

Remodelling the shipping industry through innovation and digital transformation

16th ASEAN Ports and Shipping Conference - Transportevents



Roland Berger is a leading global strategy consulting firm with European roots and a strong presence in ASEAN

Our global presence

50 offices in **34** 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

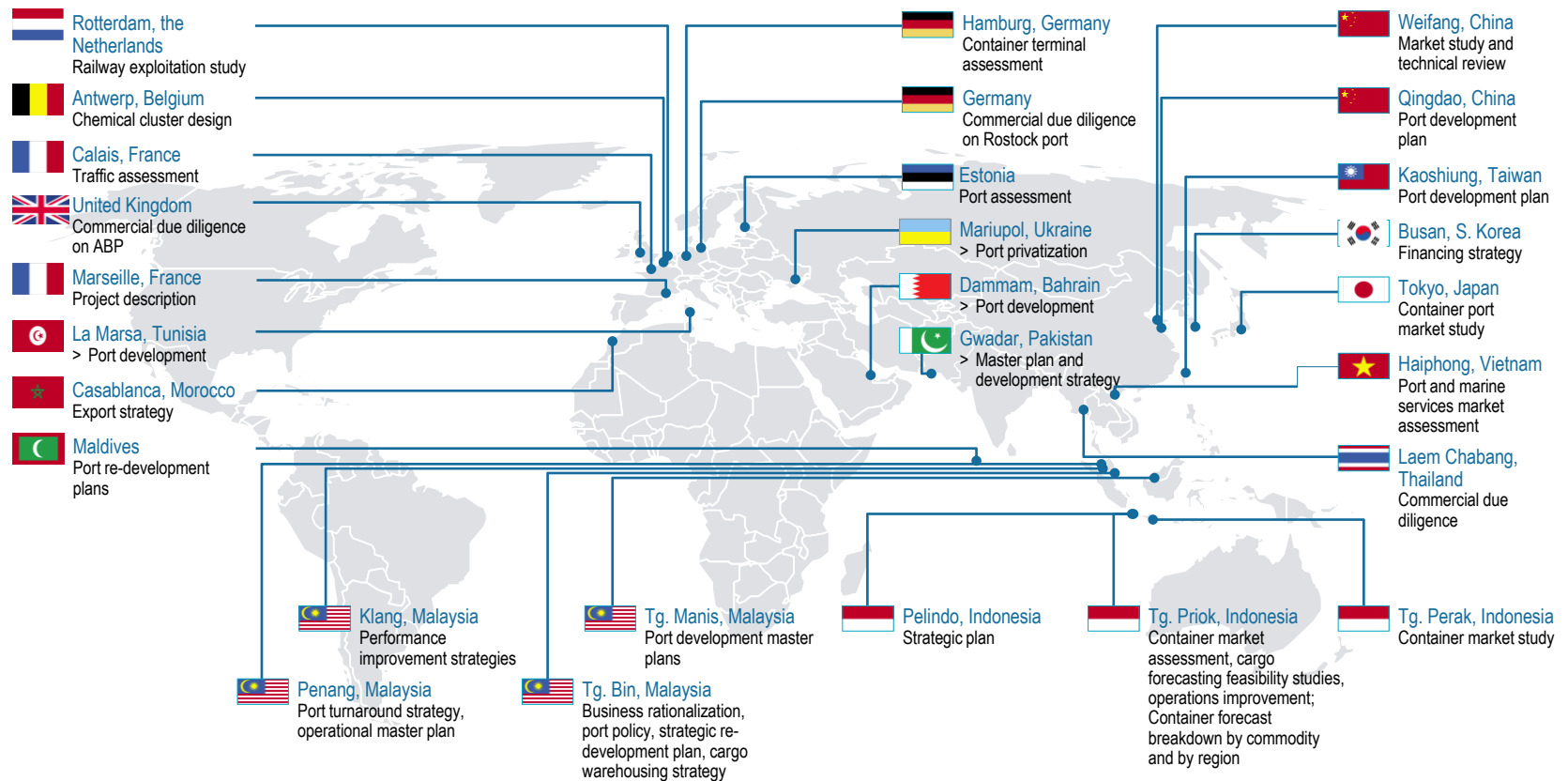
40% of top 1,000 global companies

50% of Europe's leading companies



Uniquely amongst strategy consulting firms, it has a strong, fast growing and dedicated maritime practice with global reach

Recent port projects – selected samples only



We offer an integrated approach and specialized services for the ports sector all over the world

Our service offerings – Our port consulting experience by country

1. Port policy & regulation



- > Malaysia
- > Pakistan
- > Tunisia
- > Ukraine
- > Hungary
- > Thailand
- > Indonesia
- > Myanmar
- > Morocco
- > Iran
- > Singapore
- > Belgium

2. Port planning & development



- > Iran
- > Malaysia
- > Indonesia
- > Pakistan
- > Bahrain
- > Netherlands
- > Maldives
- > China
- > Taiwan
- > Vietnam
- > Thailand
- > Saudi Arabia
- > Russia
- > Ukraine
- > UK
- > Morocco
- > Egypt
- > Bangladesh
- > Brazil
- > Kenia
- > Bulgaria
- > Portugal
- > France
- > Estonia

3. Port business



- > Malaysia
- > Indonesia
- > Pakistan
- > Maldives
- > China
- > Netherlands
- > Singapore
- > Japan
- > Cambodia
- > Vietnam
- > Thailand
- > South Korea
- > Germany
- > United Kingdom
- > Belgium
- > Italy

4. Port operations

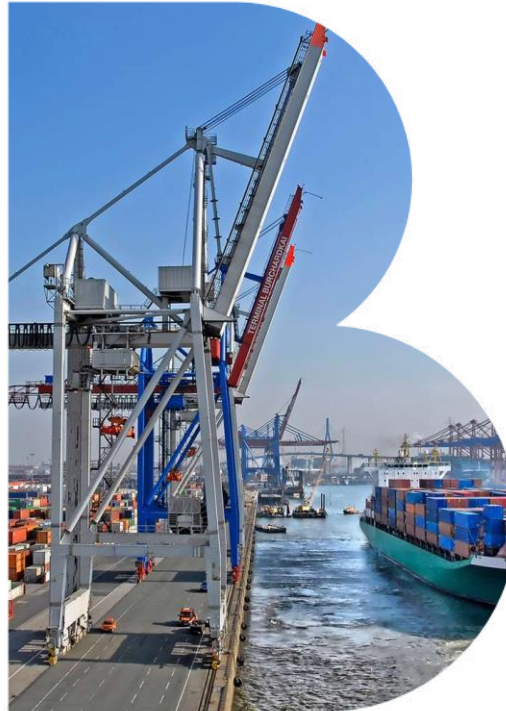


- > Malaysia
- > Indonesia
- > China
- > France
- > Russia
- > Ukraine
- > Estonia
- > Singapore
- > Netherlands

Agenda today

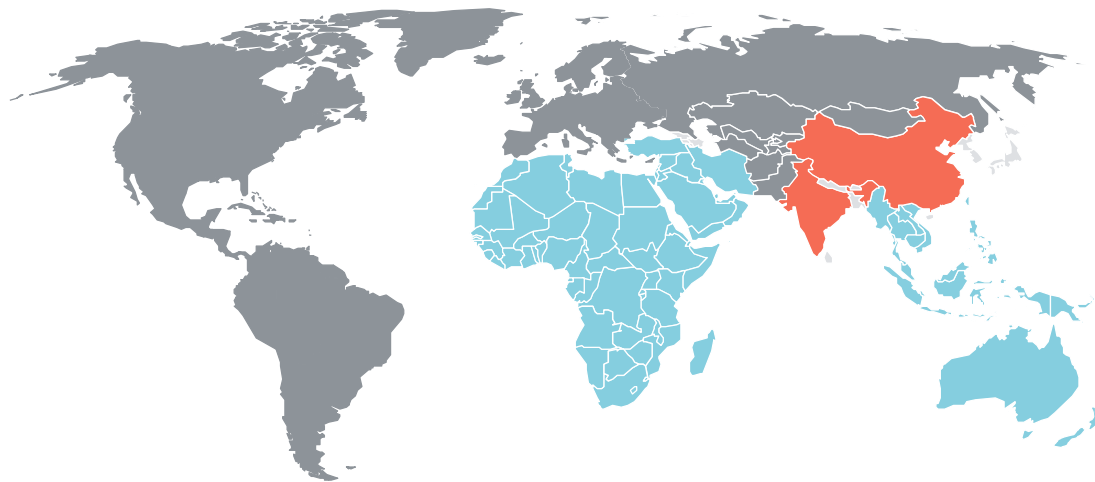
- Maritime trade outlook
- Trends and challenges
- Other digital innovation samples
- E-commerce's impact
- Shipping 4.0 ?

