

Container shipping towards 2050

BIPC 2019

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Today's agenda

Prepared for:

A

Environment

B

Technology

C

The shape of trade

D

Conclusions and implications for liner shipping

Introduction

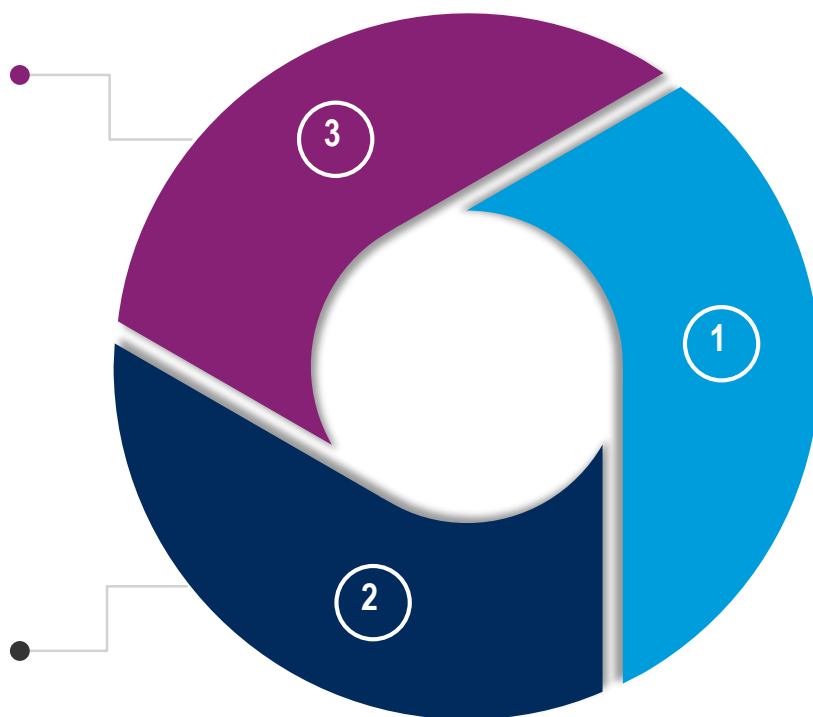
Technology and environment will drive trade patterns and the shape of the future container shipping and ports industries

The shape of trade

- Goods and services
- Trade patterns
- Deep sea and intra-regional
- Growth

Technology

- Impact on manufacturing
- Impact on supply chains



Environment

- IMO 2050
- Long term emissions goals
- Implications



Environment

Environmental issues will transform shipping

Shipping is reactive now...

Little pressure from customers (except Oil Majors)

Long lead time for new regulations

Shipping markets are very challenging

Efficacy of new technology is often not clear

Reliant on research, yards and Class

...but

- Society will not in future tolerate any significantly polluting industry
- Pressure on the shipping industry will increase from customers, government and society at large
- Consumers will drive change

IMO 2020 is just the beginning

SOx reduction 1st January 2020

- Global: 0.5%
- China coast: 0.1%
- LSFO, scrubbers, LNG, biofuels
- Fuel availability

40% reduction per tonne mile by 2030

- Energy efficiency improvements
- Slower steaming
- New fuels

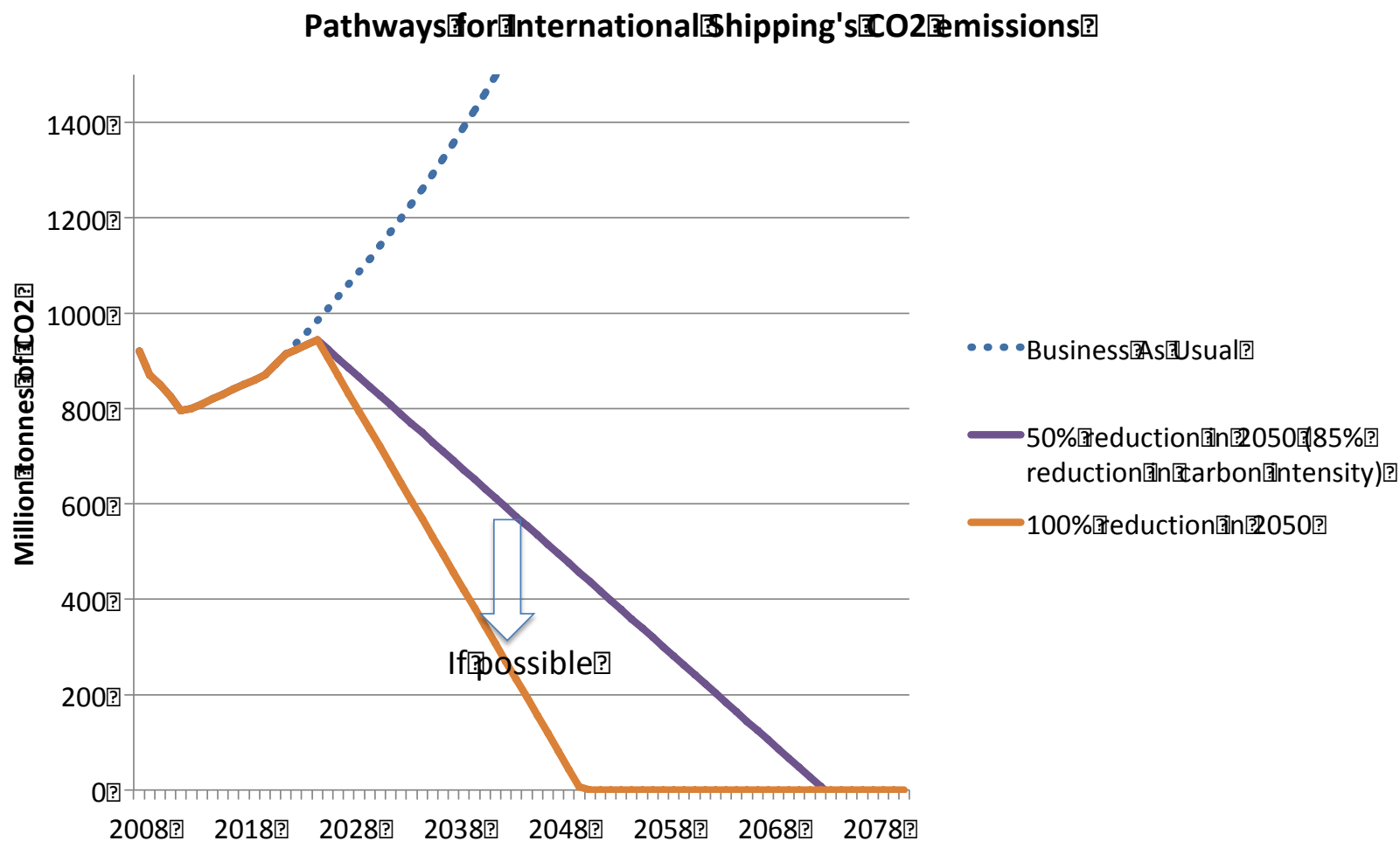
50% GHG emission reduction By 2050

- New engine technology
- LNG, LPG, methanol, biofuel and hydrogen
- Battery systems, fuel cell systems and wind-assisted propulsion

