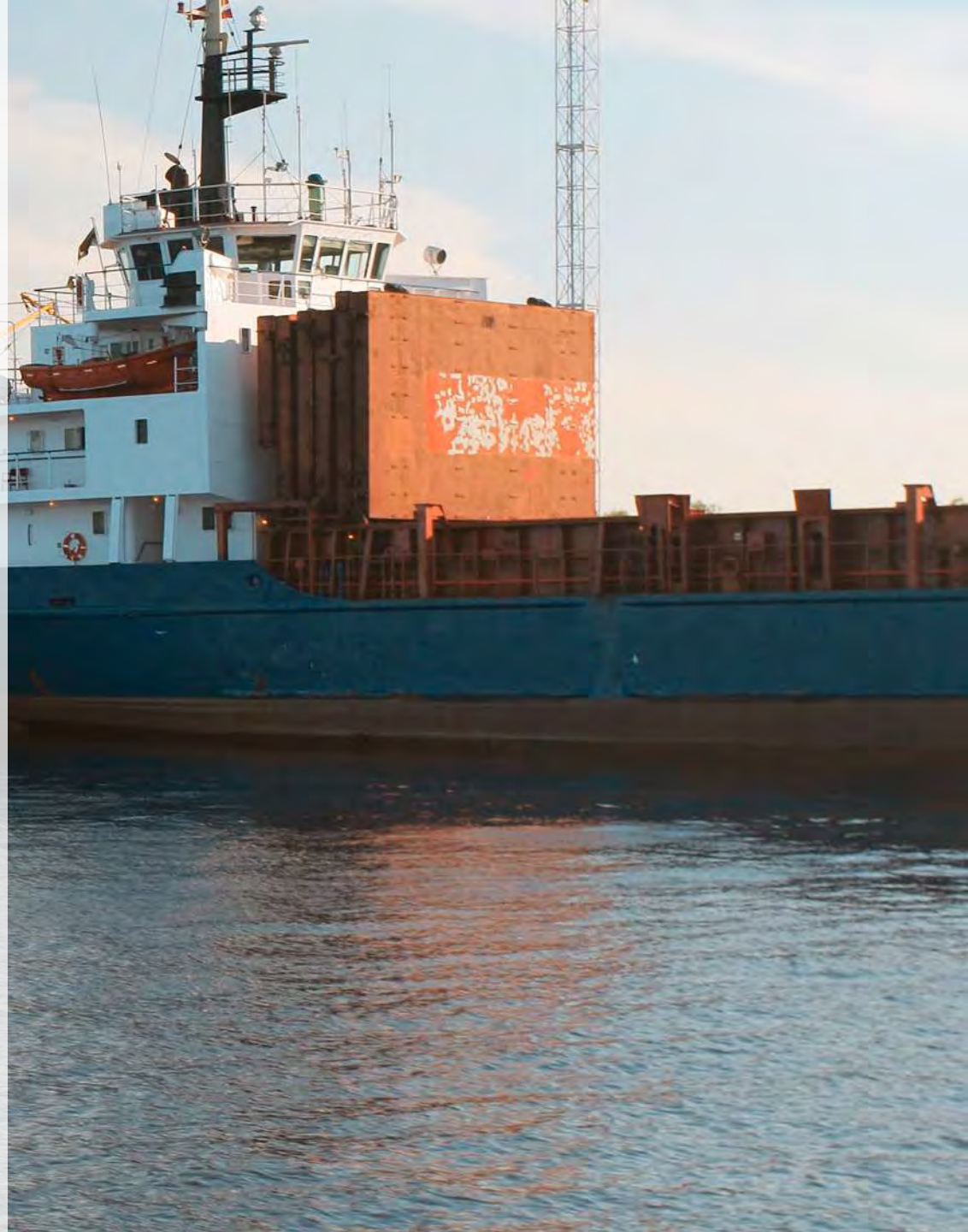

Port as engines of growth for Africa

3rd Med Port Conference

Roland Berger
Strategy Consultants

Casablanca, March 26 2015

Roland Berger
Strategy Consultants

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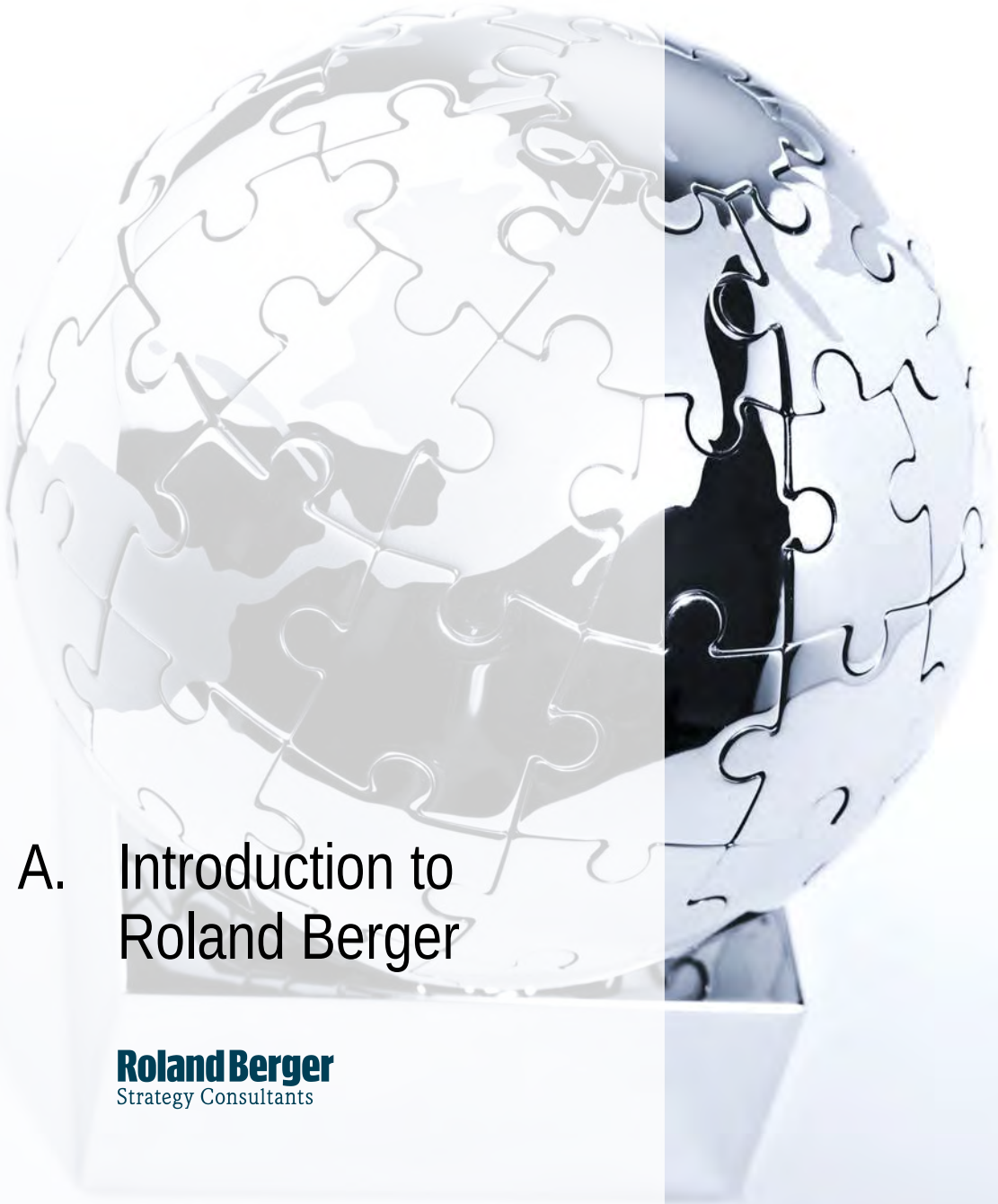


A. Introduction to Roland Berger

Roland Berger
Strategy Consultants

Roland Berger is a leading global strategy firm with successful operations in all major international markets

Our global presence
51 offices in 36 countries,
with approx. 2,400 employees

Over 220 partners with specific expertise organized in 14 competence centers

Serving over 1,000 international clients

Clients

75% repeat clients

30% of top 1,000 global companies

40% of Europe's leading companies

Source: Roland Berger

We are well positioned to help our clients succeed – Independent global rankings show we are top 3 in key consulting areas

Positioning in global rankings

- > Rigorous analysis
- > Impartial recommendations
- > Customized, workable solutions
- > Constant innovation
- > Sustainable value creation for our clients
- > Strong implementation support

You can expect innovative strategies that really work for your company

Ranking in core consulting skills

Industry & company restructuring		Score
1	Roland Berger	397
2	McKinsey & Company	388
3	KPMG	365
4	PWC	350
5	Boston Consulting Group	338

Organization & leadership		Score
1	McKinsey & Company	401
2	Roland Berger	390
3	Boston Consulting Group	376
4	Booz & Co	368
5	Bain & Company	365

Ranking in key areas of expertise

Ability to implement		Score
1	Management Engineers	388
2	Roland Berger	385
3	Oliver Wyman	343
4	A.T. Kearney	338
5	PWC	331

Thought leadership		Score
1	BCG	394
2	McKinsey & Company	391
3	Roland Berger	375
4	Bain & Company	369
5	Booz & Co.	328

Market knowledge		Score
1	McKinsey & Company	401
2	BCG	396
3	Roland Berger	367
4	Bain & Company	355
5	Booz & Co.	346

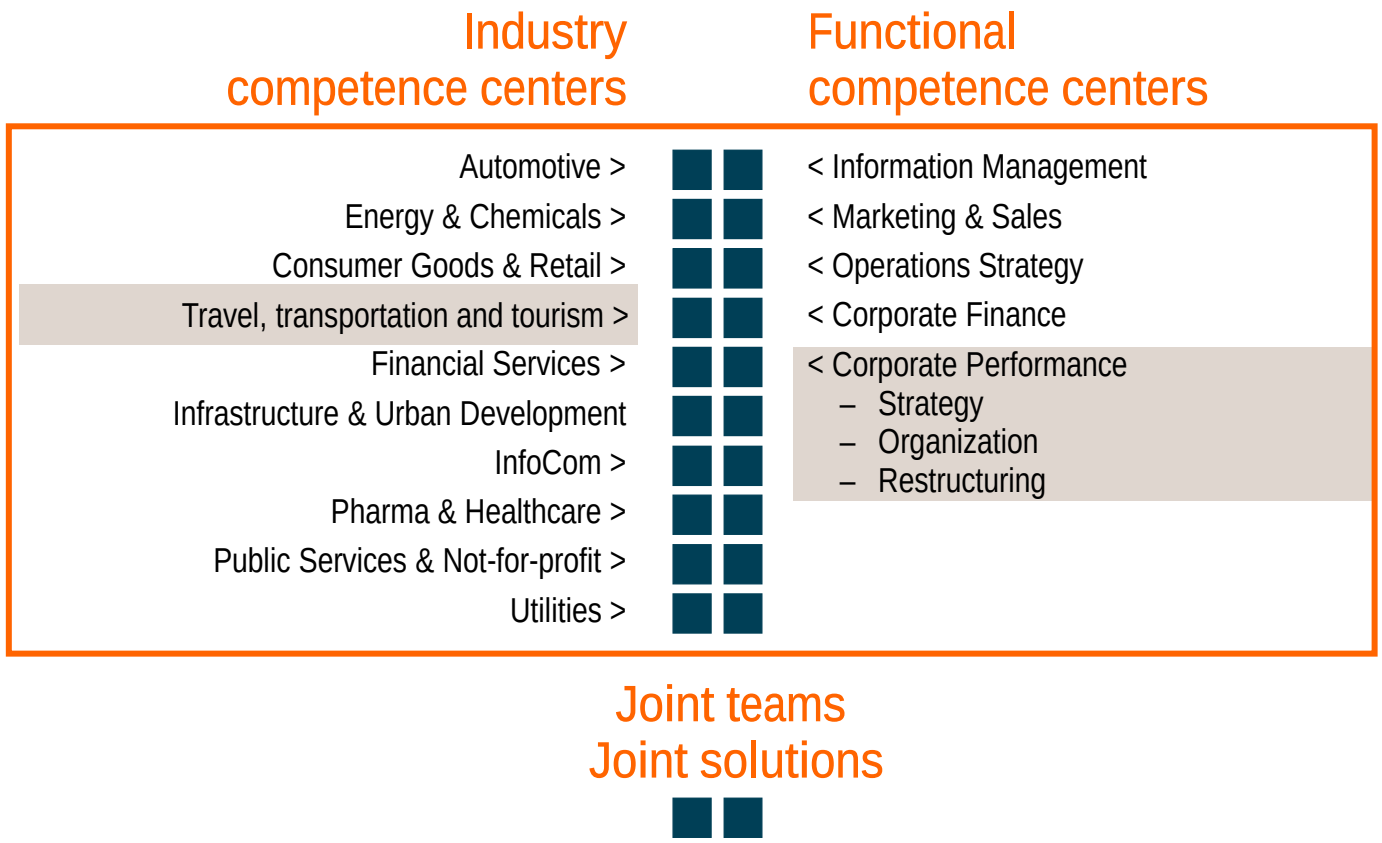
Communication skills		Score
1	Booz & Co.	355
2	Roland Berger	334
3	BCG	332
4	Management Engineers	330
5	McKinsey & Company	329

Score: 100 = very poor skills; 500 = very strong skills

Source: Firmsconsulting 2012, WGMB; Prof. Fink, 2011

We offer a unique combination of functional expertise and relevant industry and sector experience

Roland Berger Competence Centers by industry and function



> Methodological competence and approaches

> In-depth understanding of industries and their main players

> Combination of industry expertise and functional know-how

Source: Roland Berger

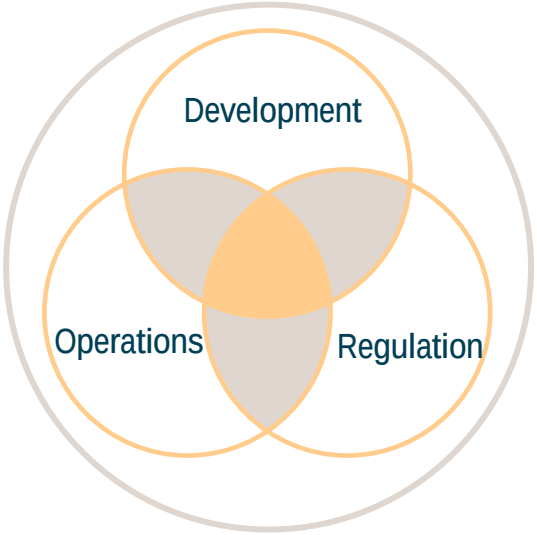
We have assisted many port & terminal investors in making smart investment decisions and developing sustainable businesses

Focus Areas – where we have deep experience and expertise

> Port master planning
> Market studies, traffic forecasting
> Acquisition targets scanning and strategies
> Business planning

> Conceptual spatial masterplan
> Due diligence, strategic reviews
> Physical re-development planning

> Corporate/business strategy
> Operational improvement
> Operating performance, KPIs



> Institutional review
> Port management model design

> Regulatory review
> Policy advisory
> Tender process and negotiations

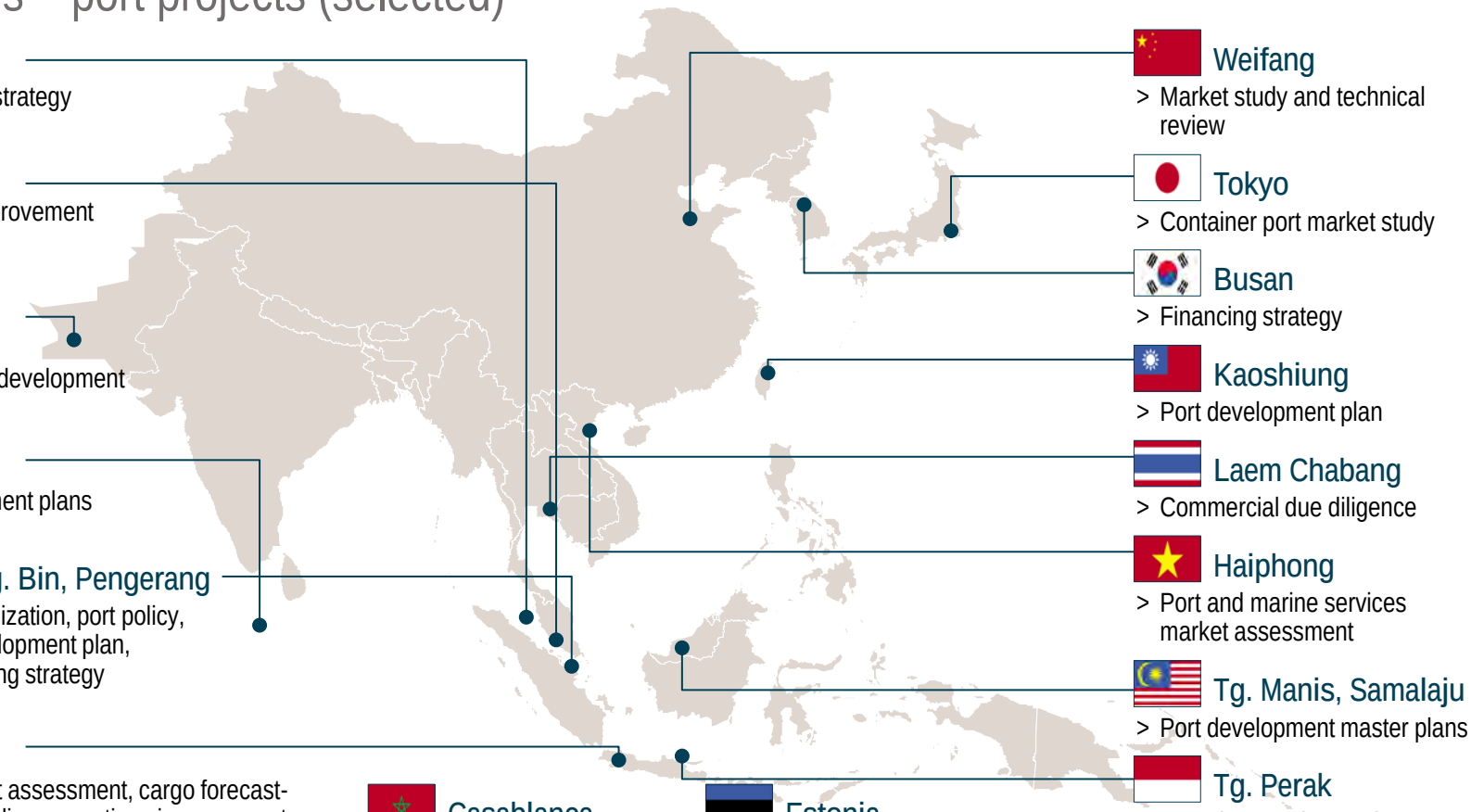
> Pricing strategies
> Concession design
> Port privatization studies