Maritime trade outlook

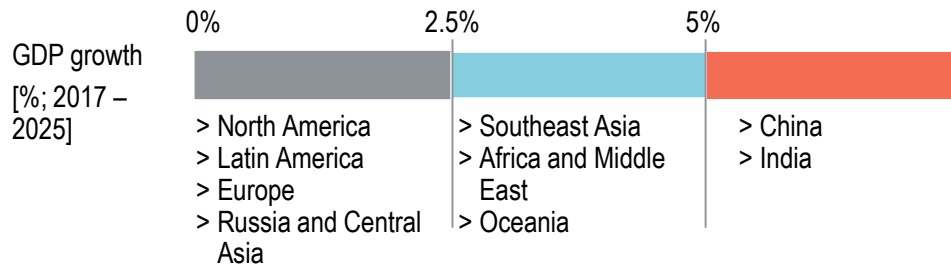


Economically, East Asia is projected to continue to outperform rest of the world over the coming years

GDP ¹⁾ growth
[%; 2017 - 2025]



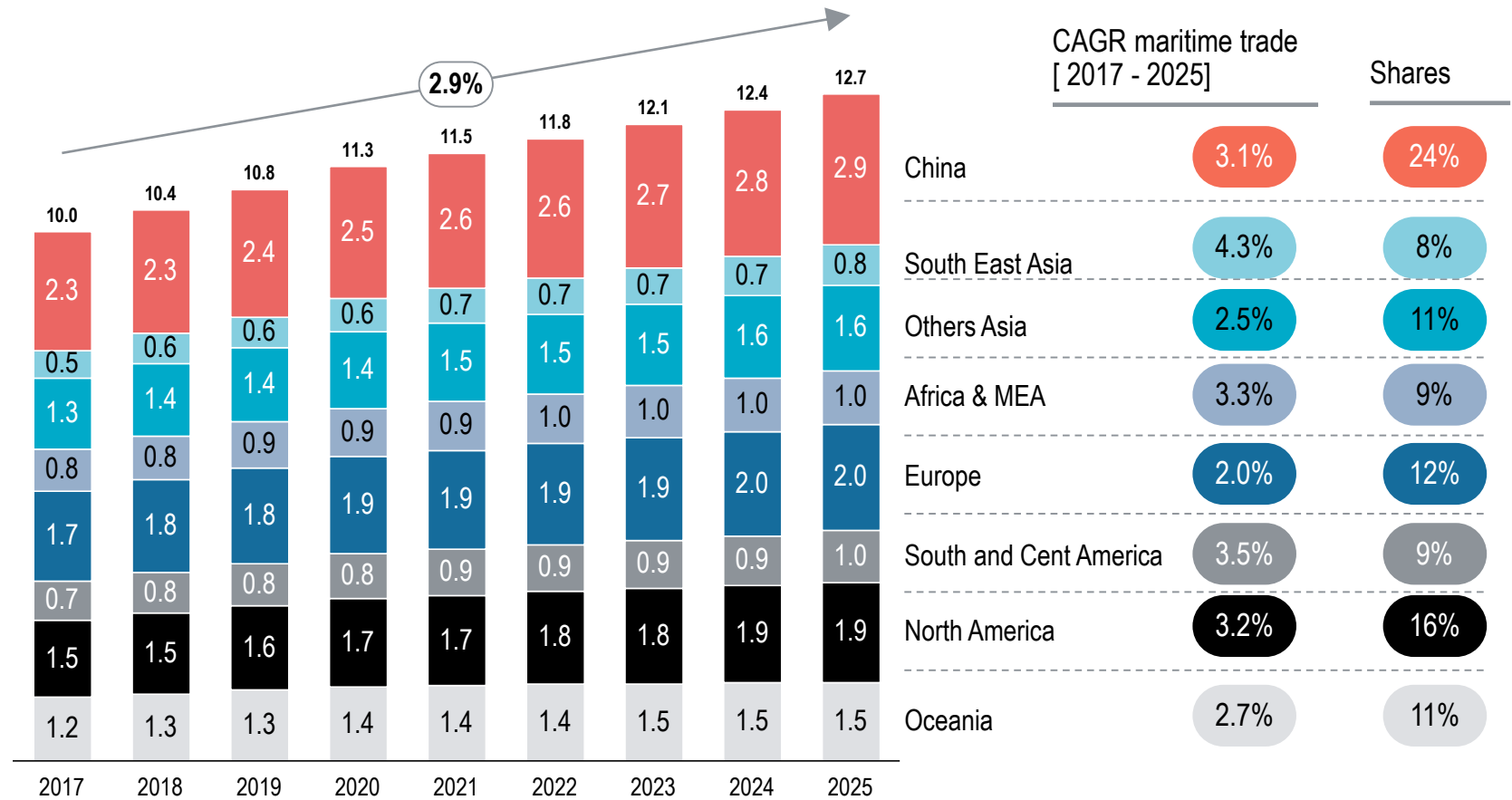
India	6.6%
China	5.6%
South East Asia	4.7%
Africa and MEA	3.8%
Oceania	2.6%
Latin America	2.4%
North America	2.1%
Europe	1.8%
Russia and Central Asia	1.3%



1) Real GDP

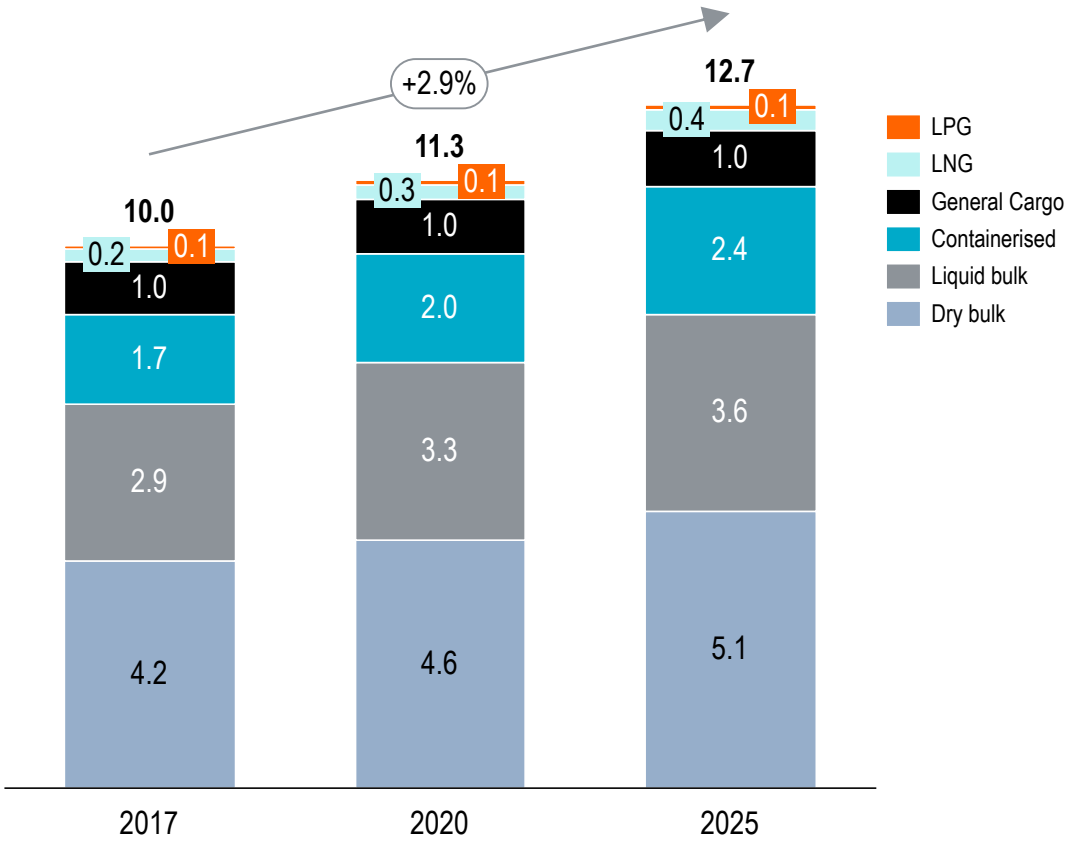
Looking ahead, maritime trade is projected to grow in a (much) more even way than in the past few decades