Initial IMO Strategy on reduction of GHG emissions from ships confirms IMO's commitment to reducing GHG emissions from international shipping and, as a matter of urgency, to **phasing them out as soon as possible in this century.**

Possible pathways

IMO proposes 50% reduction by 2050. If no action is taken shipping emissions will double in that period



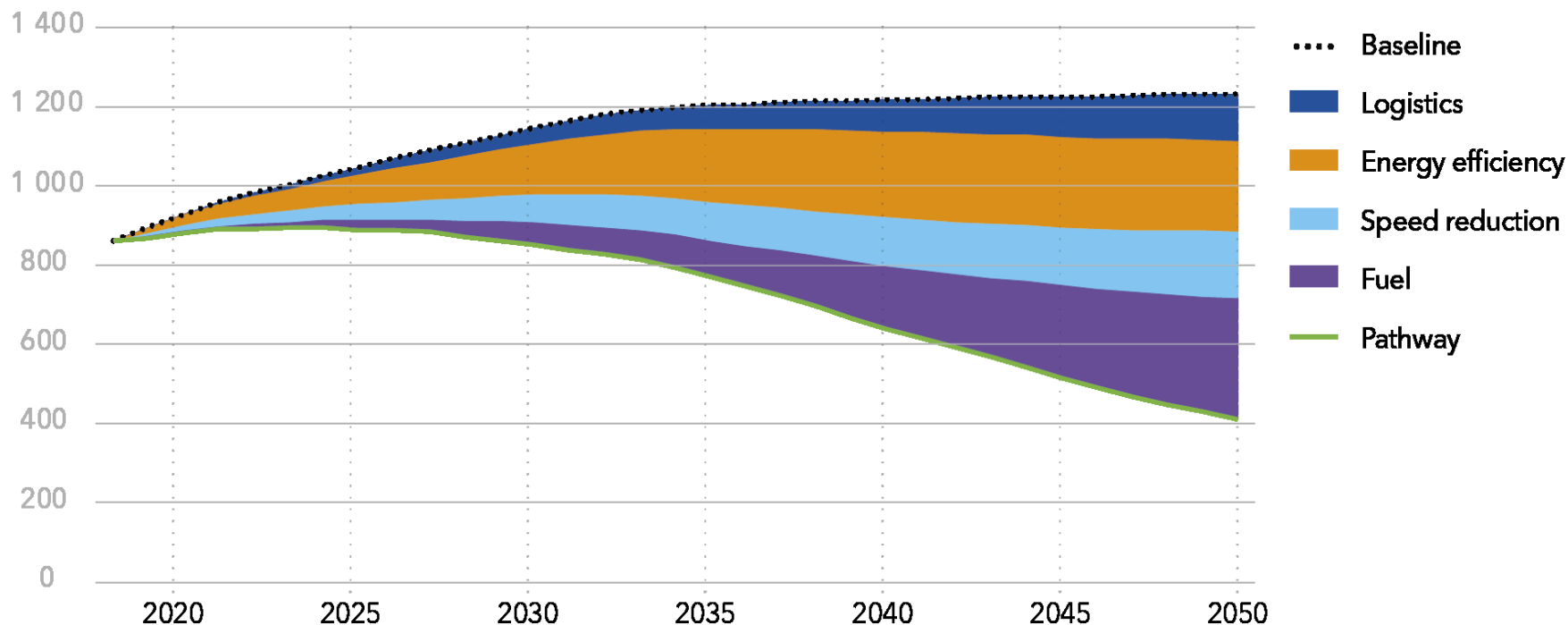
Source: UCL

Getting to a 50% reduction

Several factors will need to combine to deliver a 50% reduction in emissions from shipping. This is a huge challenge

Shipping emissions reduction by measure (2018-2050) for the 'design requirements' (DR) pathway

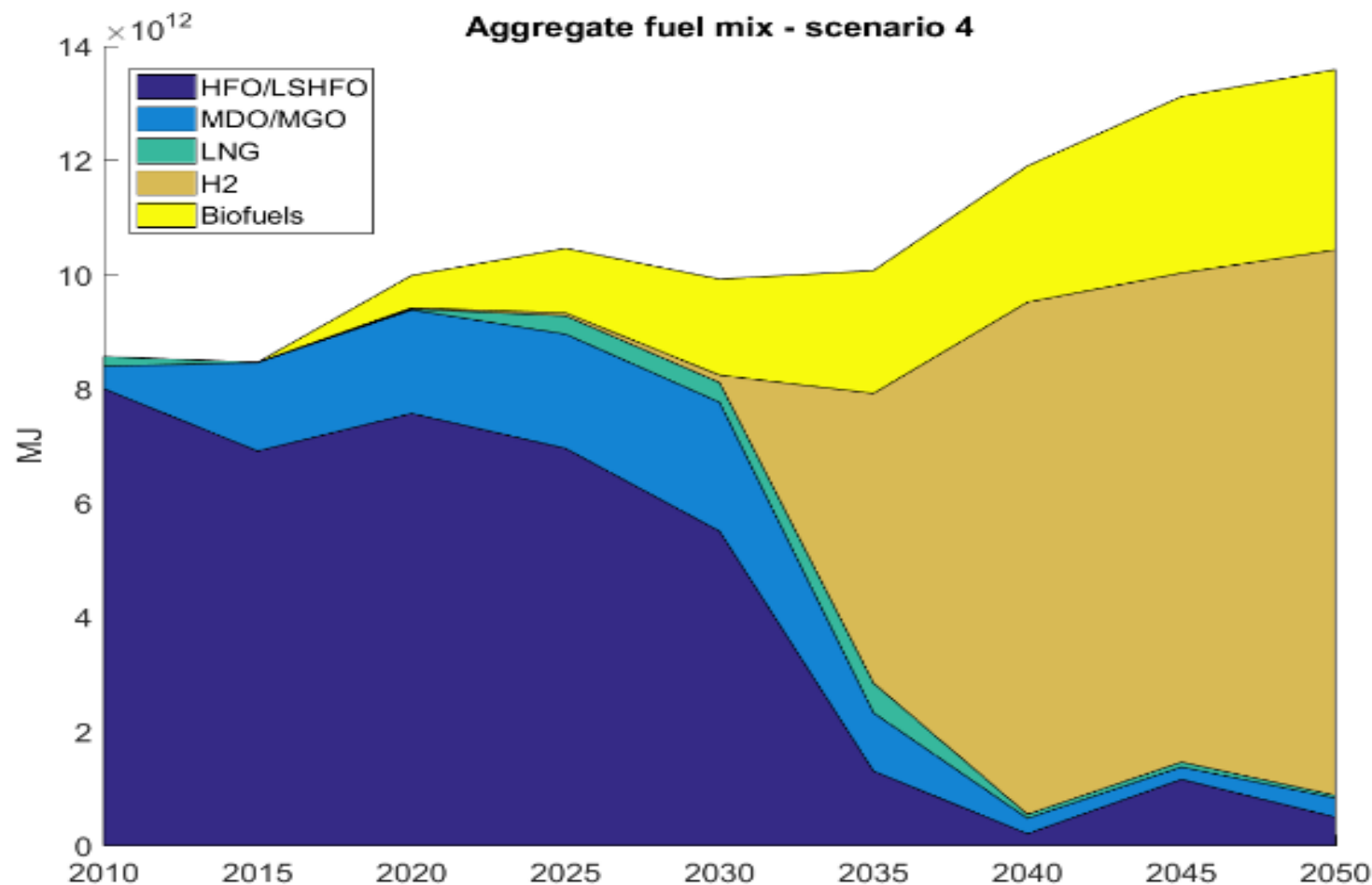
Units: Megatonnes of carbon dioxide (MtCO₂)



