

A black and white photograph of a container terminal. In the foreground, there are stacks of shipping containers. In the background, several large gantry cranes are visible, used for loading and unloading containers from ships. The sky is clear.

Improving Operational Processes Utilizing Automation at Container Terminals

Johannes Leholm, Sales Engineer, APAC

The logo for the 10th Southern Asia Ports, Logistics and Shipping 2015 India conference. It features the text "10th Southern Asia Ports, Logistics and Shipping 2015 India" in a stylized font, with "India" in a larger, bold font. There is a graphic element of a blue wave or sea below the text.

10th Southern Asia
Ports, Logistics and Shipping 2015
India

In Twenty Minutes...



Review Container Operating Trends



Highlight Available Automated Solutions that Drive Productivity



Understand Automation Process Implementation:

- *Data-Driven Decisions
- *TOS & Automated Vendor Integration
- *Project Execution and Risk Management



Discuss Benefits and Future of Automation Technologies in Container Terminals



JOC - Maritime News - Container Lines - Status Live

Port productivity is not improving

Peter Tirschwell, Senior Director, Content, IHS Maritime

The fundamental industry problem identified as soon as mega-ships of 10,000 TEUs and above started hitting the waves remains alive and well — and wholly unresolved.

That is the problem of productivity. There has been little progress in carriers' and terminals' ability to get these ships quickly worked and sent back out to sea, resulting in delays to cargo and added costs for carriers. Maersk Line made a point of mentioning the issue in its full-year earnings release on Thursday and CEO Søren Skou discussed it in an interview with JOC.com.

"We continue to build ships that are bigger and bigger and if we can't get the containers off faster the whole thing will come to a grinding halt," Skou said on Thursday.

"Since 2007 the ship size in the Asia-Europe trade has effectively doubled. We used to have 6,500 TEUs being the workhorse, now it's the 13,000-TEU ships, which are the workhorses. One point is simply that port productivity has not doubled since then. While there has been improvement in productivity, we are spending more time in port because of bigger ships."

*"While there has been improvement in productivity, we are **spending more time** in port because of **bigger ships**."*

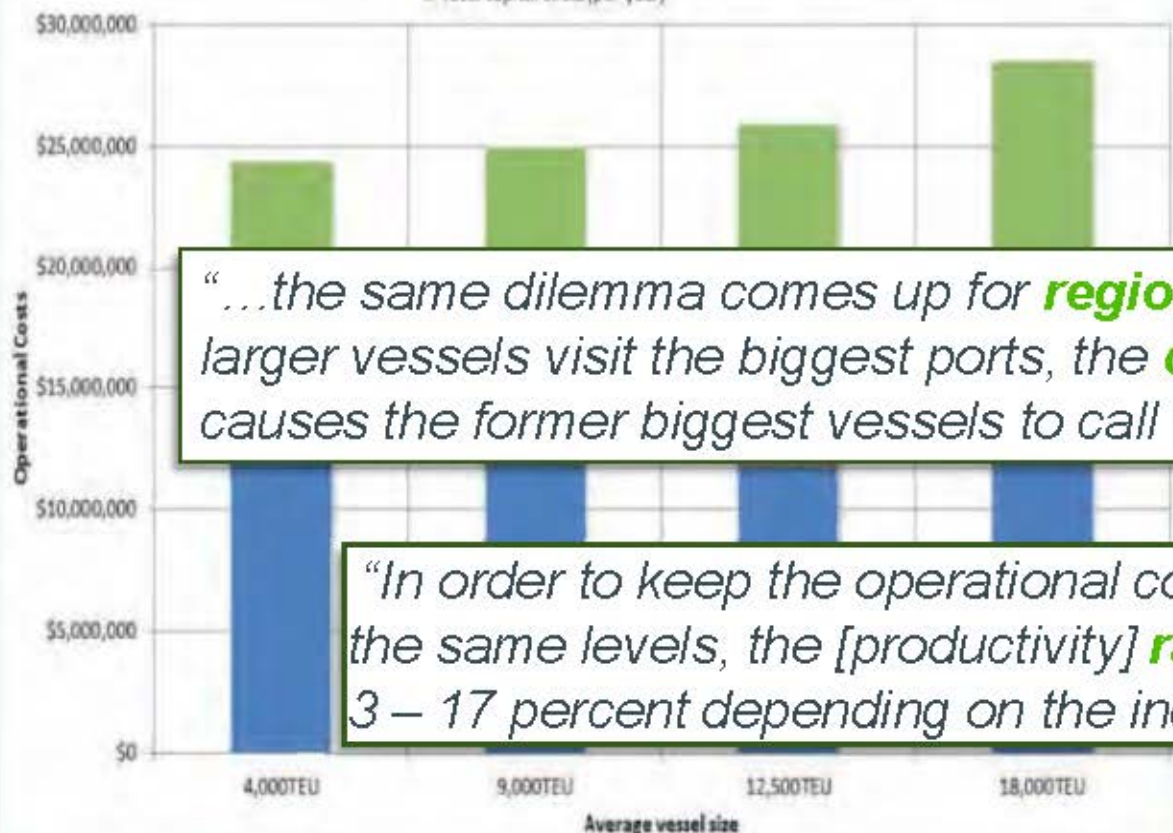


Søren Skou

*"What I always ask terminal operators is, 'what are they doing to make a **leap frogging move in productivity**?'"*

Impact of vessel size on operating costs

- Total labour costs (per year; waterside only)
- Total equipment running costs (per year; waterside only)
- Total capital costs (per year)



“...the same dilemma comes up for **regional ports**. As the larger vessels visit the biggest ports, the **cascading effect** causes the former biggest vessels to call the regional ports.”

