



IMPACT OF GLOBAL STRATEGIC CHANGES ON PORTS IN THE WEST MEDITERRANEAN SEA

*Steve Wray – 26th October 2017, Barcelona
Associate Director*



WSP BACKGROUND

WSP Parsons Brinckerhoff has changed its name to **WSP** in May 2017



PARSONS
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CONTENTS

I	CONTAINER SHIP SIZE DEVELOPMENTS
II	“CASCADE”
III	SHIPPING LINE ALLIANCES
IV	SPANISH MEDITERRANEAN PORT VOLUMES
V	TRANSSHIPMENT
VI	CONTAINER SHIPS SERVICES OVERVIEW IN SPANISH MEDITERRANEAN SEA REGION
VII	CONTAINER TERMINAL OWNERSHIP- LINE EQUITY
VIII	CONCLUSIONS

CONTAINER SHIP SIZE DEVELOPMENTS

Of the main shipping lines serving the West Mediterranean, i.e. Maersk, MSC and CMA-CGM are all committed to order more new vessels >10,000TEU. Maersk's order book includes an average vessel size of >14,000TEU.

Rapid developments with regard to size of container vessels. MOL Triumph of 20,170TEU was the largest vessel, but has since been replaced by the OOCL Hong Kong with 21,100TEU capacity.

The focus of attention for ULCSs is for all vessels >11,000TEU. Smaller vessels in this size range are already being regarded as mid-size. ULCSs fall into three distinct categories:

- 11,000-14,500TEU – include new Panamax vessels and older post (old) Panamax designs. These are very important for the West Mediterranean.
- 14,500-18,000TEU - dominant category of ULCSs already delivered.
- 18,000TEU+ - largest vessels in planned fleet.

Integration of secondary trade lanes with major East-West services via the Mediterranean, with an increase in direct calls at main regional t/s hubs designed to help to increase the vessel utilisation.

Current and Potential Container Vessel Sizes

	TEU's	LOA (m)	Beam (m)	Max Draught (m)
Maersk "EEE"	18,270	400	59.0	15.5
CSCU/UASC vessels	18,400	400	58.6	15.5
MOL TRIUMPH	21,700	400	58.8	16.0
New Generation I	22,000	430	59.0	15.5
New Generation IIA	24,000	450	59.0	15.8
New Generation IIB	24,000	450	61.5	16.5

8,000 TEU to 14,000 TEU



E Class Maersk: 397m,
22 rows, 16m

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

14,000 TEU to 18,000 TEU



Triple E Maersk: 400m,
23 rows, 16m

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

18,000 TEU to 22,000 TEU



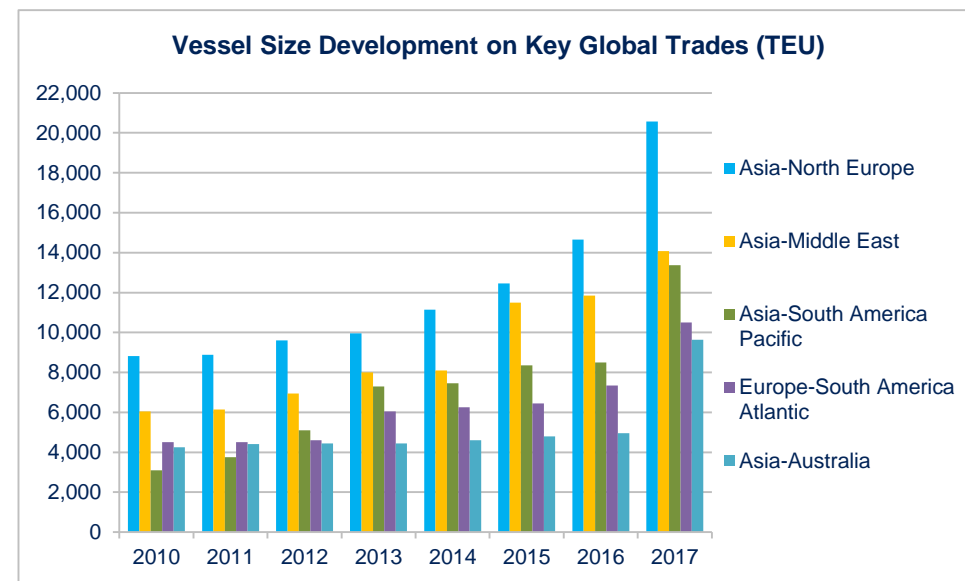
22,000 TEU: 400m, 24 rows, 420m, 24 rows,
16.5m

- Declining benefits of scale for vessels >20,000TEU
- Berth length should be able to accommodate but cranes would need 24 rows and deeper draft

CONTAINER SHIP SIZE DEVELOPMENTS

Container Vessel Size developments in The Spanish Mediterranean.

