

Tanker Operator Conference Athens 2026

Charterers Crew and Carbon

Agenda

- State of the World
- Complexity
- Resilience-not a choice a survival strategy
- Climate Change in a Complex World
- Safety

State of the world

Noughties

Optimism & Optimisation

- Communism dead Capitalism won??
- No more boom and bust
 - GDP Growth
 - Riccardo was right
 - Outsource to our Enemies and make them rich
- Relative Peace?
 - 9/11
 - Regime change is possible
 - Wars without plans
- Environment and Society
 - Millennial Goals
 - Climate Change
 - Air Quality

Then Financial Shock

Teens

Disbelief and Hope

- Financial Shock
 - NO more money
 - Not the Lenders fault blame the borrower
 - Austerity
- Supply Chains
 - Never break
 - Who needs warehouses and stock
 - Can be optimised for a single state of the world
- Turbulence
 - Brexit
 - Social Media
 - Arab Spring
 - Ukraine and Crimea
- Environment and Society
 - Nox and Sox 1st Phase
 - Climate Change discussions roll on
- Freedom of Navigation?

Twenties

Many Plagues on Your House

- Economy and Finance
 - You find out who your friends are
 - Hang on we can't make anything any more
 - Paying people not to work
 - Where did China get all that money to build their military?
 - Where did Russia get all that money to start a war?
 - Shadow Fleet
- Supply Chains are fragile
 - Ever given
 - COVID interruptions
- Turbulence
 - COVID
 - Ukraine
 - Mass Migration
- Environment and Society
 - Net Zero implementation
 - Nox and Sox Scrubbers
 - Internet as a religion
- Autonomy whether you want it or not
- Freedom of Navigation

Pools of Worry

- Worry is part of Evolution
 - Those who worried too little died (or were eaten!!)
 - Those who worried too much failed to live (or to reproduce)
 - Hyper worry-single issue pressure groups
- Pool of worry
 - You can only worry about a handful of things
 - If there are too many some drop off
 - In a fast changing world the pool fills and empties very quickly (The Trump effect??)
 - In the noughties environment was everything....then
- What's in your pool now?
- *Source George Marshall ' Don't even think about it '*

What's the Problem

'Things that have never happened before happen every day'

Scott Sagan The Limits of Safety

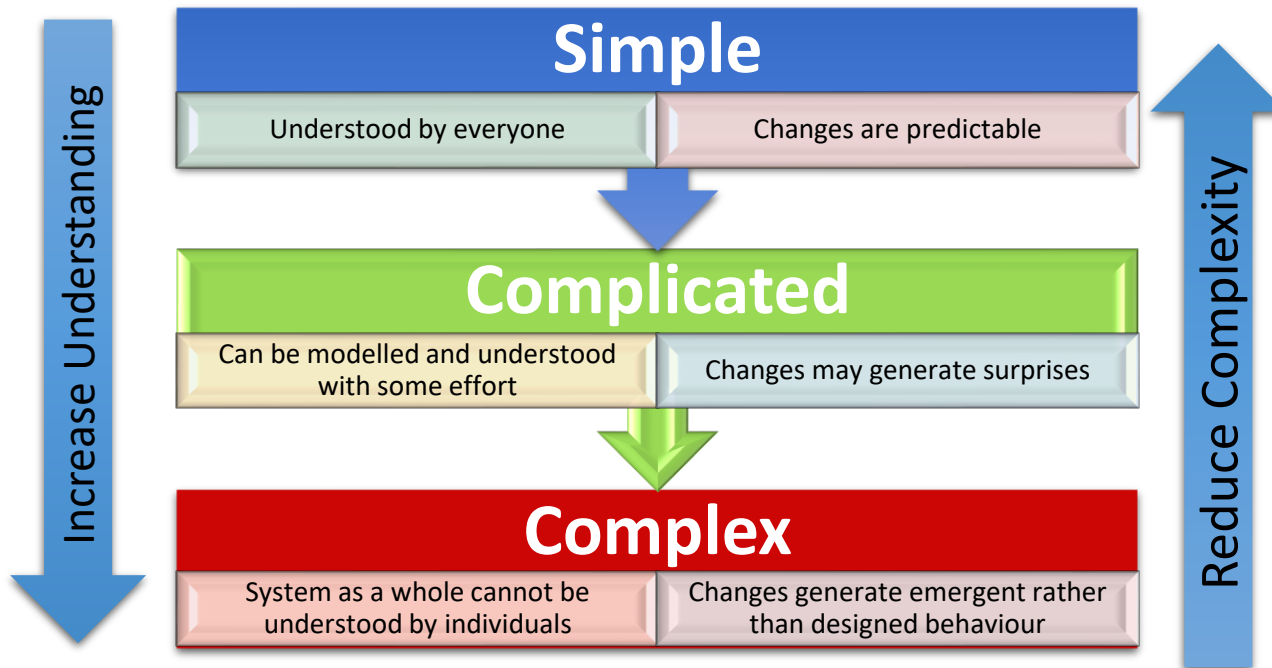
'In the marine industry things that **have** happened before happen every day in different ways'

Shaw's corollary

The industry has become more complex and less predictable.
(*understatement of the decade*)

Complexity

What is Complexity



Complex Adaptive Systems



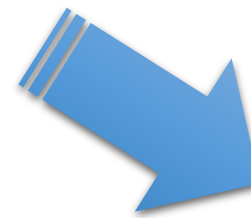
Insects



Traders

Behaviour

- Alive
- Emergent (Surprising)
- Organised then suddenly disorganised
- Explainable after the event

