“Consolidation of liners & deployment of large vessels – What are the impacts on BIMP-EAGA transhipment potential?”

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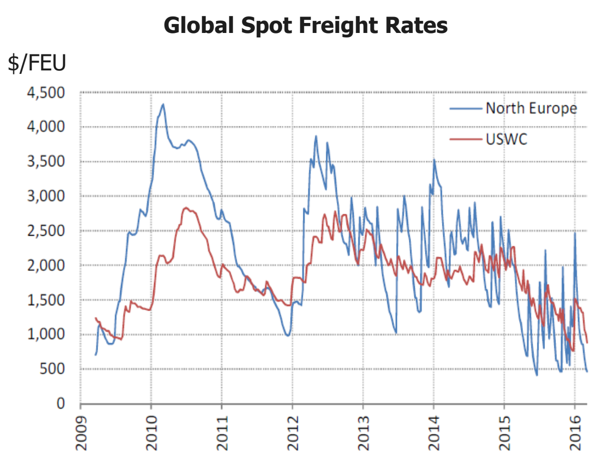
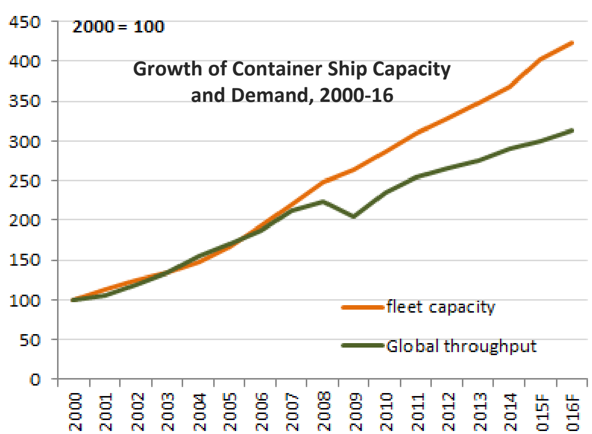
Decreasing unit revenue for shipping lines places huge pressure on cost reduction

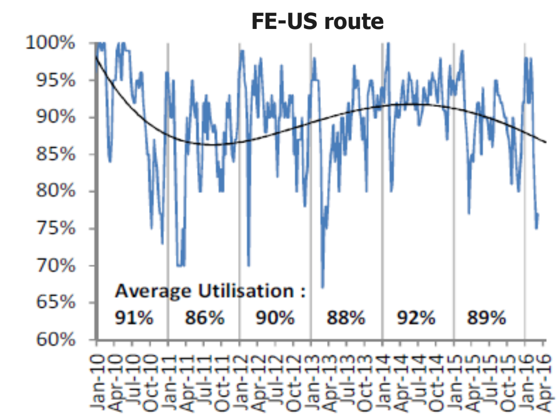
Focus on reducing network costs, including lower port costs

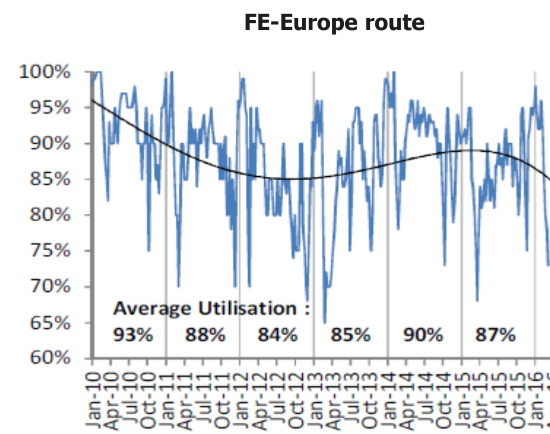




- Weak demand growth *and* declining unit revenues….
- …must cut unit costs, including via mega-vessels, which has exacerbated the supply-demand gap and depressed utilisation levels…and hence revenues
- Situation will continue for the medium term. Hence profitability will rely on further cost reductions and possible M&A activities
- Lines will be ever more focused on mainline network costs
- Ports and Terminals will continue to face downward pressure on their charges and demands for higher service levels (faster turnaround)