- Since 2010 Asia-Europe services have been gradually increasing until maximum vessels deployed were 9,600TEU capacity in 2012, increasing to 12,450TEU in 2015 and now (2017) are 20,568TEU.
- Asia-Europe is considered to be one of the main arterial trade lanes, so not surprising that the larger vessels are deployed on these services, but the speed of vessel size increase is important to note.
- Size of vessels deployed in the West Mediterranean are not as big as Asia-N.Europe, but with direct services now available from Asia, deployed by 2M, Ocean Alliance and The Alliance, vessel calls have reached >15,000TEU in capacity and typical services are offered between 13-14,000TEU.
- Vessels are expected to reach 18,000TEU in the region in the next 5 years.
- With the increase in vessel sizes comes the need to turn the vessels around quickly and the capability of fewer ports to handle the larger ULCSs.
- Both these facets result in fewer port calls and more transshipment opportunities with larger feeder vessels and “relay” opportunities to North-South services.
- “Relay” opportunities via West Med or West Africa can link East-West services to other opportunities such as Trans Atlantic, West Africa, South Africa and South America.
- Experiment with West Africa hubs successful to an extent, but remains a challenge of port efficiency in West Africa region.



“CASCADE” EFFECT

ULCS Demand and Over-Capacity - an over-capacity of units in the 11-14,500TEU size range of 40 vessels in 2018 and then 93 vessels in 2019 is predicted.

ULCS Demand and Over-Capacity

- The overall level of demand is forecast to be 31.3m TEU in 2017 and 34.9m TEU by 2022.
- It is assumed that the largest vessels will be deployed on the main arterial trades, with this resulting in a displacement of smaller vessels;
- This approach implies that the 2017 deployment of vessels represents equilibrium in the market, i.e. the current fleet is optimally utilised. If trading speeds were increased, then there would be a more rapid increase in over capacity.
- No provision has been made for further vessel ordering and deliveries after 2019 (this is unlikely as there will be further pressure to take advantage of the scale economies).
- Both factors **understate** the severity of over- capacity.
- If demand develops as predicted and assuming that the fleets of ULCS tonnage develop as detailed, then it is anticipated that all vessels <11,000TEU (24 units) will have been displaced from the Asia-Europe trades by end 2018.
- With all new tonnage in the largest size ranges directed towards these trades, this will give an over-capacity of units in the 11-14,500TEU size range of 40 vessels in 2018 and then 93 vessels in 2019.
- As 2019 is the limit for the current order book, the over-capacity will decline from then. In reality, this may be partially mitigated by further ordering.

Forecast Asia-Europe Trade Development and Fleet Requirement to 2022

	2017	2018	2019	2020	2021	2022
Anticipated Demand Development by Size Range - mTEUs						
<11,000	3.05	0.00	0.00	0.00	0.00	0.00
11-14,500	10.86	10.18	8.28	9.00	9.73	10.48
14,501-18,000	4.55	5.19	5.72	5.72	5.72	5.72
18,000+	12.85	16.62	18.70	18.70	18.70	18.70
TOTAL	31.30	31.99	32.70	33.42	34.15	34.90
No Vessels Available*						
<11,000	24	24	24	24	24	24
11-14,500	232	258	270	270	270	270
14,501-18,000	43	49	54	54	54	54
18,000+	68	88	99	99	99	99
Total	343	395	423	423	423	423
Required No. Vessels**						
<11,000	24	0	0	0	0	0
11-14,500	232	218	177	192	208	224
14,501-18,000	43	49	54	54	54	54
18,000+	68	88	99	99	99	99
Total						
Potential Cascade Vessels (surplus)						
<11,000	0	24	24	24	24	24
11-14,500	0	40	93	78	62	46
14,501-18,000	0	0	0	0	0	0
18,000+	0	0	0	0	0	0
Total	0	64	117	102	86	70

