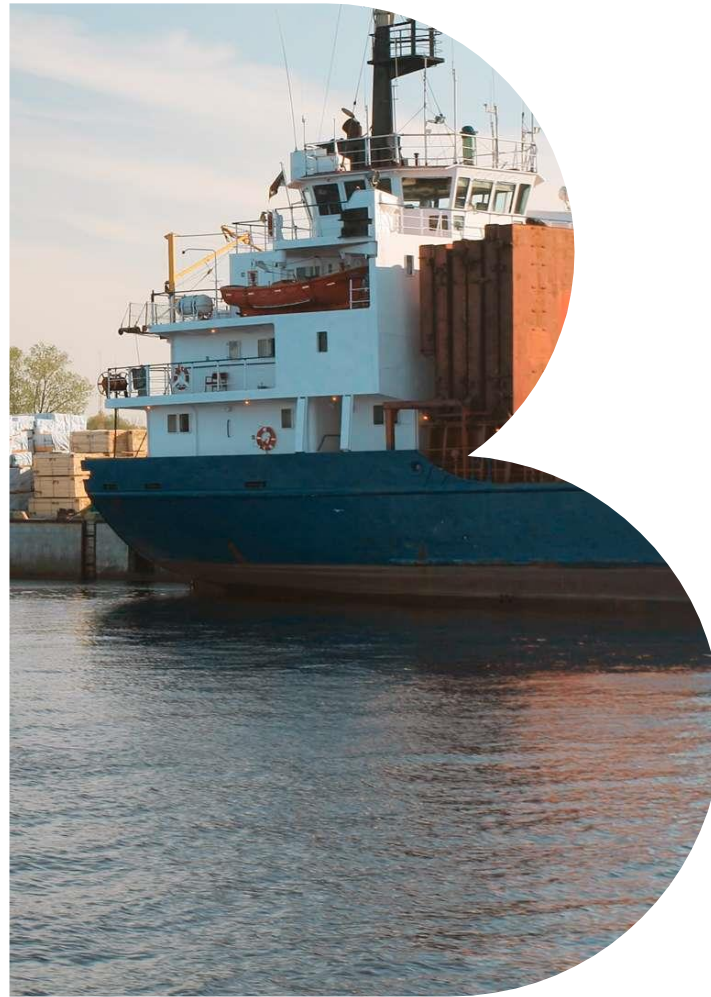


Growing maritime trade in Indian Ocean – How ports need to change

10th Indian Ocean Ports and Logistics Conference, Reunion, 27-29 January 2016



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A. Introduction to Roland Berger



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

Our global presence

50 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






1) By revenues in the strategy consulting market, based on internal and available public reports

We have deep experience and expertise in supporting ports and maritime sector development around the world

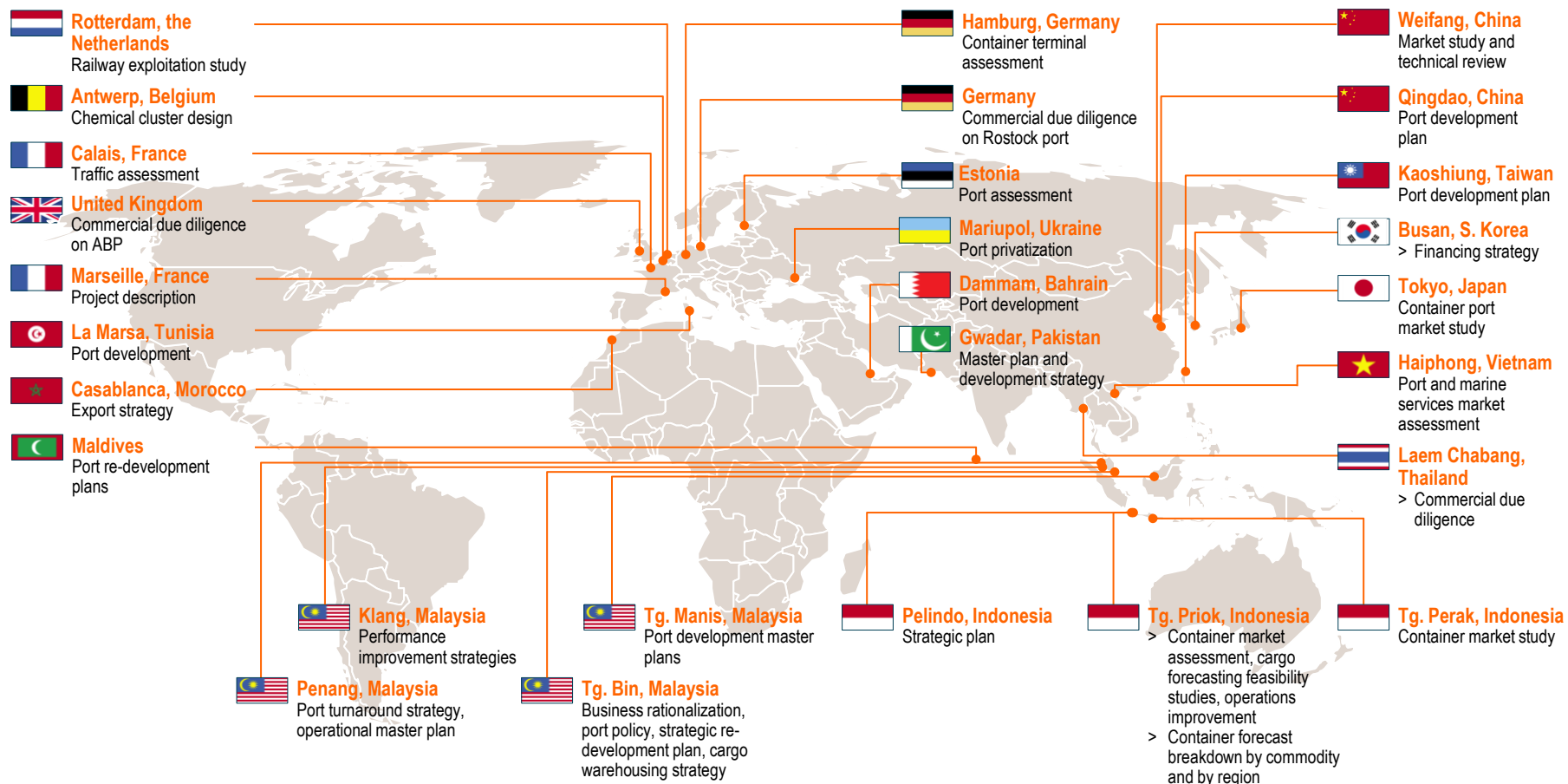
Selected Roland Berger clients in ports and shipping

Ports 	Shipping 
	

-  We are proud to be a **top 5 player in the global strategy market**
-  We have **deep global port planning and development experience**
-  We have a **Global Ports and Shipping Practice**

We work on port projects around the world

Recent port projects – selected samples only



In the port sector, Roland Berger offers an integrated approach and specialized services in **four** key areas

Our service offerings

1. Port policy & regulation



- > National port policy/ development planning
- > Regulation, reform, governance
- > Privatization
- > Business model design
- > Concession design

2. Port planning & development



- > Traffic studies
- > Demand forecasting
- > Feasibility studies
- > Port master planning
- > Re-development planning
- > Tender process management

3. Port business



- > Due diligence, investor advisory
- > Pricing strategy, tariff studies
- > Pre-feasibility studies
- > Corporate strategy
- > Business strategy, business planning

4. Port operations



- > Benchmarking
- > Operating performance improvement
- > Organizational transformation

For each assignment, we put together a dedicated and highly experienced team. We use specialized legal, financial, engineering and port planning partners where relevant

