

## Series of 4 Webinars on: Maritime Innovation 2020-2050

*“Over the centuries technical development in liner shipping has been not so much a continuous process as an occasional leap forward precipitated by a compelling call for change. In between there have been long periods of conservatism.”*

Sir Ronald Swayne, Chairman Overseas Container Lines, 1979

<b>Webinar 1</b>	<b>Webinar 2</b>	<b>Webinar 3</b>	<b>Webinar 4</b>
The business model for maritime innovation 2020-2050	Innovative ship propulsion - what, when will it be available & how effective?	Innovative ship systems - to increase performance & cut emissions.	What shipping company strategy for innovation in the decades ahead?

After each webinar participants will be able to download a set of slides and a page bullet point notes of the material covered in the webinar.

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## WEBINAR 1. The business model for maritime innovation 2020-2050.

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## The Business Model For Maritime Innovation 2020-2050

Peter Drucker said *“Innovations do not create change. That is rare. Innovations succeed by exploiting change , not attempting to force it\*”*

### Part 1

How the innovation model works (and has worked in the past)

### Part 2

The **demand** profile to 2050 and the dynamics of innovation in the demand model

### Part 3

How the **market-driven** innovation model - can be used to surf the wave of change

” Managing for the Future page 342

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## 1. HOW THE MARITIME INNOVATION MODEL WORKS (AND HAS WORKED IN THE PAST)

The model needs to deal with the dynamics of change (in this case decarbonisation 2020-2025)

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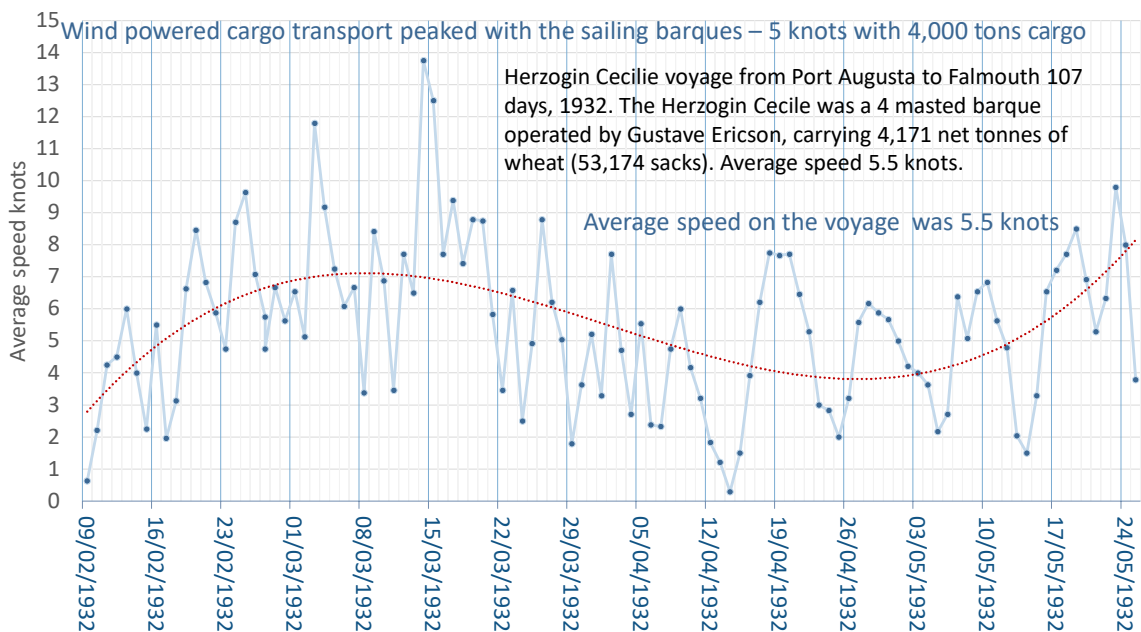
Slide 1: For 2000 years ships produced green transport, but by the mid 19<sup>th</sup> century had peaked out :