Maritime trade by region [bn tonnes, 2017-2025]



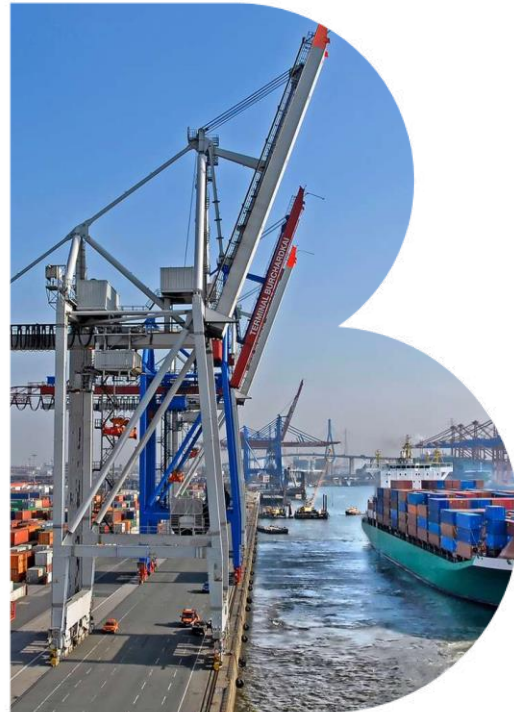
Conventional forecasts do not expect much change in respective shares of the four main cargo types in the coming years

Maritime trade by cargo type [bn tonnes, 2017-2025]



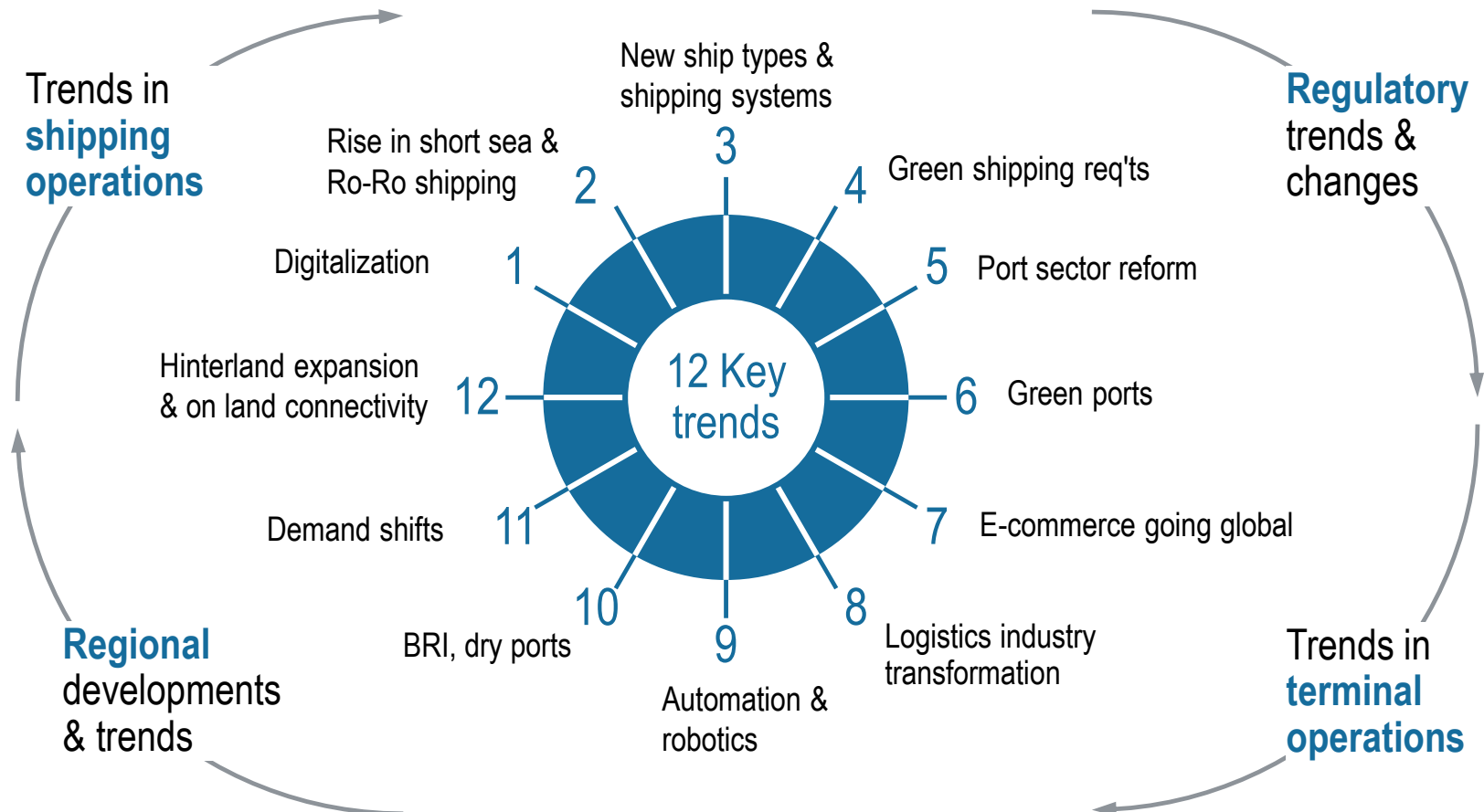
Note:
Consumer goods make up around 10% of global shipping

