



# Driving Terminal Performance and Productivity in the ASEAN Market

Johannes Leholm, Sales Engineering, Navis  
ASEAN Ports and Shipping, June 2015





**How does your terminal currently manage and measure terminal operations and processes?**



**Does your terminal drive continuous improvement with performance targets and reporting?**



**Do your systems provide the necessary data (and access) to implement new operational reports, metrics, and KPIs?**



**Do your reports provide sufficient feedback to detect and analyze operational bottlenecks and procedural inefficiencies?**



The background of the slide features a dramatic, cloudy sky with dark, heavy clouds at the top transitioning into lighter, more textured clouds below. In the foreground, a dark, industrial port terminal is visible, featuring several long, parallel conveyor belts or train tracks stretching into the distance under the sky.

Is your terminal prepared to adapt to a rapidly changing operational environment?

Wednesday, Jun 24, 2015

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42 years, 500 million

The growth of Singapore's container port industry has been driven by the expansion of PSA's global network.

Published on Jun 24, 2015 11:00AM SGT

— ST ILLUSTRATION: MANNY FRANCISCO

By TAN CHONG MENG, FOR THE STRAITS TIMES

HAVE you ever wondered why the container is measured in Twenty-foot Equivalent Units (TEUs), while the ships that carry them are measured in metres?

What will happen when Greece defaults  
Bet up - don't get complacent because of albatross  
Family businesses in China have no heirs apparent  
TPP deal a chance to protect wildlife

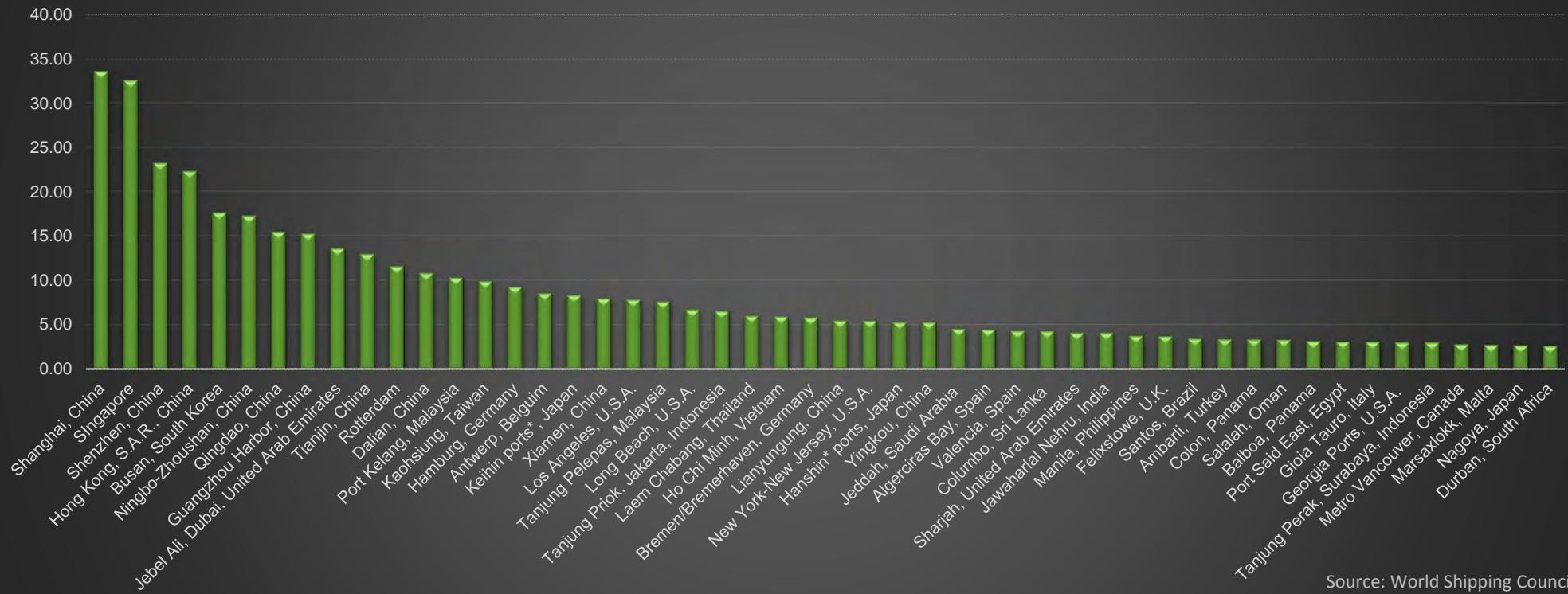
1 of 4

# Agenda

- ASEAN Terminal Operator Market Trends and Challenges
- Terminal Operational Performance Objectives
- Analytical Solutions and Strategies that Drive Productivity

# Top Global Ports

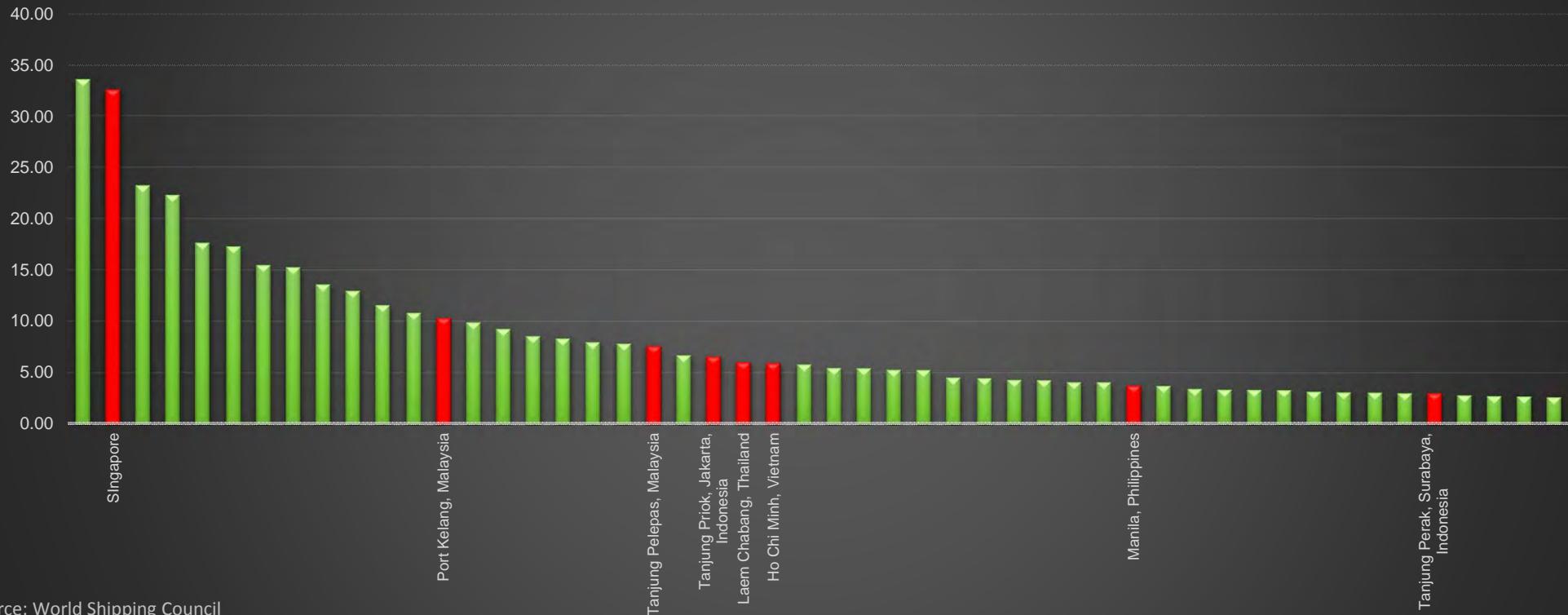
Port Size in Handled TEUs (million) 2013



Source: World Shipping Council

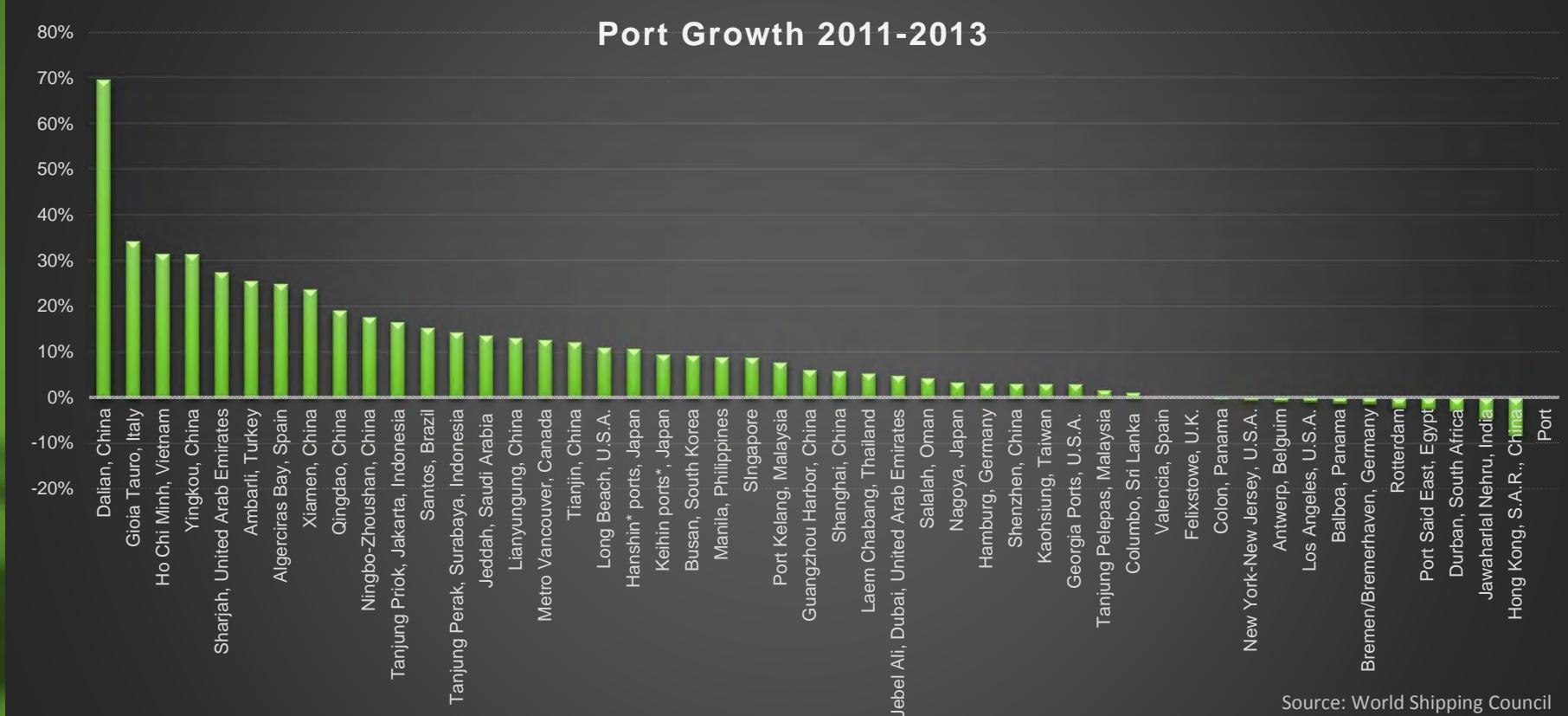
# Top ASEAN Ports

World Port Volume 2013 (Million TEU)



