

Container terminal capacity & performance benchmarks

TOC Europe Conference
Antwerp



8 June 2011

Why bother with industry-level benchmarking?

- To identify best practices
- To identify poor performance
- To identify the reasons for differences
- To assist in making choices/decisions
- To assist in planning
- To provide guidance to investors, port authorities etc

You can't manage what you can't measure.....



Why bother with industry-level benchmarking?

The main challenges:

- Ensuring you are always comparing apples with apples
- Access to relevant, reliable and ongoing data on an industry wide basis



Key container terminal benchmarks (non-financial)

- Crane moves per hour
- Berth occupancy ratio
- Yard occupancy ratio
- Dwell times
- Equipment availability
- Truck turnaround times
- Annual quayline performance
- Annual crane performance
- Annual yard performance

Industry-wide analysis is governed by the limited availability of data



Distinction between capacity and performance

Two different but inter-related issues:

- *Capacity – a measure of maximum volume which can be handled at an acceptable quality of service*
- *Performance – a measure of the actual effectiveness and efficiency of an operation and for customers, a reflection of the level of service they receive*

Performance analyses are influenced by terminal utilisation levels



The Drewry benchmarking analysis

- Sample of around 500 terminals worldwide
- Throughput of at least 100,000 teu p.a.
- Years 2007, 2008 and 2009
- Only terminals where ship-to-shore gantry cranes used