> Regional economic development strategy
> Integrated logistics strategy
> Regional/national port development planning

Source: Roland Berger

Our team has successfully completed a significant number of projects for ports throughout Asia, as well as beyond

Credentials – port projects (selected)



Penang
> Port turnaround strategy

Klang
> Performance improvement strategies

Gwadar
> Master plan and development strategy

Maldives
> Port re-development plans

Johor, Tg. Bin, Pengerang
> Business rationalization, port policy, strategic re-development plan, cargo warehousing strategy

Tg. Priok
> Container market assessment, cargo forecasting feasibility studies, operations improvement
> Container forecast breakdown by commodity and by region

Weifang
> Market study and technical review

Tokyo
> Container port market study

Busan
> Financing strategy

Kaoshiung
> Port development plan

Laem Chabang
> Commercial due diligence

Haiphong
> Port and marine services market assessment

Tg. Manis, Samalaju
> Port development master plans

Tg. Perak
> Container market study

Outside Asia

Casablanca
> Business plan review

Estonia
> Market assessment study

Source: Roland Berger

Our team has worked with many of port authorities, global ports, shipping lines and maritime companies

Selected clients in the maritime industry/transportation

Port authorities

Conglomerates

Port operators

Shipping liners

Shipyards

Logistics service providers

Maritime transportation

Suppliers

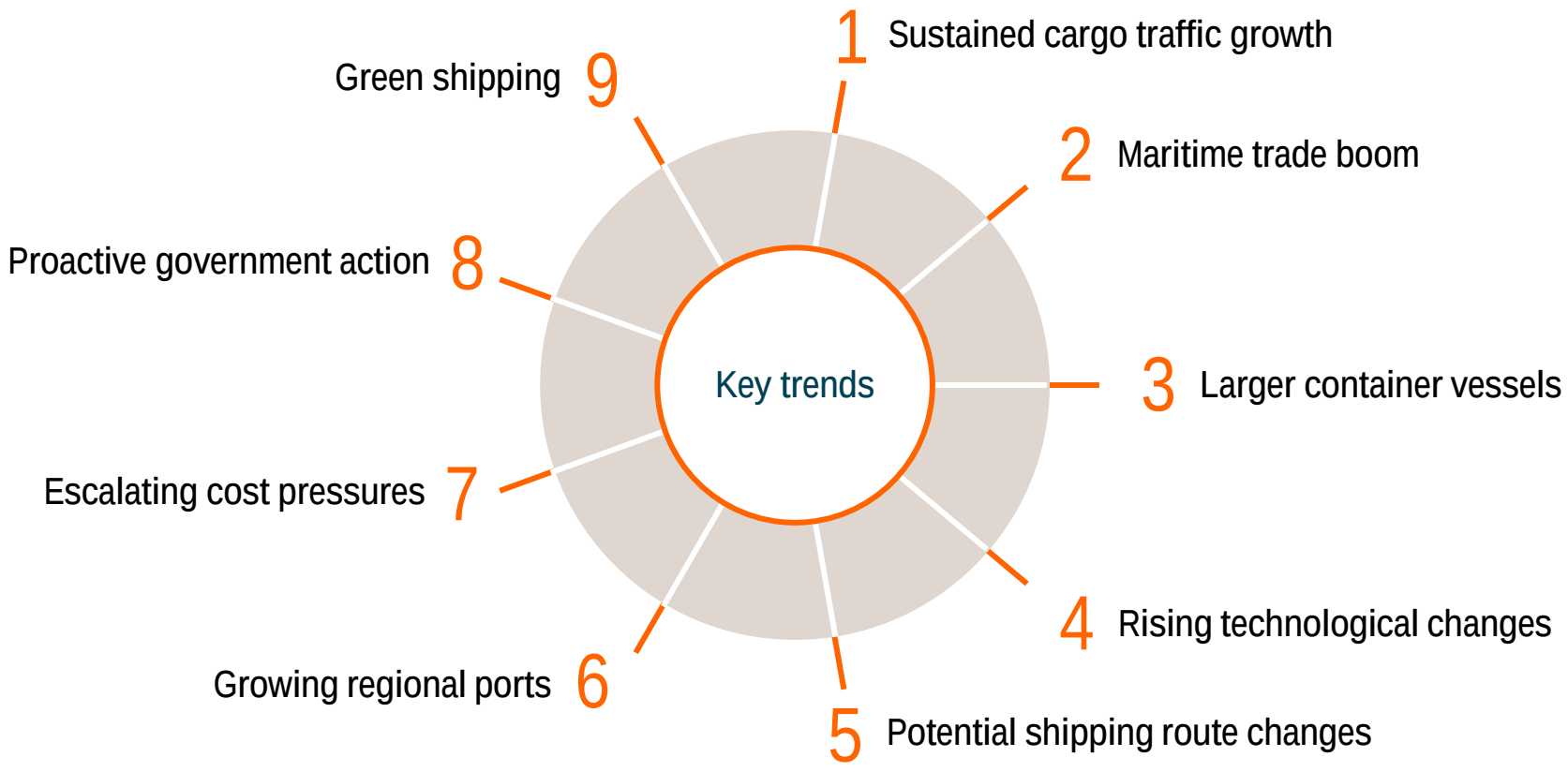
Source: Roland Berger

B. Global trade trends

Roland Berger
Strategy Consultants

Nine key industry trends will underpin the short, medium and longer term of global maritime landscape

Industry trends

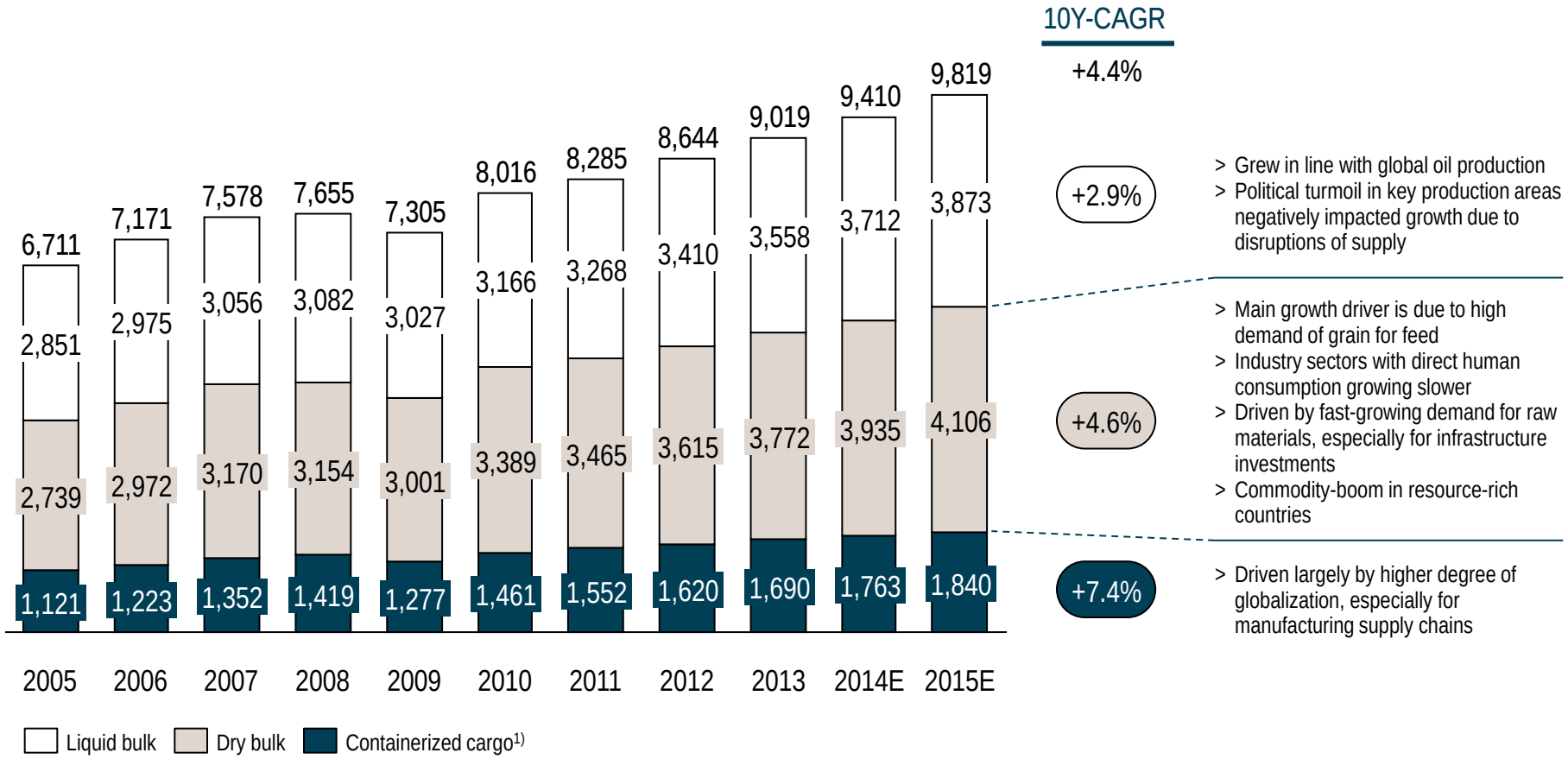


Source: Roland Berger

Roland Berger
Strategy Consultants

Global shipment demand has expanded by 4.4% CAGR in the past decade, bolstered by strong growth in containerized cargo

Global shipment demand, 2005 – 2015 [m MT]



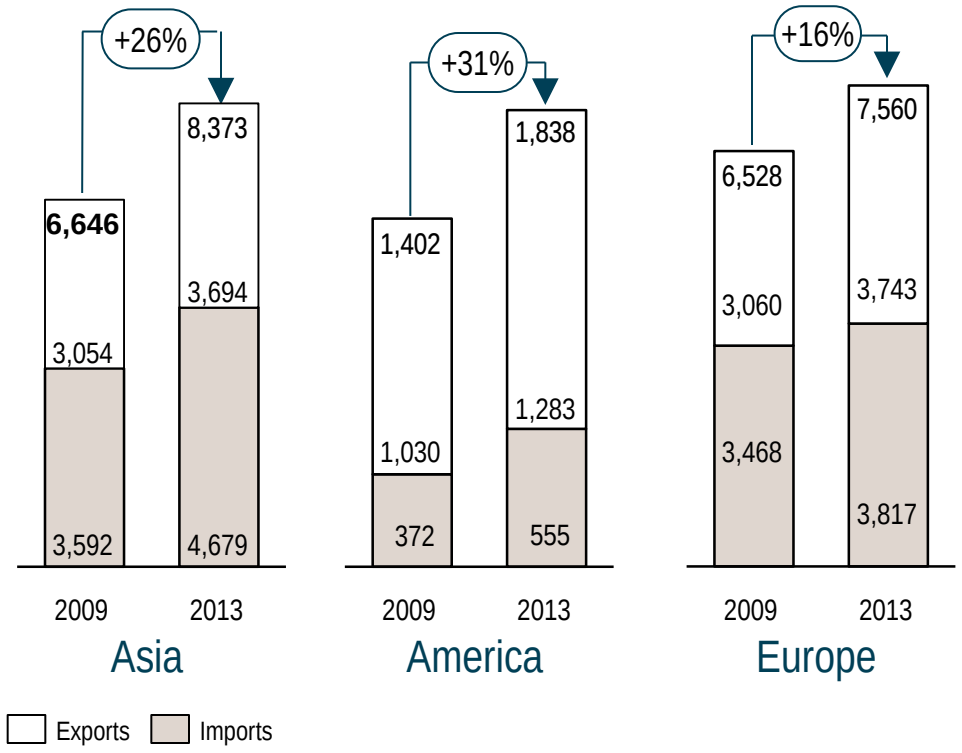
1) including general cargo

Source: UNCTAD; Roland Berger analysis

Roland Berger
Strategy Consultants

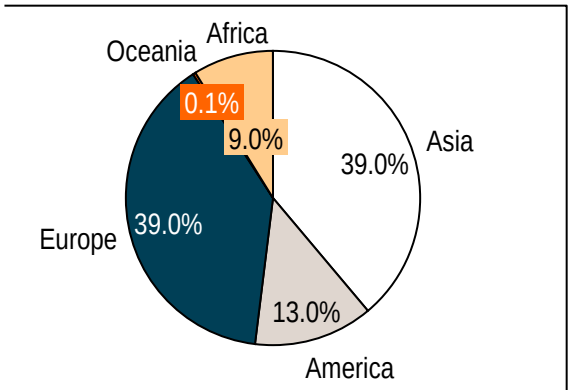
Asia accounts for the largest portion of global maritime trade, recording steady growth in its market share

Total maritime trade by region [m Tons]

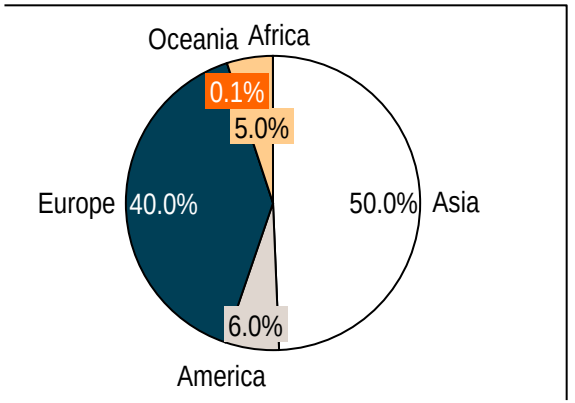


Share of world maritime trade [2013%]

Exports



Imports

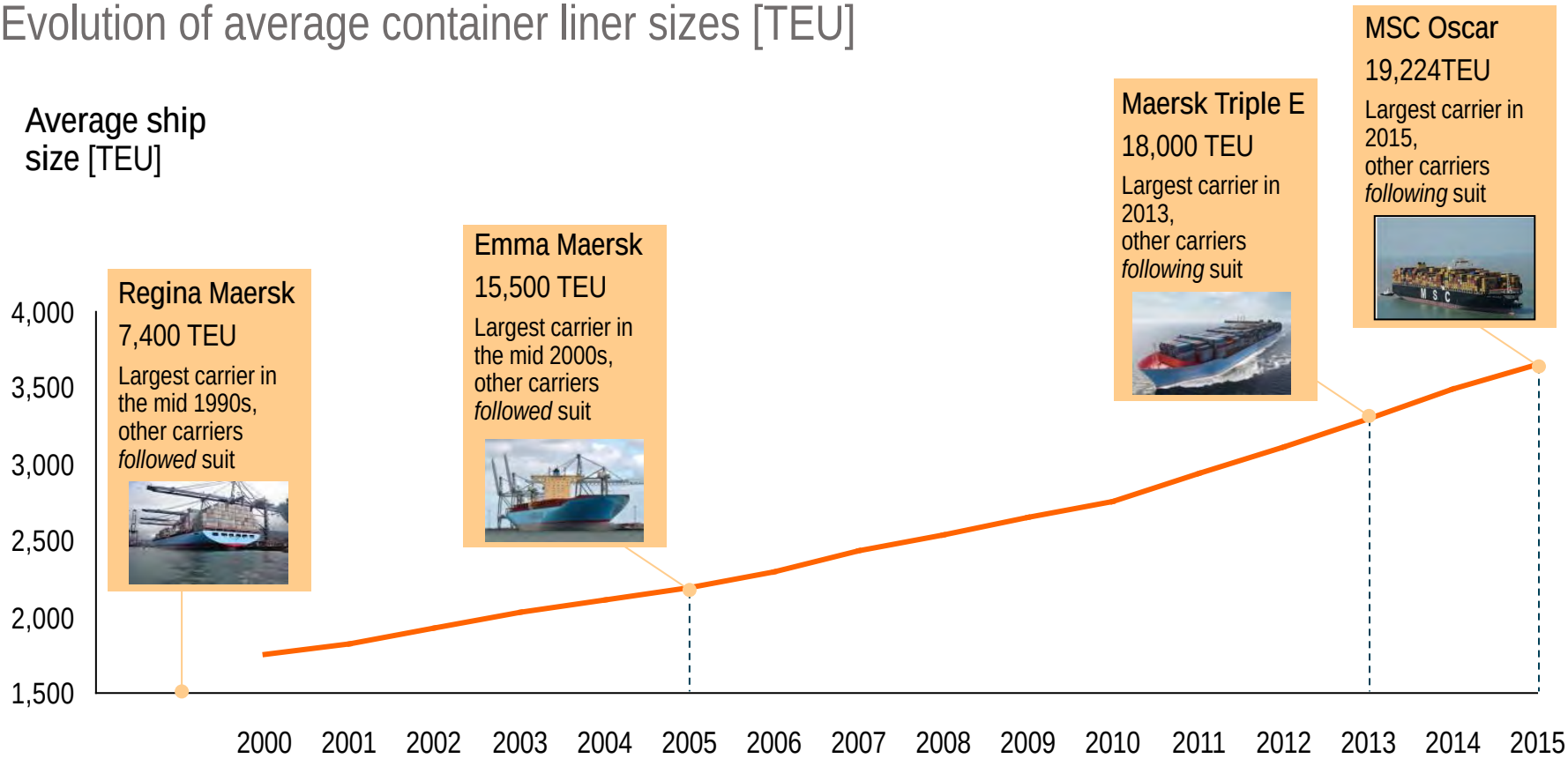


Source: Review of Maritime Transport 2013; UNCTAD; Roland Berger

Roland Berger
Strategy Consultants

Looking back the past decade, there has been a clear and consistent trend in the industry towards larger container liner sizes…

