

# Ports as a force for positive change

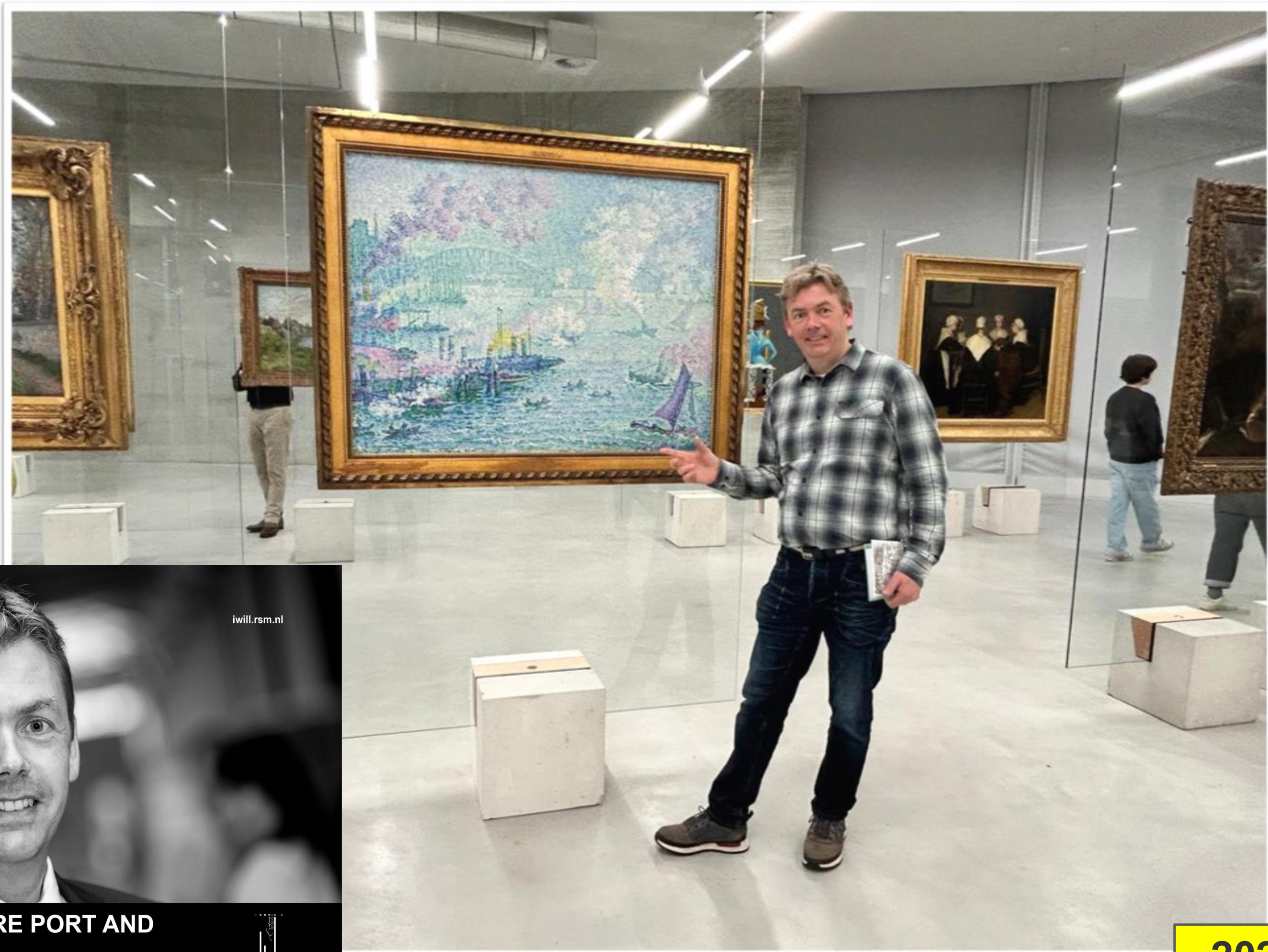
*What role do ports play in maritime decarbonisation?*

Tallinn, 19 May 2025

Maurice Jansen



# Ports as a force for positive change?

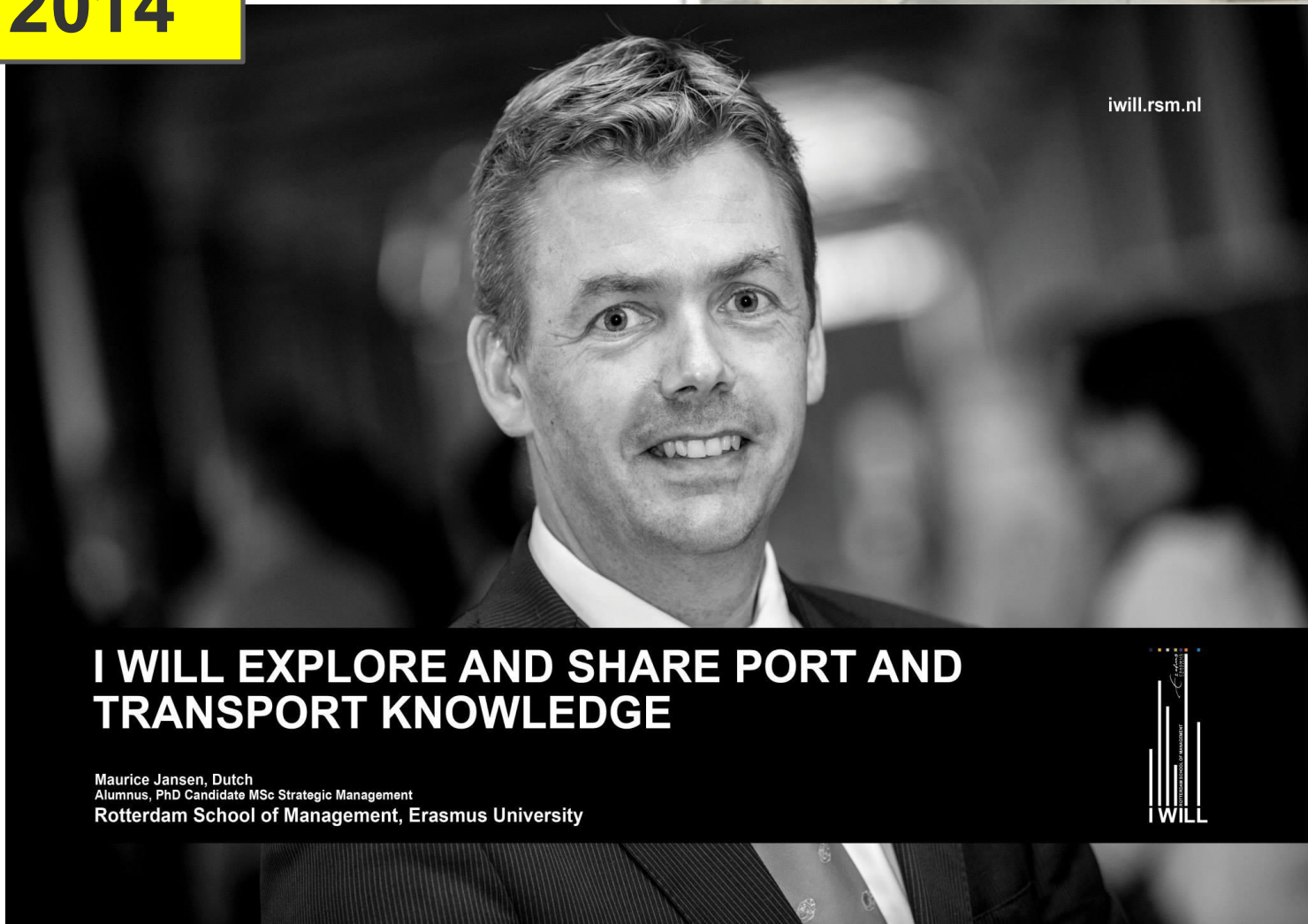


Le Port de Rotterdam  
by Paul Signac

Museum Boymans van  
Beuningen

A great responsibility to  
be a positive force rests  
on the shoulders of port  
developers

2014



I WILL EXPLORE AND SHARE PORT AND  
TRANSPORT KNOWLEDGE

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Rotterdam School of Management, Erasmus University



2024

# Learning objectives

## **Drivers for the transition**

Is sustainability still a driving force?