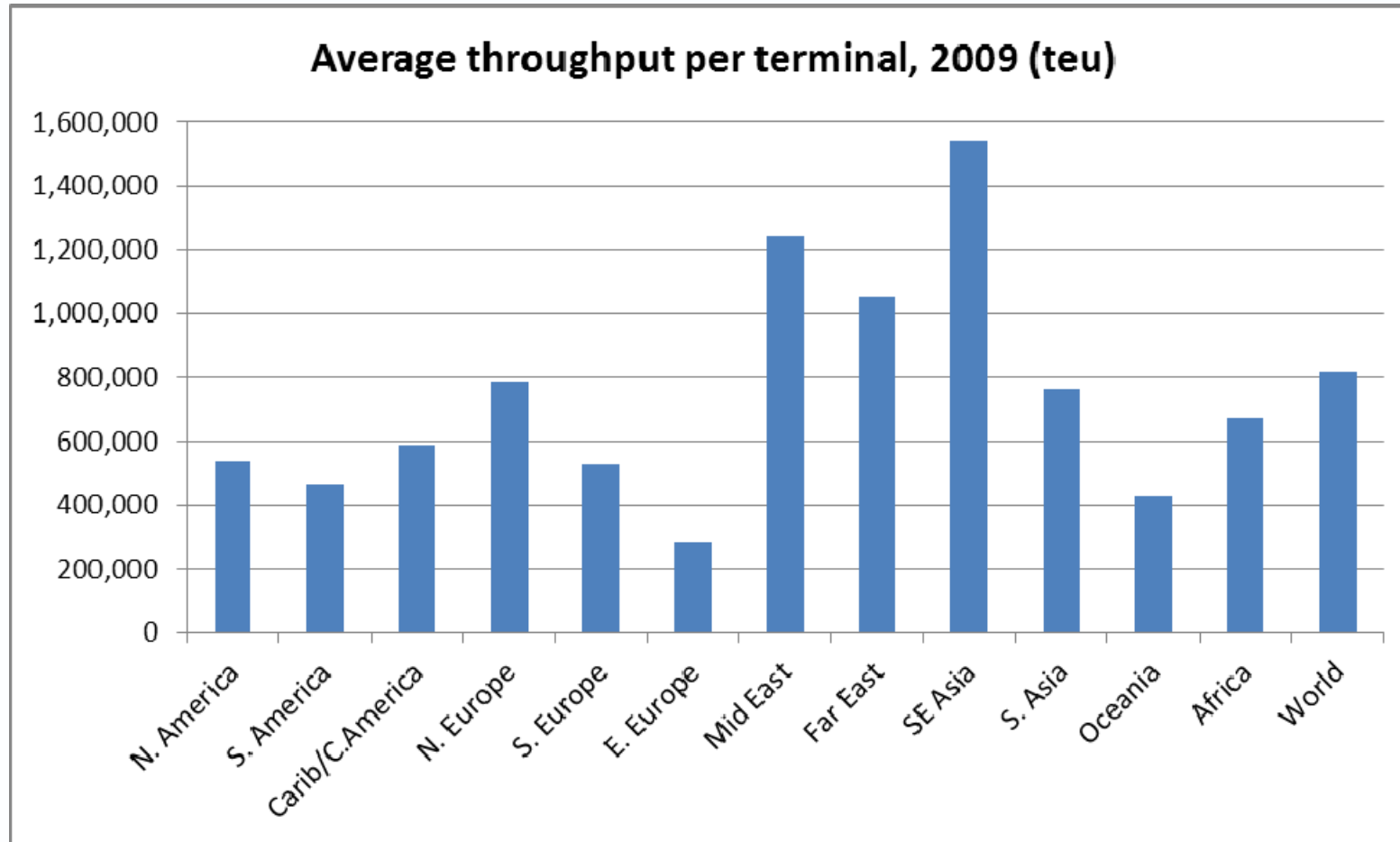


The Drewry benchmarking analysis

- By world region
- By traffic type handled (transshipment vs. gateway)
- By operator type (ITO vs. industry average)
- By terminal size:
 - Small: 100,000 – 250,000 teu p.a.
 - Medium: 250,000-750,000 teu p.a.
 - Large: Over 750,000 teu p.a.



