



Port Property Advisers



AAPA Port Real Estate Issues Seminar  
San Pedro, California

The changing dynamics of ports,  
their position in the supply chain and  
the role property plays; an analysis  
and overview of salient factors and  
issues ©

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Port Property Advisers

Maritime Research

Maritime Advisers

Supply Chain Advisers

Maritime Equity Research

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## Subjects to be covered:

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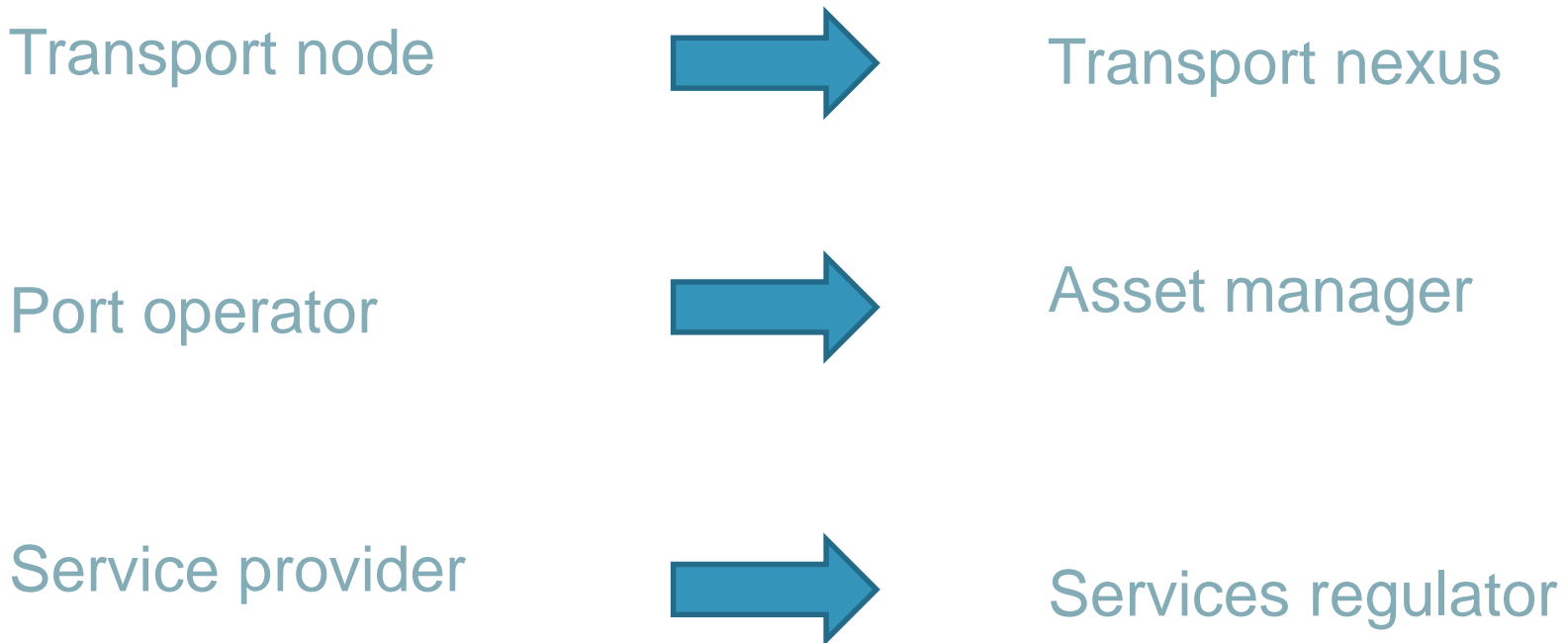
- Evolution of ports; infrastructure gap
- Port and port property: challenges
- Issues impacting port properties
- Opportunities
- Observations
- Conclusions

# Evolution of ports; infrastructure gap

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# Port Authorities' evolution

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*The need to understand the business you are in...*

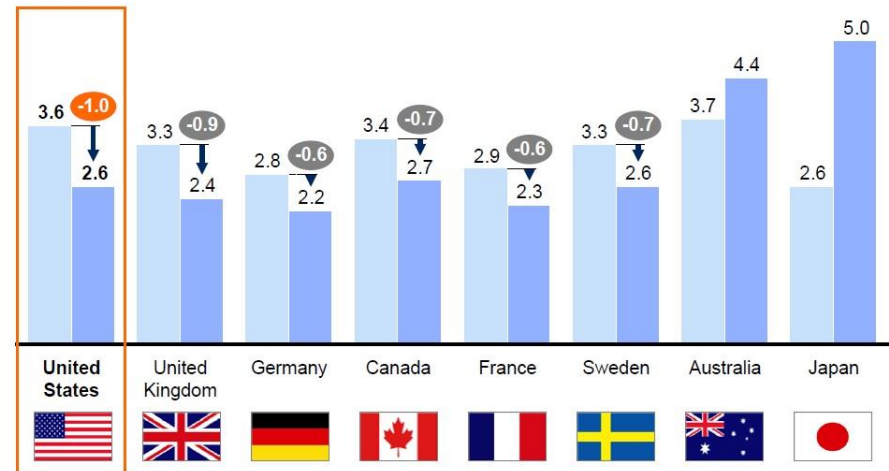
# The infrastructure challenge – why things are changing, quickly

- US\$57 trillion in global infrastructure required from 2013 to 2030 **just to keep up with projected GDP growth**
- This exceeds the value of global infrastructure to date
- US requires about \$1.6T next five years (double current outlay) - just to get to acceptable levels (ASCE)
- 2013 US port infrastructure underinvestment: past 4 years USDOT invested \$357m in 25 port projects - \$40m less than Port of New Orleans did in its own port (The Economist)

Exhibit E7

The United States must raise infrastructure spending by 1 percentage point of GDP to meet future needs

Gap between historical spend and estimated future spending need<sup>1</sup>  
% of GDP



<sup>1</sup> Actual spend calculated as weighted average annual expenditure over years of available data, 1992–2011. Estimated need based on projected growth, 2013–30.