“In order to keep the operational costs at the same levels, the [productivity] **rates need to increase** by 3 – 17 percent depending on the increase in vessel size.”



JOC » Rail & Intermodal » International Rail » Asia

Indian government approves new inland container depot

JOC Staff | Jul 13, 2015 3:22PM EDT

Post



“...a new inland container depot facility at Viramgam, near Ahmedabad in Gujarat State, allowing **hinterland shippers improved rail access to the country’s western gateway ports.**”

Gateway Distriparks Ltd., India’s leading port-based logistics provider, has received government approvals for the construction of a new inland container depot facility at Viramgam, near Ahmedabad in Gujarat State.

Source: The Indian Express: Inland waterways policy: Dredging through the silt

Inland waterways policy

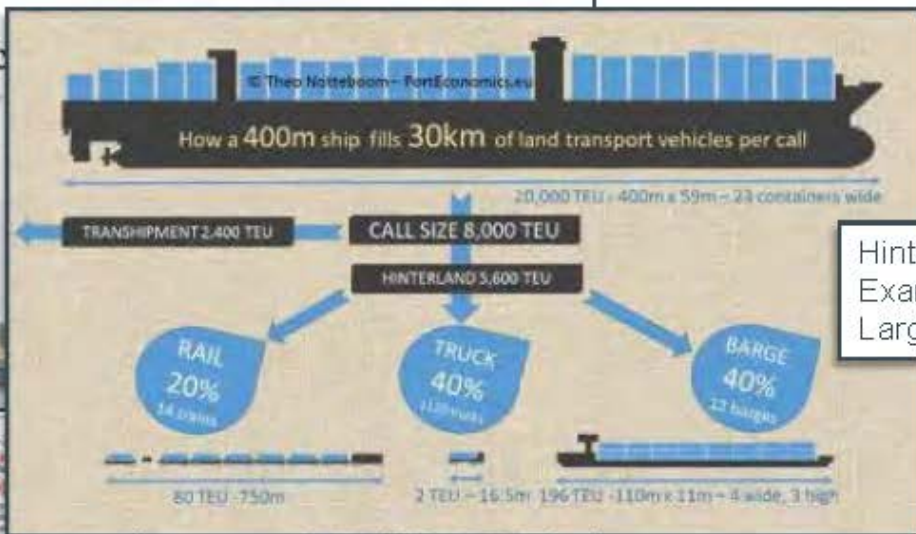
Inland waterways in India makes up a paltry 3% of the total transport mode and stands at 44%.

Written by **Arif Husain**
 Last Updated: Aug 26, 2019 2:02

ABOUT AUTHOR



Arif Husain is a Senior Editor with the Indian Express and writes on various topics.



Hinterland Flow Example with Large Vessel



On March 25... the Union Cabinet had taken the decision to approve...101 additional Inland Waterways as National Waterways (NW) for navigation, something that Gadkari said **“would transform the inland waterways system in the country like never before”**.

Source: The Indian Express: inland waterways policy: Dredging through the silt

THURSDAY, JUN 24, 2010
THE STRAITS TIMES Opinion

ST NEWS • PREMIUM

Home | Opinion | News

42 years, 500 million

The growth of Singapore's container terminal, PSA, is something to be proud of.

PUBLISHED ON JUN 24, 2010

“THE container-handling industry is now in the midst of **unprecedented change**, with the upsizing of container ships and the consolidation of shipping liners. As a result, we will see the **inevitable obsolescence of old terminals**.”

“...we can hone the **automation capability** to reach a sweet spot, where we can achieve consistently **high performance** under **varying operational circumstances**, overcoming ever-increasing constraints on space, time and labour.”

“BEYOND building on current best practices, we must also continue to challenge our assumptions and **push for game changers...**”

Source: Straits Times,
“42 Years, 500 Million
TEU, One PSA” Tam
Chong Meng

BY TAN CHONG MENG FOR THE STRAITS TIMES

HAVE you ever wondered why the container is so important?

Where Can Automation Help?



Gate RFID,
OCR, LPR,
Weighbridge

Rail OCR,
A-RGC

Yard
Planning

Yard
Inventory

Global Pooling
& Scheduling

QC OCR,
QC R/C

Vessel
Planning

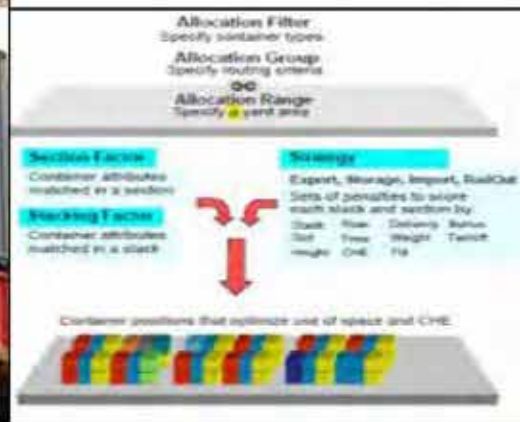
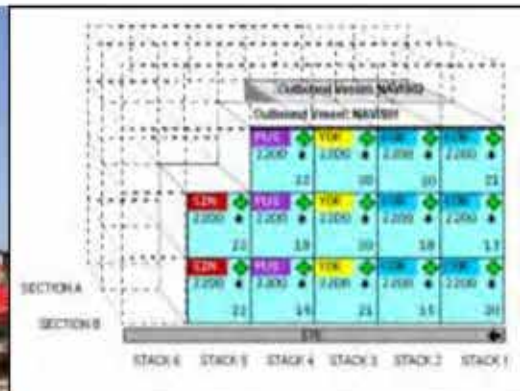
Reefer
Monitoring