## **Transitions or dilemma's**

Why is it so difficult to decarbonise shipping?

## **Ports as a force for positive change**

What role do ports play in maritime decarbonisation?

➤ Outlook towards Wednesday's Future of Fuels Game



# Port in Transition

*Is there a sense of urgency?*



# Is sustainability still a driving force?



You Retweeted

**Bruno Delsalle** @BrunoAIVP · Mar 23  
1,000 Port Partners Sign Sustainable Development Goals [scl.io/sLtbwxOF](https://scl.io/sLtbwxOF) via @Mar\_Ex

**1,000 Port Partners Sign Sustainable Development ...**  
On Thursday, nearly 1,000 ports and port-related enterprises met in Antwerp, Belgium to sign the cha... [maritime-executive.com](https://maritime-executive.com)

**Port of Antwerp** @PortofAntwerp · Mar 23  
President @IMO HQ Kitack Lim "By creating the World Ports Sustainability Program today, the global port sector commits itself to the #sustainable future that we all want and need." #WPSP2018

**Lucy Gilliam** @LucyGilliam · Mar 22  
#WPSP2018 - to meet Paris Agreement we must act now. @imohq needs to set ambitious target for zero ghg by 2050 with plan for short term measures before 2023. Pacific Islands, coral reefs, Arctic all counting on us. #ActOnClimate #stepup2018

**Greta Thunberg**   
@GretaThunberg

Following

Over 1,5 million students on school strike 15/3. We proved that it does matter what you do and that no one is too small to make a difference.

Here is my response to the people who wants us to go back to school:

[facebook.com/73284649708317](https://facebook.com/73284649708317) ...

#FridayForFuture #SchoolStrike4Climate



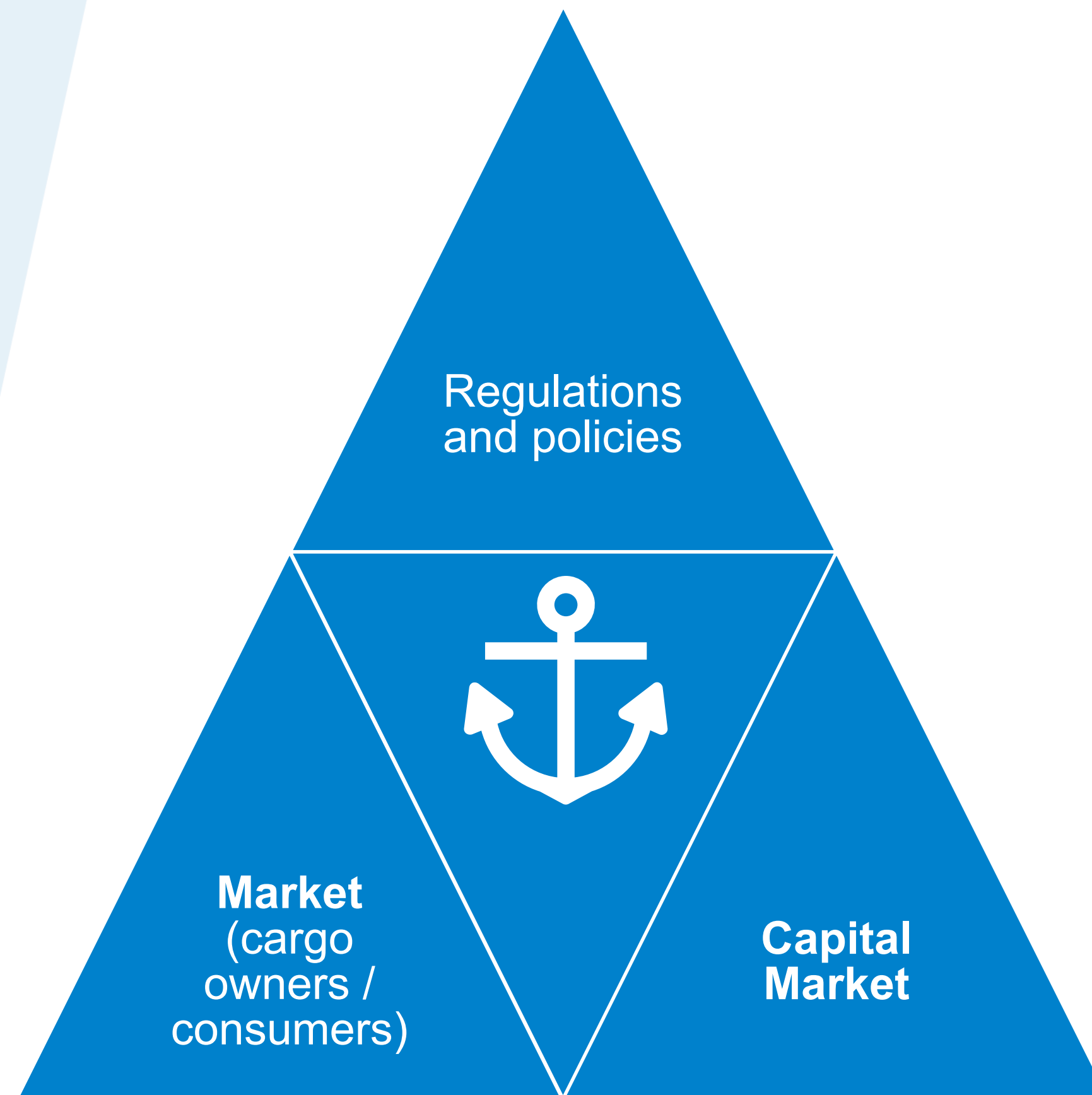
3:33 PM - 17 Mar 2019



2019 was the year when an international movement of school students emerged and demanded action from world leaders to stop practices that cause global warming. This photo captures the fossil dilemma which ports are confronted with: an urgency to move away from fossil-based industry while also strengthening the existing industry.

# 3 drivers for decarbonization

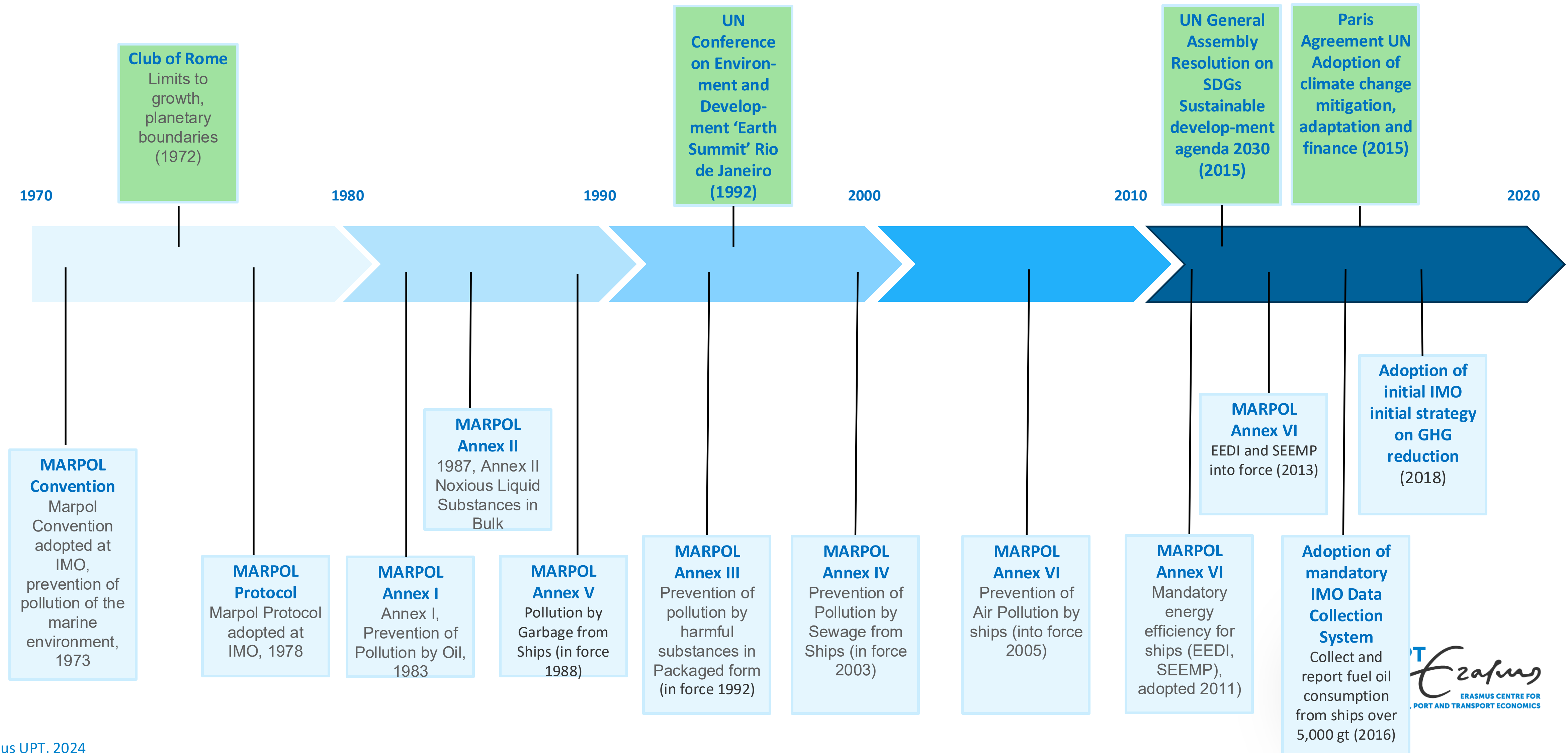
2023 has been a milestone year for shipping