Evolution of average container liner sizes [TEU]



> Average size of container vessels has steadily grown over time
> When a market leader introduces a significantly larger vessel into the market, other players eventually follow suit

Source: Alphaliner; Drewry Maritime Advisors; Roland Berger

Roland Berger Strategy Consultants

… driven by high bunker costs causing a shift towards ultra-large container ships and wide beam vessels for unit cost advantages

Attractiveness of vessel classes (selected examples)

Ultra-large container ships (10,000+ TEU)

- > **Unit cost advantages** (economies of scale, lower consumption) – but **only if fully utilized**!
- > Operational **challenges**: stowage, draft, crane reach, terminal productivity, etc.
- > As a result, their **use** has so far been **limited** to Far East-Europe routes
- > But from 2016 there will be **only** 10,000+ TEU vessels on **Far East-Europe** routes

Wide beam vessels (up to 9,000 TEU)

- > Size ratio offers better **stability**, optimum **load capacity**, lower **consumption**
- > Growing interest, even some **speculative orders** (e.g. Oceanbulk/Oaktree Capital)
- > **Versatile** when faced with operational restrictions: Latin America, India, Black Sea
- > **Panama Canal** extension is **helping demand**: wide-beam vessels can use it from 2015

Panamax class (up to 5,000 TEU)

- > **Charter rates at a low** (especially 4,800-5,100 TEU maxi-Panamax), little scrapping
- > Being displaced by **more efficient** 7,000-9,000 TEU **vessels** as a result of **cascading**
- > US east coast: Larger vessels rerouted through **Suez instead of Panama Canal** (e.g. Maersk)
- > Further overcapacity from 2015: **Panama Canal extended** for vessels up to 13,000 TEU

Feeder fleet (up to 1,000 TEU)

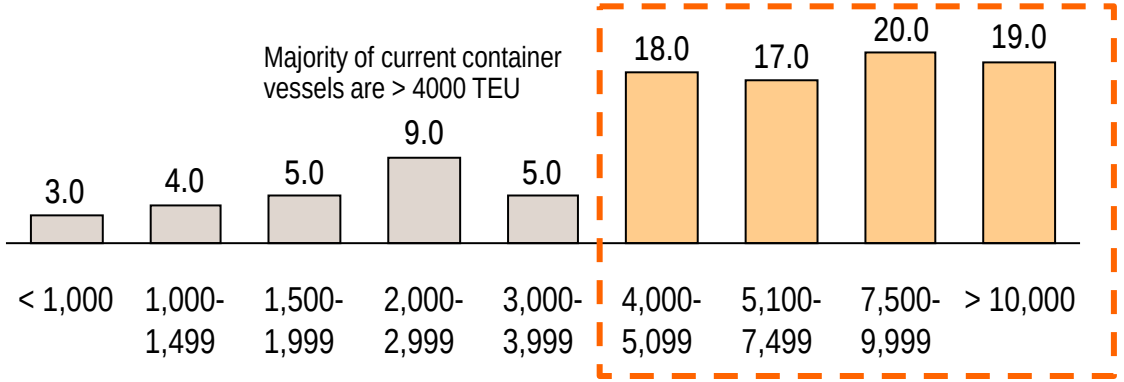
- > 773 vessels with 500-999 TEU segment, of which **58 vessels** (7.5%) **are idle** (Jul/Aug 2013)
- > Regional feeder services and short-sea shipping increasingly have **larger tonnage**
- > **Reduction in feeder demand** in Europe (e.g. Maersk Line: mainliner into the Baltic Sea)
- > Additional pressure: More than 100 **multi-purpose vessels** in use as container vessels

Source: Alphaliner; Roland Berger

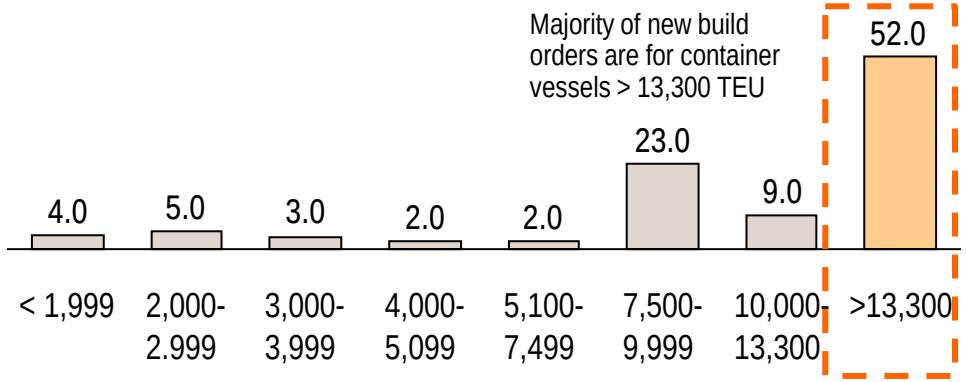
Roland Berger Strategy Consultants

The fleet profile of the future will feature a greater proportion of ULCVs, with implications on port planning, design and operations

Current fleet profile breakdown[1] [TEU, %]



Orderbook fleet profile breakdown[1] [TEU, %]



Key implications:

- > Port planning & operations
  - – Deeper drafts, longer berths, wider channels etc.
  - – Higher gate pressure – needs increased productivity, larger capacity equipment, greater inter-modal capacity
- > Vessel cascading
  - – Vessel upsizing on corresponding spoke routes
- > Rationalization of shipping routes
  - – Re-drawing of hub and spoke alignments; some hubs dropped

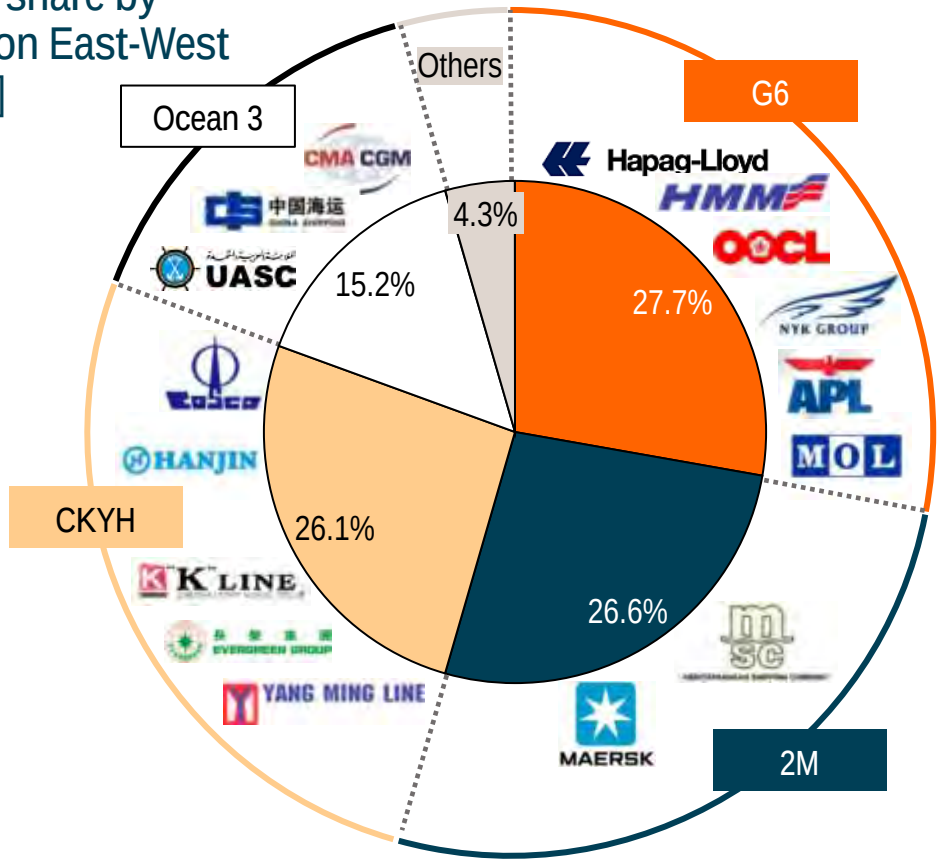
Note: ULCV – Ultra large container vessels > 10,000 TEU
1) Breakdown by total capacities in TEU. Based on data as on 1 March 2013.
Source: Alphaliner; Roland Berger

Roland Berger Strategy Consultants

The trend towards ultra-large container vessels drives the forming of alliances among liner operators to achieve greater scale

Trends in alliances

Capacity share by Alliance on East-West trades[%]



- > **Pursuit of scale** has led towards even **larger vessel sizes**
- > In order to **fill the ships**, **reduce operational risks** – liners have entered into **operating, non-commercial alliances** with each other
- > Since 2011, the **trend towards alliancing has intensified** – there remains 4 major alliances controlling > 95% of market share
- > Others are under pressure to "join the pack"

Increased leverage of liner alliances over port operators

Source: Alphaliner; Roland Berger

Roland Berger
Strategy Consultants

However, the implications alliances will have on the port industry still remains unclear

Alliances: Implications

	The hope: Alliances will reduce rivalry and stabilize prices for the good of all...	...but: based on experience to date, there may not necessarily be any improvement
Price	> Informal price/capacity agreements within the alliances **stabilize freight rates** > Market clout and slot cost advantages of 2M/G6 compel all carriers to practice **more price discipline**	> No decrease in overcapacity – **volatile freight rates** to continue in the battle for utilization > The continued loss of differentiating features **amplifies** the **price war**
Efficiency	> More **cost efficiency** through better utilization + economies of scale (purchasing)	> **Unit cost** advantage of 2M may force competitors to place new orders for **more efficient** ULCS
Capacity	> Coordination of **new builds** – alliance partners no longer need to react to one another	> Standalone carriers/smaller alliances expand **capacity** in order to keep up with the big ones
Consolidation	> Growing cost pressure drives "genuine" **industry consolidation**	> Alliances **reduce consolidation pressure** (network synergies via alliances rather than M&A)
Terminals	> Consolidation may **strengthen carriers' positions** towards terminals in some ports…	> …but could **shift balance of power** towards 2M in other ports

Source: Roland Berger

Roland Berger Strategy Consultants

Changes in regulation and the continuous pursuit of cost efficiency will drive future technological innovation

Technological trends

Regulation

> Historically, **technology adoption** in the maritime sector most **strongly influenced** by **regulatory changes** – often as a consequence of accidents/incidents
> Increased implementation of **environmental regulation** will drive research and innovation in **new emissions control technologies** and **advanced fuel technologies**

Advanced fuel technologies
Solar sails ship, low carbon fuels e.g., LNG ships, slow steaming, electric ships

Automation
Increased automation of port land and marine operations

Environmental technologies
Selective catalytic reduction converters to reduce NOx, low energy ship design e.g., improved hull design reduces drag

Information technology
Ship voyage real time tracking, voyage optimization by using latest ocean and weather data, e-Navigation

Cost efficiency

> The continuous **pursuit of greater cost efficiency** and savings will drive innovation
> The **maturity stage** of individual technologies **affects** costs and its subsequent **adoption**
> Increased drive for cost efficiency will drive research in **advanced fuel technologies** due to **high fuel costs** as well as increased adoption of **automation** and ICT

Source: Roland Berger

Roland Berger Strategy Consultants

While Johor / Singapore remains an important hub for east-west cargo flows, alternative trade routes may arise in the future

Cargo flows – East Asia

Promising economic rise

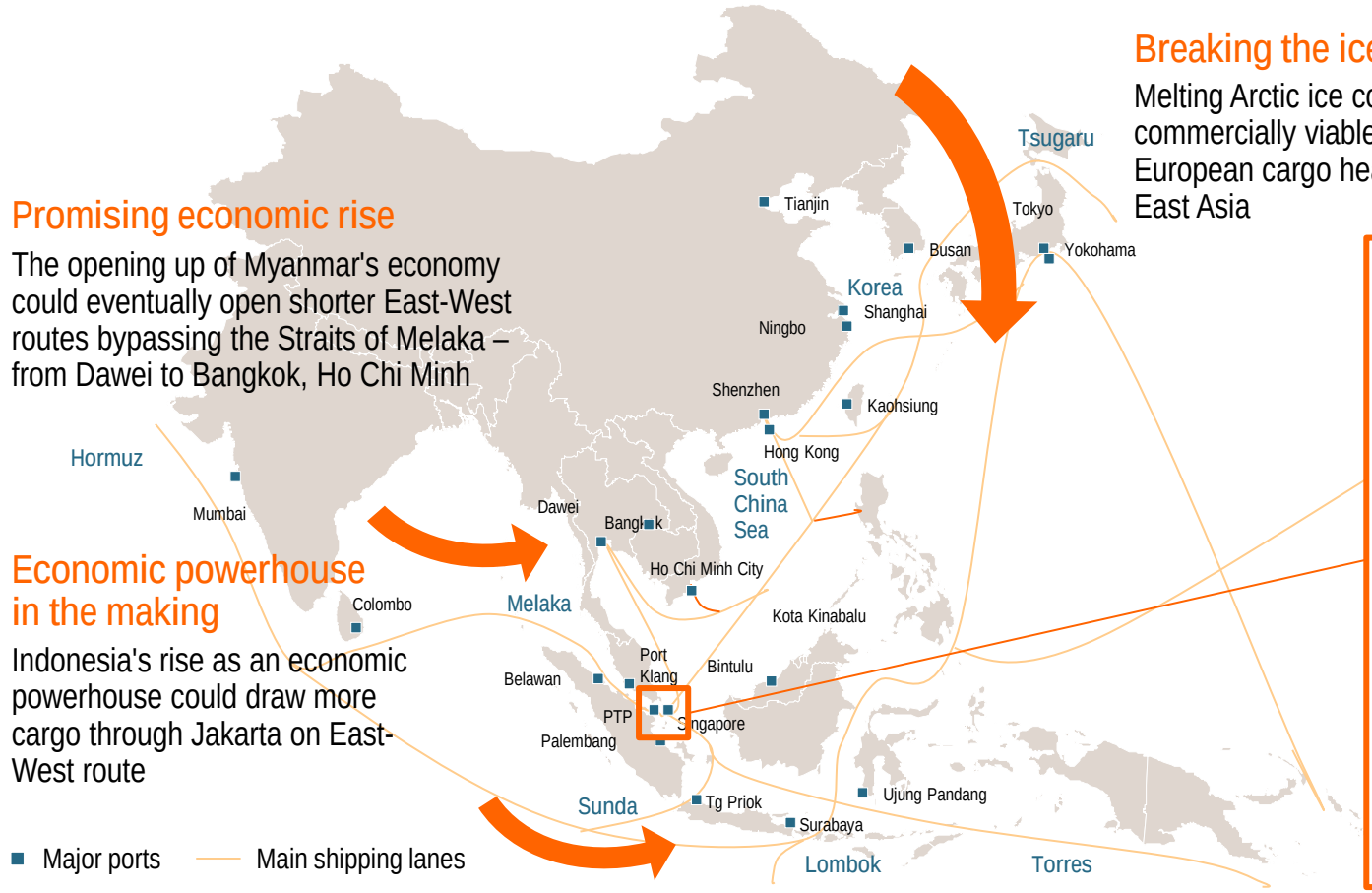
The opening up of Myanmar's economy could eventually open shorter East-West routes bypassing the Straits of Melaka – from Dawei to Bangkok, Ho Chi Minh

Economic powerhouse in the making

Indonesia's rise as an economic powerhouse could draw more cargo through Jakarta on East-West route

Breaking the ice

Melting Arctic ice could open commercially viable trade routes for European cargo heading towards North East Asia



Johor / Singapore basin – Pre-eminent trade hub

> Situated along main East-West trade route – 30% of world trade passes through the Straits of Melaka
> Natural mid-point between 2 key growth markets – India & China
> Strong inter and intra-regional trade flows in ASEAN
> Crossroads for Middle East – America west coast