A-RTG, ASC, C-
ARMG
Scheduling

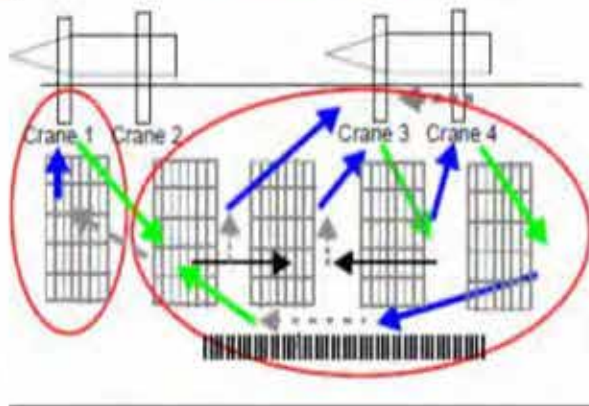
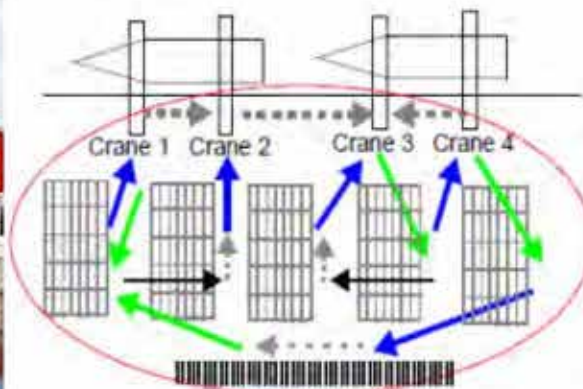
ITV Job Step
PDS, RFID

Data Exchange,
EDI, Web Portal,
ITT, Billing

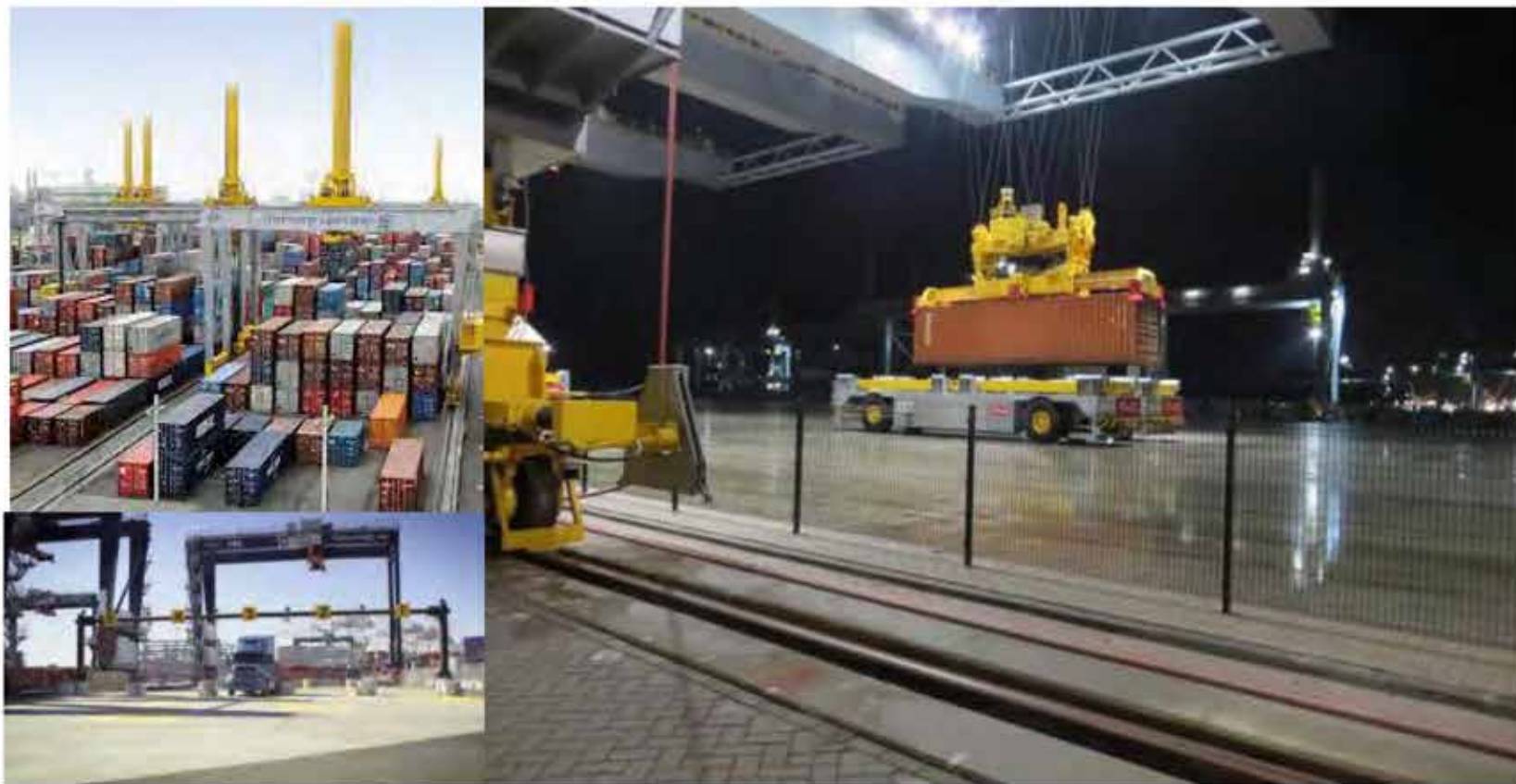
Automation Technologies: Gate, Rail, Yard