Trends and challenges



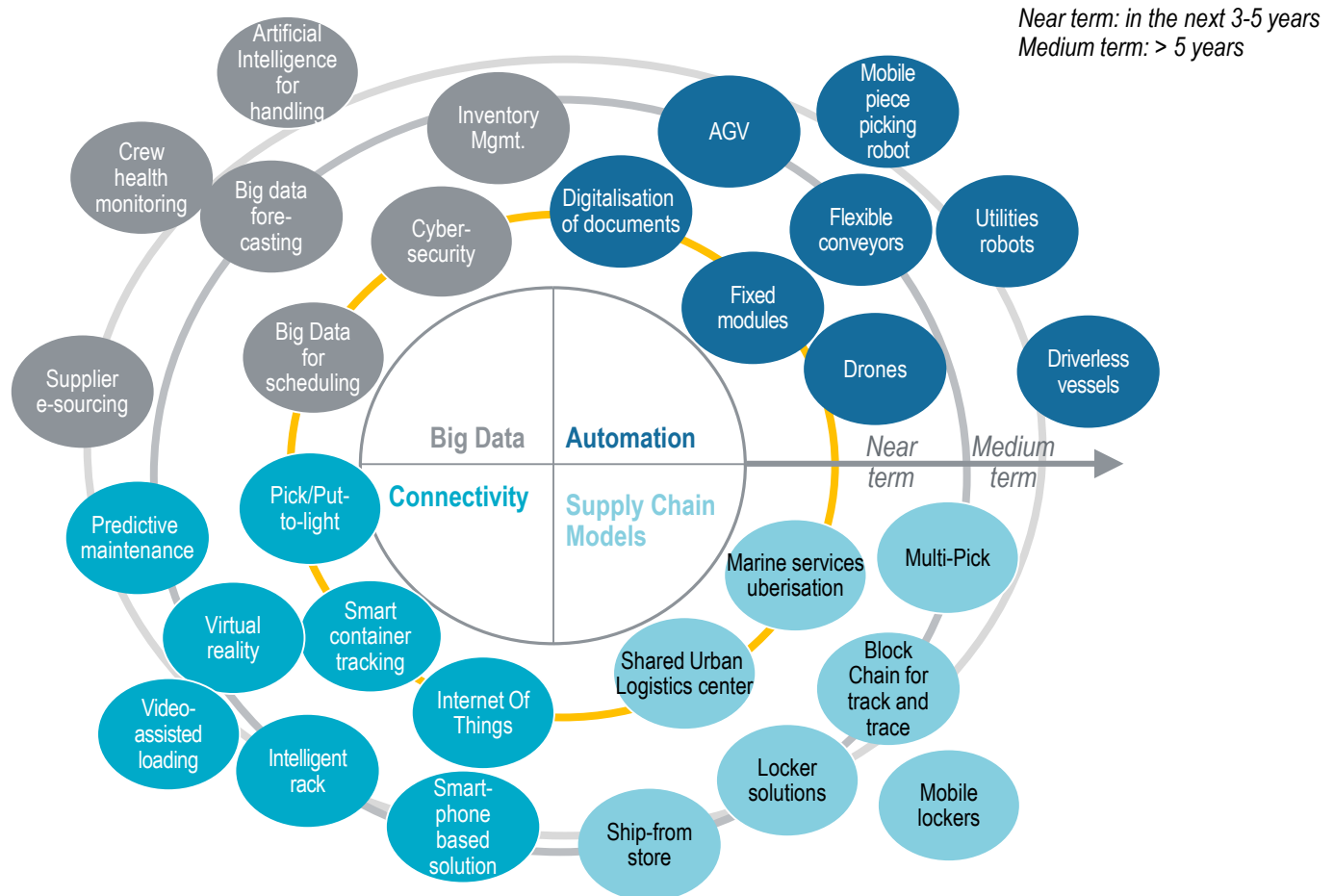
The maritime industry is facing an environment that is becoming increasingly challenging – in particular to shipping lines

12 mega-trends/ challenges for the maritime industry



In the maritime sector as a whole, the range of new innovations / technologies now emerging is very large (more than 100)

Innovation trends on transportation (NOT exhaustive)

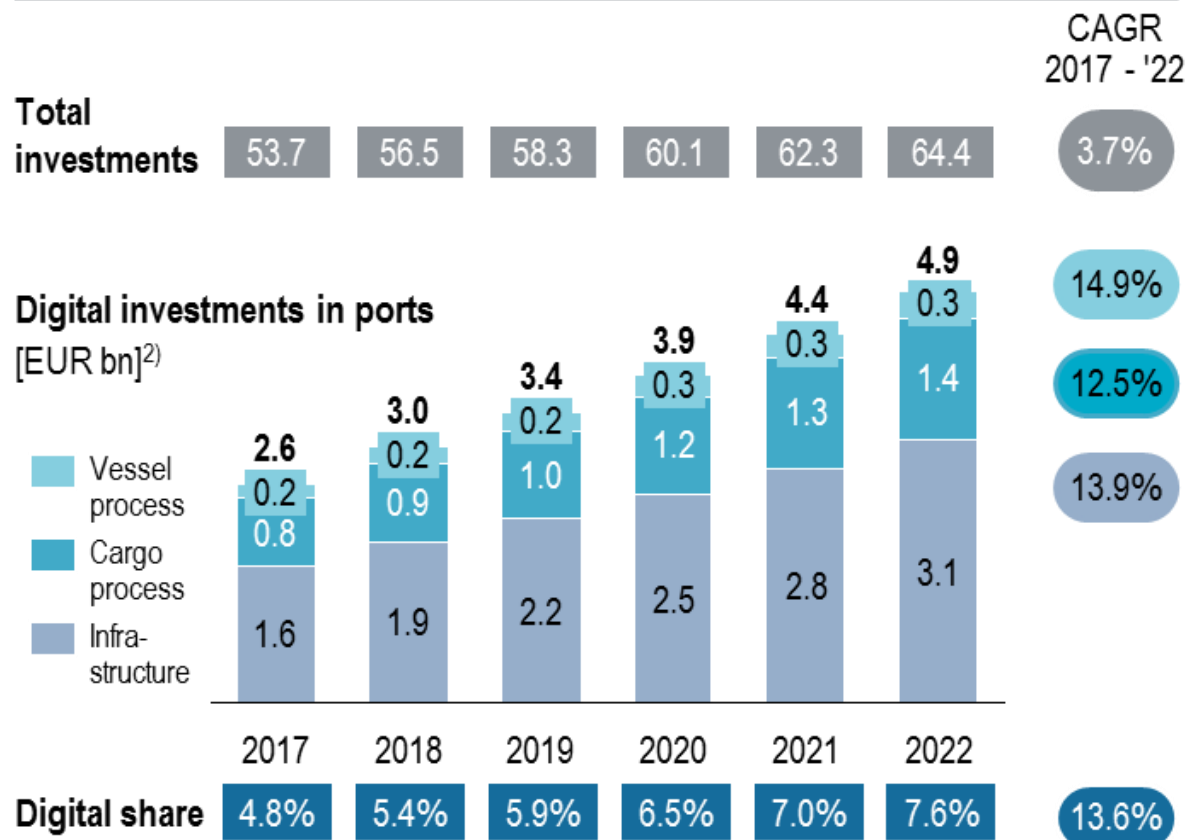


Digitalization trends related to shipping are everywhere...

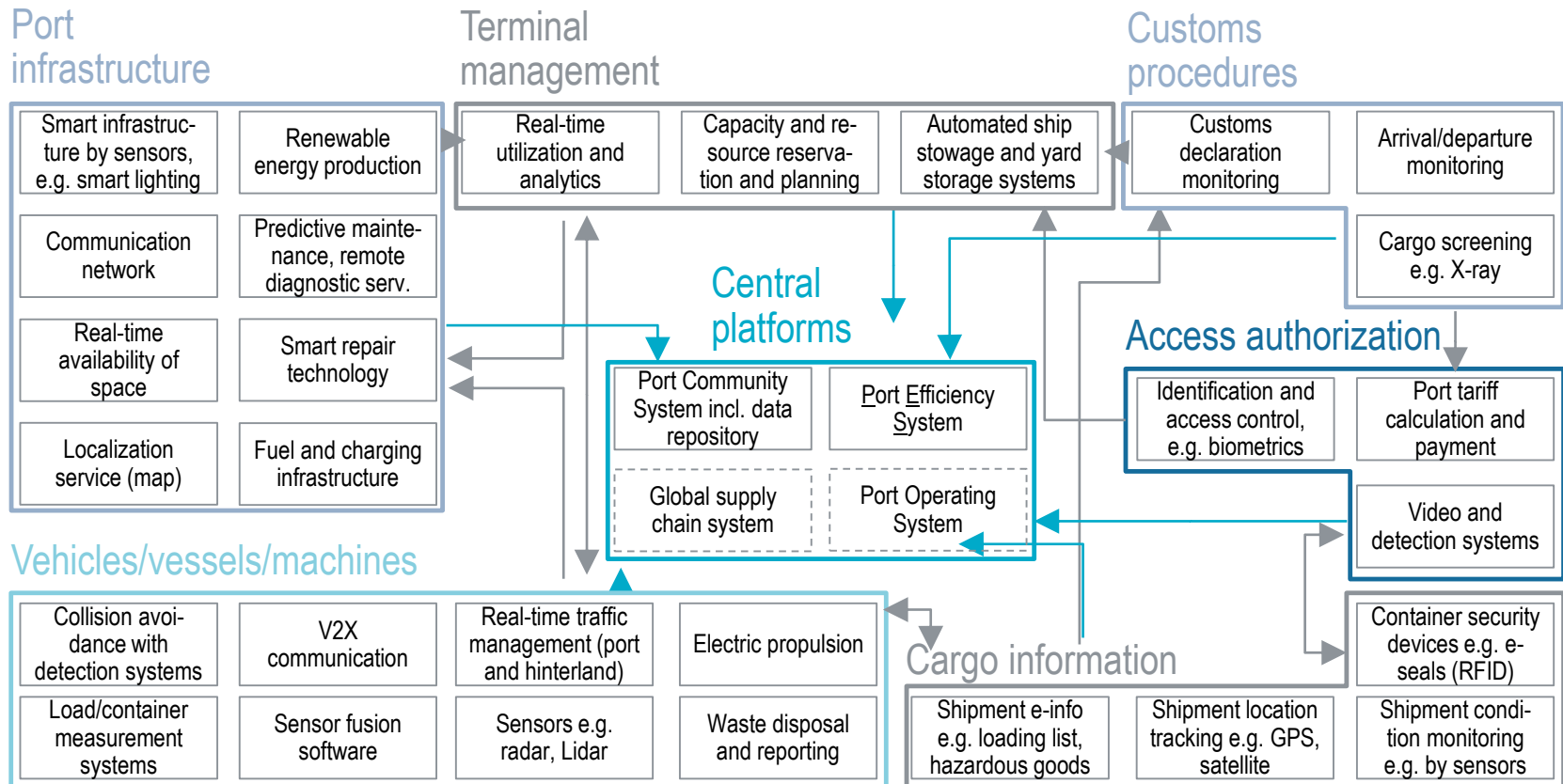
Actors	Trends	Future?	
 E-commerce	Globalizing platforms		<p>How to align / harmonize?</p> <p>Global standards?</p>
 Large MNCs	Global SCM systems		
 Shipping lines	Global cargo tracking/info systems		
 Forwarders & logistics co's	Local and global forwarding apps		
 Ports	Ports community systems ++		
 Governments	Customs – one window systems		
 Governments	Global security - IPCS, Eureka etc.		
 UN trade bodies	Traditional trade info, EDI standards		
 Ship management systems	New systems		
 Ship navigation systems	New systems		

