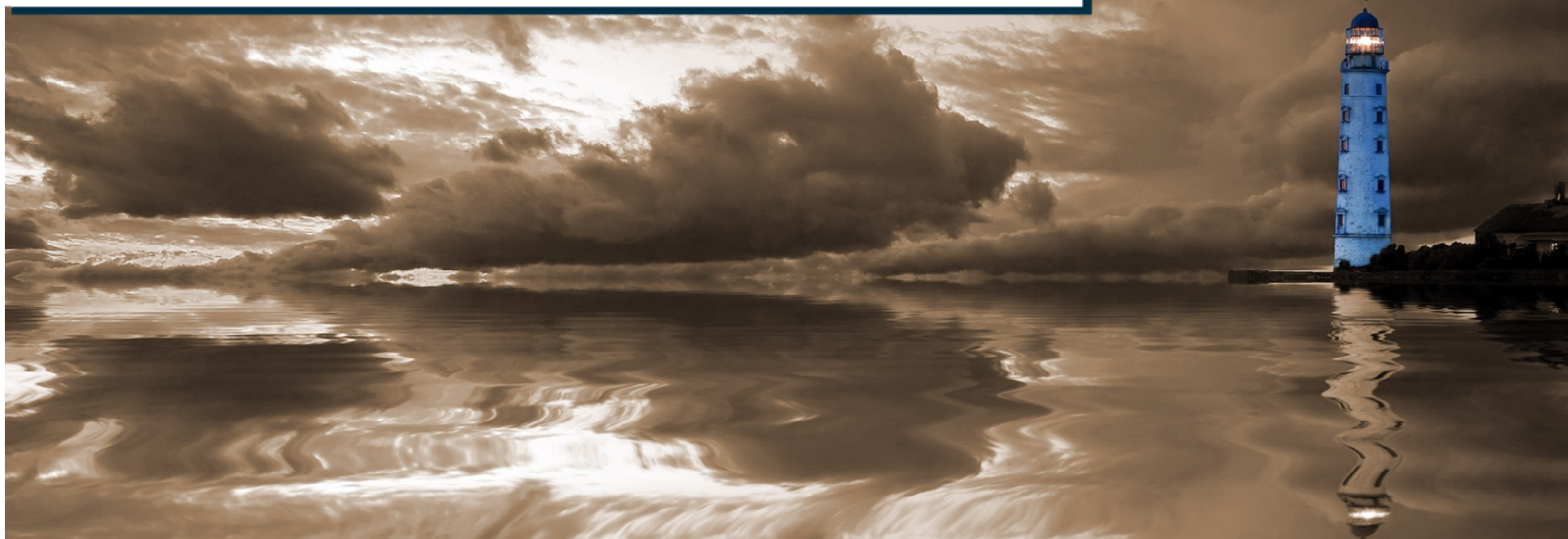




An insurer's perspective

GCE NODE seminar on autonomous vessels



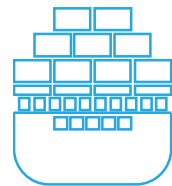
Gard – a brief introduction

- Assuranceforeningen Gard founded in Arendal, Norway in 1907
- The world's largest specialized marine insurance group with the broadest product offering to ship and offshore operators
- Owned by shipowner members of Gard P.&I. (Bermuda) Ltd.
- Gard Marine & Energy Ltd. offers hull, loss of hire, IV and various energy insurances
- All Gard insurance carriers A+/Stable S&P rating
- Global distribution and service network spanning 13 offices with more than 460 staff and about 400 correspondents in all key ports

Our product areas

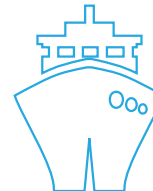
P&I

Third party liability (P&I) and FD&D insurance to owners, operators and charterers of ships and mobile offshore units, and various insurance covers related hereto.



Marine

Hull and machinery insurance, loss of hire, disbursements, marine war and other specialist covers for owners and operators of ships.



Energy

Cover for the oil and gas industry's insurable interests in connection with mobile offshore units, and offshore installations and operations.



