

**OCEAN  
SHIPPING  
CONSULTANTS**

a company of



**Royal  
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*Enhancing Society Together*

  
**TRANSPORT EVENTS**

# Key challenges for container terminal operators globally and the Indian Ocean

*Mauritius, 24th January 2018*

*Mauritius Maritime Week 2018*

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# Introduction

Current:

**OCEAN  
SHIPPING  
CONSULTANTS**

Past:

Drewry 

ARUP

 V.Group

OCEAN  
SHIPPING  
CONSULTANTS

a company of

 **Royal  
HaskoningDHV**  
*Enhancing Society Together*

## Introduction

**Ocean Shipping Consultants (OSC)** is the maritime economic consultancy group of Royal HaskoningDHV, and a leading brand in the maritime sector with more than 35-years of experience

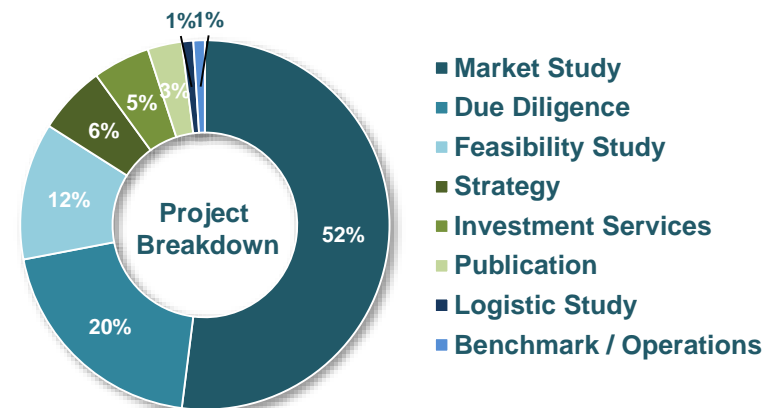
Key profile	Top International Design Firm	Resources
<ul style="list-style-type: none"> <li>- Originally founded in 1881</li> <li>- 135 years of experience</li> <li>- Turnover €600m (2016)</li> </ul>	Ranked 2 <sup>nd</sup> in Top International Design Firms – Marine & Ports by ENR (2016)	<ul style="list-style-type: none"> <li>- 6,000 employees</li> <li>- 100 offices in 35 countries</li> <li>- 650 dedicated ports and maritime professionals</li> </ul>

## OCEAN SHIPPING CONSULTANTS

With over 350 projects in more than 65 countries successfully completed over the last 5 years, OSC provides global bespoke consultancy services from offices in London, Amsterdam, Dubai

and Singapore to more than 200 different clients, including port authorities, terminal operating companies, governments, shipping lines, logistics operators and the wider financial community.

These range of services are undertaken for all cargo types and sectors ensuring that clients are able to make appropriate, well informed decisions at all times.



## Examples of RHDHV involvement in Mauritius

### Projects

Island terminal & breakwater techno-economic studies (2017-ongoing)

Mauritius Airport Traffic Forecasts (2017)

Mauritius Port Master Plan (2015-2017)  
Commercial and Technical  
(Port-Louis, Port Mathurin & Albion Petroleum Port project)

Design & Supervision for the jetty of the cruise Terminal at Port Louis (2014)

### Proposals

Feasibility and EIA: High Spot Removal Port Mathurin (2014)

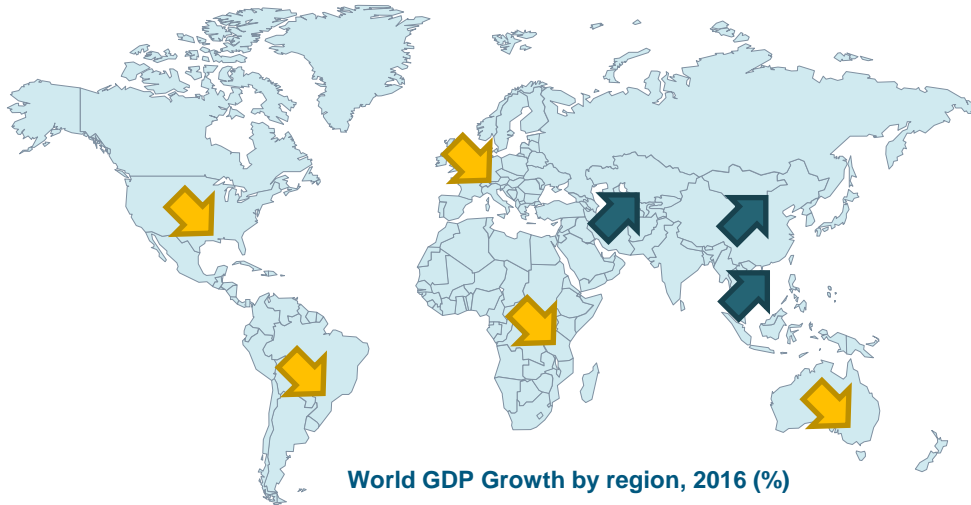
NDS - Ministry of Housing and Lands (2015)



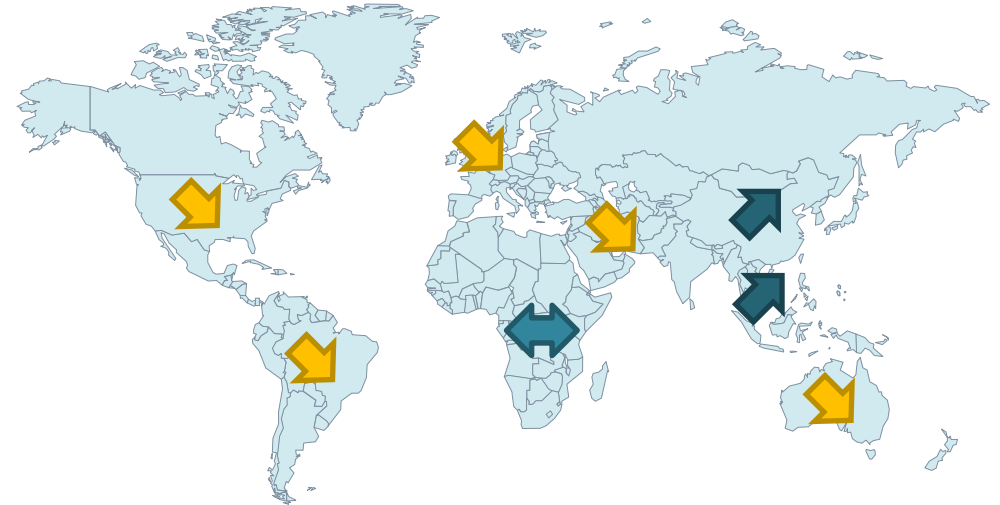
# Global Economic Outlook & the Container Shipping Sector

SE Asia and China are expected to out perform other regional economies in the near future.