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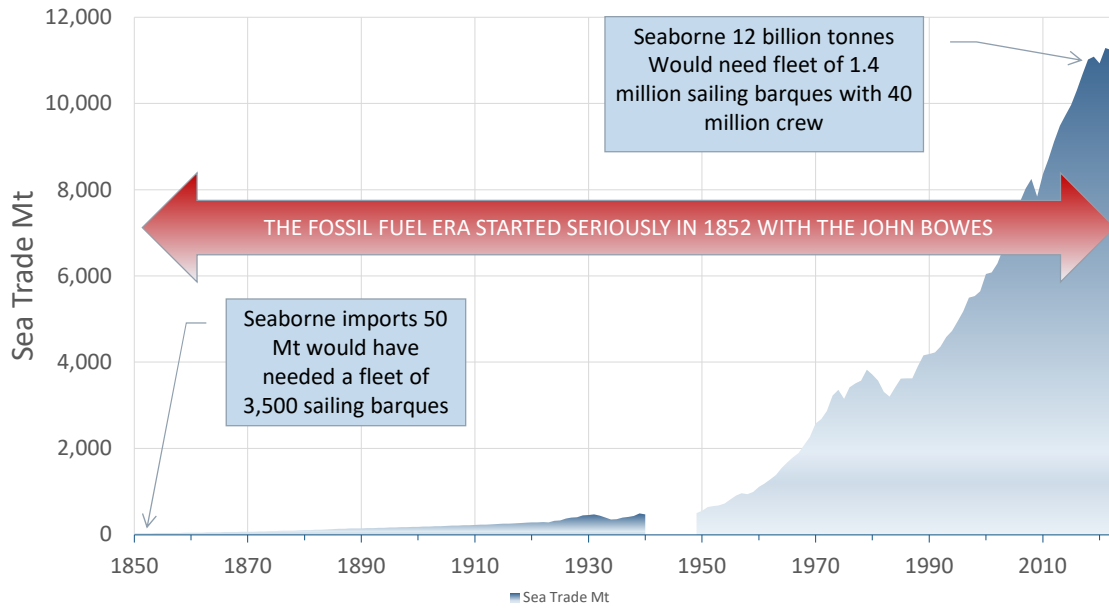
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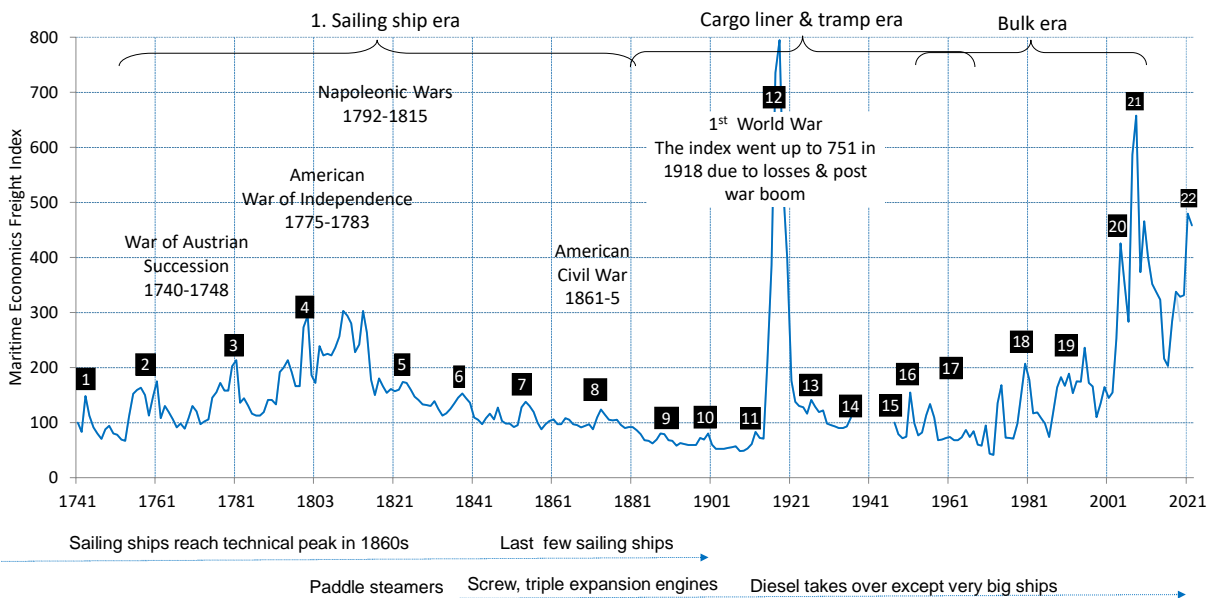
Slide 2: Fossil fuel use started seriously in 1850



