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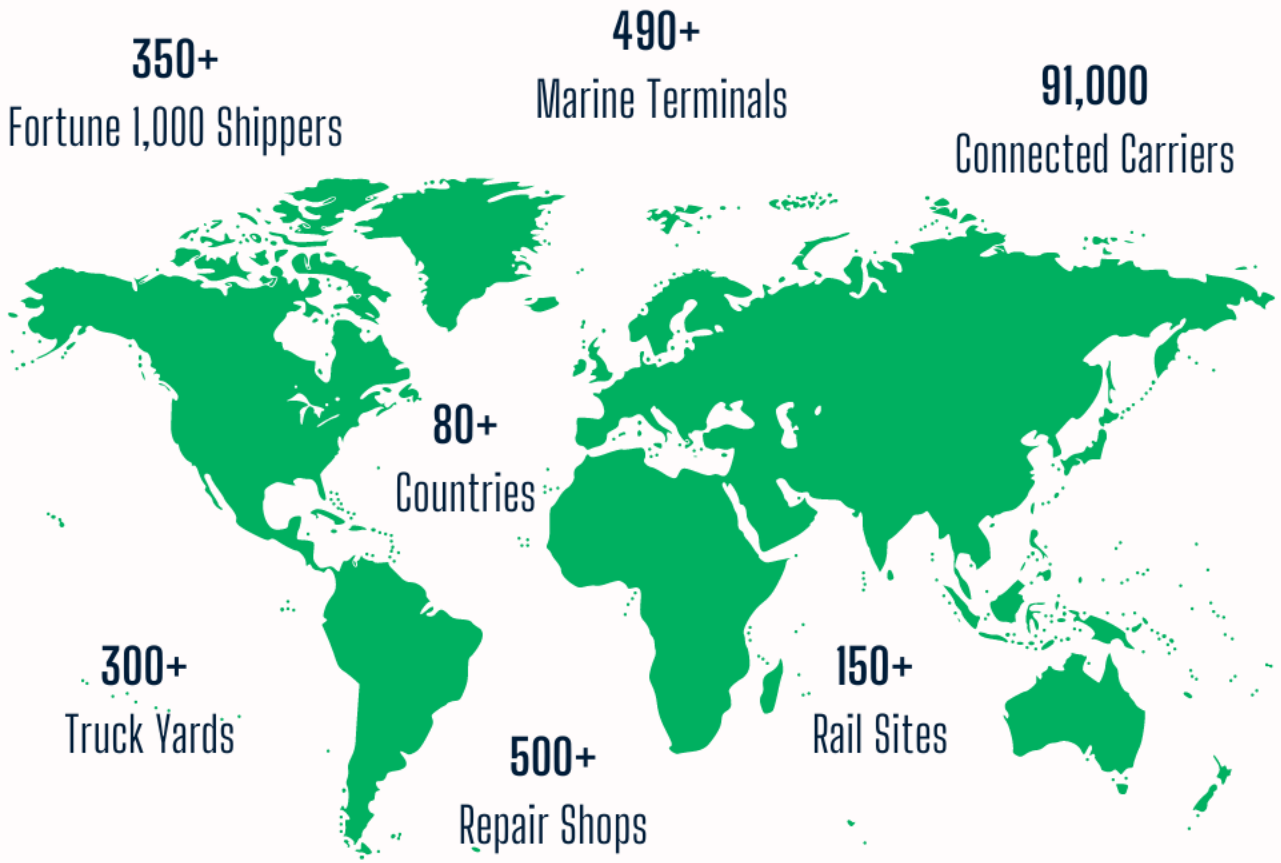
Data Driven Innovation: Harnessing AI/ML with Navis N4 TOS for Sustainable Port Operations and Emissions Reduction

World’s Most Connected TOS

TOC Asia 2024

A more Connected Supply Chain Starts Here



See Jean Lau
VP, Sales (APAC)

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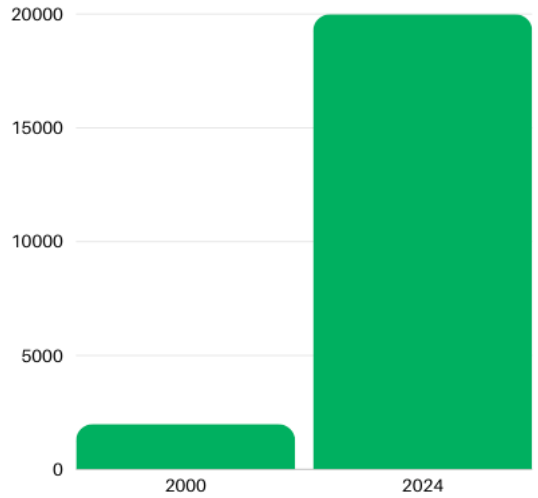
Trends Changing the Business Climate