Current GDP Performance\* by Region (2016)

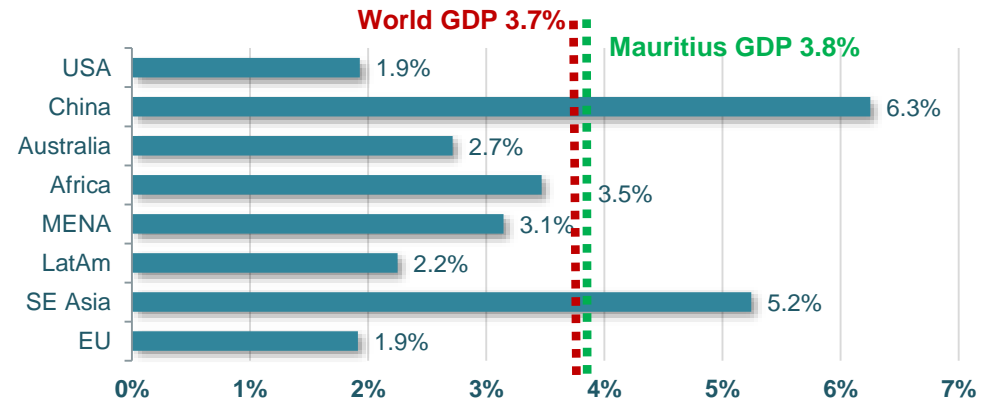
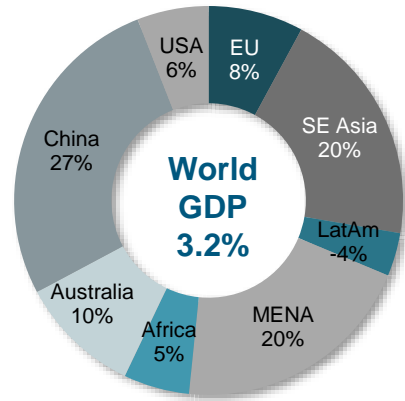


Future GDP Performance\* Outlook by Region



World GDP Growth by region, 2016 (%)

GDP forecast CAGR, 2016-2022 (%)



Source: OSC / IMF

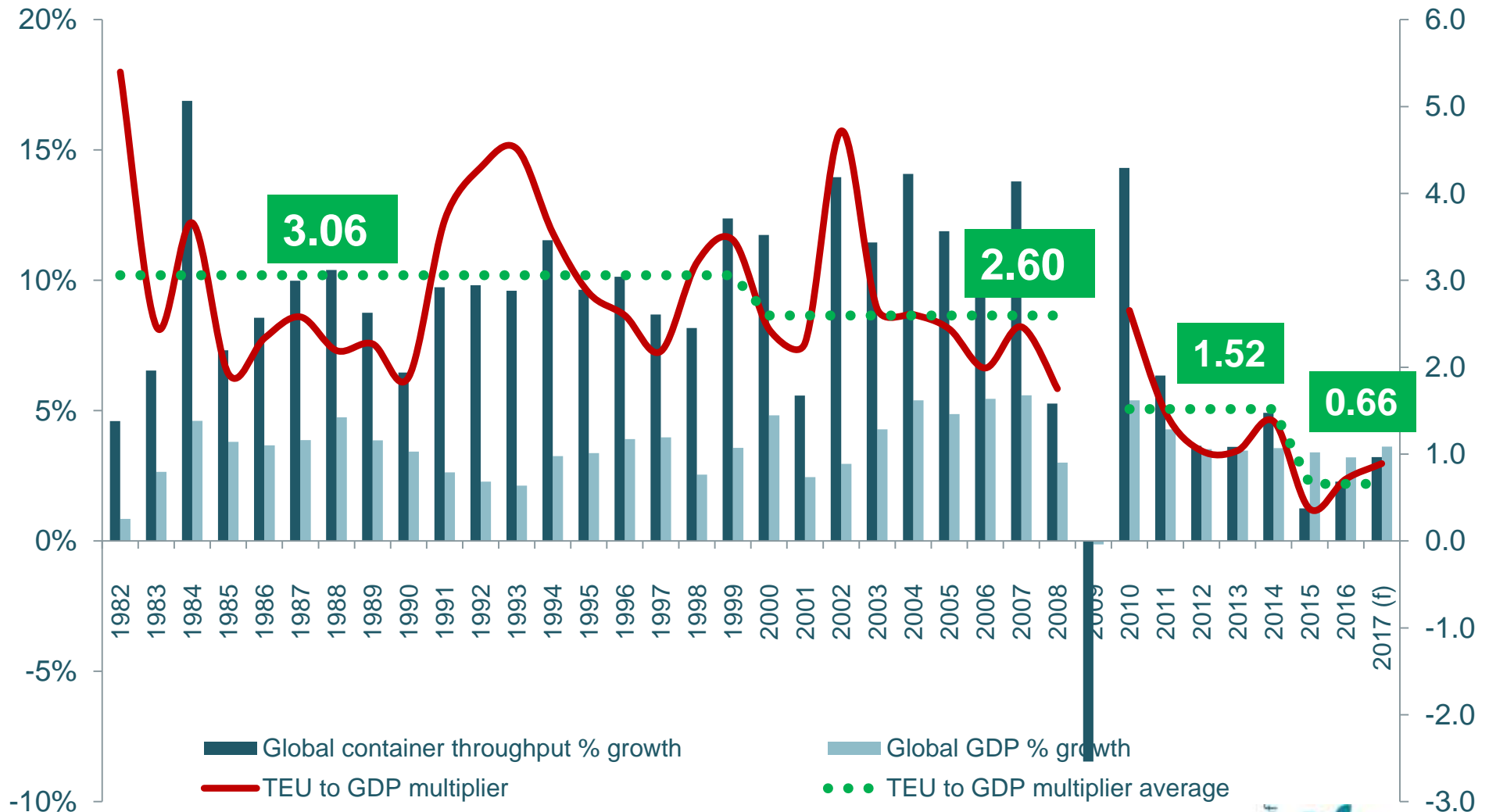
\*Performance as compared to Average World GDP Growth

Source: OSC / IMF

Over-Performing World Avg. Growth    
 Performing to World Avg. Growth    
 Under-Performing World Avg. Growth



The declines in the container volume growth is putting pressure on Shipping Lines and Terminal Operators.