* assumes no further deliveries beyond current order book

** with current productivity levels

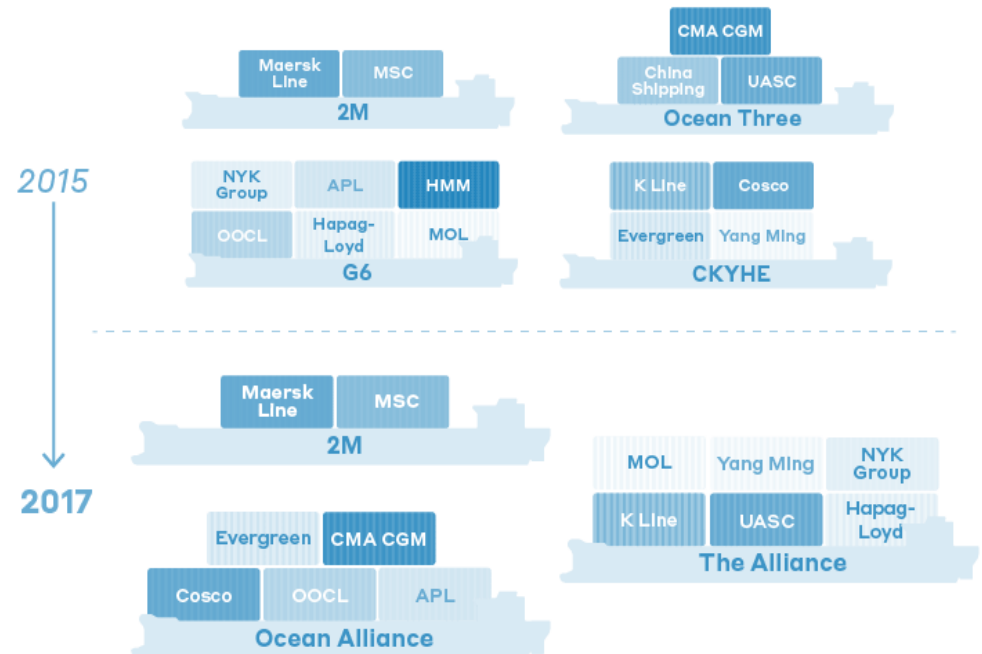
SHIPPING LINE ALLIANCES

Fleet Growth and Alliance Developments are major drivers of market developments

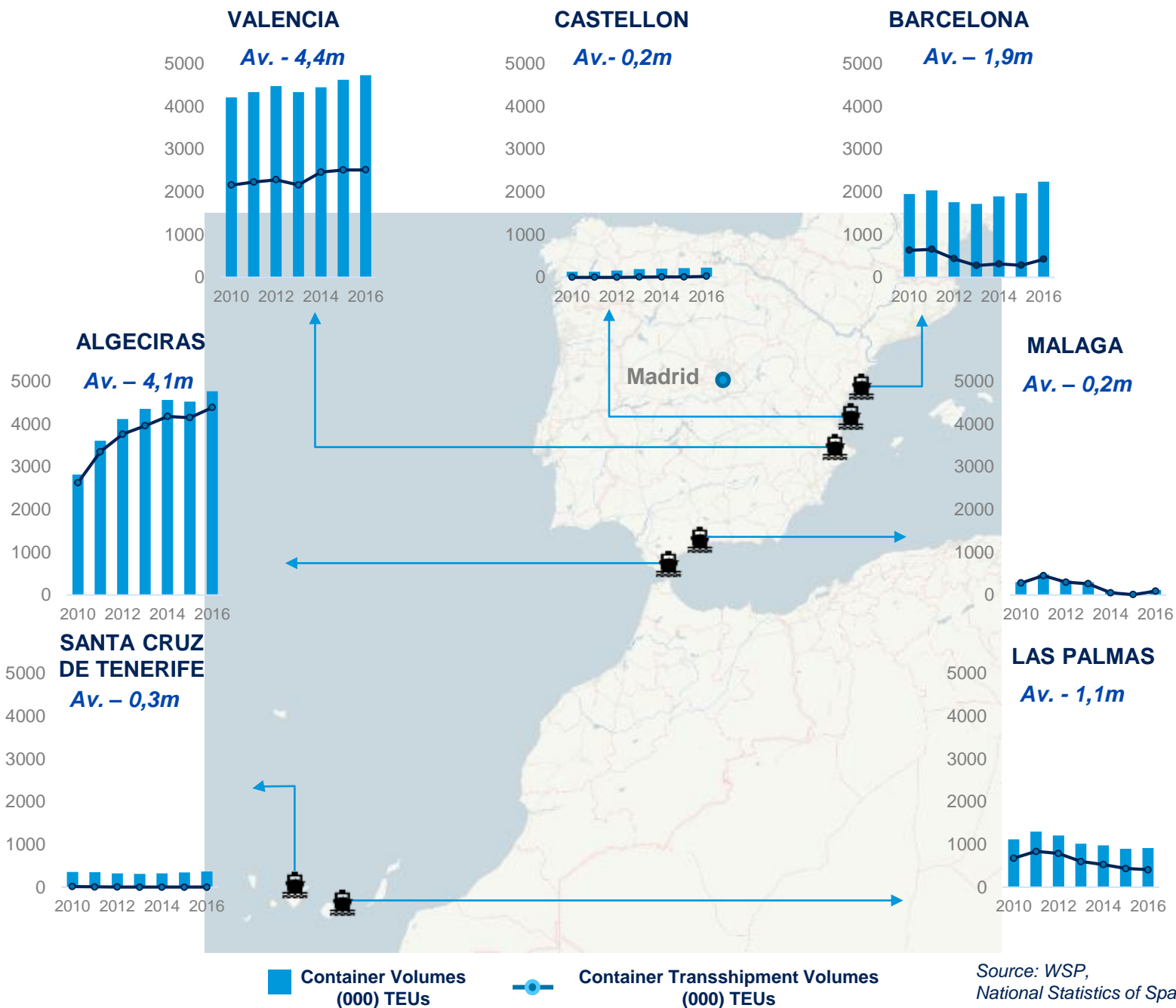
Major trends in the shipping industry

- The global fleet has grown in size, with more vessels of greater capacity . Vessel deliveries >20,000 TEUs are scheduled for this year. Such vessels require deeper draft in ports, longer quay lengths (with deep drafts) and larger cranes. They also place pressure on the terminals to handle larger consignments.
- Consolidation in the shipping industry has resulted in recent merger and acquisition activity, such as
 - the Hamburg Sud acquisition by Maersk,
 - the NOL (APL) acquisition by CMA CGM ,
 - the merger of Cosco and China Shipping,
 - the merger of all 3 Japanese lines into ONE (Ocean Network Express) – operational in 2018,
 - OOCL take-over by COSCO,
 - merger of all Korean lines operationally
- A reshuffling of Alliances has taken place in April 2017. The alliances have formed larger negotiation blocks, which increases their negotiation power with ports.
- Stalling global trade has resulted in slow shipping demand growth. In combination with an oversupply of shipping capacity, this has put pressure on the operating margins of the shipping lines. These lines therefore have a strong focus on cost reductions and focus on tariff negotiations in particular.
- Recently this has resulted in the bankruptcy of Hanjin shipping lines, although recent trend is for positive operating profits in recent quarters.
- 2017 recent demand has increased to >5% on major trade lanes, but vessel ordering is still greater than demand.