Average vessel load factor



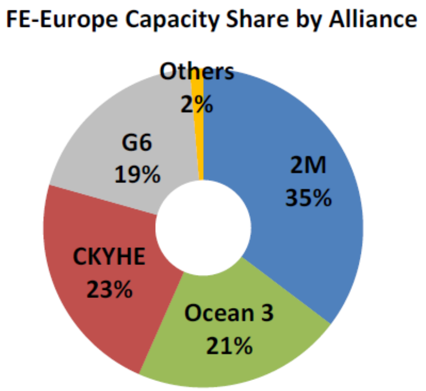


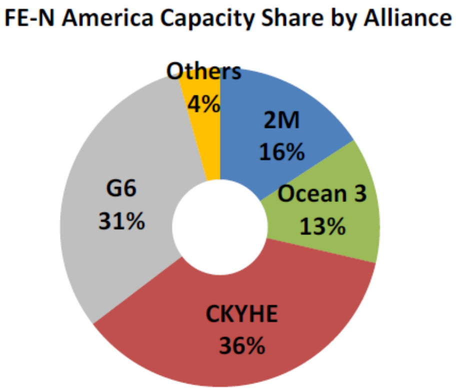
Source: Shanghai Shipping Exchange; Shanghai Containerised Freight Index; Alphaliner; ICF; Arcadis

Safer Together - Filling up the mega-vessels

Economies of scale via larger alliances…

- New alliances to defray risk of introducing larger vessels during weak demand conditions…
- …and secure enough numbers of vessels that are of same magnitude of size to offer fixed or weekly schedule
- Following P3 rejection, four major alliances created / remain:
  - 2M
  - Ocean Three (O3)
  - G6
  - CKYHE Alliance
- Recent M&A (CMA CGM – NOL; COSCO – CSCL; Hapag-Lloyd – UASC; Maersk – Hamburg Sud) is causing restructuring of alliances:
  - Ocean Alliance
  - The Alliance
  - 2M
- Account for significant portions of capacity on major trade lanes





Source: Alphaliner

Port Planning & Performance in an Era of Mega-vessels & Alliances

- Infrastructure and services:
  - 18m water depth;
  - long straight / contiguous quays (1,000m or longer) to provide maximum flexibility
  - adequate number of super post panama cranes: outreach for ≥23 TEUs across
  - land: adequate yard to support quay face operations & large box exchanges (ideally 600-650m average yard depth / m quay)
  - inland connectivity: gate, road, rail, barge, etc. (for gateway ports)
  - capacity to accommodate all alliances partners

- Major shipping lines want high performance / high port productivity
  - > 35 moves per crane per hour, 230-250 moves/ship hr @ berth for *larger* vessels
  - Reliable berth windows and turnaround time
  - Maersk EEE seeking **6,000 moves** within 24hrs from terminals….but this requires **adequate cargo**
- Major hub ports (& some gateway ports, e.g. Rotterdam) must efficiently accommodate variety of vessels sizes (e.g. from feeder / barges to mother vessels) - flexibility in operations
- **Risk/reward:** investment requirements are higher but in the absence of base-load import/export (IE) cargo, incentives for largest vessels to call may be insufficient – challenge for smaller transhipment hubs, less so for the major gateway terminals…and major TS hubs?