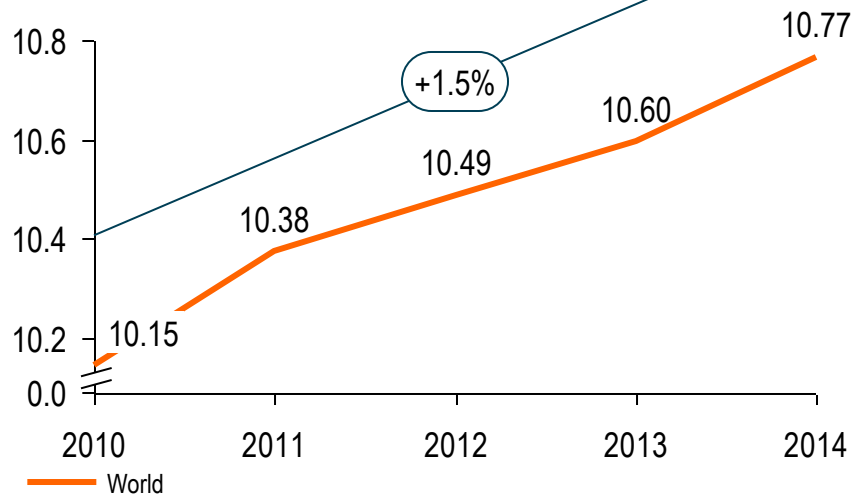
B. Global maritime trends



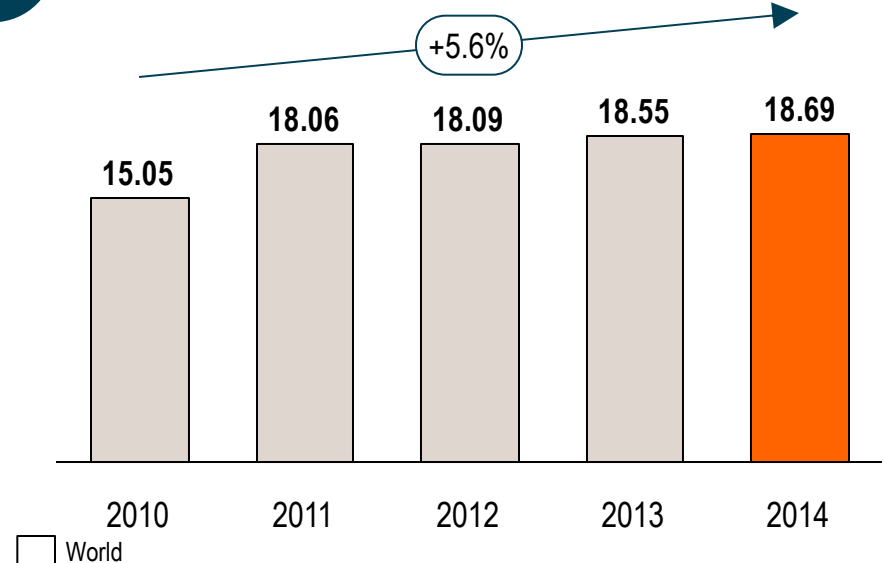
Global trade continues to grow strongly, pushing demand for growth in port and shipping capacities and performance

Growth figures – income vs trade

Global gross GNI/Capita
[Real, USD '000]



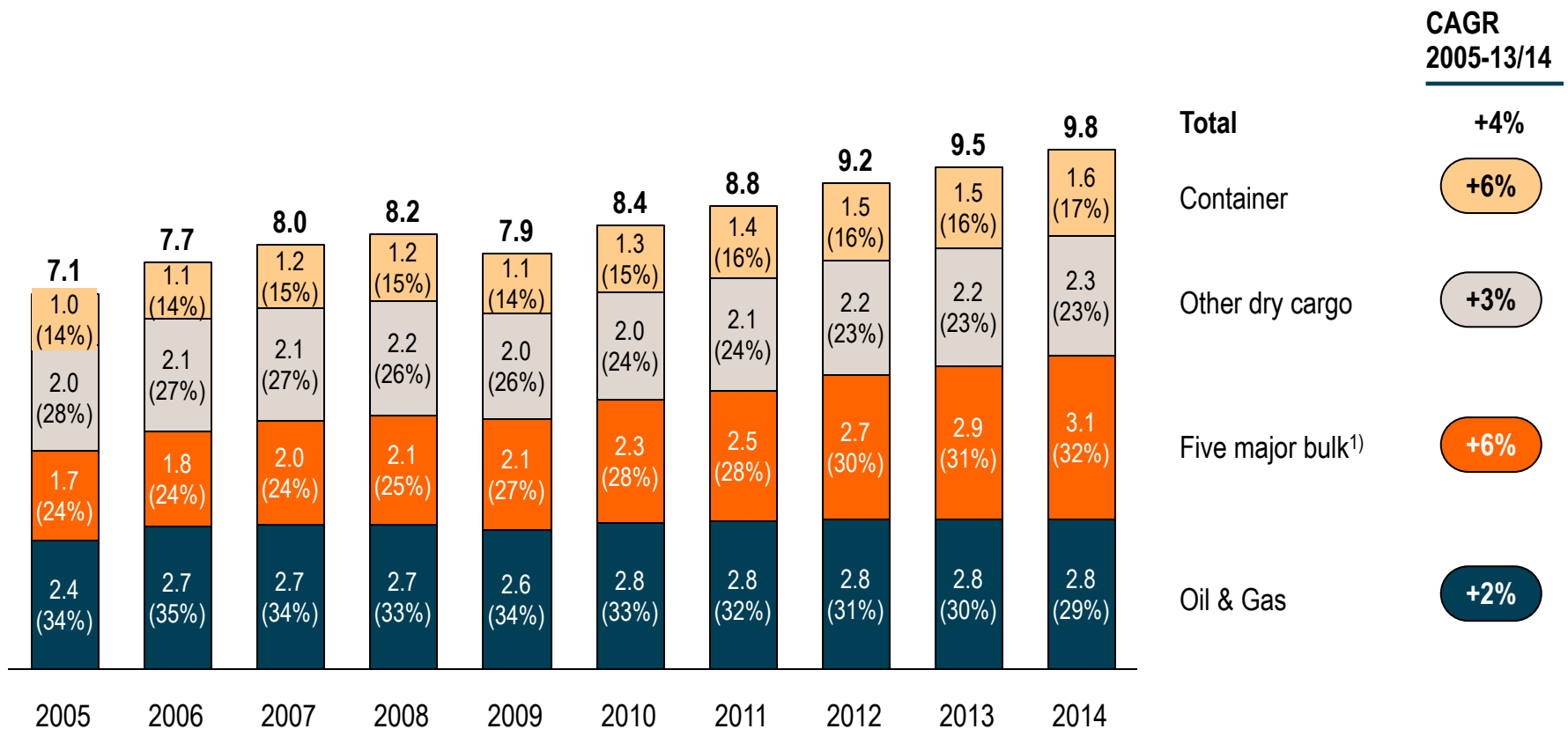
Global trade – value of exports in traded goods
[Real, USD tn]



In real terms the global economy is still growing at a rate of 2%, which combined with a 10.4% growth in global trade per annum will **increase the need for port and shipping capacity**

Global maritime trade has been expanded by about 4% per annum between 2005-14 (well below long term average)

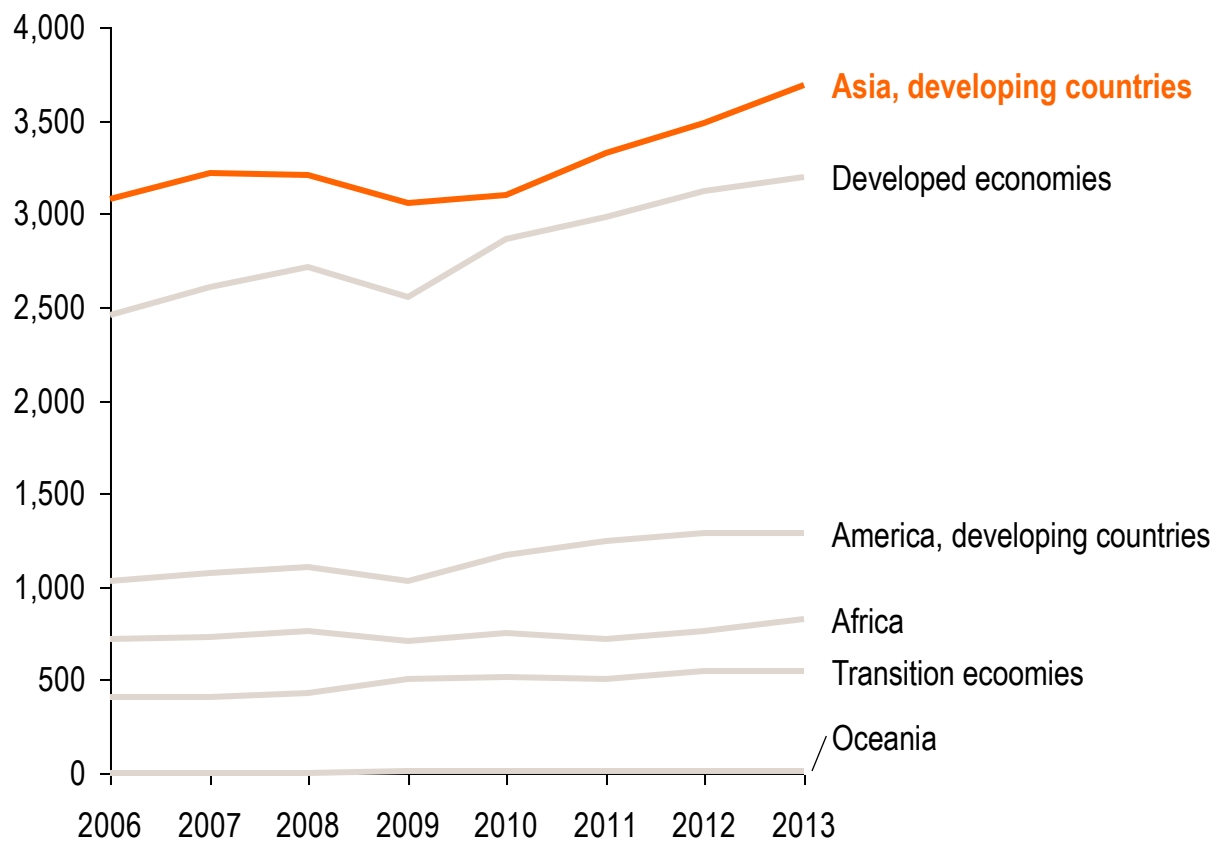
International seaborne trade [bn tonnes loaded]