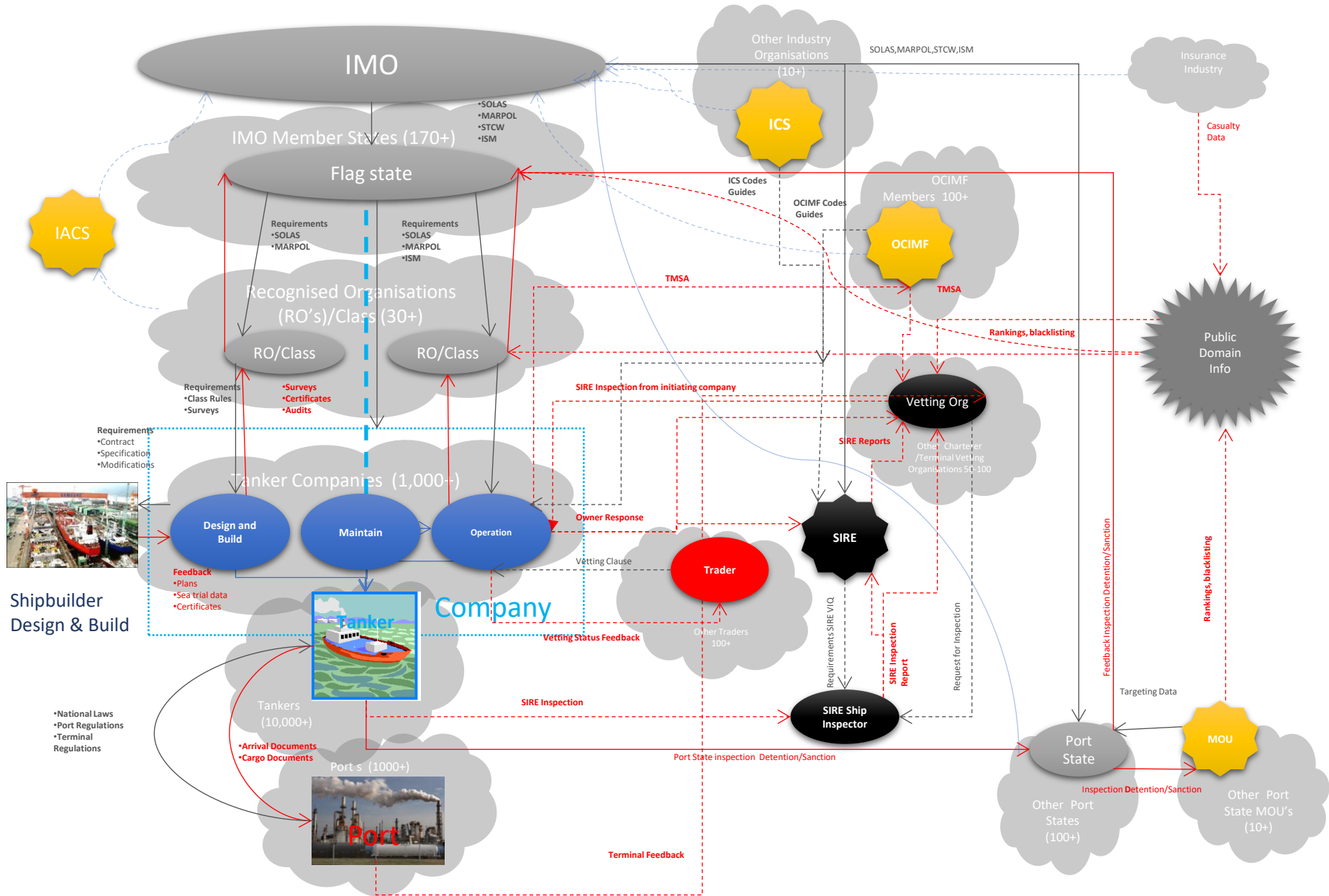


Seafarers

Features

- Competing for scarce resources
- Open system
- Large number of interactions
- Agents:-
 - influenced by history and feedback
 - can adapt to improve performance
- Perverse incentives can lead to surprising results

Is this a Complex System?



Resilience

Not a Choice a Survival Strategy

Resilience Engineering

Short Definition

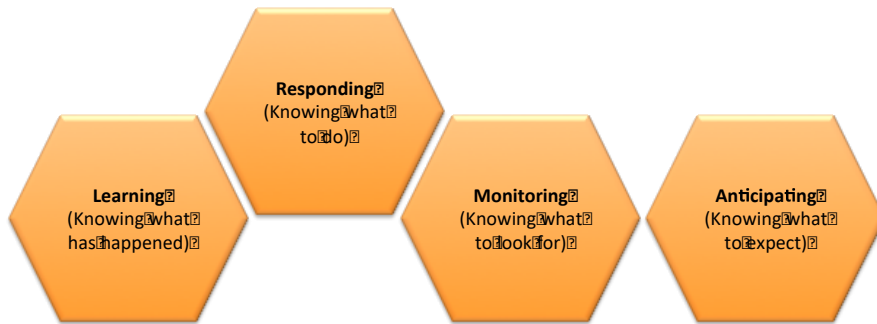
The ability to succeed under varying conditions

Long Definition

The ability of a system to adjust its functioning prior to, during or following changes and disturbances so that it can sustain required operations under both expected and unexpected conditions

Resilience on one slide

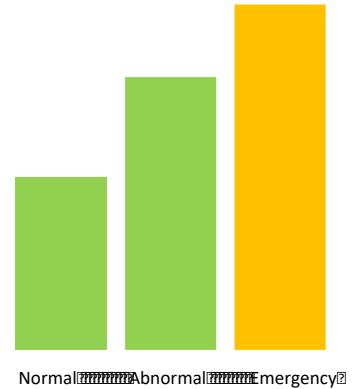
Downward Resilience
Resilience inherent in industry and manager systems. Creation of culture