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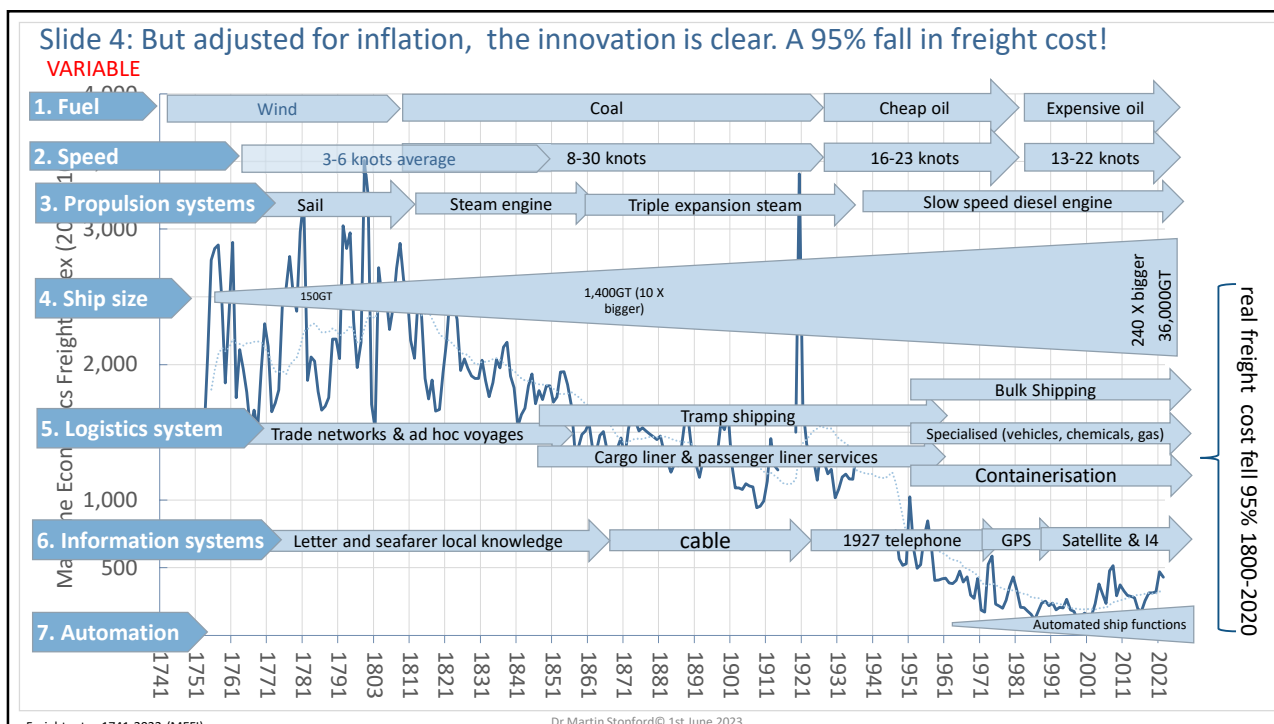
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Slide 3: The freight chart was dominated by cycles – no sign of innovation!



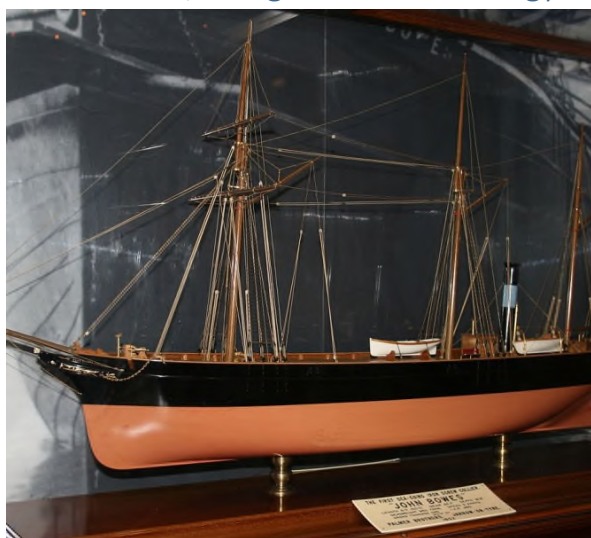
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Slide 5: The John Bowes (1852) – created the technical model for riding the wave of trade, using steam technology. Massive productivity increase.



650 tons of coal

JOHN BOWES, the first fossil fuel powered collier, entered service in July 1852.

Ordered for the coal trade by mine owner (John Bowes!) & owned by the shipbuilder Charles Palmer

437 GRT Iron hull, steam screw, 9 knots, double bottom for pumped ballast water. Topsail schooner rig.

Made round trip from the Tyne to London in 5 days, delivering 650 tons of coal.

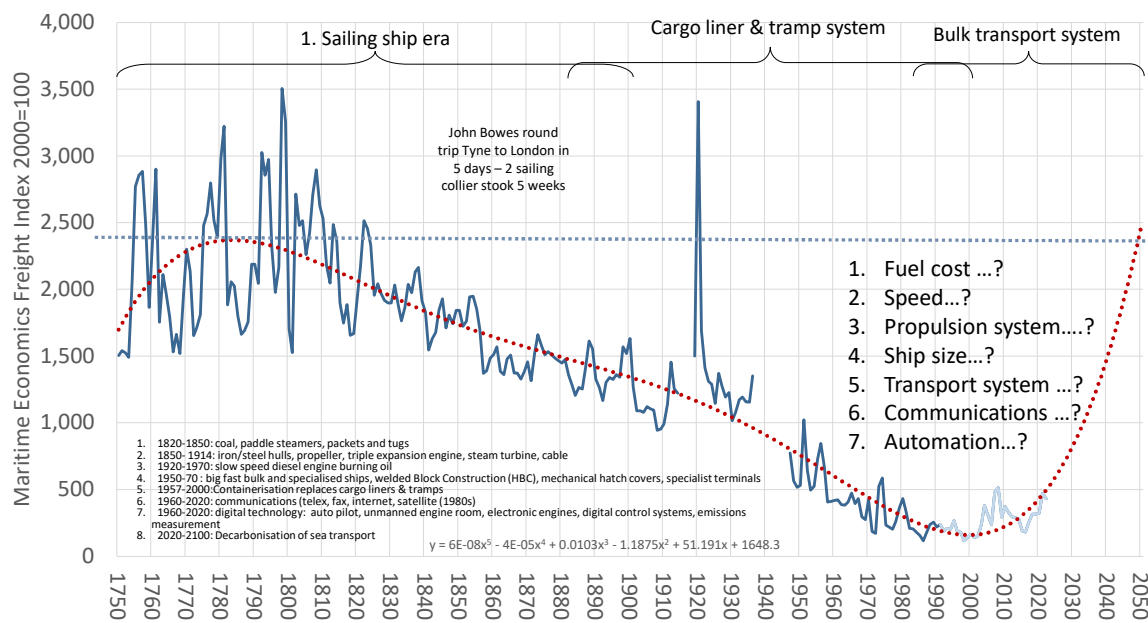
That would have taken two sailing colliers a month.