1) Iron ore and coal, grain, bauxite & alumina, phosphate & rock, minor bulk such as forest products

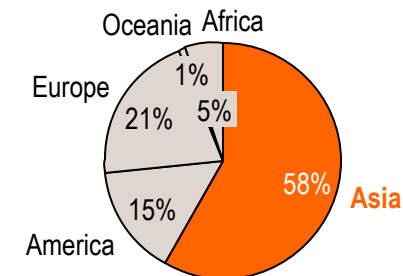
Asia remains the dominant region in the global maritime trade

Global maritime trade [2006-2013, m MT]

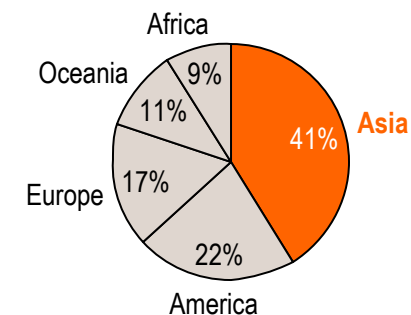


Share of world tonnage (2014)

Imports



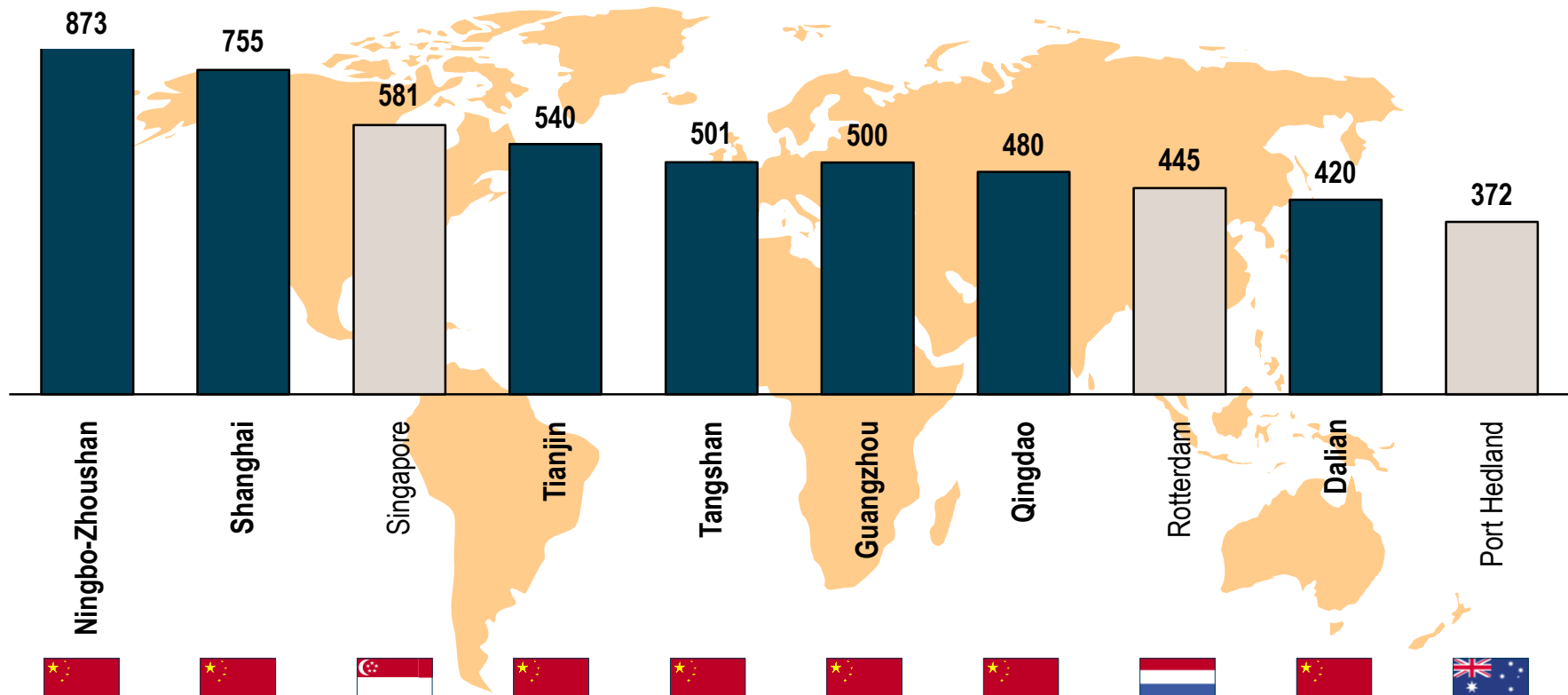
Exports



Seven of the ten largest ports in the world are now located in China

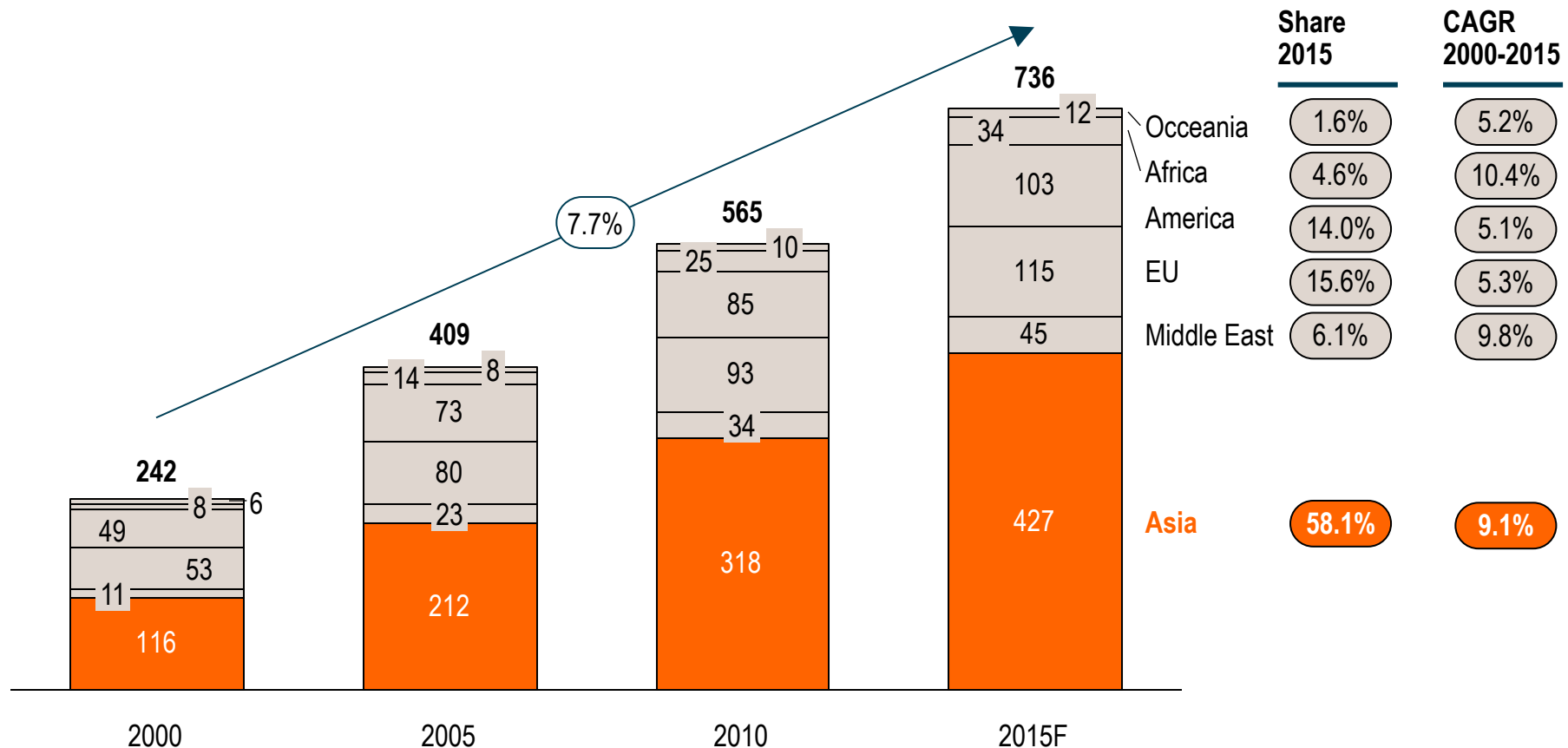
Top ten largest ports by cargo throughput in the world