Loss prevention and risk assessment

Ability to share the most relevant information

- An in-depth understanding of our Member's and client's business
- In house competence covering all shipping segments – in general
- **Focus on industry trends and developments that will affect safety**
- Risk monitoring of the Gard portfolio
- Key Loss Prevention activities
 - Gard Updates, client training and tailored advice
 - All products and expertise are available free of charge



*"Accidents will happen,
and the identification of risks,
and possible ways to reduce and prevent
them, are key priorities for everyone at Gard"*

Sharing our knowledge and expertise

Gard is a Green Award Incentive Provider

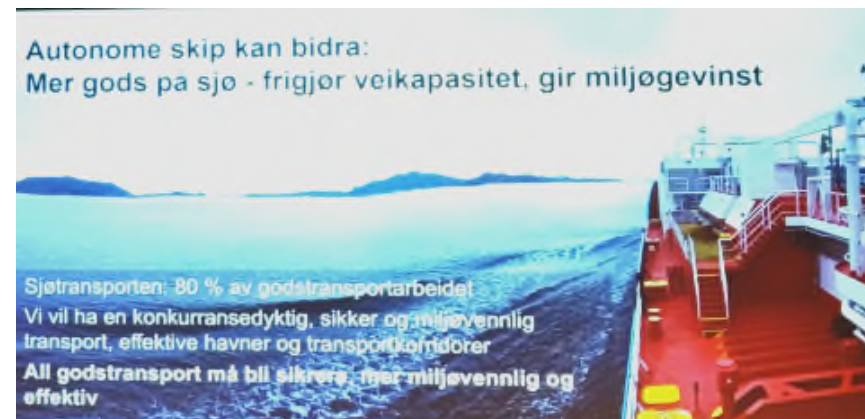
- **Green Award certifies ships that are extra clean and extra safe**, and ships with a Green Award certificate reap various financial and non-financial benefits.
- The scheme is open for sea-going oil and chemical tankers, bulk carriers, LNG and LPG carriers, container carriers and inland navigation barges.
- Gard's contribution will focus on two areas.
 - An annual Gard Green Award event for shipowners and managers who hold the Green Award certificate.
 - Gard will help to benchmark to the performance of Green Award vessels for the Green Award organisation.



How we became involved

Norwegian Forum for Autonomous Ships (NFAS)

Challenged by the Norwegian Transport Minister to lead the support of this new NFAS initiative due to our long experience of handling risks.



“I believe we are now living on the edge of a revolution, which for the maritime industry can be compared to when we went from sailboats made of wood to steamboats made of steel.”

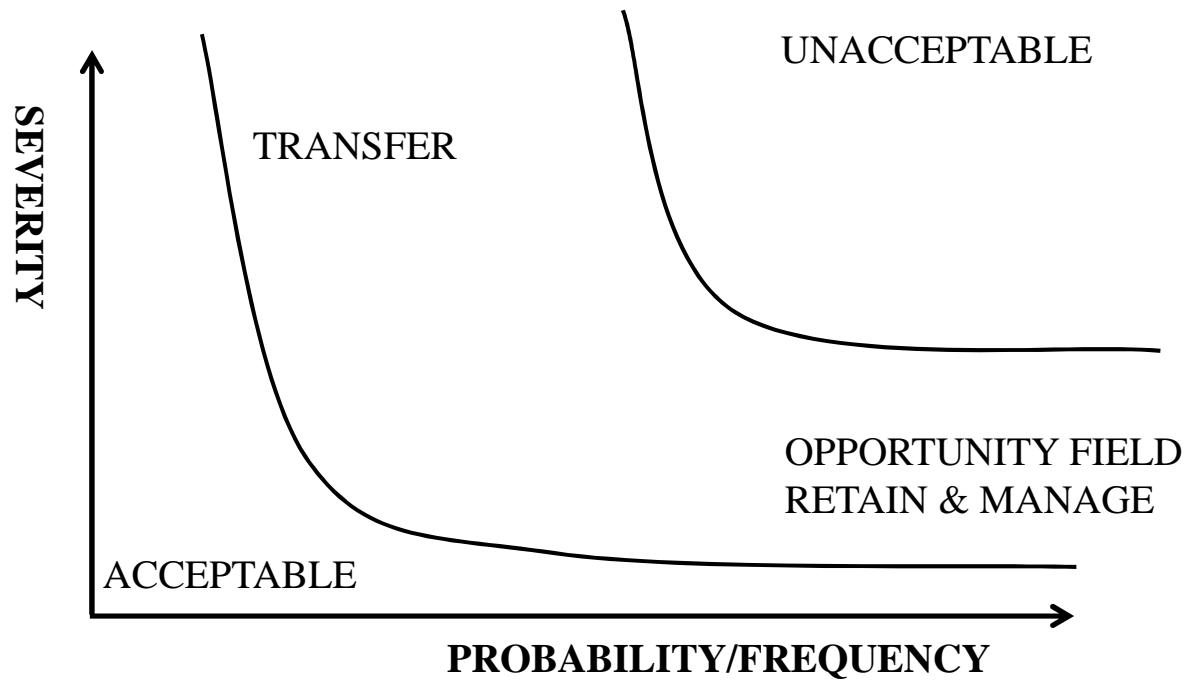
Olav Akselsen, Director of the Norwegian Maritime Authority