The service was less weather dependent and water ballast was a big improvement. Foundered 1933!

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Slide 6: today's challenge- hang on to the 95% fossil fuel cost saving, whilst phasing out emissions



Freight rates 1741-2022 (MEFI)

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Slide 7: There are seven variable is the innovation model


Seven Key Variables in the 2020-2050 maritime innovation model

No.	Variable	Goal	Future options	Decarb impact 2023-2050
1	Fuel	Zero carbon	HFO, Methanol, Ammonia, H2, nuclear, wind, solar	High cost, big impact
2	Speed	Delivery time	Technology & trade - range 8 knots to 30 knots	High (but more ship time)
3	Propulsion system	Energy efficiency	Steam engine, internal combustion engine (ICE), electric, hybrid	Electric or ICE (ie diesel)?
4	Ship Size	Economies of scale	Constrained by port draft and big cargo logistics	Significant in smaller sizes
5	Logistics system	Save CO2 & time	Specialisation, with cargo owners, to improve value added	New logistics systems?!
6	Information system	System efficiency	Ships & logistic systems to share & use information	Key to platform change
7	Automation	System efficiency	Makes integrated mechanical & logistics systems work better	adds value to variable 6

This historical analysis has shown that shipping innovation has occurred in seven different areas over the last 200 years. All seven variables are important, but for many of them innovation was not a major problem. For example once steam propulsion had become established, increasing the size of ship was a commercial decision based on performance in existing trades. The same was true of speed, which was essentially a commercial variable.

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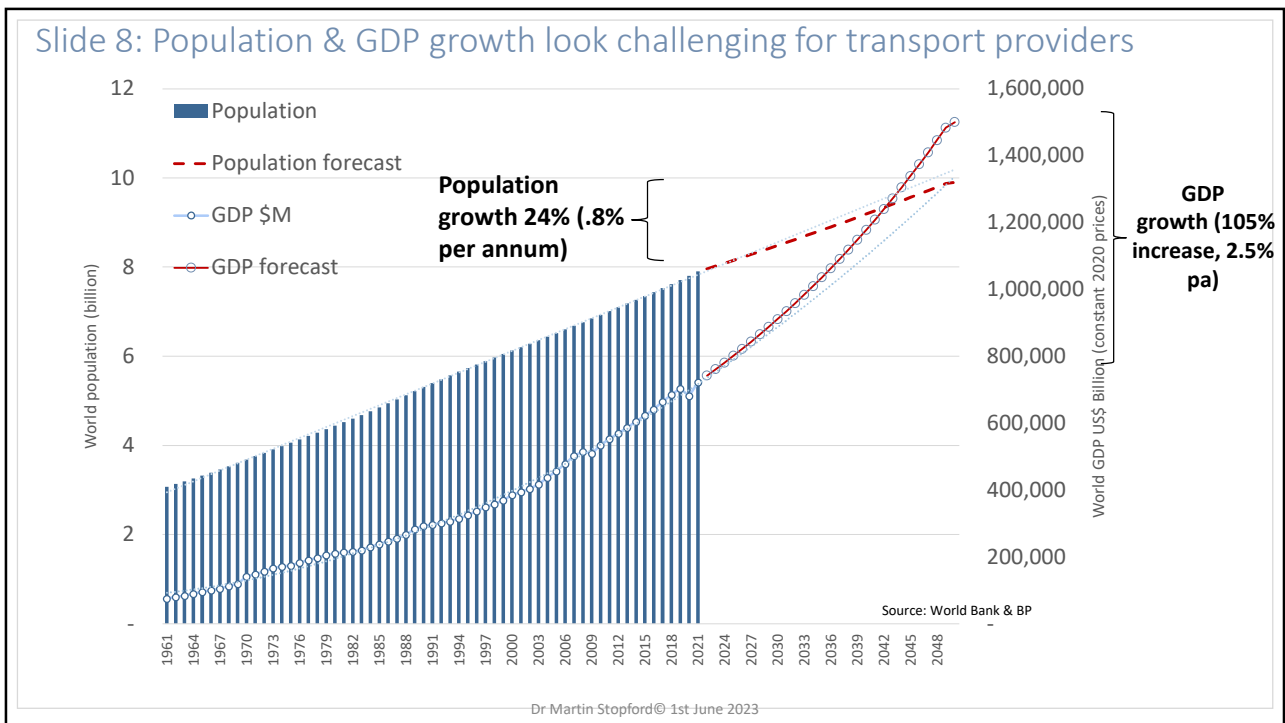


## 2. INNOVATION AND THE DEMAND MODEL

Innovation must be able to respond to changes in the demand for sea transport 2020-2050