Automation Technologies: Yard, ITVs, QC



Automation Technologies: Automatic CHEs



Unlock Terminal Data to Drive Decisions



Analyze Operations to Find Bottlenecks and Inefficiencies to Prioritize Improvement Investments

Vendor Solutions and Experience



TEREX[®]



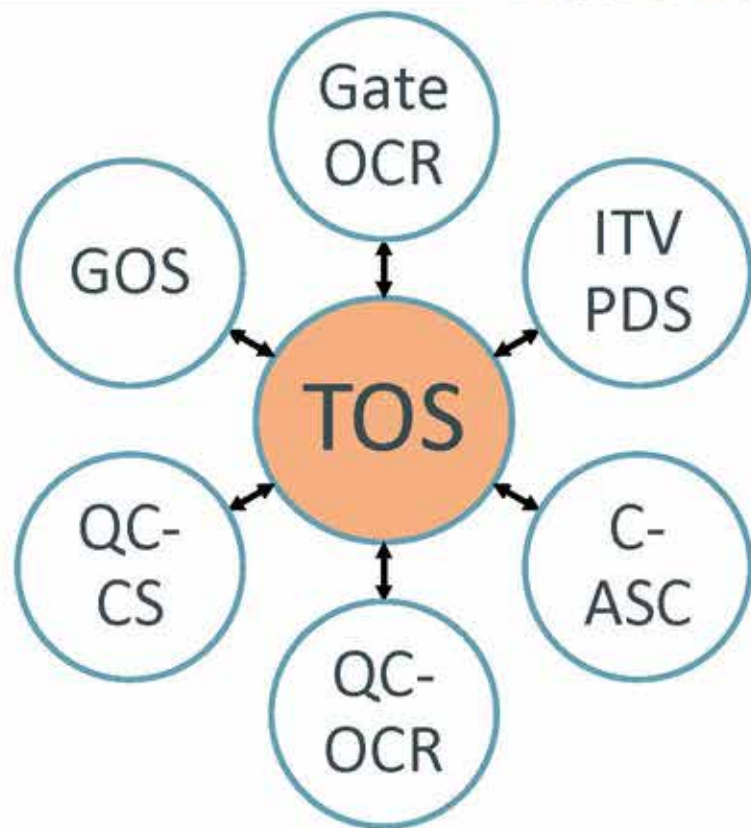
KALMAR



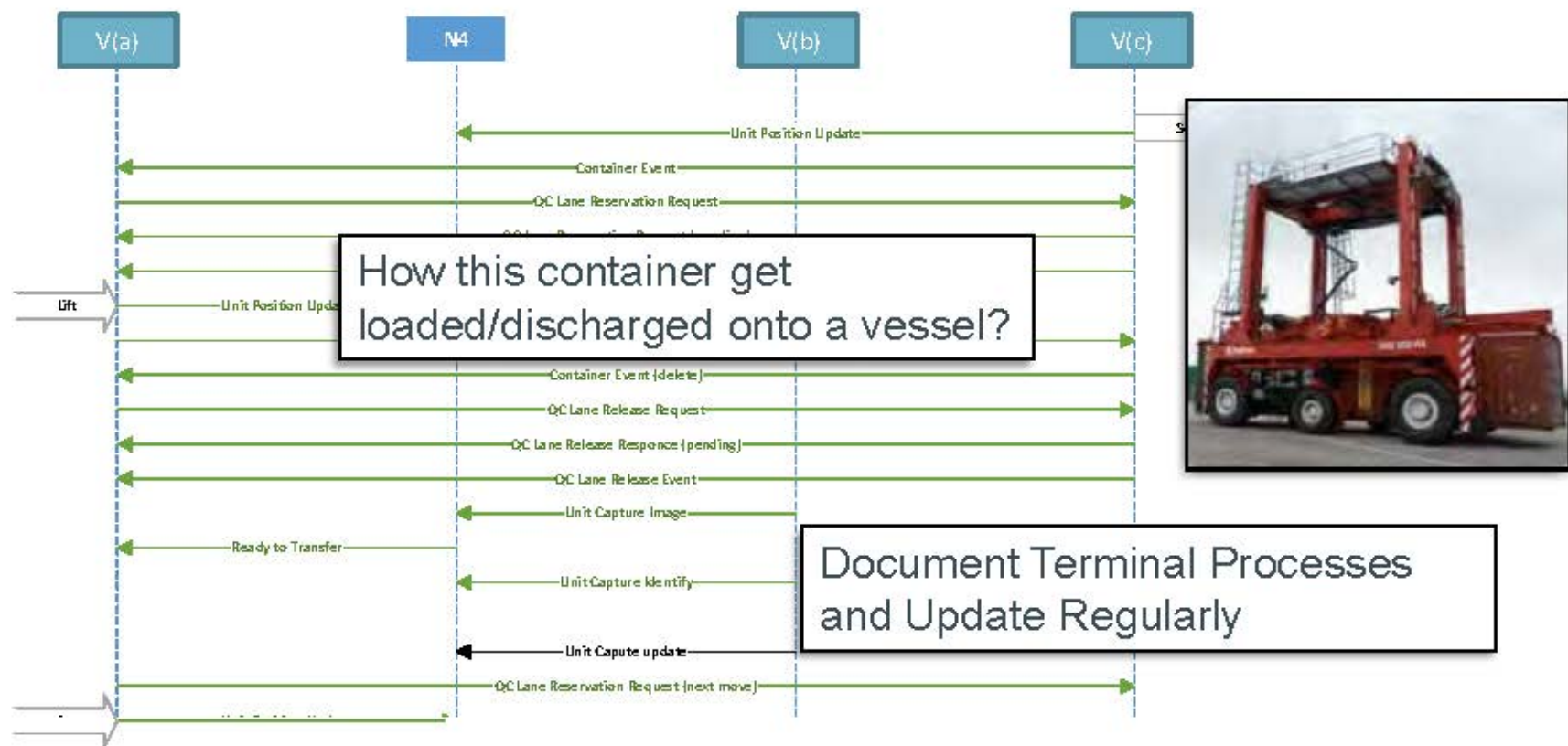
KONECRANES[®]