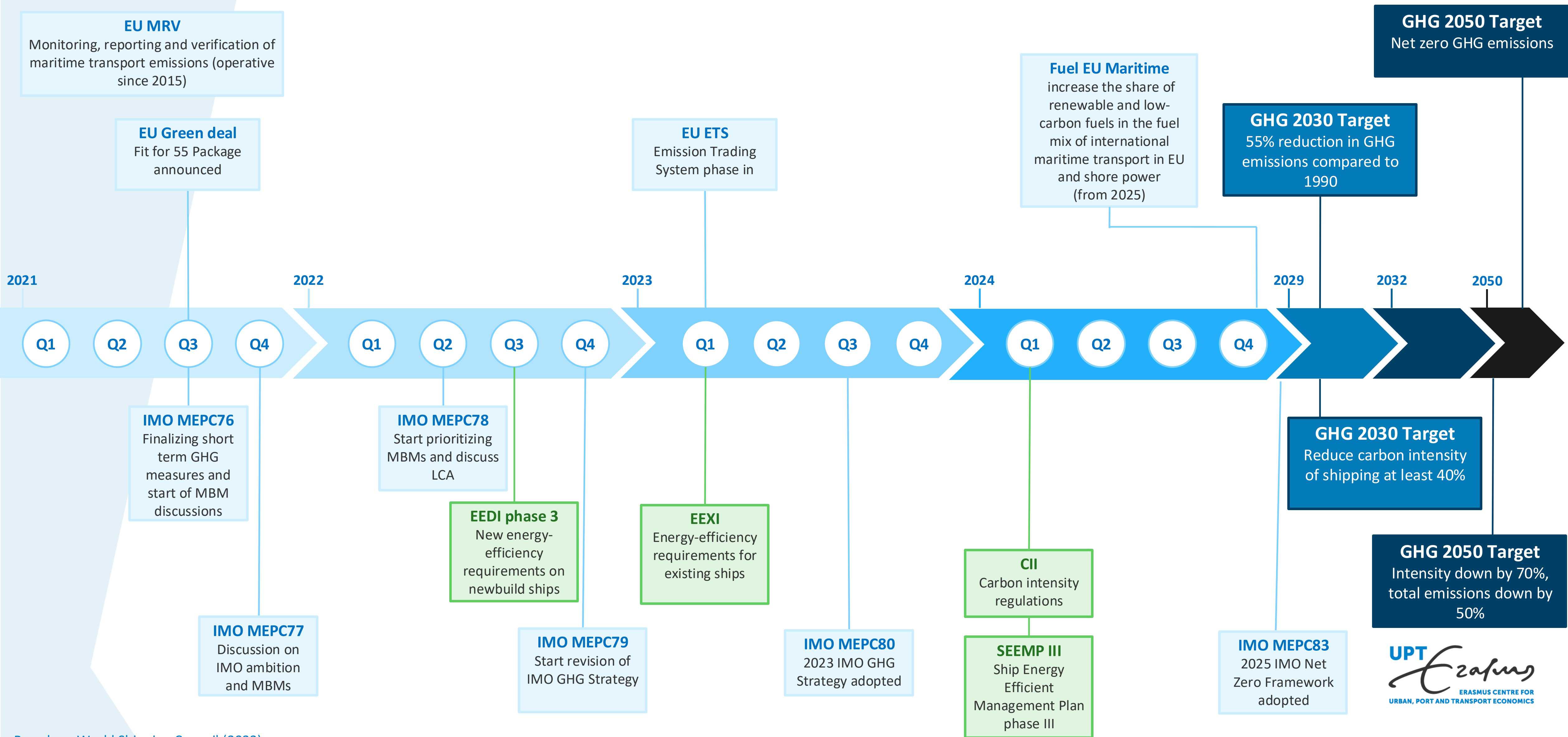
- **Markets:** business leaders taking responsibility, e.g. B Corp
- **Capital markets:** setting guidelines for sustainable investments, such as ESG / CSRD
- **Regulations and policies:** setting standards and (market-based) measures for the shipping industry

# Regulatory timeline IMO

## The limits to growth: a global challenge



# Regulatory timeline IMO and EU



Based on: World Shipping Council (2023)

# The tide is turning

## DECARBONISATION

- Maritime decarbonization under a constellation of ever **more stringent regulatory frameworks**
- Channeling investments towards the SDGs will influence FDI patterns
- Sustainability reporting, CSRD entered into force in January 2023.

## DEGROWTH

- **Scaling back global** consumption and use of natural resources
- Gross National Product **no longer the benchmark** for growth
- **Reducing energy and raw materials** does not automatically mean less prosperity, but it does mean less transshipment.

## DEMOGRAPHICS

- **Ageing workforce** and insufficient inflow of young people into the port and shipping sector
- Emergence of **world maritime capitals**, magnets for talent

## DEGLOBALISATION

- **Fragmentation in international policymaking**, especially trade and investment policy
- More regional and bilateral agreements and increased protectionism
- International disputes no longer resolved ('UN SC resolutions')

# What's the dominant policy framework?

## *From Green Deal to Clean Industrial Deal*

- **Green Deal was a detailed agenda**, a package of policy initiatives to set the EU on a path to a green transition, with the aim to reach climate neutrality by 2050.
- Because of **geopolitical developments**, energy markets (and a reactive industry), the focus has shifted from 'green' to 'clean'.
- The Clean Industrial Deal, a plan to support the **competitiveness** and **resilience** of our industry. The Deal combines decarbonization with **security** of the future of manufacturing in Europe.
- Faced with high energy costs and fierce and often unfair global competition, European industries need urgent support from governments.
- **Decarbonisation is no longer the aim, but is considered a driver to the growth of European industries.**



### Port of Antwerp-Bruges and Port of Rotterdam call for a robust Clean Industrial Deal

14 January 2025

Reading time: 3 minutes

Port of Antwerp-Bruges and Port of Rotterdam are calling on the European Commission to make large-scale investments in the competitiveness of industry in Europe. This comes ahead of the publication of the Competitiveness Compass and the Clean Industrial Deal. 'Europe's strategic autonomy, energy transition and prosperity is at stake'.



As energy, logistics and industrial clusters, the two largest ports in Europe can play an important role in implementing the EU's Clean Industrial Deal, aimed at strengthening the investment climate in Europe. As such, they want the European Commission to take an approach that focuses on strengthening international chains and industrial clusters, rather than specific sectors or regions. The ports want to take the lead in this cross-border approach by working together more intensively themselves.

# Port in Transition

*Why is it so difficult to decarbonise shipping?*



# Transitions or dilemmas?

Towards a battlefield of conflicts?