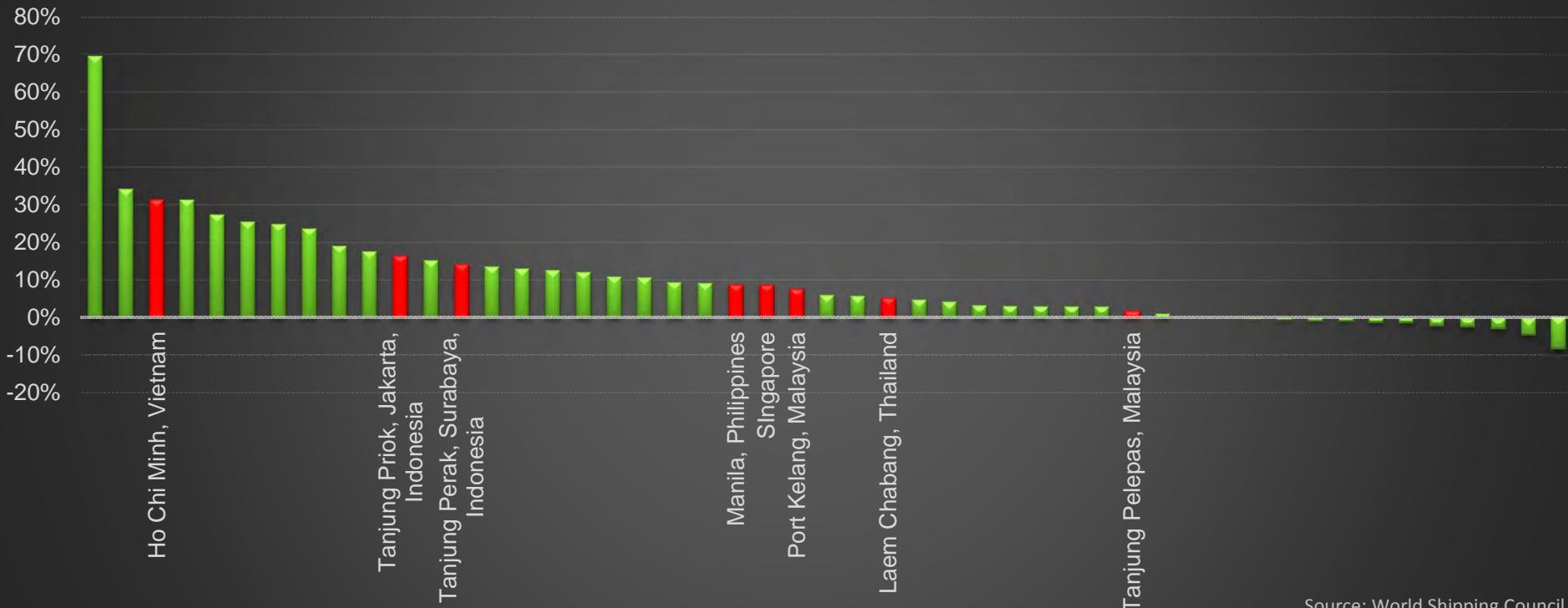
Source: World Shipping Council

# Global Port Growth



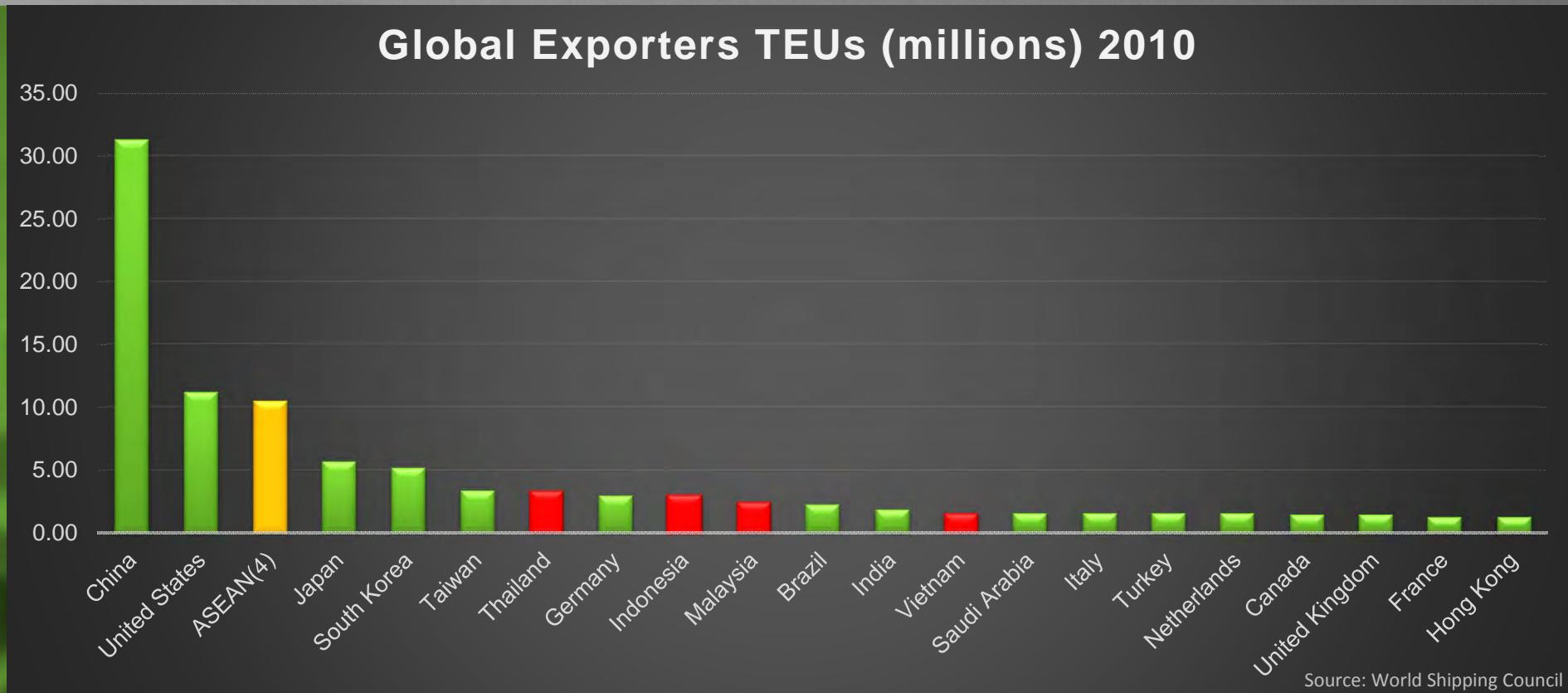
# ASEAN Port Growth

Growth 2011-2013

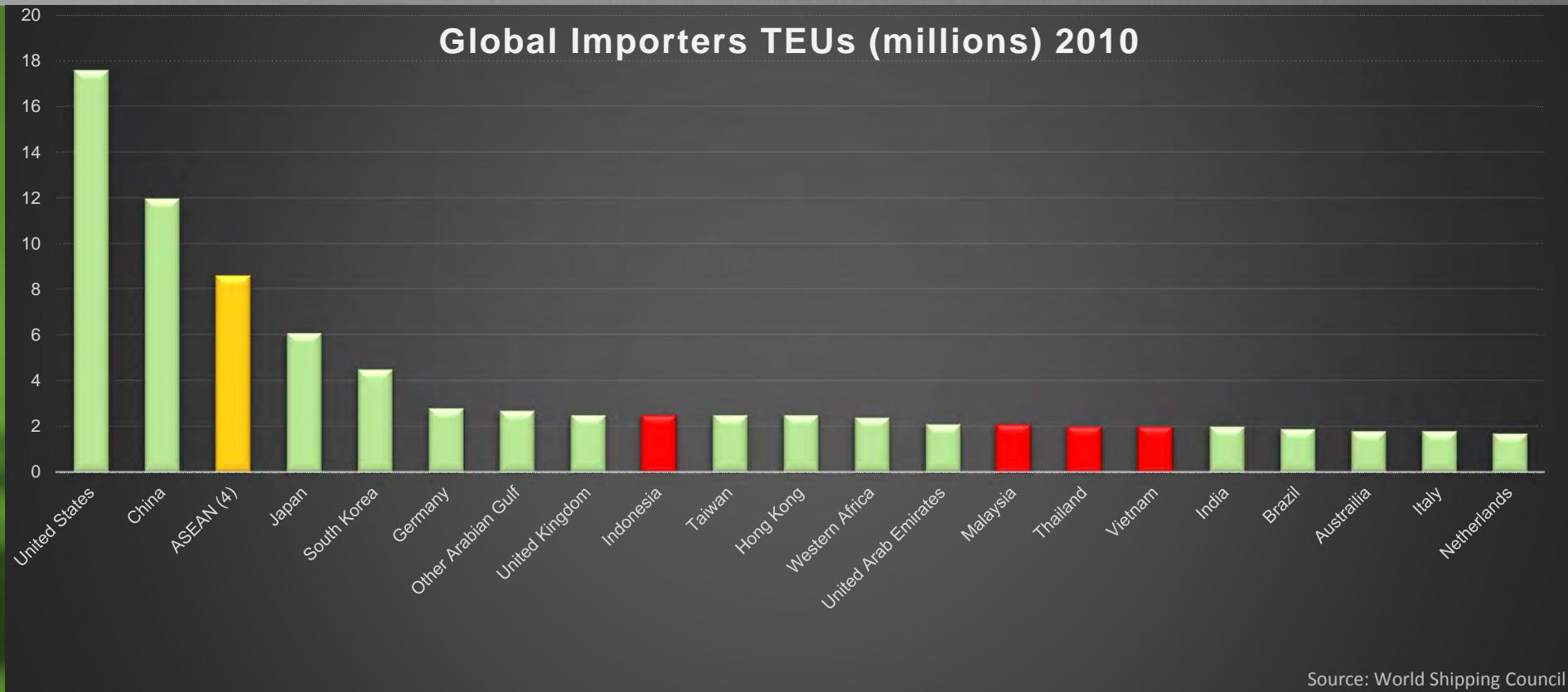


Source: World Shipping Council

# Global Exporters



# Global Importers

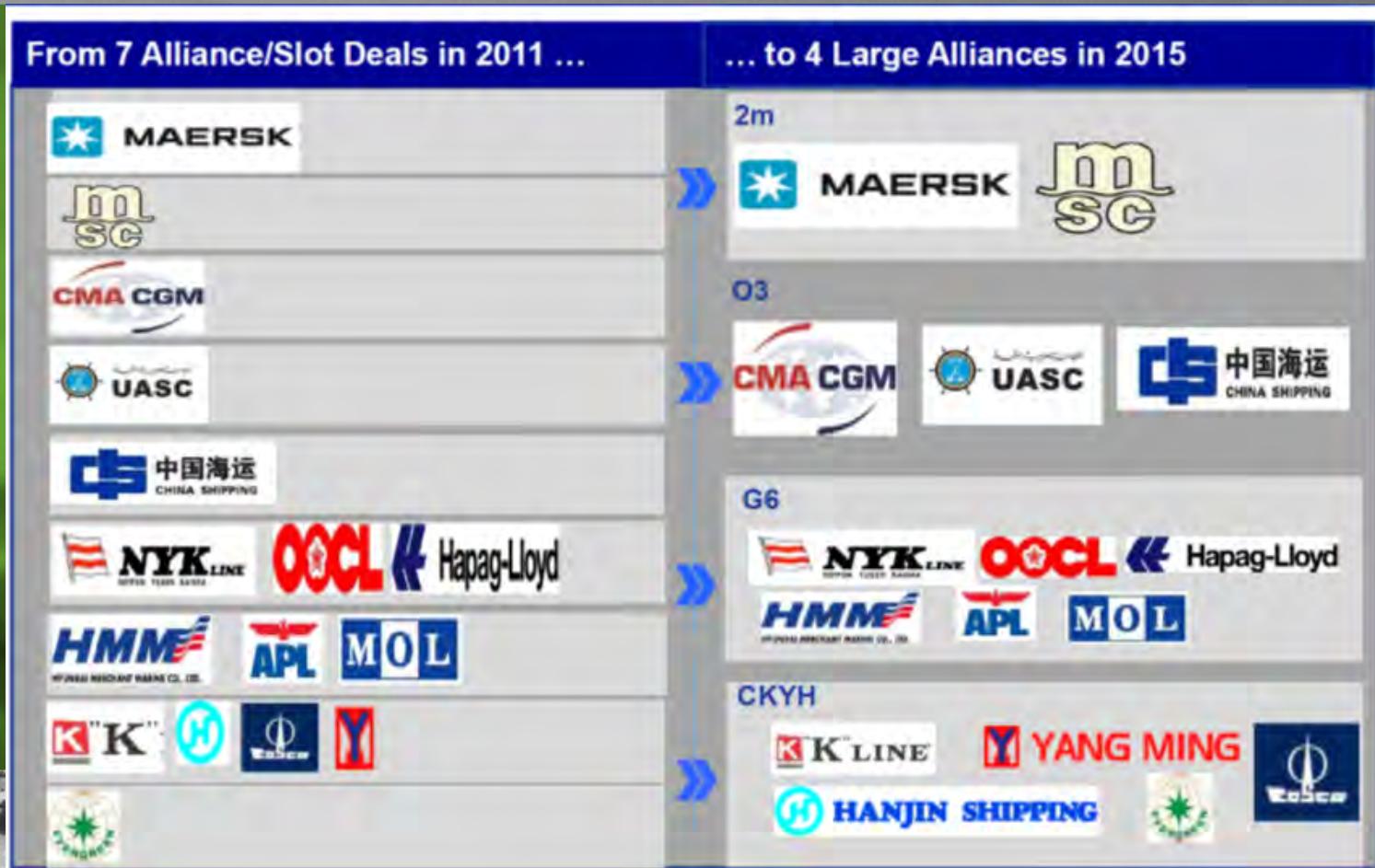


