

navis @awake.ai

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

TOC Europe 2024

A more connected supply chain starts here



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-today activities requiring data-driven decisions



The Future is Flexibility and Visibility





Information to day is supply chain, everyone needs to see vessel operations clearly, driven by high expectations for performance and credibility

BWM: Transforming Berth Planning, Empowering Terminal Efficiency

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Accessible via web-app Requires N4 2.6 & above



- User-friendly configuration: Easily setup and integrate into your workflow
- \oslash
- **Operational Optimization**: Berth Optimization and smart planning improve CAPEX
 - **Environmental Impact**: Cuts carbon footprint via bay plan digitization.
 - Improve Customer Service: Digitizing communication and avoiding emails and phone calls
 - **Cost-Efficient**: Supports consumer devices through a modern web app, reducing hardware expenses.
 - **Operations Visibility**: Gain insight into vessel operations, including downtime and delays
- Stakeholder Notification: Allow stakeholders access to berth plans for pilot and tugboat activities

Adding AI Capabilities





BWM

Berth/Yard Impact Optimization

>> "Holistic" understanding of yard/berth utilization to spot risks and identify opportunities

Information Classification: General

Berth Optimization Report (using EVP)

KALERIS navis	5	Berth	Optimization Syst	em Report From D	ec 2, 2021 to Dec 9, 202	
Load & Discharge	terminal based on your shared data:	Total vessels analyze	d Total units handl	ed		
Annual Capacity (TEU) Annual Throughput (TEU) Yard operation Transport equipment Diesel Consumption (Liter/km)	52,418 4,312,312 RTG Terminal Trucks 8.5	25% TotalSavings	Saved distance km 167	Saved cost \$ 1,109	Saved CO2 83,500 kg	
l&R spare part cost (USD/km)	3.588	Additional metrics				
CO2 emissions =	= 500 kg/km	Maintenace costs 31,243 \$/year	Fuel savings 26,538 \$/year	Saved distance 8,707 km/year	Saved CO2 emissions 4,353,928 km/year	
Average industry metrics will be used if data is *This report does not take into consideration l	a not provided by customer. abor saving costs.	At Kaleris we hav designed to optir partner for a mor terminal's full por	e thoroughly analyzed your term nize your operations, boost effic e competitive and prosperous fu tential with Kaleris.	inal's productivity and managem iency, and drive long-term succe iture. Visit our website www.kaler	ent data. Our custom solutions are ss. Trust Kaleris as your strategic is.com and unnlock your	

Update ETAs from External Sources

Challenges:

- Avoids inefficient communication
- Increase reliability
- Need for an open platform to integrate with AI Solutions

External Sources **Standard API** Timestamps Updates

Increase Reliability and Simplifies **Communication**

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Awake.ai

Leading the Transition to Sustainable & Intelligent Maritime Logistics

>20% Cost & Emissions Savings



AI-Enhanced ETA Predictions

5% average relative prediction error

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awake.

80% more accurate predictions using **ML** models





Initial Setup

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Fully Automated Predictive Analytics



Formation Classification: Ceneral

MLOPS Workflow for Orchestrating Analytics Computations

automatically output to internal services, **Production** services dashboards, or external consumers continuously process and label global data sources Production Continuous data ingestion, Services updated to use Dashboards services (K8s) ETL, inference new models Cloud Versioned datasets, models, Logs, Partitioned datasets. storage/database prediction service logs performance results graphs Model training, testing Performance metrics, **ML** Training Orchestration Data ingestion Filtering, preprocessing nested crossvalidation) visualization services (K8s) CI/CD Dependencies, scripts, Merge request Deployment configurations environment Local dev. Service and ML model Manual or Development environment 写 automated review Flyte Computations are orchestrated A MANUTLANCE D Setting up data and managed in Flyte configurations, configuring models and filtering rules Provertie facing to nation Classification: General

models, other performance data) can be

Vessel-Specific Trajectory Optimization



Vessel Emissions Estimation



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Maneuvering/berthing

Port approach/pilotage

Anchorage

Sea voyage/slow sailing

Performance in Antwerp

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Leading the industry towards sustainable and intelligent port operations

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