## COP29 pledge unites global port actors in elevating the need for building climate resilience and adaptation in port systems

Race to Zero, 20 November 2024

MAR 13, 2023 • BACKGROUND

Lack of space in the Netherlands: how do we solve this puzzle?

## Climate lawyers launch attack on Rotterdam port , 'worse than Schiphol and Tata'

Volkskrant, 16 December 2024

## HET FOSSIELE DILEMMA VAN ROTTERDAM

TNO, 2016



Port of Rotterdam is struggling with a huge staff shortage: 'Will only increase in the coming years'

BNR, 21 november 2024

## The fossil optimism of the port

Vers Beton, 18 May 2022

Half of the port area is occupied by fossil industry, but this will certainly not remain the case due to the energy transition.

However, concrete investments are still lacking, according to

Investico for Vers Beton and OPEN Rotterdam. The

ing to uncertain plans and a familiar strategy: growth.

Felix Voogt May 18, 2022 3 comments Reading time 11 minutes

Podcast • 21 Dec '24 05:00

FD, 21 December 2024

## From hub to bottleneck

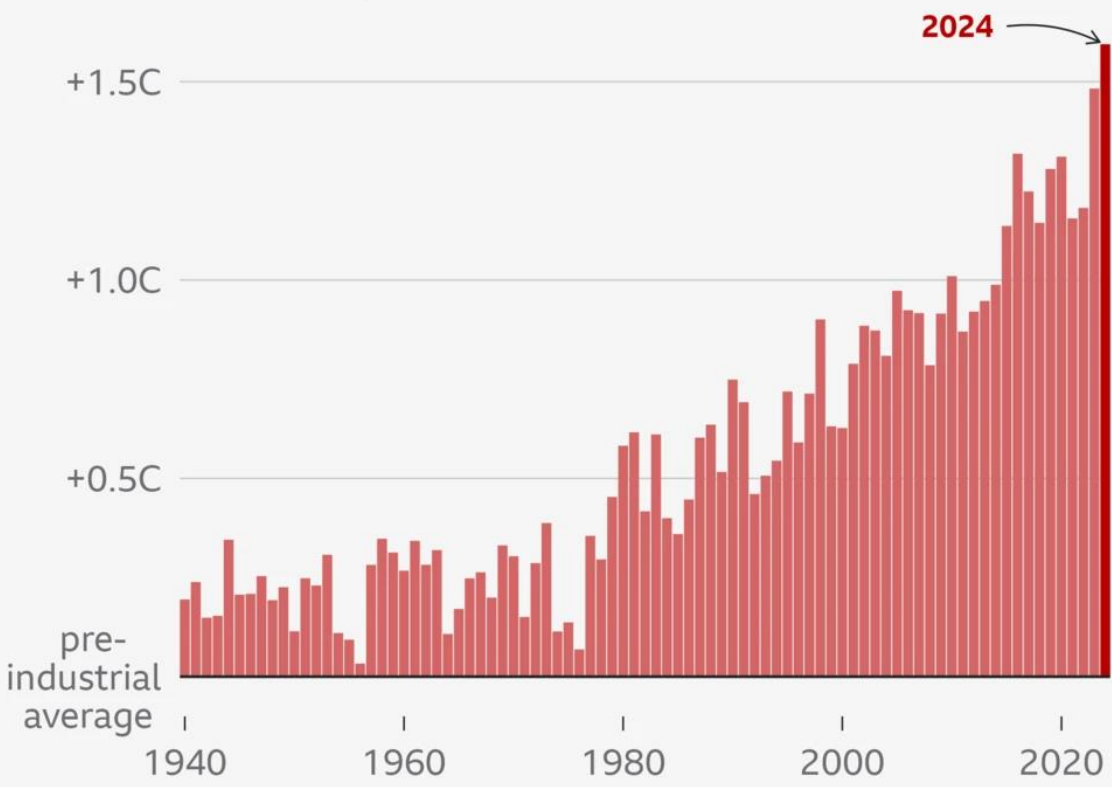
From our editor

Rotterdam still has by far the largest port in Europe. But sustainability requirements and a dire shortage of staff are putting pressure on that position. And then there is drug crime. Does the port still have a future? And what does it look like? You will hear that in the Dagkoers special 'The

rdam: Icon in Trouble'.

## 2024 set to be hottest year on record

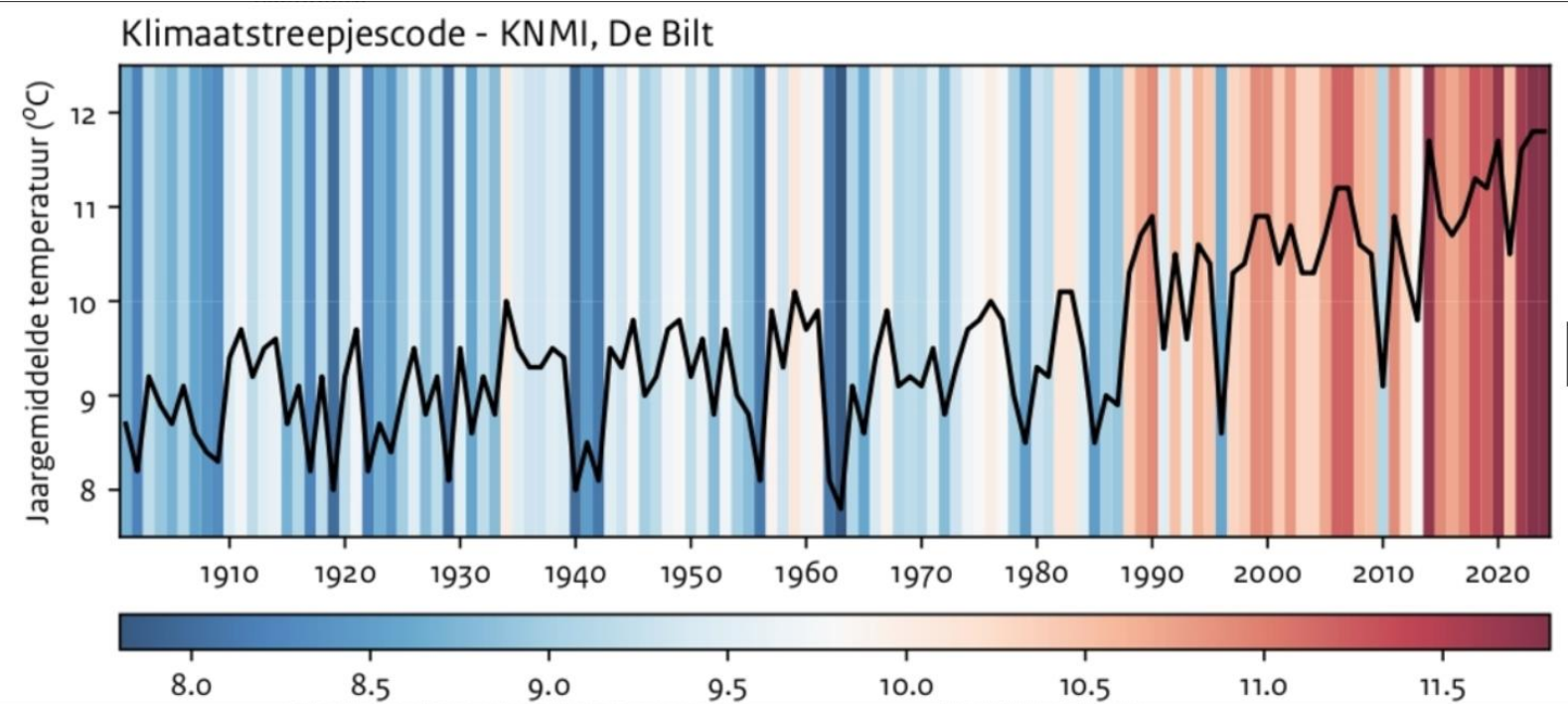
Global average temperature by year, compared with the pre-industrial average, 1850-1900



Provisional estimate for 2024, based on January to October temperatures

Source: ERA5, C3S/ECMWF

BBC



Noordzeenatuur

'Natuurcompensatie voor aanleg van Maasvlakte 2 lijkt een wassen neus'

Kustwacht  
Tijssen van  
der Heide  
(rechts)

De compensatie voor verloren natuur na de aanleg van de Maasvlakte is een sigaar uit eigen doos. Dat concludeert kustecoloog Tijssen van der Heide na bestudering van rapporten over dit onderwerp.