Source: World Maritime News; ICF; Arcadis

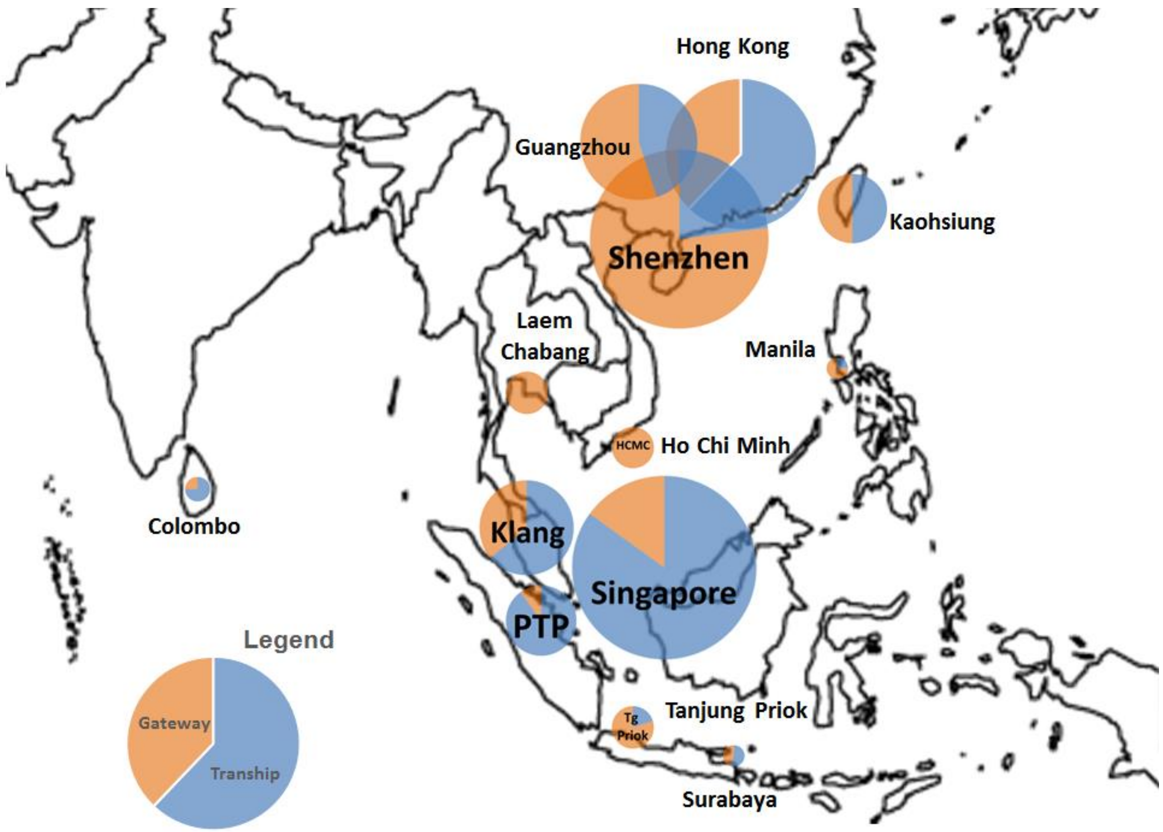
International Transhipment Market

Wider geography of competition and more 'footloose' than import/export cargo, but mega-alliances / vessels may be changing this…

- Key factors or KPIs for **competitive transhipment hubs** include:
  - Proximity to main shipping lanes, thus avoiding diversion costs;
  - Infrastructure to accommodate the largest mother vessels;
  - Low cost operations (container handling charges, port charges / harbour dues, etc.)
  - High service quality, especially productivity;
  - Streamlined customs & trade regulations, including regulation of liner activity relative to competitors;
  - No cabotage restrictions on vessels or feeder on-carriage;
  - The ability to serve a large number of small markets in the region;
  - Stable regulatory (labour, pricing, etc.) and security environment;
  - A dense network of connections & feeders – large lines or alliances may bring their own networks, but once established this network helps re-inforce or 'lock-in' competitiveness;
  - Import/Export (IE) cargo baseload to attract direct calls – the ability for a port to service both transhipment & IE markets is an advantage, but many transhipment ports have thrived without large IE hinterland, notably Singapore, Dubai and PTP
- Mega alliances pose challenges for terminal operators in terms of scale of capacity required and inter-terminal transfers (ITTs)
- Yield per lift for transhipment is less than for IE cargo – implications for terminal financial performance and return on the major infrastructure investment typical of a major transhipment hub

Mega vessels & alliances pose new challenges for transhipment hub competitiveness

