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Arica, Chile

The global economy: crisis or opportunity for Latin American ports? An analysis of salient factors ©

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Subjects to be cover today

- Global & Latin American trade forecasts
- State of the shipping industry
- State of the ports industry
- Challenges
- Solutions
- Conclusions

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Global and Latin American Trade Forecast

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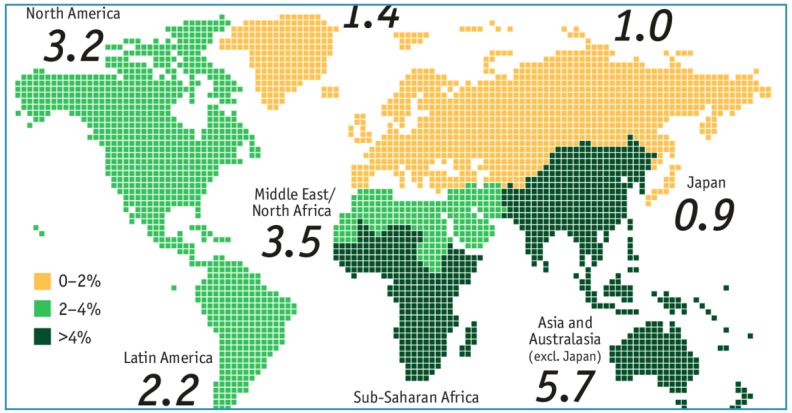
Global & LAC Forecast? Troubled waters ahead…

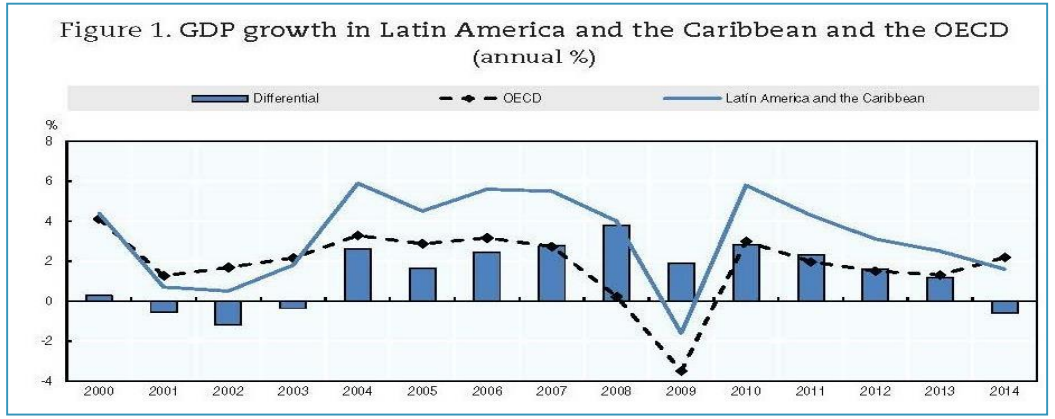
- Regional outlook dramatically changed; downward adjustments occurring due to worsening situation in Brazil and Venezuela
- Forecast now for contraction of 0.1%; first since global financial crisis of 2009
- Outlook for 2016 – will disappoint (1.0% GDP, Focus Economics)
- Fast population growth areas, like LAC, need at least 5% growth to maintain employment
- **'Without investment, there is no growth, and without growth, there is no poverty reduction… they just don't get it',** Hernando Henrique Cardoso (ex president of Brazil) to Andres Oppenheimer recently

World GDP 2015 forecast; % increase on a year earlier

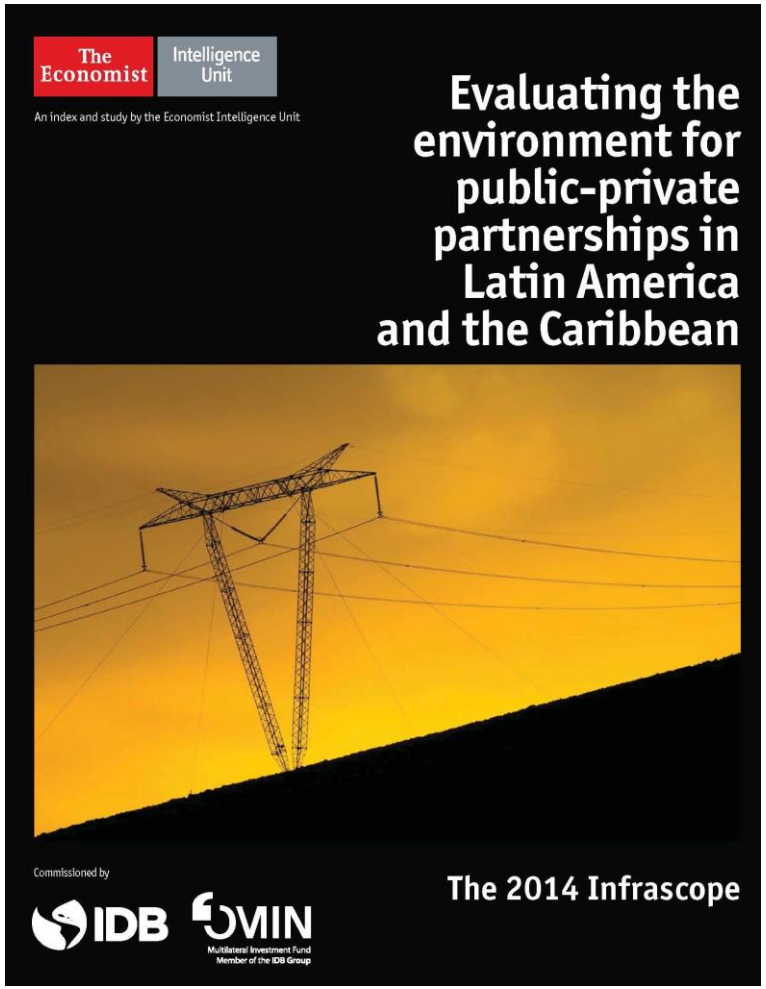


Economic Intelligence Unit

OECD Economic Outlook 2014 – LAC/OECD



Latin America: infrastructure environment, the road to growth



1. REGULATORY FRAMEWORK

Rank		Score	▲
=1	Chile	75.0	-
=1	Mexico	75.0	+9.4
=1	Peru	75.0	-
4	Colombia	68.8	+6.3
5	Brazil	65.6	-
=6	Guatemala	59.4	+6.3
=6	Jamaica	59.4	+34.4
8	Uruguay	56.3	-
9	El Salvador	46.9	+9.4
10	Honduras	43.8	+18.8
=11	Costa Rica	40.6	-
=11	Panama	40.6	-
=11	Paraguay	40.6	+9.3
14	Trinidad & Tobago	34.4	+9.4
=15	Dominican Republic	25.0	-
=15	Ecuador	25.0	+3.1
17	Nicaragua	21.9	-
18	Argentina	9.4	-
19	Venezuela	0.0	-

