

**OCEAN
SHIPPING
CONSULTANTS**

a company of



Trade outlook in the Black Sea and looking into increasing cargo traffic flow for ports

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6th Black Sea Ports & Shipping 2017

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Introduction

Current:

**OCEAN
SHIPPING
CONSULTANTS**

Past:

Drewry 

ARUP

 **V.Group**

Introduction

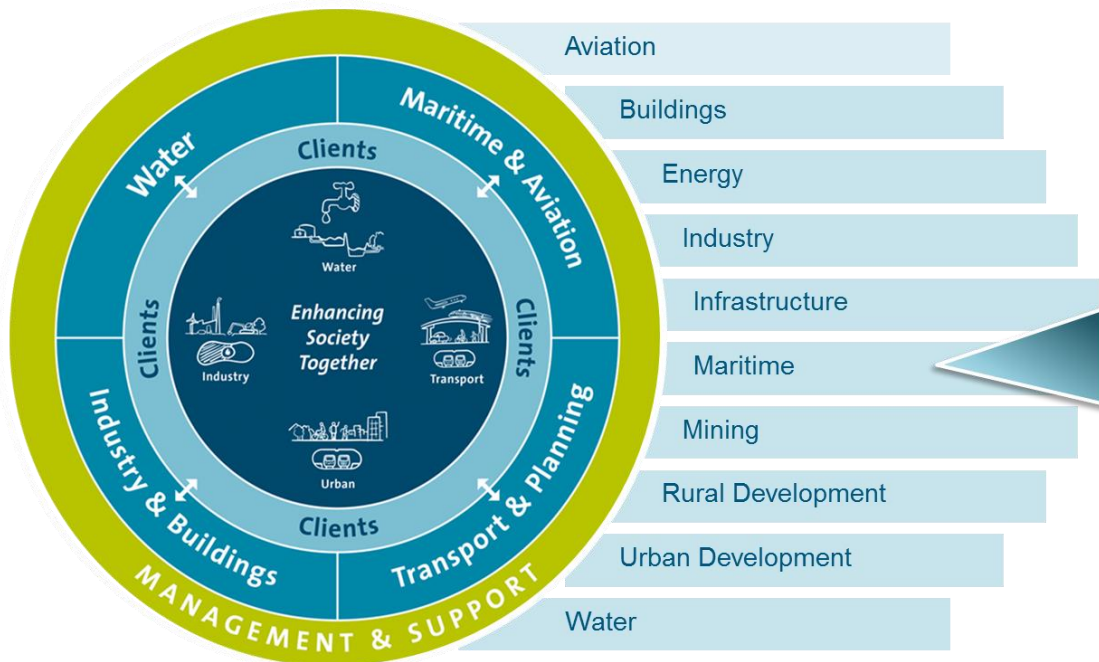
Ocean Shipping Consultants (OSC) is the maritime economic consultancy group of Royal HaskoningDHV, and a leading brand in the maritime sector with more than 35-years of experience



Royal HaskoningDHV has been making a world of difference in people's lives since 1881. As an independent international engineering and project management consultancy,

we have been working with clients to successfully deliver projects which contribute to improving living circumstances around the world for 135 years.

Our 6,000 colleagues, spread over 150 countries are committed to our promise to enhance society together. We combine global expertise with local knowledge to deliver a multidisciplinary range of consultancy services for the entire living environment.



OCEAN SHIPPING CONSULTANTS

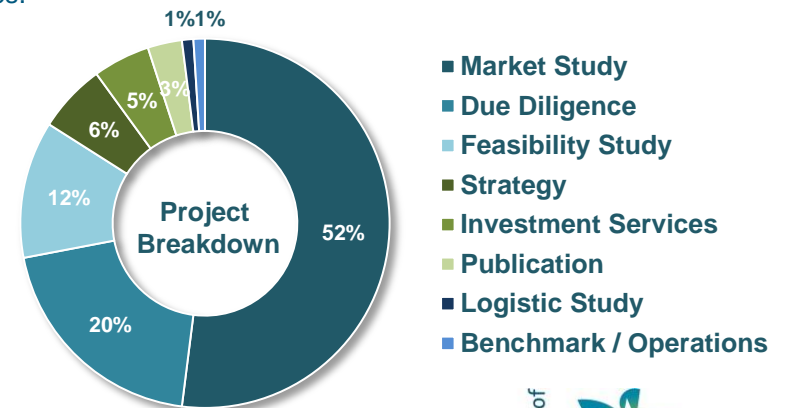
With over 350 projects in more than 65 countries successfully completed over the last 5 years, OSC provides global bespoke consultancy services from offices in London, Amsterdam, Dubai

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

Our service portfolio covers three different areas:



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 projects in Black Sea / Eastern Mediterranean



Novorossiysk Ro-Ro, Container & Grain Terminal, 2012

A new port including a Ro-Ro, a container and a grain terminal was planned on a green field near the existing port of Novorossiysk on the Russian coast of the Black Sea. The study included engineering services and financial modelling..



Oteko Dry Bulk Terminal, 2015

A full project report was undertaken to confirm technical, operational, environmental / social, financial and commercial viability of a project to construct a Dry Bulk Terminal in Taman Russia.



Assessment of Taman Port Industry Development for Methanol / Ammonia / Urea, 2016

Optimisation of business case in the Taman area by investigating opportunities for related chemical businesses within the supply chain. A high level assessment was undertaken.



Deep Water Sea Terminal Port of Ochakov, 2009

RHDHV completed the design of a transport model, forecasted seaborne trade volumes through Ukraine ports by main commodity groups, assessed the current capacities of the ports and delineated prospects of new deep water facilities at the port of Ochakov.