The Drewry benchmarking analysis



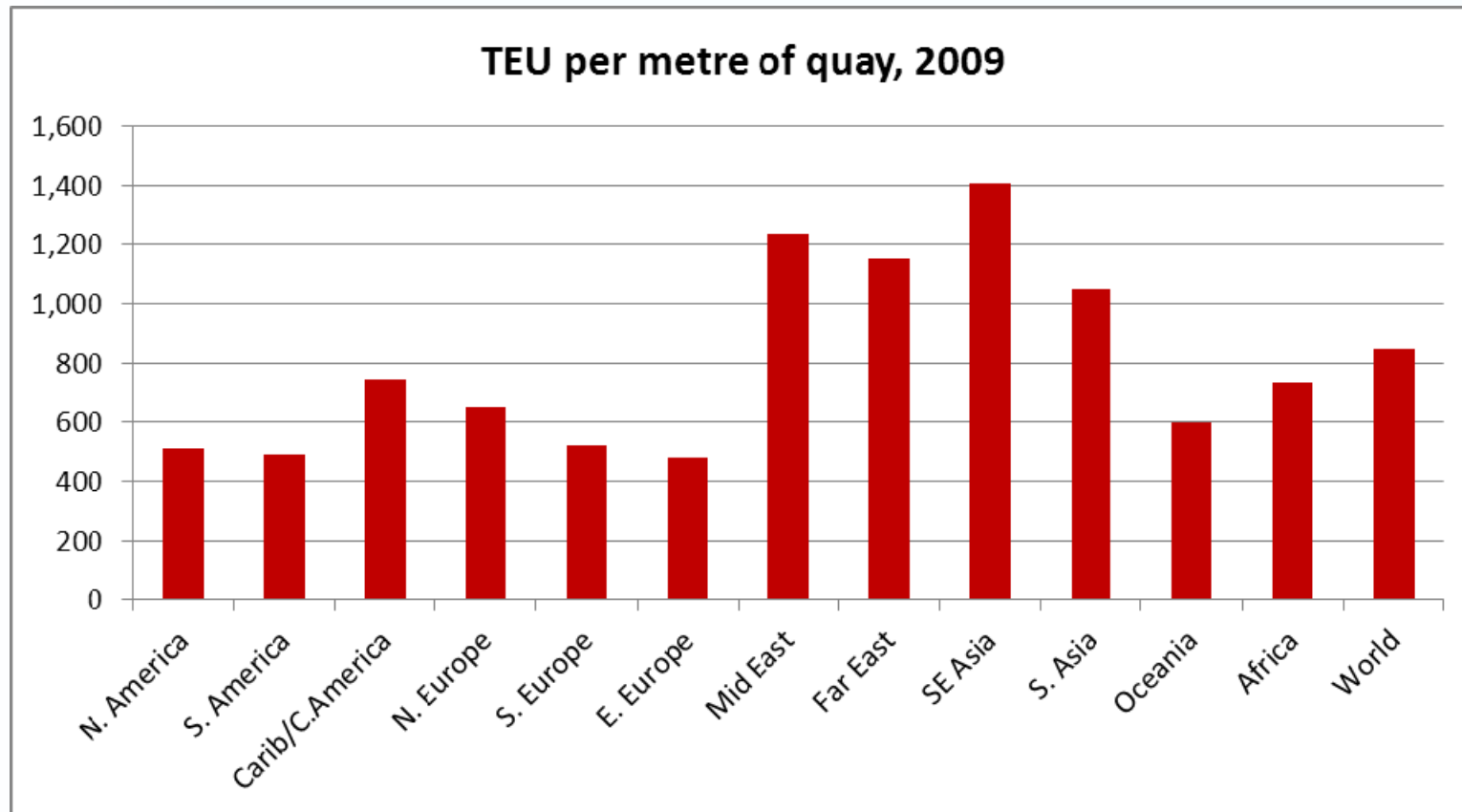
Quayline capacity benchmarks

Quayline capacity benchmarks influenced by:

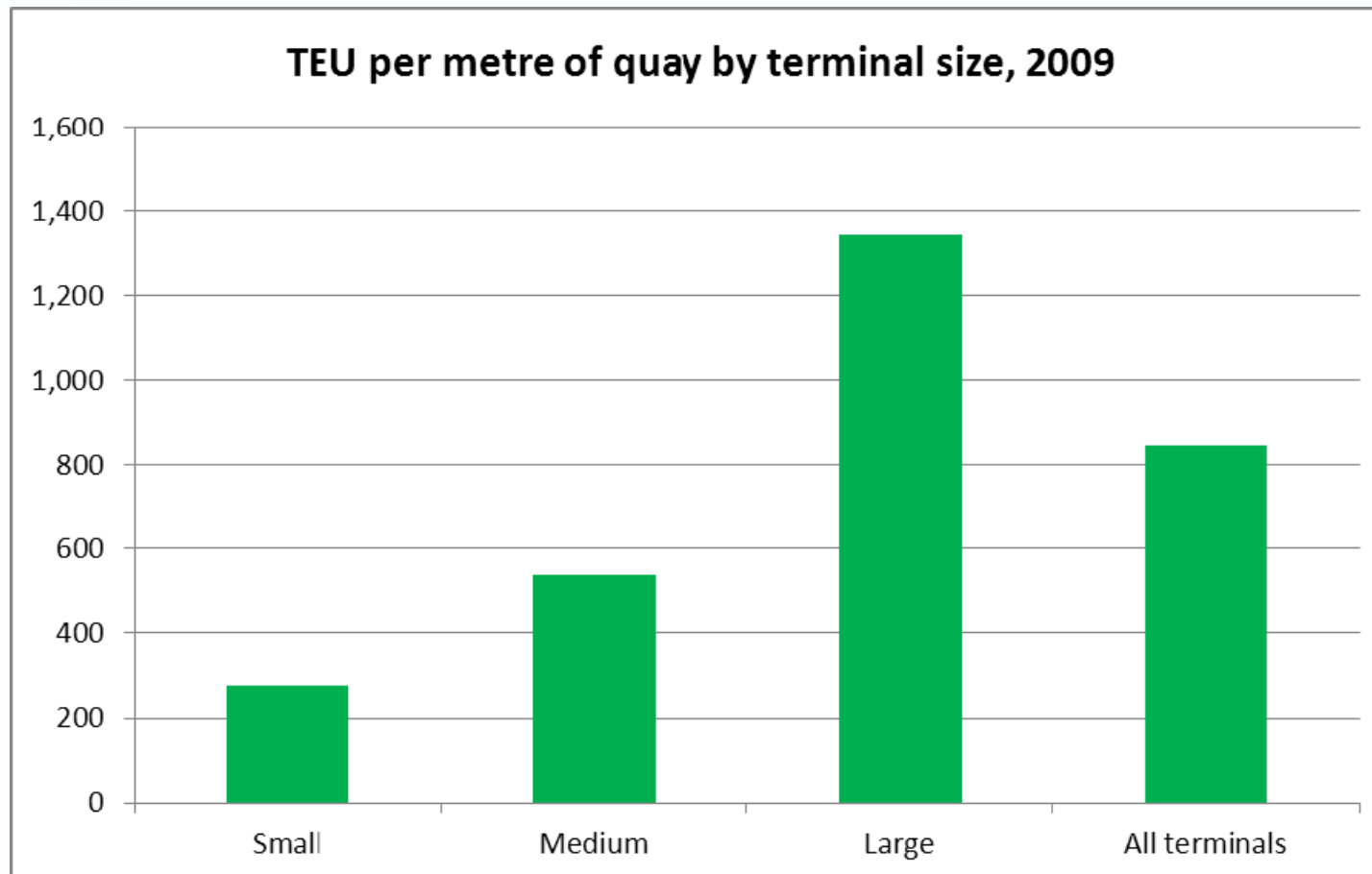
- Size of terminal
 - Traffic mix (transshipment vs gateway)
 - Dedicated or common user terminal
 - Government policy vis a vis congestion and competition
-
- Lowest end of scale: 800 teu per metre of quay p.a.
 - Highest end of scale: 1,700 teu per metre of quay p.a.