# Indonesia and ASEAN Importers/Exporters Focus on Hinterland

## Changes to Terminal Operations with New Technologies, Processes, and Systems

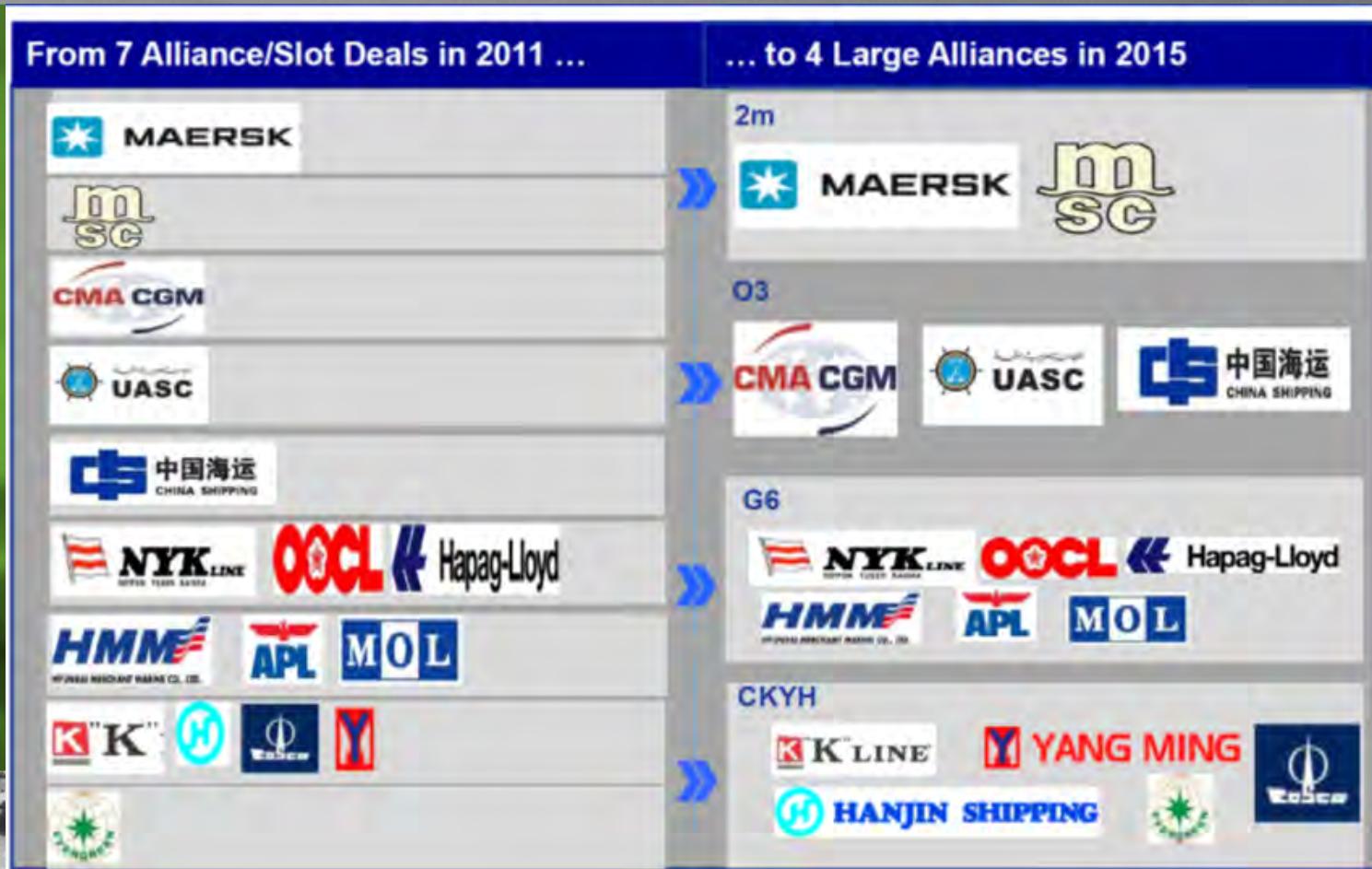
- Port Community Systems
- Auto Gates / OCR / LPR
- Truck Appointments
- Truck Staging
- Barge/Feeder Operations
- On Dock Rail Operations
- Inland Container Depots and Off Dock Rail