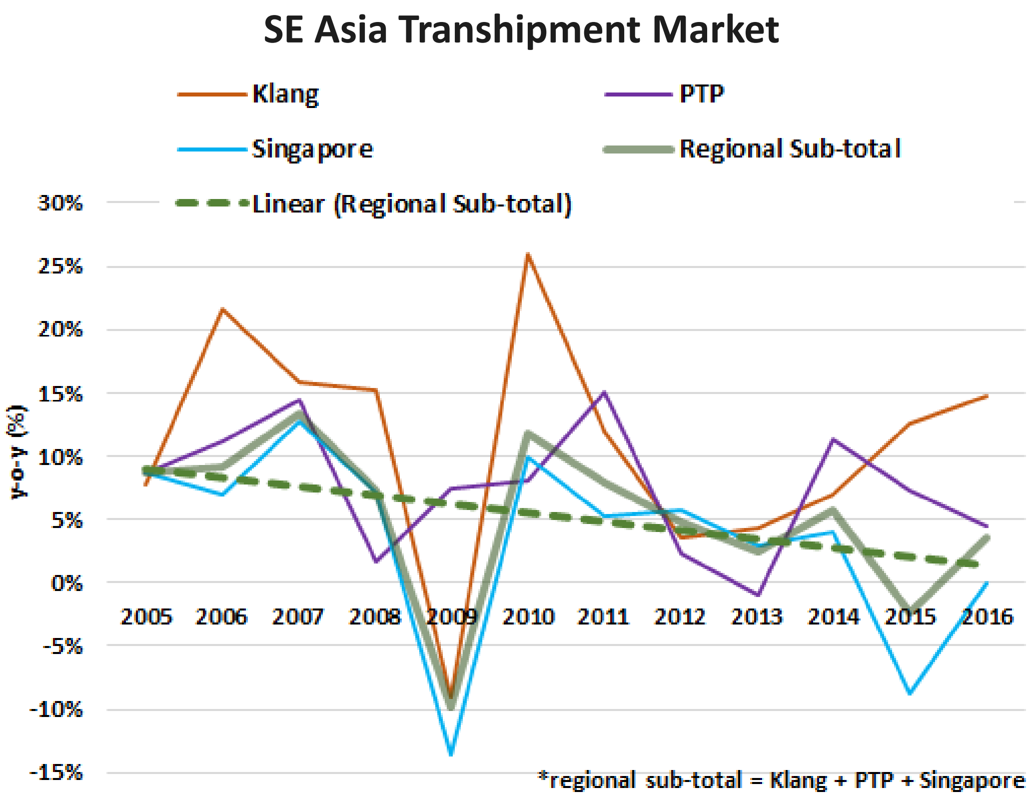
- Fully accommodating an alliance in key transhipment (TS) markets (e.g. SE Asia) **may require 7-9 million TEU capacity**…
- ...or mitigate risk with dual hubs (at additional cost & / or inability to fully “re-set” network)
- Thus barriers to entry have risen in some port markets – must build to accommodate the largest vessels and large volumes in major TS markets (e.g. SE Asia). Can no longer enter the market with just ~6-800m of berth
- Threshold for direct calls raised – does this mean “lock-in” for the mega-hubs?
- Strategy of MPA / PSA at Tuas?
- BIMP-EAGA ports too small to compete for international TS: focus on gateway and domestic TS (including roro)



Source: World Bank; ICF; Arcadis

Greater bargaining power to lines…or does size & complexity limit options?

- Lines / alliances now so big & complex they may have less market power: i.e. too large to move easily – in SE Asia, there are few options for a “mega-hub” with *available* capacity.
- TS market appears to be slowing, even *before* the boost from mega-vessel mania has passed
- **Capex spend up, unit revenue down** – how do terminal operators maintain margins?



- **Winners “lock in” volume** (e.g. Colombo? Singapore?) and establish a virtuous circle, become mega transhipment (& gateway) hubs; losers, even some smaller gateways see IE volume routed via a third port, increasing cost of import/export?

Source: MPA; Port Authorities; Arcadis

Productivity Battleground

Relative performance versus competitors is first objective

- Lines focus on berth productivity and more importantly port productivity
- Competition is always relative – **improvement over year has to exceed competitor's to increase competitiveness**
- Terminal operator wants high asset utilization – TEUs/quay crane, berth (TEUs/m/pa), etc.
- But high asset utilization for terminal operators may be viewed as 'congestion' by lines
- Commercial operators must deliver competitive productivity, whilst maintaining asset utilization…..state backed entities may be less constrained / more focused on chasing volumes