Review of Black Sea Grain Terminal Project, 2013

Technical review to ensure that the facilities and equipment proposed will be sufficient to accommodate the proposed annual throughput. Business plan with assumptions on fixed and variable costs, volumes and revenues was reviewed to confirm project financial viability.



Brooklyn Kiev Container Terminal Due Diligence, 2010

RHDHV completed a comprehensive due diligence research study, including report writing, site visits, interviews with local and other authorities, the sponsor's and operator's customers, suppliers and competitors to assess the sustainability of the Port Sector in Odessa for the EBRD.



Yuzhni LNG – Turkish Straits Maritime Traffic Survey, 2015

TIS Group of Terminals (TIS) employed Royal HaskoningDHV to provide a nautical impact assessment to support the decision making process involved in the feasibility of their project to develop a liquefied natural gas (LNG) import terminal in Yuzhni Basin, Ukraine.



Belde Port – Market Study, 2010

OSC / RHDV undertook a market outlook study to assess cargo handling volumes in the Port of Belde. Assessment of future container volumes as well as a review of key tariff levels of the port were undertaken.



Erzin Port Development, 2015

OSC developed a market study and business case model for a potential greenfield port development in Turkey. The port is mainly intended to handle containers and scrap metal from the local industry but would also be able to handle dry and liquid bulks.



Limassol Port Due Diligence, 2016

A global shipping line requested OSC to undertake a commercial and technical due diligence for the port of Larnaca, which was to be privatised. OSC undertook a detailed market study for gateway and transshipment cargo, as well as for tourism.

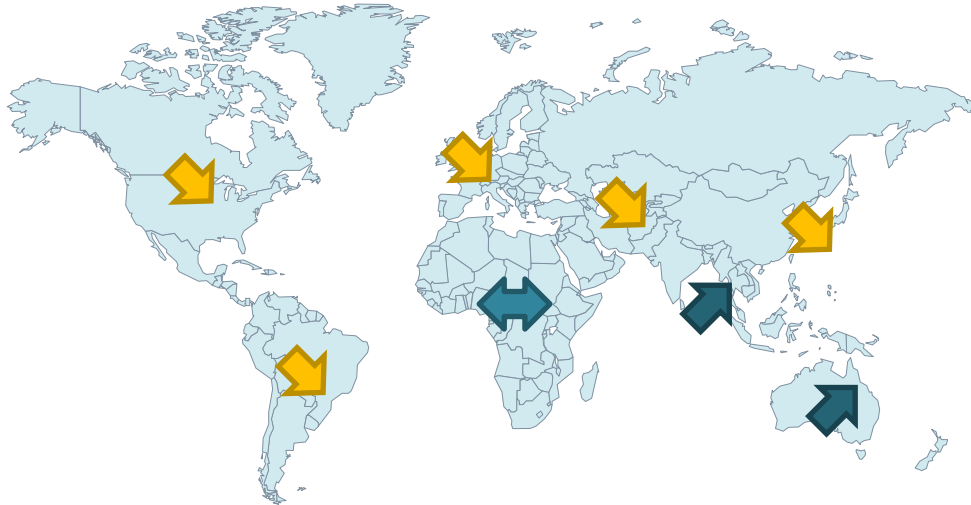
- RHDHV projects in Black Sea
- RHDHV Projects in Eastern Med
- OSC projects (Maritime/Commercial)



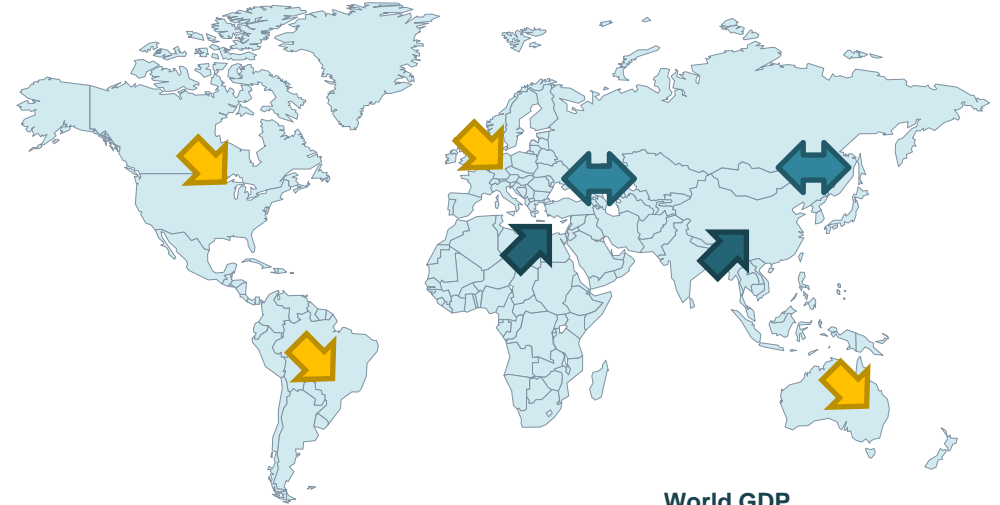
Global Economic Outlook & the Container Shipping Sector

The economies of Central, South and South East Asia, and Africa are expected to out perform other regional economies in the near future.