Shipping Line Alliance Developments



Historical Container Gateway and Transshipment Volumes (TEUs)



Source: WSP, National Statistics of Spain

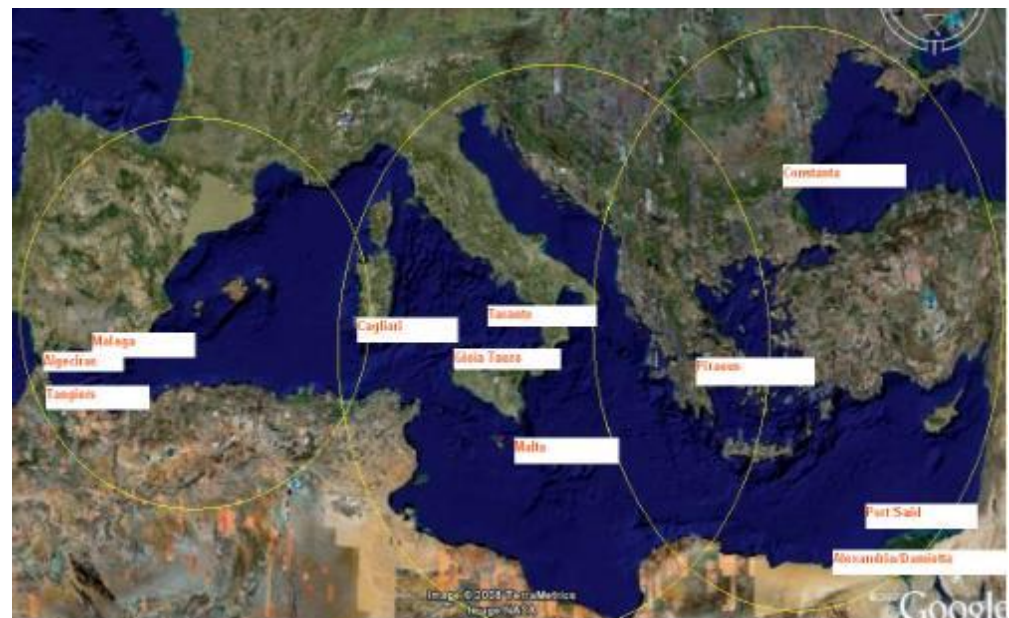
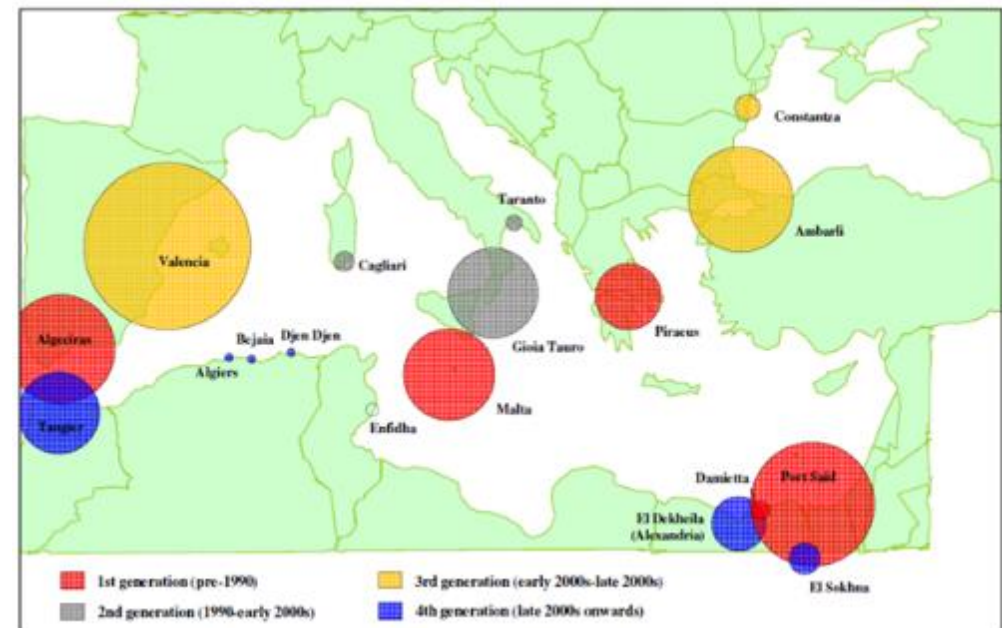


GENERATIONAL TRANSSHIPMENT HUBS

Regional Mediterranean transshipment hubs and their changing popularity.