Total cargo throughput, 2014 [m MT]



Asia dominates in particular in the container segment, with now 58% of all containers moving through Asian ports

Global containerized trade [2000-2015, m teu]



Presently, we see TEN main trends / challenges affecting port development and operations around the world

Ten mega trends & challenges



Ports operate in complex, dynamic and ever-changing environments, forcing them to adapt continuously (1/2)

Key global trends in the port sector

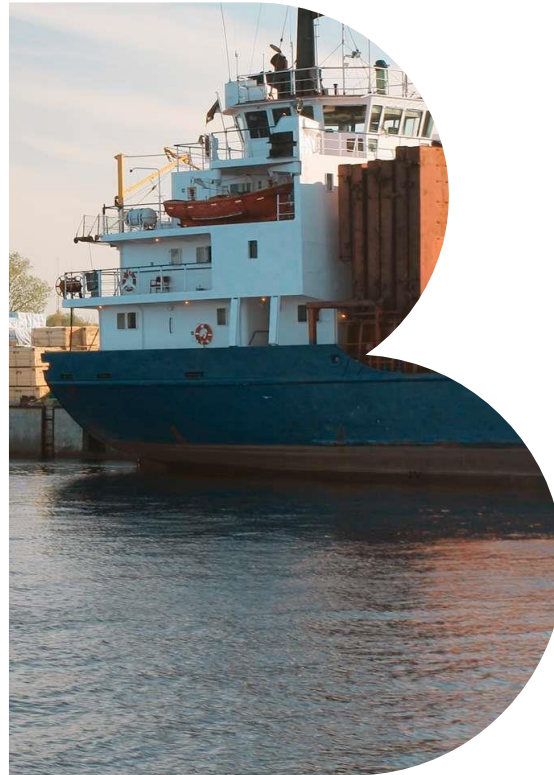
Key trends	Description	Main implications for ports
Shifting demand	Stagnating demand in some of Europe, growth in most parts of the rest of the world. Regionalization	Smart forecasting, planning, development or re-development to remain relevant and viable
Diversification of demand	Emergence of new segments: cruise ships, mega yachts, LNG, CNG, car carriers, unitized cargo shipping, ro-ro etc	Need to strategize, plan, develop facilities where relevant and viable
Hinterland expansion	"Unlocking" of land-locked countries and regional economic integration, widening hinterland for many	Need to anticipate and re-tune marketing strategies
Rising cost pressures	Competition between shipping lines - transferring pressures to ports to improve performance and reduce turn around times. Emergence of "port competition"	Need to continuously improve operating performance, productivity, turn-around times
New ship types	Emergence of ultra-large vessels in dry bulk and container shipping. Rapid widening of ship designs and types, increasing specialization, new ship types	Need to continuously plan, upgrade/enlarge /diversify port facilities where relevant and viable
Digitalization	Driven by technological developments as well as regulatory changes, both local and global. E-logistics	Need to stay current. And utilize these trends to drive performance improvement

Ports operate in complex, dynamic and ever-changing environments, forcing them to adapt continuously (2/2)

Key global trends in the port sector

Key trends	Description	Main implications for ports
Regulatory reform	Many countries are in the process of moving towards "landlord model" type set-up. Most reforms are driven by international organizations	Implementation is challenging: need for institutional changes, new SOP's, legal changes etc.
Green shipping	Outphasing of heavy fuels, new rules on bilge water management, cleaner fuel technologies, emergence of LNG as bunker fuel for shipping	Need to invest: ship waste processing facilities, monitoring equipment, enforcement machinery, LNG facilities where relevant
Green ports	Move towards reduction of carbon emissions, water pollution and noise from ships in ports and port operations	Heavy investments needed in shore power facilities, electrification of heavy equipment (where relevant) and other greening actions
Competition for land	Old ports are typically forced to move out of inner cities. Available space to expand in growing ports is almost always constrained. Trend towards off-shore development of new ports	Need to plan for port development smartly with a long term orientation and with an eye to potential competition for land
Short sea shipping	Is being aggressively promoted by many regions around the world, often in combination with shipping modes (eg. ro-ro). Changes in national cabotage regulations	Need to continue to accommodate small vessels and diversified cargo handling facilities

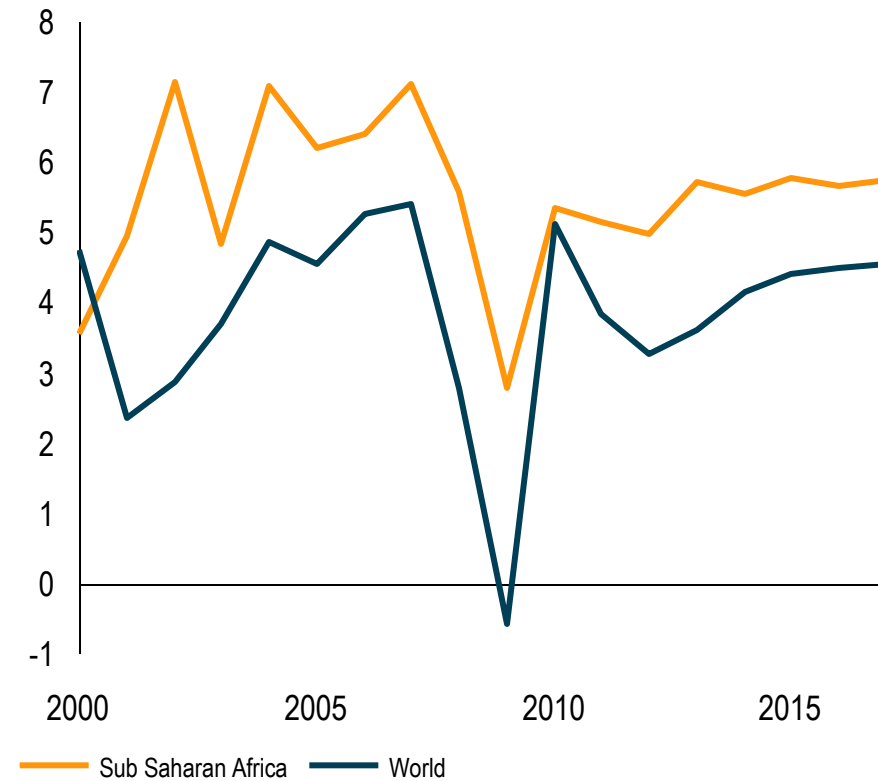
C. African ports and key challenges



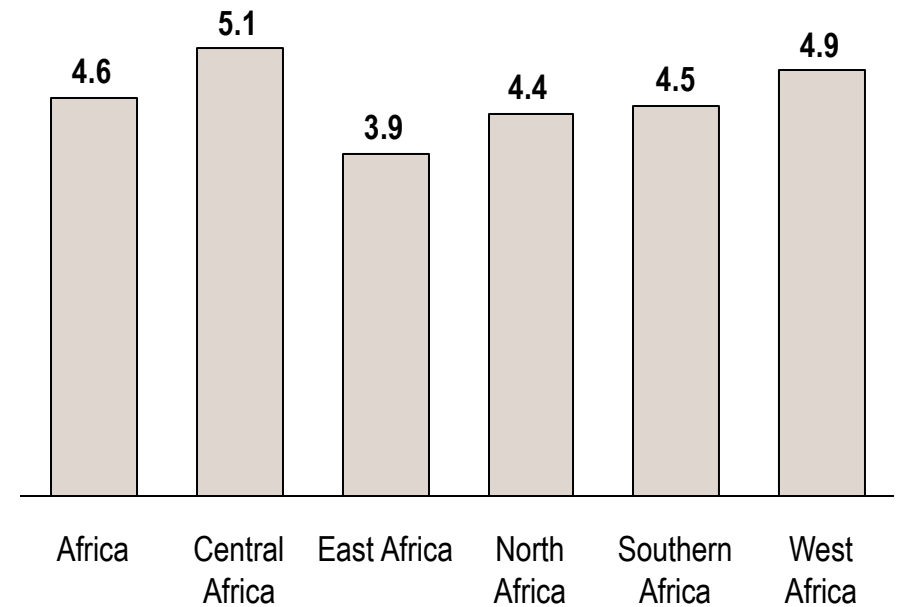
Economically, Africa is now growing well above world average