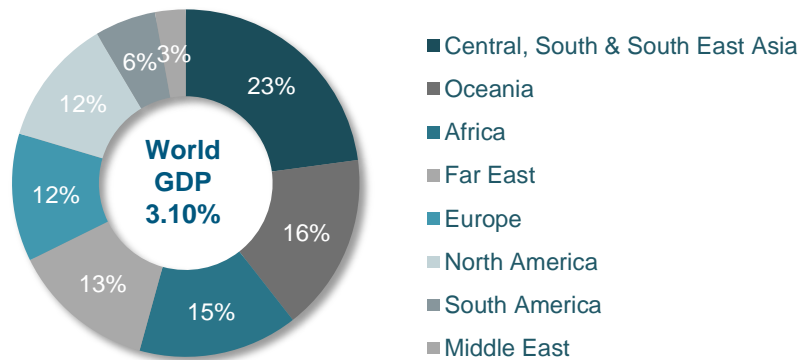
Current GDP Performance* by Region (2015)



Future GDP Performance* Outlook by Region

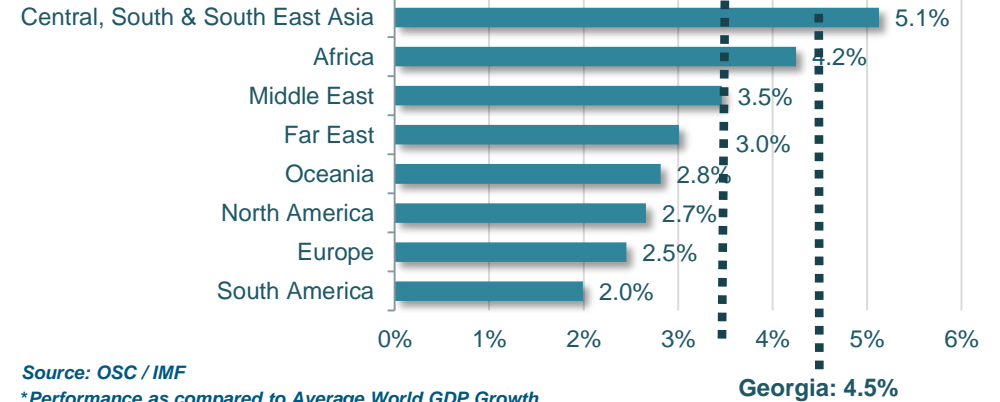


World GDP Growth by region, 2015 (%)



Source: OSC / IMF
*Performance as compared to Average World GDP Growth

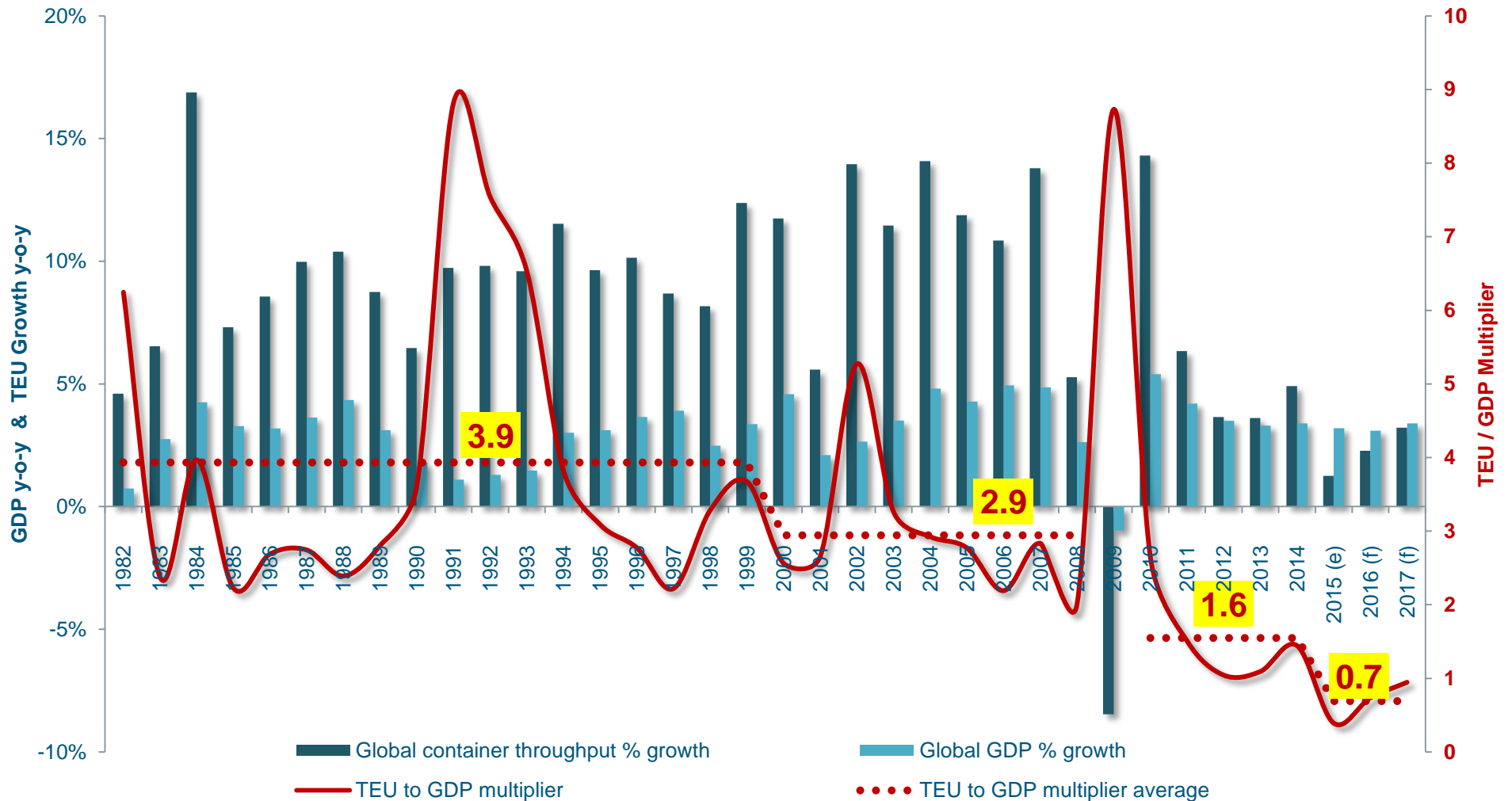
GDP forecast CAGR, 2016-2021 (%)



Source: OSC / IMF
*Performance as compared to Average World GDP Growth

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.