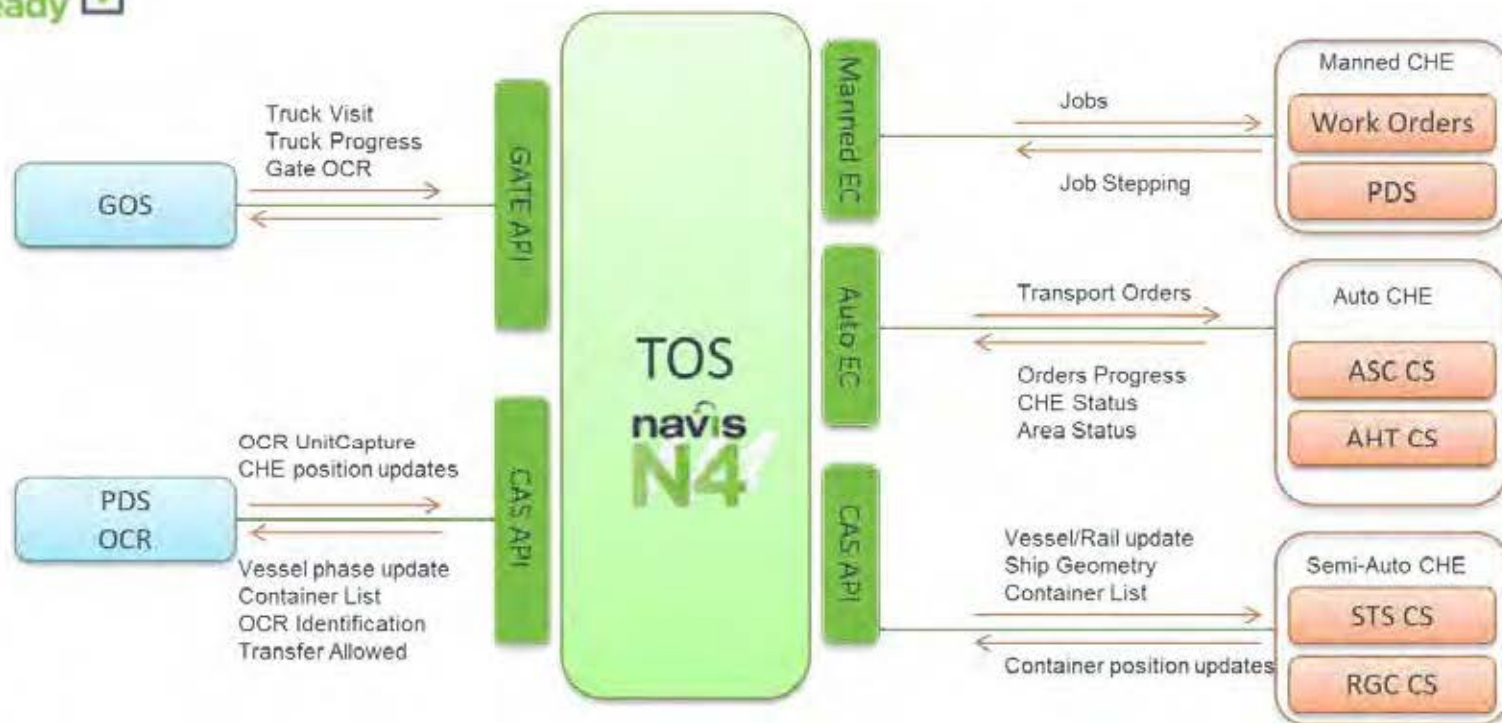
- Can the TOS support selected automated solutions?
- Is there a well-defined API that specifies system roles and interactions?
- Are exception cases handled with alerts and steps to resolution?
- How are partnerships managed for future releases?