Latin America - infrastructure environment

3. OPERATIONAL MATURITY

Rank		Score	▲
1	Brazil	78.1	-
2	Chile	71.9	-
3	Peru	59.4	+6.3
=4	Colombia	53.1	-
=4	Uruguay	53.1	+6.2
6	Mexico	50.0	-
7	Costa Rica	43.8	-
8	Guatemala	37.5	+9.4
9	Jamaica	34.4	+3.1
=10	El Salvador	31.3	-
=10	Honduras	31.3	-
12	Dominican Republic	25.0	-
=13	Ecuador	21.9	+3.1
=13	Nicaragua	21.9	-
=13	Paraguay	21.9	-
=13	Trinidad & Tobago	21.9	-
=17	Argentina	18.8	-6.2
=17	Panama	18.8	-
19	Venezuela	6.3	-

4. INVESTMENT CLIMATE

Rank		Score	▲
1	Chile	88.8	+1.3
2	Uruguay	80.8	+16.5
3	Peru	80.0	-0.5
4	Colombia	78.0	-0.8
5	Mexico	77.0	+16.4
6	Brazil	76.0	-2.5
7	Jamaica	74.0	+17.2
8	Panama	65.1	-0.2
9	Trinidad & Tobago	61.8	+1.7
10	El Salvador	59.3	-0.8
11	Guatemala	55.6	-1.2
12	Paraguay	54.3	+4.0
13	Honduras	52.6	-1.0
14	Costa Rica	45.7	-16.6
=15	Dominican Republic	41.9	-11.7
=15	Ecuador	41.9	+3.0
17	Nicaragua	37.2	-
18	Argentina	16.5	-4.5
19	Venezuela	9.3	-3.2

Latin America - infrastructure environment

2. INSTITUTIONAL FRAMEWORK			
Rank		**Score**	**▲**
=1	Brazil	75.0	-
=1	Chile	75.0	-
=1	Peru	75.0	-
4	Mexico	58.3	-
=5	Colombia	50.0	-
=5	Guatemala	50.0	-
=5	Honduras	50.0	-
=5	Uruguay	50.0	-
=9	Jamaica	41.7	+16.7
=9	Paraguay	41.7	+16.7
=11	Costa Rica	33.3	-
=11	El Salvador	33.3	-
=13	Nicaragua	25.0	-
=13	Trinidad & Tobago	25.0	-
15	Argentina	16.7	-
=16	Dominican Republic	8.3	-
=16	Panama	8.3	-
=18	Ecuador	0.0	-
=18	Venezuela	0.0	-

Infrascope country summaries

The following section provides a brief profile of the PPP environment for each of the 19 countries in this study and their performance in the index. Countries are listed in alphabetical order. Please note that the information selected for the country profiles is intended to provide a high-level overview; it is not intended to provide an outline of the legal environment or represent a comprehensive account of all recent activity. For the 19 full, individual country profiles and indicator scores, please refer to the underlying index and "country profile" tab, available at www.eiu.com/lacinfrascope2014.

State of the shipping industry

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(Much) bigger ships + Bigger alliances + Vessel cascading

The triple punch!

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…

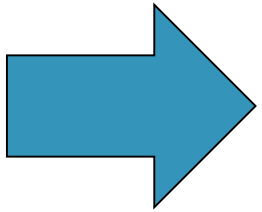
2020? 25,000 teu vessels?

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		Ocean Three
China Shipping	China Shipping/UASC	
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	
16	**6**	**4**



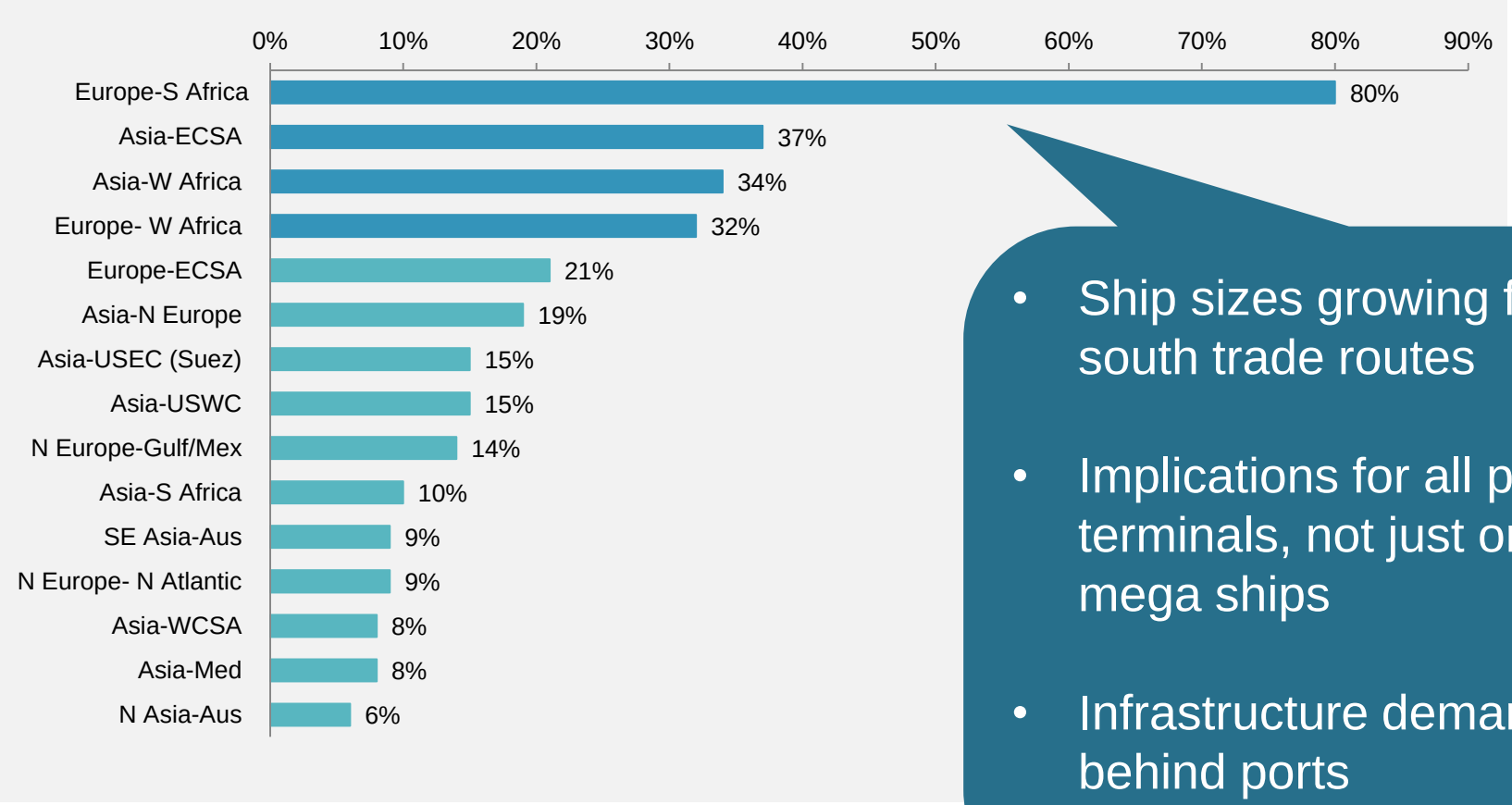
More convergence?