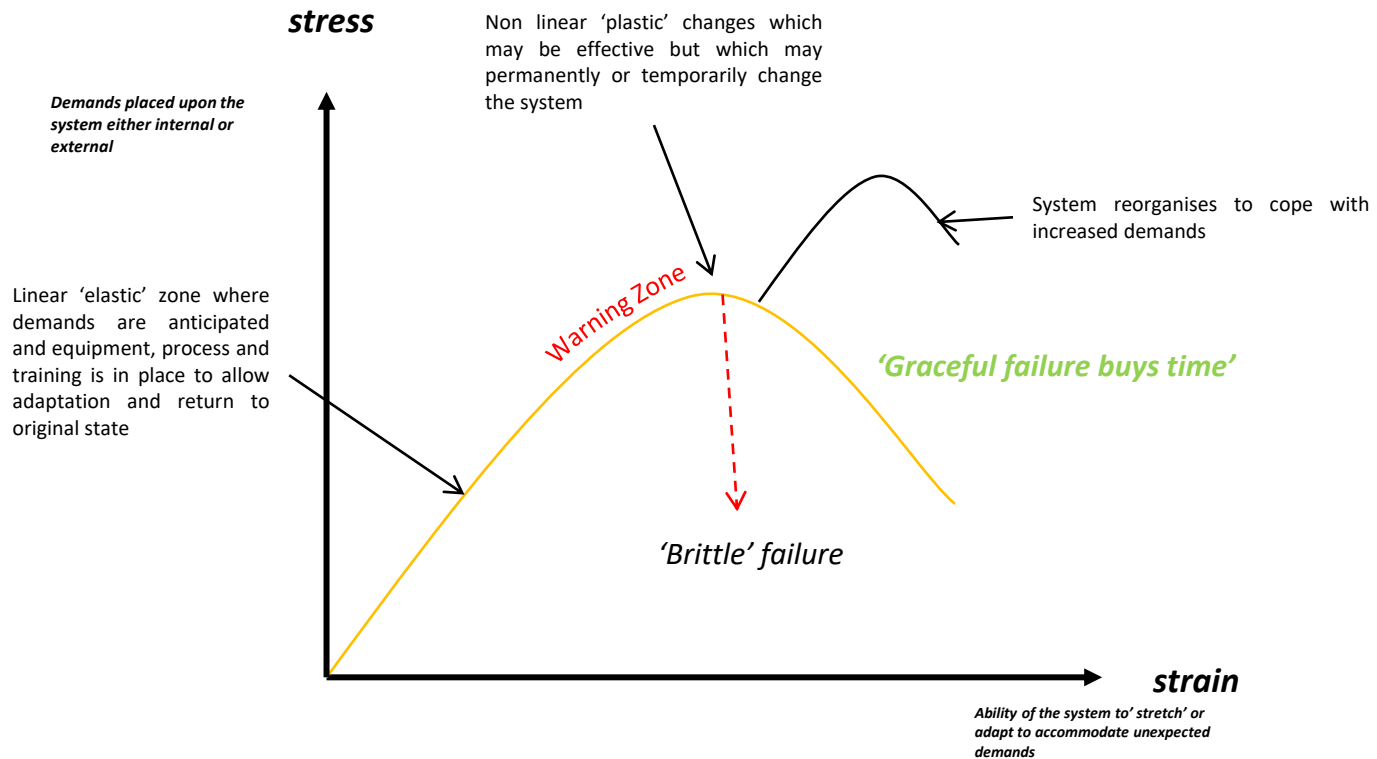
Upward Resilience Skills

Resilience
The ability to succeed in changing circumstances

Ability to reconfigure in changing circumstances



Hooks Law meets Resilience



Other models are available including 'Ball and Cup'

The Resilient Shipping Company

The resilient shipping company will be able to succeed in changing circumstances:-

- At a corporate and operating strategy level.
- At an operating and commercial management level.
- At a resource and systems level.
- At the sharp end/front line operating level.

A resilient system is an adaptive system that works for you not against you!

A critical difference is in timescale. The time to react at the corporate level to changes will generally be much longer than at the front line. Strategic changes may result in gradual change in operating conditions at the front line and this needs to be anticipated.

Our focus is the sharp end but the blunt end can enable resilience or destroy it.

Resilience Engineering needs to be understood and adapted to the marine environment

Upward Resilience

General

Company Specific

Ship Specific

Technical Skills

Skills provided by generic industry training both ab-initio and through certification

Understanding of the company's management and maintenance systems, maintenance and operational strategy