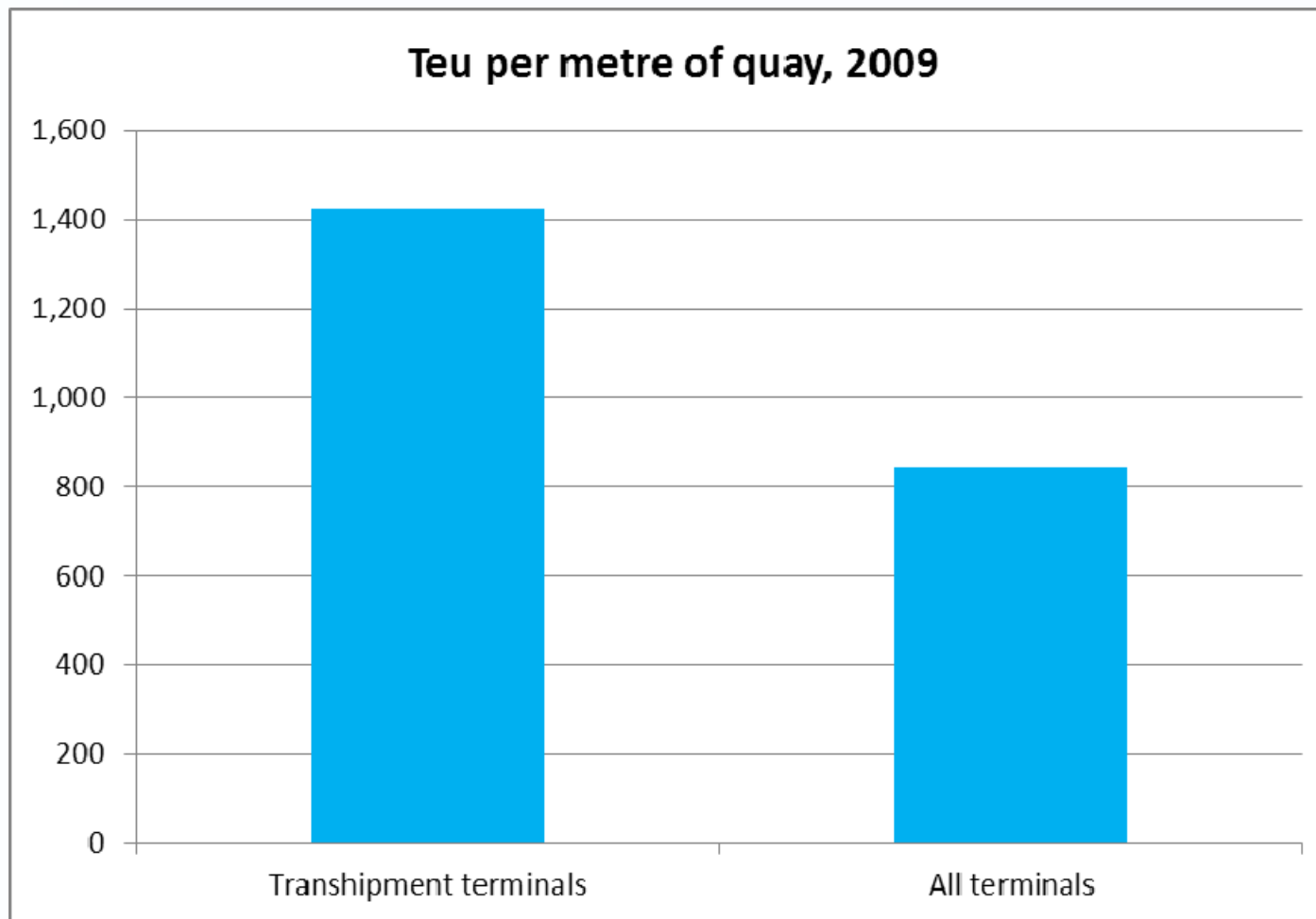
Quayline performance benchmarks



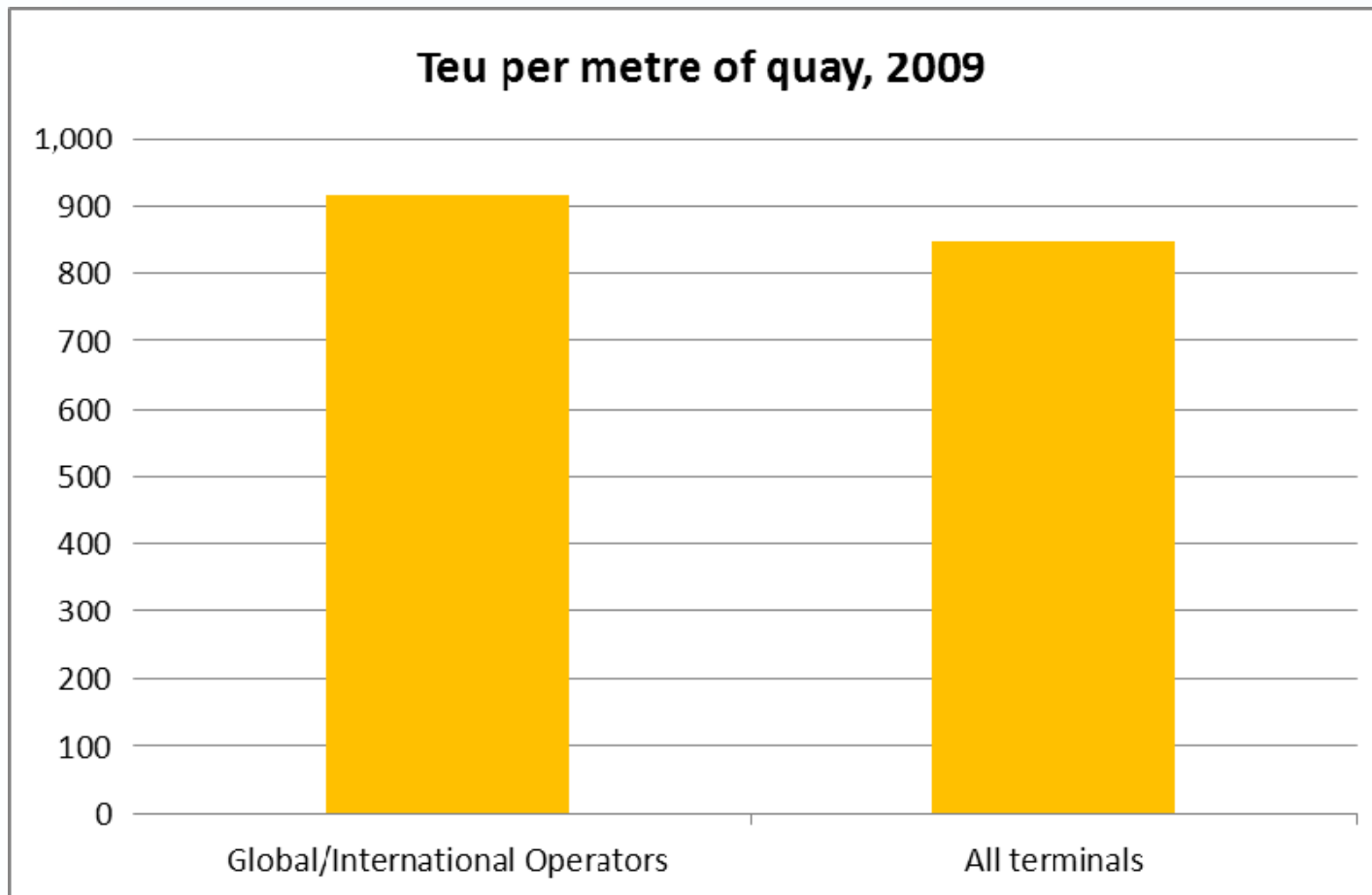
Quayline performance benchmarks



Quayline performance benchmarks



Quayline performance benchmarks



Gantry crane capacity benchmarks