Further changes?

Vessel cascading

Rapid and ongoing increases in largest and average container ship sizes

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



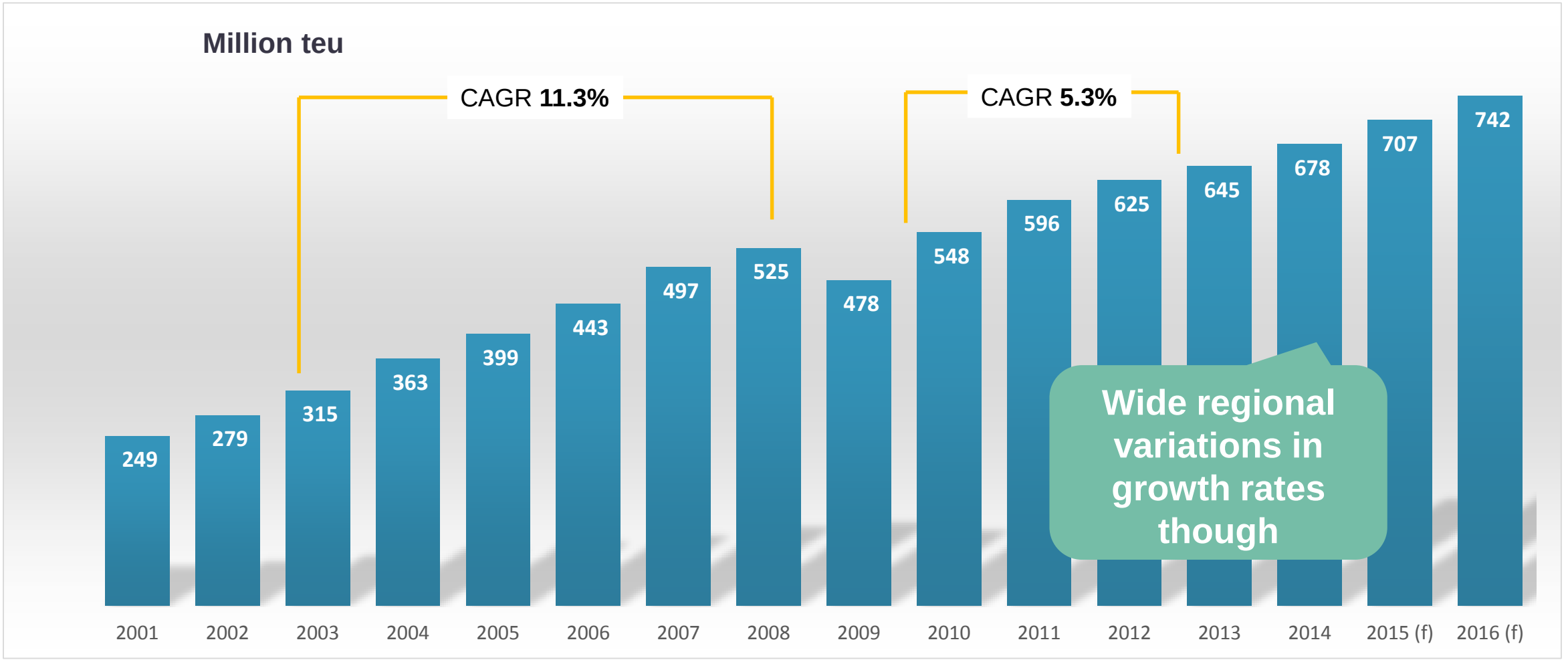
- Ship sizes growing faster on north-south trade routes
- Implications for all ports and terminals, not just ones serving mega ships
- Infrastructure demands at and behind ports