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.

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
- Significant additional containerization jumps are not likely










Improvement of port facilities:

- Ports can be part of main line services
- Less transshipment volume

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

Cascading Effect

- Replaced vessels are downsized to other Secondary and Tertiary trade lanes
- Larger container volume exchanges resulted in the port call frequency to drop

Impact on Alliances

- 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.

2006 - E-Class Maersk

14,770 TEU, 397m long, 56m beam (22 rows)



- Ports around the world were sized to accommodate the E class Maersk by providing 16m of draft.
- Cranes were upgraded to 22 rows

2013 – Triple E-Class Maersk

18,000 TEU, 400m long, 59m beam (23 rows)



- Cranes were extended to 23 rows
- No change required for berth or channel drafts

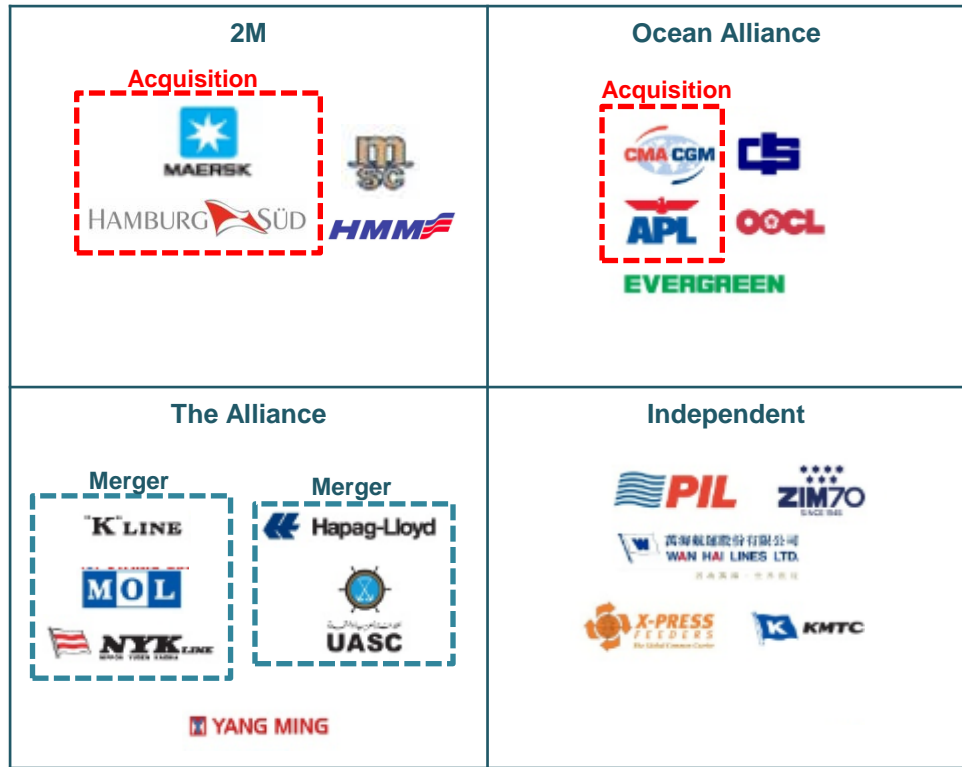
2017 - Madrid Maersk

20,568 TEU, 400m long, 59m beam (23 rows)



- Only possible with deepening of hull.
- MOL Triumph (20,105 TEU) stacked 8 high on deck
- OOCL 21,100 TEU pending

Complete reshape of shipping alliances and acquisitions in 2017.