# Vessel Line Consolidation



Source: Ronald D. Widdows Associates

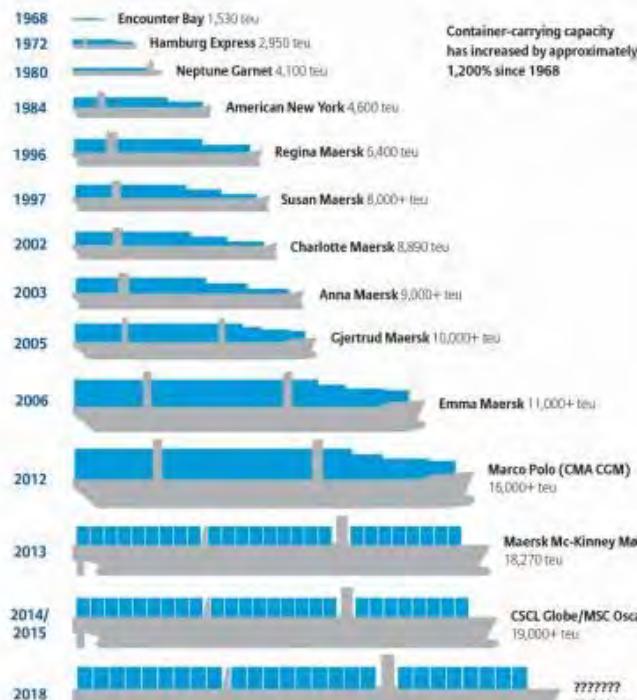
# Vessel Line Consolidation



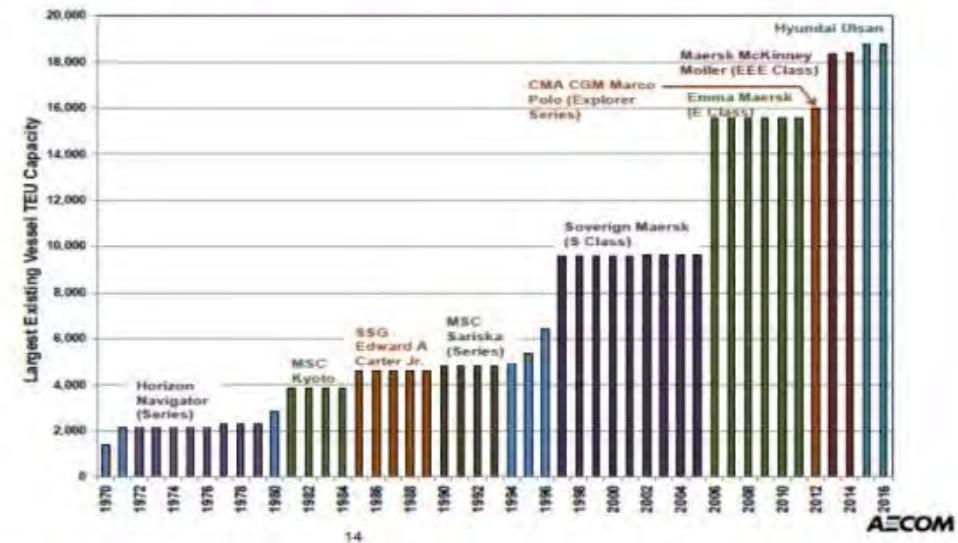
Source: Ronald D. Widdows Associates

# Vessel Size Increase and Cascading Impact

50 years of Container Ship Growth

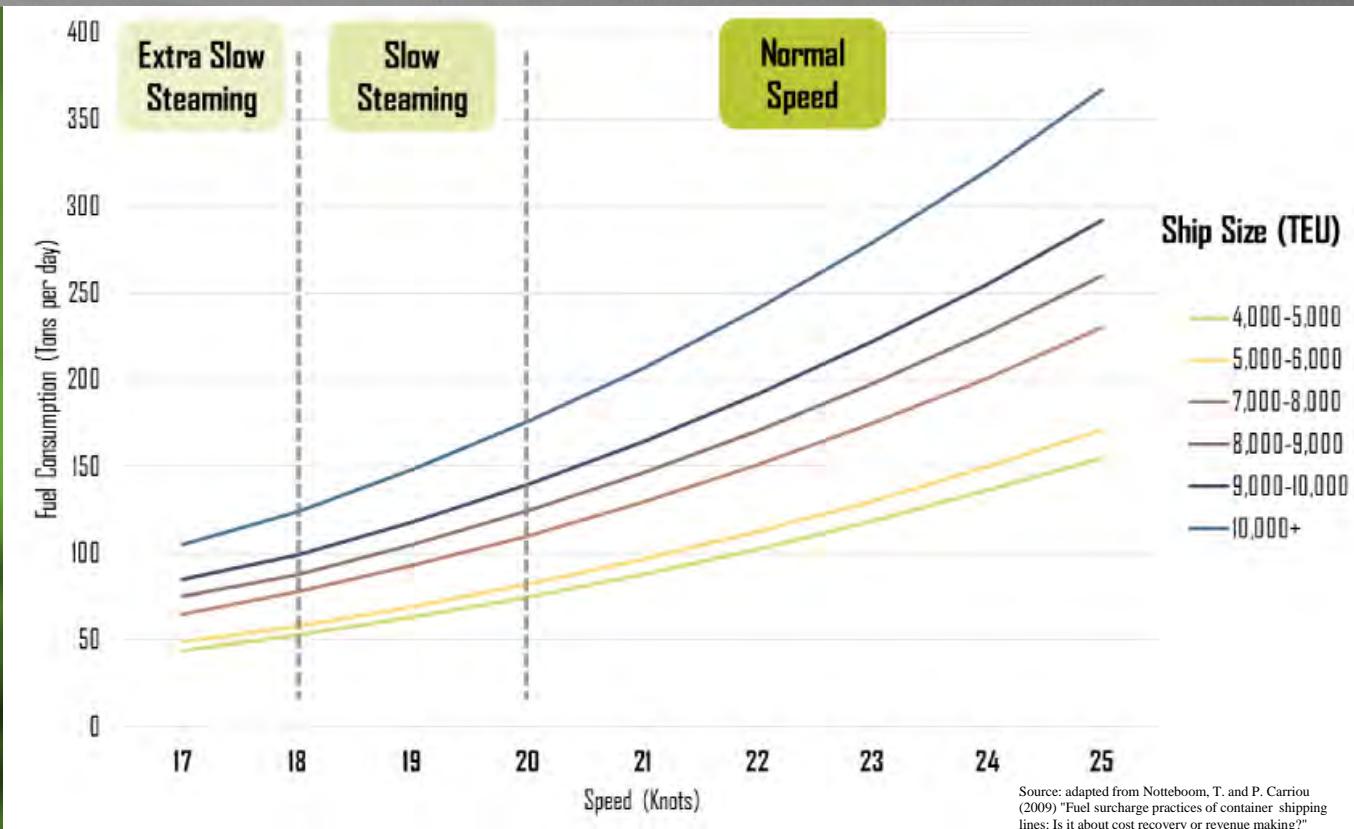


Largest Vessel Size over Time



Source: Sisson, M. (2013). "Impact and Opportunities from Global Change." Presented at AAPA Facilities Engineering Seminar on November 6, 2013.

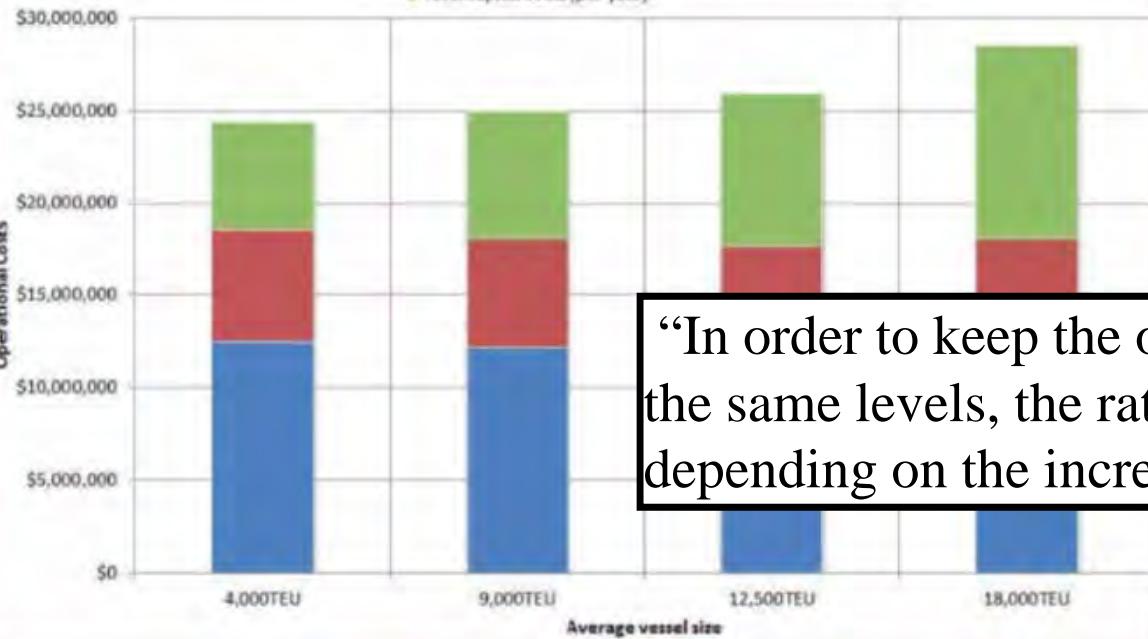
# Vessel Slow Steaming the New Normal



# Operational Impact of Larger Vessels

**Impact of vessel size on operating costs**

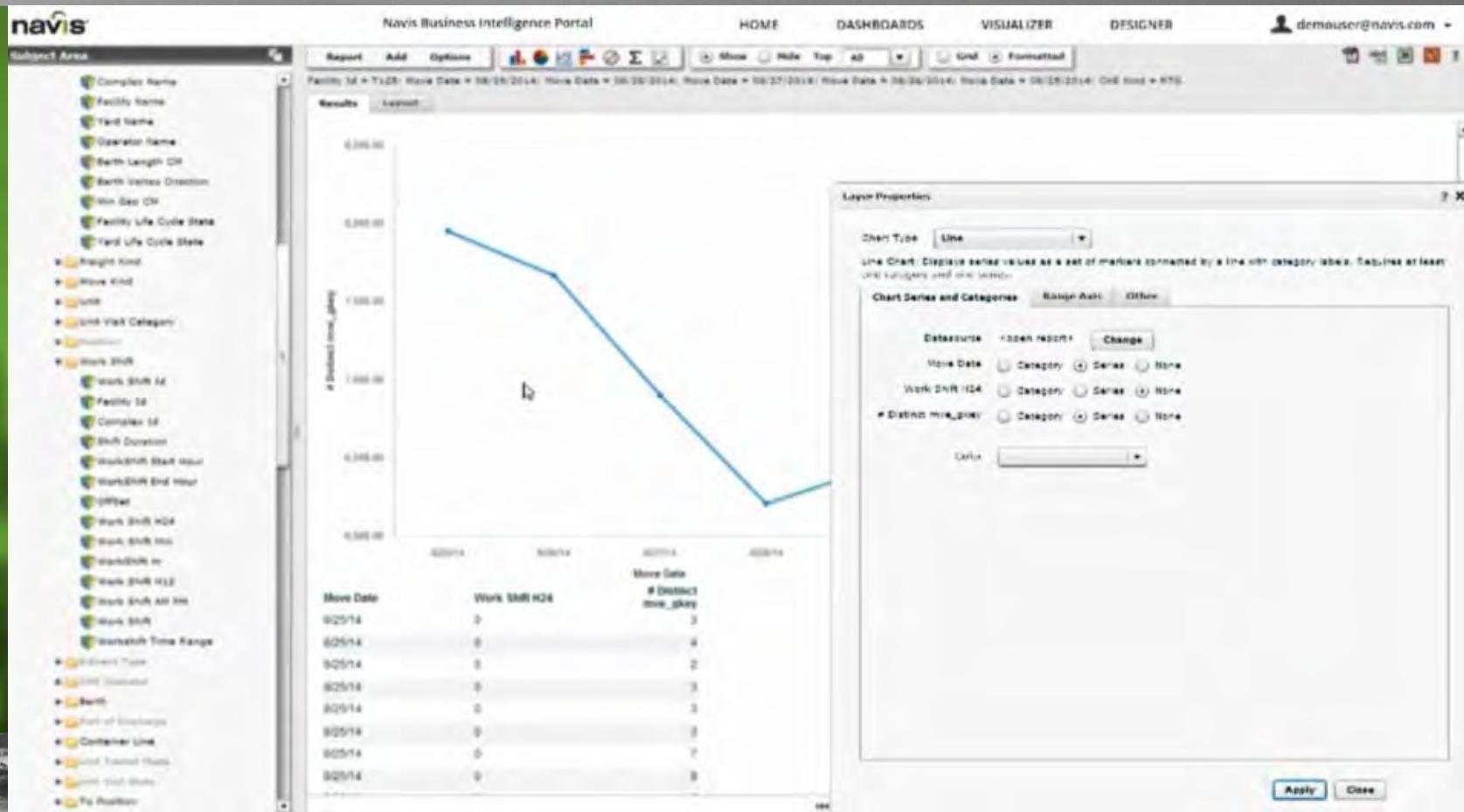
- Total labour costs (per year; waterside only)
- Total equipment running costs (per year; waterside only)
- Total capital costs (per year)