Understanding of ships design philosophy, systems and specific equipment

Non Technical Skills

HELM and other team based courses

Understanding of risk, decision making

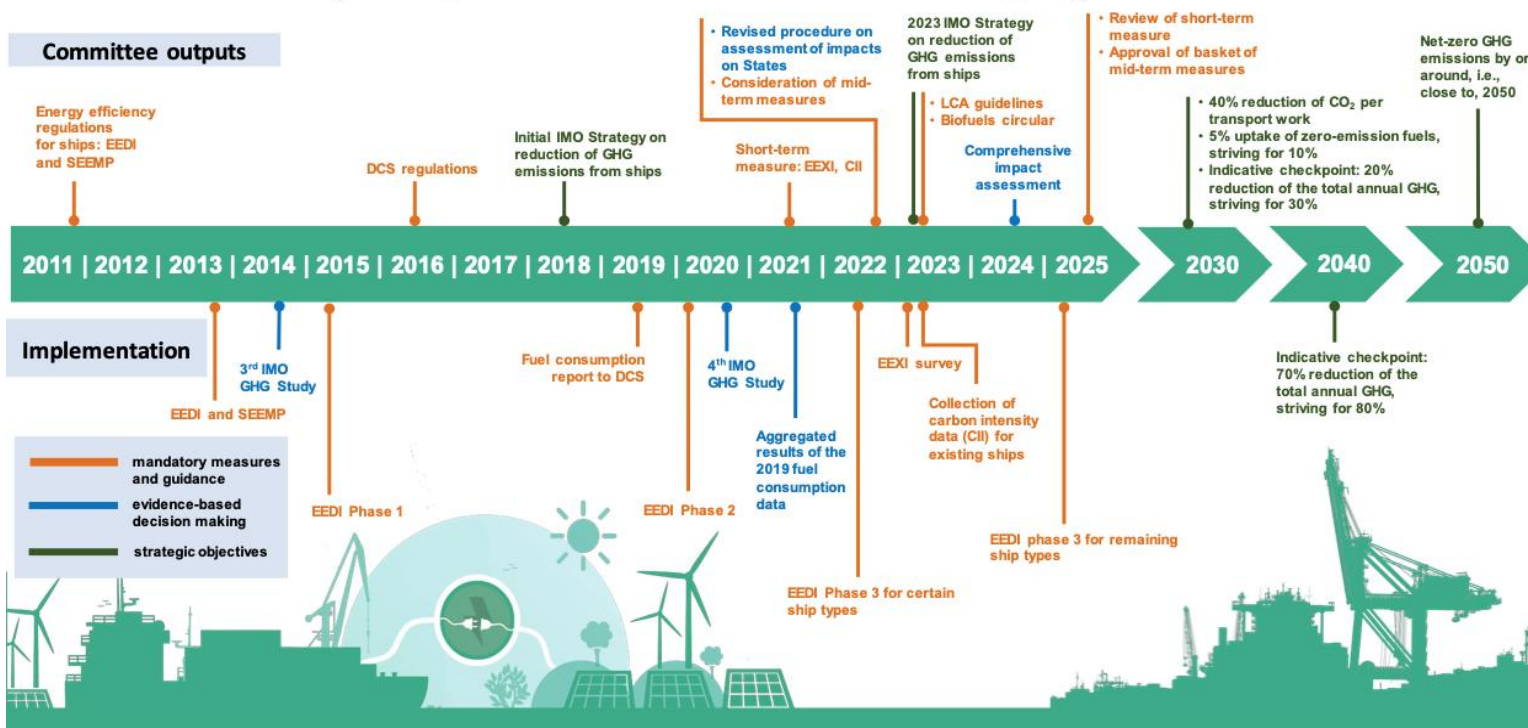
Application of risk, decision making etc on board ship

	<i>General</i>	<i>Company Specific</i>	<i>Ship Specific</i>
<i>Technical Skills</i>	<i>Skills provided by generic industry training both ab-initio and through certification</i>	<i>Understanding of the company's management and maintenance systems, maintenance and operational strategy</i>	<i>Understanding of ships design philosophy, systems and specific equipment</i>
<i>Non Technical Skills</i>	<i>HELM and other team based courses</i>	<i>Understanding of risk, decision making</i>	<i>Application of risk, decision making etc on board ship</i>

Climate Change in a Complex world

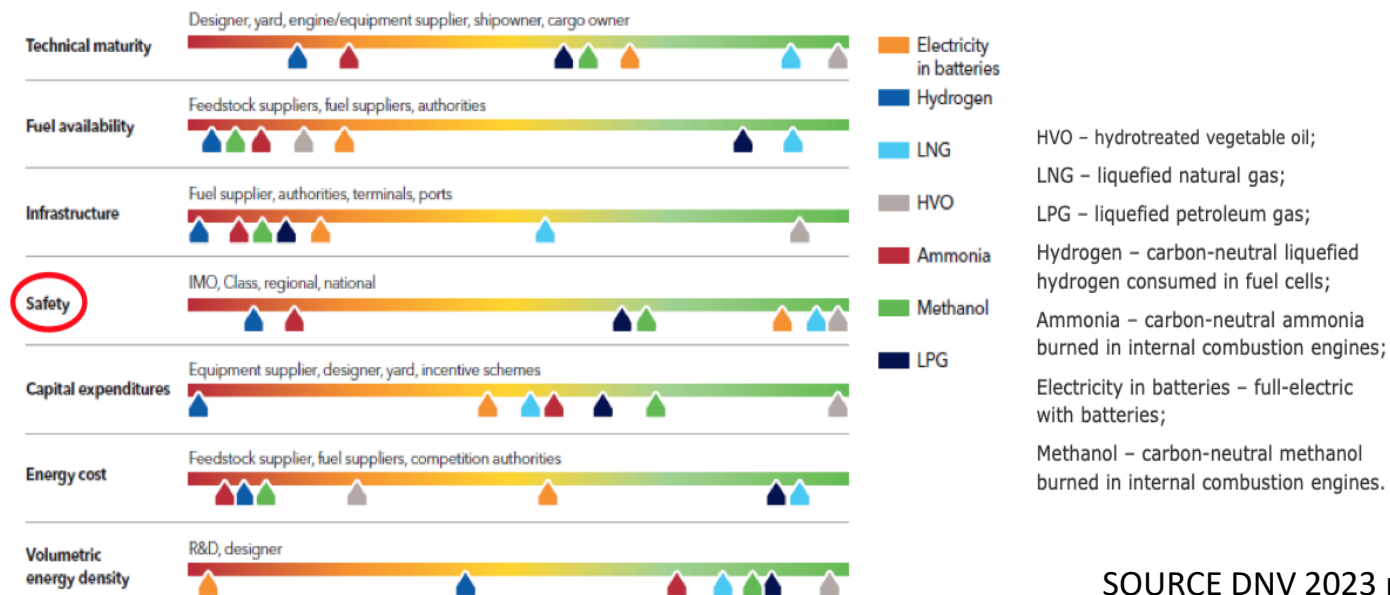
Addressing climate change

Over a decade of regulatory action to cut GHG emissions from shipping



IMO's initial GHG strategy, set in 2018, aimed to cut GHG emissions by only 50% by 2050 and contained no absolute emissions reduction targets for the intervening years.