Source: DNVGL Energy Transition

Complete change in fuel mix required to meet 1.5C target

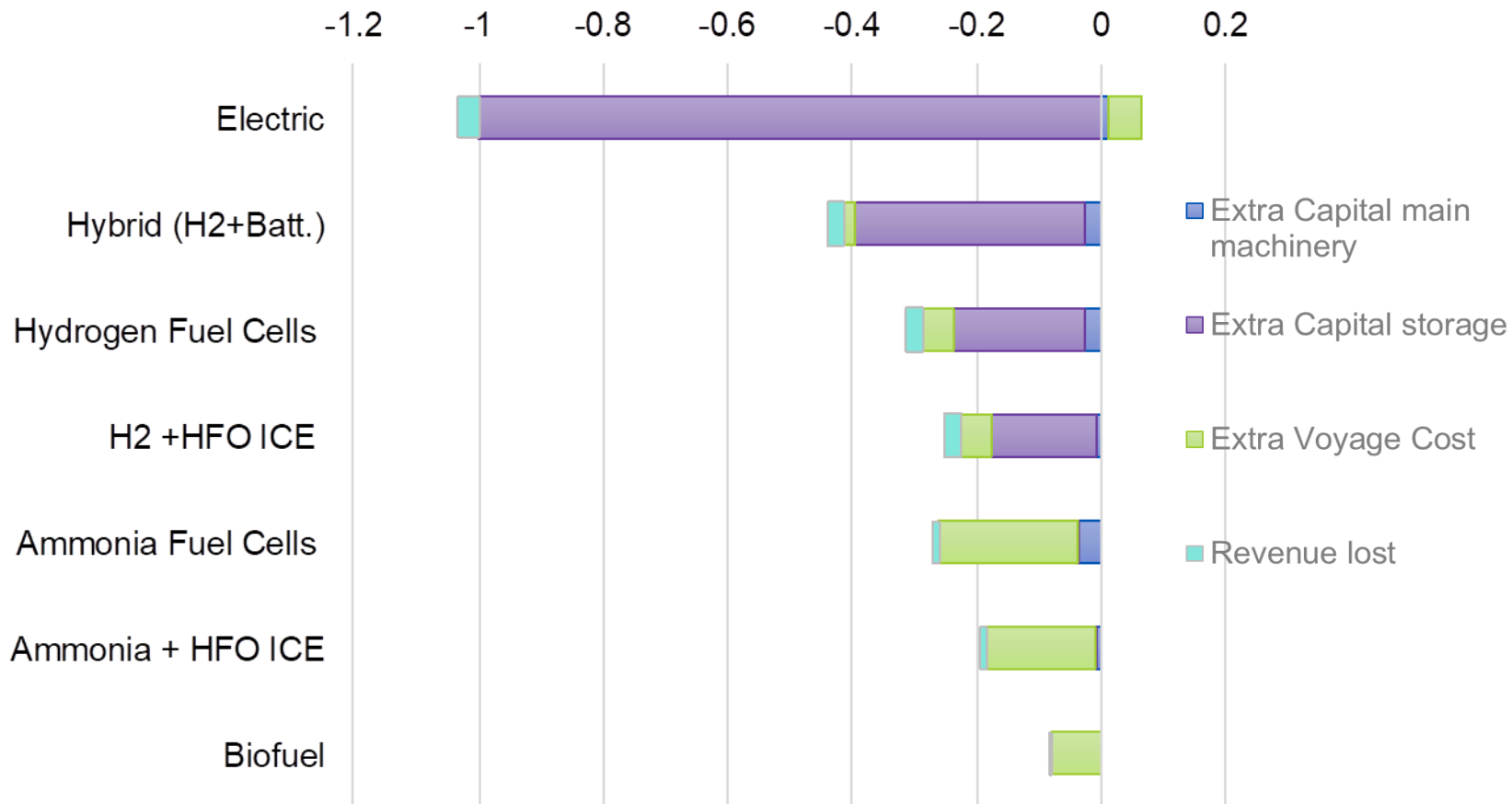
Traditional fuels and LNG would need to be replaced by Hydrogen and Biofuels to meet a 1.5C limit