**The declining TEU/GDP multiplier is driven by underlying changes in the market. For shipping lines and ports, this means lower TEU demand than in past years.**

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### Less offshoring, more reshoring:

- Offshoring to lower-cost countries is a onetime effect
- Increased reshoring

### Plateauing in the levels of containerization:

- Most commodities suitable for containerized transportation have already been migrated to containers
- Increasing trend toward miniaturization of manufactured goods




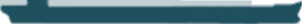
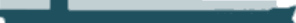
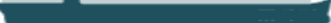


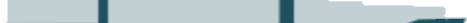
### Improvement of port facilities:

- More ports can be part of direct main line services
- More TS with large vessels deployment on main routes by less TS volume – as a result of vessel cascading

### Unfavourable trade-growth dynamics:

- Chinese economy shifts toward domestic consumption

Driven by market share & economies of scale, the ship size revolution has continued, but savings are decreasing




Container Ship Size Evolution		
Early Containerships (1956) 500-800 TEU		LOA (m) : 137 Beam (m): 17 Draft (m): 9
Fully Cellular (1970) 1000-2500 TEU		LOA (m) : 215 Beam (m): 20 Draft (m): 10
Panamax (1980) 3,000-4,000 TEU		LOA (m) : 250 Beam (m): 32 Draft (m): 12.5
Panamax Max (1985) 3,400-4,500 TEU		LOA (m) : 290 Beam (m): 32 Draft (m): 12.5
Post Panamax (1988) 4,000-5,000 TEU		LOA (m) : 285 Beam (m): 40 Draft (m): 13
Post Panamax Plus (2000) 6,000-8,000TEU		LOA (m) : 300 Beam (m): 43 Draft (m): 14.5
New Panamax (2014) 12,500 TEU		LOA (m) : 366 Beam (m): 49 Draft (m): 15.2
Post New Panamax (2006) 15,000 TEU & Triple E Class (2013) 18,000 TEU		LOA (m) : 400 Beam (m): 59 Draft (m): 15.5
New Generation 22,000 TEU*		LOA (m) : 430 Beam (m): 59 Draft (m): 15.5

Source: OSC, Alphaliner

Effect of Container Shipping Market

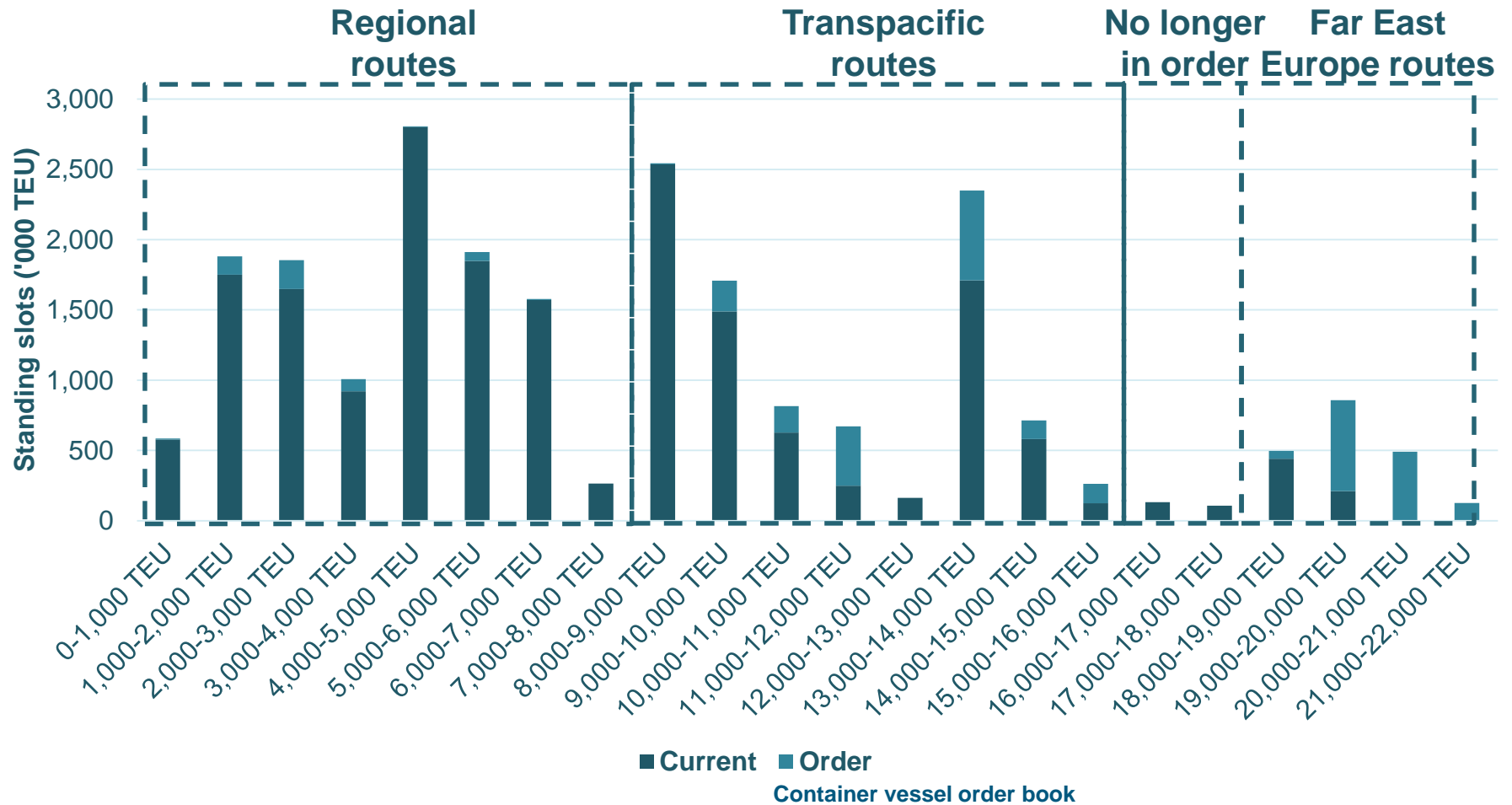
- Larger container volume exchanges resulted in the port call frequency to drop.
- Replaced vessels are downsized to other Secondary and Tertiary trade lanes.
- Formation of fewer, larger alliances in an effort to maximise vessel utilisation.