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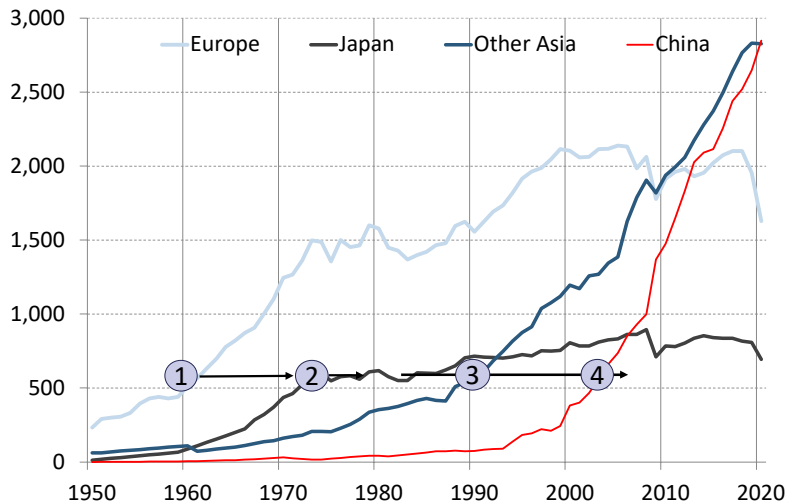


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### Slide 9: Development cycles are altering the regional balance of trade

- There have been four waves of regional growth:-
  1. Europe lead the way in 1950s,
  2. Followed by Japan in 1960
  3. Asia in about 1975
  4. Chinese trade started to grow rapidly in 1994
- The growth pattern was a slow start followed by rapid growth

Imports M tonnes

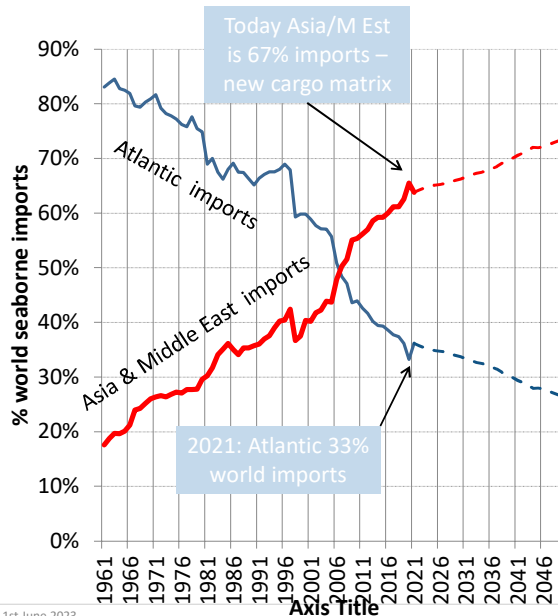
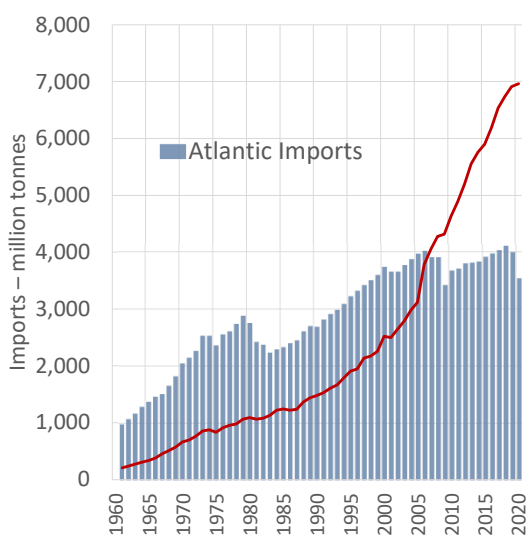


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### Slide 10: The Atlantic is losing market share (scenario 2 projection)