Source: UCL

Cost effects

Alternative fuels all give rise to significant operational cost increases



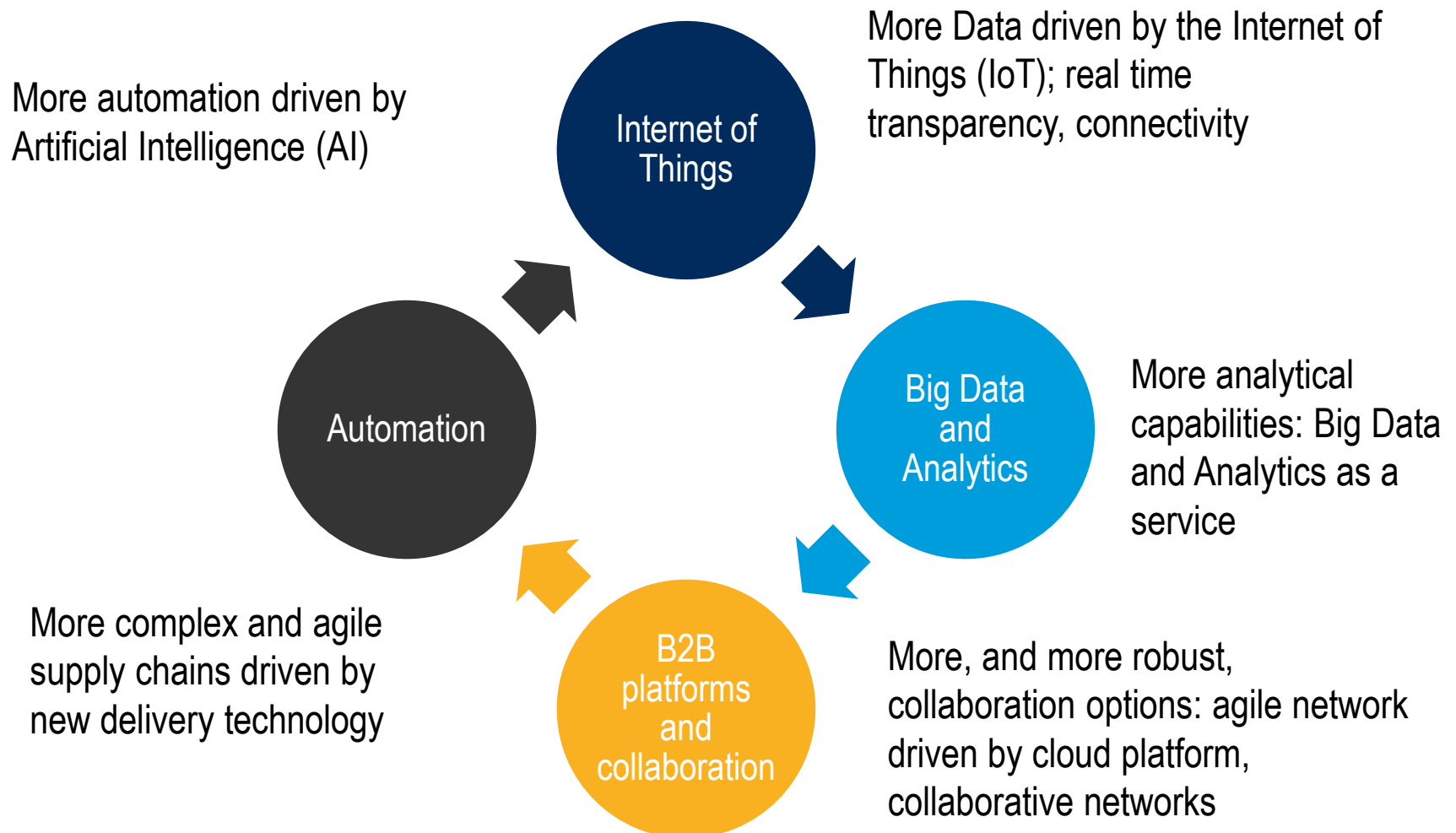
LR UMAS (2017). Zero-Emission Vessels 2030. How do we get there?



Technology

Technology

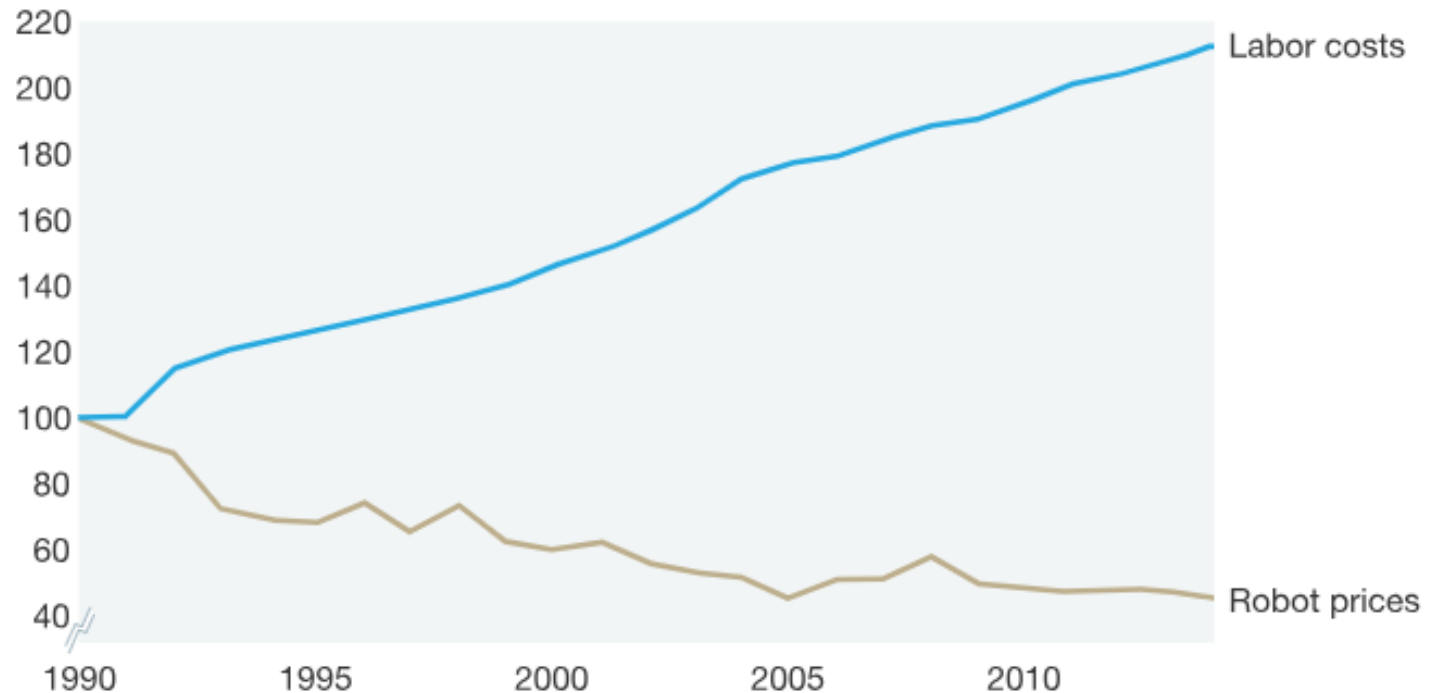
Industrial Revolution 4.0 has wide implications for trade and logistics



Visible trends: robotics getting cheaper

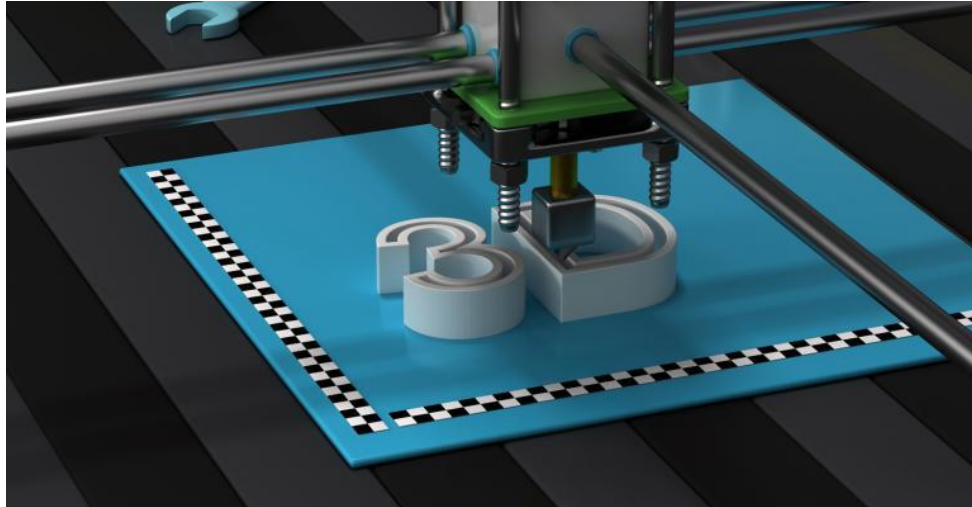
Robot prices have fallen by half in real terms while labour costs have continued to increase. Historical labour cost advantage of emerging economies is diminishing as robots prices fall.