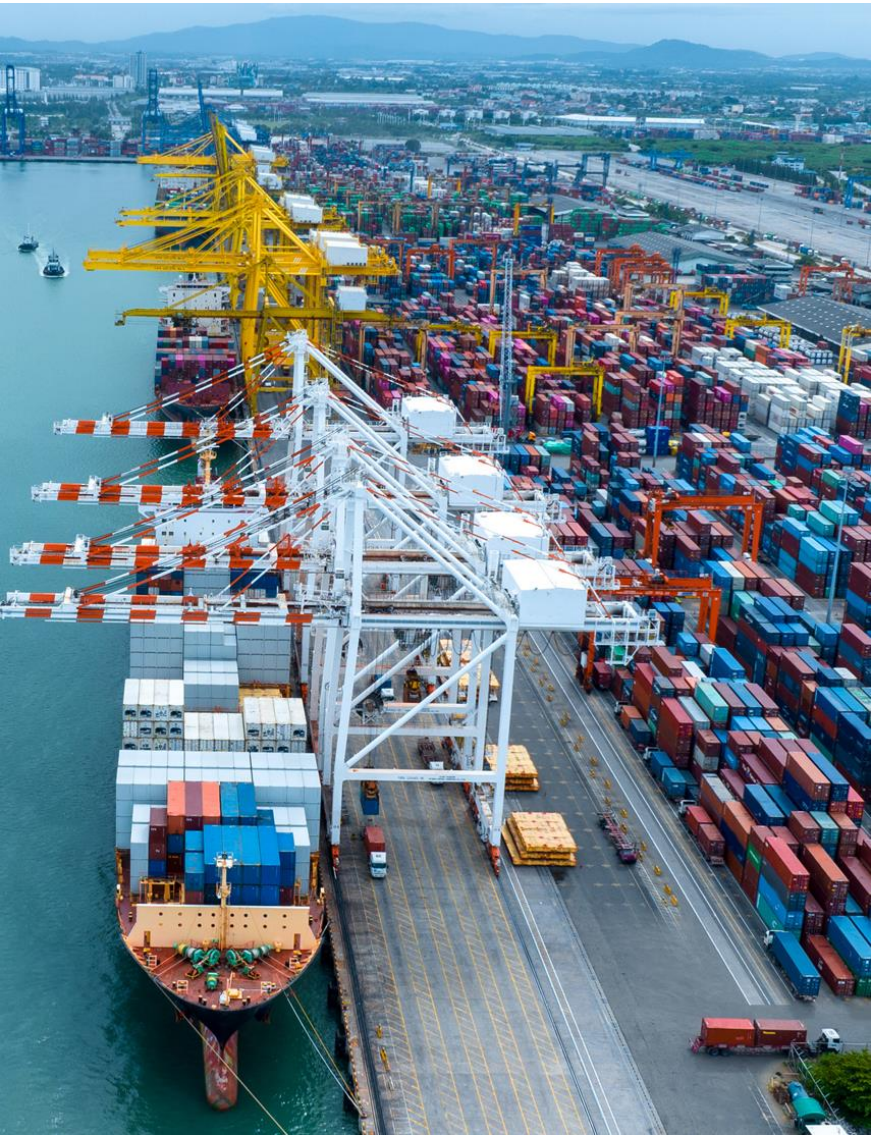
Just In Time(JIT) supply chain methods are putting more pressure on terminals to perform better, quicker