Source: Drewry Maritime Research

Demand growth and terminal capacity issues

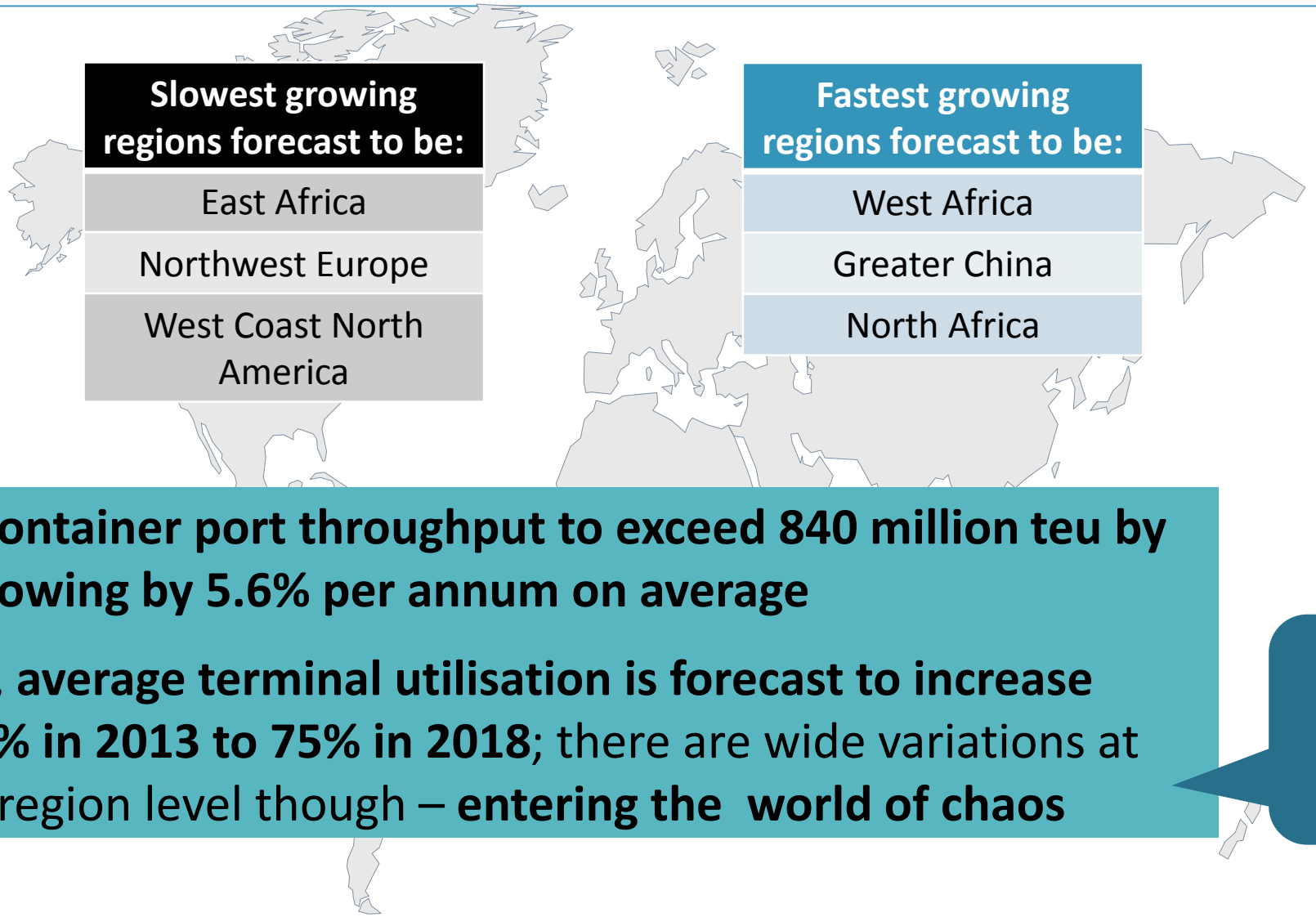
Demand growth

Coping with high growth rates used to be the big challenge; less so now



Source: Drewry Maritime Research

Demand and capacity forecasts
(5 year forecasts of container port demand and capacity for 20 world regions)



Slowest growing regions forecast to be:
East Africa
Northwest Europe
West Coast North America

Fastest growing regions forecast to be:
West Africa
Greater China
North Africa

- **Global container port throughput to exceed 840 million teu by 2018, growing by 5.6% per annum on average**
- Globally, **average terminal utilisation is forecast to increase from 67% in 2013 to 75% in 2018**; there are wide variations at the sub-region level though – **entering the world of chaos**

Impact and need for more infrastructure

State of the ports industry

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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 defecit

To peak or not to peak?

Vessel call pattern is critical

Before

3,000 boxes

MONDAY

3,000 boxes

THURSDAY

After

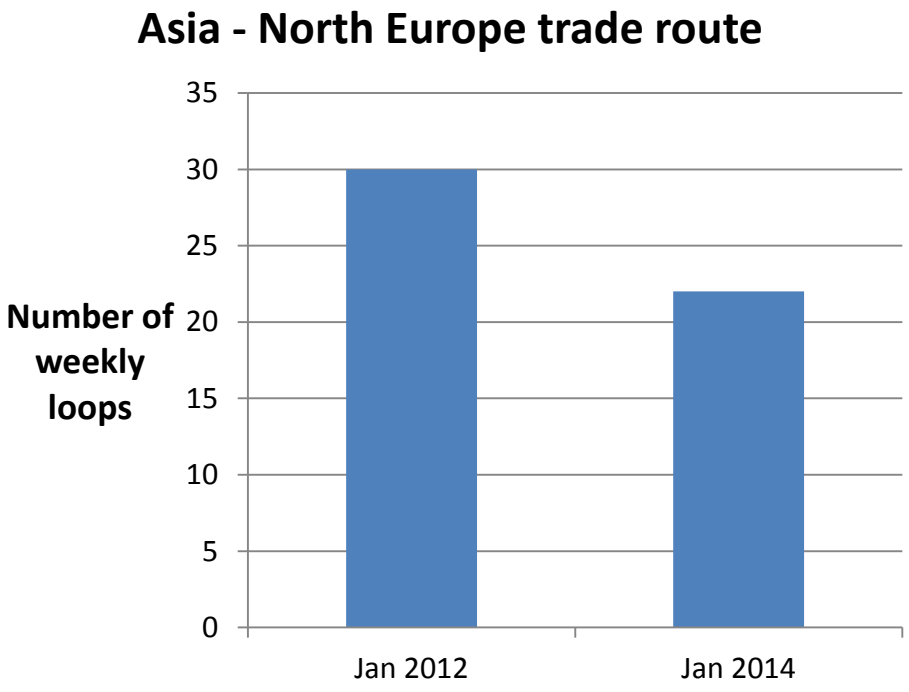
6,000 boxes

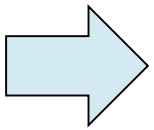
MONDAY

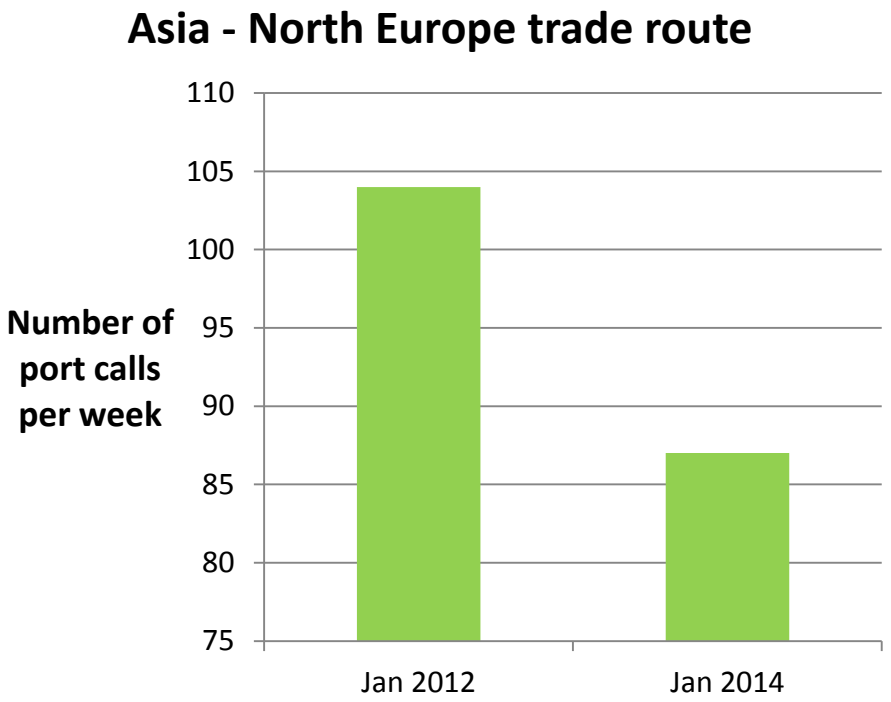
…and what if the ships are off-schedule too?