Economic growth

Sub Saharan African vs. World GDP growth [%]

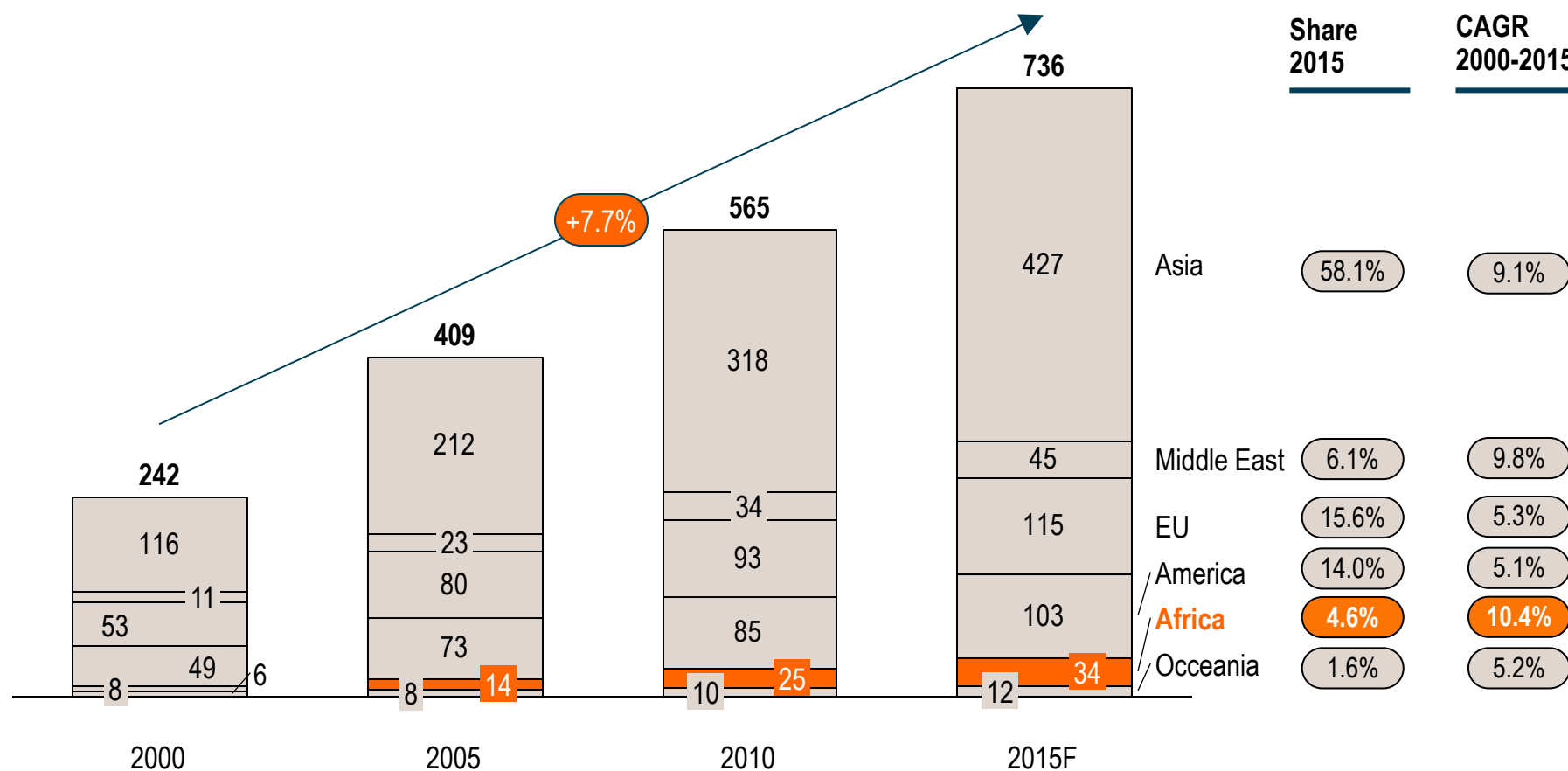


Average GDP Growth rate, 2000 - 2015 [%]



However, during the past decade, growth in containerized traffic handled by African ports has been well above the global average

Global containerized trade [2000-2015, m teu]



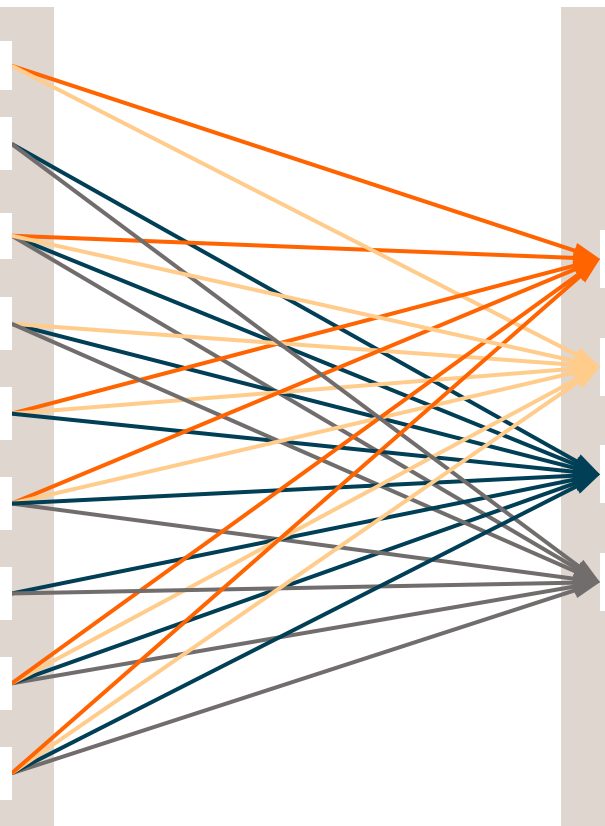
We expect demand for port capacity in Africa to grow strongly over the coming decades – in all cargo types and all business segments

Port demand drivers

- Growth in bulk commodities trade
- GDP, consumer market growth
- Heavy industries expansion
- Growth in manufacturing, SCM
- Growth in agriculture
- Infrastructure development
- Growth in tourism
- Transshipment
- Transit to/fro land-locked countries