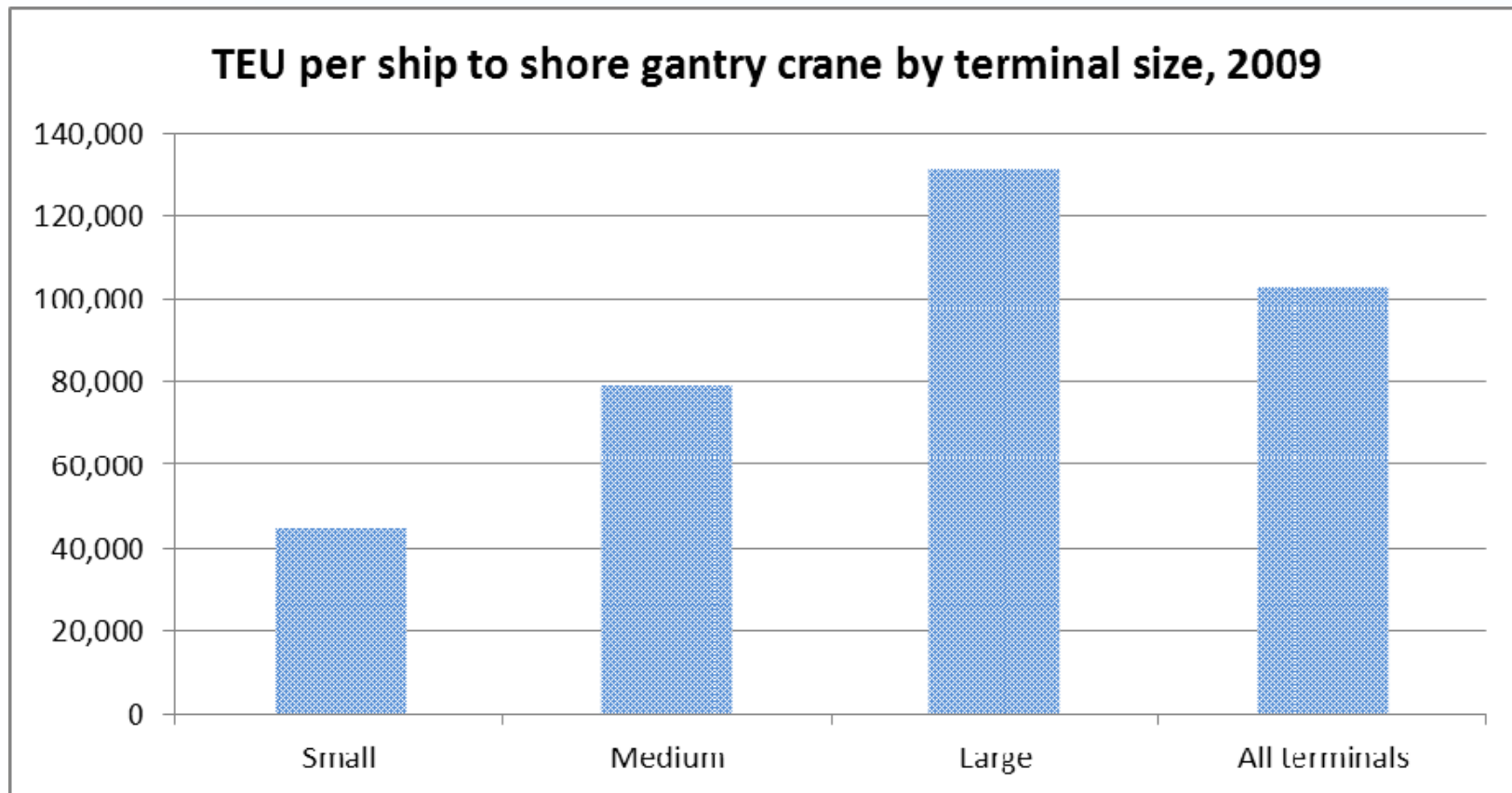
Gantry crane capacity benchmarks influenced by:

- Availability for operations (90-95% expected)
- Utilisation (66% expected)
- Moves per hour (box-teu ratio important, as is twin lifts etc)