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

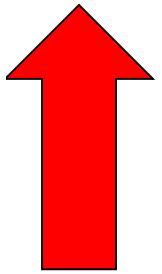






Investment implications – for the wider supply chain…

Shipping lines obtaining sea transport cost savings for themselves (and cargo owners) with bigger ships…



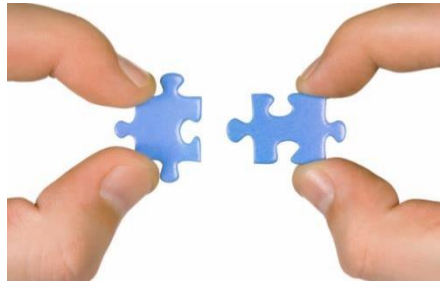
…but generating higher investment needs in other parts of the supply chain (for other service providers) eg, infrastructure

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

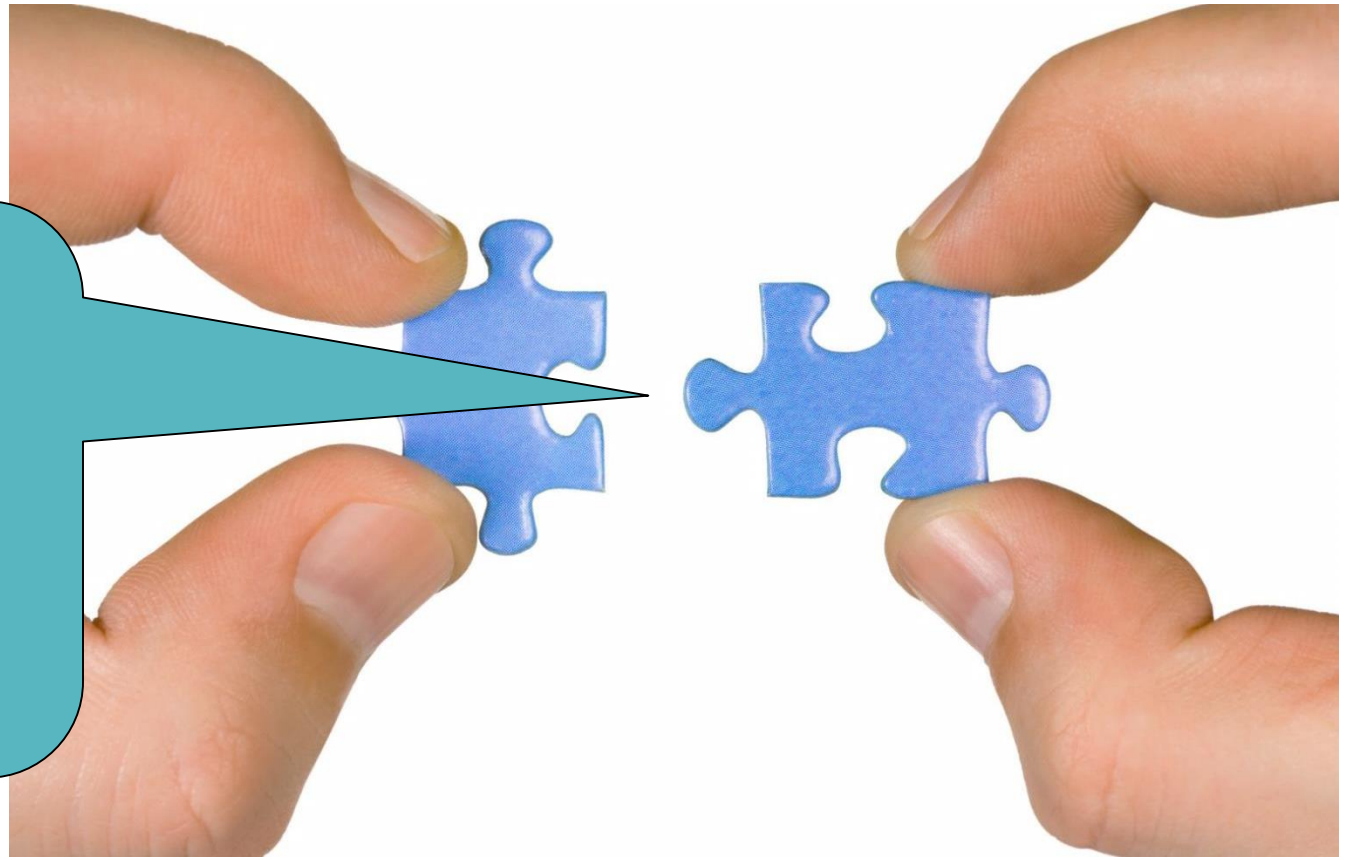
demands

Structural changes, organisational changes and innovation in landside transportation and logistics

Fragmented terminal capacity

Fragmented capacity means:

- ***Multiple terminal calls in the same port and/or***
- ***More inter-terminal transfers***