Sources: UNCTAD, Roland Berger

Roland Berger Strategy Consultants

Next to China, Southeast Asia has recorded the second-highest throughout for regional container activity

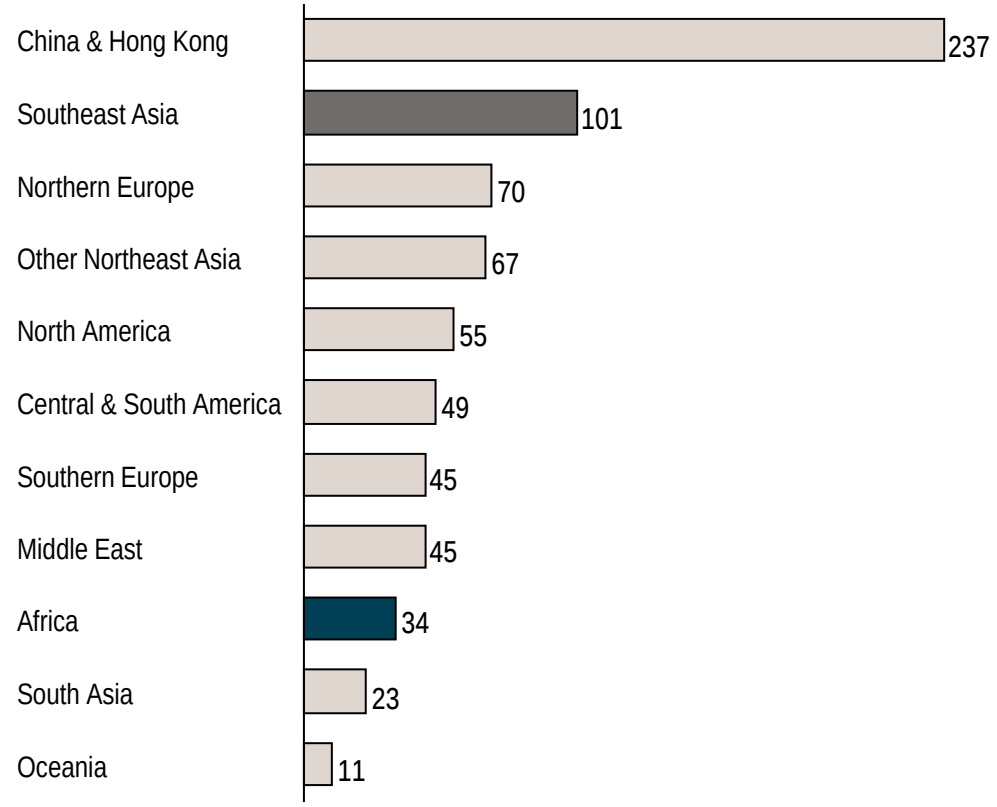
Global container activity

Top 20 ports in the World, 2014 [m TEU]

Shanghai	35.2
Singapore	33.9
Shenzen	24.0
Hong Kong	22.2
Ningbo-Zhoushan	19.4
Busan	18.6
Qingdao	16.6
Guangzhou	16.1
Dubai	15.2
Los Angeles / Long Beach	15.2
Tianjin	14.0
Rotterdam	12.3
Port Klang	10.9
Kaohsiung	10.6
Dalian	10.1
Hamburg	9.8
Antwerp	8.9
Tanjung Pelepas	8.5
Xiamen	8.5
Laem Chabang	6.5

Southeast Asian ports

Regional container activity, 2015[1)] [m TEU]



1) Forecasted figures

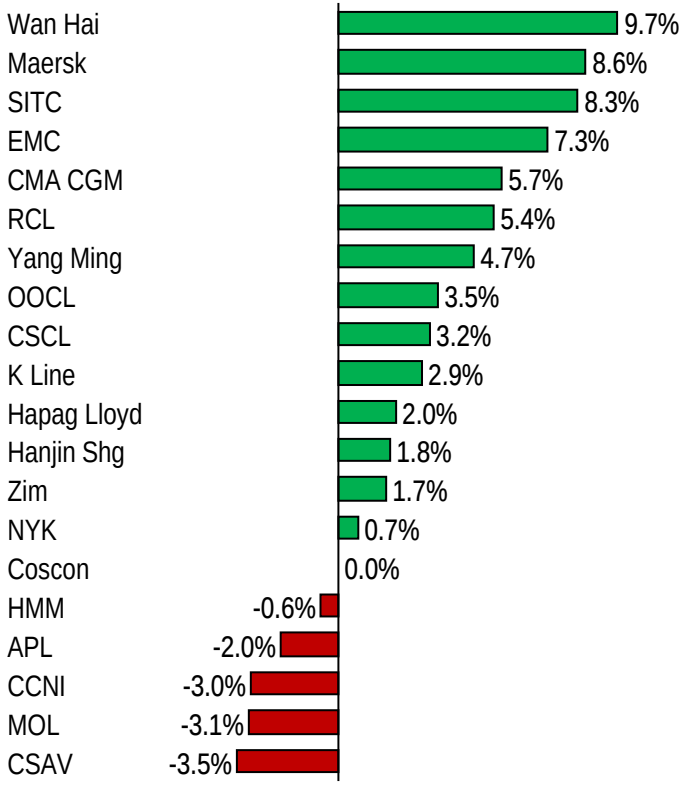
Source: Alphaliner, Roland Berger

Roland Berger
Strategy Consultants

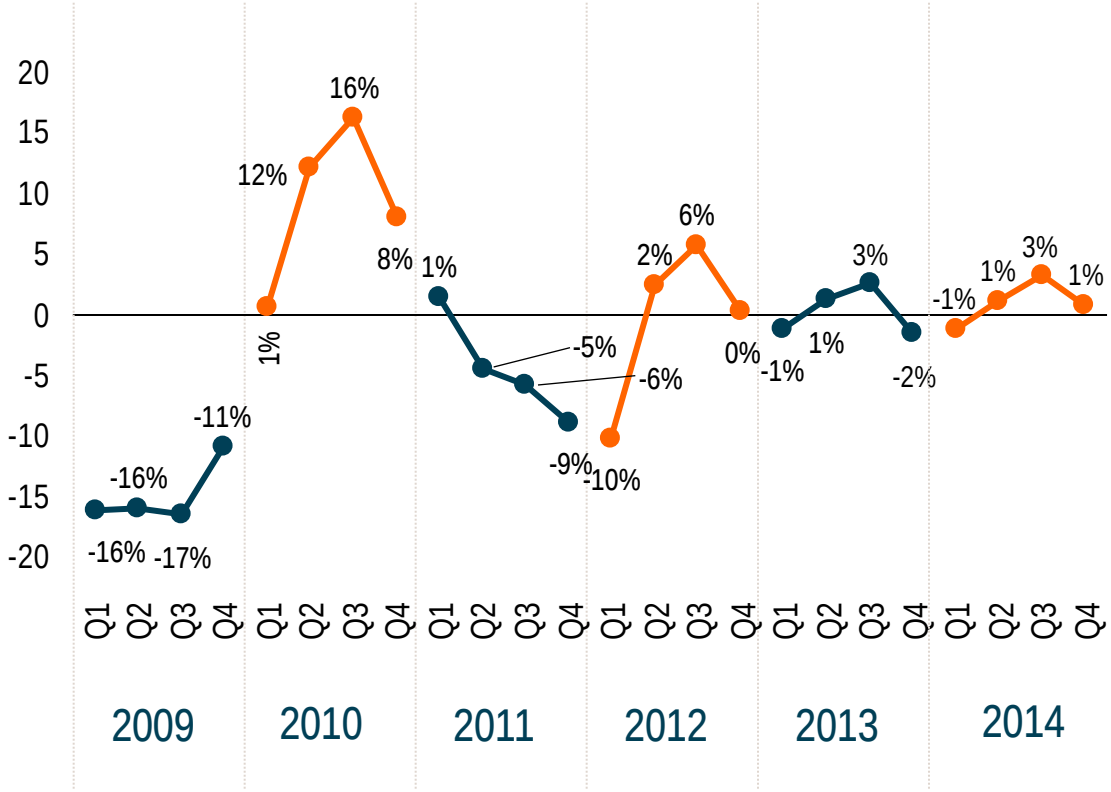
Shipping lines continue to record negative operating margins, with continued pressure of cost escalations and increasing competition

Historical financial performance of shipping lines

Shipping lines operating margin, 2014 [%]



Average operating profit margin[1], 2009 -2014 [%]



1) Average for APL, CMA CGM (fr 2010), CCNI, CSAV, CSCL, EMC, Hanjin, HMM, Hapag-Lloyd, KL, Maersk, MOL, NYK, RCL, WHL, YML, Zim

Source: IMF, Roland Berger

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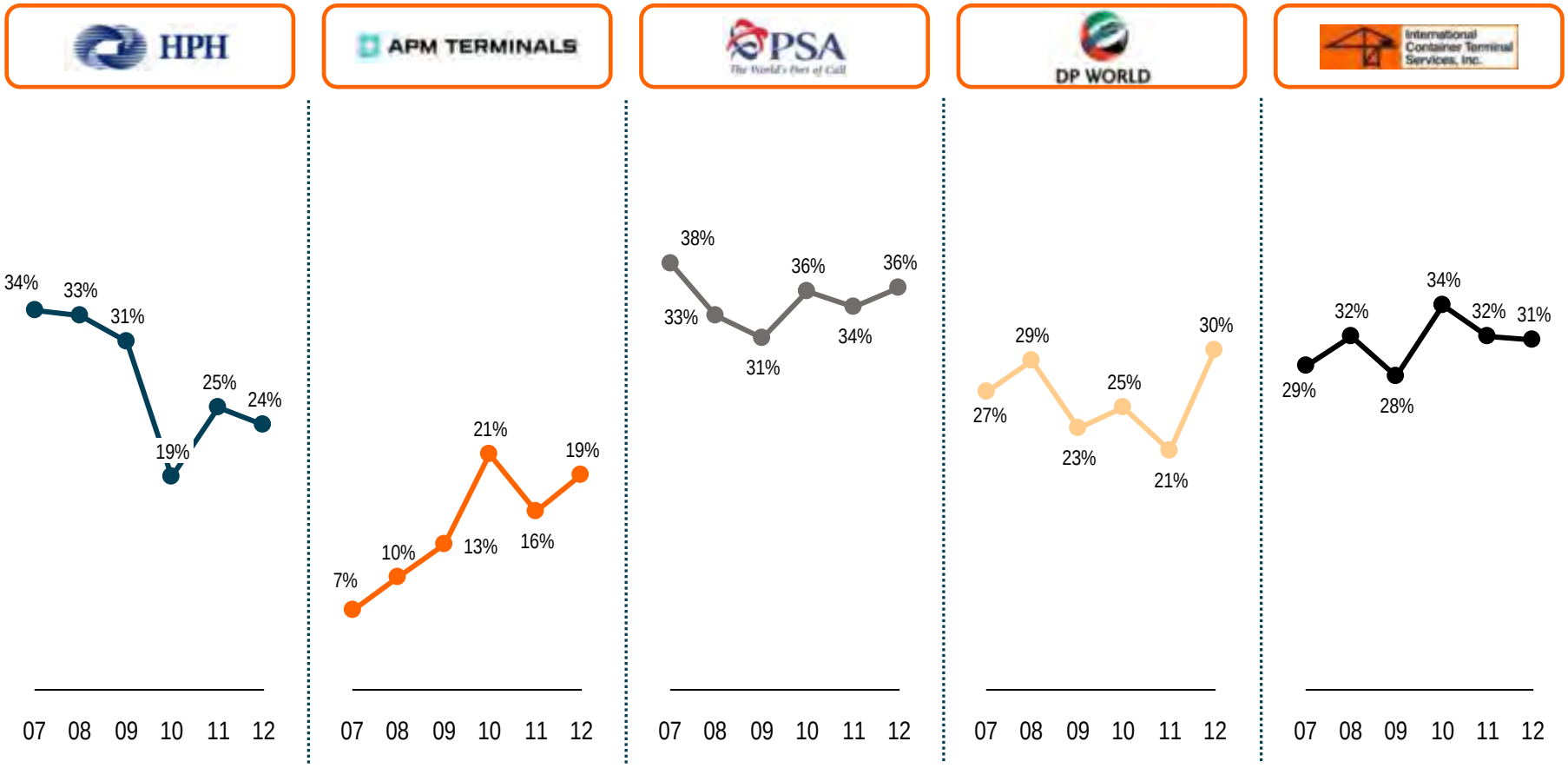
Strategy Consultants

In contrast, terminal operators have historically enjoyed relatively high and consistent profitability levels

EBIT margins for terminal operators, 2007 – 2012 [%]



Source: Annual Report, Roland Berger

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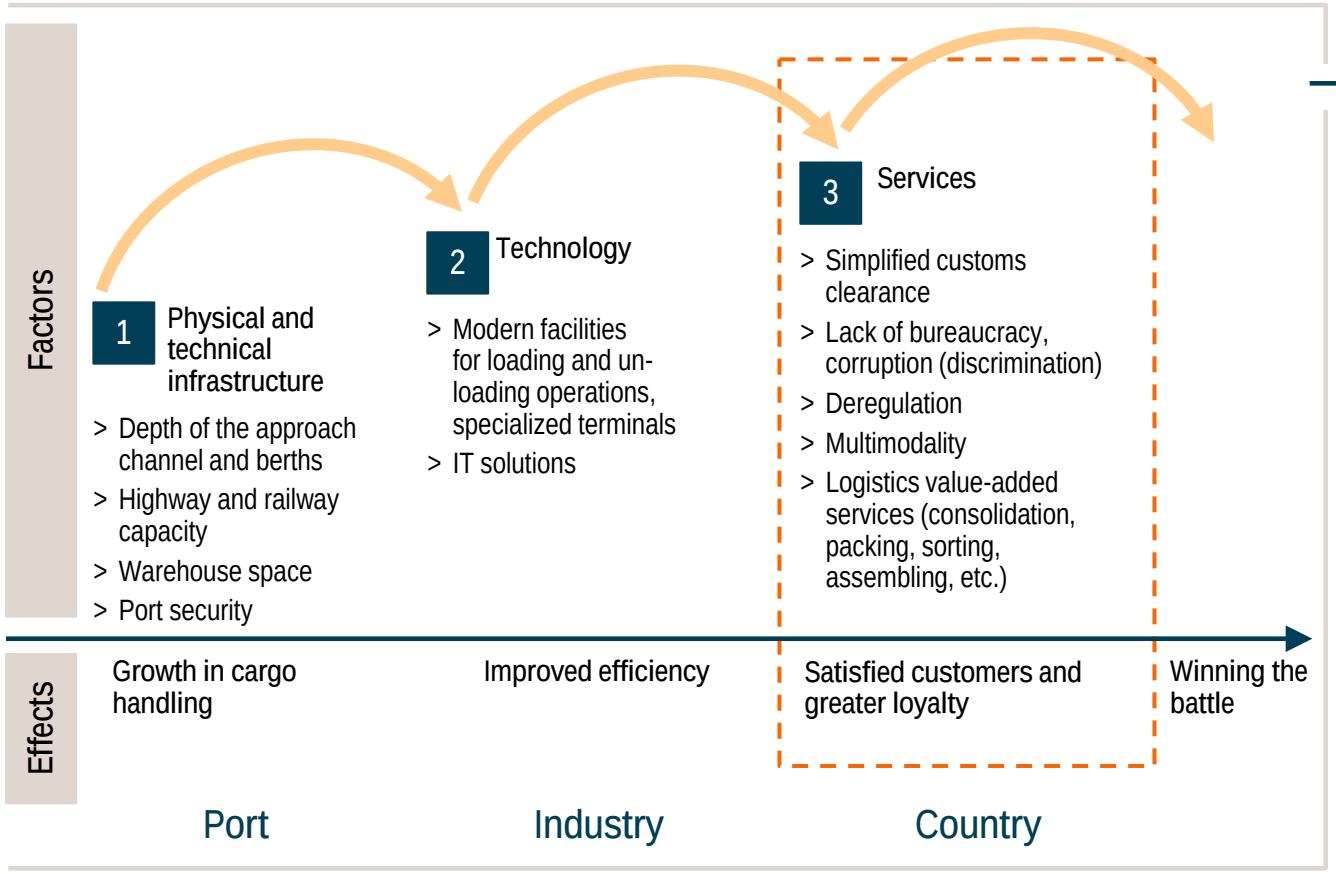
In light of increasing competition for port throughput, especially in SEA, improved national strategies and alignment are expected soon

Key factors in winning the seaports battle



Comments

1 & 2 Physical and technical infrastructure and technology can be financed using private and public capital. Govern-ment's main role is to set the right mechanisms for private capital participation