SOURCE: McKinsey Global Institute analysis

# US Infrastructure challenge

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- US national debt approaching \$19 trillion and climbing
- US port infrastructure ranked 22<sup>nd</sup> globally, behind Iceland and Estonia (World Economic Forum)
- At ports, more borrowing taking place than before
- Ship technological advancement far outpacing ports' ability to fund expansion/modernisation
- Has the need for infrastructure capital outpaced most governments' ability to fund it?
- Can/will port infrastructure continue to be financed as it has eg, bonds, taxing districts, government subsidies or will PA privatisation accelerate (eg Sydney - \$5 billion raised)?

# Ports and port property: challenges

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# Chasing economies of scale shipping lines deliver ports the triple punch: (Much) bigger ships + Bigger alliances + Vessel cascading Impact on landslide?





## Much bigger ships

The cycle is happening faster; Maersk leapfrogged



Mid 1990's -  
Regina Maersk  
7,400 teu  
**Other carriers  
followed...**



Mid 2000's -  
Emma Maersk  
15,500 teu  
**Other carriers  
followed...**



2015 - MSC Maya  
E 19,224 teu  
(21,000 teu on  
ordered)  
**Other carriers  
following...**

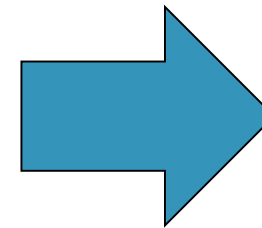
2020? 25,000 teu ?

**Carriers will follow...**

## Bigger alliances – consolidation

How long will they stay as they are? Are they stable?

Shipping line	Alliances/vessel sharing agreements (VSAs)	
Maersk	P3 (denied)	2M
MSC		
CMA CGM		
China Shipping	China Shipping/UASC	Ocean Three
UASC		
NYK	Grand Alliance	G6 Alliance
OOCL		
Hapag-Lloyd		
APL	New World Alliance	
MOL		
Hyundai		
Cosco	CKYH Alliance	CKYHE Alliance
K Line		
Yang Ming		
Hanjin		
Evergreen	Independent	
<b>16</b>	<b>6</b>	<b>4</b>



More convergence?

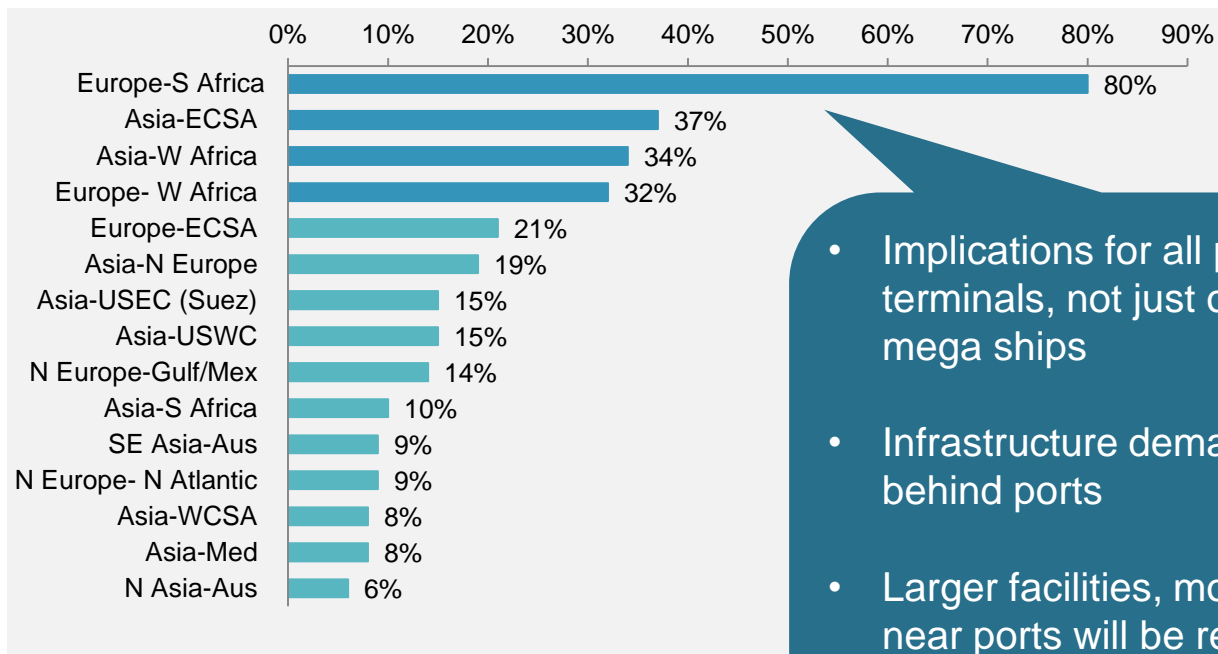
Further changes?

Net result on ports/landslide?