Maar over tien jaar nadat het eerste deel van Maasvlakte 2 werd gestart, zijn voor schijnbare natuurcompensatie totaal niet te spreken over de huidige compensatie. Ze zijn daarom naar de rechter gegaan om de overheid aan de afpakken te dwingen. In de afpakking heeft de rechter de overheid bevestigd dat er nu de voorlopige voorziening die eerder meer dan honderd miljoen kostte, het 'wondermiddel' om de vogelbescherming te compenseren.

In de aanpak naar de rechter staat het: Natuurcompensatie van ruim voldoende, maar de rechter heeft bevestigd dat er nu de voorlopige voorziening die eerder meer dan honderd miljoen kostte, het 'wondermiddel' om de vogelbescherming te compenseren.

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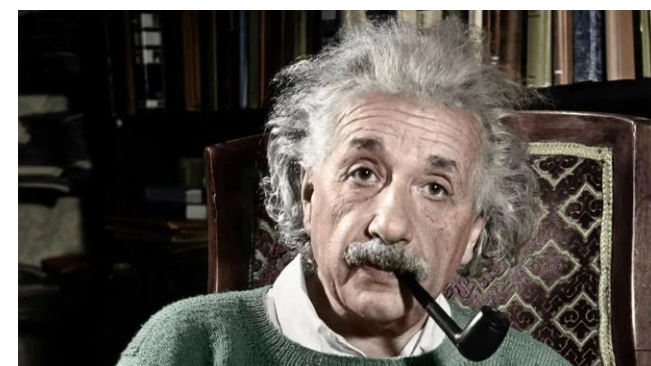
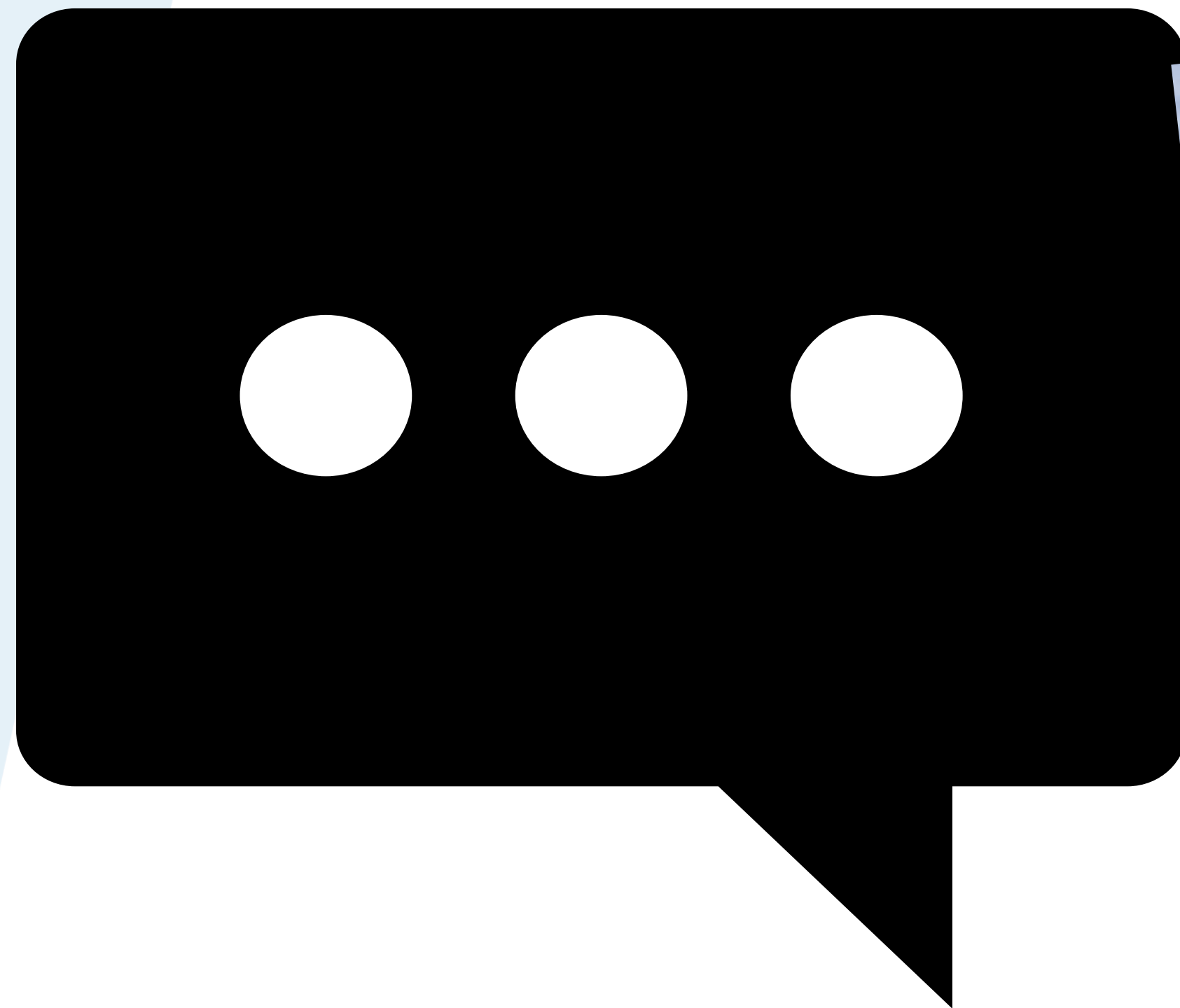
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# Dealing with complexity

A structured process to understand problems, share dilemmas and work on collaborative, creative and realistic solutions.



# Ports in Transitions

Multiplicity of interests and stakeholders, often lead to a 'battlefield of conflicts'

- In scientific research, the Port-City interface is conceptualised as a **demarcation line**, a **zone of conflict**.
- **Growing interest for Positive externalities**
- Growth must be **inclusive** and **sustainable**;
- If not, risk is to lose its **licence to operate** from society.
- Conflicts may turn into a **battlefield** when issues are not managed well.
- **Multiple gaps** are addressed in **scientific literature**: the institutional gap, innovation gap.
- The '**Sense of urgency**' gap is the trickiest.
- This triggers a **collaborative alternative** on issues like employment, pollution, and waste.