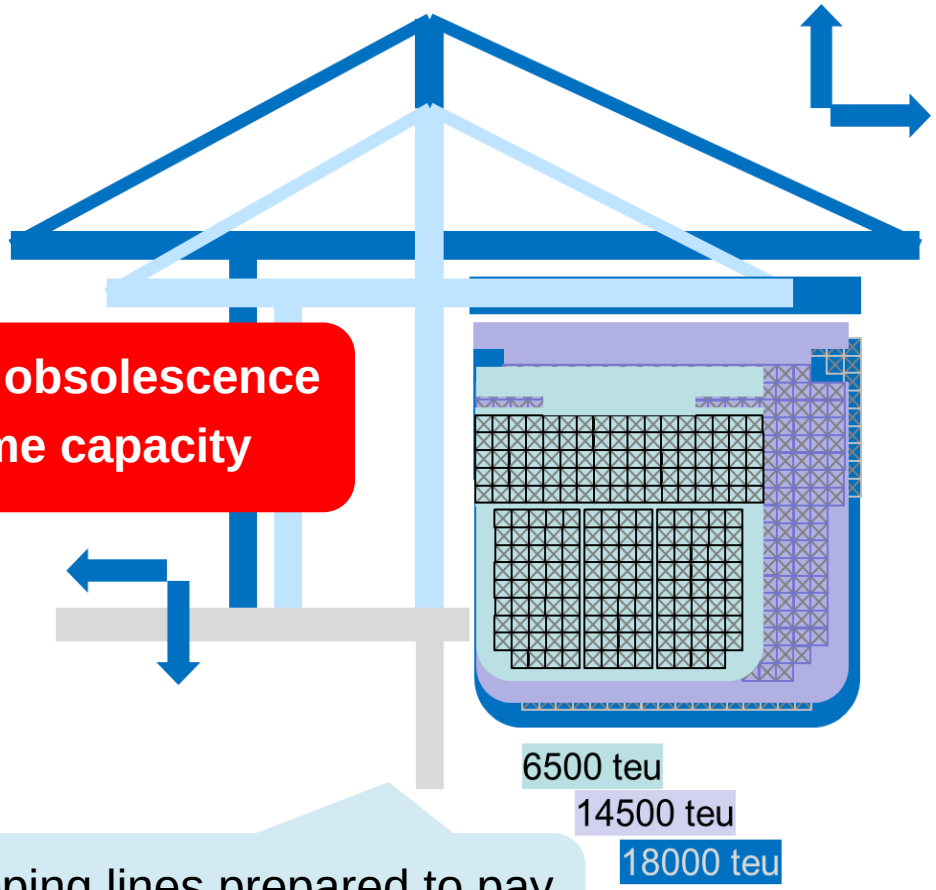


Results in demand for bigger terminals due to:

- **Consolidated volumes**
- **Annual volumes/customer increasing**

Equipment and infrastructure: 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……



Are shipping lines prepared to pay for these enhanced requirements?

Traditional ports out of the game? Ever larger ships still accessing ports with navigational, infrastructure restrictions …but for how long?

Maersk Lavras (300m LOA, 45m beam, 7,450 teu)

Complexo do Itajaí opera navios com 45 metros de boca

CLOSE ✖

Large vessels in Itajai, Brazil

MSC Loretta (300m LOA, 40m beam, 6,750 teu)

Source: Port of Itajai

Hamburg Sud 9,800 teu vessel in draft restricted Buenos Aires (at terminal using mobile harbour cranes)

Traditional ports out of the game?

Ports in north-south/secondary trade lanes currently receiving calls by 8-10,000 teu ships

Don't forget:
It's all about the cargo!

Latin America	Black Sea
Buenaventura	Constanza
Buenos Aires	Ilychevsk
Callao	Odessa
Coronel	
Iquique	**Adriatic**
Itajai	Koper
Itapoa	Rijeka
Montevideo	Trieste
Navegantes	
Paranagua	**Africa**
Rio Grande	Cape Town
Salvador	Coega (Ngqura)
San Antonio	Durban
San Vicente	Port Elizabeth
Santos	Port Louis
Sepetiba	

Source: Drewry Route Capacity Database

Challenges

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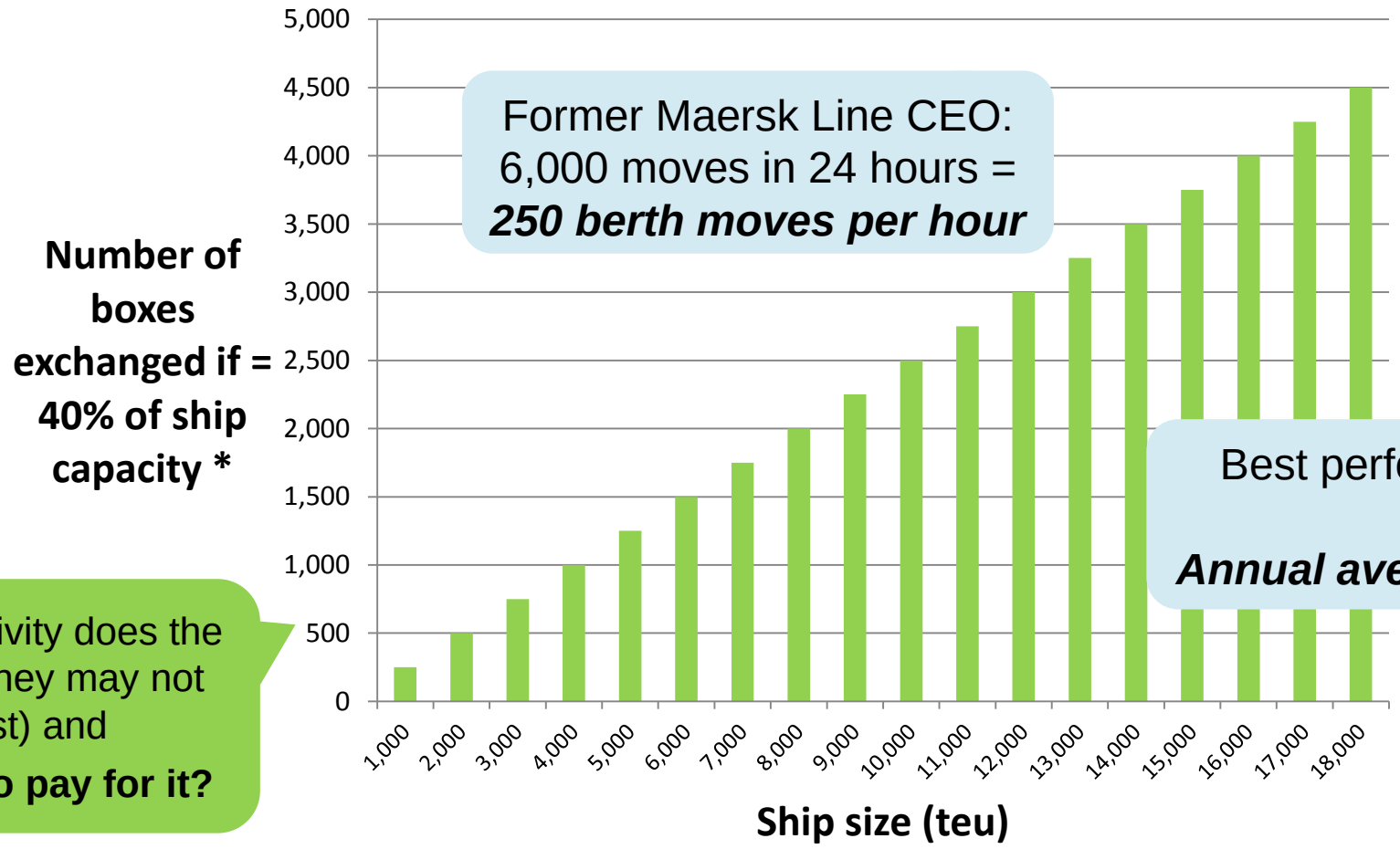
Vessel call volumes and handling speeds: the increasing disconnect (size of exchanges per vessel call get very large, very quickly)