## Vessel cascading

Rapid and ongoing increases in largest and average container ship sizes

### Increase in average ship size: 1Q 2013 - 1Q 2015



- Implications for all ports and terminals, not just ones serving mega ships
- Infrastructure demands at and behind ports
- Larger facilities, more land at and near ports will be required

Source: Drewry Maritime Research

# Issues impacting port properties

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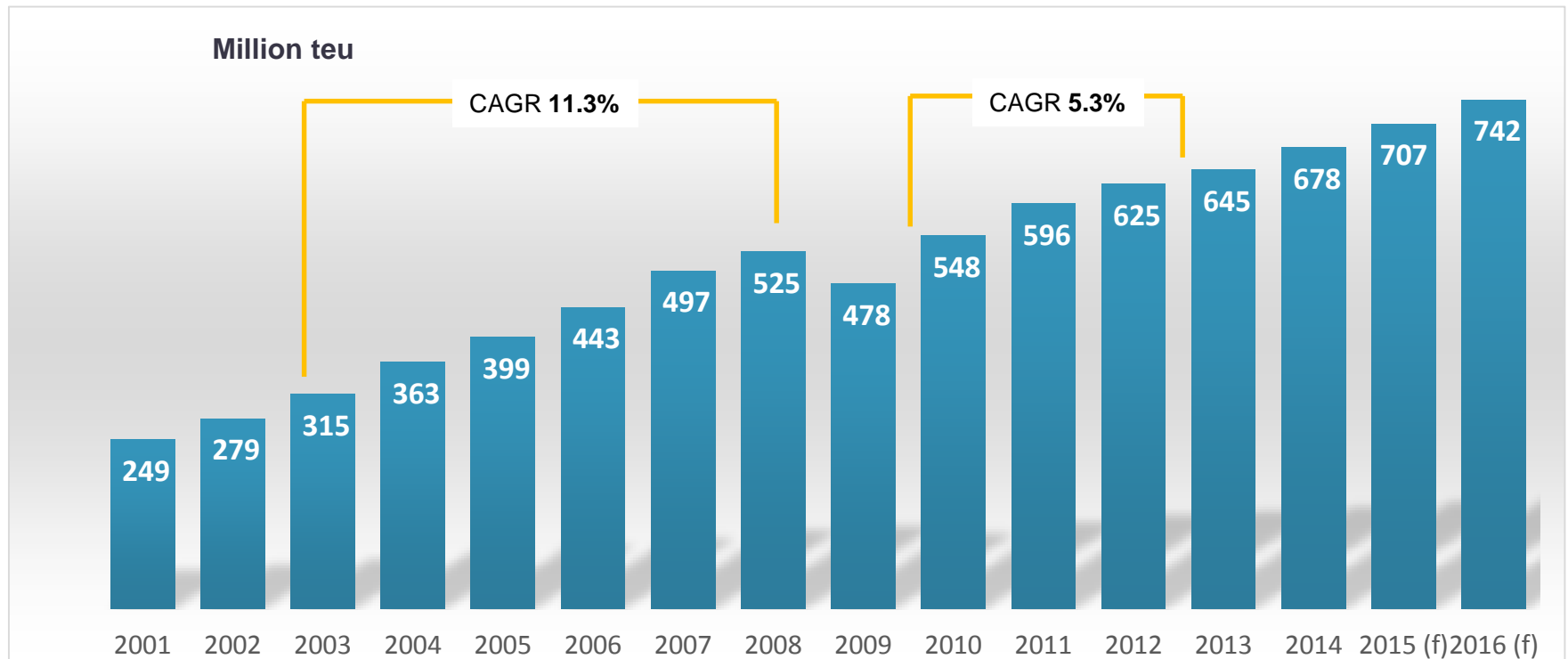
# Demand growth and terminal capacity issues

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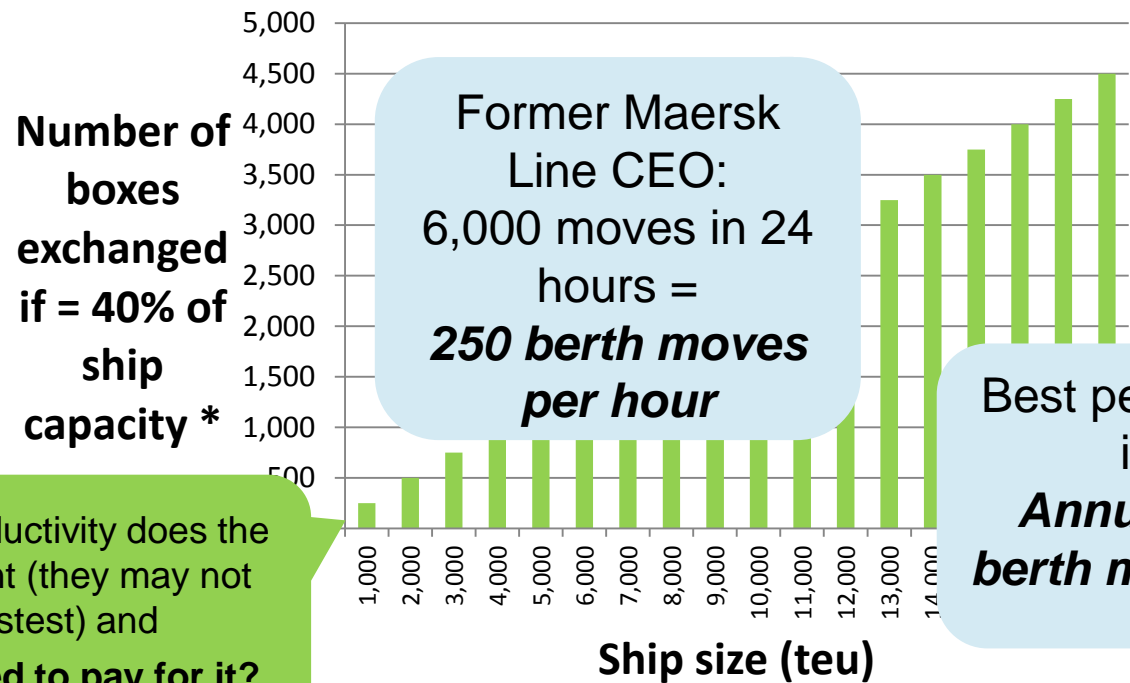
## Demand growth

Coping with high growth rates used to be the big challenge; less so now but still an issue



Source: Drewry Maritime Research

# Vessel call volumes and handling speeds: the increasing disconnect (size of exchanges per vessel call get very large, very quickly)



What level of productivity does the shipping line want (they may not want the fastest) and are they prepared to pay for it?