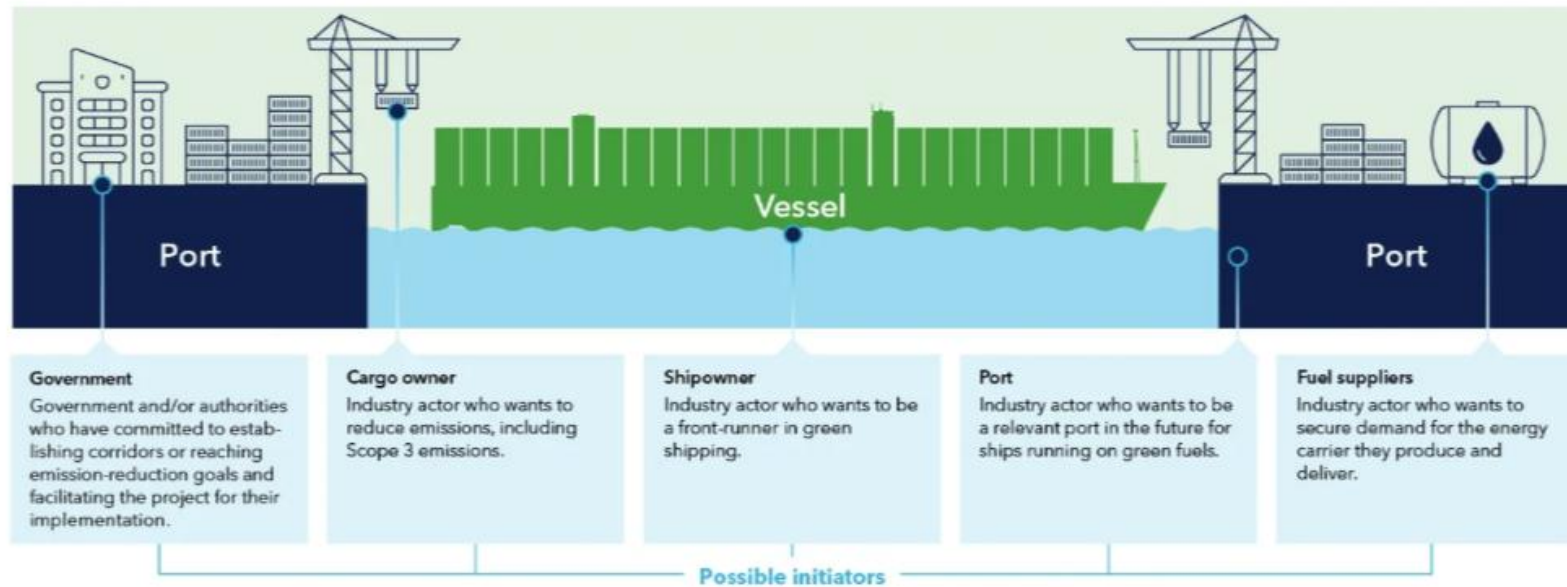
Target Zero Maturity of Technology



SOURCE DNV 2023 report

Green Corridors

Possible initiators and goals

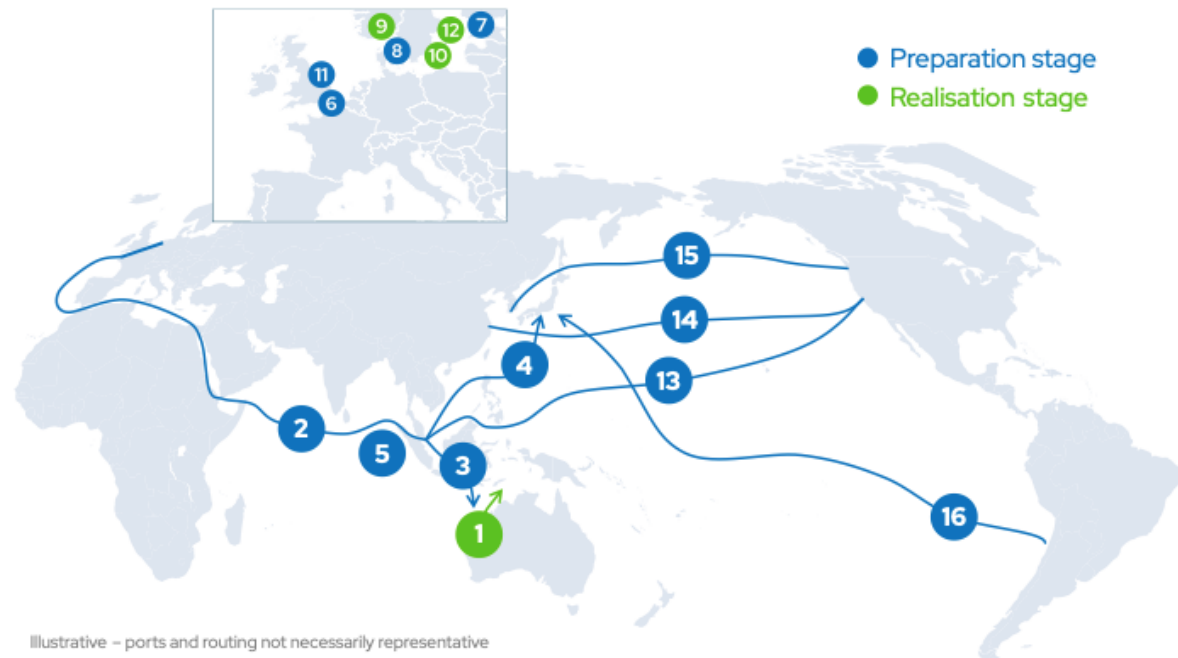


Source DNV

- **Pragmatic solution focussing on liner trades with predictable voyage patterns**
- Good for fuel suppliers as less early investment and guarantees customers
- What happens if the pathway is closed eg Suez, Panama, Red Sea, Hormuz
- How does this help with tankers?
- Its about liner trades so some LNG shipping but most tanker trade is 'tramp'?

State of mature initiatives

The number of green corridor initiatives that have progressed to the Preparation stage has doubled. There are now 12 initiatives in the Preparation stage and four in the Realisation stage (Figure 8).