- Range from 170,000 to 210,000 teu per crane per annum



Gantry crane performance benchmarks



Yard capacity benchmarks

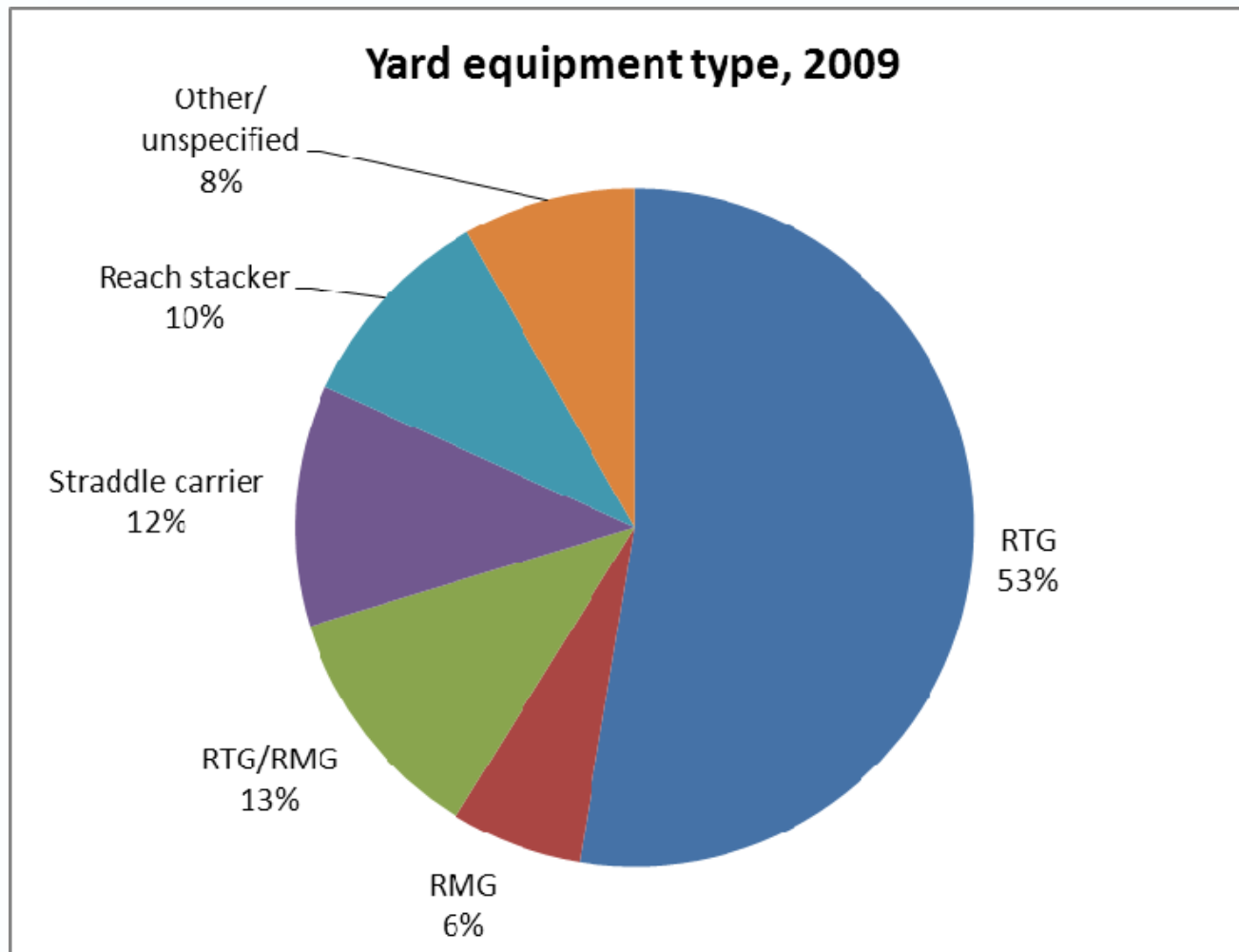
Yard capacity benchmarks influenced by:

- Equipment type e.g. RTG vs straddle
- Traffic type / Dwell times

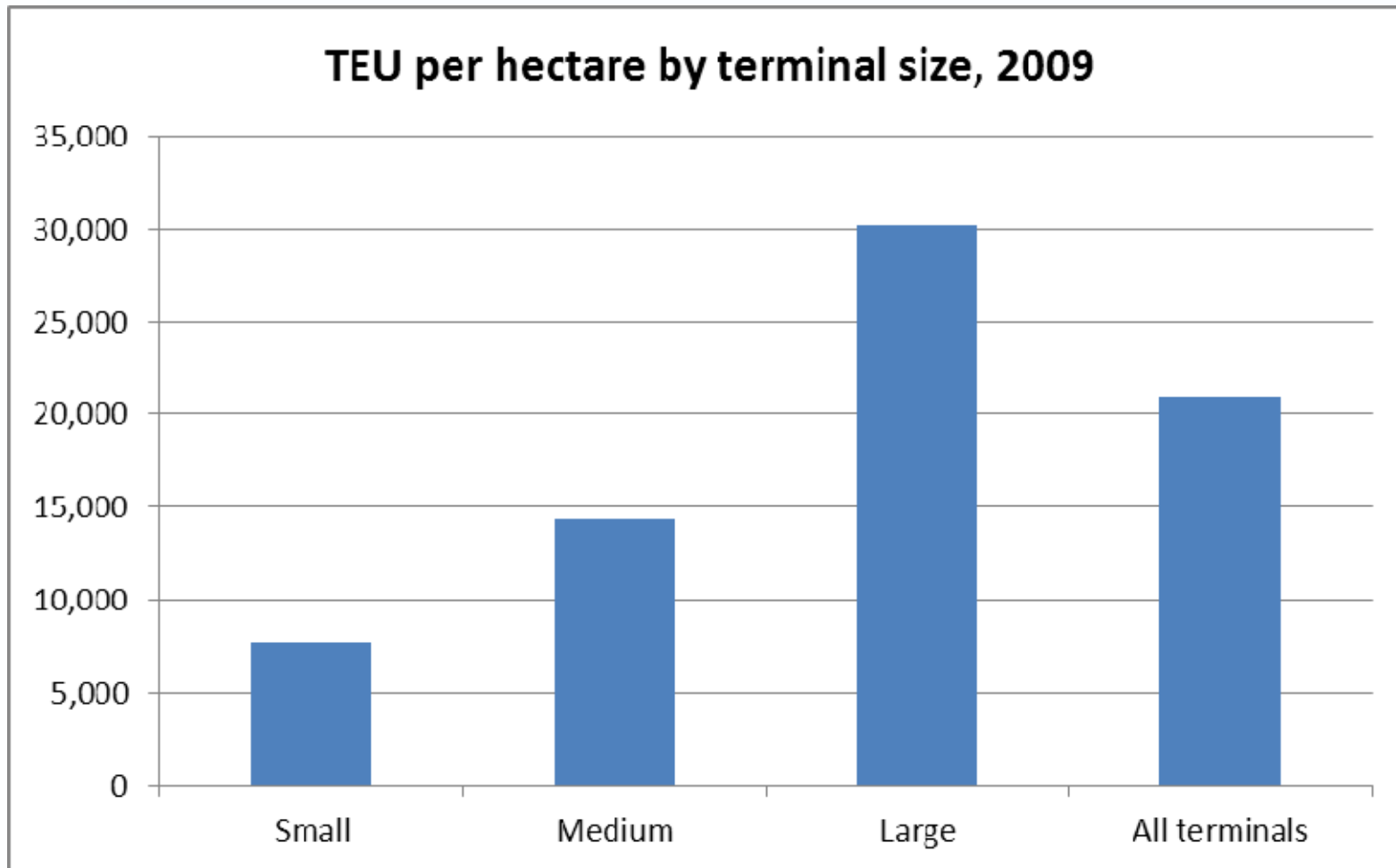
- Lowest end of scale: 600 teu per hectare (1 over 2 straddle carriers)
- Highest end of scale: 2,800 teu per hectare (RMG, 7 high)



Yard equipment type – global split



Yard performance benchmarks



Automated terminals - benchmarking analysis

2009 data	Automated terminals	Large terminals	All terminals
Teu per metre of quay	1,184	1,344	846
Teu per ship to shore gantry crane	114,833	131,457	103,224
Teu per hectare	22,799	30,171	21,004

- Only around 12 terminals worldwide with significant automation – 5 fully automated, 7 semi-automated (i.e. yard only)
- On the above measures, automated terminals perform better than the world average but not as well as large terminals in general
- Labour cost savings is the real benefit of automated terminals





Drewry - the trusted independent maritime adviser

Neil Davidson

Senior Advisor - Ports

davidson@drewry.co.uk

www.drewry.co.uk