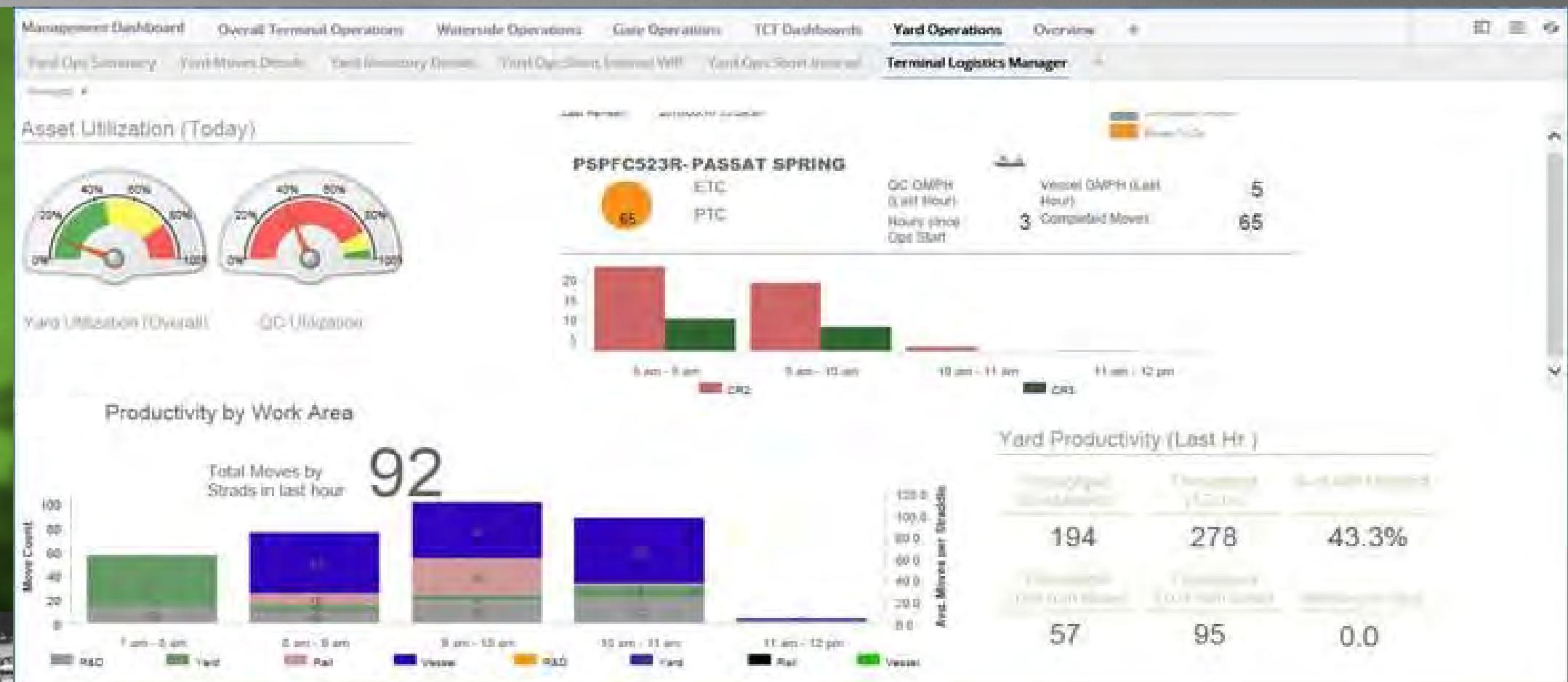
“In order to keep the operational costs at the same levels, the rates need to increase by 3 – 17 percent depending on the increase in vessel size.”

Source:Dr Yvo Saanen “Mega ships: positive asset or terminals’ worst nightmare?”

# Empower Operations with Intuitive Tool



# Overall Operations Dashboard Case



# Yard Operations Dashboard

Terminal Operations   Waterside View   Waterside Reports   Executive Dashboard   Gate Operations   **Yard Operations**   +

**Yard Ops Details** +

Prompts Date = 2014-04-10; Work Shift.Work Shift H24 = 6; CHE Kind = FLT;

| Yard Utilization | Throughput (Moves) | Unladen Dist % | Moves (To/From Quay) | Moves (To/From Gate) | Rehandles |
|------------------|--------------------|----------------|----------------------|----------------------|-----------|
| 20%              | 16                 | .0%            | 5                    | 9                    | 0         |

**CHE Productivity Trend**

| Time  | RTG | RST | FLT |
|-------|-----|-----|-----|
| 11 pm | 115 | 25  | 5   |
| 12 am | 160 | 70  | 30  |
| 1 am  | 160 | 70  | 20  |
| 2 am  | 130 | 30  | 20  |
| 3 am  | 150 | 20  | 25  |
| 4 am  | 145 | 15  | 15  |
| 5 am  | 160 | 10  | 15  |
| 6 am  | 75  | 5   | 5   |

**CHE Moves Summary**

**CHE Kind: FLT**

| CHE  | Move Type | Total Moves | Import | Export | 20 ft | 40 ft |
|------|-----------|-------------|--------|--------|-------|-------|
| SL05 | Receive   | 4           | 0      | 4      | 4     | 0     |

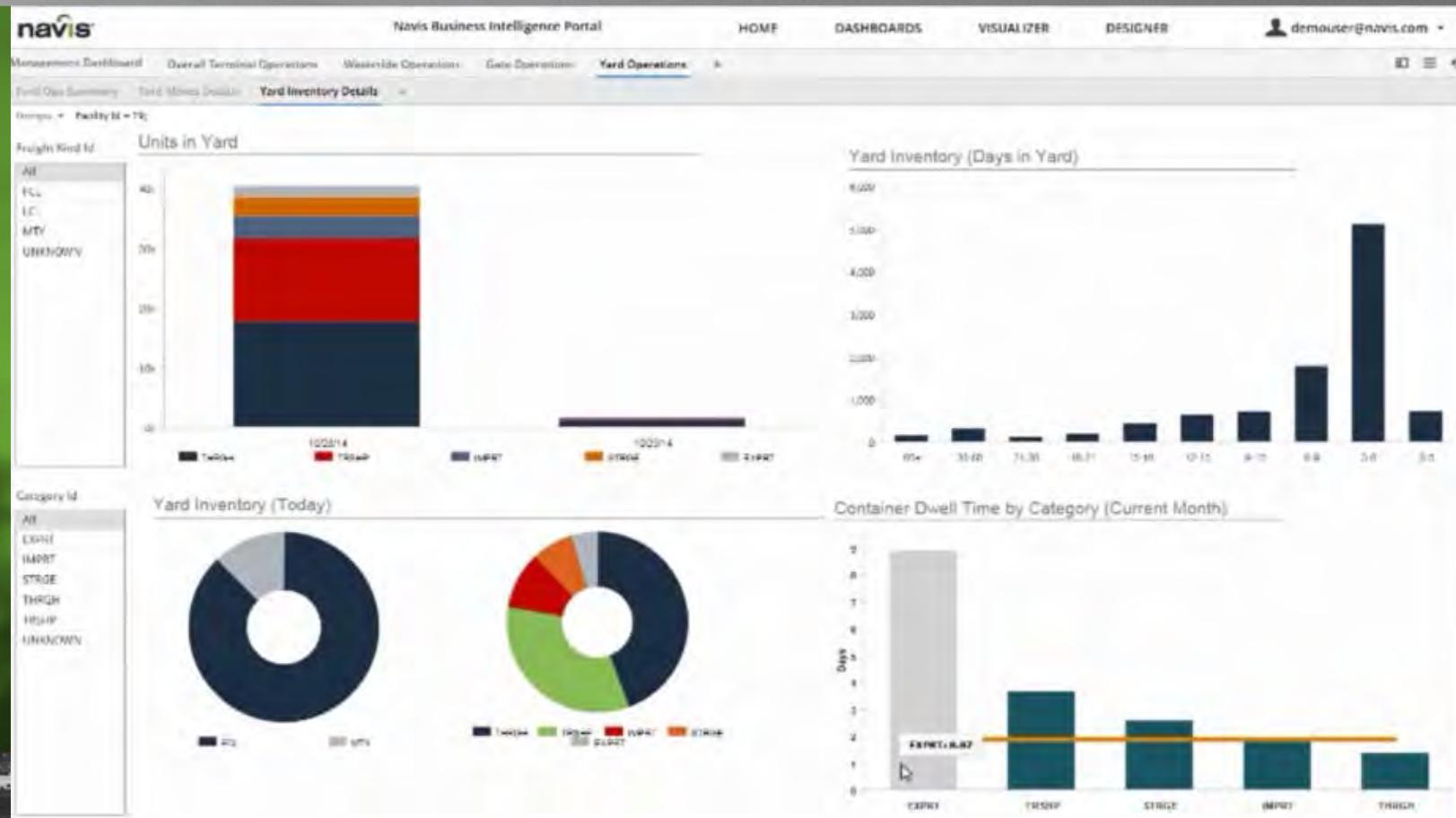
**Container Moves by Blocks (Last Hr.)**

| Block | Count |
|-------|-------|
| 2C:   | 3.0   |
| 1B:   | 1.0   |
| 2B:   | 3.0   |
| BR:   | 1.0   |
| 3B:   | 2.0   |
| 3A:   | 1.0   |
| 4B:   | 1.0   |
| 2A:   | 2.0   |
| 4A:   | 1.0   |
| 3C:   | 3.0   |
| 4D:   | 4.0   |
| 2E:   | 5.0   |
| 1E:   | 1.0   |
| 1C:   | 1.0   |

**Container Moves by Blocks (Today)**

| Block | Count |
|-------|-------|
| 2C:   | 12.0  |
| 1B:   | 10.0  |
| 2B:   | 10.0  |
| BR:   | 8.0   |
| 3B:   | 7.0   |
| 3A:   | 6.0   |
| 4B:   | 3.0   |
| 2A:   | 3.0   |
| 4D:   | 4.0   |
| 3C:   | 3.0   |
| 4D:   | 4.0   |
| 2E:   | 5.0   |
| 1E:   | 3.0   |
| 1C:   | 1.0   |
| A2C:  | 2.0   |
| 2D:   | 1.0   |
| 7C:   | 1.0   |
| 3D:   | 1.0   |