Container shipping alliances in 2017

Source: OSC

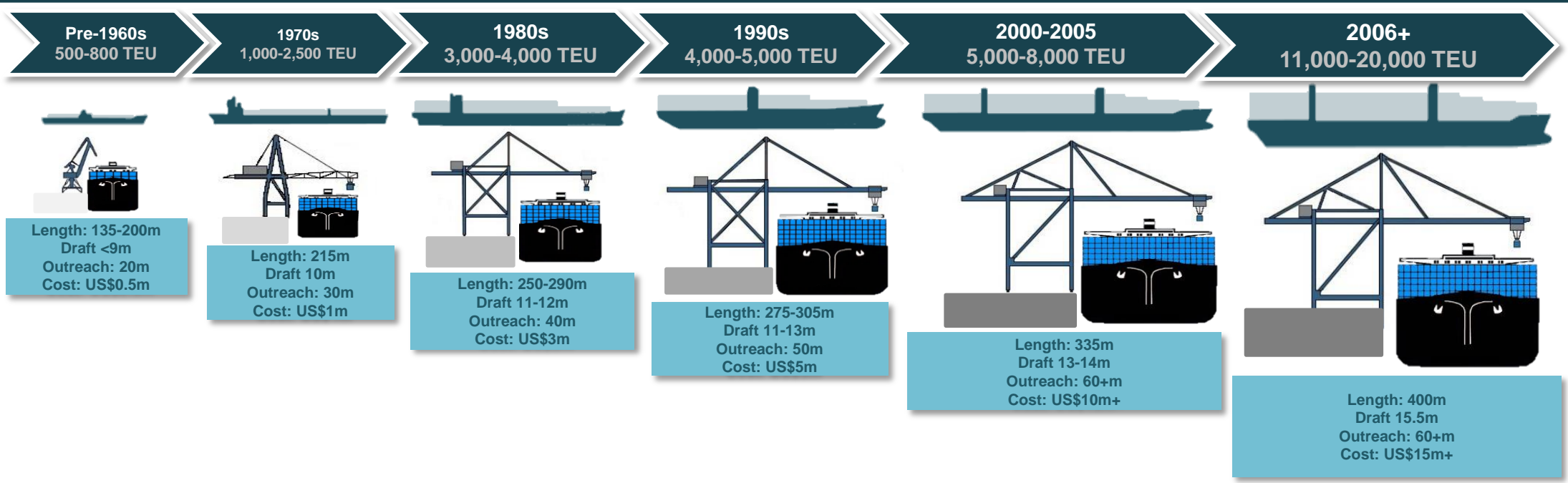


Partnerships with other industries

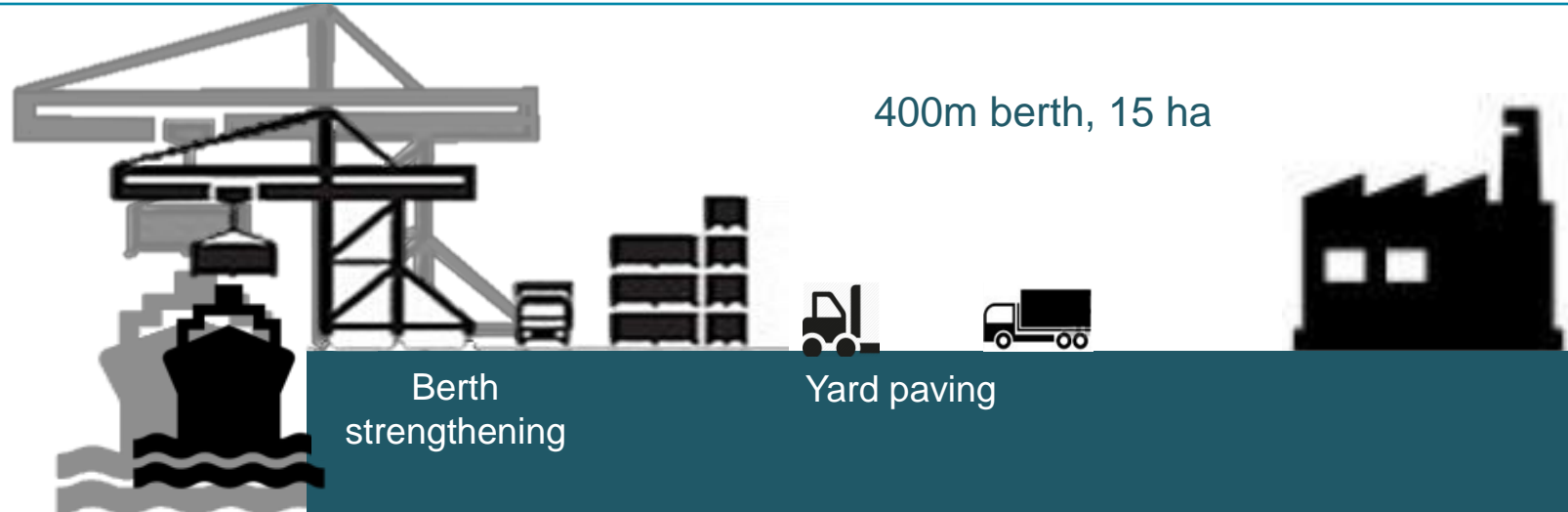
Source: OSC

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



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