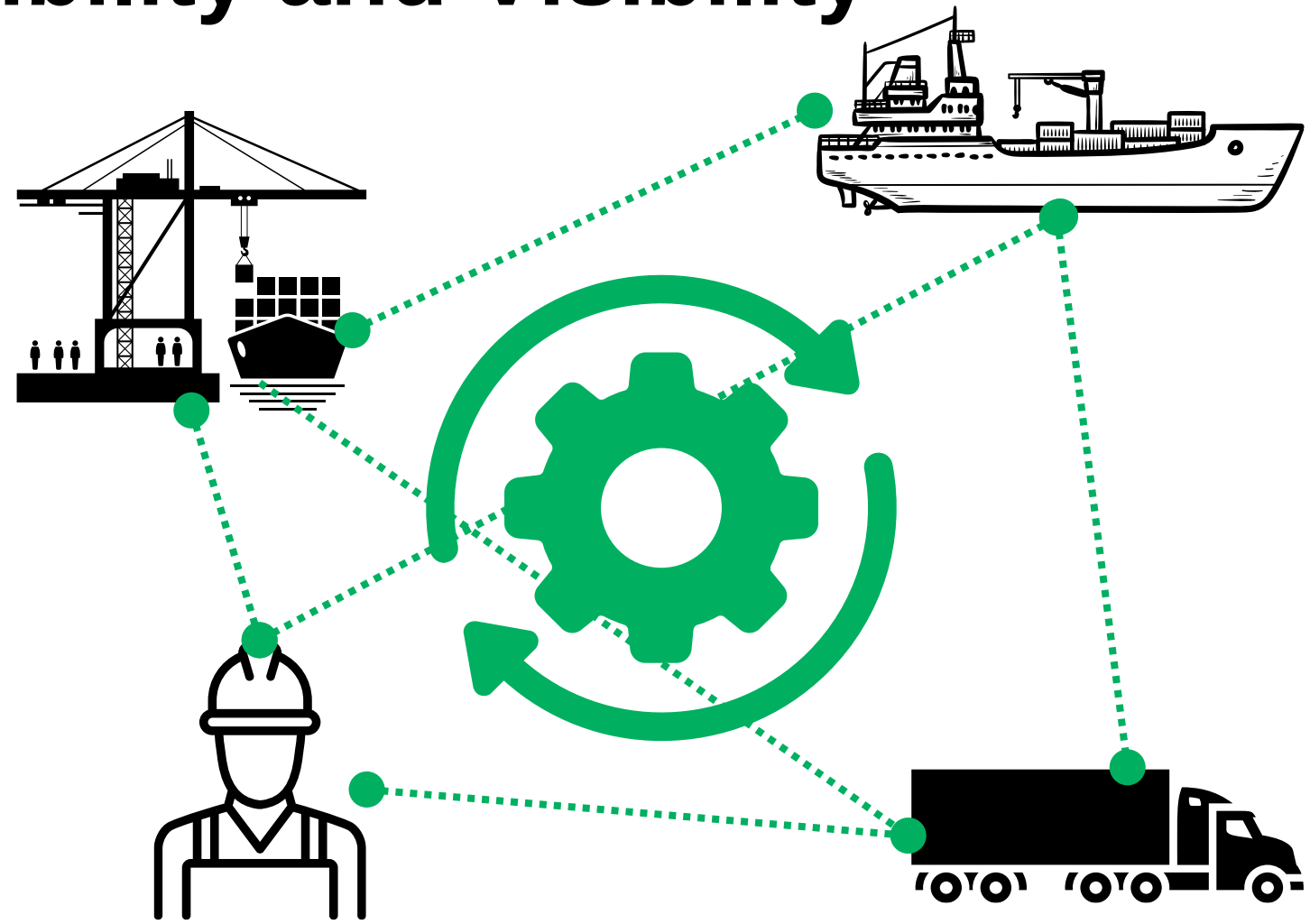


Container vessel sizes have increased from 8000 TEUs to nearly 20000 TEUs now

Supply chain disruptions in maritime trade causing major havoc in day-to-day activities requiring data-driven decisions

