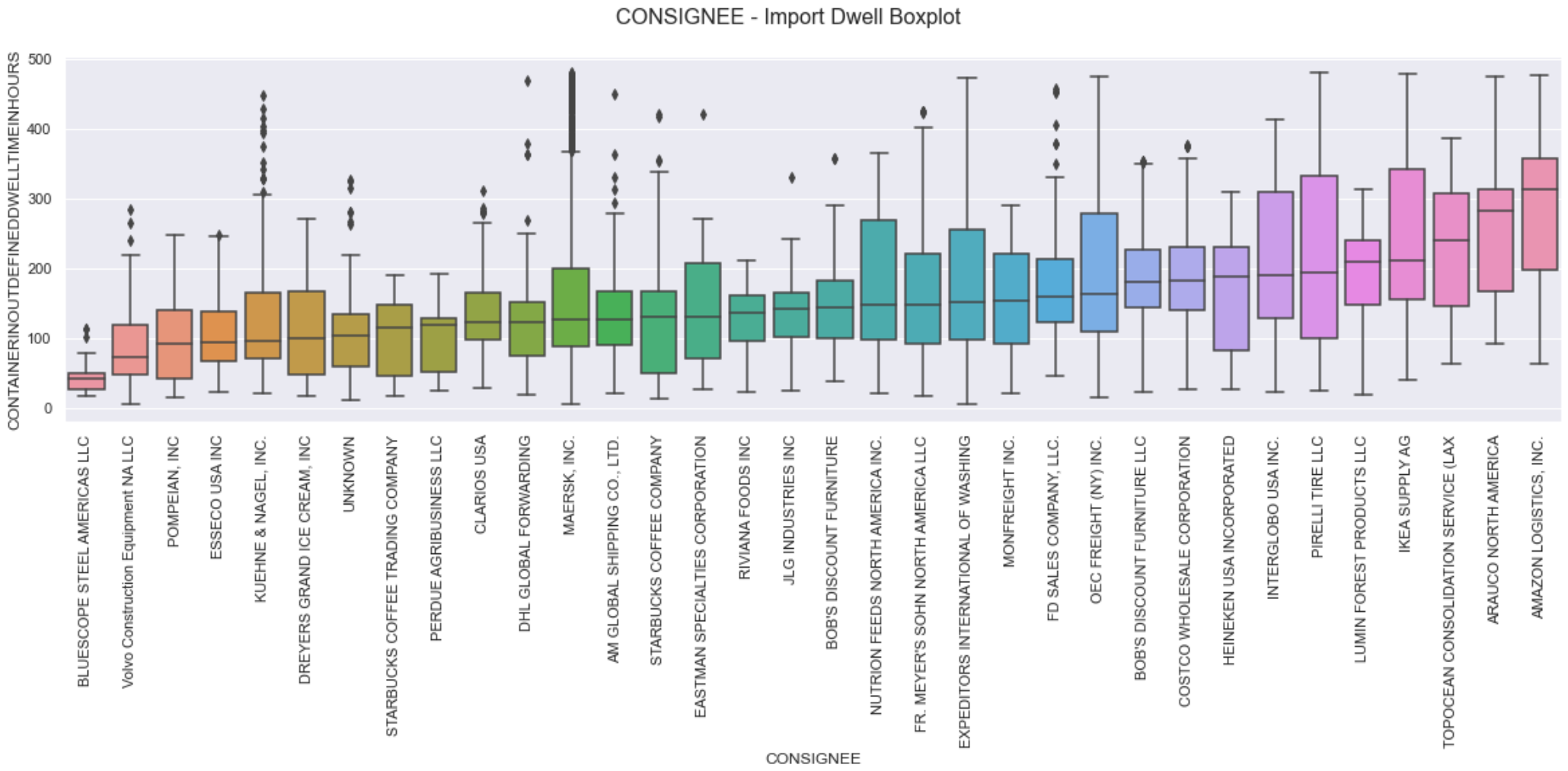






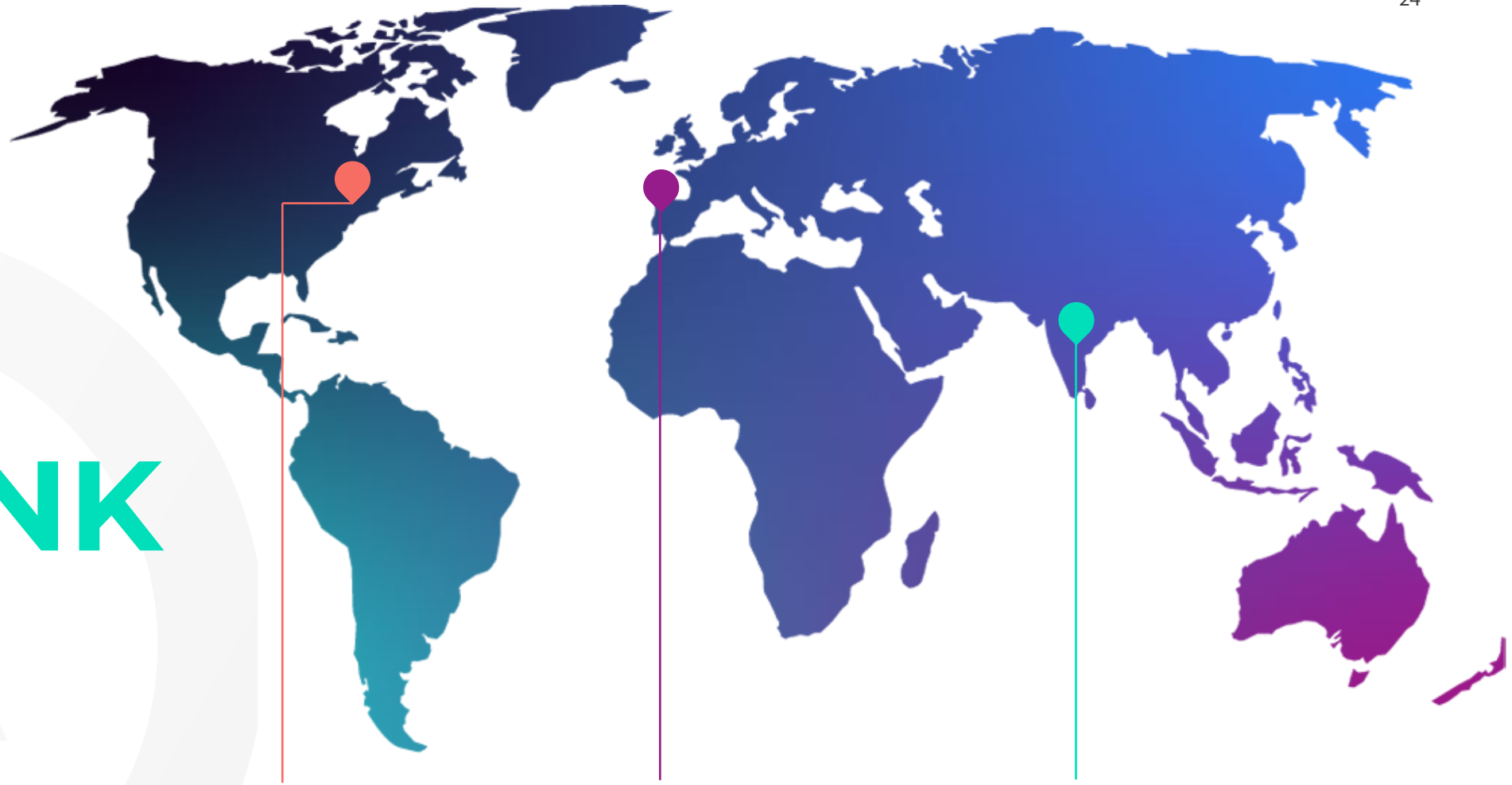
Early Delivers **Late Delivers** **Random Delivers**

Import Container Flow & Dwell Prediction



Solution Strategy – Pros and Cons

Pros	Cons
1. Reduced RTG block transfers. – Reduces the need to move RTGs across for loads or equipment failure 2. Improved QC GMPH (8 RTGs for 4 QC) 3. Improved Import Discharge and Delivery 4. Reduced Import Gantry across all lanes 5. Improved the average MPH for each lane using the right combination of RTGs to improve overall yard performance a. High Performance RTGs in blocks with higher traffic. b. High Risk RTGs combined by Low Risk RTGs	1. ITV Travel Distance / Time for Load would be increased due to longer distance



THANK YOU

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