**Ship sizes: Container vessel capacity has increased while dimensions (400m by 59m) remain largely unchanged.**

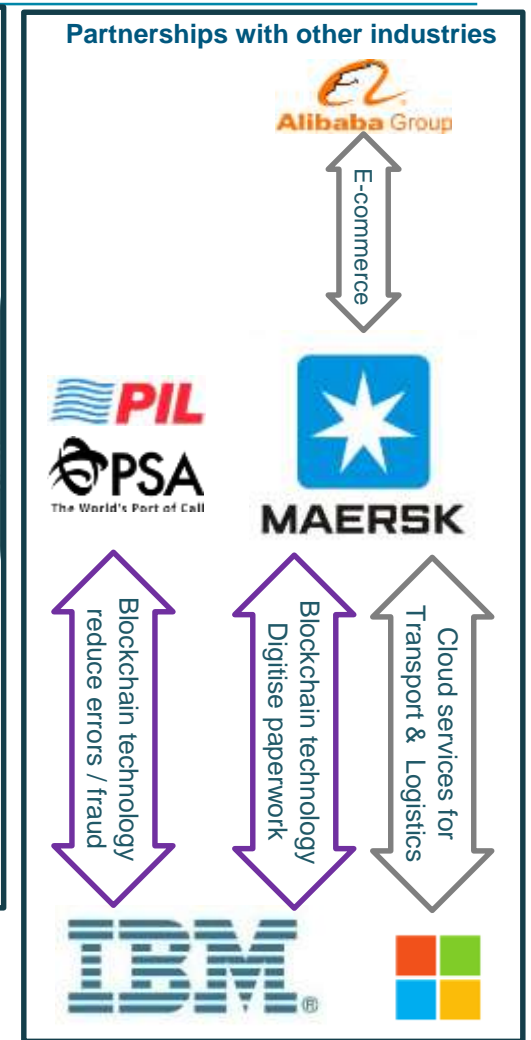
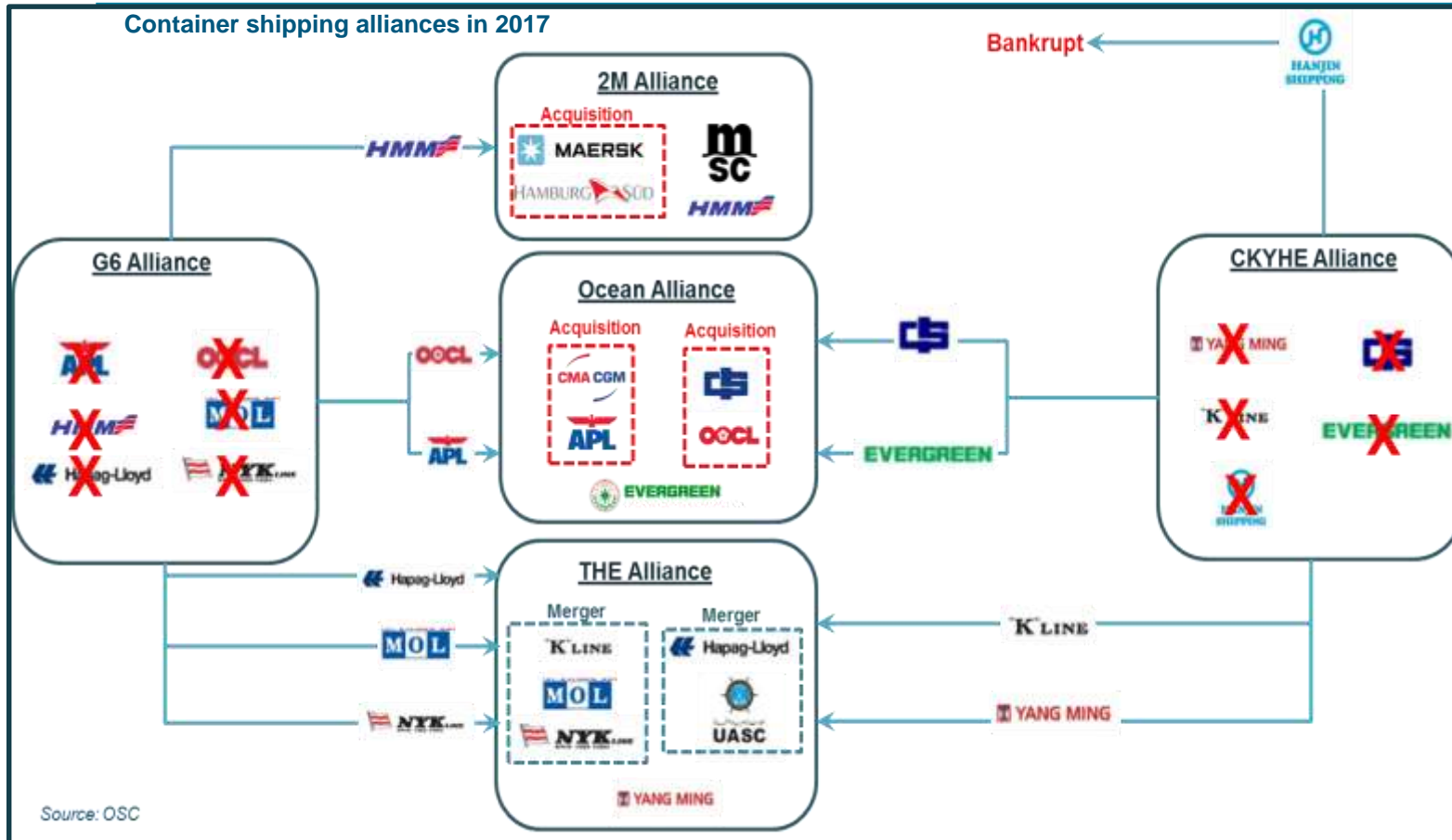
<p><b>2006 - E-Class Maersk</b> 14,770 TEU, 397m long, 56m beam (22 rows)</p>	<p><b>2013 – Triple E-Class Maersk</b> 18,000 TEU, 400m long, 59m beam (23 rows)</p>	<p><b>2017 - Madrid Maersk</b> 20,568 TEU, 400m long, 59m beam (23 rows)</p>	<p><b>2019 - CMA-CGM &amp; MSC</b> Order 20x 22,000 TEU ships 400m long, 59m beam (23 rows)</p>
			
<ul style="list-style-type: none"> <li>•Ports around the world were sized to accommodate the E class Maersk by providing 16m of draft.</li> <li>•Cranes were upgraded to 22 rows</li> </ul>	<ul style="list-style-type: none"> <li>•Cranes were extended to 23 rows</li> <li>•No change required for berth or channel drafts</li> </ul>	<ul style="list-style-type: none"> <li>•Only possible with deepening of hull.</li> <li>•MOL Triumph (20,105 TEU) stacked 8 high on deck</li> <li>•OOCL 21,100 TEU pending</li> </ul>	<ul style="list-style-type: none"> <li>•No detail given as to the length and beam of the ships.</li> <li>•Delivery expected in 2019.</li> <li>•Reported operating cost savings of US\$500 per TEU compared to E-Class Maersk</li> </ul>