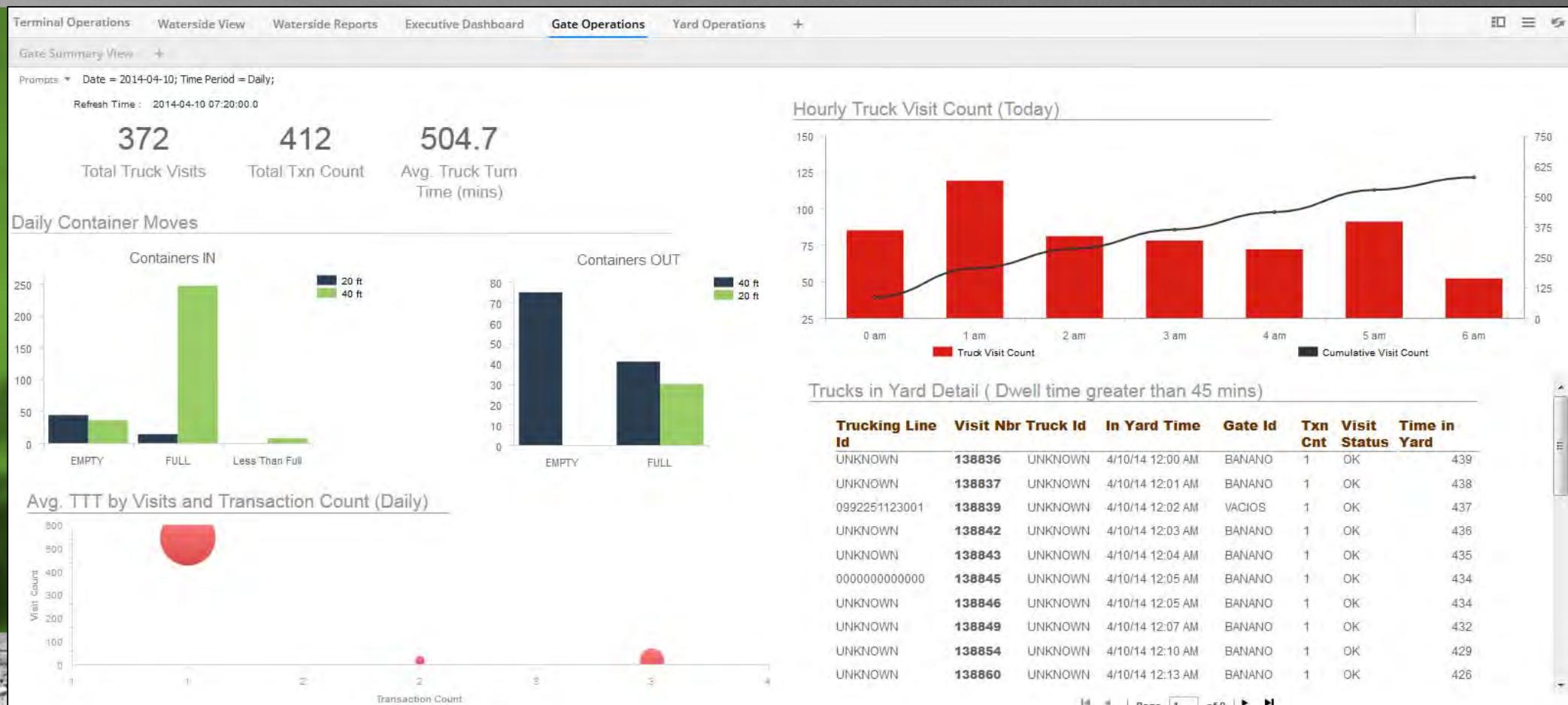
# Yard Operations Dashboard



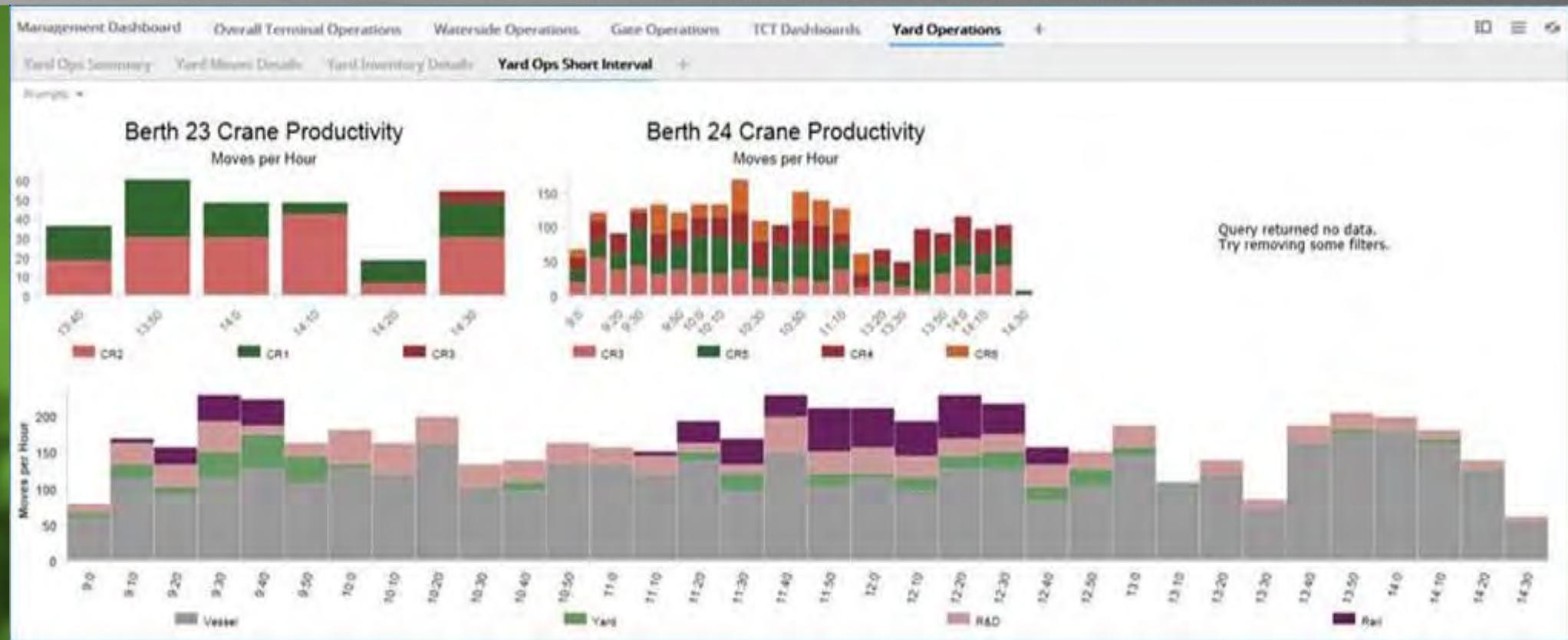
# Yard Utilization Dashboard



# Gate Operations Dashboard



# Berth Operations Dashboard

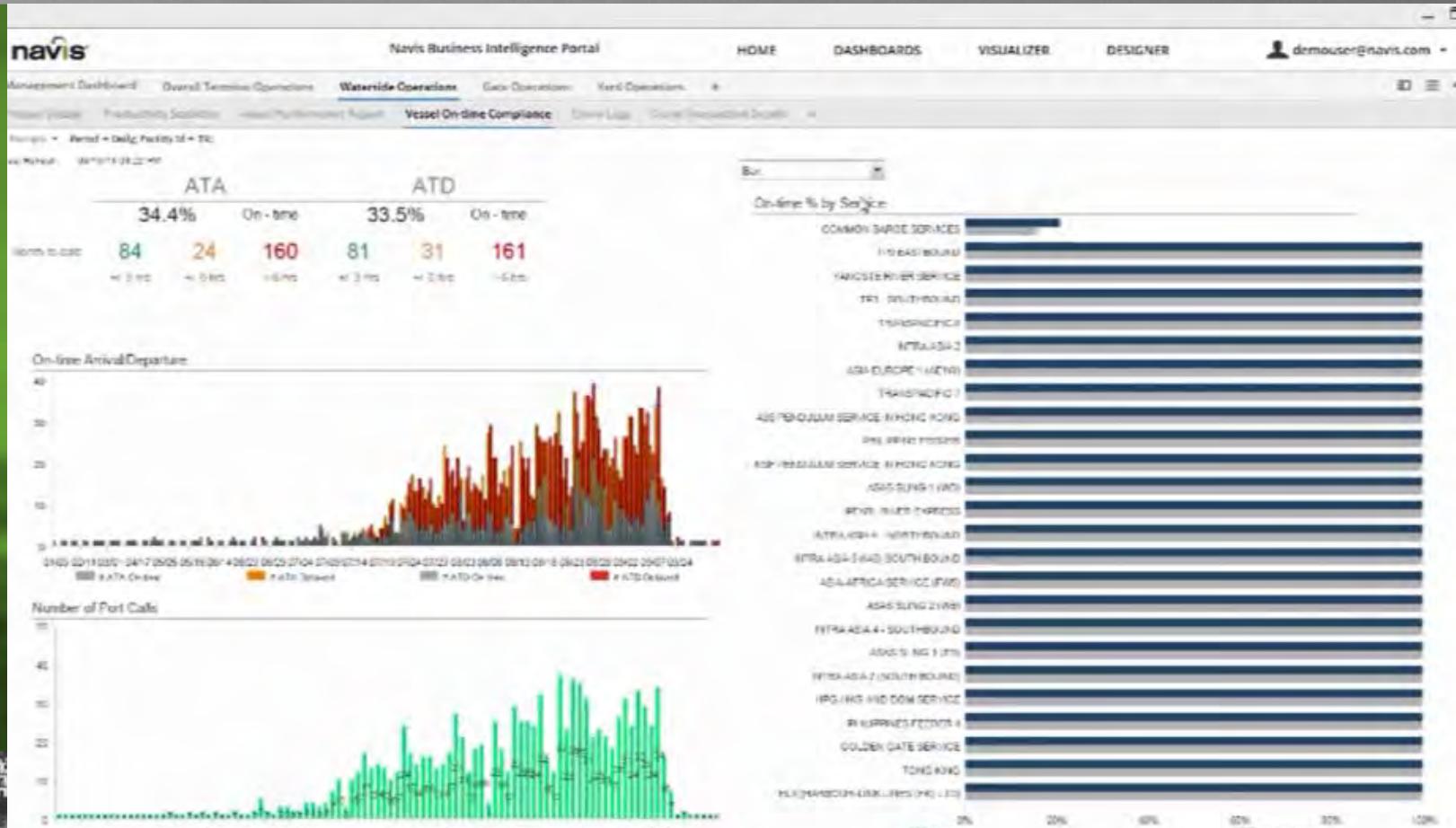


# Waterside Operations Dashboard



navis®

# Vessel On-time Compliance Dashboard



# Vessel Operations Dashboard

Terminal Operations   **Waterside View**   Waterside Reports   Executive Dashboard   +