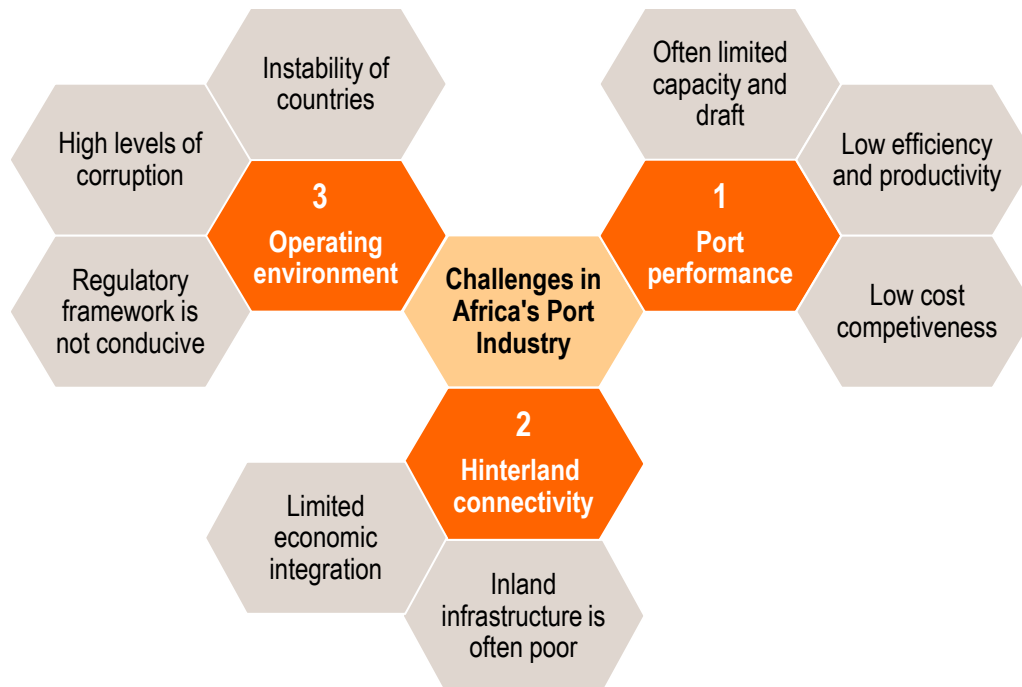
Port capacity growth needs

- Dry bulk
- Liquid bulk
- Containers
- Other cargo types



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

Africa's port industry

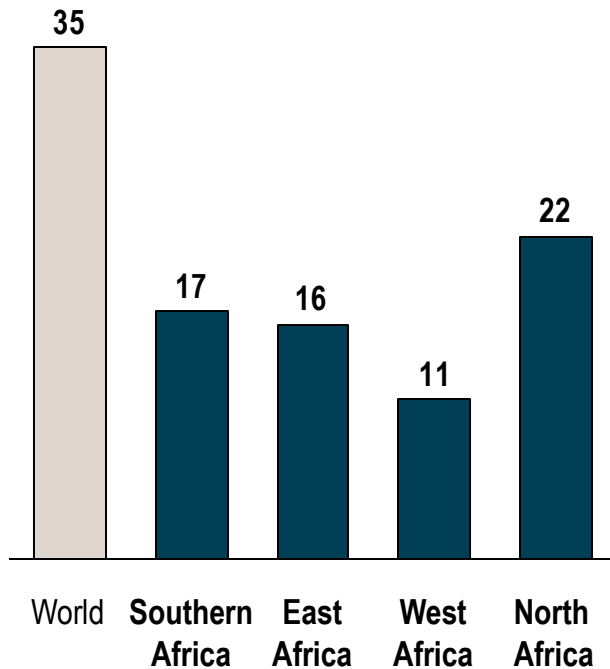


- 1. Port operating performance** in most African ports lags behind most ports in the rest of the world
- African ports have constrained **hinterland connectivity** to landlocked countries
- The **operating environment** in most countries is poor compared to other regions

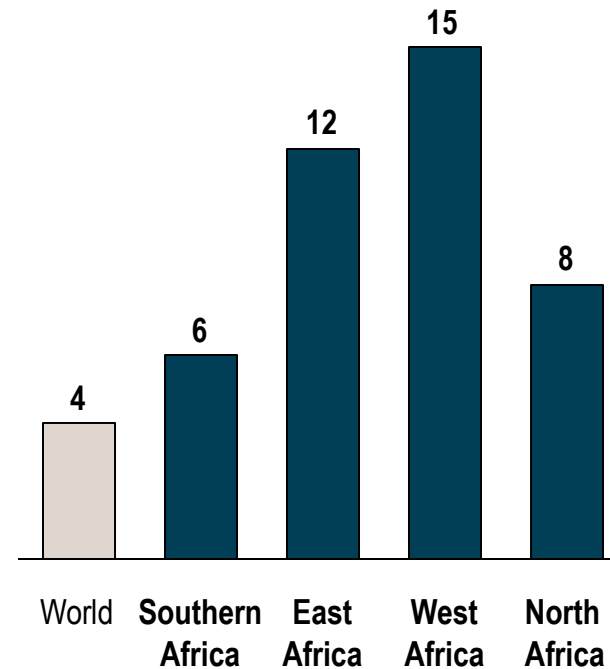
Efficiency and productivity at most African ports lag well behind peers in other regions

Port performance

General cargo handling efficiency
[tonnes per hour]



Container dwell time
[days]

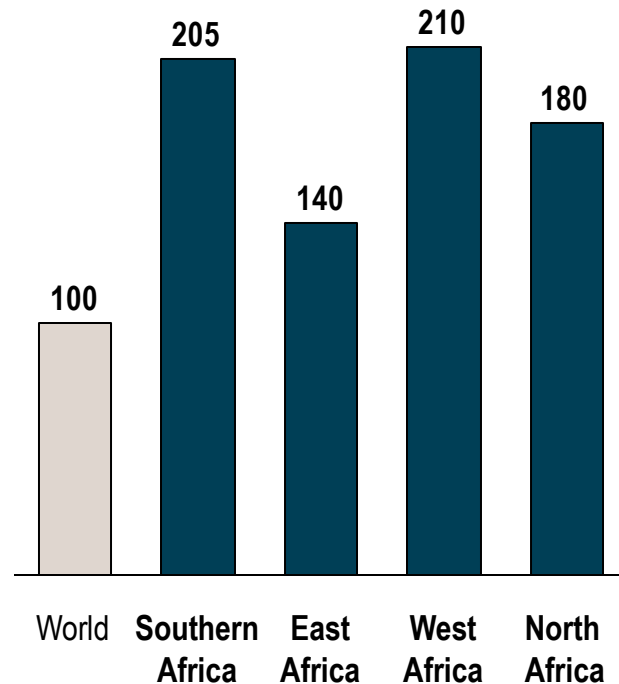


- > Many ports do not have adequate cargo-handling equipment to match their berth capacities
- > A significant number of ports do not possess purpose-built container-handling cranes
- > Cargoes spend considerably more time in African ports than in other regions

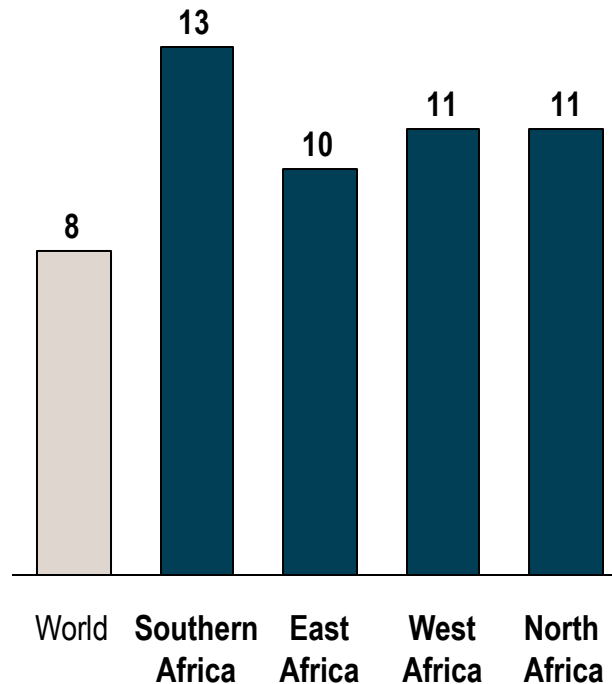
Cargo handling costs at African ports are generally less competitive than in peer ports in other regions

Cargo handling costs

Container handling [USD]



General cargo per ton [USD]



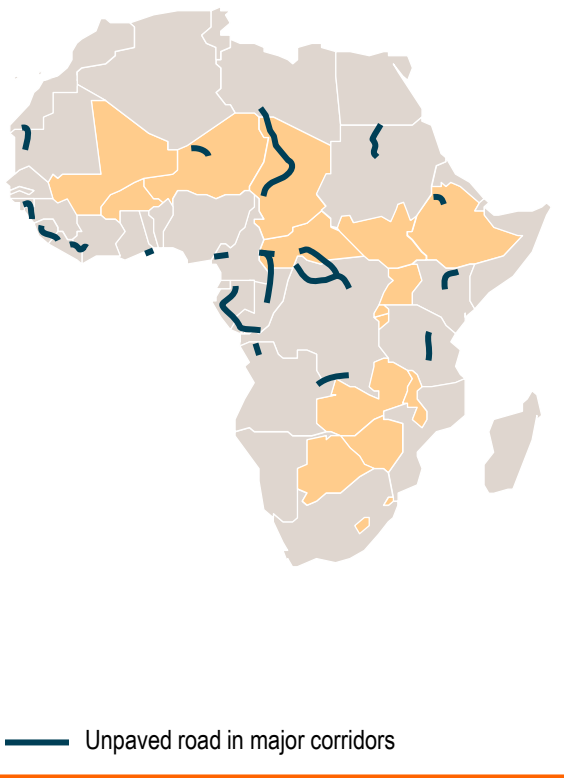
Cargo handling costs tend to be higher in Africa than in most other parts of the world as a result of:

- > 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

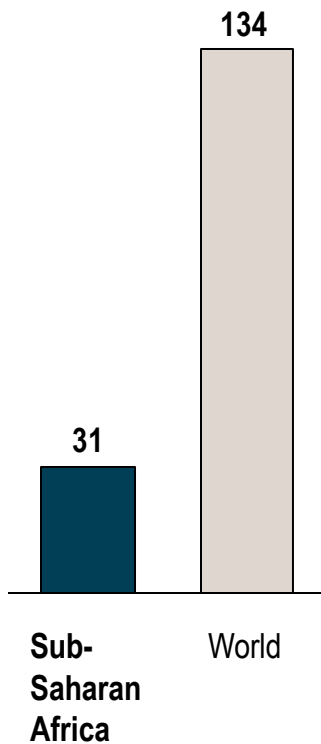
Transport infra density is still significantly below world average

Land infrastructure (2014)

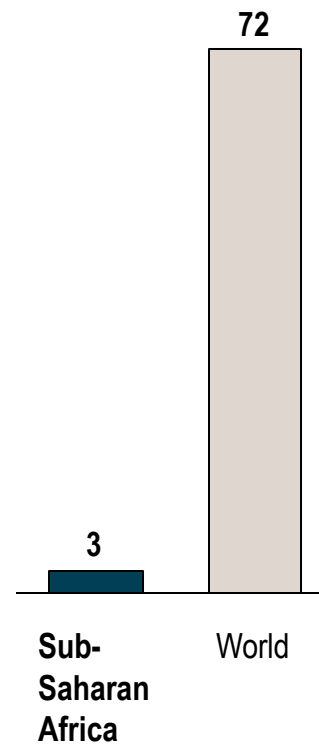
Current status of road infrastructure



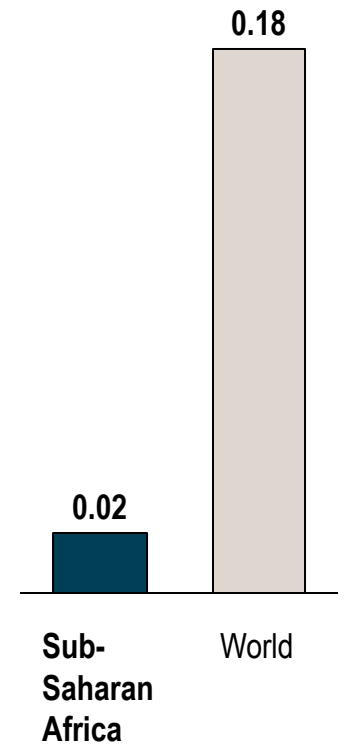
Paved roads density
[km/1000 km²]



Railway density
[km/1000 km²]

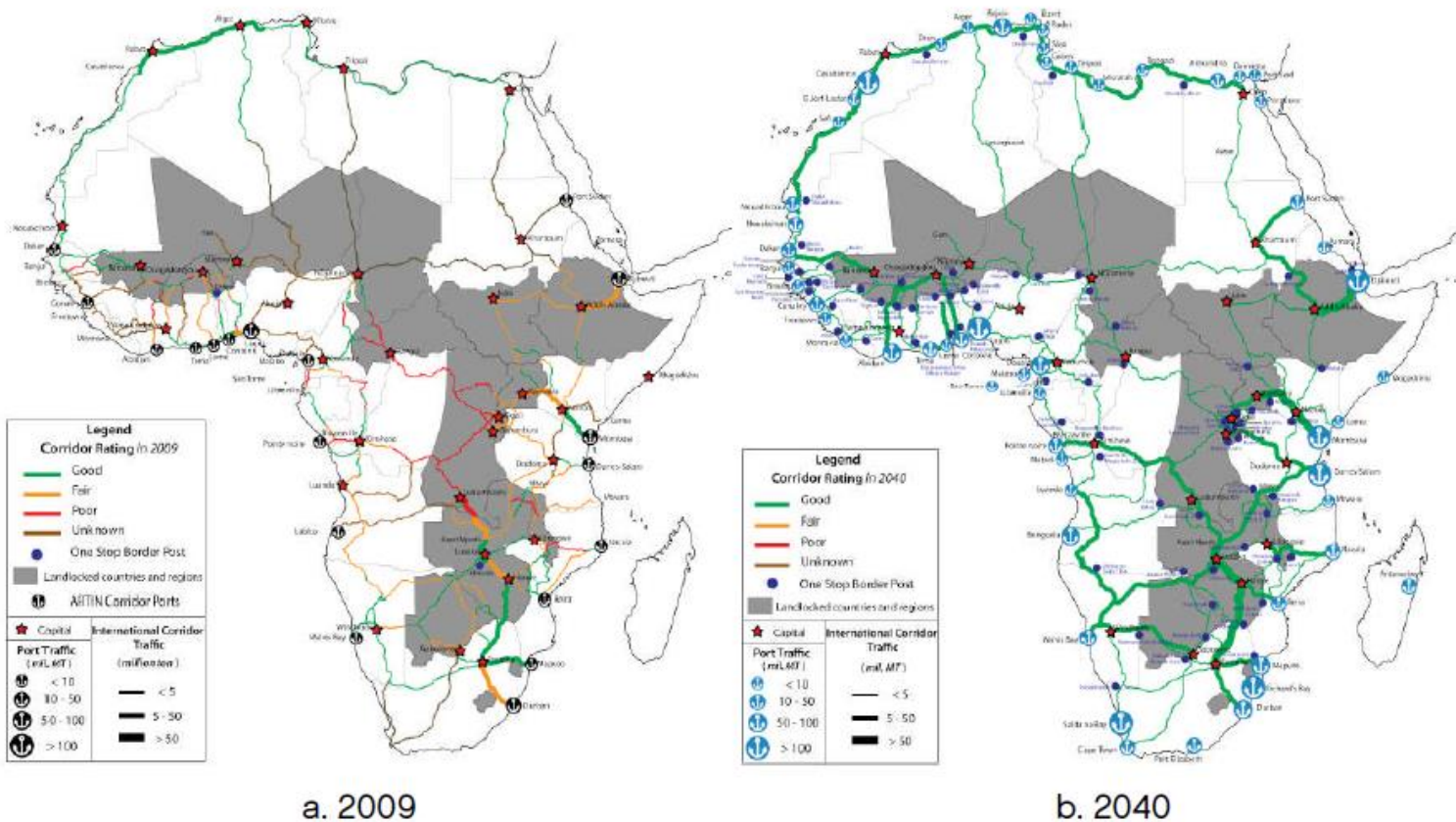


Airport runway density
[per 1000 km²]



Countries are working together to develop an integrated pan-African road transport network by 2040

Investments in road infrastructure



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

Barriers to trade in landlocked countries

16 landlocked countries



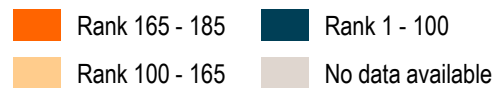
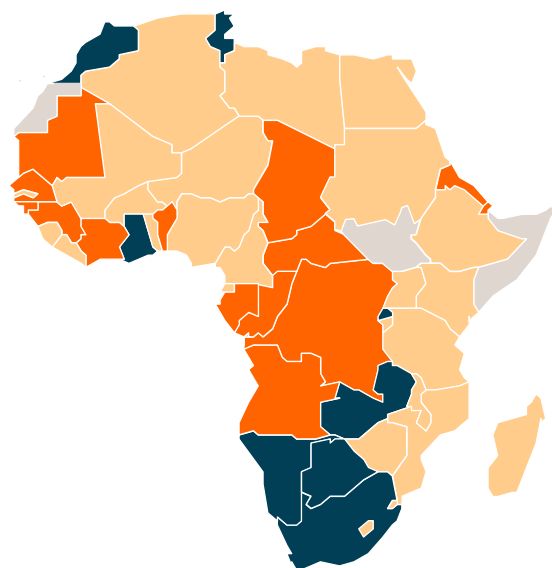
Regulatory performance

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	-	-	-	2.13	121
Burundi	3	4	6	2.20	113
Central African Rep.	4	5	4	2.45	82
Chad	-	-	-	2.00	142
Ethiopia	6	10	3	2.14	104
Lesotho	-	-	-	2.40	108
Malawi	-	-	-	2.25	91
Mali	-	-	-	2.17	109
Niger	-	-	-	1.67	143
Rwanda	-	-	-	1.80	148
South Sudan	5	3	4	2.14	131
Swaziland	-	-	-	-	-
Uganda	1	1	-	2.21	83
Zambia	5	3	4	2.08	100
Zimbabwe	10	5	2	1.92	114