The Future is Flexibility and Visibility



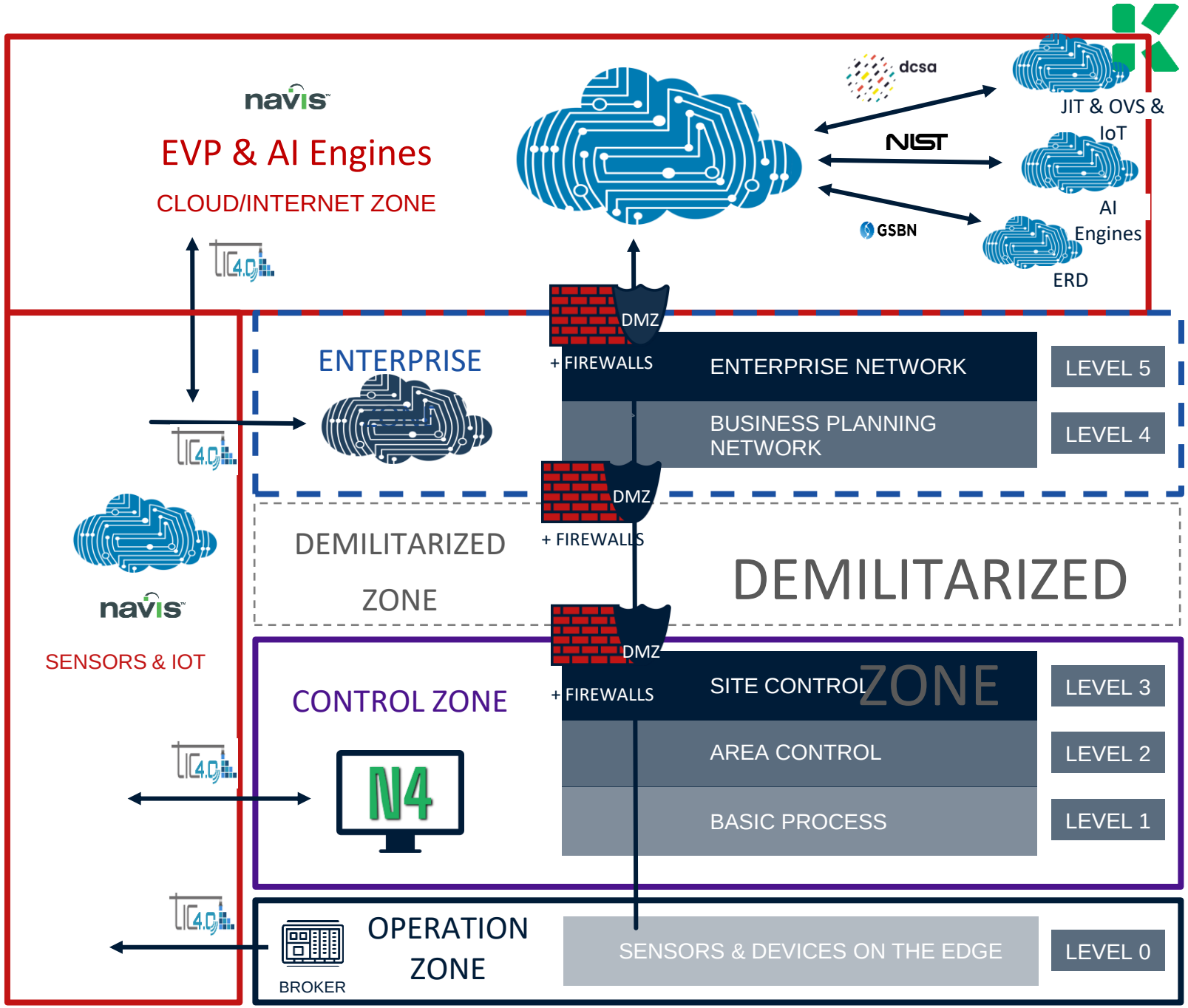


In today's supply chain, everyone needs to see vessel operations clearly, driven by high expectations for performance and credibility

Navis & IoTC Ecosystem

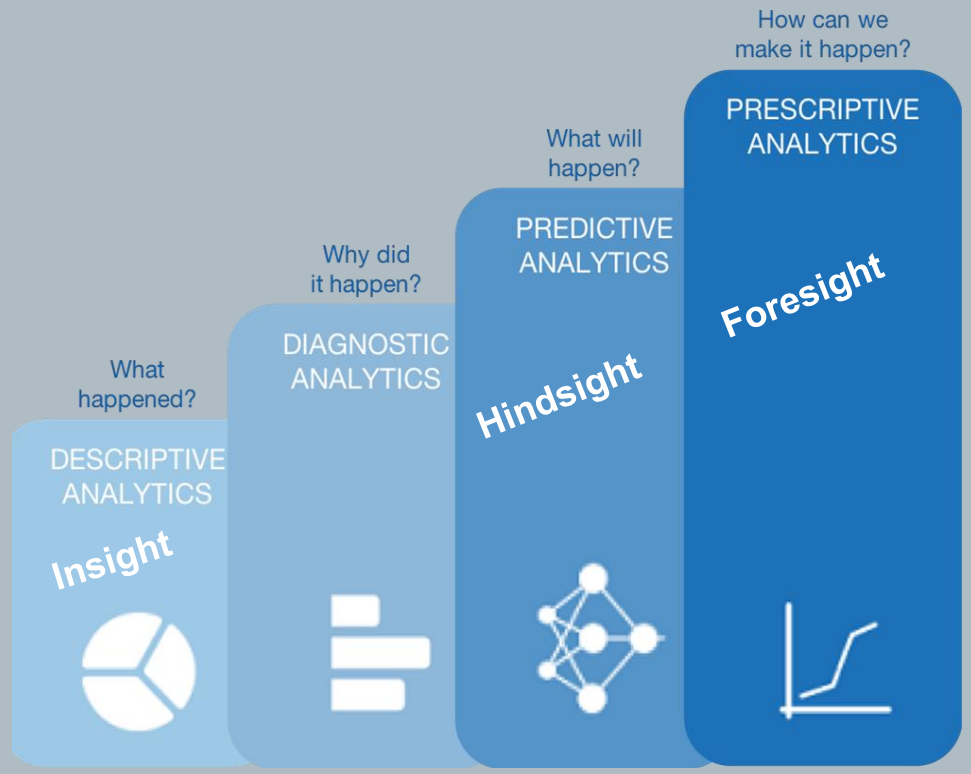
Benefits to Terminals:

1. Satellite applications following industry standards
2. Large and heavy Non-critical data extraction independent of the TOS
3. Single points of failure are distributed
4. Business Critical requirements remains under terminal control (ie. billing, PPI)
5. Devices on the edge can communicate large amounts of data with speed
6. Computational power and storage enabled for AI engines
7. Cybersecurity enhanced as there's limited access between zones