**Vessel Details** +

Prompts \* Period = Last Hour; Vessel = V438218-MCC JAVA; Target = 25;

Last Refresh: 09/10/14 05:00 PM

**V438218- MCC JAVA**

|          |                  |                |   |
|----------|------------------|----------------|---|
| Berth Id | 20N              | Hours into Ops | 9 |
| ETC      | 09/10/14 6:30 PM | PTC            |   |

|                         |    |                     |      |                            |    |            |      |             |   |
|-------------------------|----|---------------------|------|----------------------------|----|------------|------|-------------|---|
| Vessel GMPH (Last Hour) | 35 | QC GMPH (Last Hour) | 8.75 | Vessel GMPH (Start of Ops) | 35 | QC Density | 2.67 | Moves To Go | 1 |
|-------------------------|----|---------------------|------|----------------------------|----|------------|------|-------------|---|

| Time        | Vessel GMPH |
|-------------|-------------|
| 7 am 09/10  | 15          |
| 8 am 09/10  | 25          |
| 9 am 09/10  | 38          |
| 10 am 09/10 | 38          |
| 11 am 09/10 | 30          |
| 12 pm 09/10 | 38          |
| 1 pm 09/10  | 38          |
| 2 pm 09/10  | 35          |
| 3 pm 09/10  | 40          |
| 4 pm 09/10  | 35          |

**Moves for a QC**

| Hour  | QC81 Moves | QC87 Moves | Crane Delay Minutes |
|-------|------------|------------|---------------------|
| 7 am  | 5          | 8          | 22                  |
| 8 am  | 10         | 12         | 14                  |
| 9 am  | 18         | 18         | 35                  |
| 10 am | 22         | 18         | 15                  |
| 11 am | 15         | 10         | 2                   |
| 12 pm | 12         | 15         | 22                  |
| 1 pm  | 20         | 20         | 25                  |
| 2 pm  | 10         | 25         | 28                  |
| 3 pm  | 18         | 22         | 15                  |
| 4 pm  | 15         | 15         | 2                   |

**QC87**

|                  |   |                  |    |        |    |                  |       |             |   |
|------------------|---|------------------|----|--------|----|------------------|-------|-------------|---|
| GMPH (Last Hour) | 8 | GMPH (Start Ops) | 18 | Target | 18 | NMPH (Last Hour) | 16.55 | Moves to Go | 1 |
|------------------|---|------------------|----|--------|----|------------------|-------|-------------|---|

ETC: 9/10/14 6:30 PM

**QC81**

|                  |     |                  |    |        |    |                  |       |             |   |
|------------------|-----|------------------|----|--------|----|------------------|-------|-------------|---|
| GMPH (Last Hour) | 9.5 | GMPH (Start Ops) | 17 | Target | 18 | NMPH (Last Hour) | 10.27 | Moves to Go | 1 |
|------------------|-----|------------------|----|--------|----|------------------|-------|-------------|---|

ETC: 9/10/14 6:30 PM

# Custom Dashboard for Target Audience



# Carrier Specific Dashboard



# Automated Equipment Monitoring Dashboard

**navis Framework Team**

**Terminal Monitor: Alarm Panel**

Alarm Panel    Alarm Map

Welcome JFinley | Log Out

Auto-Refresh: ON (1)

Show Filter

**MY ALARMS**

| Exception       | Description         | Work Instruction | Work Assignment | Move Purpose | Assigned User | CHE   | POW  | Time  | Priority (2) | (3)            |
|-----------------|---------------------|------------------|-----------------|--------------|---------------|-------|------|-------|--------------|----------------|
| Abort by ASC11W | Error on Spreader   | BBCU2204074      | 13615           | INTRASTACK   | JFINLEY       | ASC01 | QC71 | 11:55 | Medium (2)   | <b>Resolve</b> |
| Abort by ASC11W | Transfer Zone not.. | BBCU2204074      | 14723           | INTRASTACK   | JFINLEY       | ASC01 | QC44 | 10:35 | High (1)     | <b>Resolve</b> |
|                 |                     |                  |                 |              |               |       |      |       |              |                |
|                 |                     |                  |                 |              |               |       |      |       |              |                |
|                 |                     |                  |                 |              |               |       |      |       |              |                |
|                 |                     |                  |                 |              |               |       |      |       |              |                |

**GENERAL ALARMS**

| Exception         | Description        | Work Instruction | Work Assignment | Move Purpose | Assigned User | CHE   | POW  | Time  | Priority |                |
|-------------------|--------------------|------------------|-----------------|--------------|---------------|-------|------|-------|----------|----------------|
| Dispatch Rejected | ASC Not Dispatched | BBCU2204074      | 27439           | INTRASTACK   | SSMITH        | QRZ01 | PV41 | 14:35 | Low (3)  | <b>Resolve</b> |
|                   |                    |                  |                 |              |               |       |      |       |          |                |
|                   |                    |                  |                 |              |               |       |      |       |          |                |
|                   |                    |                  |                 |              |               |       |      |       |          |                |
|                   |                    |                  |                 |              |               |       |      |       |          |                |

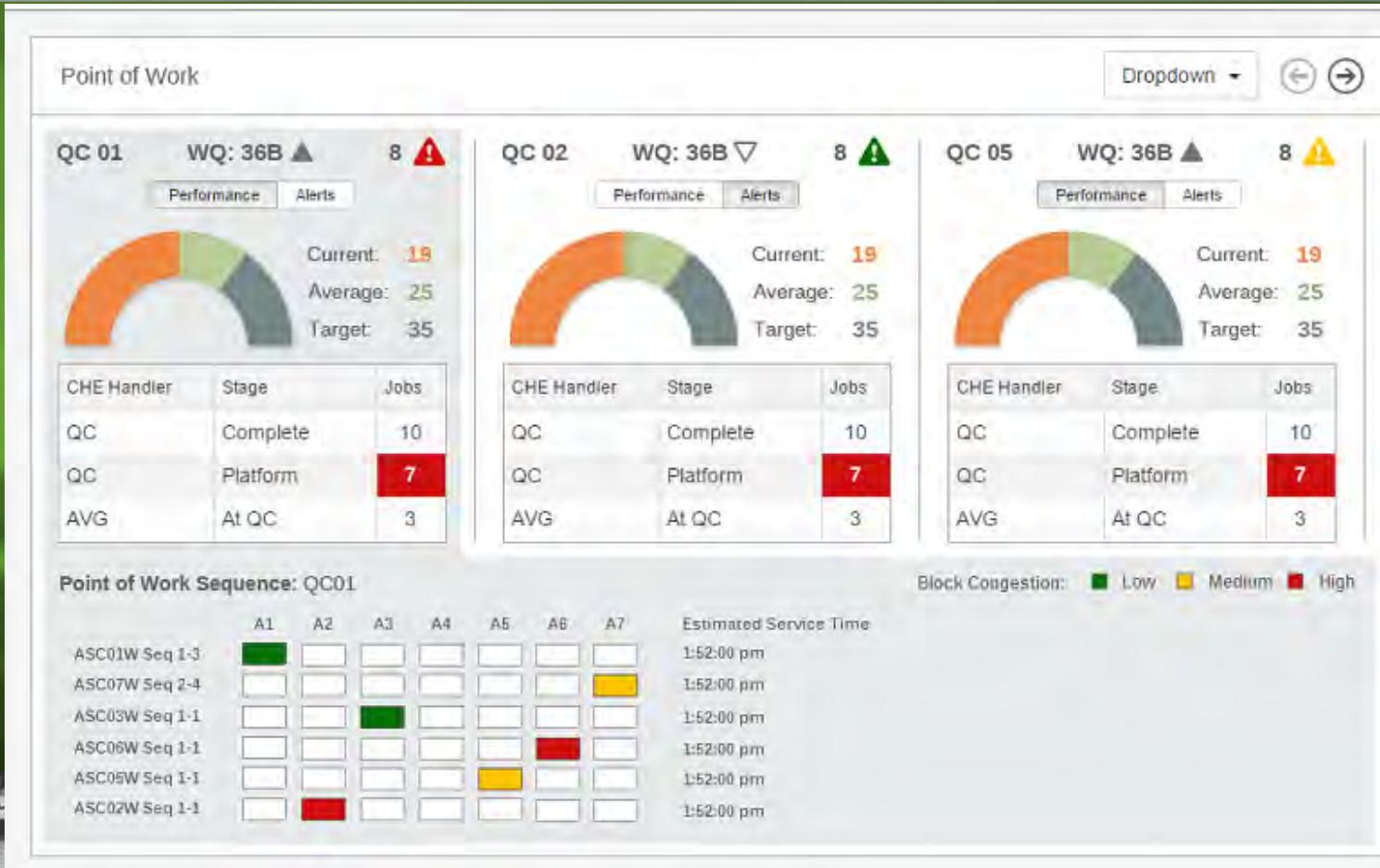
**RESOLVED ALARMS**

| Exception       | Description       | Work Instruction | Work Assignment | Move Purpose | Assigned User | CHE   | POW  | Time  |  |  |
|-----------------|-------------------|------------------|-----------------|--------------|---------------|-------|------|-------|--|--|
| Abort by ASC11W | Error on Spreader | DDEJ3604156      | 13637           | INTRASTACK   | JFINLEY       | ASC03 | WC71 | 09:55 |  |  |
|                 |                   |                  |                 |              |               |       |      |       |  |  |
|                 |                   |                  |                 |              |               |       |      |       |  |  |