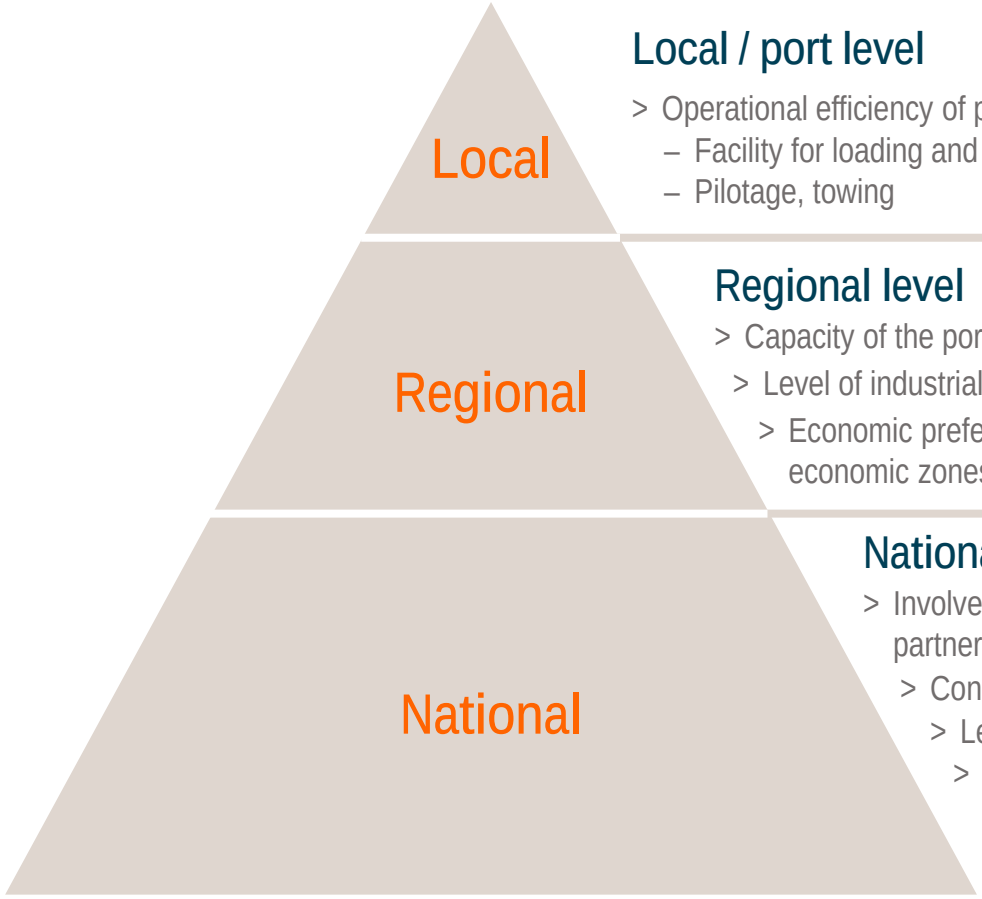
3 Achieving best-in-class service quality depends on how high the overall level of corruption is in the country, the efficiency of the public authorities and presence of clear laws and regulations (e.g. flow of documents, customs clearance)

Source: Roland Berger

Roland Berger Strategy Consultants

There are three levels at which the government must implement tactical tools for port development - national, regional and local

Tactical tools to improve port competitiveness



Local / port level

> Operational efficiency of ports:
  – Facility for loading and unloading operations
  – Pilotage, towing

Regional level

> Capacity of the port infrastructure – railways and highways
> Level of industrial zone development located near the seaport
> Economic preferences for businesses located near the seaport – special economic zones

National level

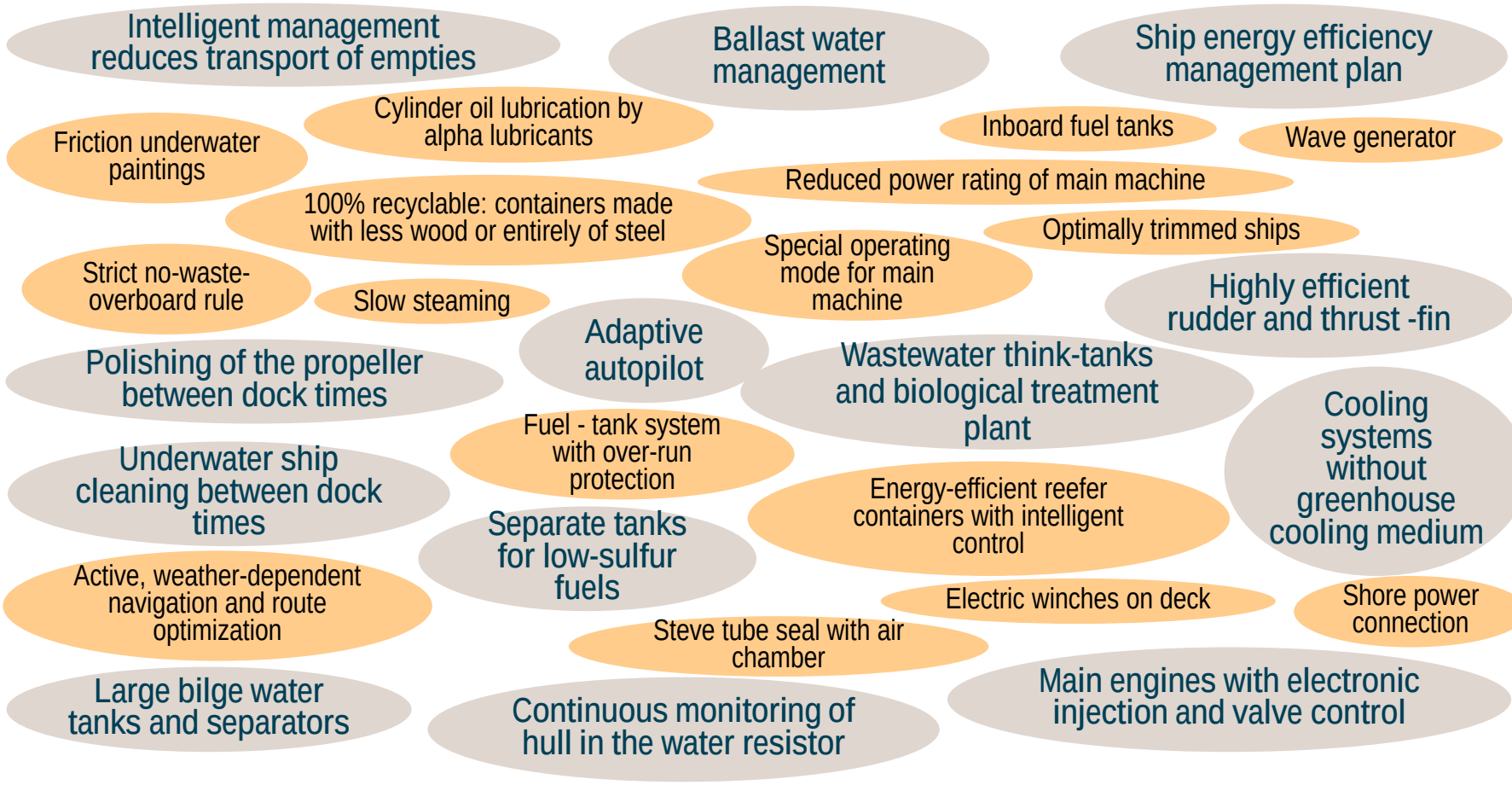
> Involvement of private capital in the seaport sector (e.g. public-private partnerships, privatization)
> Consistency and efficiency of public authorities
> Level of corruption
> Established legislation and mechanisms for attracting investments
> Government strategy for seaports specialization

Source: Roland Berger

Roland Berger
Strategy Consultants

In addition, there is increasing focus on sustainability and environmental protection among the industry's leading players

Selected industry on-ship initiatives for environmental conservation



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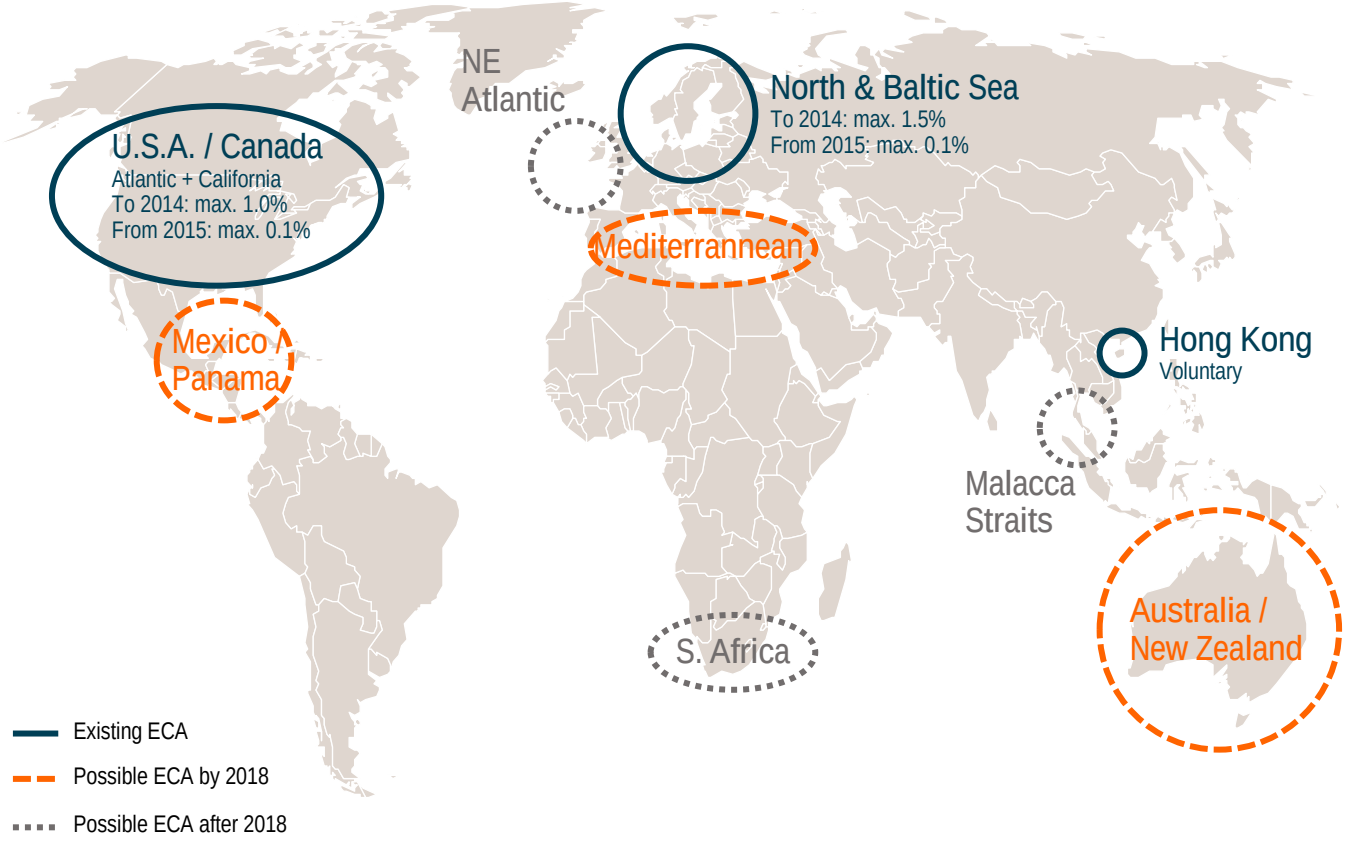
Currently there are three ECA zones established to limit coastal sulfur emissions – Number of ECA zones expected to increase

Emission Control Areas (ECAs)



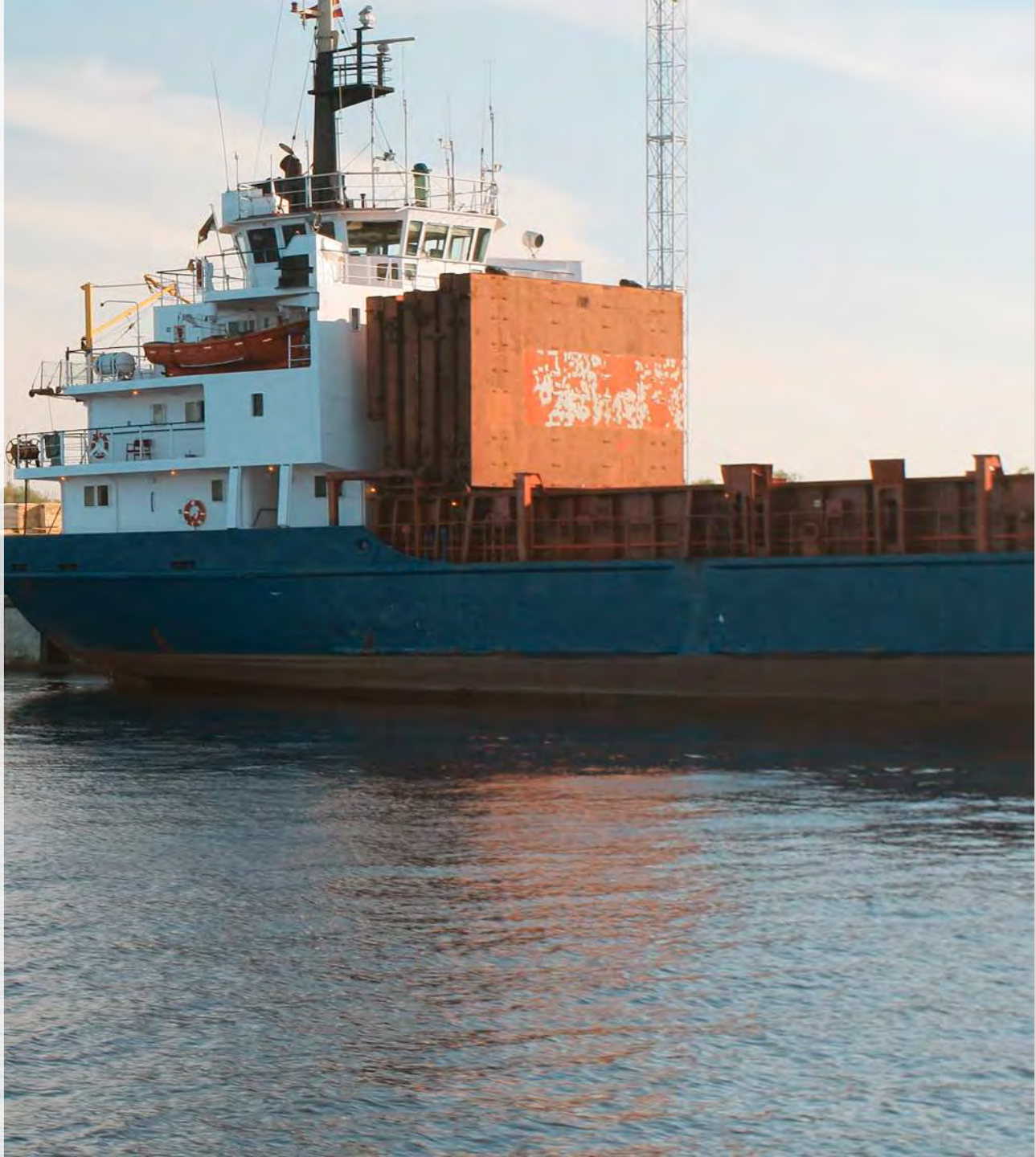
Implications

- Reduction in global threshold for sulfur content in bunkers in 2012 from 4.5% to 3.5%
- Expected further reduction to 0.5 % and from 2020 to 2025
- Switch to more expensive, low sulfur bunker (LSRMG) will lead to further increases in fuel costs

Source: "Outlook for Marine Bunkers and Fuel Oil to 2030" (Facts Global Energy)

C. African ports and key challenges

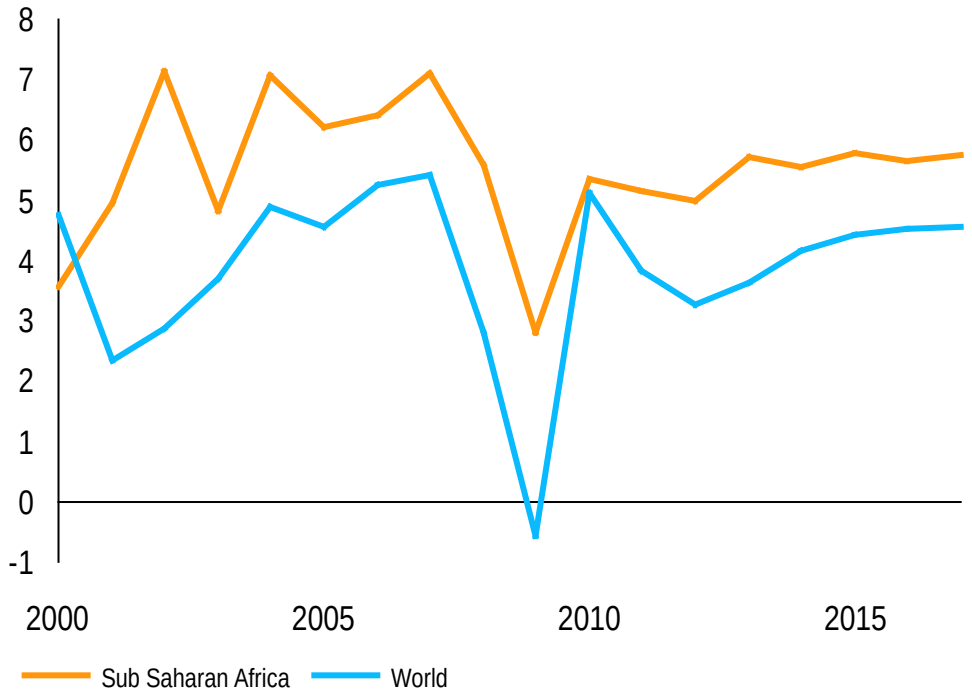
Roland Berger
Strategy Consultants



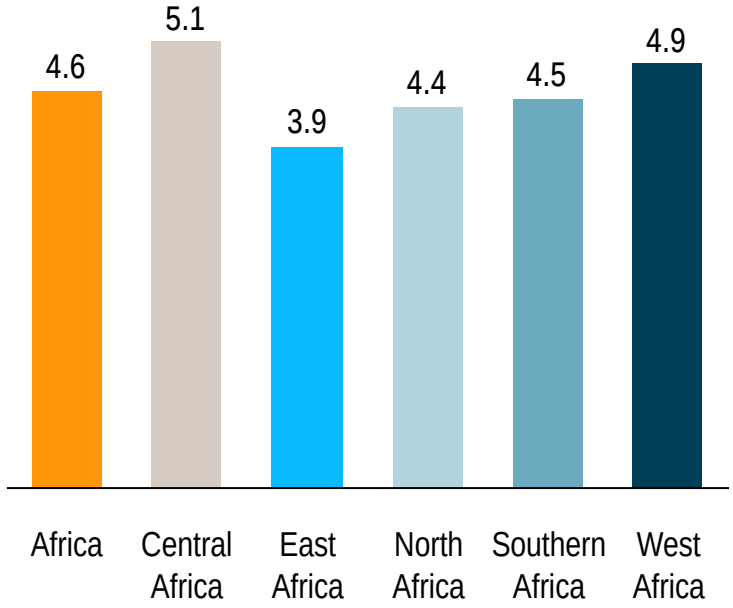
Economically, Africa is now growing well above world average