Index of average robot prices and labor compensation in manufacturing in United States, 1990 = 100%



Source: Economist Intelligence Unit; IMB; Institut für Arbeitsmarkt- und Berufsforschung; International Robot Federation; US Social Security data; McKinsey analysis

3D printing: impact on trade



- 50% of manufactured goods may be printed in 2040. With slow development the same level will be achieved by 2060.
- May wipe out 40% of world trade by 2040 and 25% by 2060 in case of slow development
- Industrial machines, aerospace, motor vehicles, consumer products and medical/dental products are, in this order, the five biggest buyers of 3D printers. They are responsible for 75% of all investment in 3D printing.
- Reshoring of production to increase.

Implications for supply chains

New technology will deliver improved visibility, management and asset utilisation. Trade will become almost frictionless

Real time end to end supply chain visibility will be realised

Analytics and AI will permit far more effective supply chain management

Collaborative platforms will allow almost frictionless trade

Collaborative platforms will deliver improvements in transport efficiency and asset utilisation

Words of wisdom

Radical change is coming but maritime trade is a very complex ecosystem; change management is demanding and critical

We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten.

Don't let yourself be lulled into inaction.”

Bill Gates

“Getting adoption of new systems is 10% about technology, 90% about change management.”

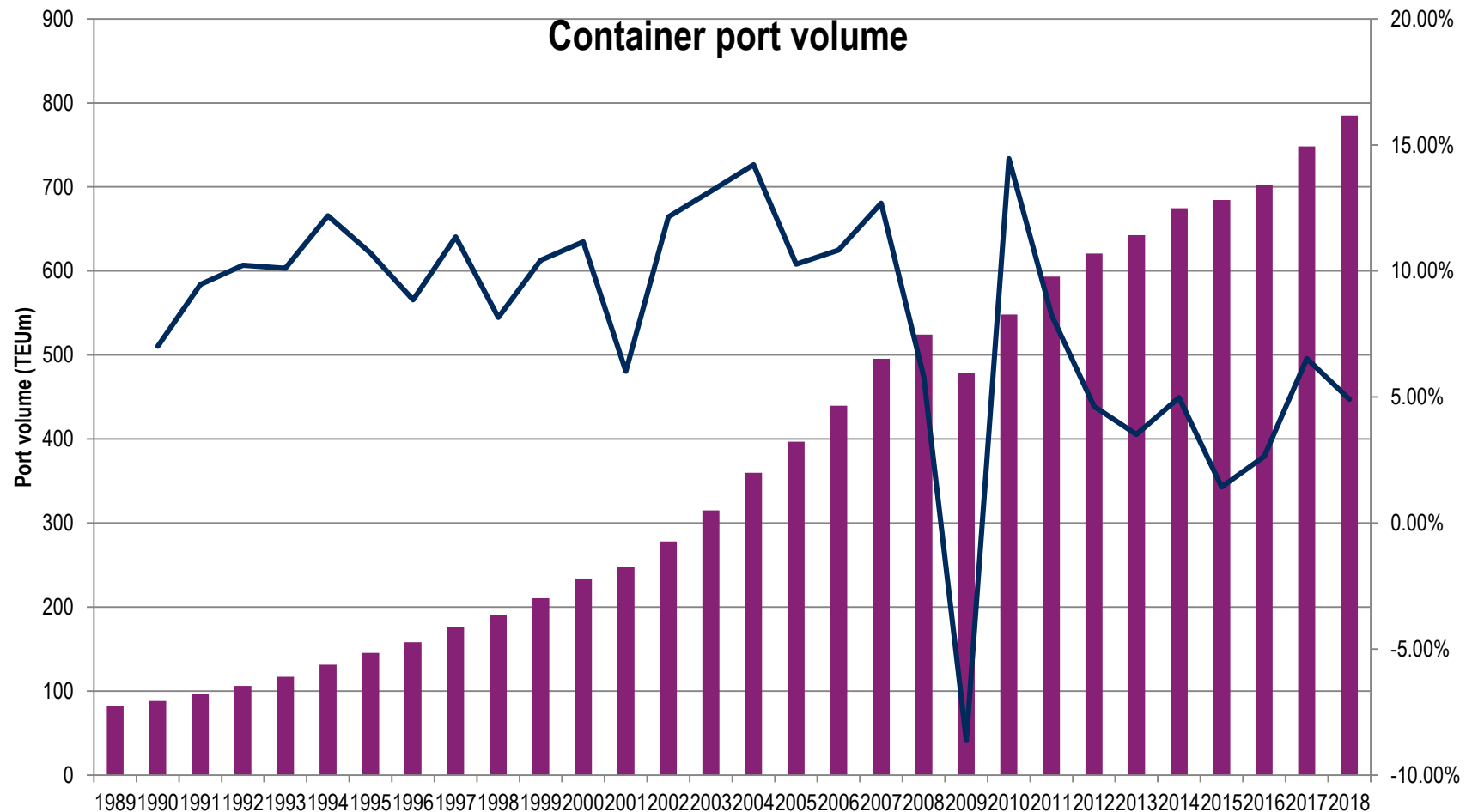
Paul Oestergaard



The shape of trade

Visible trends: container trade growth now modest

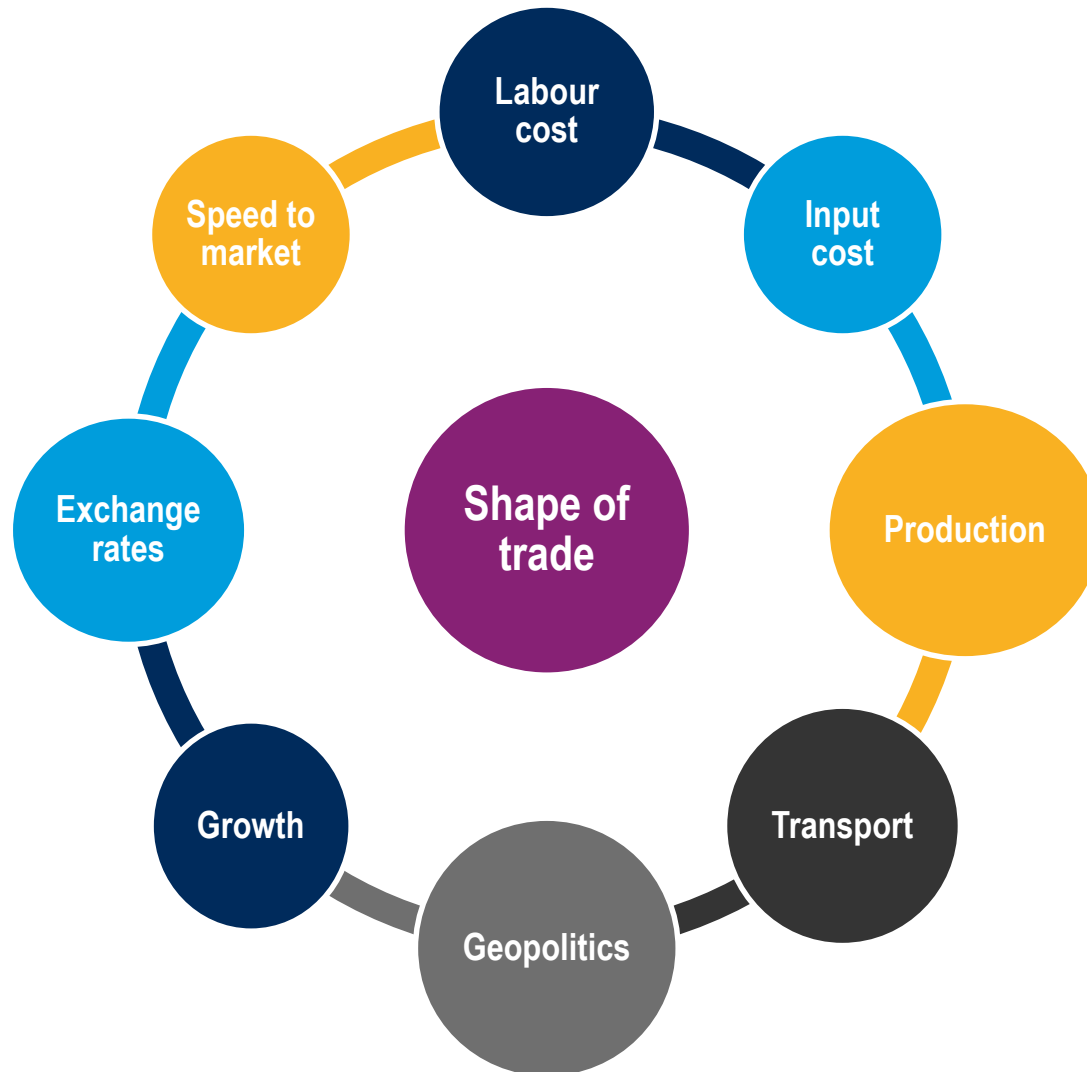
Global container trade growth is now converging with global GDP growth



Source: Drewry Container Forecaster (www.drewry.co.uk/research)

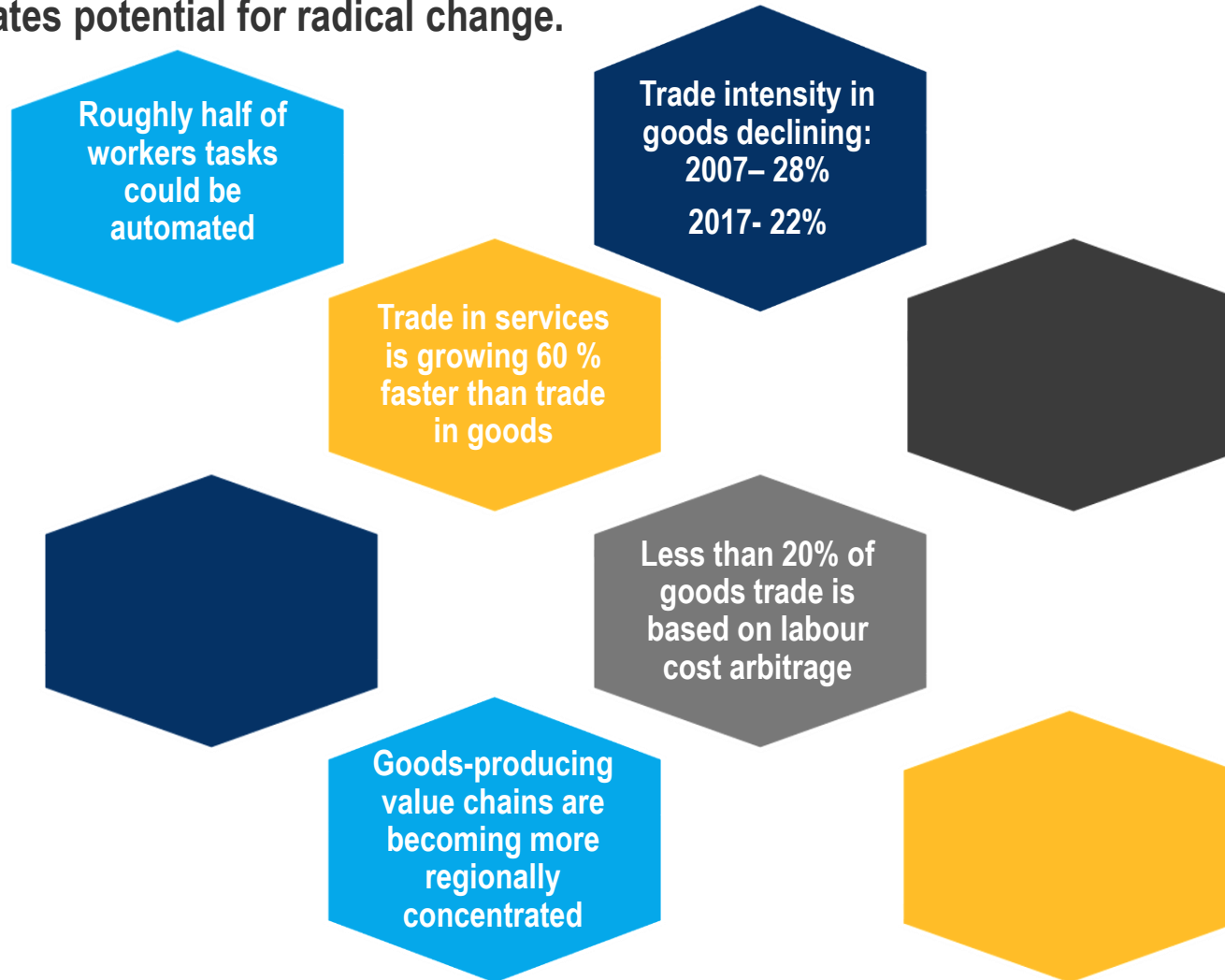
Shape of trade: factors

A wide variety of factors determines the shape of trade. Future balance is not clear; significant downside risks for maritime trade