In ports, investments in digitalization are growing very rapidly, affecting other stakeholders in the transport and logistics chains

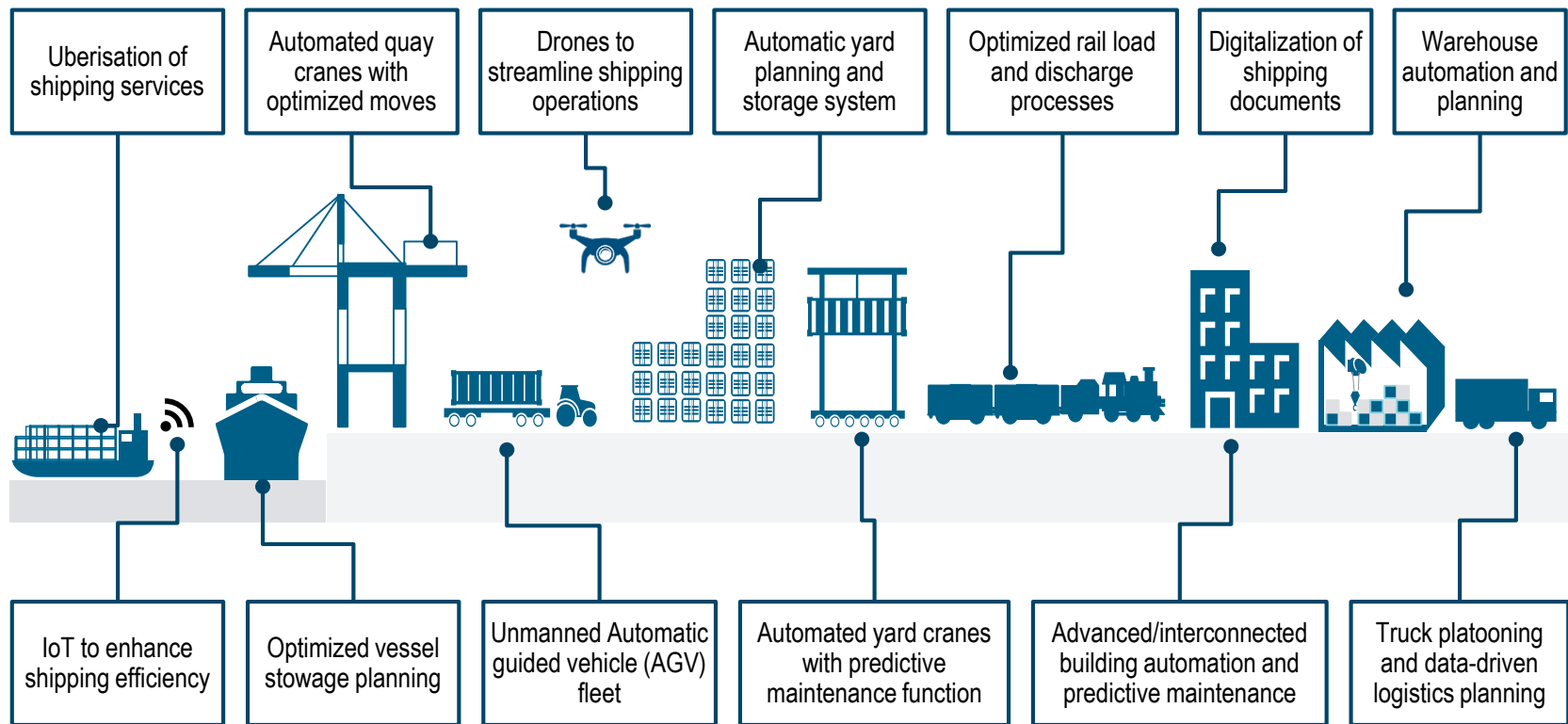
Port investment trends (leading ports only)



In port/terminal operations, there are numerous separate as well as inter-linked or intersecting digital development trends