Total			76

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

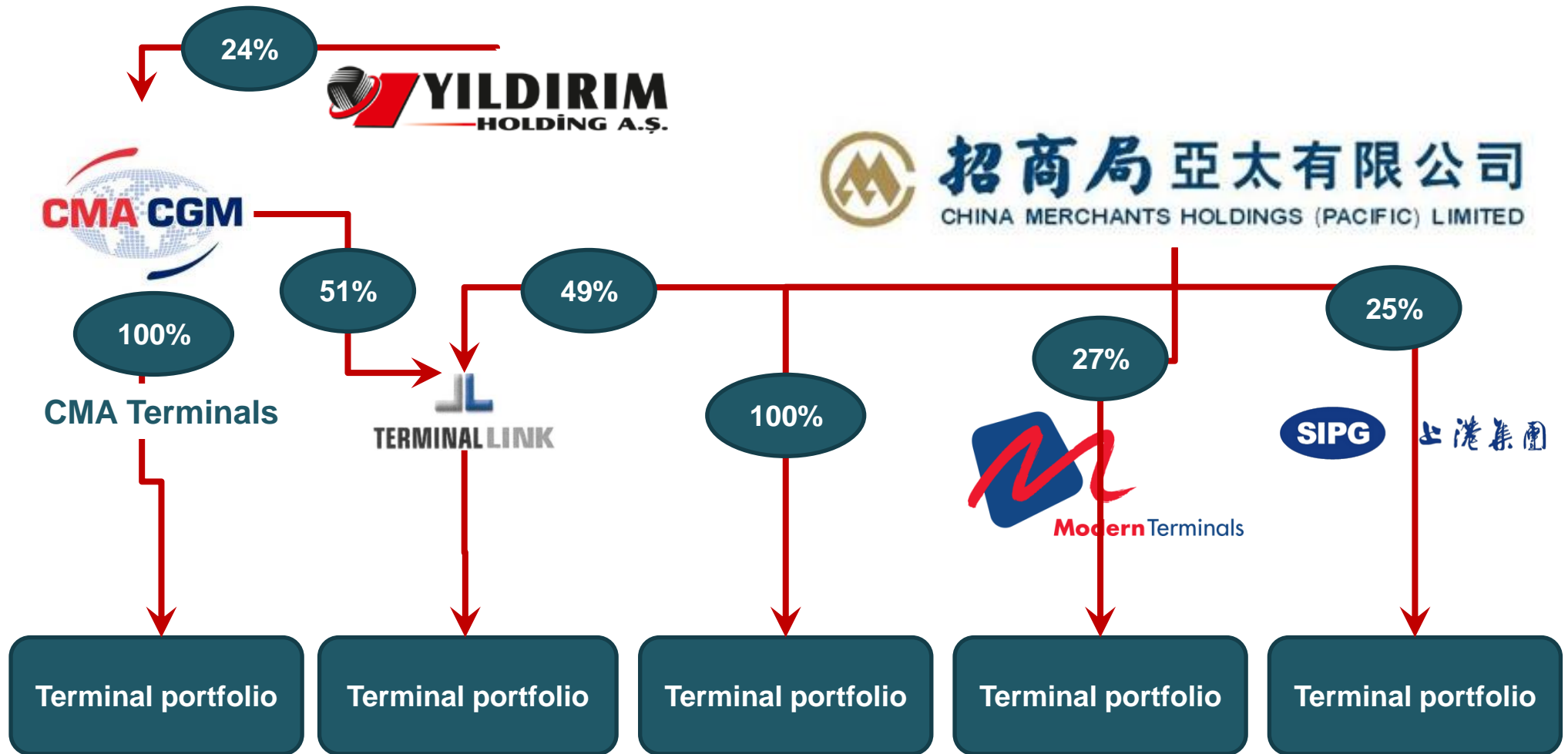
Mergers & Acquisitions

- 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

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

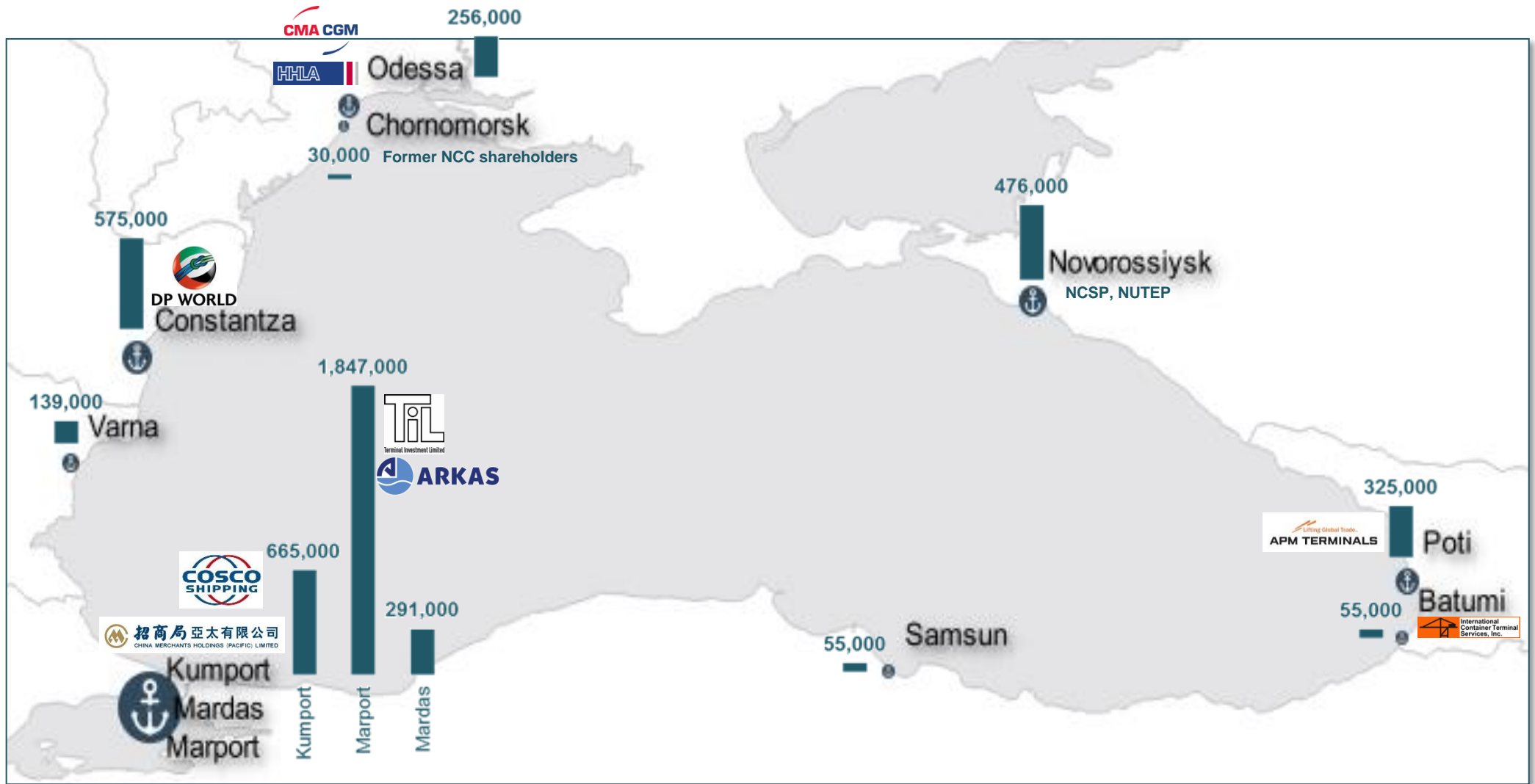