\* i.e. 20% of vessel discharged and 20% loaded per port call

\*\* JOC Port Productivity Data (2013, 8,000teu+ sized ships)

## Demand peaks/Concentration of demand

Reduced service frequency and bigger ships = greater peaks

ECT website: 28 October 2014

*“Last weekend, the Thalassa Pistis of Evergreen Line called at the ECT Delta Terminal where the ship set a new record for ECT and for the Port of Rotterdam: during its visit to the terminal, 10,557 containers were handled”*

*“On the vessel a berth productivity of more than 150 container moves per hour was achieved”*



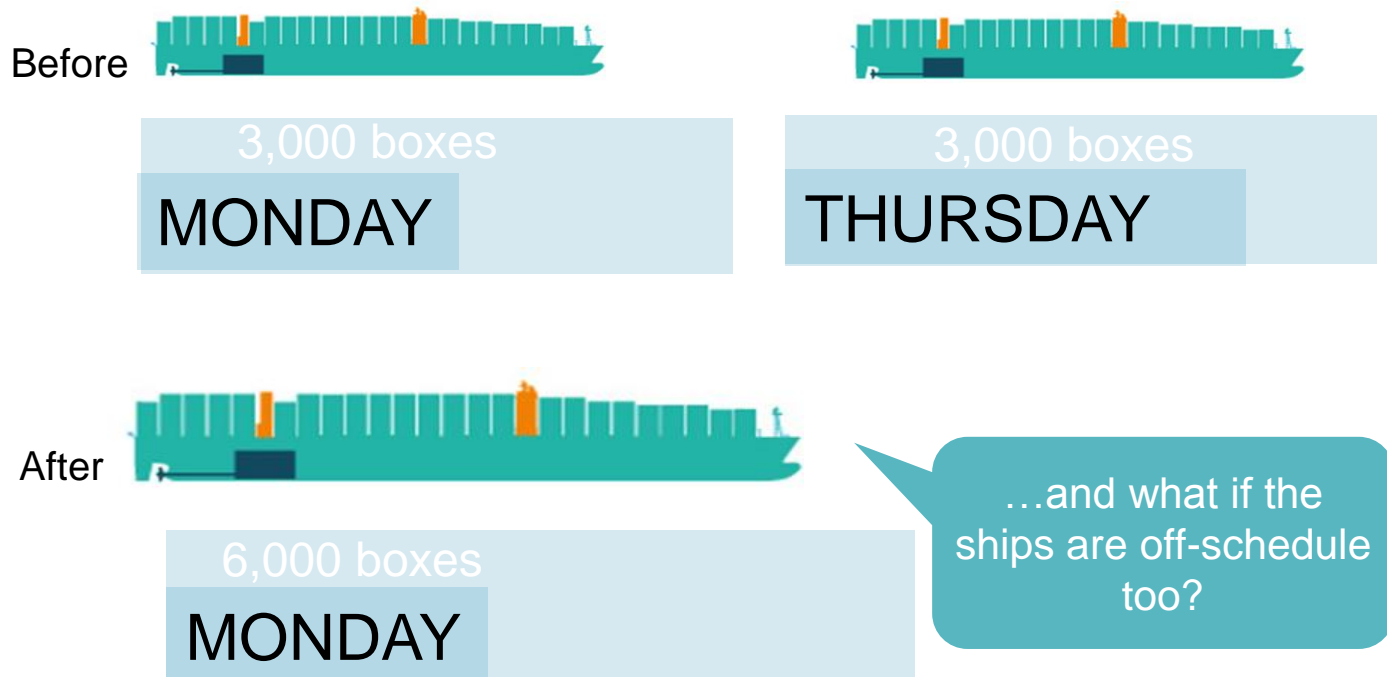
Even with this good performance, vessel was still in port for nearly 3 days – infrastructure deficit