## Obsolescence of recent mega vessels

Container vessel order book



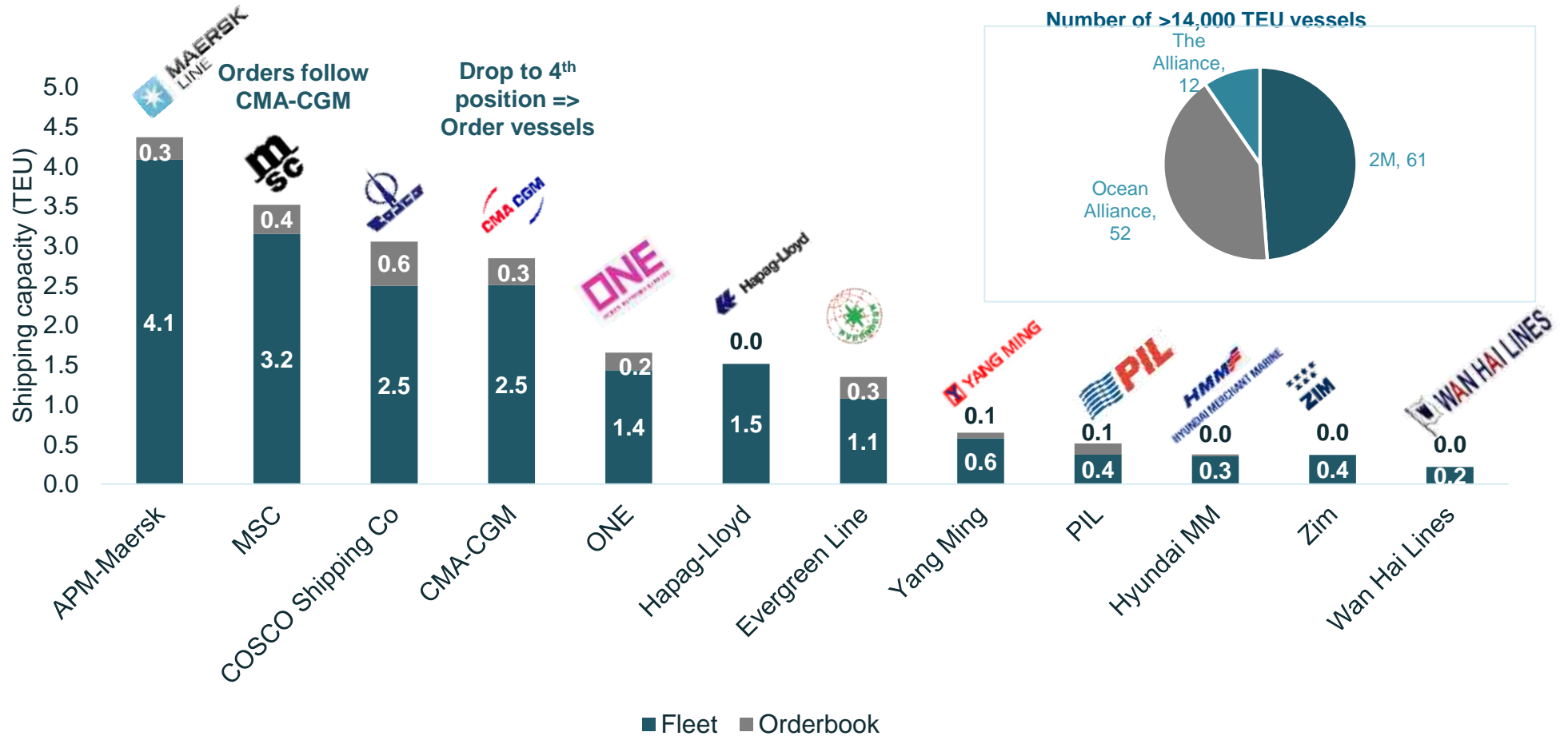
Complete reshape of shipping alliances and acquisitions in 2017.



Top 15 lines outside major alliances

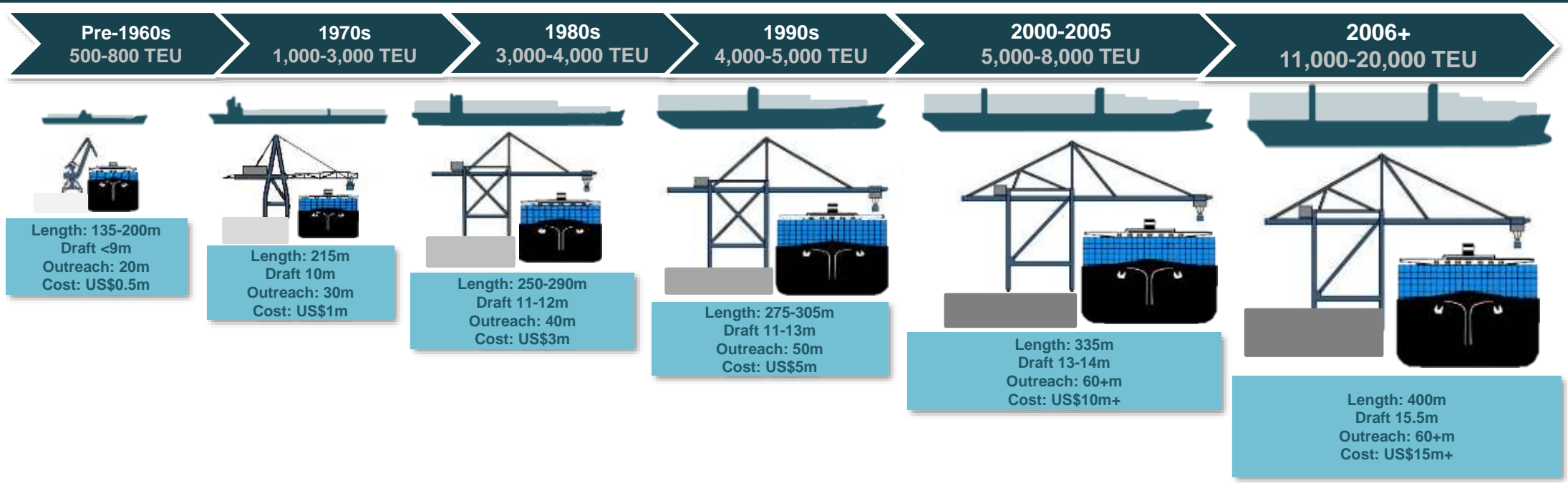
# 1. Container shipping industry

Orders placed after the consolidation to maintain market position.