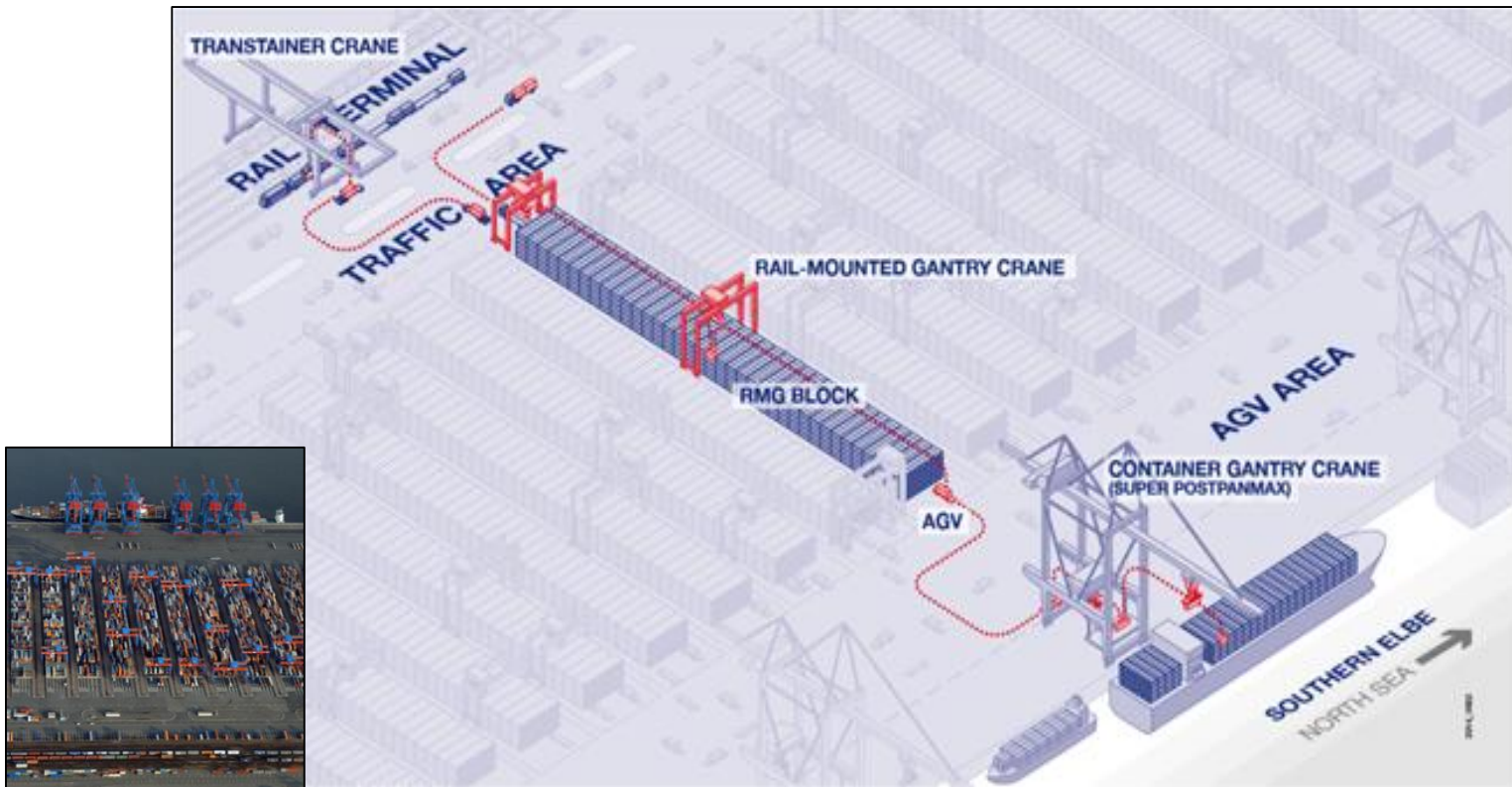


In addition, new automation trends and technologies are emerging that bring new challenges to ship operators

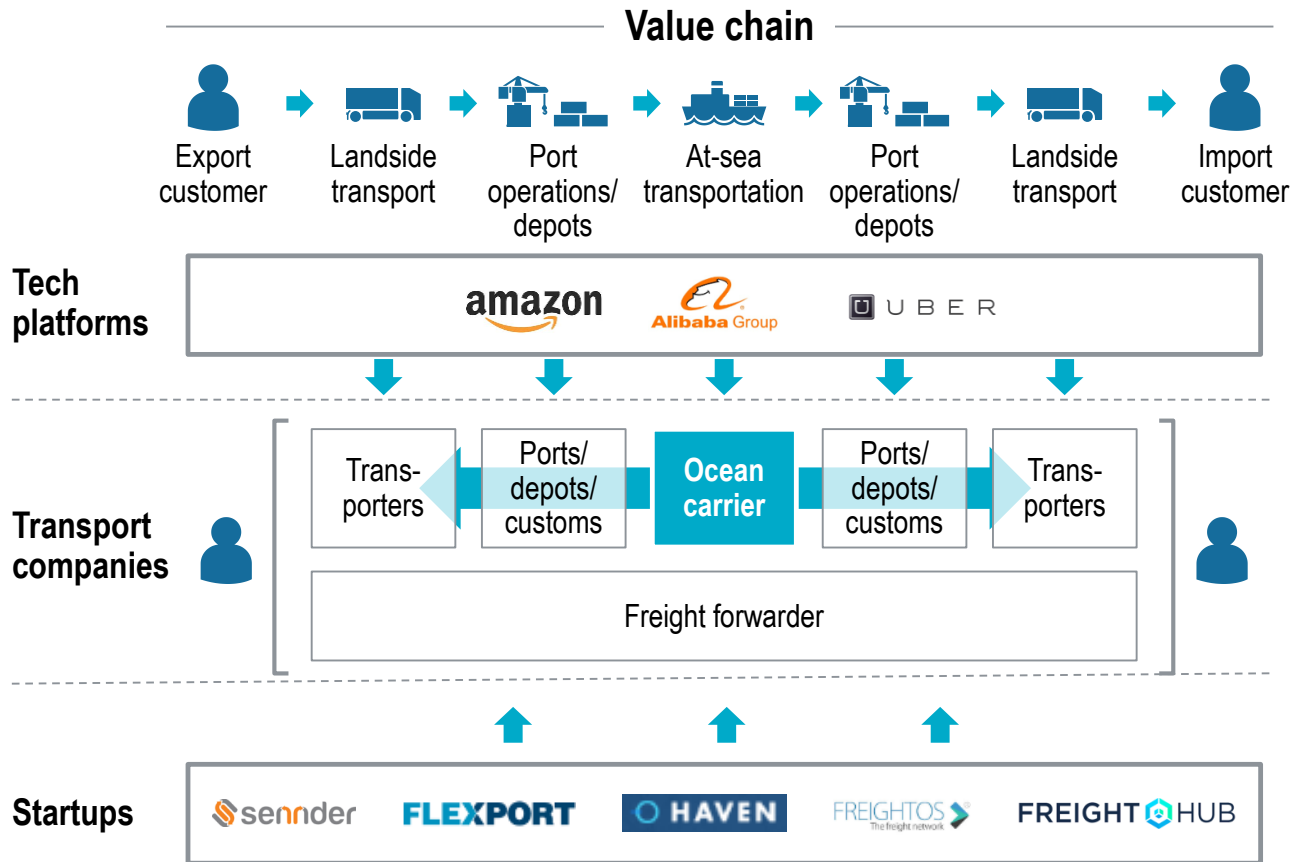


In container terminals, in many places, operations are now moving towards "full" or "semi" automation

Illustration: HHLA CTA, Hamburg



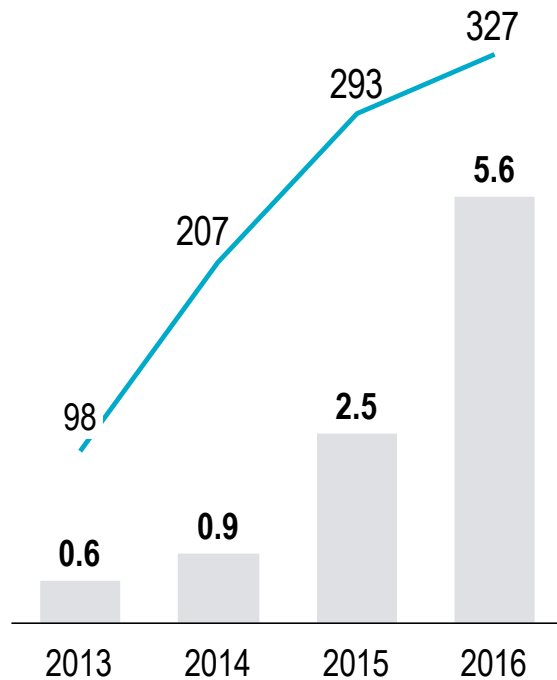
In logistics – including sea shipping - boundaries are changing, with new players now beginning to compete in the ocean carrier market



Numerous new start-ups are emerging all over in the logistics/forwarding/shipping/transport/delivery/warehousing space

Investment in shipping/ logistics start-ups

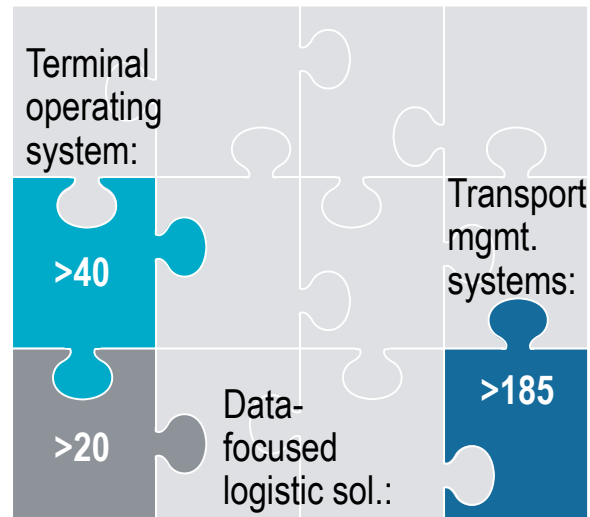
— # investments ■ Disclosed funding [USD bn]



Current landscape

~ 2,000 logistics startups: ¹⁾

thereof # of startups offering:



1) No one clear number available; estimation based on aggregation of best available data points

Industry disruption results from Innovation = Combining new or existing business model concepts with new technologies

Examples of industries and their disruptors



Which segments of the shipping industry will be disrupted most?