Former Maersk Line CEO:
6,000 moves in 24 hours =
250 berth moves per hour

Best performing terminal in the world
Annual average 179 berth moves per hour **

What level of productivity does the shipping line want (they may not want the fastest) and

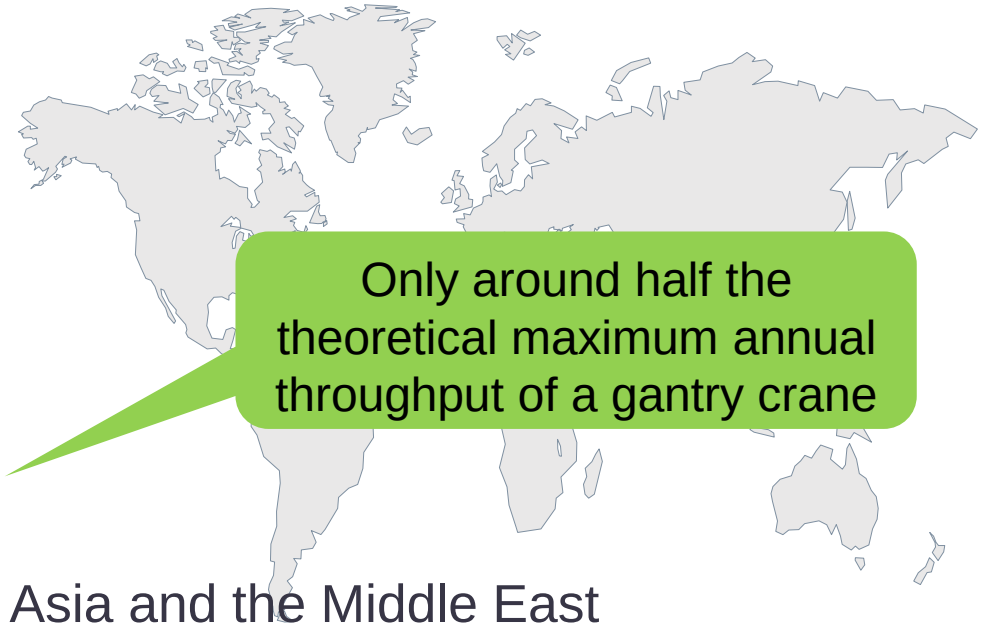
are they prepared to pay for it?

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

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

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

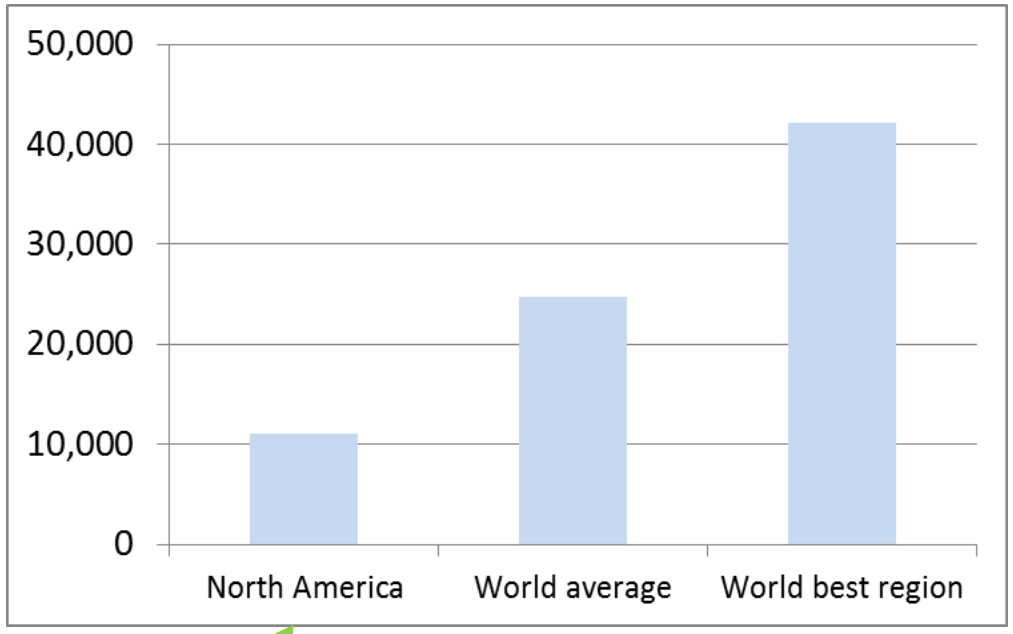
Performance measure	Global average (2013)
Teu per metre of quay p.a.	1,072
Teu per hectare p.a.	24,791
Teu per gantry crane p.a.	123,489



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

Key asset performance metrics – Regional variations: efficiency of use critical for more cargo throughput

Teu per hectare, 2013

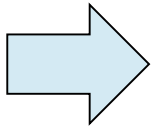


North America has the lowest figure of any region

World best region is 70% higher than world average

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

10 years ago
Australia
Germany
Netherlands
Singapore
UK



Today
Australia
Belgium
China
Germany
Japan
Netherlands
Singapore
South Korea
Spain
Taiwan
UAE
UK
USA