Shows the Imports as a % of world seaborne imports



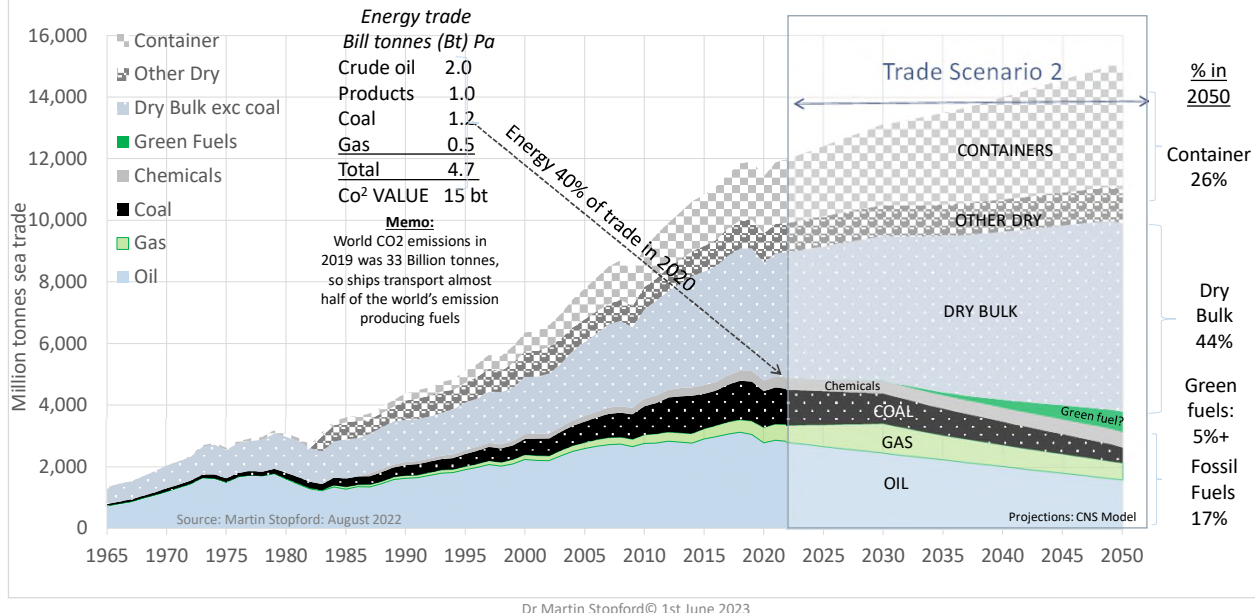
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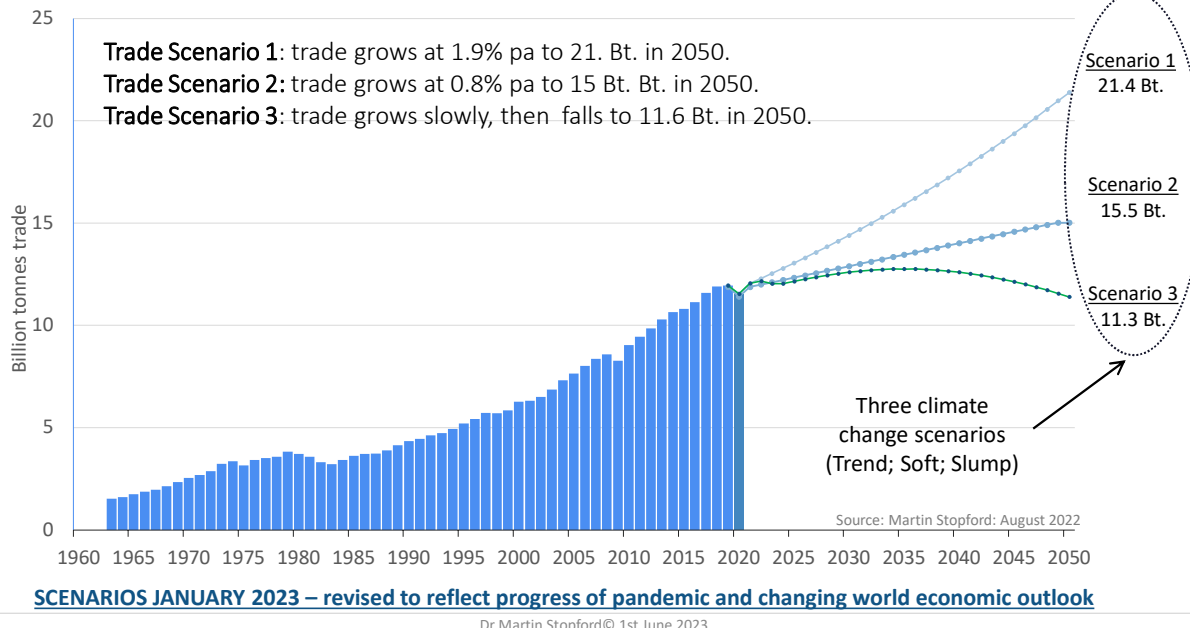
### Slide 11: Commodity trade patterns will change as fossil fuel phased out

Sea trade by commodity showing actual volumes to 2021 and Trade Scenario 2 for 2022-2050 (revised August 2022)

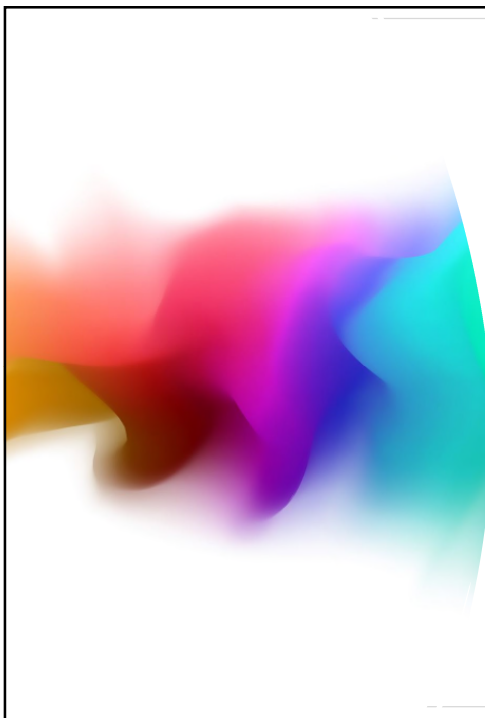


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### Slide 12: Sea trade growth rates remain very uncertain –which scenario?