Other digital innovation samples







Drones are increasingly used for monitoring, inspections and ship-related deliveries

Samples of deployment of drones

Examples of entities using / developing this:




<p>Site surveillance <i>Port operators, hinterland transport companies</i></p>	<ul style="list-style-type: none"> > Traffic congestion on roads to and from ports > Port infrastructure (e.g. container stacks)
<p> Remote monitoring <i>Port authorities, Customs, Marine authorities</i></p>	<ul style="list-style-type: none"> > Marine incidents (e.g. oil spills) > Border control > Search & Rescue
<p> Parcel delivery (shore-to-ship delivery) <i>Port operators, shipping companies, shipping agencies</i></p>	<ul style="list-style-type: none"> > Spare parts > Medical supplies > Mail
<p> Inspection for maintenance <i>Shipping companies & agencies, offshore marine companies, ballast water companies</i></p>	<ul style="list-style-type: none"> > Vessel exterior (e.g. coating, dents) > Cargo tanks > Offshore facilities > Ballast water tanks
<p> Inspection for compliance <i>Class societies, port authorities, port operators</i></p>	<ul style="list-style-type: none"> > Close-up ship structure (e.g. hull) > Offshore & marine structures > Vessel emissions

- Regulatory & Compliance
- Operations

Digitalization of documents along the logistics chain can reduce admin costs, improve trade transparency, improve efficiency etc

Examples of entities using / developing this:




Actors in logistics chain

- Exporters
- Forwarders
- Ports & terminals
- Shipping companies & agents
- Port authorities
- Trucking, rail etc
- Importers



Documentation systems that can be digitalized & integrated

- Logistics actors internal systems
- Port Community Systems, Terminal Operating Systems
- Customs Systems, Port Clearance Systems
- Supply Chain Management Systems
- Various Transport Mgmt. Systems



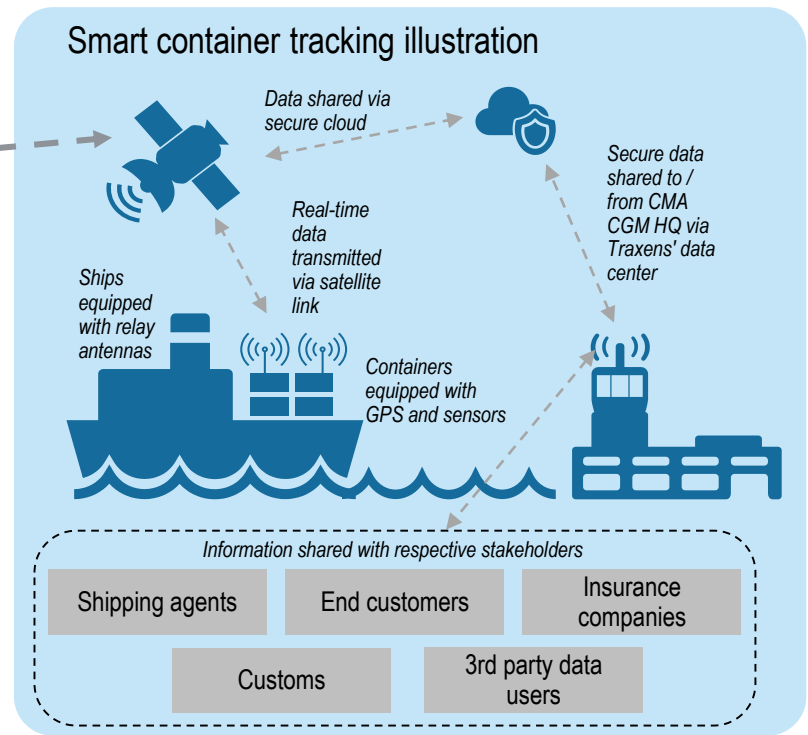
Paperless, integrated systems have benefits

- ✓ Reduced administrative costs & hassle
- ✓ Shortened time & reduced delay
- ✓ Decreased fraud risk
- ✓ Secure & accurate exchange of real-time info
- ✓ Increased trade visibility & transparency

Some shipping companies and ports are adding IoT solutions to their management information systems

Examples of IoT maritime applications

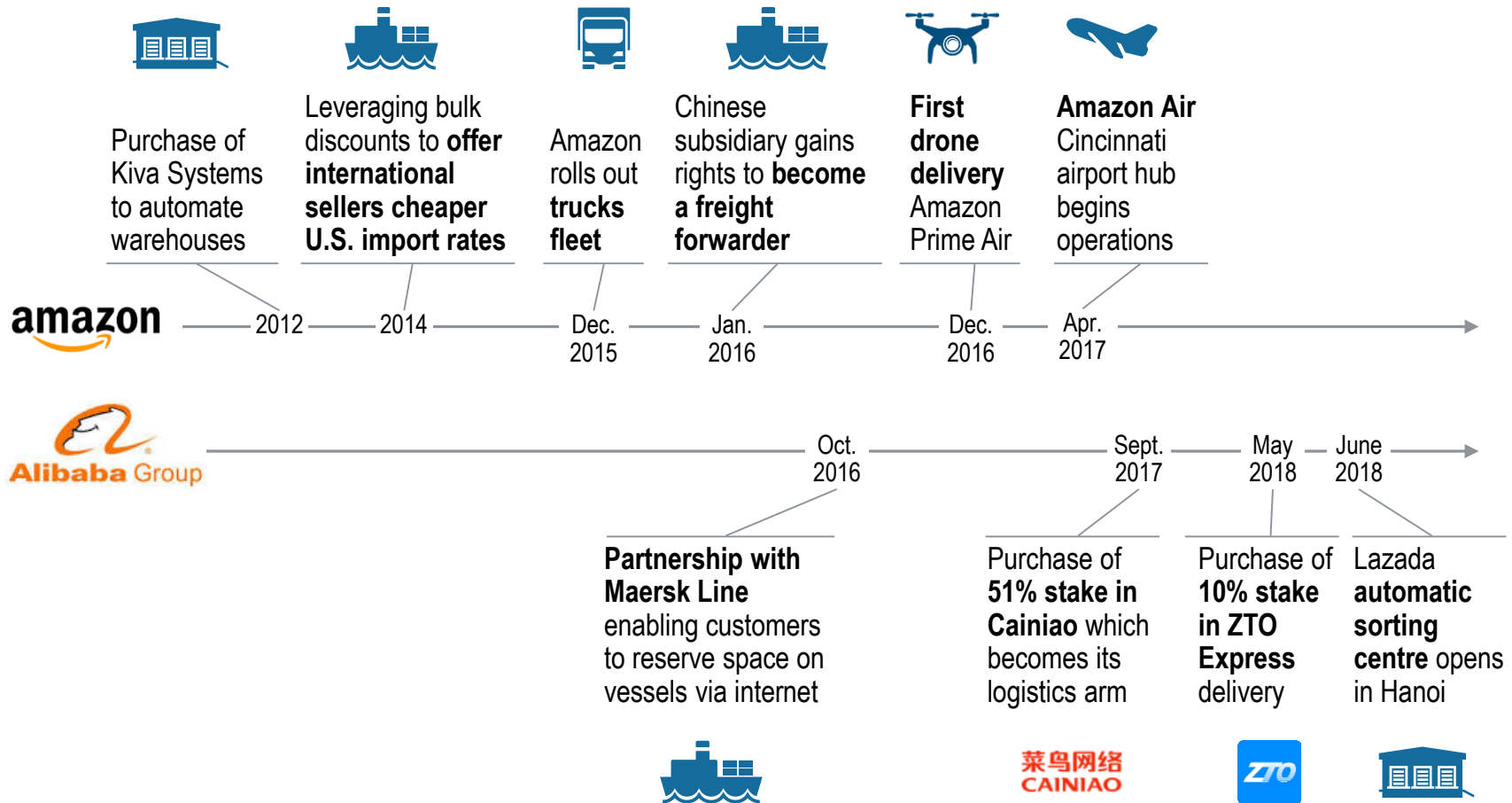
- Truck traffic management for ports
- Smart container tracking
- Cargo tracking
- Smart scheduling of vessels
- Optimization of cargo mix
- Self-piloting ships
- Intelligent pricing
- Tailored predictive maintenance
- Smart speed management on digitalized ships
- ...