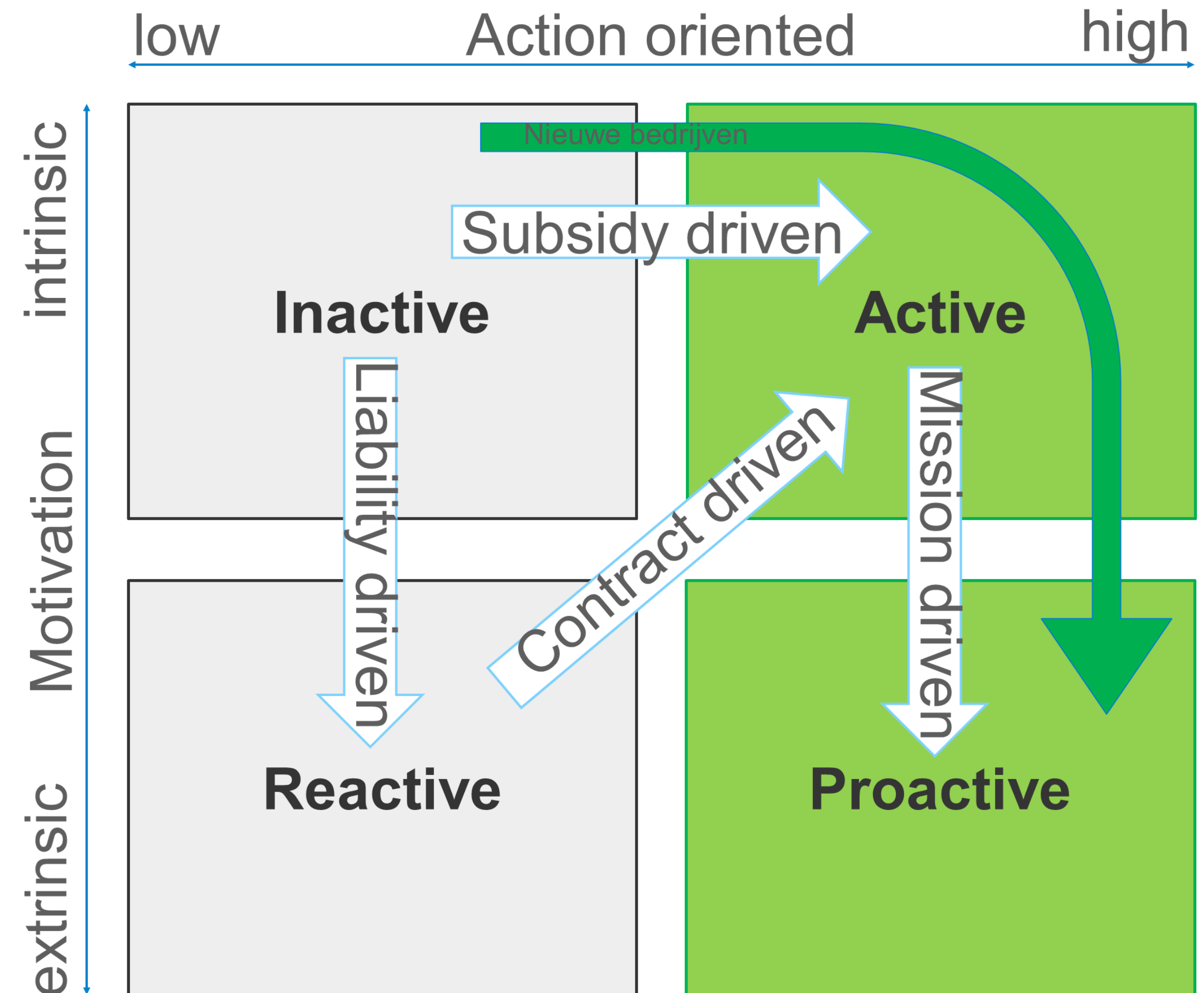


We feel the need to make the change happen, rather sooner than later, but how?

# How are companies making the transition?

## Motivation and Actionability

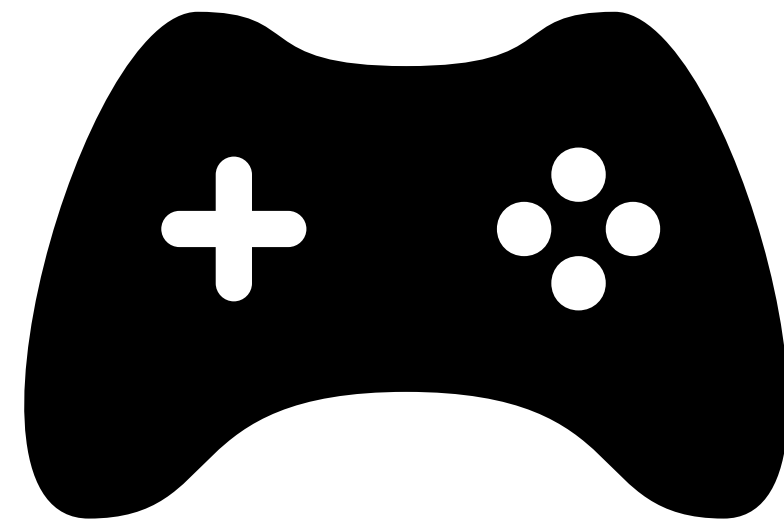
- ▶ The ability to drive green transitions depends on the motivation as well as the action orientation of companies.
- ▶ Also competition and subsidies drive green change ('contract-driven', 'subsidy-driven')
- ▶ Startups and new market entrants also bring new business models and lead to a change in the status quo.



# Carbon pricing as instrument to get grip on decarbonization?

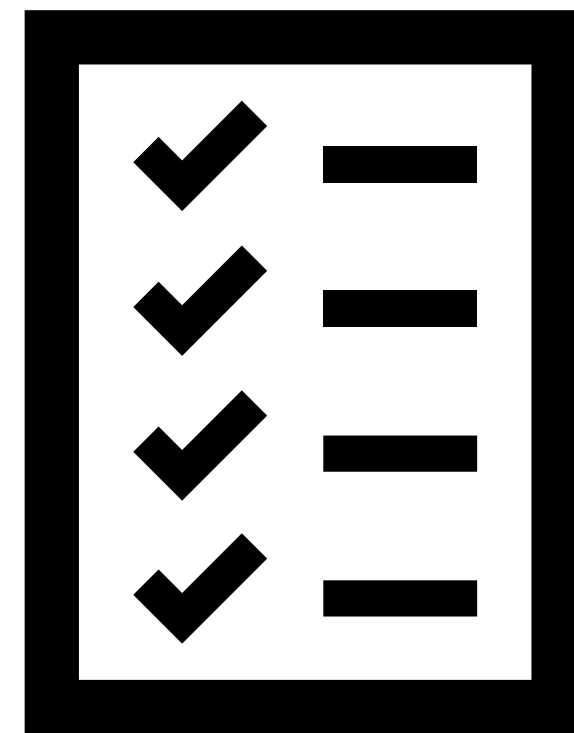
## Dilemmas for shipowners and governments

**Control**



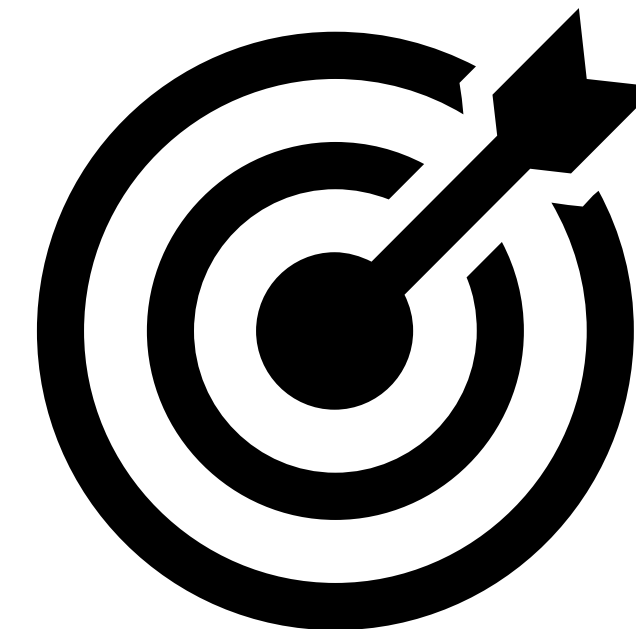
Government want to be in control over the emission levels

**Administration**



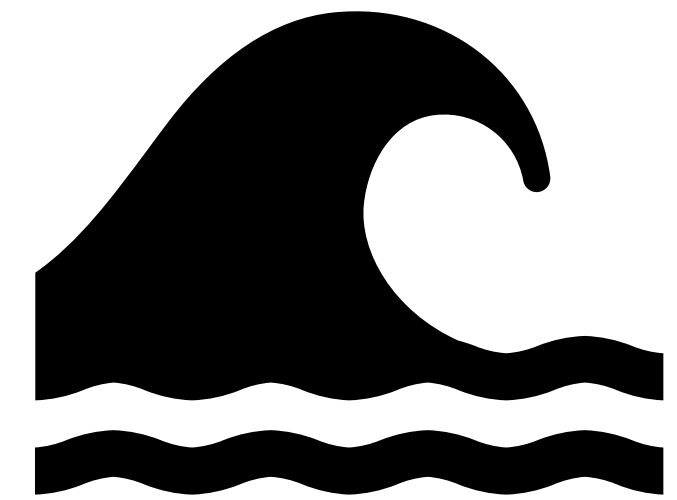
Keep the administrative burden acceptable

**Effective**



MBM needs to be effective in reducing CO2 emissions

**Stable**



Carbon pricing needs to be stable enough to persuade shipowners to take short term and long term measures