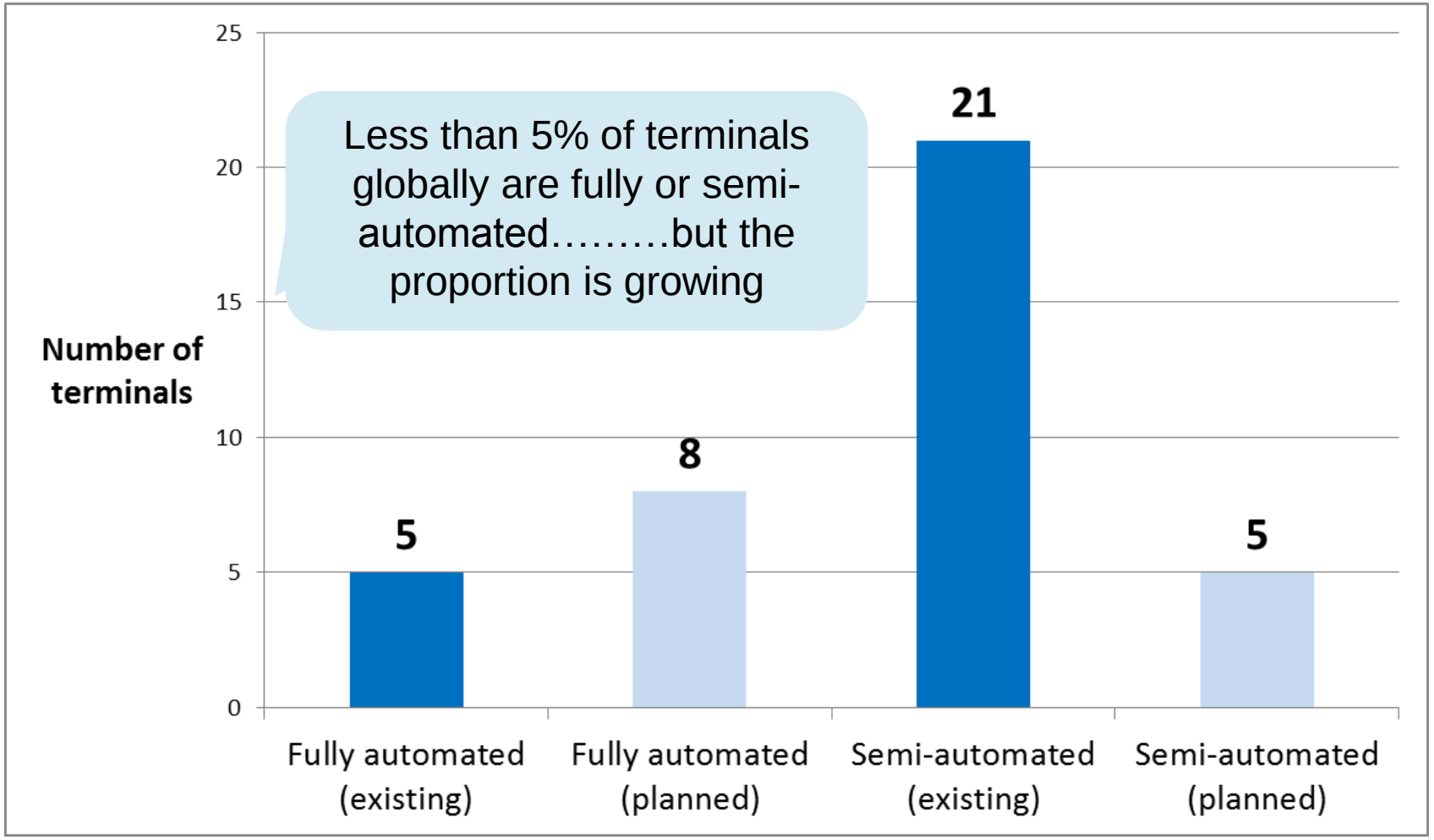
Low wage economy

Low wage economy

Picking up pace

Small number but growing

Existing and planned fully and semi-automated container terminals



Solutions

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Regional rationalisation of regional port assets

- Regional rationalisation of regional port assets
  - Transhipment
  - Gateways
  - Inland ports
  - Logistics clusters
- Private capital – PPP
- Automation
- More strategic use of port's largest asset – property for:
  - More competitive advantages
  - Increase revenues streams
  - Enhanced port values

Infrastructure investment – now beyond reach of most governments; one solution: the Colombian example

- Colombia
  - January 2012: government approves PPP law applicable to government entities at national and subnational level (No 1508), allows environmental licence and land acquisition to contractors
  - November 2012: Transport Infrastructure law (No 1682) address cost overruns, simplifies land acquisition and disposition, greatly enhances bidding mechanisms with 'cost-benefit analysis' thresholds
  - Now, there is political consensus to maintain favourable frameworks and to be proactive with concessions
  - Fourth generation of concessions will involve billions of pesos, greatly reduce large infrastructure deficit in roads, ports and airports for the country

State of Colombian port infrastructure development

- Infrastructure:
  - Government has reduced procedure for port concessions - now a single hearing required
  - Under country's nine port clusters there are 25 concession requests under consideration
  - To date: $1.645 billion has been invested by concessionaires in the ports of Buenaventura, Cartagena, Santa Marta, Baranquilla and others; Colombian pension funds have approximately 18% invested in infrastructure
  - Major oil terminals planned for Cartagena and Buenavenutra
  - MOT revelas that new investment in port concessions will add further capacity of 50.94 million tonnes to the country
  - Strategy is to make Colombia a 'great container transport hub of the Americas'
- Colombia: analysing challenges, identifying opportunities and developing solutions

- Market:
  - Business International Monitor (BMI) forecasts growth across Colombian ports in 2015 and beyond
  - Notwithstanding commodity price freefall, throughput volumes to be supported by growing dry bulk export eg, coal to China via Pacific ports
  - Port example -Cartagena: total tonnage increase by 4.5% to 21.3 m tonnes; average growth 5.3% through 2019, containers average growth 10.2% same period (currently 2.27 m teu's)

Logistics Cluster* to enhance throughput results in real estate opportunities

Clusters: art, finance, film, logistics

Florence Guilds

Film Capital
of the world

Global
Capital
Center

Memphis
Aerotroplois: Port
Memphis, Fedex, etc

* Sheffi, Yossi, 'Logsitics Clusters', 2012

Logistics Zone?

- Clusters: agglomeration of companies
- Logistics centric; singularity of purpose
- Geographic comparative advantage
- Government facilitator
- Globalization feeds logistics clusters
- Intermodal = higher velocity
- Clusters generate sub-clusters
- Net result:
  - Jobs
  - Investment
  - growth

Conclusions

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All of this will result in:

- More cargo at higher peaks and less cycles requiring more inventory, warehousing and need for real estate
- In the ‘sea – land’ equation, compression of the supply chain and relative costs will now be on the land side
- Logistics, shipping and ports industry will continue on ‘revolutionary’ rather than evolutionary track
- The future is both ‘INLAND’ and ‘IN LAND’

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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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Maritime Advisors

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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