Terminal Operator ownership complexity





Black Sea Container Market & Port Investment Opportunities

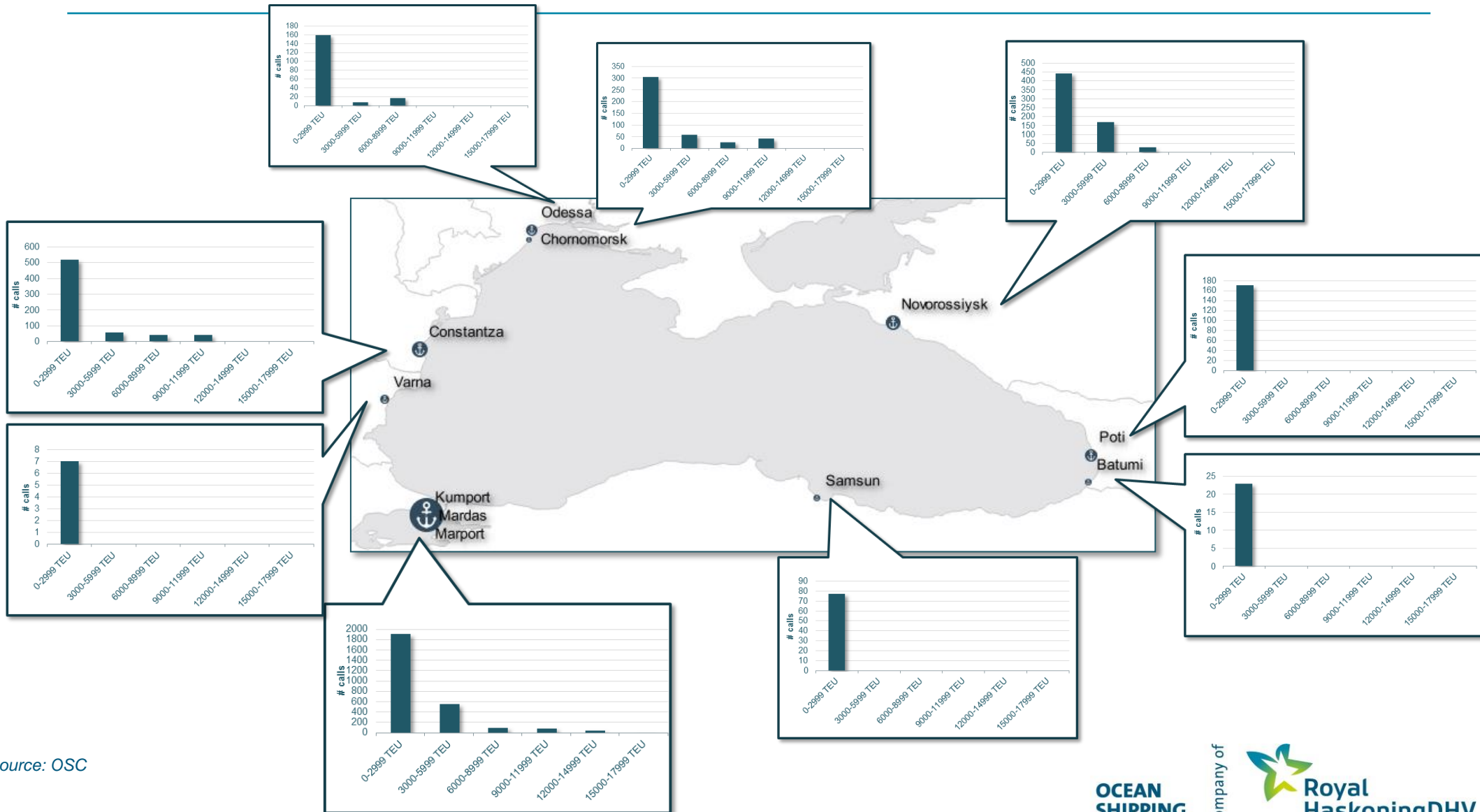
Black Sea ports and volumes



Main container ports in the Black Sea Region

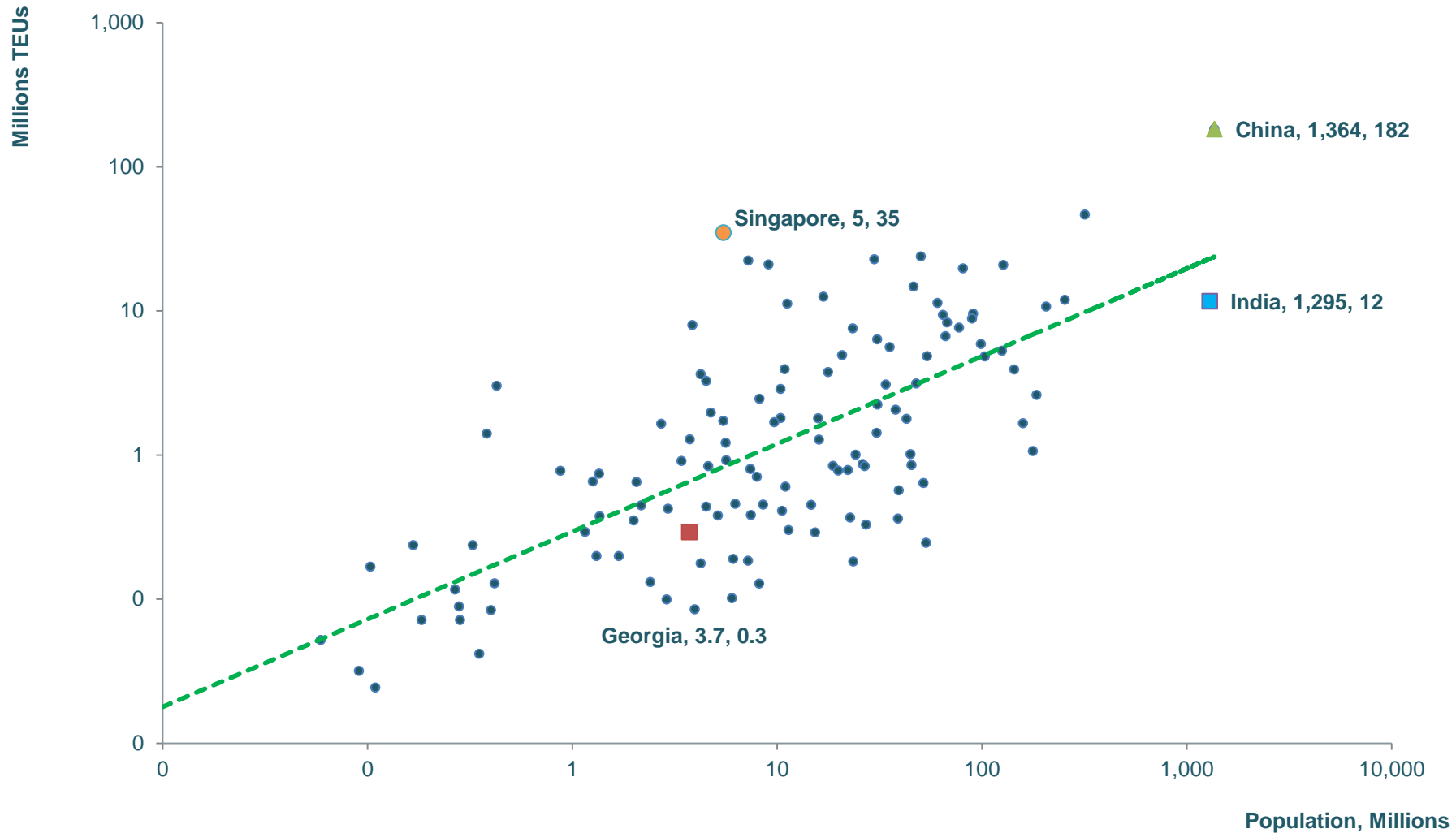
Source: OSC

Port calls by container ships capacity in the Black Sea in 2016