## To peak or not to peak?

Vessel call pattern is critical

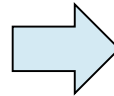
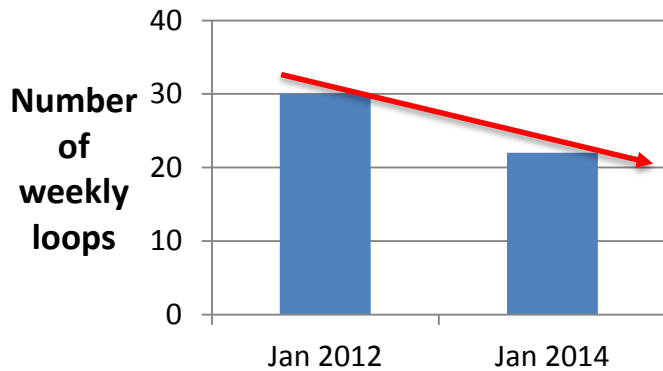
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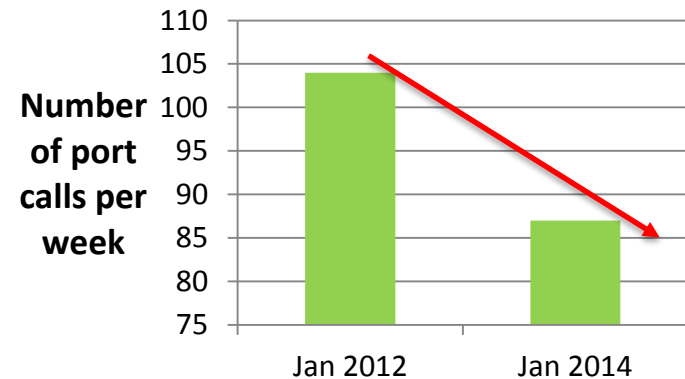
## Changing nature of demand: same volume and list of ports of call... but *greater peaks*