Economic growth

Sub Saharan African vs. World GDP growth [%]



Average GDP Growth rate , 2000 - 2015 [%]

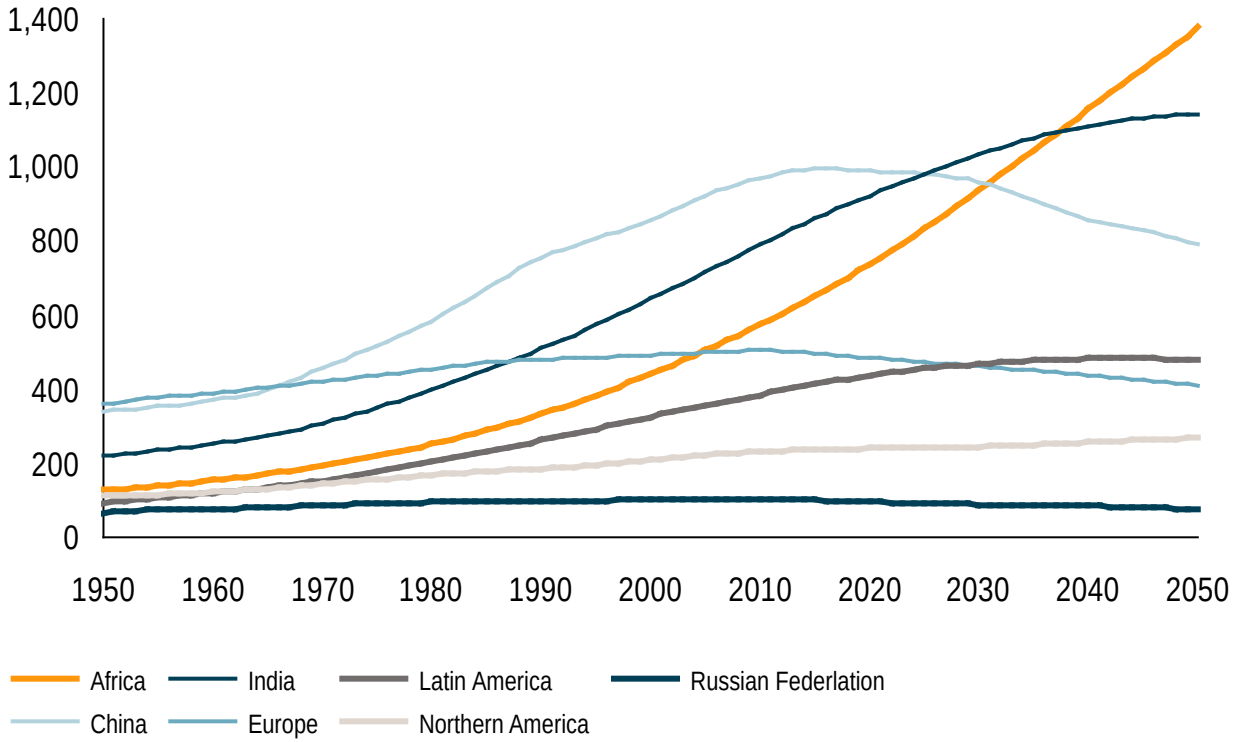


Source: IMF, African Development Bank, Roland Berger

Labor force and middle class is growing strongly

Africa as a growing market

TOTAL LABOR FORCE [Mln][1)]



1) Workforce considered as population aged 15-64

MIDDLE CLASS

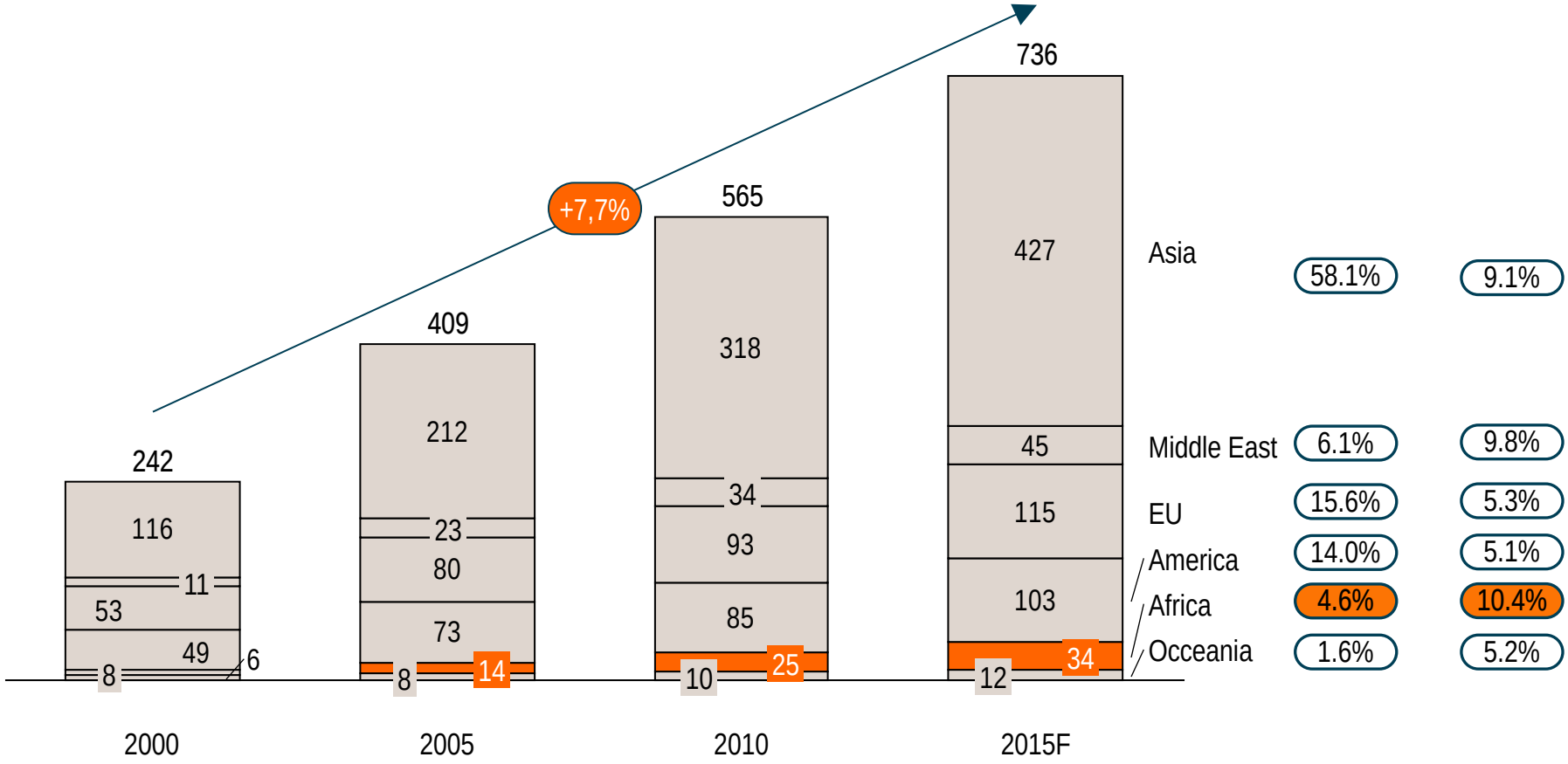
> Urbanization rate grows - 40% in 2010 vs 28% in 1980

> Middle-income segment grows – 43% in 2008 vs 35% in 2000

Source: Department of Economic and Social Affairs - United Nations, Roland Berger Global Topics: Inside Africa

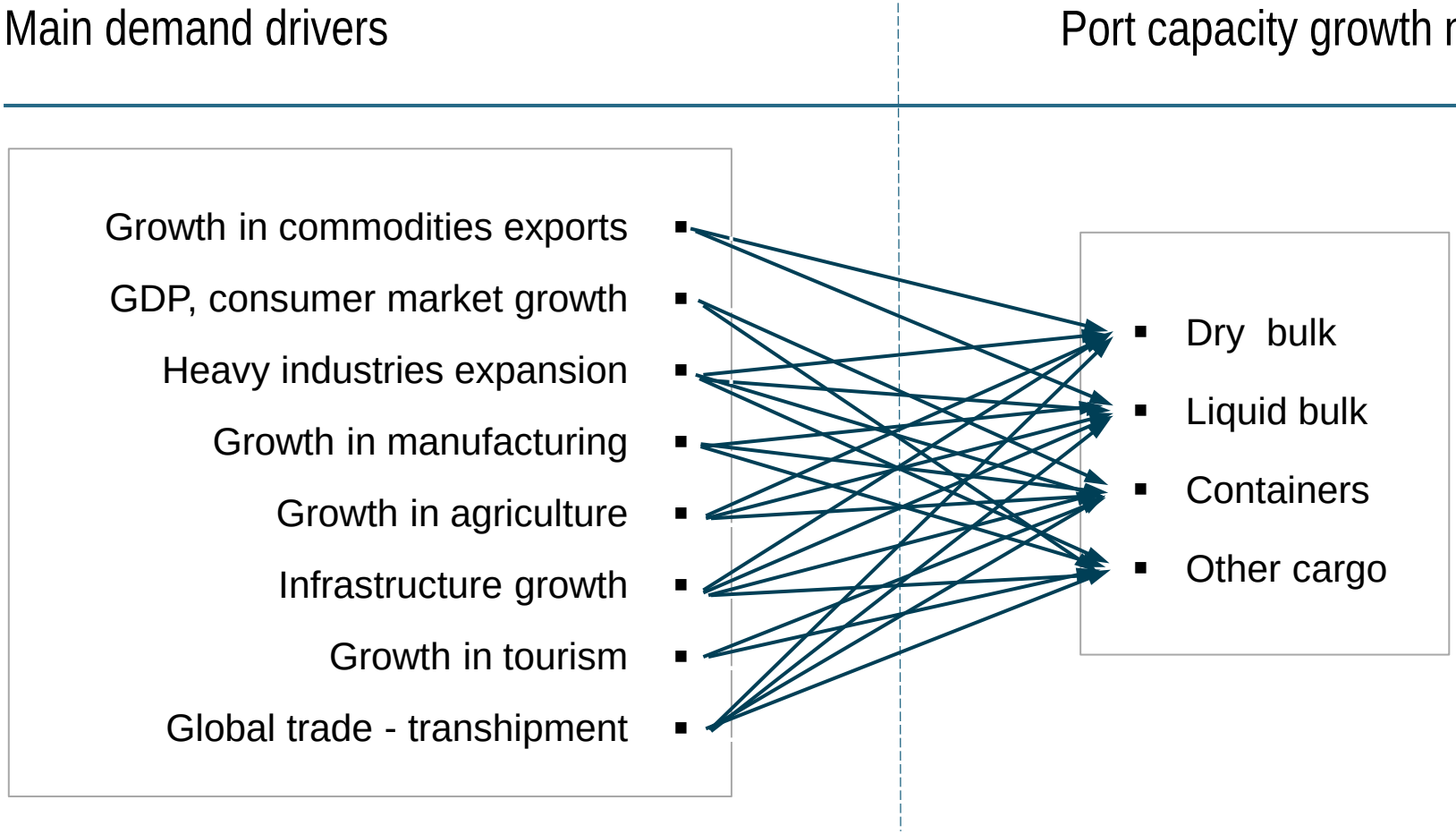
Containerized traffic handled by African ports has outperformed ports from other regions

Global containerized trade [2000-2015, m teu]



Source: UNCTAD, Roland Berger

Demand for port capacity in Africa will grow strongly over the coming decades – in all cargo types and all business segments

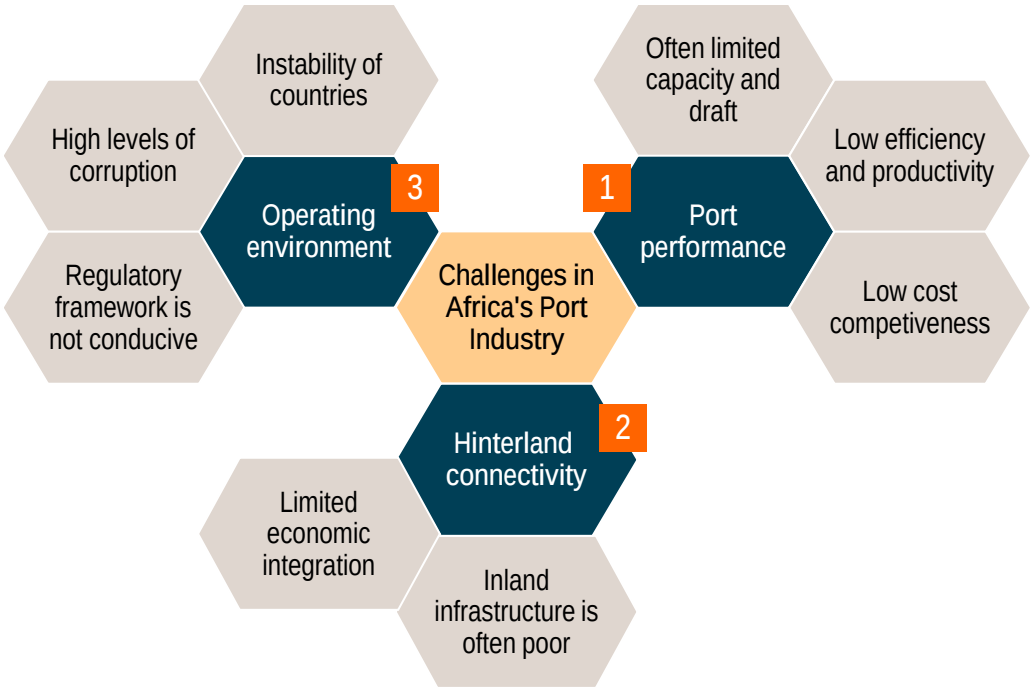


Source: Roland Berger

Roland Berger
Strategy Consultants

Despite high growth rates and high potential, Africa's port industry faces formidable development challenges

Africa's port industry



1. PORT OPERATING PERFORMANCE in most African ports lags behind most ports in the rest of the world

2. African ports have constrained HINTERLAND CONNECTIVITY to the landlocked countries

3. The OPERATING ENVIRONMENT in most countries is poor compared to other regions

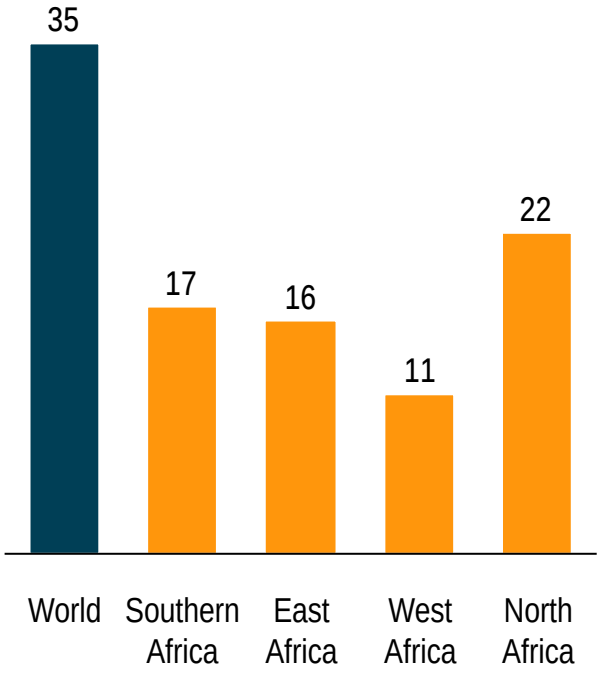
Source: Roland Berger

Roland Berger
Strategy Consultants

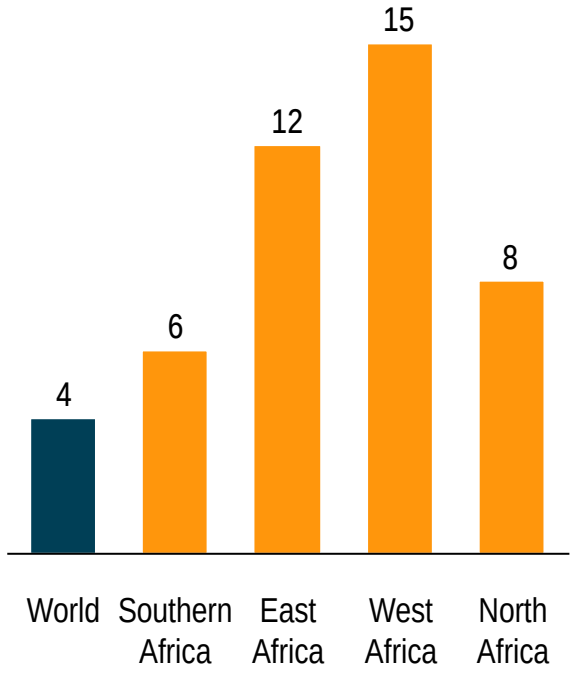
Efficiency and productivity at most African ports lag behind peers in other regions