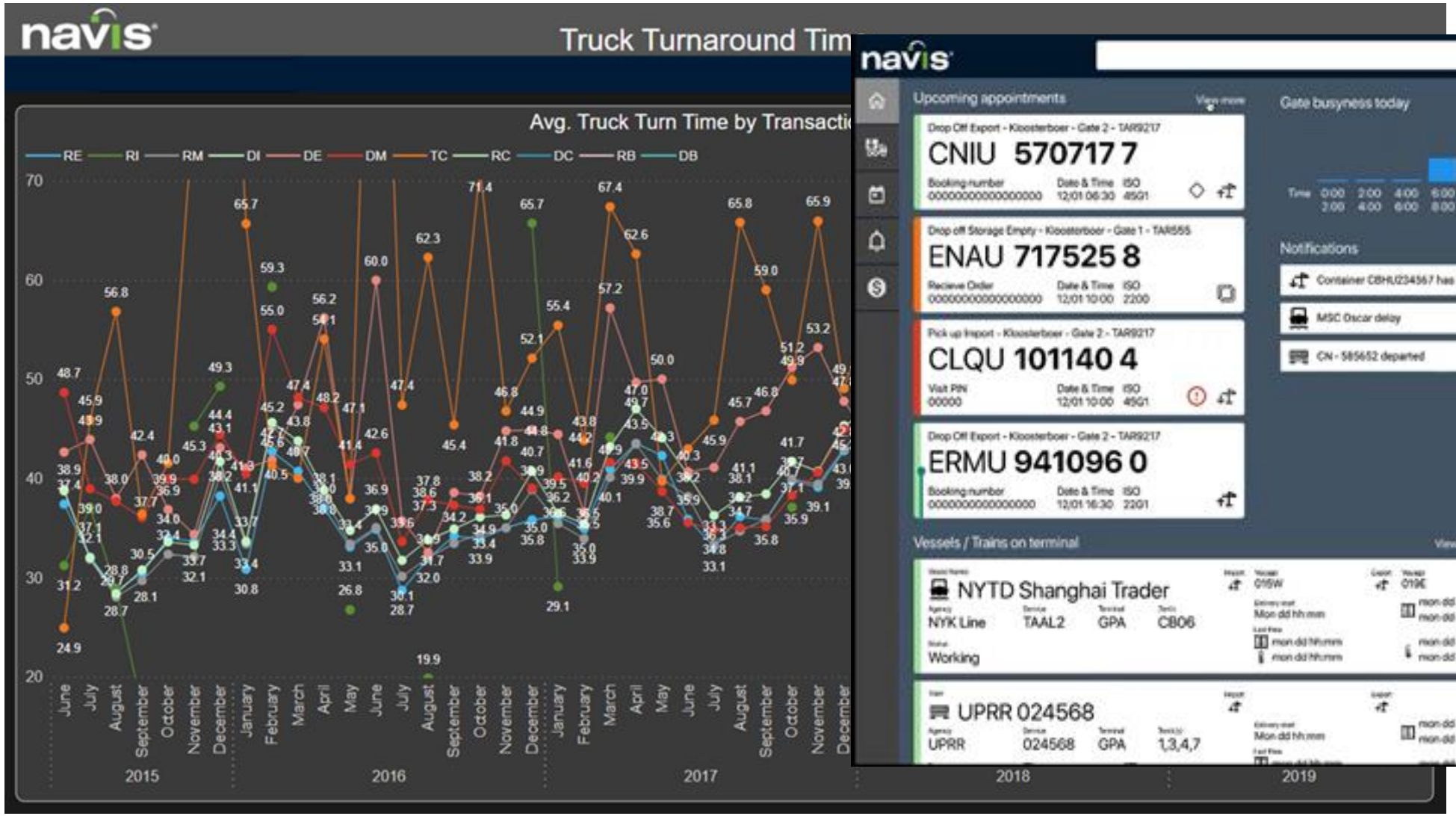


The Digital Twin is Terminal Visibility

Evolving Beyond Visibility Insight to Actionable Foresight



New Data Reality: Enabling Actionable Foresight

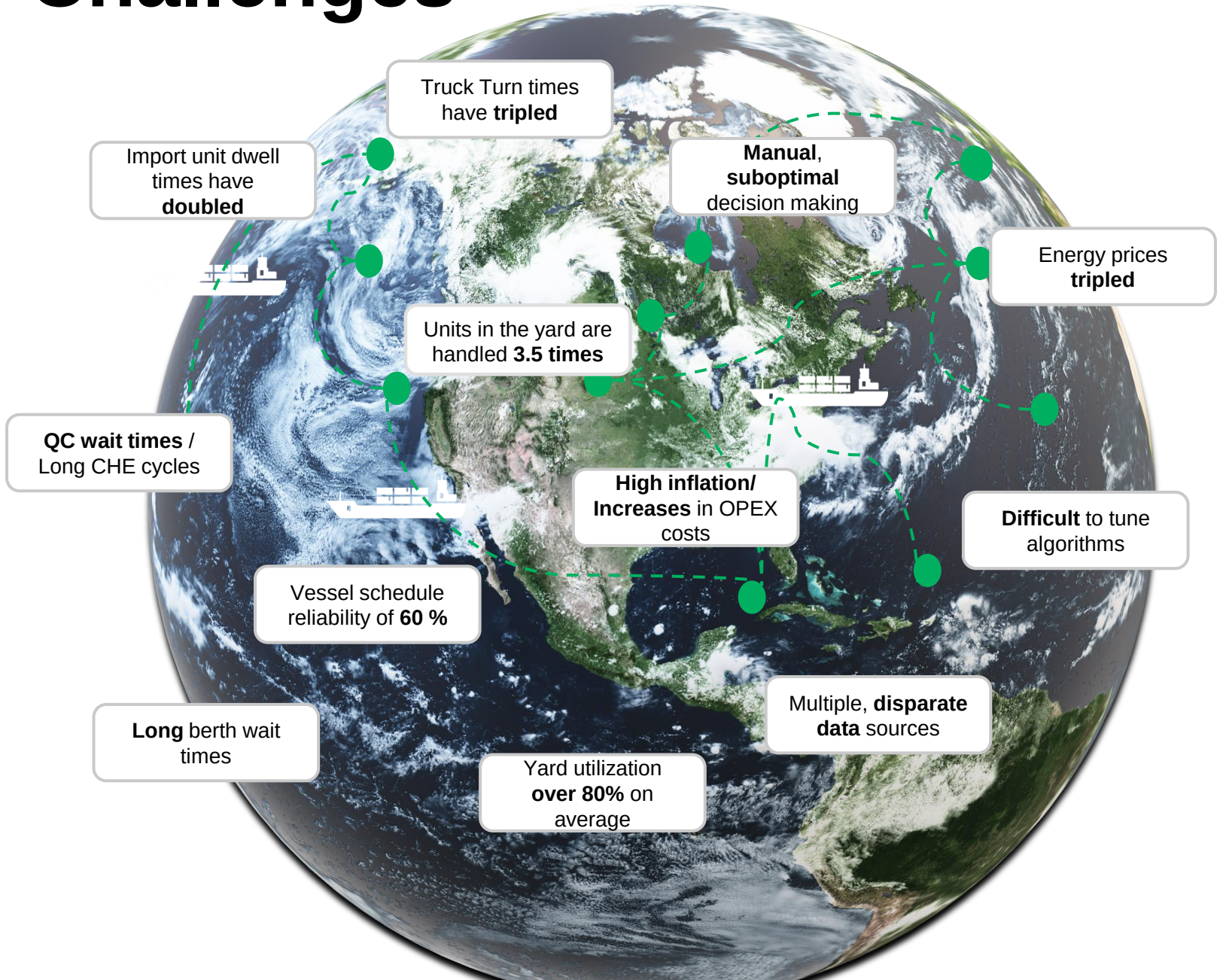


Predictive Truck Queue and Service Times

Predictive Truck Arrival based on current location

Recommend Appointment Times

Industry Challenges



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Improve Efficiency Through Predictive Insights

Challenges

- Truck Turn times have tripled
- Energy prices tripled
- QC wait times / Long CHE cycles
- Difficult to tune algorithms
- Manual, suboptimal decision making
- High inflation / Increases in OPEX costs