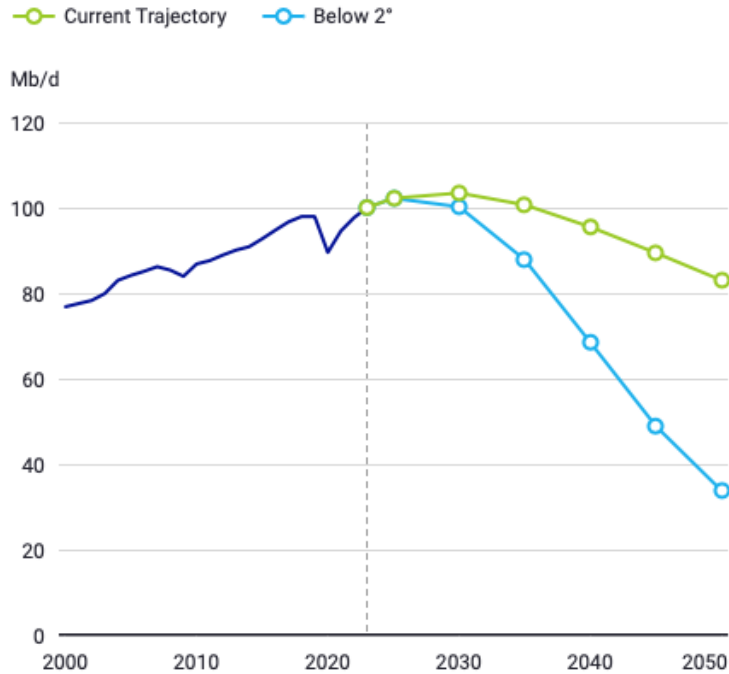


- | | |
|---------------------------------|---|
| 1. Australia-East Asia Iron Ore | 10. Stockholm-Turku |
| 2. Rotterdam-Singapore GDSC | 11. Tyne-Ijmuiden |
| 3. Singapore-Australia GDSC | 12. Vaasa-Umea |
| 4. Singapore-Japan GDSC | 13. Port of Los Angeles-Port of Long Beach-Singapore GDSC |
| 5. The Silk Alliance | 14. Port of Los Angeles-Port of Long Beach-Port of Shanghai |
| 6. Dover-Calais/Dunkirk Ferry | 15. US-Republic of Korea: Seattle and Tacoma-Busan |
| 7. FIN-EST | 16. Chile-Japan/Korea copper concentrate |
| 8. Gothenburg-Rotterdam | |
| 9. Oslo-Rotterdam | |

Figure 8: Initiatives known to have progressed to the Preparation and Realisation stage (as of 1 October 2025)

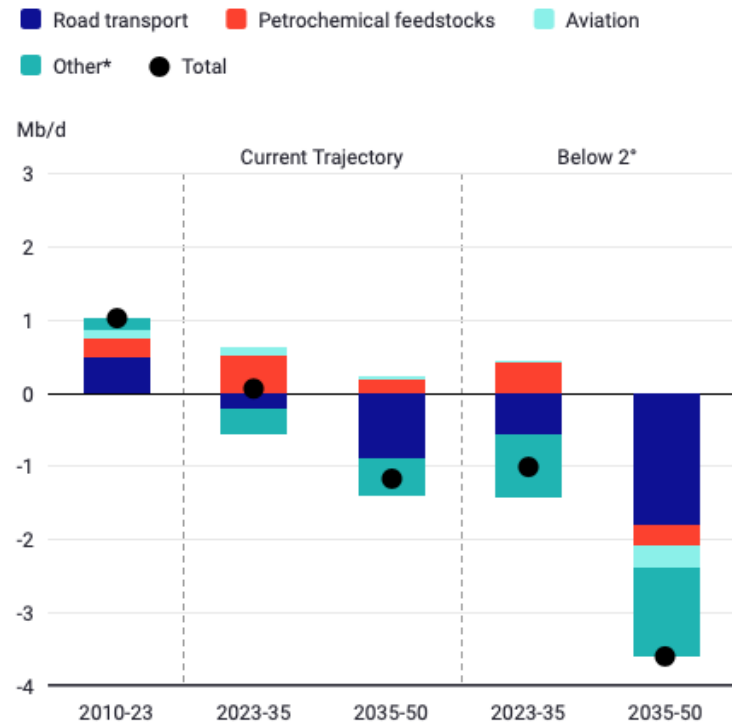
Oil continues to play a major role in the global economy

Oil demand



© BP p.l.c. 2025

Average annual oil demand growth by sector



*Includes other feedstocks, industry, rail, marine and residential / commercial use.