# Carbon pricing as instrument to get grip on decarbonization?

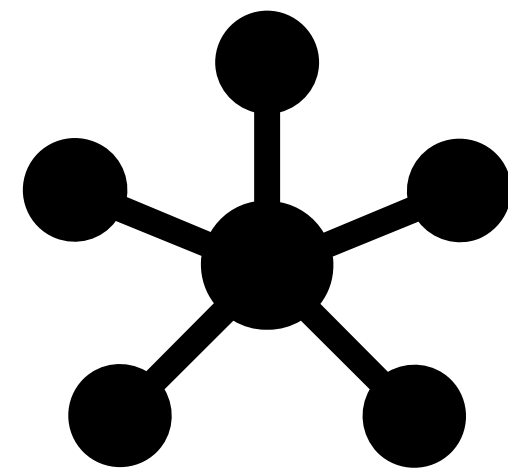
## Shipping industry's evasive behaviour

### Flag-out



EU and its Member countries do not have jurisdiction to regulate GHG emissions from vessels sailing under a non-EU member state flag coming from a non-EU port

### Network redesign



(Partial) redesign of the transport network is likely to happen, e.g. set up transshipment hubs outside EU

### Own ship-owners hit hardest



Shipowners who deploy their ships in short sea trades will be more impacted than others, with risk of reverse modal shift (e.g. road transport)

### Bunker outside EU



Shipowners may want to bunker outside of EU-member states' territorial waters, when carbon price raises above unacceptable levels

# IMO Net Zero Framework

In April 2025 IMO approved a new set of regulation that apply globally to ships > 5000 GT

- In April 2025 IMO approved a new set of regulations that sets a mandatory marine fuel standard and GHG emissions pricing for shipping.
- Target of 5% uptake of zero or near zero technologies or energy sources
- Tier 1 price will be US\$ 100 per tonne of CO<sub>2</sub>eq, Tier 2 price is set at US\$380 per tonne of CO<sub>2</sub>eq
- IMO Net-Zero fund will be used to reward low emission ships, and support R&D in transition initiatives, fund training

## Global fuel standard

- : Ships must reduce, over time, their annual greenhouse gas fuel intensity (GFI) – that is, how much GHG is emitted for each unit of energy used. This is calculated using a well-to-wake approach.

## Global economic measure

- : Ships emitting above GFI thresholds will have to acquire remedial units to balance its deficit emissions, while those using zero or near-zero GHG technologies will be eligible for financial rewards.

2027, effective  
1 Jan 2028

# Port in Transition

What role do ports play in maritime decarbonisation?



# Interport relationships

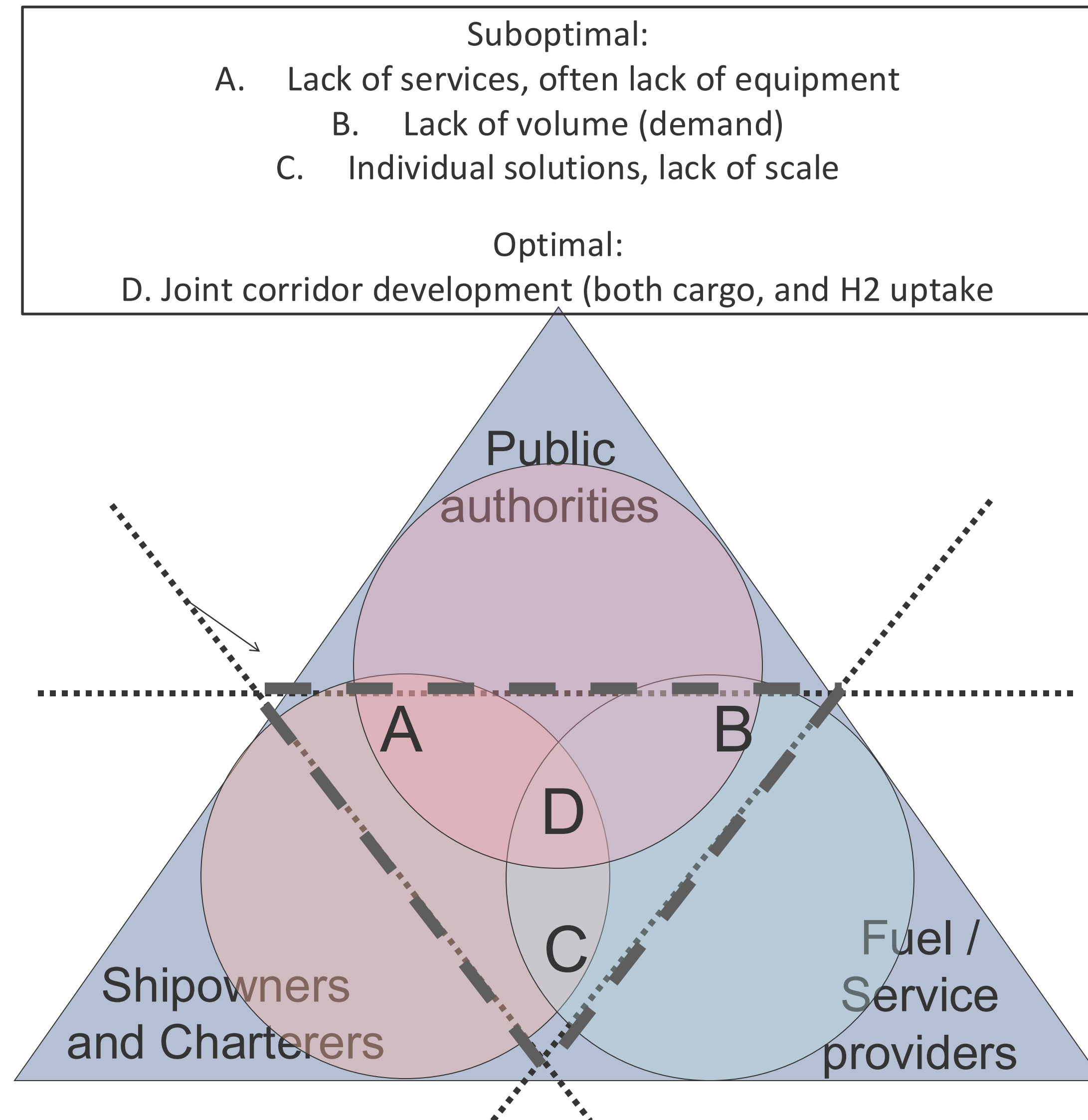
## Green port strategies translate in green corridors

More than 50 announced green shipping corridor initiatives



- Ports and shipping industry have been separated in their developments for decades, where shipping has dictated infrastructure developments in ports.
- With today's decarbonization challenges, there is an increasing interdependency

# Coordination means collaboration



## Shippers/charterers: LEAD

- Set ambition for energy transition (H2)
- Determine pace of market development
- Share information for better planning