Mediterranean region is now to regain a new “centrality” as:

- The Mediterranean is not anymore a simple “transit area” within deep-sea trade patterns;
- Transshipment hubs are able to catch cargo along the Europe-Far East trade lane (North-South Europe);
- E-W services can “relay” cargo to N-S services via WMED or WAF hubs, especially Algeciras and Tanger-Med.
- New port sub-regions have been able to “enter the game” (Black Sea, Adriatic etc.);
- The new port projects stimulated the entry of international terminal operators and shipping lines;
- Lines need local gateway volumes to warrant a call as base cargo at a transshipment hub. Without it, calls can move elsewhere;
- Developing new opportunities in Turkey, Black Sea and Adriatic.
- Shipping lines will still look to deploy services at hub ports in West, Central and East Mediterranean.
- New Alliances mean that more than one hub in each sector are often chosen.



TRANSSHIPMENT TYPES

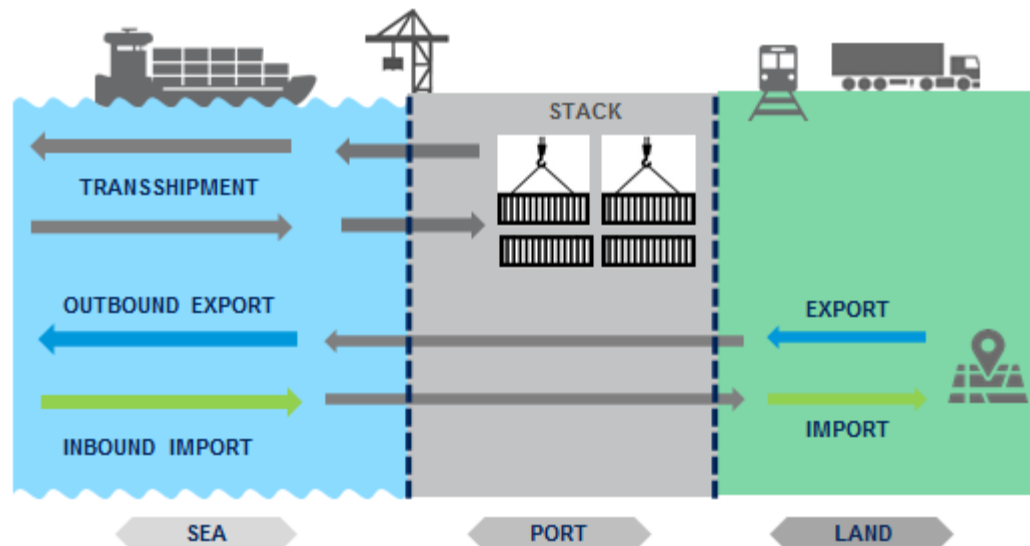
“Hub and Spoke” and “Relay”

Hub-and-spoke Transshipment.

- As ship sizes continue to increase and shipping line mergers and alliances continue, the economic advantages of reducing the number of port calls becomes ever more pronounced.
- The trend to fewer port calls will continue and will favour the larger, centrally placed ports in a region.
- Increasing transshipment also implies increasing feeder flows, which place demands on smaller ports to gear up to handle containers at dedicated container berths.
- Transshipment already has a significant place in the global market and its share is expected to continue increasing. The major lines will continue to serve port regions by as few direct calls as possible, and thus the role of hub-and-spoke container distribution will continue to strengthen. This will be strongly manifested in the West Mediterranean and Atlantic markets.

Relay Transshipment (or ‘Interlining’).

- The aim of relay transshipment is to extend service coverage and flexibility by linking two or more mainline services – typically east-west services with north-south services. This enables carriers to increase the number of revenue earning legs on their larger vessels.
- Typical links are from Asia-Europe to services for WAF, SAF, SAM and TA.
- This is a major feature of demand in the Gibraltar Straits markets (Algeciras).
- Experiments with West African hubs (Apapa, Lekki, Abidjan etc.) continues but levels of efficiency/productivity are challenging.



CONTAINERSHIPS SERVICES OVERVIEW IN SPANISH MEDITERRANEAN PORTS

Main Alliance Services ex Asia

- All three of the main Alliances have a significant presence at a number of facilities in the West Mediterranean.
- All of the three major Alliances call at both Barcelona and Valencia in Spain (although different terminals) as well as La Spezia in Italy.
- Individual lines – particularly Maersk Line and CMA CGM – offer many additional services which call at Algeciras and Tanger-Med to offer “relay” possibilities.
- Lines are looking to spread their services across a number of competing terminals in the same region in order to generate a competition element for their negotiations.
- Alliance services also have a number of different shipping lines to placate – this can mean that more than one of the member lines has a particular interest (equity or otherwise) in calling at a specific terminal, which will therefore split where the services call.