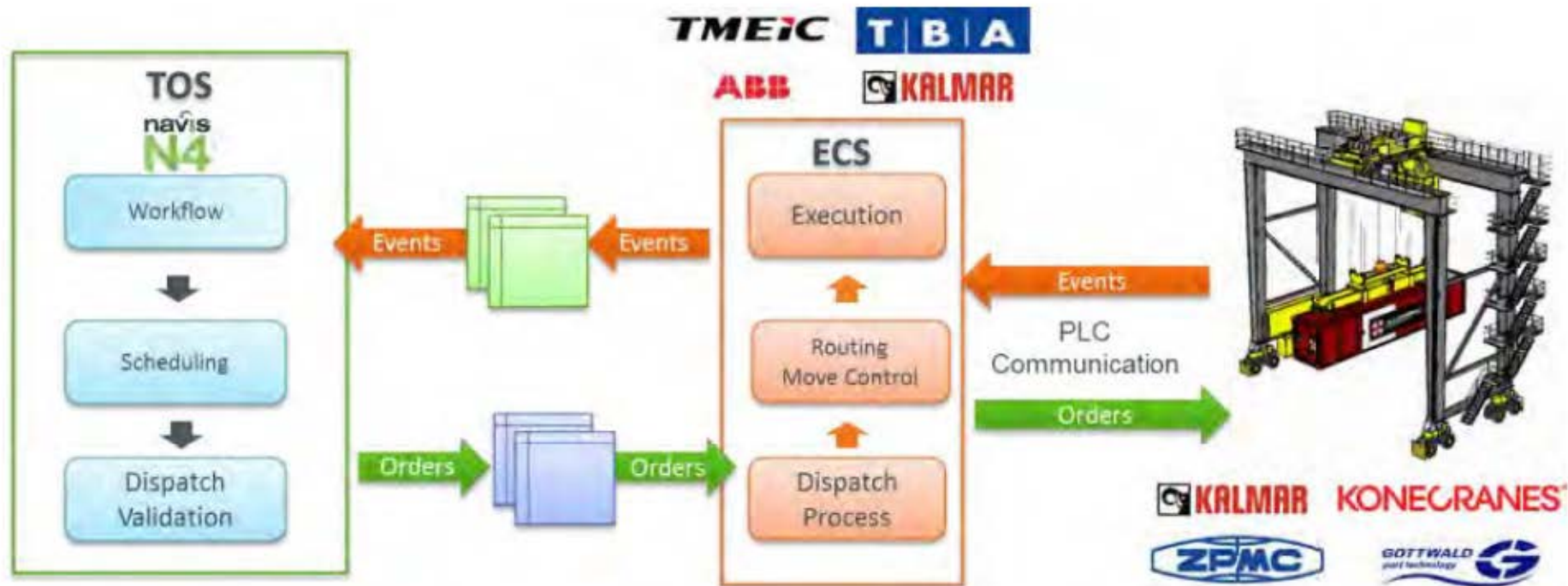
Documenting Automated Communications



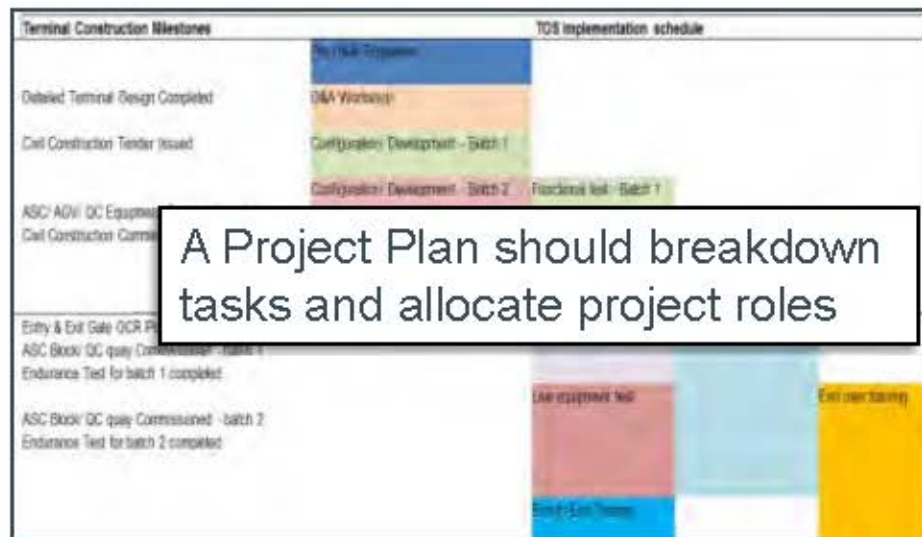
N4 Integration Partner Platform



N4 Readiness Provides Integration Reliability



- Greenfield vs. Brownfield risk profile
- Resource Roles
- Project Milestone Definition
- Experience
- User Acceptance and Training
 - Integration Testing
 - Functional Testing
 - Volume Testing
 - Operational Testing



User Engagement is Critical to Success

navis[®]



Terminal Monitoring: Alerts



Exception	Description	Affected Work Instruction	Work Queue	Work Assignment	Move Purpose
 Abort by ASC11W	Error on spreader	BBCU2204074	yard-Admin	13615	INTRASTACK
 Dispatch validation failed	ASC-OUTBOUND DISPATCH YET AGV NOT DISPATCHED	TEST9245431	yard-Admin	14597	INTRASTACK
 Dispatch rejected	Transfer zone not available	TEST9452143	yard-Admin	14567	INTRASTACK