## Fuel (and service) providers: ENABLE

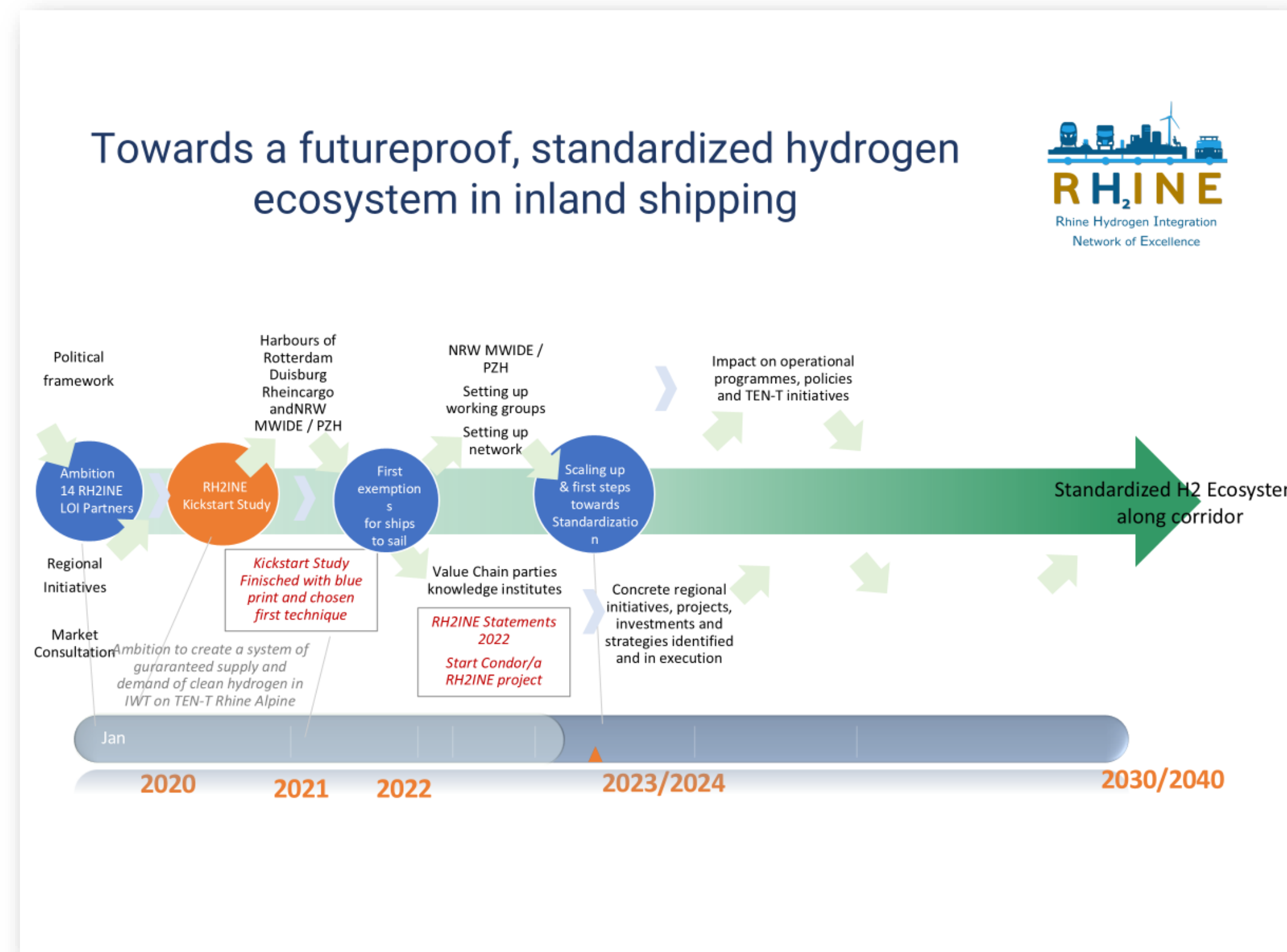
- Set up fuel service network
- Share infrastructure and equipment
- Make equipment available
- Contingency planning

## Public authorities: SUPPORT

- Align (European) policies on incentives and market-based measures
- Bring people together around the table.
- Support startup phase of initiatives
- Subsidise initial uptake of technology

# Case RH2INE

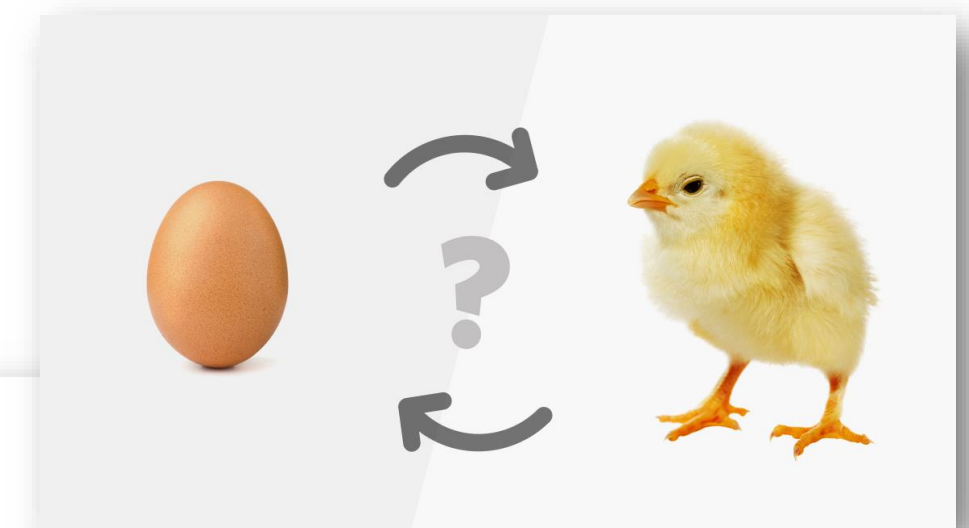
## Port of Rotterdam hydrogen ecosystem in inland shipping



# Case RH2INE (2)

## Why you need stakeholders to be part of the transition journey?

- **Government to Government (G2G)** across corridors to align regulatory frameworks
- **Government to Business (G2B)** to arrange the right market conditions.
- **Business to Business (B2B)** to operationalise the strategic intentions
- **'Banks to Business' (Ba2B)** to make sure investments are made for new technologies



# Case: Human Capital Coalition Energy Transition

## Port of Rotterdam prepares future generation education

- Awareness and reputation of learning and working in the Port of Rotterdam
- Promoting diversity and inclusive employment practices
- Connecting education to the labour market (Energy Campus Rotterdam)
- Practice-oriented training (company schools)
- Positioning the Port on the international labour market



**Gemeente  
Rotterdam**



**Port of  
Rotterdam**



**TECHNIEK  
COLLEGE  
ROTTERDAM**



Co-funded by  
the European Union



**Deltalinqs**



**STC GROUP**  
LEADING IN LEARNING

- Netherlands is facing a rapidly ageing population
- 8,000 vacancies in the Port of Rotterdam (total employment 193,000)
- Inflow of young people is lacking behind (decline, rather than increase of students)

# Ports as a force for positive change?

Coordinating over multitude of approaches and good practices

High	<b>Battlefield of conflicts</b> Profit (1) Stakeholder mngt (2) <b>PA as Mediator</b> Negative sum (3) PA as Mediator (4) Conflict management (5)	<b>Green port</b> Clean, healthy, liveability (1) Zero emissions technology (2) <b>PA as Green Deal Maker</b> Win some, lose some (3) PA as Green Deal Maker (4) Sustainability management (5)	<b>Port-city ecosystem</b> Transition, adaptation, learning (1) <b>PA as Steward</b> Creative destruction (2) Broad participation (3) PA as Steward (4) Ecosystems management (5)
Societally complexity	<b>Fossil dilemma</b> Pollution elimination (1) <b>PA as Regulator</b> Emissions reduction (2) Dilemma (3) PA as Regulator (4) Waste management (5)	<b>Engine</b> Efficiency, reliability (1) <b>PA as Engineer</b> Time is money (2) Trade-offs (3) PA as Engineer (4) Process management (5)	<b>Cluster</b> Cluster objectives (1) <b>PA as Cluster Manager</b> Trust and shared value (2) Narrow positive sum (3) PA as Community manager (4) Community management (5)
Low	<b>Gateway</b> Cargo volumes (1) <b>PA as Operator</b> Accessibility (2) Build capacity (3) PA as Operator (4) Transport management (5)	<b>Mainport</b> Strategic connectivity (1) <b>PA as Facilitator</b> Hub and spokes (2) Network modeling (3) PA as Facilitator (4) Corridor Management (5)	<b>Brainport</b> Digital connectivity (1) <b>PA as Entrepreneur</b> Smart infrastructure (2) Algorithm (3) PA as Entrepreneur (4) Innovation Management (5)
	Low	Technological complexity	High

- The port governing body depends **on port operators** and **technological solution providers** to make zero emissions technology happen
- A shift from conflict to **collaboration** is required to move beyond the conventional battlefield towards a green port.
- **Multiple roles** are attributed to port governing bodies
- **Creativity, learning and adaptation** to new realities is paramount to go beyond existing business paradigms.

# Port in Transition

Outlook towards Wednesday's Future of  
Fuels Game



# Marine Fuel(s) of the future

## Playing field and functions

### ➤ Maritime side

- Building/Removing ships as functions to the shipping lines
- Retrofitting ships with WAPS and/or CCS

### ➤ Port side

- Building/removing port infrastructure (bunkering & storage) to transition towards alternative fuels available