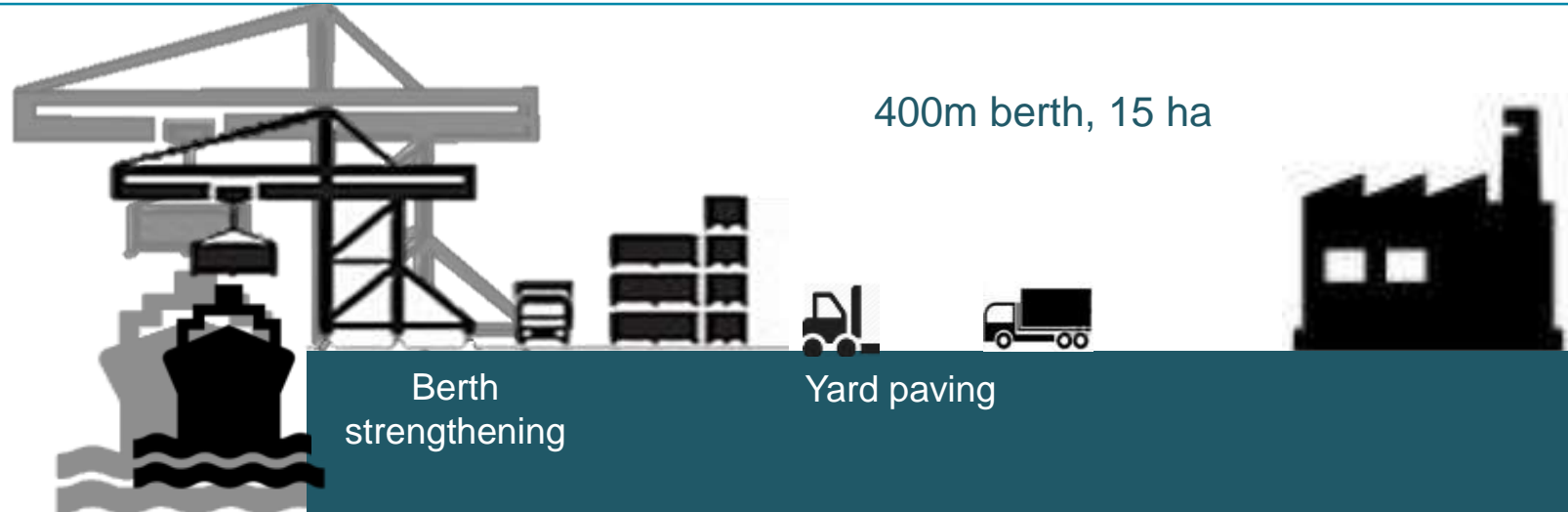
## Costs are rapidly increasing for terminals due to larger ships, less frequent calls and larger alliances.

Larger Ships	Less frequent calls	Larger Alliances
<ul style="list-style-type: none"> <li><b>Larger cranes</b></li> <li>Additional dredging</li> <li>Other upgrading Quay wall strength, locks, bridges, etc</li> <li>Increased insurance cost</li> </ul>	<ul style="list-style-type: none"> <li>Larger container exchanges Higher peak capacity &amp; productivity required throughout the terminal</li> <li>More flexible labour needed</li> <li>Increased impact when losing a client</li> </ul>	<ul style="list-style-type: none"> <li>Increased bargaining power of Alliances</li> <li>Lower number of port calls consolidated in fewer ports Some ports are bound to lose customers with port selection dictated by strongest alliance member</li> </ul>





The increase in vessel sizes has resulted in port authorities and terminal operators incurring capital expenditure to upgrade their facilities.



Channel dredging      Berth deepening      Berth strengthening      Yard paving

Area	Current	New	Estimated cost (US\$ millions)
Channel depth & width	1 km, 242m wide, 15m	295 wide, 16m	4
Berth depth	400m, 15.0m	16.0m	2
Equipment upgrades	4 cranes with 18 rows	4 cranes with 23 rows	40
Yard	15 ha	20ha	30
<b>Total</b>			<b>76</b>

**Will the lines pay for these extra costs?**

## Port operators have responded by slowing or canceling greenfield terminal projects, forming alliances, partnering with shipping lines, or acquiring/merging with competitors.

### Slowing or canceling greenfield terminal projects

- Total number of greenfield terminal projects has fallen by almost half compared to 10 years ago

### Alliance & Partnerships

- Conference agreement between Port of Miami Terminal Operating Company (Pomtoc) and South Florida Container Terminal (SFCT)
- Co-management Agreement Between COSCO Shipping Ports and Hutchison Port Holdings of several terminal in Hong-Kong