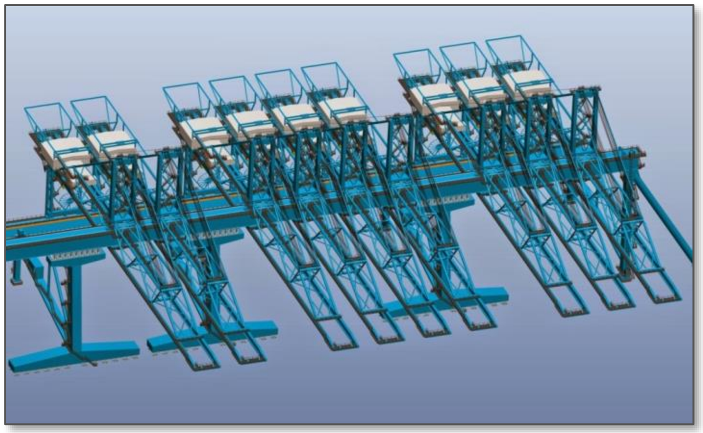
N America Berth Productivity*				Asia Berth Productivity*			
Vessel Size	2012	2013	Change	Vessel Size	2012	2013	Change
10,000 & Over	N/A	83	N/A	10,000 & Over	110	121	10%
7,501 to 10,000	78	88	13%	7,501 to 10,000	98	112	14%
5,001 to 7,500	56	66	18%	5,001 to 7,500	80	96	20%
2,501 to 5,000	44	56	27%	2,501 to 5,000	63	75	19%
2,500 or Less	28	36	29%	2,500 or Less	42	53	26%

Notes: *No of total container moves (on-load, off-load, & re-positioning) divided by no of hours during which vessel is at berth. Comparisons are not "apple for apple" - some data are for ports some for single terminal. Breakdown by call size would offer better 'standardisation'

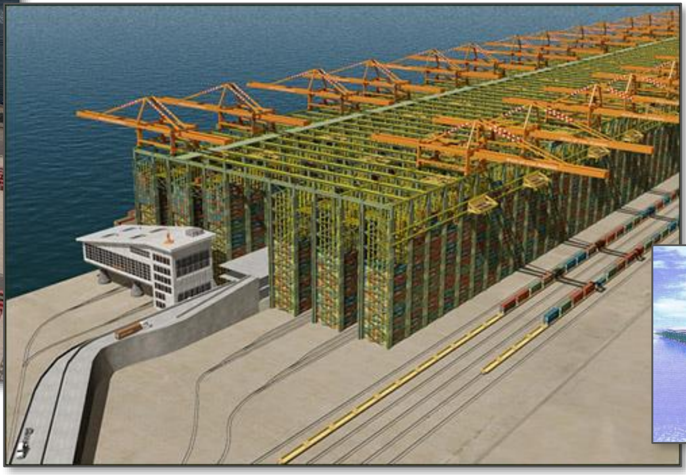
Source: IHS / JOC

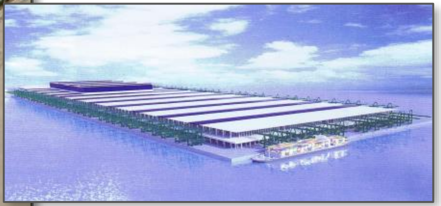
Top 5 Berth Productivity by Region 2014*	
Americas	
Balboa	99
Baltimore	84
Lazaro Cardenas	82
Pointe a Pitre Guadeloupe	80
Los Angeles	76
Europe / Middle East / Africa	
Jebel Ali	131
Khor Fakkan	100
Khalifa	97
Salalah	96
Bremerhaven	90
Asia	
Tianjin	127
Qingdao	126
Yantian	119
Yokohama	112
Nansha	106

Ports of the Future – New Technology, New Ways of thinking, New Ways of Competing?



- More of the same but a bit better (e.g. VICT, Melbourne; Maasvlakte 2, Rotterdam)…
- …or a step change in design & operations?
- But **what is the return on investment and are customers willing to pay for superior productivity?**