Typically the same number of ports called at per loop, but less frequently

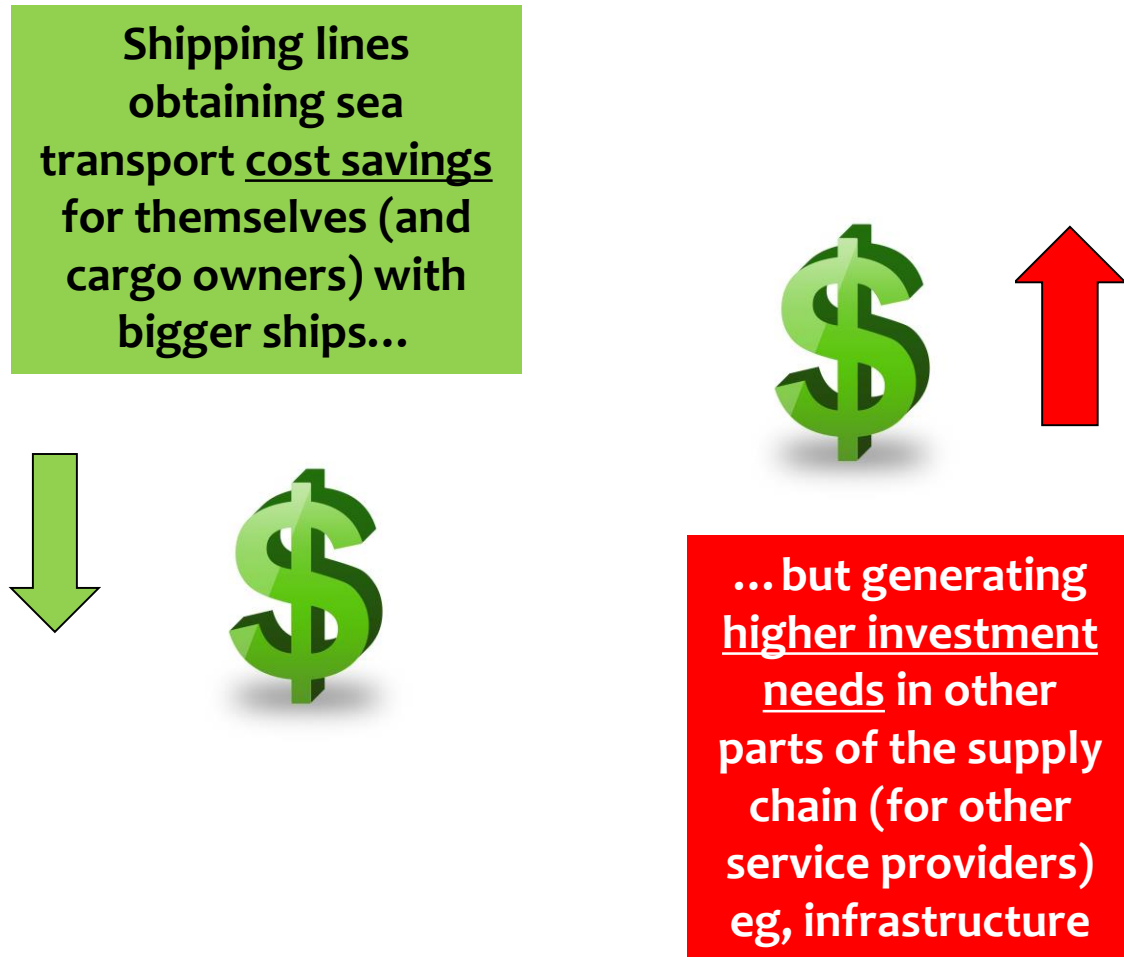
Asia - North Europe trade  
route



Asia - North Europe trade  
route



# Investment implications – for a wider supply chain...



# Investment implications for ports and terminals



**Demand for faster handling speeds = need to invest**



**Terminal demand peaks = need for more capacity**



**Fragmented terminal capacity = need to consolidate**



# Investment implications for ports and terminals



**Enhanced equipment and infrastructure required**



**More rapid obsolescence of existing terminal capacity**

# Investment implications – for the wider supply chain



Demand peaks = need for more road/rail/barge capacity



Demand peaks = changes to inland transport modal split

requires

New and improved inland terminals and *distribution centres*



demands

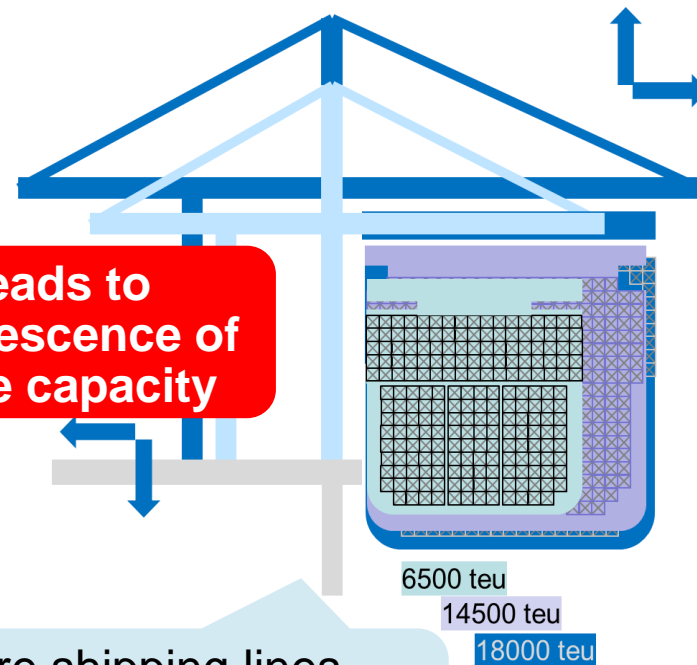
- Structural and organisational changes
- Innovation in landside transportation and logistics
- Compressing and extending of supply chain

# Bigger ships requires more investment in equipment, infrastructure, systems and more and more efficient use of real estate...

- Larger (and more) cranes
- Longer berths
- Deeper berths
- Deeper approach channels
- Greater air draft
- Higher crane and berth productivity
- And a yard/landside operation and inland links capable of coping.....

**Leads to  
obsolescence of  
some capacity**

Are shipping lines  
prepared to pay for these  
enhanced requirements?



# Port Authorities' hinterland challenges

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- Big ships (ULC) demand deeper hinterland reach - ports need to deliver
- Terminal operators increasingly becoming 'door-to-door' logistics providers
- Clients demand reliability and capacity balanced with cost
- Intermodality is key to deeper reach
- All require more land



# Lease issues

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- Balance between 'fixed' and 'variable' rents (ie, property and throughput respectively)
- Balance between fixed rent and MAG revenues (pressure from rating agencies for ports)
- Issues surrounding lease capitalisation for companies from changing IASB/FASB regulations and resulting impact on leases
- Shorter term property usage from greater peaks

# What should be in a lease?

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## Costs

- Cost of capital, risk?
- Inflation?
- Capital sinking fund for renovations, infrastructure recapture?
- Repair & maintenance?
- Operating, insurance, security, electricity?

## Revenue

- Return on investment?
- Return on equity?
- Landlord profit?
- Demand/supply balance?
- Throughput charges, wharfage?

# Valuation Challenges

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- Valuation of port properties benchmarked against true 'like kind' properties (but there are few 'sales' by ports)
- Port's specialised economic use (yet emphasis and cost of economic development)
- Replacement, comparable sales or income approach?
- Recapture of infrastructure, real return of and on capital (yet ports still highly subsidised)

# Port property dynamics

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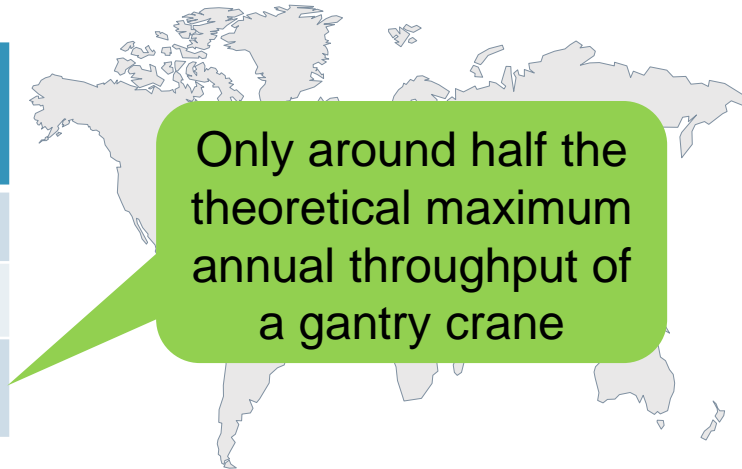
- Although there is a relationship between the industrial real estate market dynamics to port property, the more direct relationship for port property is with GDP, international trade, cargo throughput and velocity, specialised use, high barriers to entry
- Port's core business mission must always be at the forefront when deploying port properties
- Key: address client needs while maximising the financial performance of the real asset