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

Ease of doing business

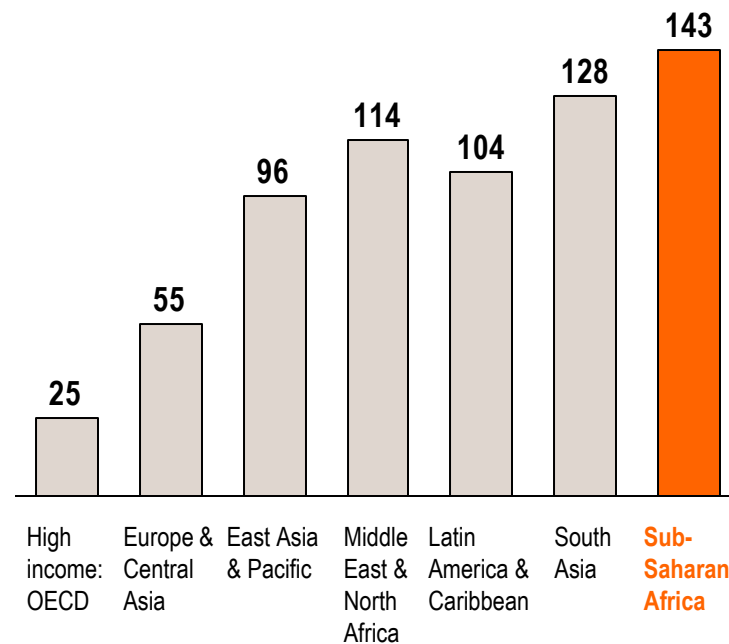
Ease of doing business 2015¹⁾



1) As of June, 2015

Countries	Rank [165 - 185]
Central African Republic	185
Chad	183
Congo, Rep.	176
Eritrea	189
Congo, Dem. Rep.	184
Guinea-Bissau	178
Guinea	165
Cote d'Ivoire	142
Niger	160
Benin	158
Angola	181
Zimbabwe	155
Djibouti	171
Gabon	162
Mauritania	168
Senegal	153

Regional ranking



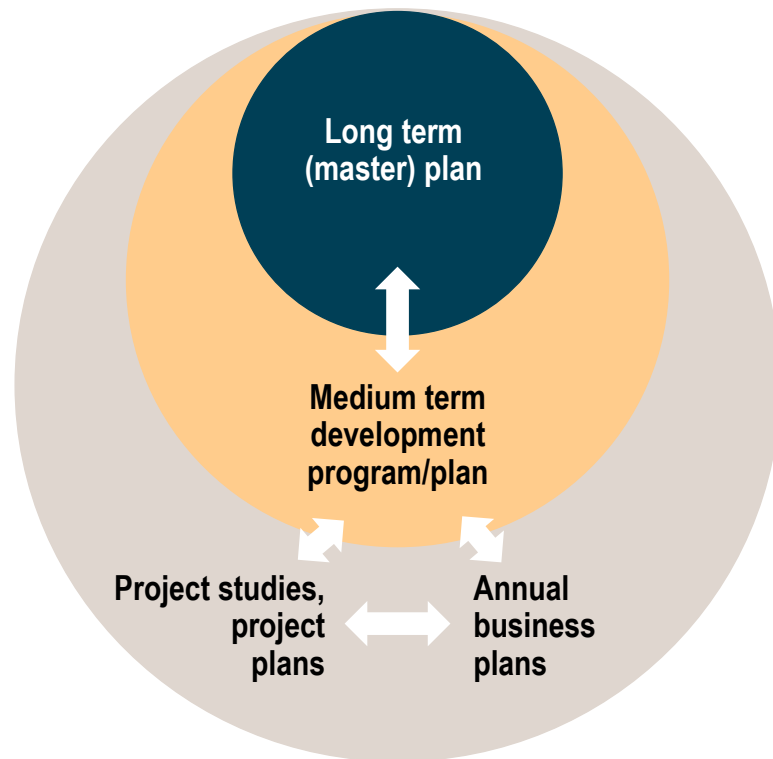
D. The way forward –
How to develop ports
smartly



The key success factor of the most successful ports is their ability to balance & integrate **long term**, medium term & short term planning

Port planning approach – best practice

Illustrative



Planning horizon	Nature	Updating
20-40 years	<ul style="list-style-type: none"> > Strategic > Encompassing > Locations > Zoning > Land bank 	Every 5-8 years, rolling basis
8-15 years	<ul style="list-style-type: none"> > Strategic > Development program > Scheduling > Common infrastructure development planning > Operating models > Funding programming 	Every 2-3 years, rolling basis
5-8 years	<ul style="list-style-type: none"> > Strategic > All aspects of operations & development > Management tool for port management 	Every year, rolling basis

An integrated approach to port development strategy formulation is required if the aim is to maximize its national economic impact...

National logistics strategies

Key challenges/issues for ports

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



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"

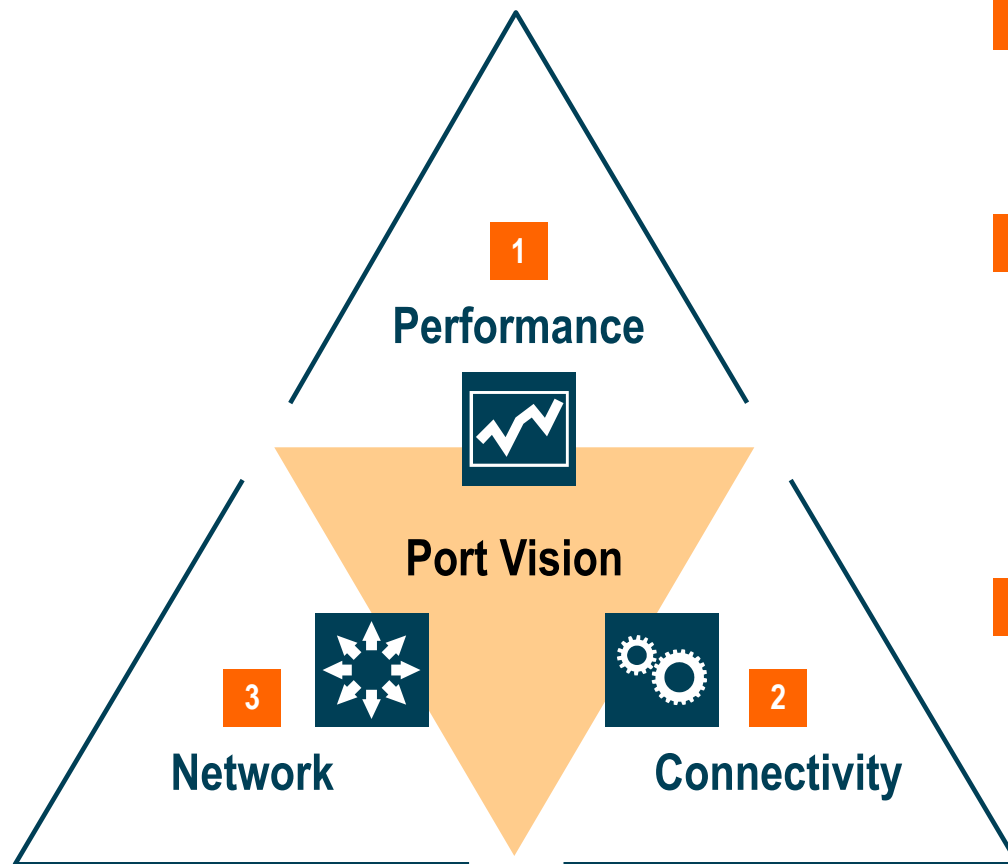


Key attributes

- > Profitability
- > High economic impact
- > High efficiency
- > Expandable
- > Flexible

... 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 Exlm 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**

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	<ul style="list-style-type: none"> 2 Value addition of exports/commodities 4 Transshipment and transit trade development 5 Exlm gateway for regional/national hinterlands
B Rotterdam	Integrated cluster approach to attract and accelerated industrial/economic development in proximity to port	<ul style="list-style-type: none"> 1 Port related industries 3 Distribution/warehousing and logistics hub 4 Transshipment and transit trade development 5 Exlm 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 3 Distribution/warehousing and logistics hub 4 Transshipment and transit trade development 5 Exlm gateway for regional/national hinterlands

Please contact us if you have any further questions



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