- Long berth wait times
- Multiple, disparate data sources
- Import unit dwell times have doubled
- Units in the yard are handled 3.5 times
- Vessel schedule reliability of 60%
- Yard utilization over 80% on average

Data Insights

Cargo Volume, Mode, Timing, Cost/Revenue

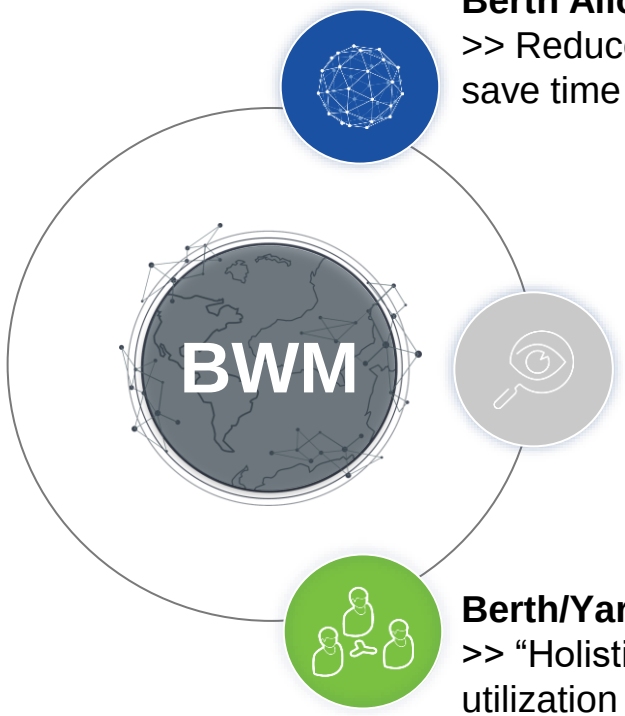
- Needed equipment
- Wind/weather
- Estimated time of arrival of ships, trains or trucks
- Mode of departure
- Long term yard utilization
- Quota appointment per hour
- Block space in yard for recurring cargo
- Gate visits, pickup time of imports
- Estimated time of departure of vessels
- Container damages
- Weight discrepancies
- Dwell time