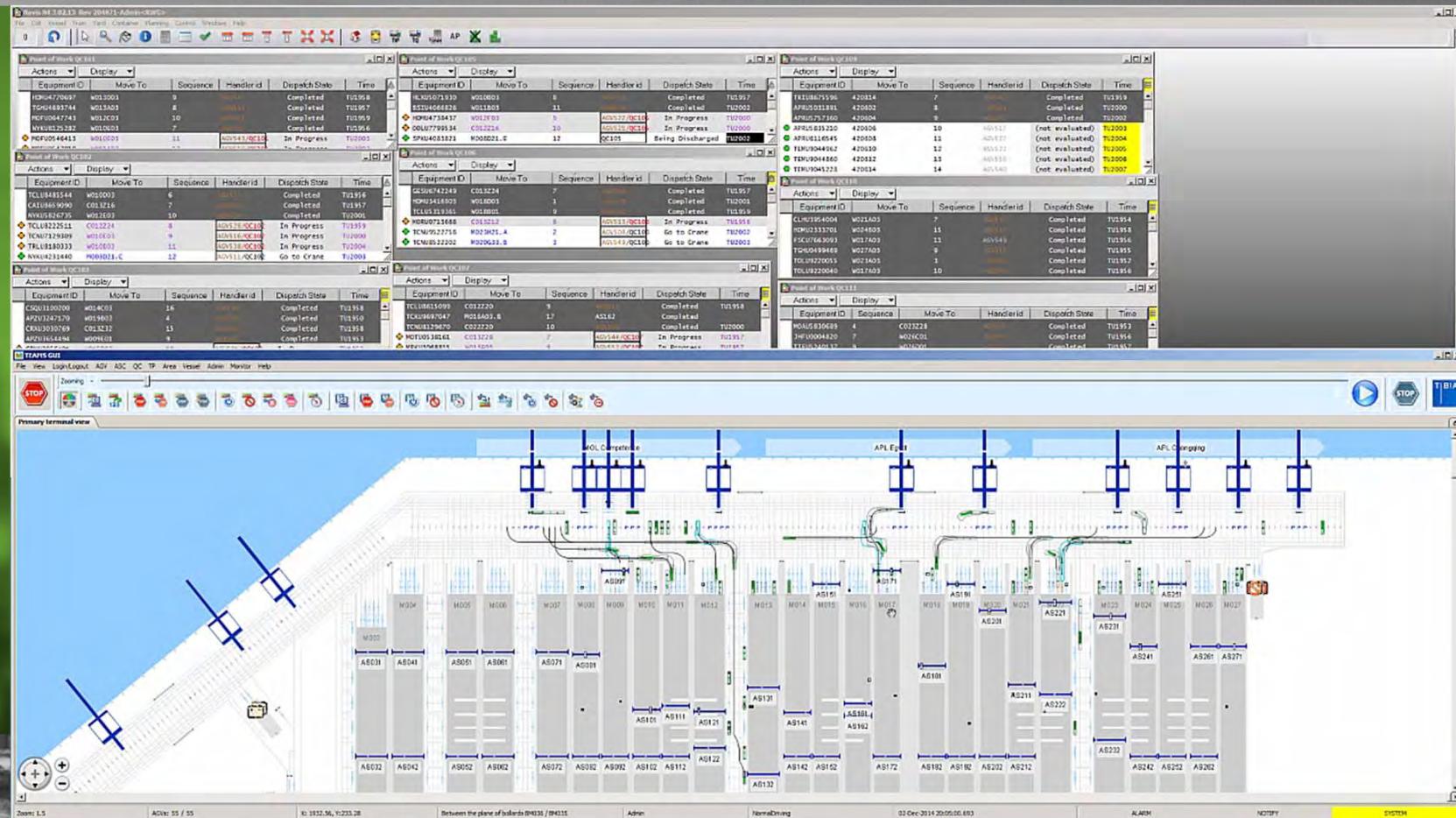
**Notes**

- (1) Users may toggle button to select auto-refresh ON or OFF
- (2) Users may perform filter actions:
  - Group by mile; i.e., EC Control, Yard Planning, etc.
  - Create a unique filter
- (3) Users may sort priorities in the list
- (4) Priority icons use shape, numbers and color to impart the severity of a priority
- (5) Users may resolve an exception issue by clicking on the Resolve button and completing the provided form fields

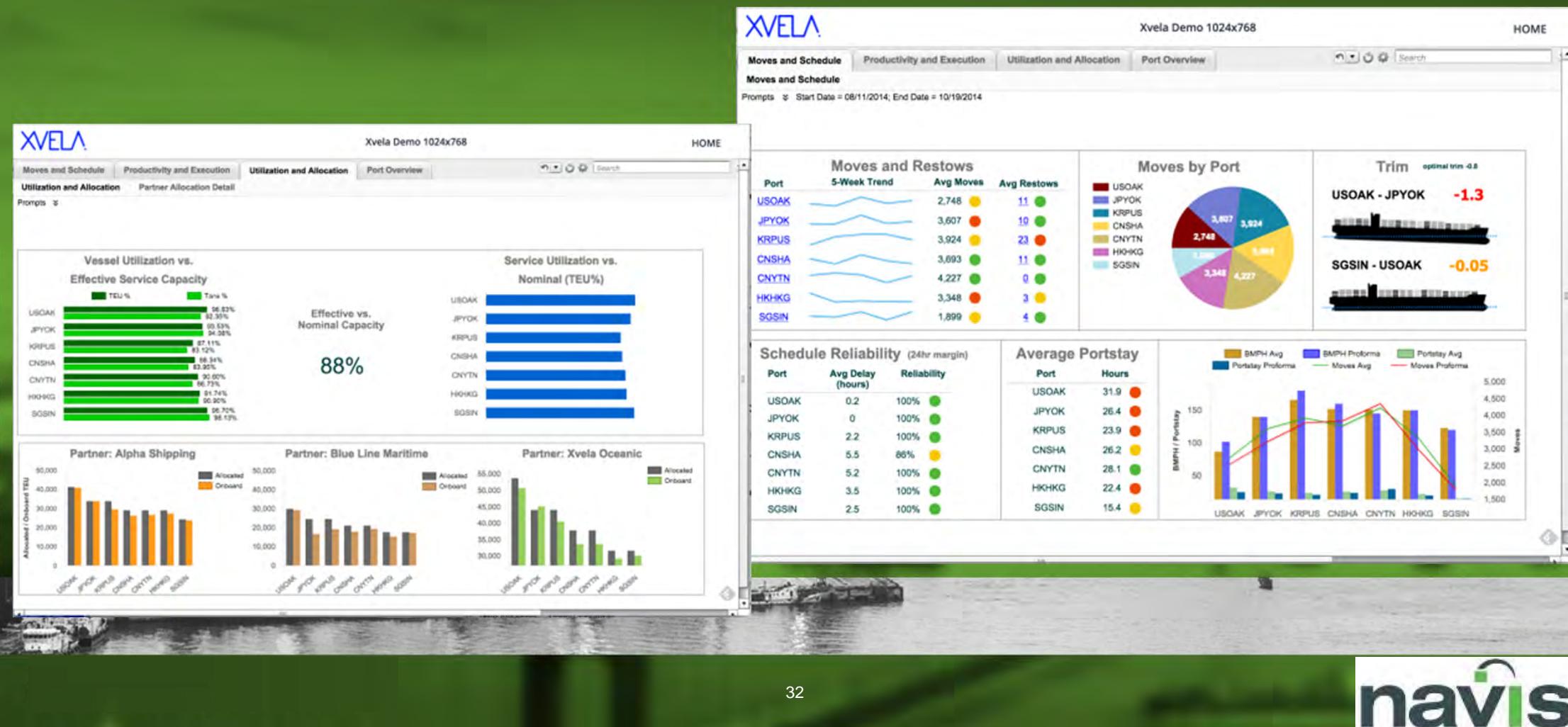
# Automated Equipment Monitoring Dashboard



# Measure Your Test Environments



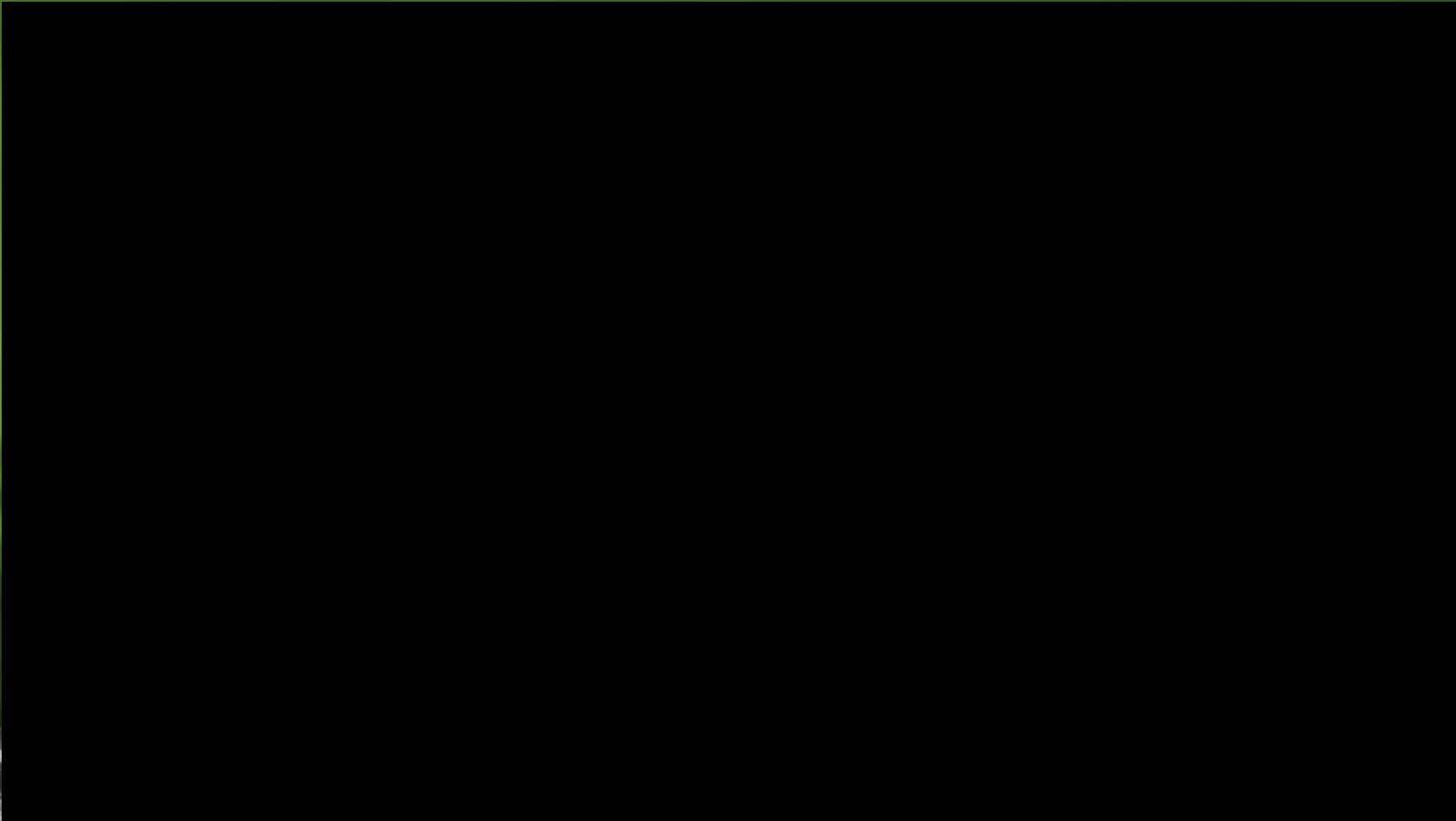
# Vessel Carrier Dashboard and Enhanced Data Exchange



## Upgrading the Operation



# Upgrading the Operation





Thank You!

Johannes Leholm, Sales Engineering, Navis  
ASEAN Ports and Shipping, June 2015