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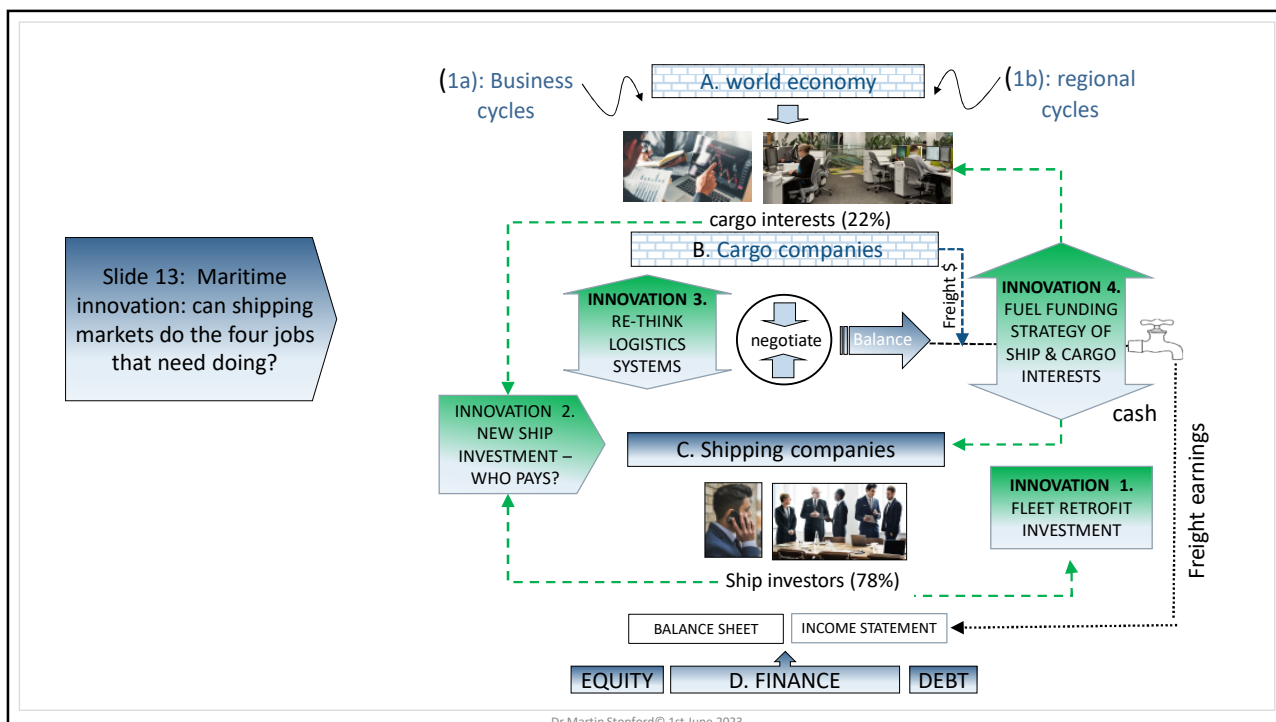


## 3. How the market-driven innovation model can be used to exploit change

This needs a systematic approach:-  
 The present business must escape from the past and be made effective  
 Its potential must be identified and realized  
 It must be made into a different business for a different future

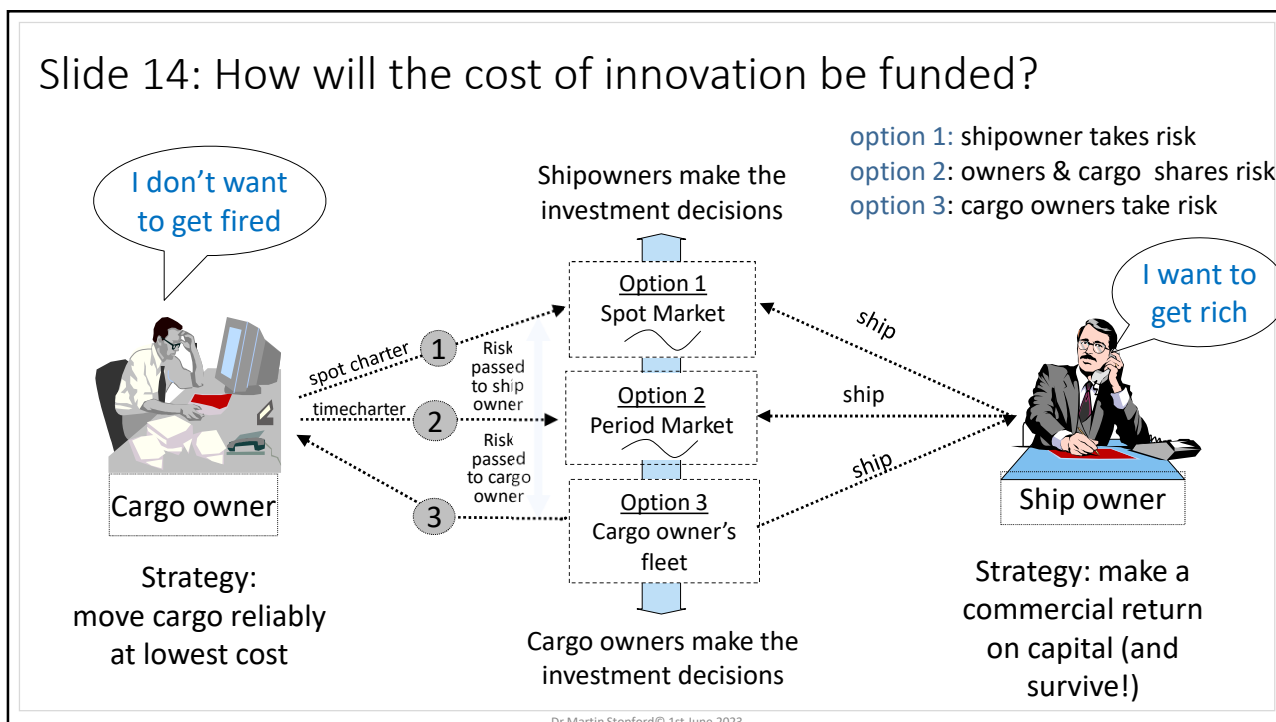
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Slide 14: How will the cost of innovation be funded?