E-commerce impact



With e-commerce going global, Amazon and Alibaba (and others) are starting to compete in reshaping the logistics industry



Alibaba is disrupting the industry through its "New Retail" strategy, enhancing its control over the logistics chain of its business



1) 2017-2022

Amazon is following a similar path, but appears to be more aggressive, more like "going it alone"

Shift from an online retailer to a B2B logistics provider

Rapid integration & automation of the logistics supply chain



1 Integration and automation of the entire supply chain



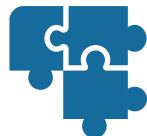
> Design of automated warehouses (Amazon Robotics)



> Entry in the freight forwarding business (Amazon's Chinese subsidiary)

Jan. 2016

2 Offering of internal logistics services to third parties



> Testing drone delivery (Amazon Prime Air)

> Considering drone-friendly floating warehouses (patent awarded in April 2016)

Dec. 2016 first delivery

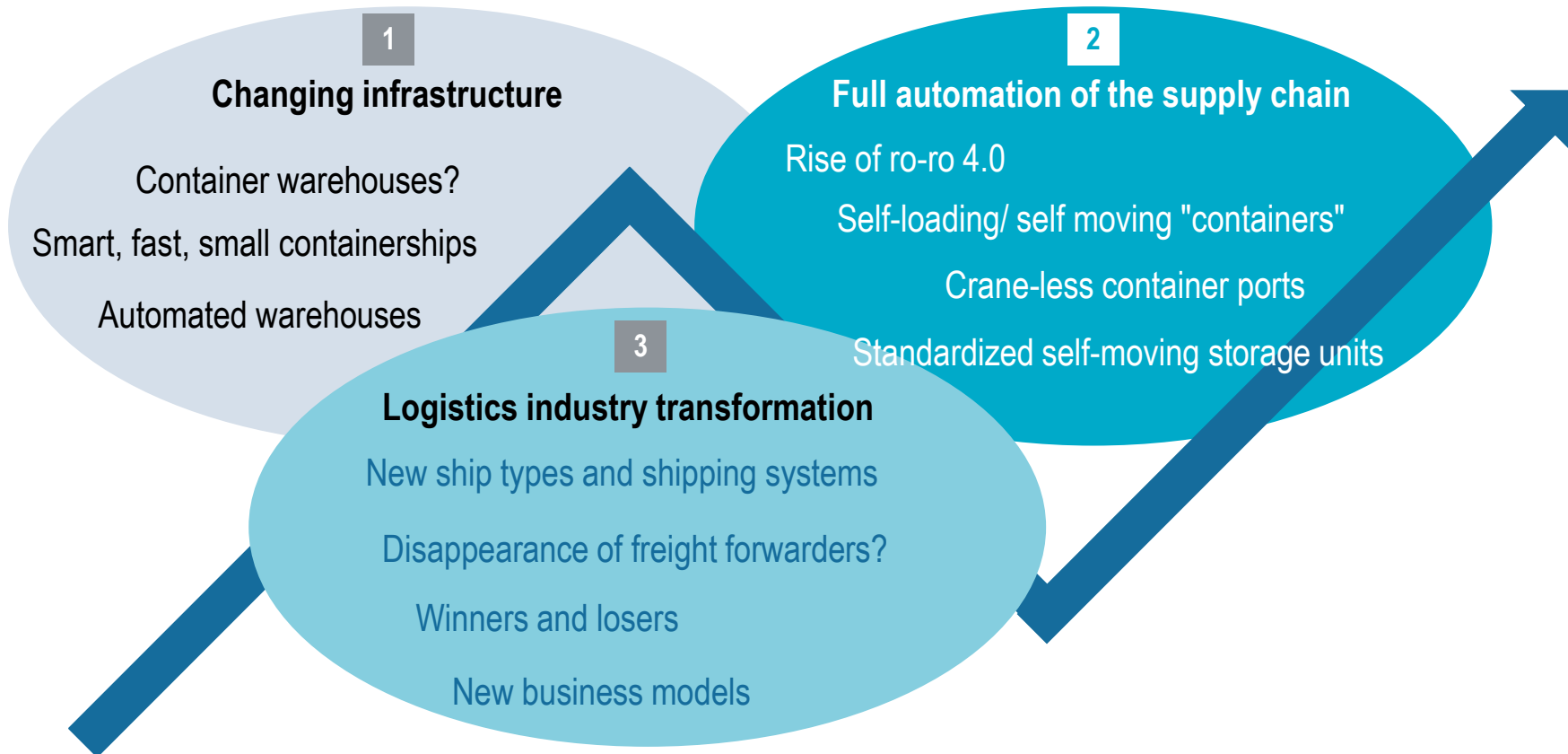


Shipping 4.0?



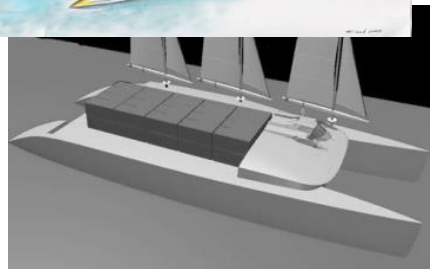
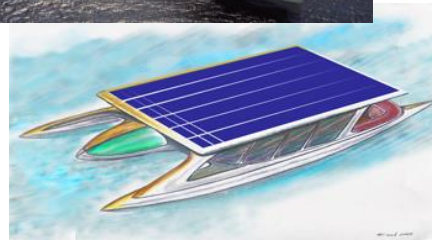
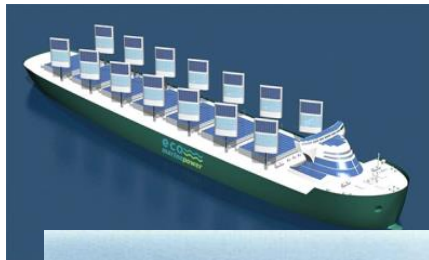
Looking forward, the shipping industry may drastically change

Samples of disruption scenarios



Smaller, faster, simpler, smarter and greener ships will be required, in particular with regards to shipping of consumer goods...

Numerous new ship-tech concepts are currently being explored – Samples only



.. therefore, and in particular, container shipping is vulnerable

5 Mega Disruptors

- 1. Robotic automation
- 2. Global E-commerce
- 3. Energy transition
- 4. New ship design tech
- 5. Digitalization

Ships Today - Available

Slow, 15-16 knots
Dirty
Complex
Large, low frequency
Hub & spoke, rigid schedules
Wide
Heavy, steel-based, water ballast
Decks, hatches
Crew 20-30
Pilots, tugs, ropes, anchors
Marine diesel for fuel
Designed for a single KPI
Turnaround in 10-24 hrs
Large terminal equipment

Ships Tomorrow - Needed

Fast, 30-40-50 knots
Green
Simple, smart
Small, high frequency
Direct calls ++
Narrow
Light, "fiber"-based, no ballast
No decks, no hatches
Crew 5-6
Dynamic positioning
Electrical propulsion +++
Designed for the sea
Turnaround in 2-3 hrs
Small robotized terminal equipm't

In case of questions, please do not hesitate to contact me

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