# Opportunities

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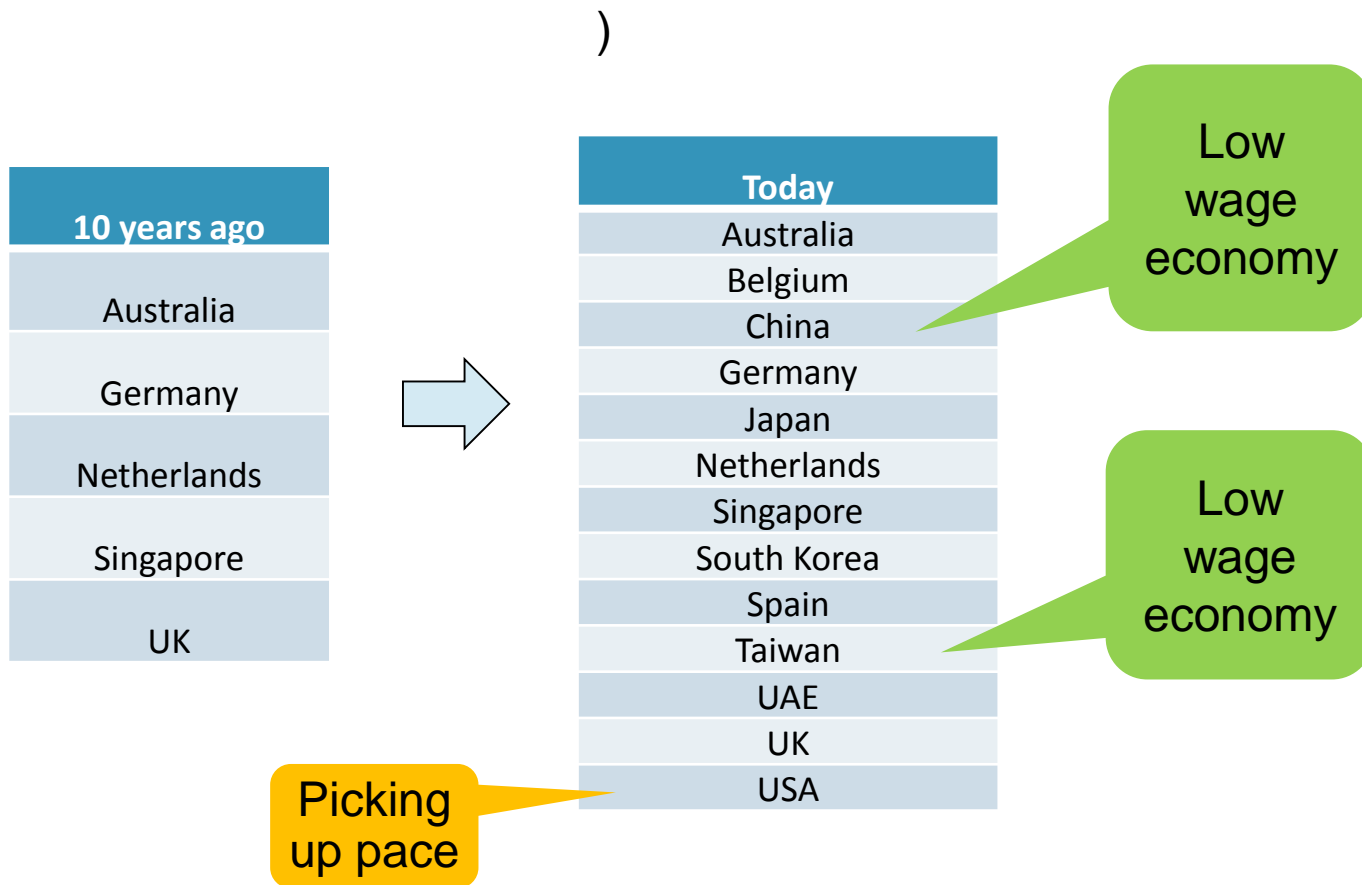
## Sweating the assets - intensity of asset use: global container terminals and key asset performance metrics

Performance measure	Global average (2013)
Teu per metre of quay p.a.	1,072
Teu per hectare p.a.	24,791
Teu per gantry crane p.a.	123,489



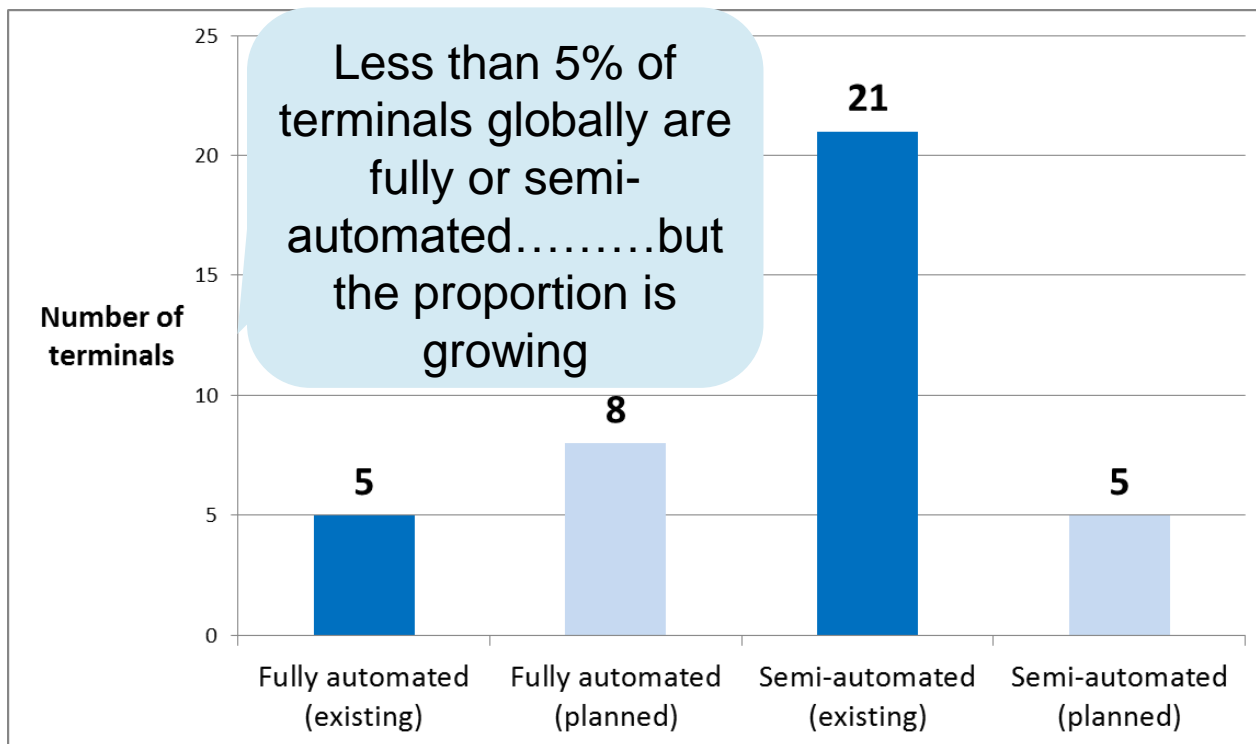
- Terminals in Asia and the Middle East achieved higher figures than world averages
- **Difference, most marked in teu per hectare, where highest performing regions up to 70% more than world averages**
- Regions with lower figures than world averages included North America and parts of Europe – why?