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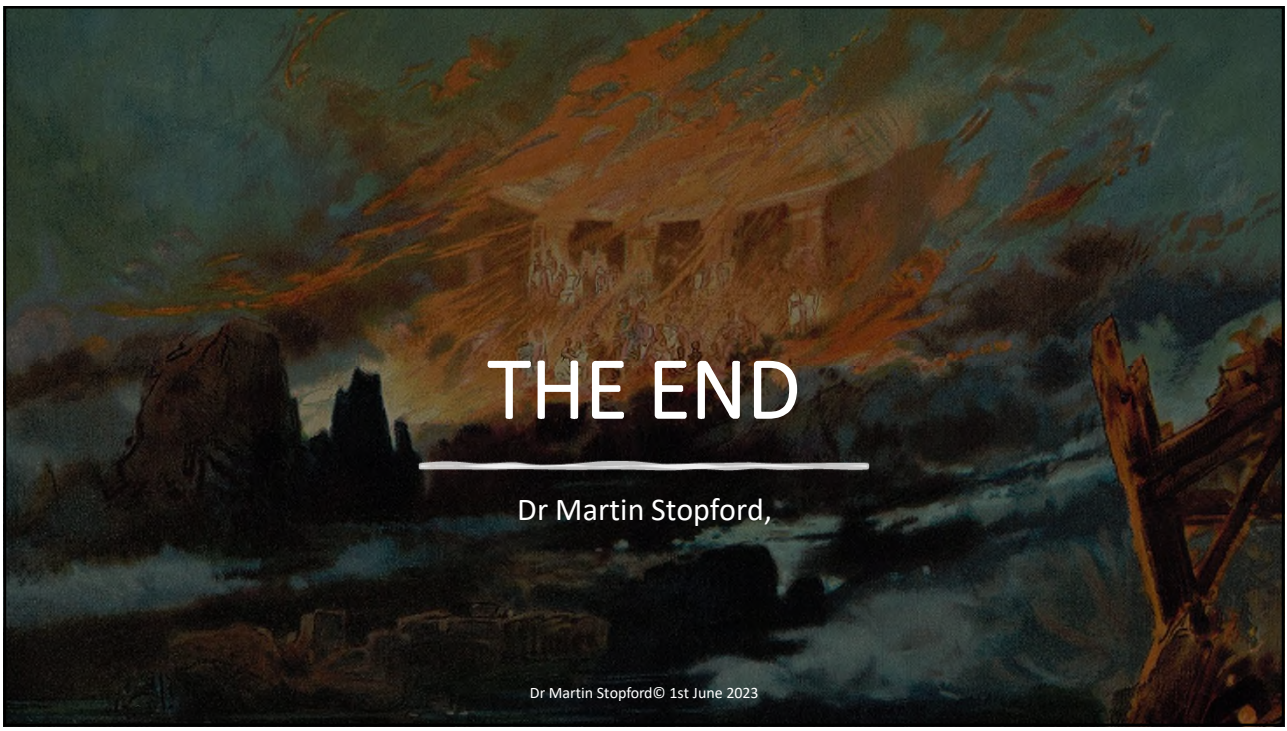
Slide 15: Summary of four issues to the cost of innovation

The slide summarizes four key issues affecting the cost of innovation in maritime transport:

- 1. COSTLY TECHNOLOGY:** Green propulsion under development is a poor alternative to HFO and will be far more expensive – cost of fuel and infrastructure must be funded.
- 2. COMMODITISED MARKETS:** sea transport operates through commoditized markets. They CUT COSTS, and do not recognise quality, only performance.
- 3. INVESTMENT FUNDS:** The funds needed “will be out of all proportion to current levels of profit” and unlikely to be available.
- 4. MOTIVATION:** abandoning the status quo only happens if there is a “compelling call for change” – what will force companies to change?

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# THE END

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