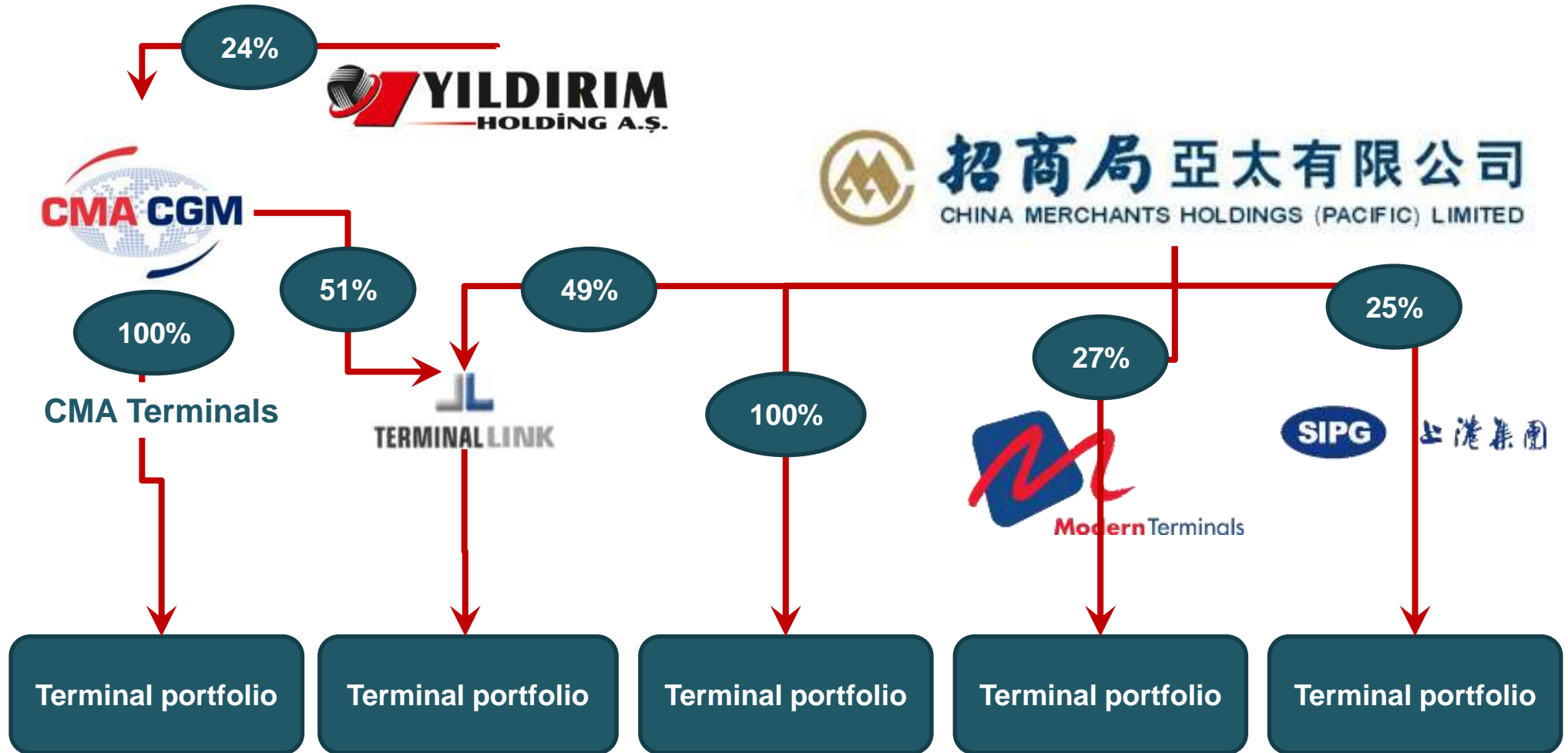
### Mergers & Acquisitions

- APM Terminals acquired Grup TCB
- COSCO SHIPPING Ports acquire 40% interest in the Vado Terminals in Italy
- COSCO SHIPPING Ports acquire 35% interest in Euromax Terminal in Rotterdam
- COSCO SHIPPING Ports increase its stake in Qingdao Port International (QPI) to 18.41%
- DP World acquired an additional 23.94% stake in Pusan Newport Company (PNC) in South Korea
- DP World creating an investment fund with Caisse de dépôt et placement du Québec (55/45) to jointly invest in ports and terminals

### Joint venture deals with shipping lines

- PSA and CMA-CGM create a container terminal joint venture in Singapore
- PSA and COSCO Shipping create a container terminal joint venture in Singapore
- PSA and MSC create container terminal in Antwerp

### Terminal Operator ownership complexity

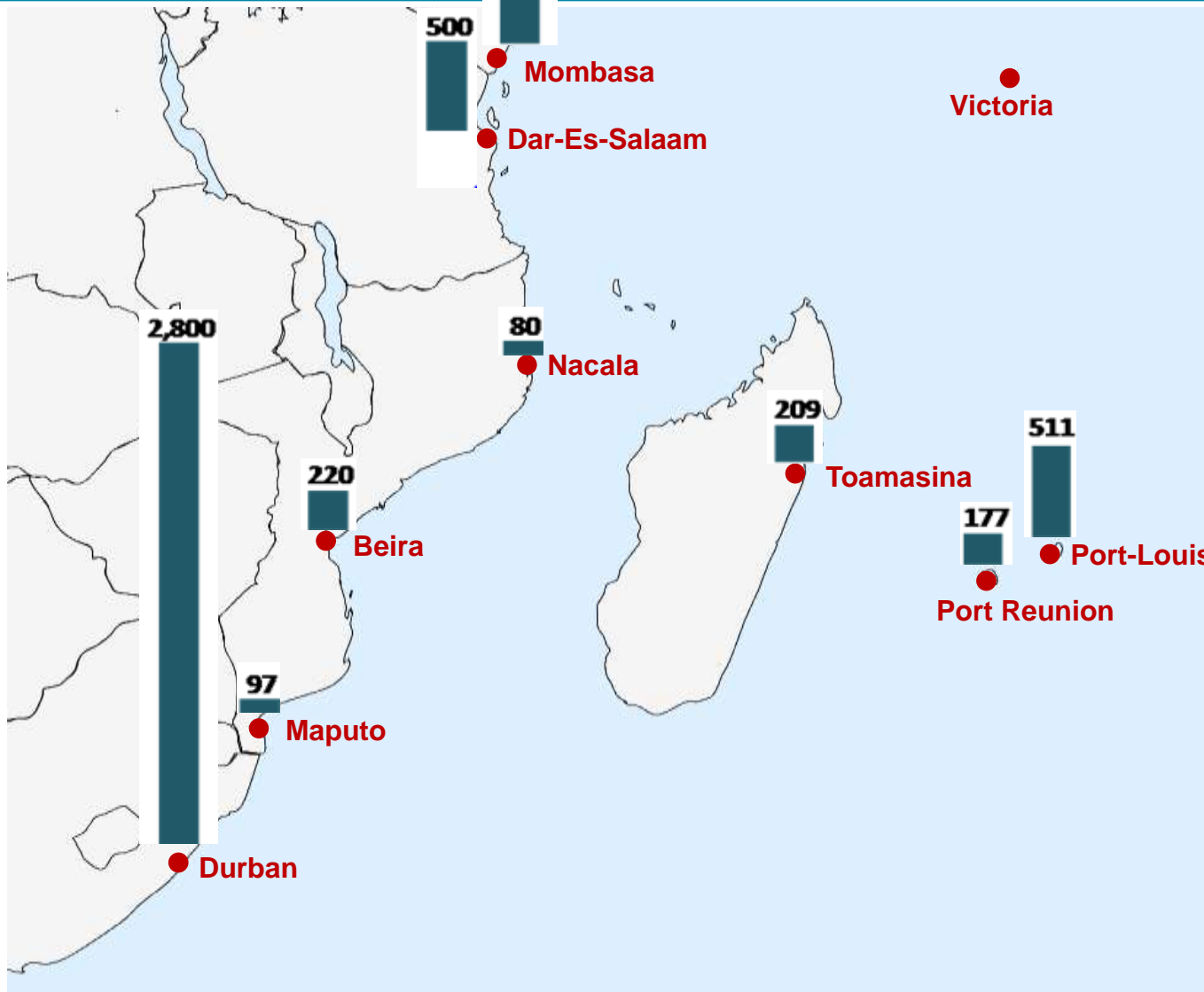




## Indian Ocean Container Port Market

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### Indian Ocean main ports 2016 volumes in '000 TEU