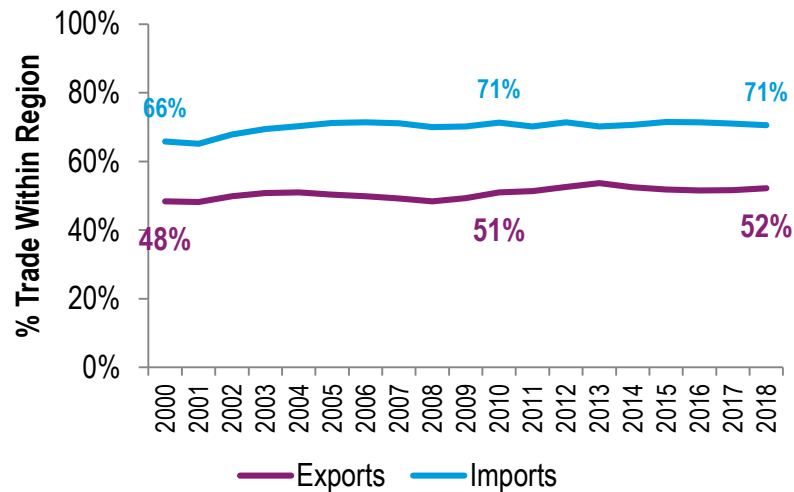
Visible trends: trade drivers shifting

MGI identifies trends showing that trade patterns are changing. Scope for automation indicates potential for radical change.

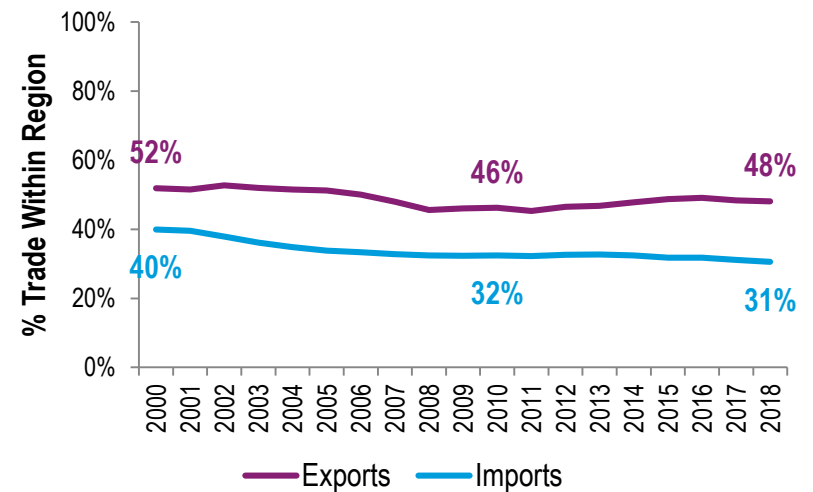


Visible trends: regional share of trade stable

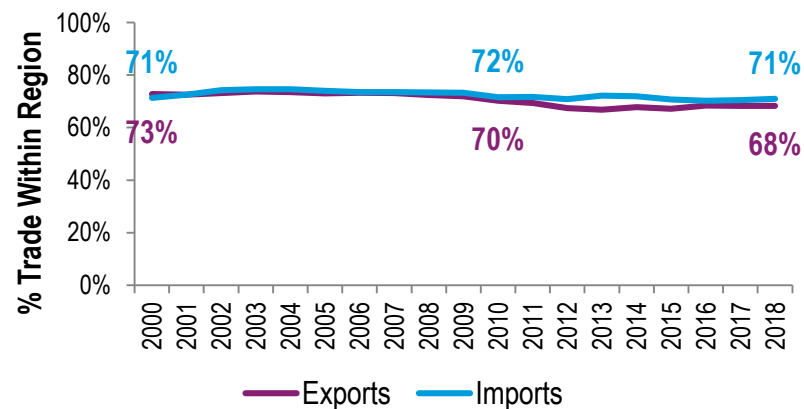
Asia



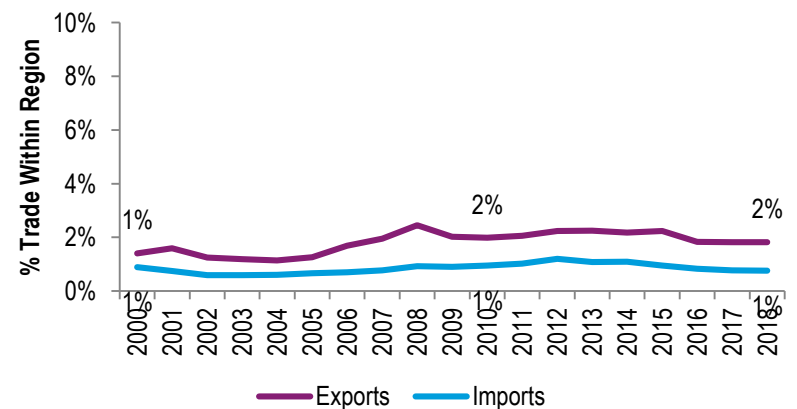
North America



Europe



Oceania



Straws in the wind



To make a new kind of shoe, adidas had to change everything

Reshoring: bringing manufacturing home

Apparel companies eye nearshoring to cut lead times

Nearshoring on the Rise

The trend towards shifting manufacturing back to developed countries from cheaper locations is far from straightforward

Straws in the wind

Adidas has opened a highly automated facility named “Speedfactory” in Ansbach in which robots will produce shoes for the company



adidas's South Asian factories churn out 720 million shoes a year, but production is slow and inflexible. In Bavaria, robots can make every pair unique. Welcome to the Speedfactory