Source: OSC

Container volumes vs population

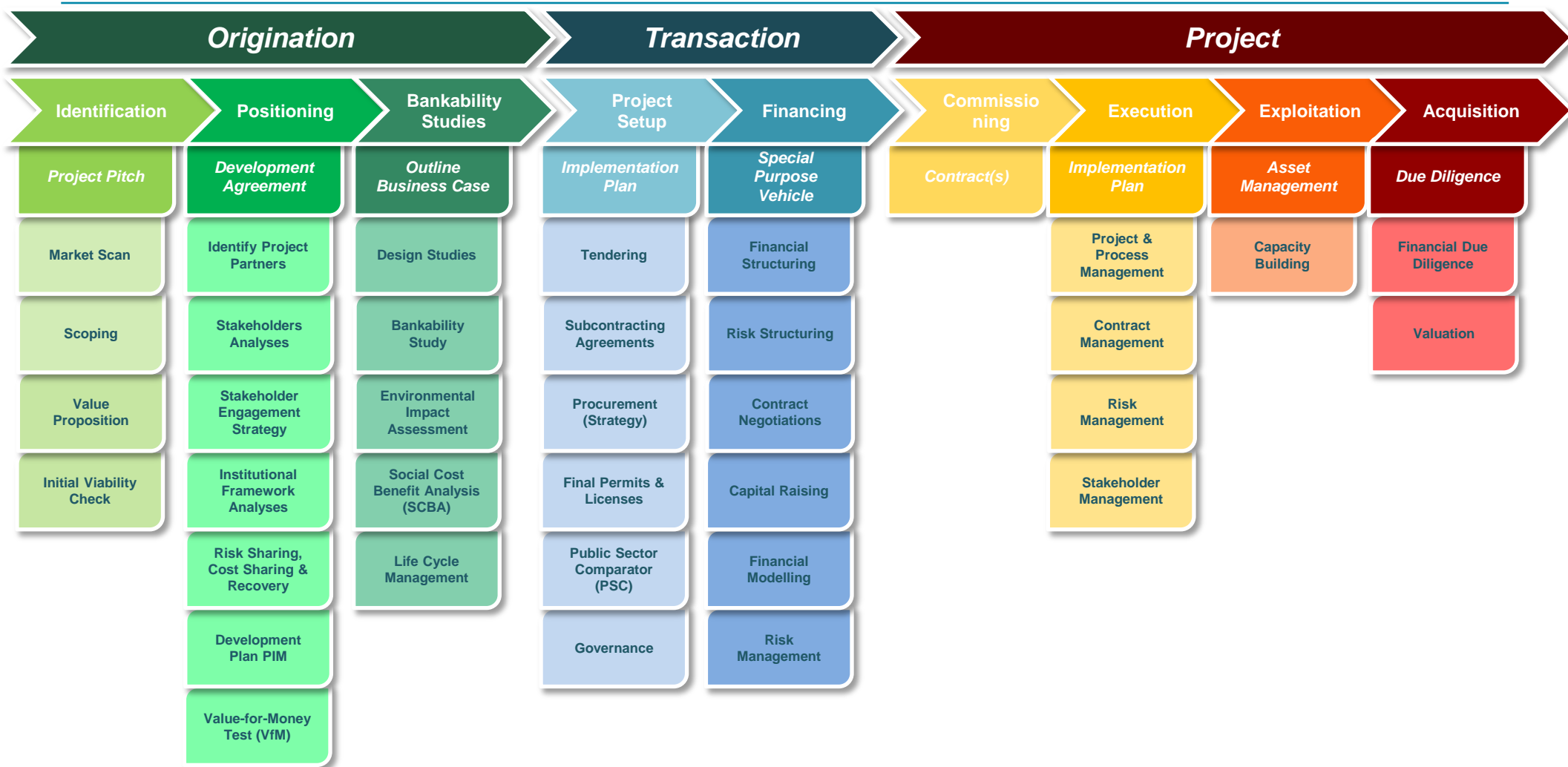




Port investment process

Port investment process

Port investment process: Origination, Transaction, Project



Contact

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