© BP p.l.c. 2025

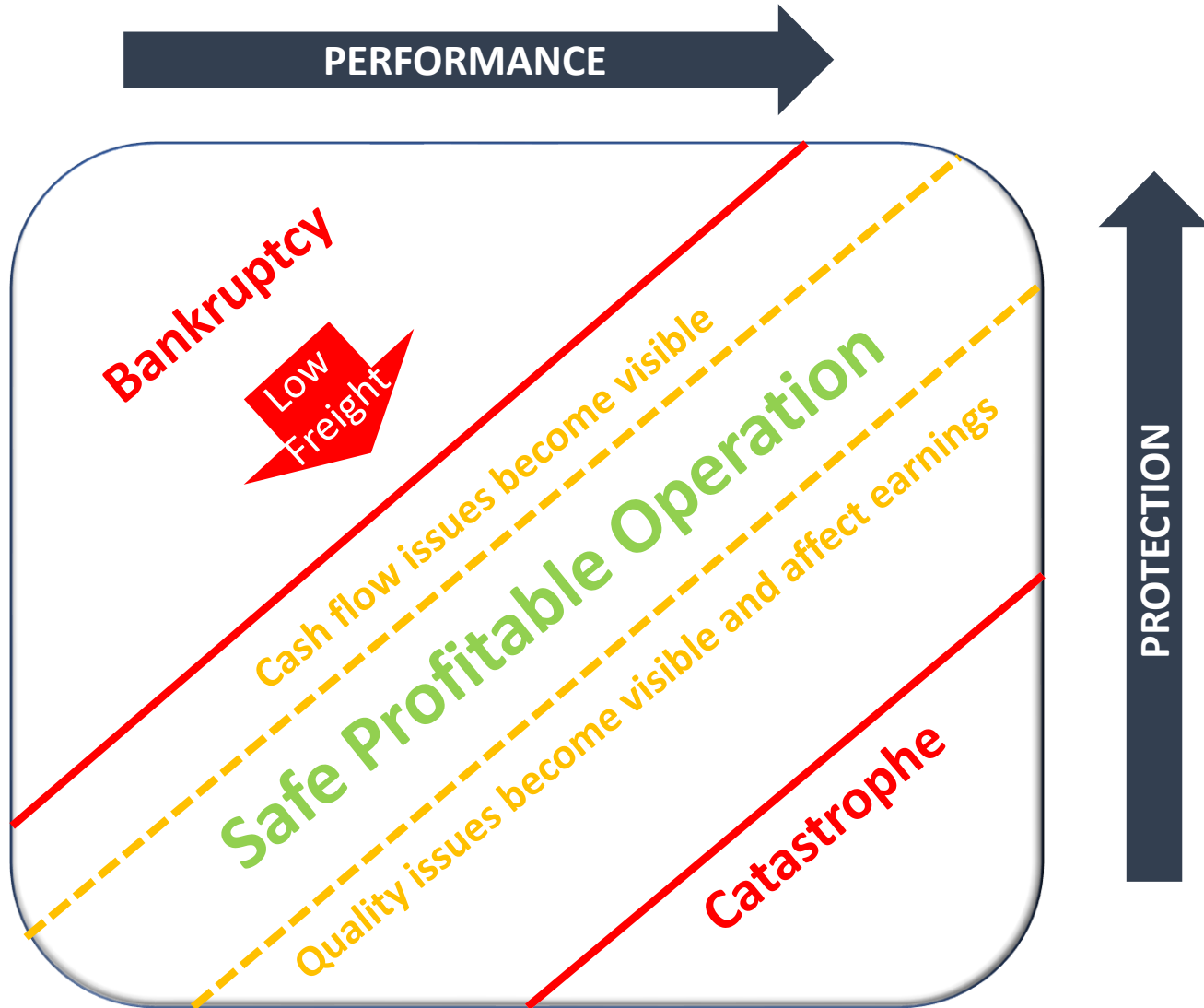
Global oil demand broadly plateaus over the remainder of this decade, before declining further out, led by falling use in road transport.

Safety

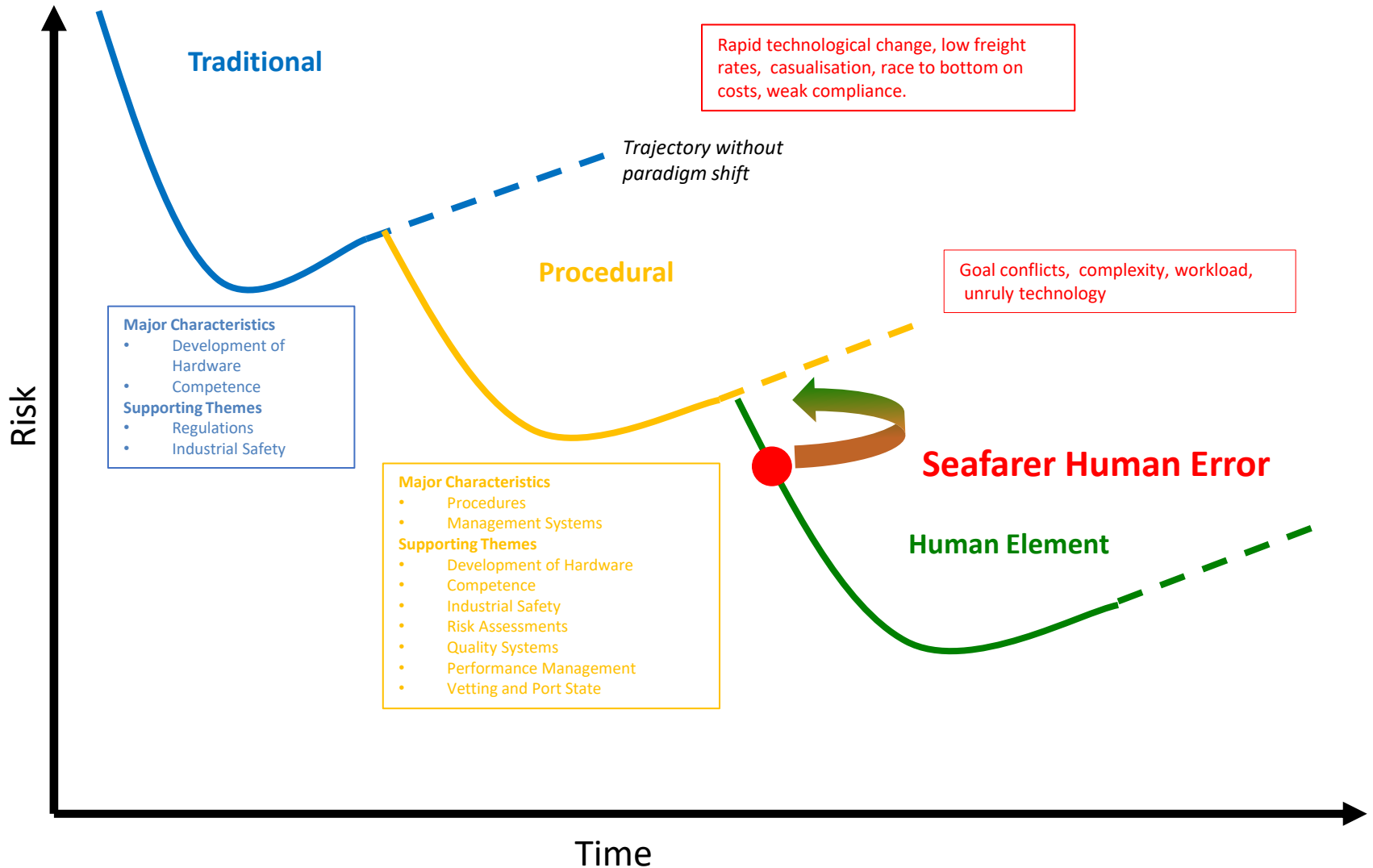
Safety

- 80% of accidents caused by seafarers is nonsense
- 100% of accidents caused by human error in the whole system
- Sack the goalkeeper
- The seafarer hero or hazard
- The human contribution

Choices-Squeezing Operations



Where are we now?