Port performance

General cargo handling efficiency [tonnes per hour]



Container dwell time [days]



Comments

- Many ports do not have adequate in cargo-handling equipment to match their berth capacities
- A significant number of ports do not possess purpose-built container-handling cranes
- Cargoes spend considerably more time in African ports than in other regions

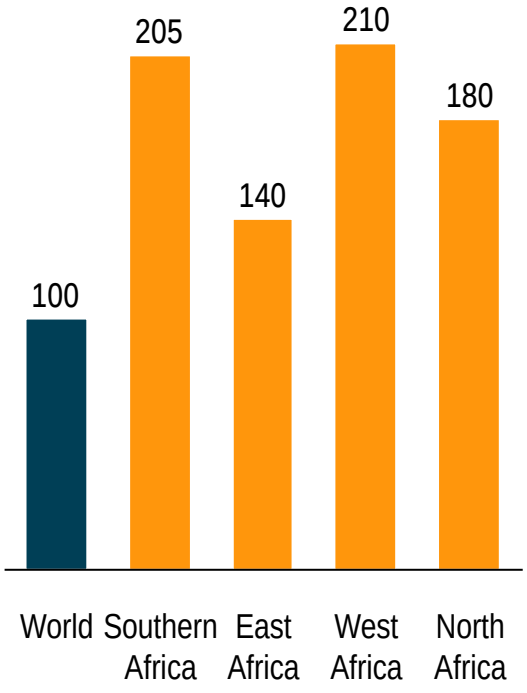
Source: World Bank – Beyond the bottlenecks 2009, African Bank – Port development in Africa 2010, Roland Berger

Roland Berger Strategy Consultants

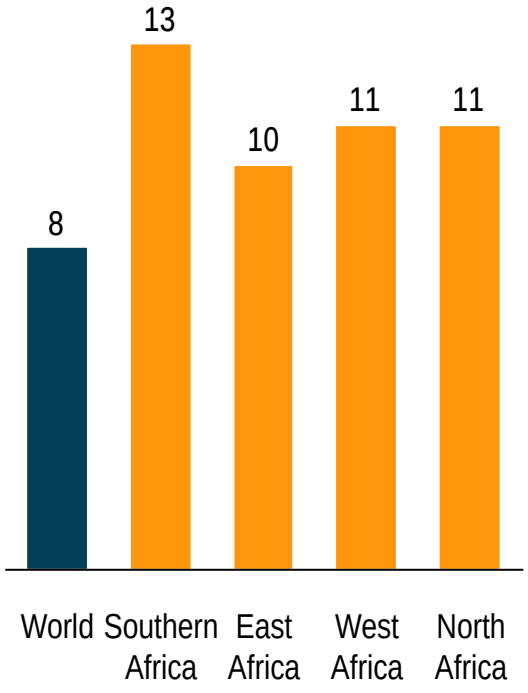
Cargo handling costs at African ports are generally less competitive than in peer ports in other regions

Cargo handling costs

Container handling [USD]



General cargo per ton [USD]



Comments

Cargo handling costs tend to be higher in Africa than in most other parts of the world as a result of:

> Technical deficiencies
- Low operating efficiency
- Lack of maintenance
- Poor planning
- Capacity constraints

> Institutional deficiencies
- Lack of enterprise culture
- Outdated rate structures
- Weak regulation of the service providers

Source: World Bank – Beyond the bottlenecks 2009, African Bank – Port development in Africa 2010, Roland Berger

Roland Berger Strategy Consultants

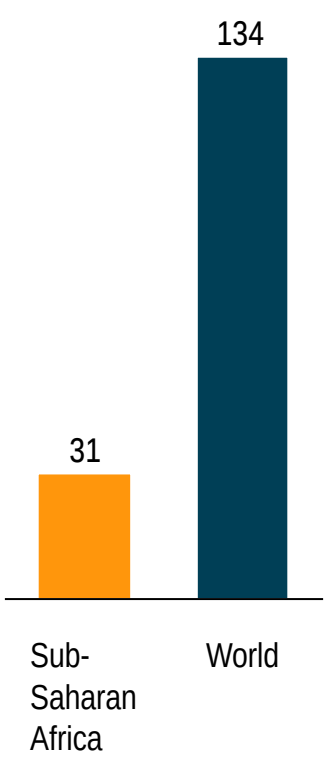
Transport infra density is still significantly below world average

Land infrastructure (2014)

CURRENT STATUS OF ROAD INFRASTRUCTURE

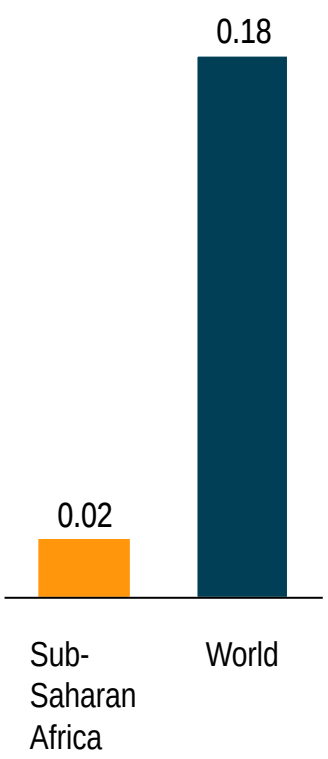
Unpaved road in major corridors

Paved roads density [km/1000 km²]



Railway density [km/1000 km²]

Airport runway density [per 1000 km²]



Source: World Bank – Improving connectivity, African Bank – African Development Report 2010, Roland Berger

Regulatory barriers and red tape further hamper transport of goods between land-locked countries

Barriers to trade in landlocked countries

16 LANDLOCKED COUNTRIES

Regulatory performance

Countries	Number of agencies	Number of forms	Clearance time [days]	Customs [1 – 5]	Rank [1 – 155]
> Botswana	1	1	4	2.82	48
> Burkina Faso	-	-	-	2.12	132
> Burundi	3	4	5	1.67	155
> Central African Rep.	4	5	4	2.45	82
> Chad	3	4	7	1.86	148
> Ethiopia	-	-	-	2.03	139
> Lesotho	-	-	-	2.00	143
> Malawi	1	3	2	2.51	77
> Mali	3	2	7	-	-
> Niger	-	-	-	2.67	59
> Rwanda	-	-	-	2.19	127
> South Sudan	5	3	4	2.14	131
> Swaziland	-	-	-	-	-
> Uganda	10	1	10	-	-
> Zambia	4	1	4	-	-
> Zimbabwe	4	5	3	2.31	105

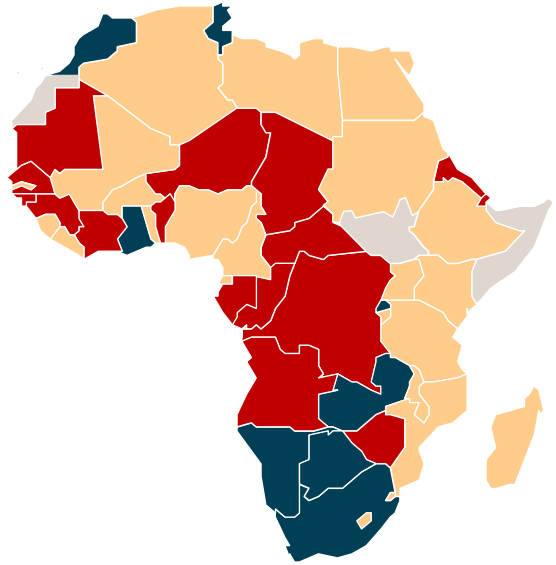
Source: World Bank – Logistical performance index, Roland Berger

Roland Berger Strategy Consultants

Africa is still a difficult place to do business, hampering maritime trade development

Ease of doing business

EASE OF DOING BUSINESS 2014[1)]

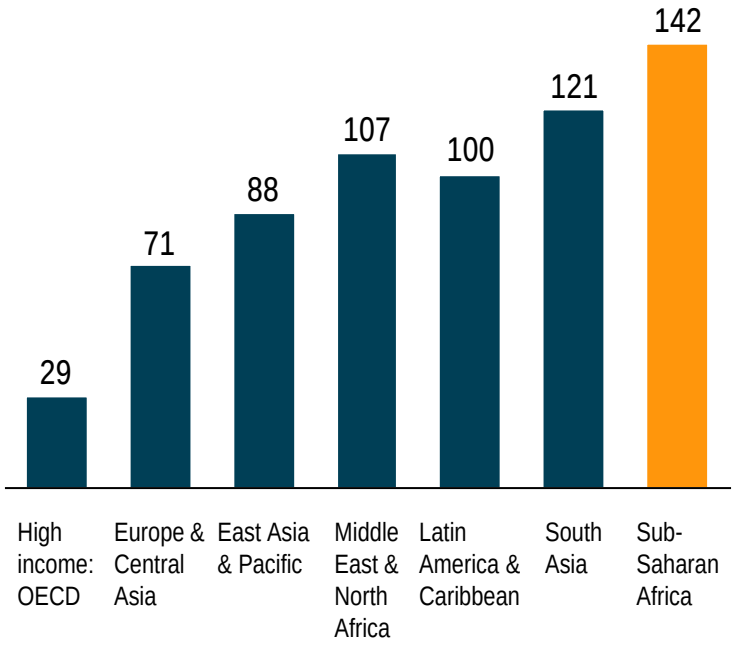


Rank 165 - 185 | Rank 1 - 100
Rank 100 - 165 | No data available

1) As of June, 2014

Countries	Rank [165 - 185]
> Central African Republic	187
> Chad	185
> Congo, Rep.	178
> Eritrea	189
> Congo, Dem. Rep.	184
> Guinea-Bissau	179
> Guinea	169
> Cote d'Ivoire	147
> Niger	168
> Benin	151
> Angola	181
> Zimbabwe	171
> Djibouti	154
> Gabon	144
> Mauritania	176
> Senegal	161

REGIONAL RANKING



Source: World Bank, Roland Berger

Africa is gradually improving its regulatory framework for port development, which should help accelerate economic growth

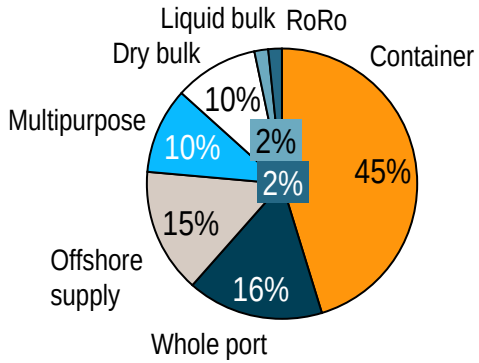
Port reforms and private investments

ILLUSTRATIVE & NON-EXHAUSTIVE

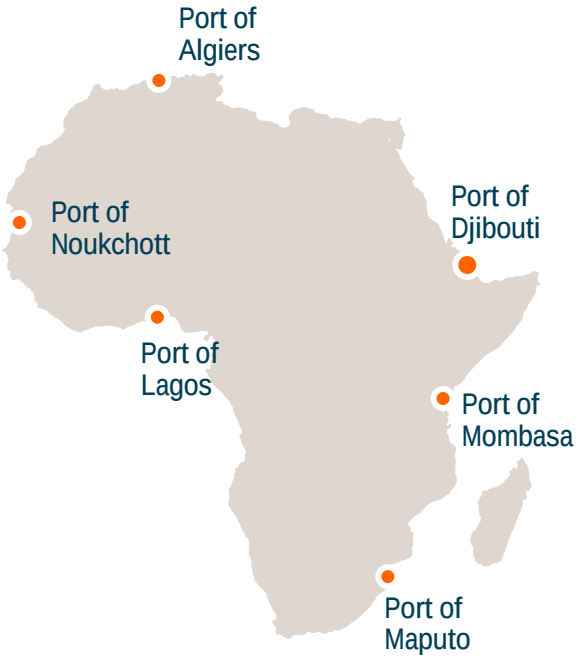
PORT REFORM

- Clear trend from public sector service ports to landlord ports
- About 60 port PPP projects across Africa (2012)
- Many African countries have adopted the 'Rotterdam rules'

PRIVATE PORT PROJECTS



SELECTED EXAMPLES



Port reform in Mombasa

Container volume has grown to 2/3 of yard capacity of 18,500 - attributed to enhanced efficiency in clearance procedures

Port concessions in Lagos

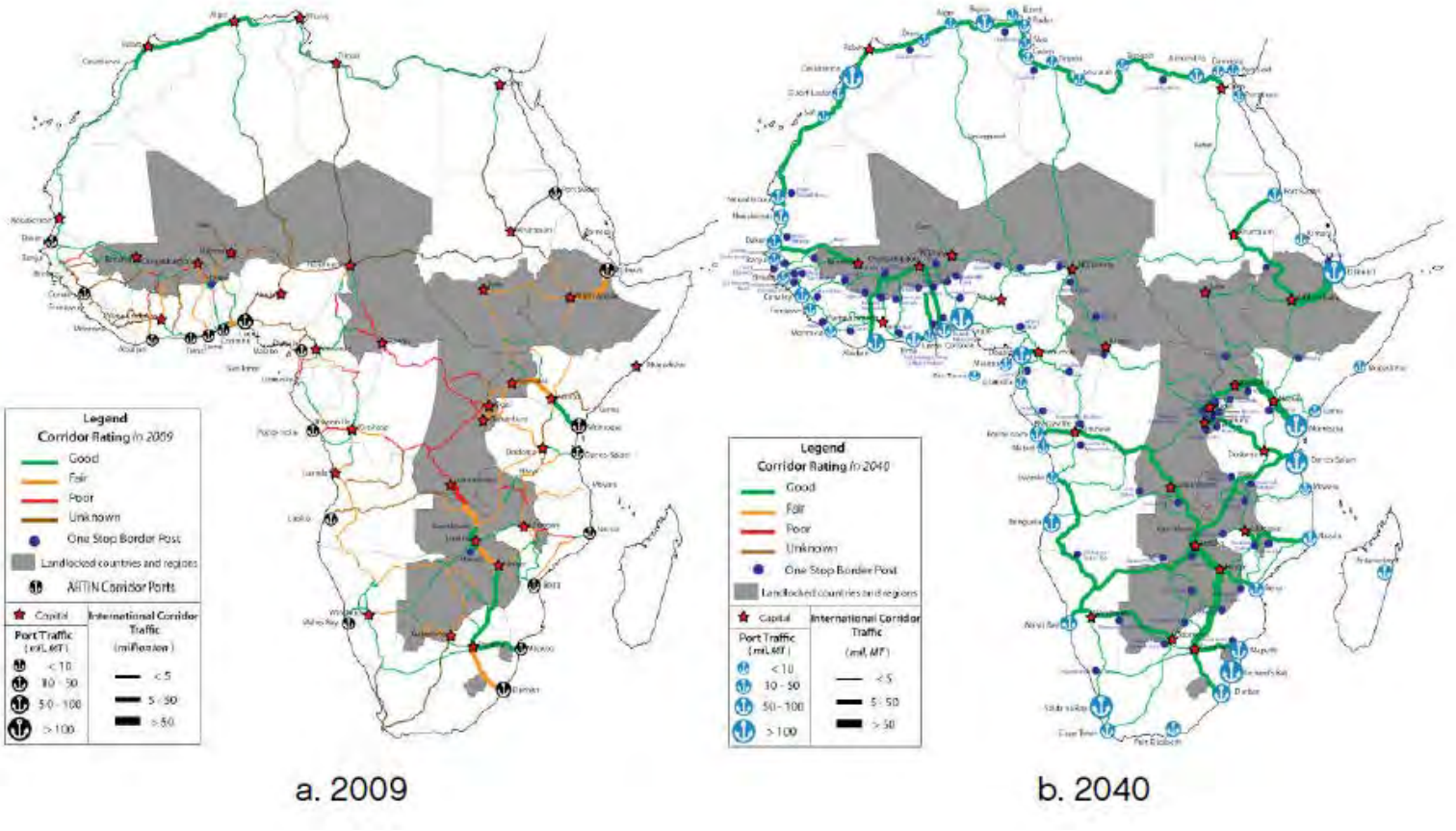
23 port concessions in early 2006

Container terminal concession awarded to APM Terminals – plan to increase capacity from 220,000 TEUs to 1.6 million TEUs pa

Source: Steer davies gleave, Busines Daily Africa, African Development Report, Roland Berger

Multiple countries are cooperating together to develop an integrated pan-African road transport network by 2040