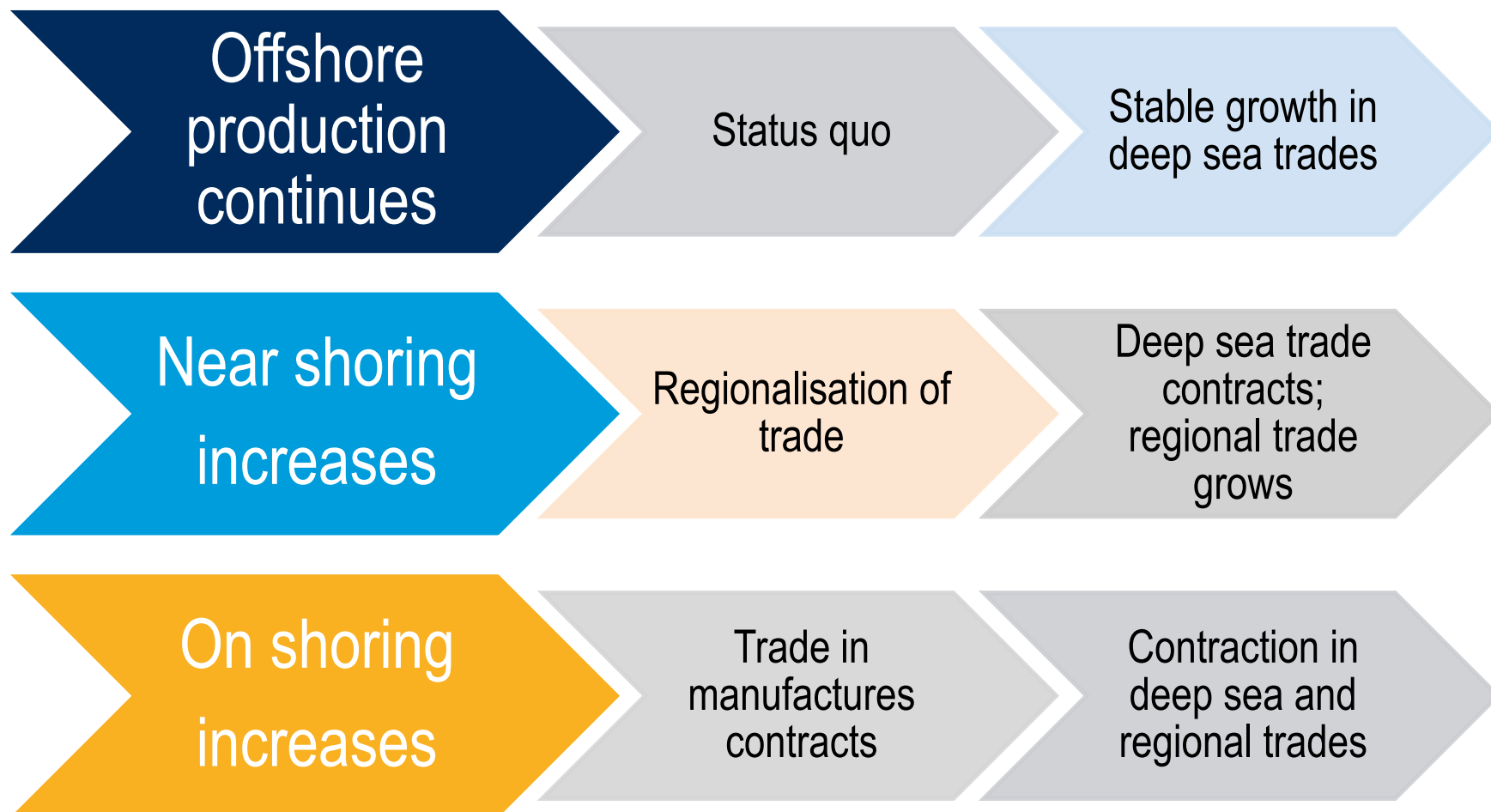
Inside Adidas' Robot-Powered, On-Demand Sneaker Factory

Inside Adidas' Robot-Powered, On-Demand Sneaker Factory



Trade scenarios

How various factors will balance out is unclear. Trade may take three future paths. A shift to near or onshoring looks logical



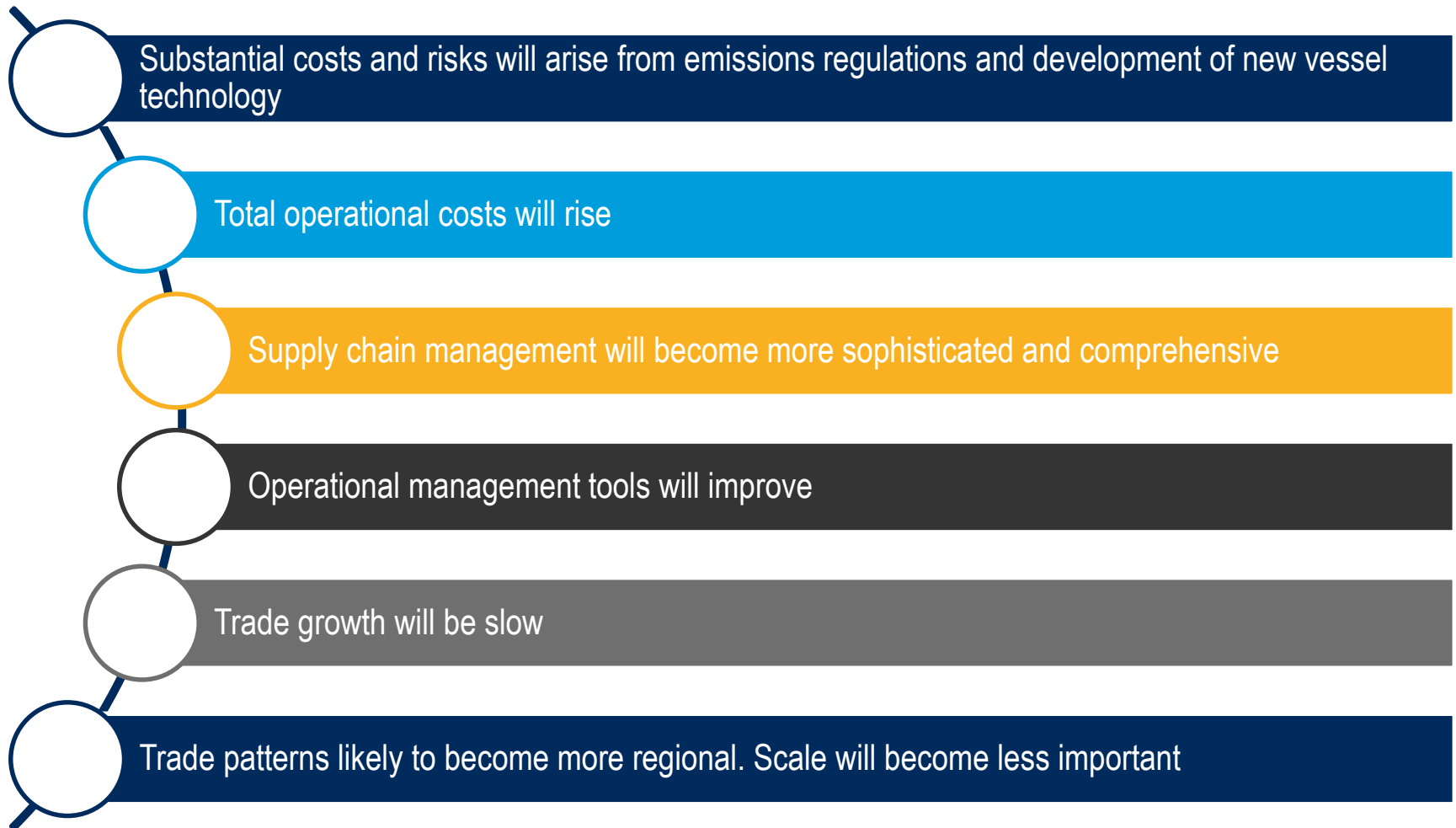


Conclusions and implications for liner shipping

Conclusions



Implications for liner shipping



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