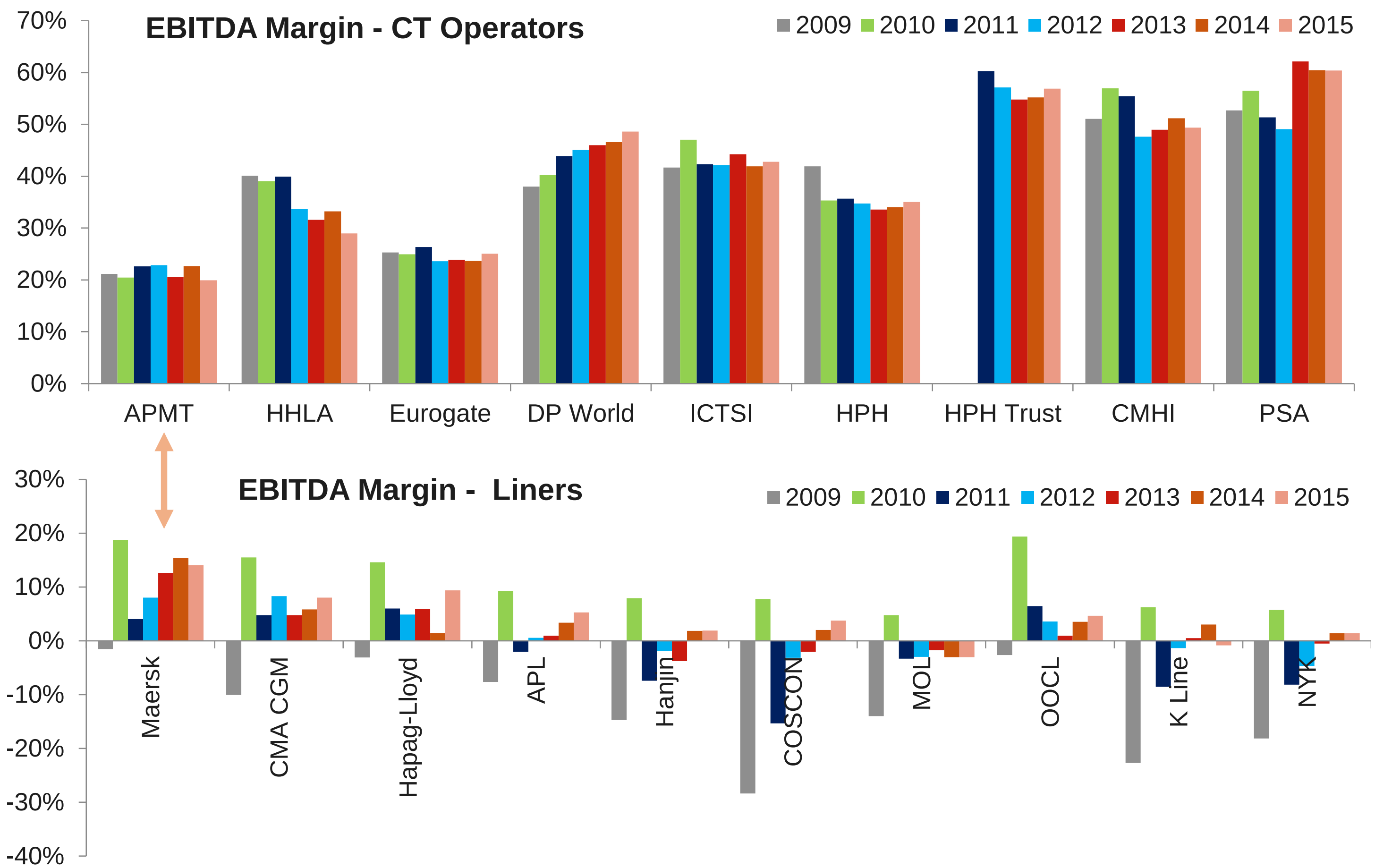




Source: APMT; GRID Logistics Inc;

Can Terminal Operators Maintain Their Margins?

What impact from mega-vessels, alliances, increased capex requirements and downward pressure on terminal charges?



Source: Annual Reports; ICF Analysis; Arcadis

Notes: EBITDA / Revenue; recent PSA performance to be confirmed

Wrap: impacts on BIMP-EAGA transhipment potential

Governments, Port Authorities and port developers should work with the grain of the market

- The SE Asia international transhipment market is the biggest in the world and highly competitive
- Name of the game is "scale", with a limited number of mega-alliances to go around
- To compete requires building high volumes of high spec capacity, **ahead of demand,** and for limited yield per lift
- There is considerable risk of wasting public funds to subsidise AN Other international transhipment hub
- BIMP-EAGA ports should generally focus on gateway cargo, with possibility of some domestic transhipment where networks and volumes make sense. Roro also an option
- Not everyone can be a "mega-hub"…..nor needs to be

Thank you

Any questions?

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