SOLUTION

Maximized Benefits Vs Cost of Time, Effort and Resources

- Berth allocation
- Yard Occupancy
- Vessel Move Count
- Dwell Time

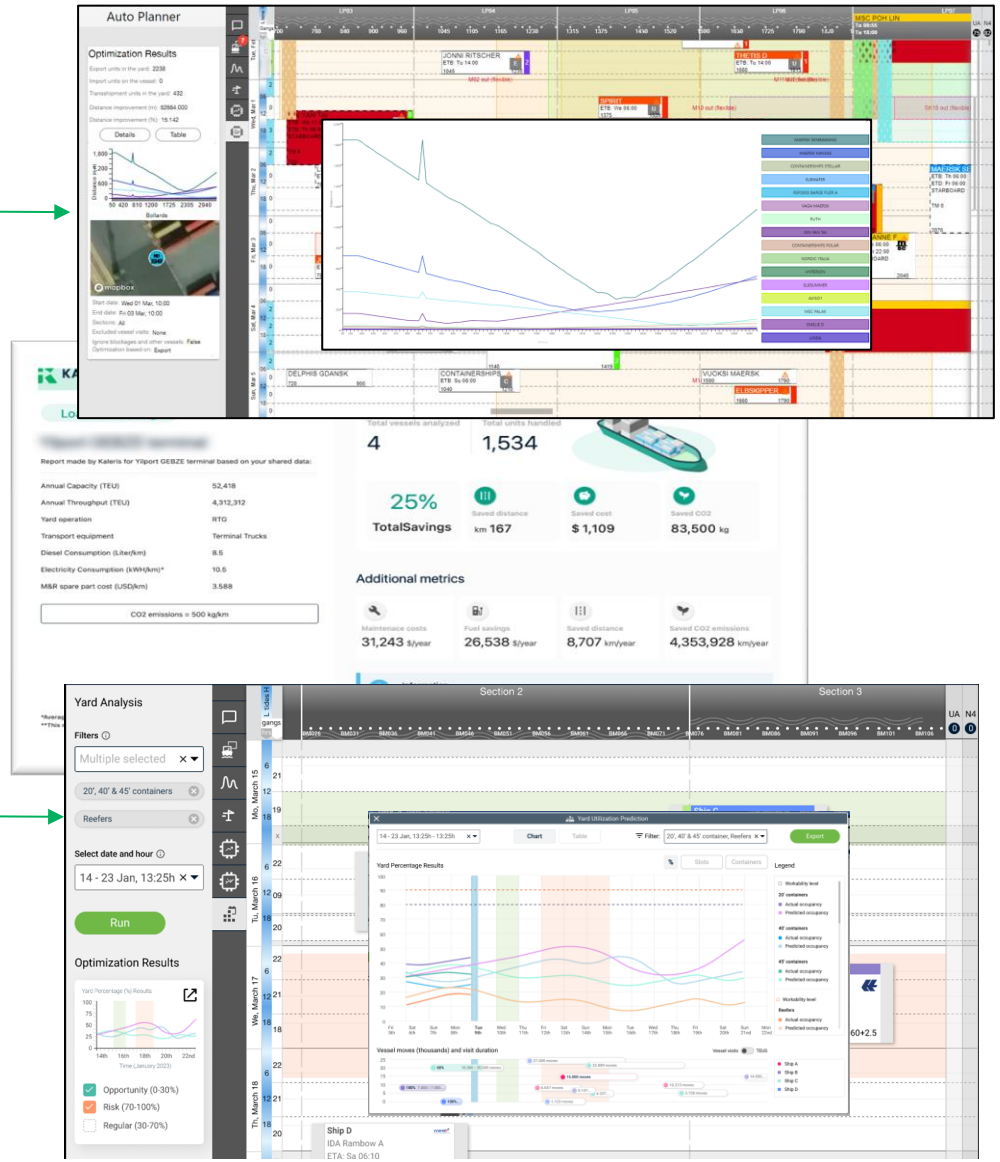
Adding AI Capabilities



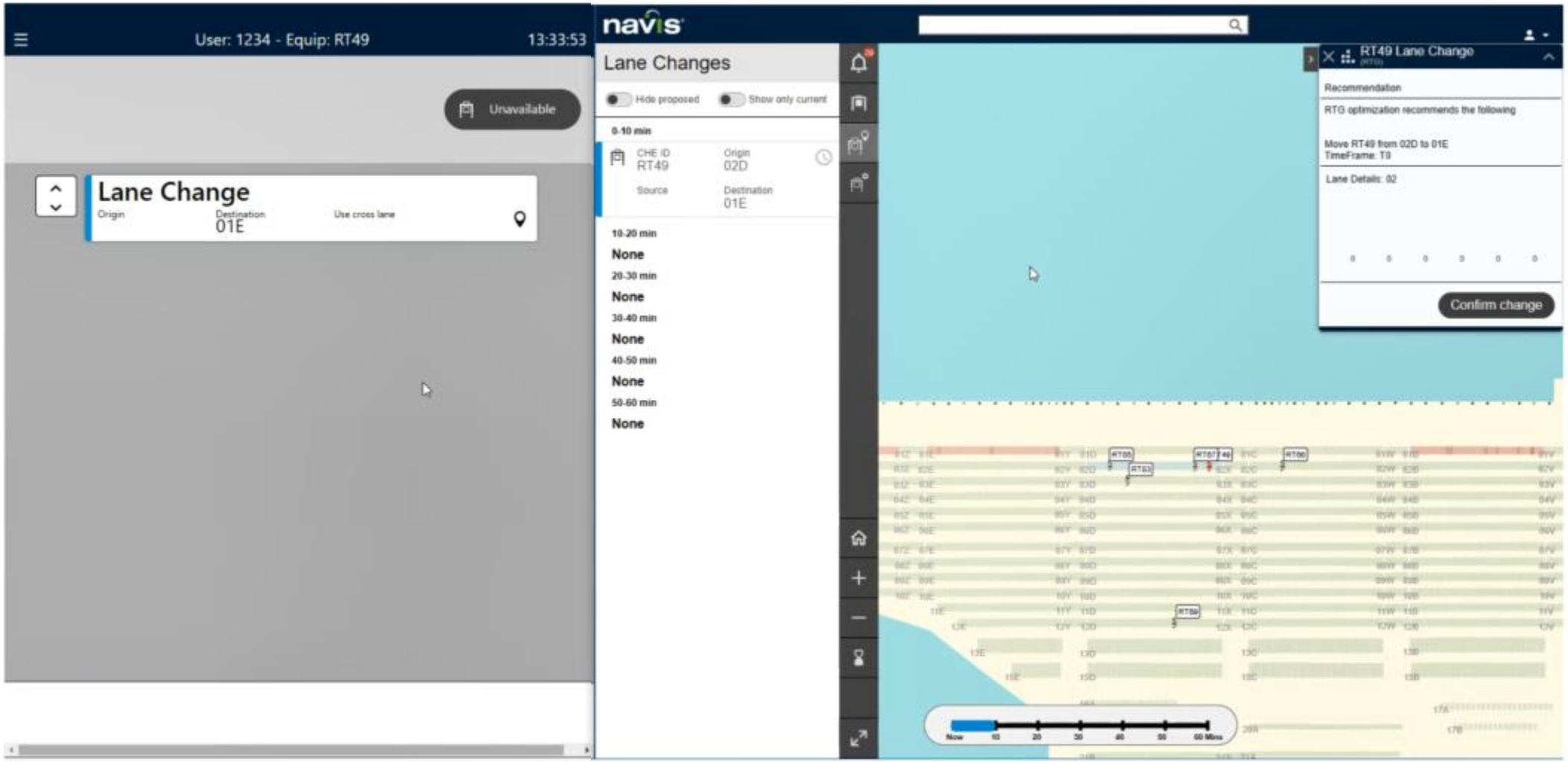
Berth Allocation Optimization
>> Reduce laden CHE travel by up to 20%, save time & OPEX

Sustainability Analysis
>> CO2 emissions reduction reports from reduced travel time

Berth/Yard Impact Optimization
>> “Holistic” understanding of yard/berth utilization to spot risks and identify opportunities



Recommended Equipment Deployment



Enable the Port of the Future

Equipment is the Key Driver

Workers link individual process steps and direct yard operations

Management by Process

- Business processes mapped to TOS
- Decisions made by control tower operators

Automated Equipment

- Scheduling & Optimization Algorithms
- Management by Exception

AI Driven Ecosystem

- Data-driven and AI supported decision making
- Optimizing flow of cargo between Carriers, port complex, and larger logistics supply chain

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THANK YOU!

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