Dispatching

Decking

Validations

Priority promotions

Scheduling

Gate

...and more +

Terminal Monitoring: Resolutions



Exception	Description	Affected Work Instruction	Work Queue	Work Assignment	Move Purpose	User	
Abort by ASC11W	Error on spreader	BBCU2204074	yard-Admin	13615	INTRASTACK	Admin	
Dispatch validation failed	ASC OUTBOUND DISPATCH YET AGV NOT DISPATCHED	TEST9245431	yard-Admin	14397	INTRASTACK		
Dispatch rejected	Transfer zone not available	TEST9452143	yard-Admin	14367	INTRASTACK		

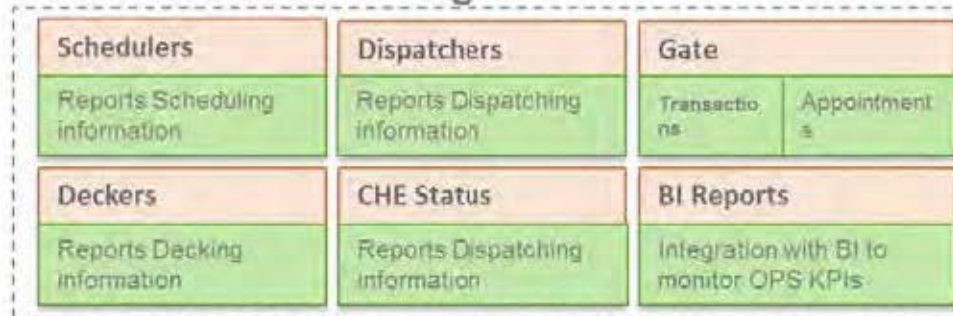
User Ownership

Quick actions will help to resolve the exception

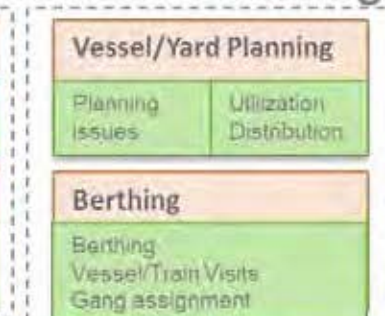
N4 Platform for Operational Monitoring & Planning



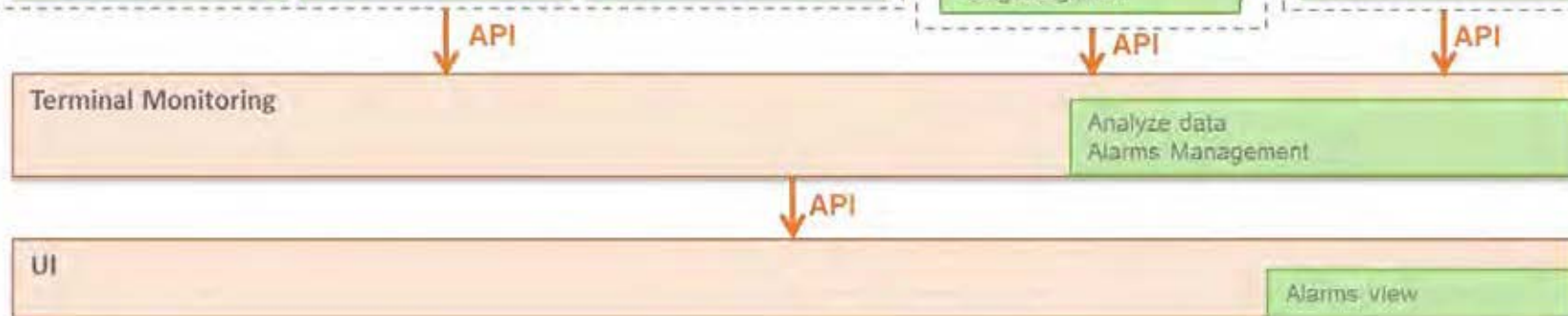
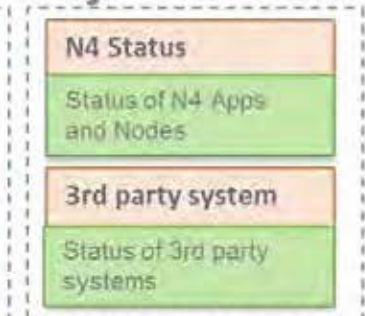
Real Time Monitoring



Terminal Planning



System Health



“When we heard about the new terminal three years ago, and that the cranes would be operated with joysticks and screens from the office, none of us believed it... But we’re doing it, and for the most part, it’s better. It is a cultural but exciting shift”.