# Automation: Geographical range spreading (Countries with at least one container terminal with significant equipment automation technology deployed or planned)



## Small number but growing

### Existing and planned fully and semi-automated container terminals





# Port Authority's evolving market challenges

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- Competition no longer between countries but global cities, supply and logistics chains
- Shipping has become a commodity; compression and price advantage will be over land
- To service ULC ships, increase throughput, ports must influence efficiency deep into the hinterland

# Port Authority's future role

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- Becoming a nexus of hinterland transport (versus logistics) to:
  - create more efficient hinterland infrastructure and supply chains
  - result in more throughput at port and a competitive supply chain
- Therefore ports (or private sector) will need greater investment in extended terminals and inland logistics infrastructure
- Currently, port's invest in infrastructure, tenant's enjoy subsidised rent, consumers buy cheaper – but do they?
- At some point either ports will charge 'market' rent for their assets and infrastructure; consumers must decide: pay more for goods or more taxes - but the infrastructure gap will be closed

# PA's – the natural transport leaders?

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- Why PA's are natural transport leaders for logistics chains\*:
  - Investments in **logistics poles benefits all users**, regardless of who invests; PA's through throughput charges can more equitably invest in infrastructure
  - PA's can **manage port communities** and clusters to create more efficient, broader, competitive regional load centres
  - PA's can better **manage environmental constraints**
  - A better managed logistics pole and inland facilities guarantee PA's maintain competitive advantages and competition within supply chains

\* Notteboom, 2008

# Why Port Authorities' need an asset management approach

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- More effectively access private capital to release tied up equity in largest asset – property
- Increasing ability to borrow beyond enterprise value
- Increase competitive advantages
- Increase property revenue streams
- Maximise overall port value
- Extend port 'life cycle' to circumvent economic/functional obsolescence

# Observations

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# State of port property – international survey of key ports

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- International survey conducted of six ports 2013:
  - US Gateway
  - US Inland
  - US Gulf
  - European gateway
  - Asian transshipment
  - Latin American regional

## State of port property

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- Port's surveyed represented:
  - 34,176 acres/13,831 hectares
  - \$6.835 billion in land value (at \$200k/acre or \$495k/ha)
  - 2,145,000 teu's
  - 750,000,000 MT

## Aegir survey results

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- Ports **need to act like a business** and not constrained by economic development issues
- Have **reached serious point of being capital constrained**; past financing methods do not work
- Need to **better understand private sector capital markets**
- Believe **solutions will come from private sector**



## Aegir survey results

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- Shift to property rent revenue from MAG's and throughput charges
- Property side of business needs to be better understood
- Terminal concessions do not take into account underlying land
- No starting basis of value for property portfolio

# Aegir survey results

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- Traditional appraisers do not understand dynamics of port business, challenged in identifying 'highest and best' uses
- Want accurate data on property values to better manage business
- Economic development requirements disconnects them from real, competitive world
- Leases do not reflect real financial performance needs

## Aegir survey results

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- No port property asset management in place
- Capitalisation rates and financial performance thresholds not readily defined
- Property departments understaffed; importance of property little understood outside of senior management
- Underperforming financially

# Conclusions

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## All of this will result in:

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- More cargo, higher peaks, less cycles will require more inventory warehoused and real estate
- In the 'sea – land' equation, compression of the supply chain and relative costs will now be on the land side, where the efficiency will need to match the sea side's
- Logistics, shipping and ports industry will continue on 'revolutionary' rather than evolutionary track
- Land limits will force ports to chase economies of scale, like shipping companies (eg, automation, ICTF's)
- Infrastructure deficit will result in innovative financial engineering like PA privatisation

# Thank you!

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# Thank you!

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## The future is in land...and inland!



Port Property Advisers



Since 2003, Aegir Port Property Advisers have been a pioneer consultancy engineered to meet the unique property challenges of the ports and maritime industries. Aegir's focus is to enhance a port's competitive and financial value by more strategically using its major asset.

In the last decade Aegir has undertaken complex port property lease, asset management, valuation, development feasibility, management consultancy and strategy instructions in Europe, the Middle East, Africa, the Americas and Asia.

***Aegir & Drewry: helping you navigate the world of ports by bridging the gap between the port and property sectors.***

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From our origins in 1970 London to a 21st century maritime and shipping consultancy, **Drewry** has established itself as one of the most widely used and respected sources of impartial market insight, industry analysis and advice. This in-depth understanding and objectivity provides our clients with the actionable advice and recommendations they need to achieve their ambitions and stay ahead of the market.

- Over 400 port assignments in 50 countries in the past 10 years.
- Since 2010, provided commercial and due diligence advice in port M&A and financing with a value of approximately \$20bn.
- In last 5 years provided advice on vessel valuations on asset value of more than \$180bn (combined).
- In last five years advised on container shipping industry investments totalling \$6bn.

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