Unruly Technology

- Automation & Navigation
 - ECDIS
 - Arleigh Burke collisions?
 - Air France Airbus
 - AI
 - Autonomy
- Irony of Automation
 - Automation may mask the development of a serious system failure, resulting in limited time for the operator to gain 'situational awareness' and react
 - Lack of practice running systems on manual
- System design
 - Reliability of control systems
 - Poor integration
 - Lack of standardisation
- Limited information and specific training



The View Onboard

Conflicting Goals



Your priority is safety, emissions, greenhouse gas, ballast water, piracy, security, making money, doing things quicker, doing the paperwork

Duplicate /Conflicting Requirements



You need to follow the owners, charterers, flag states, port states, terminals rules and the qa system, chartering, accounts, purchasing department, procedures



Communications



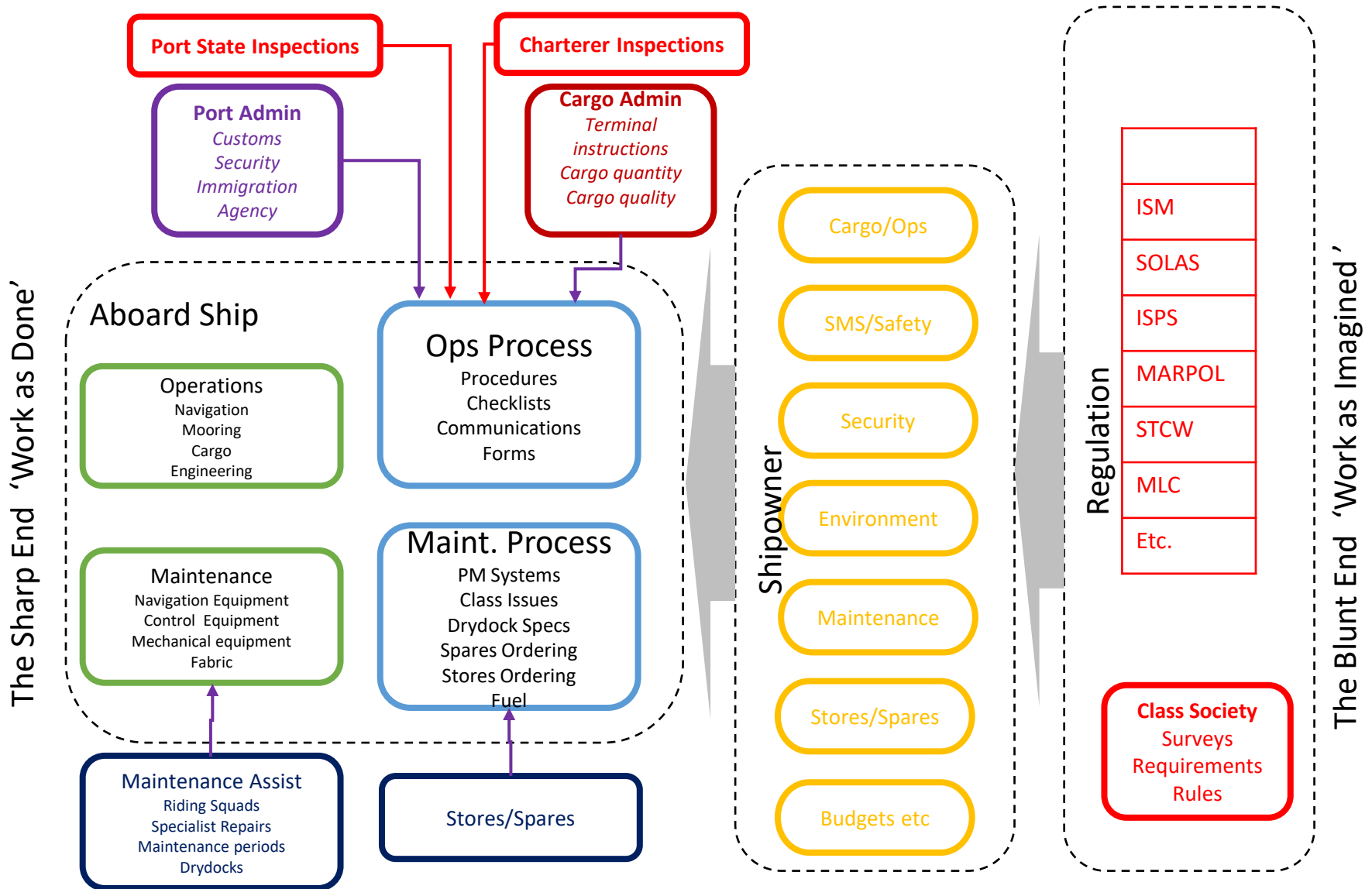
Budgets
Planned Maintenance
Spare Gear and Stores
Risk Assessments
Incident Reports
Near Misses
Port and Cargo Info

Systems



ISO9001
ISO14001
ISM
ISPS
SIRE/CDI
TMSA

What do you have to make Resilient?



Conclusion

- Change is the only constant when the world is run by lunatics
- Need to understand what's in your pool of worry
- We are making things more complex
- Only way to deal with that is resilience
- Its about people-your people as hero not hazard
- Get the systems right
- Too many false prophets promoting technology