OC Remote Operator, APMT MVI Feb 2015

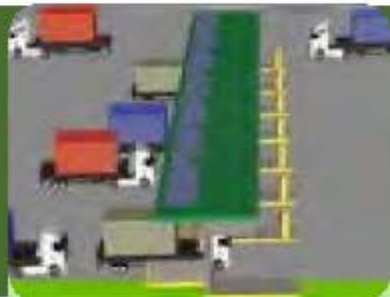
The World is Adopting Automation Processes



*"The switch to automated gates could revolutionise operations at **two African ports.**"*

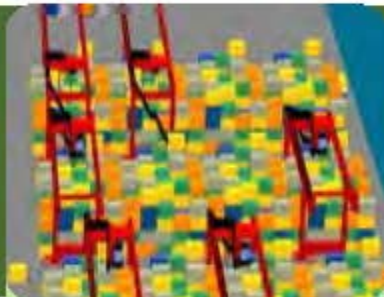
*"announced that Yilport Holding has selected its gate automation and operating solutions for four multipurpose ports **it operates in Turkey**"*

Navis Automation Modules and Experience



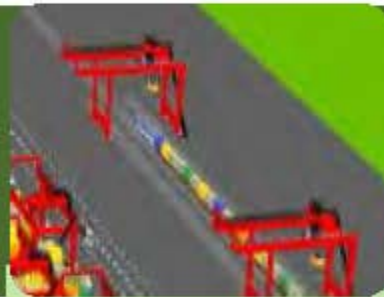
N4 Gate

- Gate Appointments
- Gate OCR/LPR
- Gate RTLS



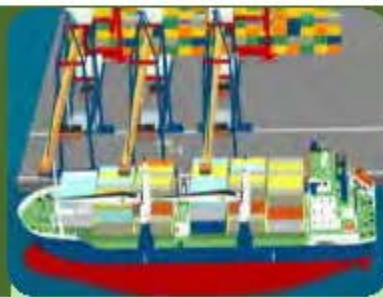
N4 Yard

- PDS/RTLS
- GeoFencing
- Auto Yard Stowage
- Advanced RTG
- ARMG
- ECS
- AGV
- AGV Racks
- Auto Shuttle
- PM Pooling



N4 Rail

- Remote RGC
- Rail Crane OCR
- Rail Portal OCR
- Auto Rail Stowage



N4 Vessel

- Remote QC
- ECS
- Second Trolley
- Tandem / Quad
- Vessel OCR
- Flexible Loading
- Auto Vessel Stowage



25 Years

250 Installed Base

54 Countries

111 N4 Live

160 N4 Committed

425 Employees

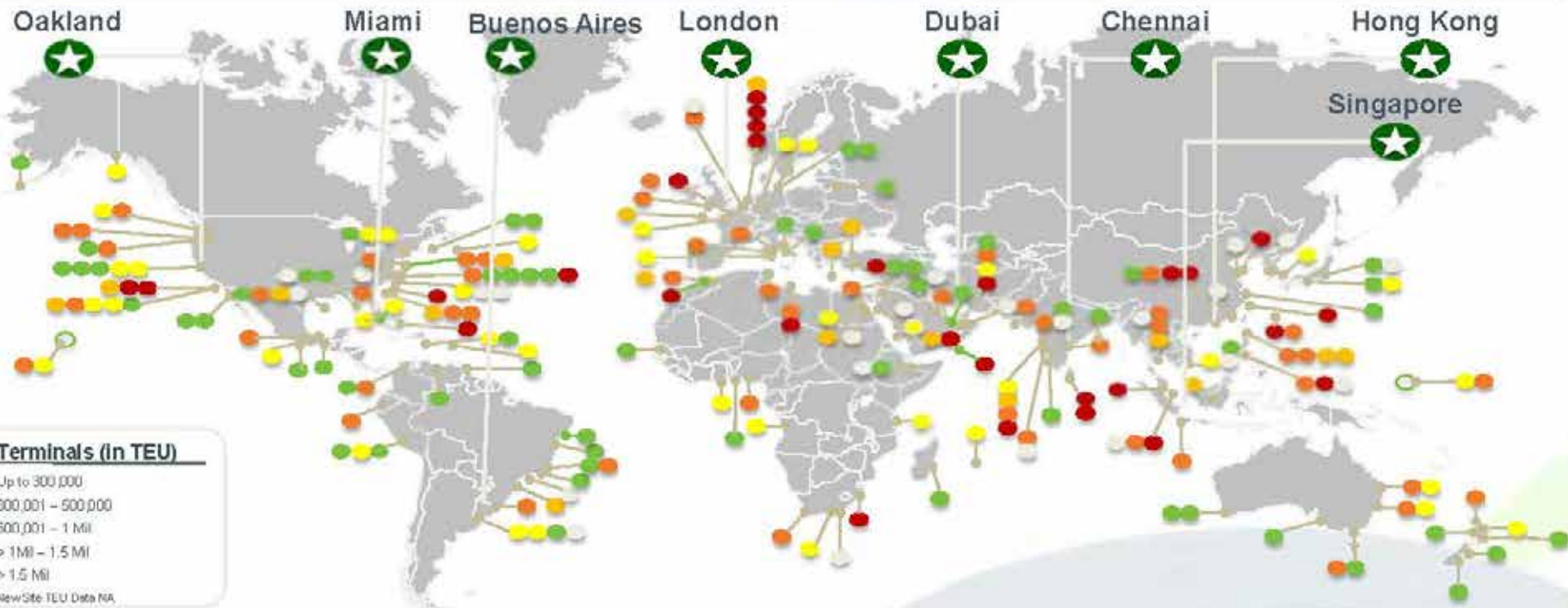
6 Offices

navis

Geographic Presence



Global Customer Footprint



Note: Reflects marine terminal TOS client locations only.

Pushing for Game Changers



Improving Operational Processes Utilizing Automation at Container Terminals

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