Main Alliance Asia-West Mediterranean Services

Service	Size	Main Hubs
Ocean Alliance		
MED1	13000	Valencia La Spezia Piraeus
MED2	11300-13200	Valencia Barcelona Genoa Marsaxlokk
MED3 (BEX)	9000-10900	Constanta Piraeus Port Said W.
MED4	8000-10000	Ashdod Haifa Piraeus Alexandria
MED5	5700-7000	Koper Marsaxlokk Damietta
2M		
AE20	13000-14000	Valencia Barcelona La Spezia Marsaxlokk Gioia Tauro Port Said E.
AE11	13000-14000	Valencia Barcelona La Spezia Marsaxlokk Gioia Tauro Port Said E.
AE12	10800-13000	Koper Gioia Tauro Port Said E.
AE15	13000-15200	Koper Gioia Tauro Piraeus Yarimca
The Alliance		
MD1	8500	Valencia Barcelona Damietta
MD2	13000-14000	Valencia Barcelona La Spezia
MD3	13000	Ashdod Piraeus Izmir Mersin

Source: Alphaliner, 2017

CONTAINERSHIPS SERVICES OVERVIEW IN SPANISH MEDITERRANEAN PORTS

Port Requirements

- Ports with sufficient water depth / facilities have seen the average and maximum vessel sizes increase. Other ports have stagnated around feeder vessel types.
- Terminal productivity has increased – but there remains a need for further improvements to “world” levels. Bigger vessels call at fewer ports and need to be turned quickly.
- Need for dredging – approach channels and berths. Depth alongside is critical to ‘future-proof’ terminals.
- Longer berths; larger terminal area; increased gate pressure.
- Larger/Havier Quay Cranes - Longer reach; Taller clearance; Twin/Tandem Lifts.
- Increase in load on quay structures and increase in electrical loads and electrical infrastructure.
- New deepwater facilities will be attractive as alternative t/s hubs with higher % of gateway cargo.
- Terminals which do not lift productivity will see market share decline.
- Need to improve hinterland links and connectivity.



CONTAINER TERMINAL OWNERSHIP – LINE EQUITY

Shipping lines are taking equity stakes in port terminals. This results in:

- Facilities developed in accordance with own requirements;
- Lines ensuring strategic access to their hinterlands;
- Lines not facing delays at their own terminal – berth priority;
- Lower port tariffs / transportation costs due to the integration of this step in the supply chain;
- This has been further evidenced with APMT’s recent “volte face” in terms of a policy related to serving Maersk services at owned facilities.
- Further investments in region is highly likely.

The following facilities in the Mediterranean are owned by terminal operators linked to major shipping lines:

Shipping Line Container Terminal Ownership in W.Med

Port	Equity Owner
Algeciras	Maersk
Valencia	MSC
Barcelona	Maersk
Malaga	Maersk
Tanger-Med	Maersk, Contship, MSC, CMA
Las Palmas	MSC
Gioia Tauro	Maersk, Contship
Marsaxlokk	CMA CGM

CONCLUSIONS

- There will be pressure to handle much larger vessels on all deepsea trades.
- These vessels and larger consignment sizes will see the need for longer quays with improved access and larger (and heavier) cranes.
- Need for improved levels of efficiency.
- Updated deepwater facilities in West Med region to attract some mainline/secondary trade services – more “relay” services to connect to N-S trades – and more feeders.
- Increase in amount and size of feeders still likely with further mainline vessel increases on the horizon.

Major Game Changers:

- Further Alliance developments;
- Changing Vessel mix;
- Catalonia “politics”

THANK YOU

Steve Wray


Associate Director

WSP Maritime Group London

 **+44(0) 7785 272821**

 **+44(0) 7785 272 821**

 **Steve.Wray@wspgroup.com**

 **WSP House, 70 Chancery Lane
London, WC2A 1AF**