#### World largest port:

Shanghai  
36.5m TEU

#### Rank 100:

Buenos Aires  
1.43m TEU

#### Africa largest port:

Port Said  
3.85m TEU  
Rank 37

#### Largest port in this region:

Durban  
2.8m TEU  
Rank 56

## Indian Ocean main ports Global Container Terminal Presence

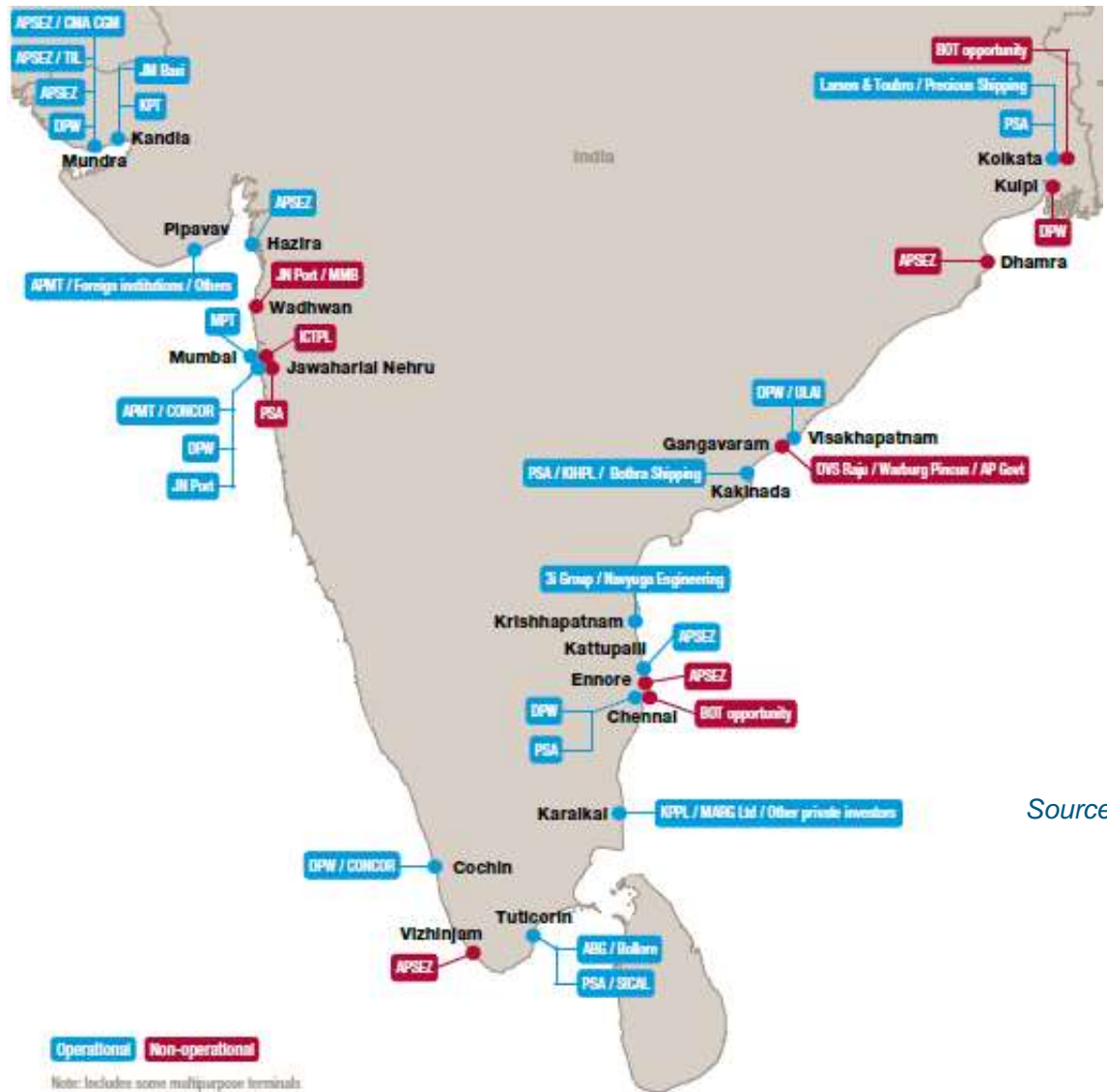


## Arabian Gulf Global Container Terminal Presence



Source: Drewry

# India Global Container Terminal Presence



Source: Drewry



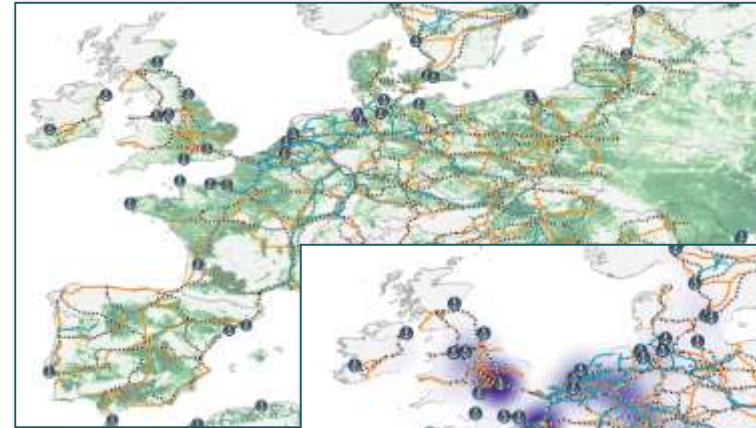


## RHDHV's unique Geospatial Tool

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We have developed a powerful proprietary Geospatial tool for Maritime advisory projects. This can be used to analyse and visualise the trade and hinterland of a group of ports within various markets.

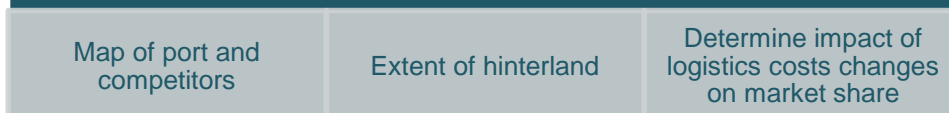
### 1 Various facilities and commodities



### 2 Geospatial analysis



### 3 Benefits



## Contact

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