Investments in road infrastructure



a. 2009

b. 2040

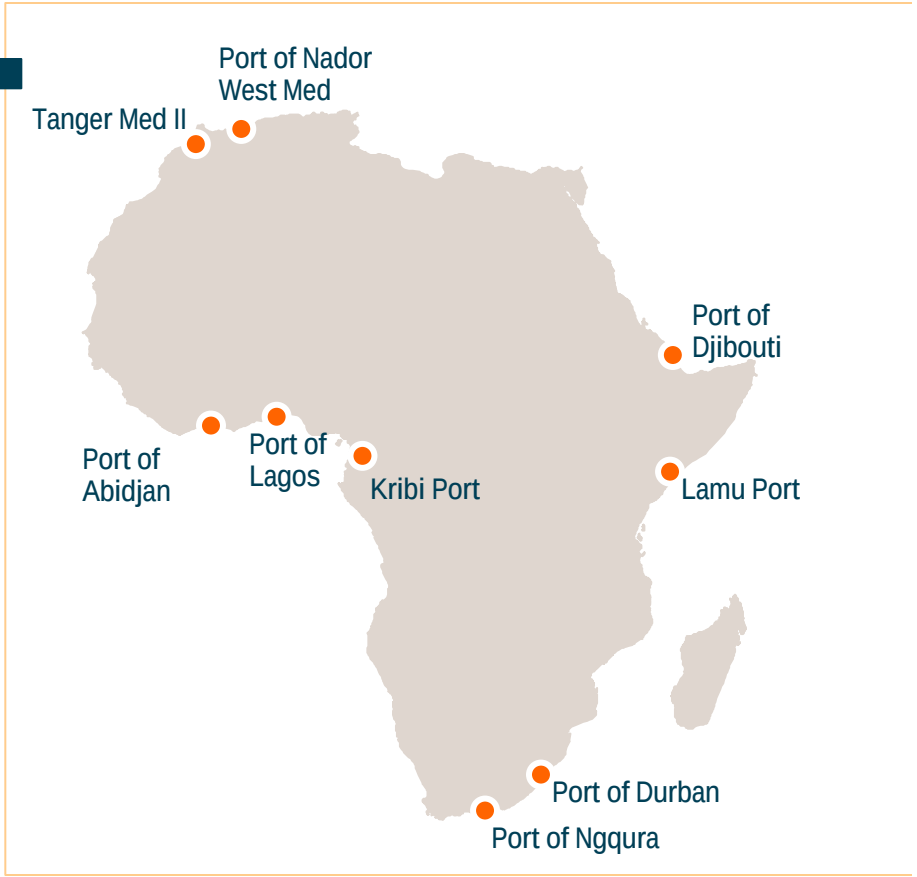
Source: SOFRECO - Africa Transport Outlook 2040, Roland Berger

Large port projects are being developed all across Africa (1/4)

ILLUSTRATIVE: NON-EXHAUSTIVE

PORT DEVELOPMENT

New national port plans for development of physical infrastructure as well as institutional and regulatory reform are now being undertaken in over 25 countries in Africa.



Source: World Bank – Africa's Transport Infrasstructure, Transnet – Ports development plan, Roland Berger

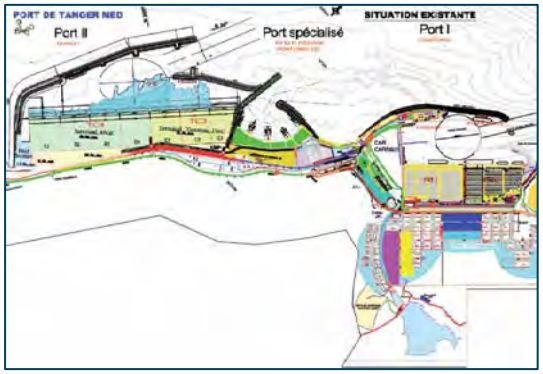
Large port projects are being developed all across Africa (2/4)

Port development

NADOR WEST MED

Nador West Med Port, a new multipurpose port is to be located on the Mediterranean coast, to the east of Tanger Med. The first phase of development is expected to be complete by 2019 and cost an estimated $600 million. This will be followed by a second phase which will see the construction of a container terminal with capacity of 3 million TEU.

TANGIER MED II



The Tanger Med 2 project involves the expansion of the port by developing two more terminalsOnce complete, Tanger-Med will contain the biggest port in Africa and the project has been labelled as a strategic priority by the Moroccan government. As well as strengthening ties with North Africa the aim is to boost free trade agreements with the European Union.

PORT OF DJIBOUTI

A LARGE investment program worth USD 4,3 billion is being undertaken by the Djibouti Ports and Free Zones Authority (DPFA) to expand its operations and support the growing economy of its larger landlocked neighbor and main customer, Ethiopia.

Source: Africa's Transport Infrastructure – World Bank, Various sources, Roland Berger

Large port projects are being developed all across Africa (3/4)

Port development

LAMU PORT

The $25.5 billion worth Lamu Port-South Sudan-Ethiopia Transport (LAPSSET) project includes a new port, new roads, a 1,500km railway line and a pipeline all to be built by 2030. The plans for the new Lamu port call for construction of 32 berths, with the $449 million contract for the first three berths already awarded to China Communications Construction Company Limited (CCCC).

DURBAN PORT

The estimated R 250 billion plan is aimed at meeting the rapid need for shipping container capacity at Durban port. Durban's port can accommodate 2.9 million containers, but its expansion and a new excavated port would increase its capacity to more than 20 million TEUs.

PORT OF NGQURA

The Port of Ngqura in the Eastern Cape, is set to become Africa's premier trans-shipment hub. With the planned development, by 2019 Ngqura's handling capacity will have increased by two million containers a year.

Source: Various sources, Roland Berger

Large port projects are being developed all across Africa (4/4)

Port development

KRIBI PORT

A newly-built port and container terminal in Kribi about 200 km (120 miles) further south, that was meant to decongest Douala port and improve shipping services is not yet operational.
Government is already into discussion with three international container management companies in view of selecting one that will efficiently manage the container terminal of the Kribi Deep Seaport when it finally goes operational.

PORT OF LAGOS

Tincan Terminal, the busiest container terminal at the port of Lagos, is continuing to modernise, with the arrival of five state-of-the-art yard gantries (RTG). The five RTG will improve productivity at the terminal by speeding up container throughput and enable to increase its storage capacities.

PORT OF ABIDJAN

Ivory Coast, the world's top cocoa-producing nation and gateway port to several landlocked West African nations, plans to triple the capacity of its main port at the commercial hub of Abidjan to 2.3 million TEUs by 2016.
A second container terminal at Abidjan in Cote d'Ivoire is being developed by a consortium of APM Terminals, Bolloré and Bouygues, and due to be operational by 2018

Source: Various sources, Roland Berger

Going forward, Africa is also expected to grow considerably towards 2040

Africa towards 2040

1

GDP will grow steadily

The average growth rate for 53 African countries will be 6.2% per year between 2010 and 2040, which means that the GDP of African countries will on average be multiplied six-fold

GDP growth 6.2% p.a. until 2040

2

Increasing labor force

A growing workforce, which UNFPA is forecasting to reach 1.2 billion in 2040, more than China and India

From 0.6 to 1.2 billion people in 2040

3

Growth in container traffic will outpace total port traffic

Container growth will average 10.6% per year to 2020 and 7.9% from 2020 to 2040 on a sustained basis. The net result will be an increase in container traffic to 38 million TEUs by 2020 and 176 million TEUs by 2040, a 14-fold increase. This growth is mainly caused by increasing manufacturing & acceleration of consumer demand within the continent

From 17 to 176 million TEUs by 2040

4

Overall trade growth

Freight transport demand in Africa is tied to growth in international trade, which is expected to triple over the next 30 years as countries increase the value added of their exports through processing, consumers with rising incomes import more-expensive goods, and manufacturing

From 1 to 3.6 billion metric tons by 2040

Source: African Union, Department of Economic and Social Affairs - United Nations, Roland Berger analysis

D. The way forward – How to develop ports smartly

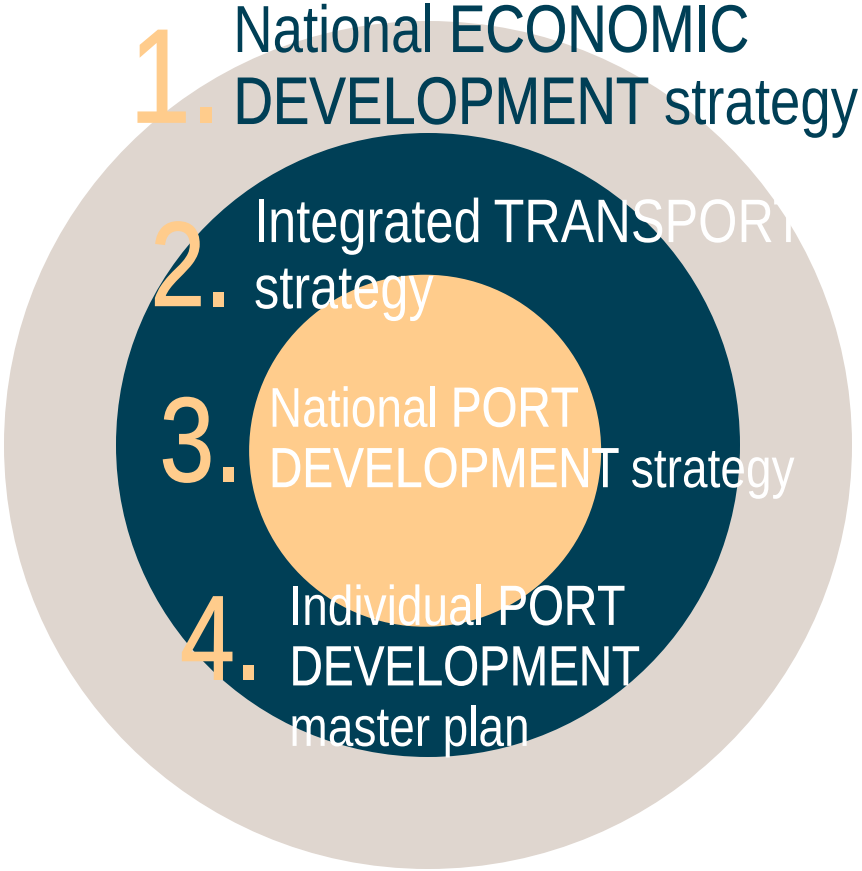
Roland Berger
Strategy Consultants

An integrated approach to port development strategy formulation is required in order to maximize its economic impact

National strategies

KEY CHALLENGES/ISSUES

- Which is the best port management model, taking local and regional factors into account?
- What is the best way to finance port (re-) development?
- How to manage and integrate ports, inland infrastructure and industry?
- What are the best locations for port development?
- How to do port master planning?
- How to improve port performance?



Source: Roland Berger

In developing the 'perfect port', the following key guidelines may be useful…

"Perfect Port"

KEY GUIDELINES FOR PORT DEVELOPMENT PLANNING

DO

- > Continuously review demand outlook, competition, connectivity developments etc – and therefore demand forecasts for all cargo types
- > Make future expandability a key element of the vision that underpins the master plan
- > Regularly review and update the master plan, and port land bank
- > Strive for continuous improvement of operating efficiency and performance
- > Integrate hard and soft infrastructure development

DON'T

- > Reward on costs instead of performance
- > Over-invest without clear understanding of future demand/requirements

"THE PERFECT PORT"

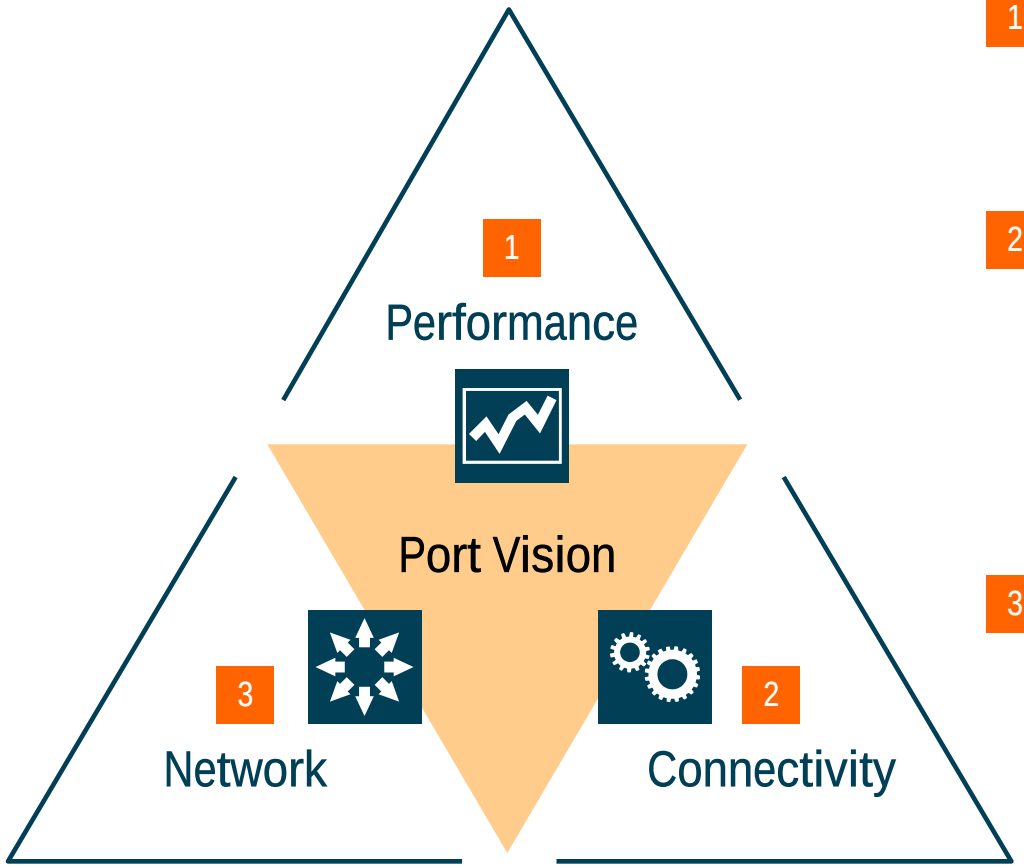
KEY ATTRIBUTES

> PROFITABILITY
> HIGH ECONOMIC IMPACT
> HIGH EFFICIENCY
> EXPANDABLE
> FLEXIBLE

Source: Roland Berger

… it should contain solid plans to increase port performance and connectivity and network expansion

Port strategy elements



1 Port performance

> Improve port facilities
> Improve the skills of port labors
> Improve master planning

2 Increase connectivity

> Road quality and capacity
> Train frequency, punctuality and number of destinations
> Attract the industry
> Increase river width and draft
> Increase connectivity with associated ports

3 Expanding the network

> Follow the industry
> Create the shipping corridor /shipping network
> Create own network
> Develop strategic partnerships with other port in containers, energy, petrochemicals and dry bulk

…while also assessing all potential opportunities to maximize the port's contribution to national economic development and growth

Turning ports into engines of growth

ILLUSTRATIVE: NON-EXHAUSTIVE

	Potential growth driver	Description/impact	Enablers	Examples
1	Port related industries	Develop & attract "heavy" industries, that are directly port-dependent (steel mills, refineries etc)	Close to major markets & labor pools Free zone integration Strong incentives	Rotterdam
2	Value addition of exports/ commodities	Centre for processing of raw materials / manufactured goods for export	Proximity to natural resources/ commodity source Proximity to trading hubs Proximity to manufacturing clusters	Newcastle Coal Terminal Penang
3	Distribution/warehousing and logistics hub	Provision of full logistics services (storage, packaging, 3PL, 4PL) to optimize global supply chains	Access to major markets Inter-modal integration Strong logistics ecosystem	Dubai Rotterdam
4	Transshipment and transit trade development	Global hub for transfer of goods en route between origin & destination	Best-in-class operational efficiency Proximity to trade routes	Singapore Rotterdam
5	ExIm gateway for regional/ national hinterlands	Key gateway for export & imports for region/nation	Strong hinterland connectivity	Tanger Med Rotterdam

Ports should asses and exploit every potential economic growth driver to maximize impact

Source: Roland Berger

Key lessons from port developments around the world

Leading world ports

ILLUSTRATIVE: NON-EXHAUSTIVE

PORT	KEY LESSONS	GROWTH DRIVER
A Tanger	Leveraging strong hinterland connectivity, integrated free zones & strategic positioning to become trans – Euro Africa gateway	2 Value addition of exports/commodities 4 Transshipment and transit trade development 5 ExIm gateway for regional/national hinterlands
B Rotterdam	Integrated cluster approach to attract and accelerated industrial/economic development in proximity to port	1 Port related industries 3 Distribution/warehousing and logistics hub 4 Transshipment and transit trade development 5 ExIm gateway for national and regional hinterlands
C Singapore	Creation of best-in-class transshipment hub via operational excellence, strategic location & strengthening of logistics/industrial/services ecosystem	1 Port related industries 3 Distribution/warehousing and logistics hub 4 Transshipment and transit trade development
D Dubai	Creation of world-class logistics hub via fully integrated multi-modal logistics platform, single-bonded free zone, technological innovation & enhanced capacity	3 Distribution/warehousing and logistics hub 4 Transshipment and transit trade development 5 ExIm gateway for regional/national hinterlands

Source: Roland Berger

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Let's think: act!

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