Core purpose

**To help our Members and clients
in the marine industries
to manage risk and its consequences**

- vår jobb er å sette pris på risiko

Risk distribution



Shipowner's risks



Source: Drewry Shipping Consultants Ltd



Shipowners' risks

Risk	Type	Examples
Strategic risk	Loss of key partners Company reputation risk Loss of competitiveness Uninsurable/unhedgeable risks	Charterers, customers, suppliers
Market risk	Freight market Liquidity risk, market depth, basis risk Clearing	Derivatives, S&P Norwegian Futures and Option Clearing House (NOS)
Credit risk		Charterers, customers
Financial risk	Income stream/Cash Flow risk Accounting- related risks Capital costs risks	Currency risk, interest rates Mark-to-market, tonnage tax regimes Orderbook, loans, mortgages
Operational risk	Transport chain and customer issues Ship-focused operational areas of risk Insurance	Manning, criminalisation, R&M, victualling H&M, P&I, US Oil Poll., FD&D, War
Legal risk	IMO and "Global" issues Developing issues in IMO Other regulatory issues	SOLAS (ISM and ISPS), STCW, Marpol Ballast water, demolition, PSSAs, arrest, flag states Anti-money laundering, FSA rules, corruption
Organisational risk	Personnel Systems risk	Loss of key personnel, manning IT
Sovereign risk	War and terrorism risk Political risk Business culture risk Flag states	Trade, human trafficking, drug issues, piracy

Source: Drewry Shipping Consultants Ltd

Risk – threat and opportunity

Equity, loan and insurance capital

- ✓ have different functions
- ✓ accept different risks
- ✓ expect different rewards

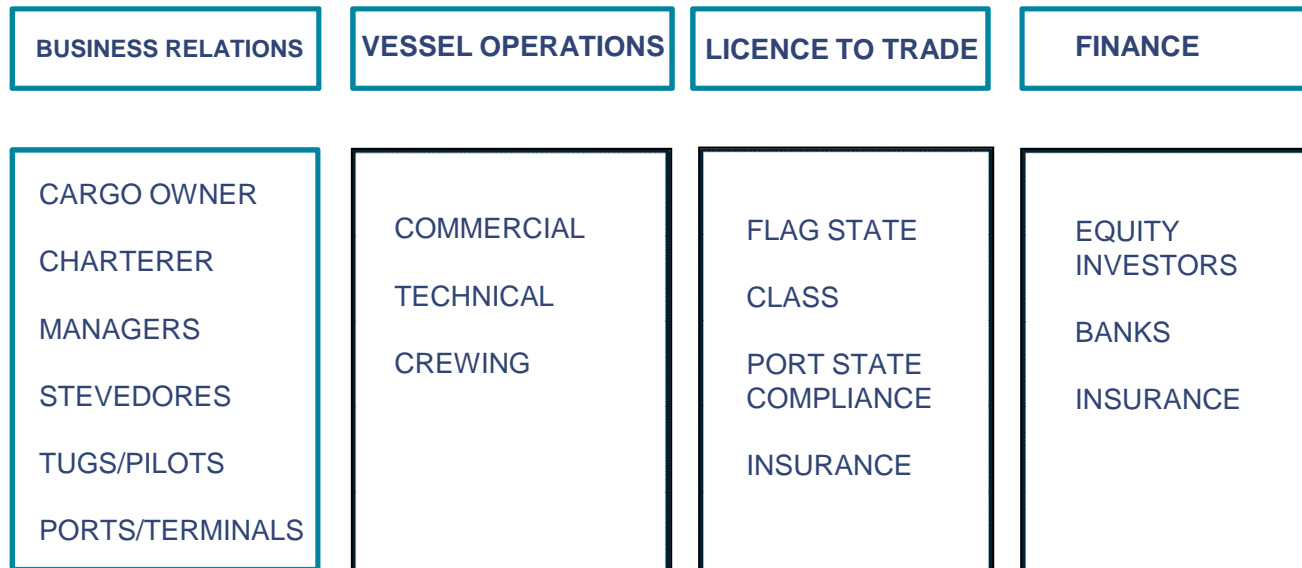
**Risk and
reward are
correlated**

Key to your success

Understanding and managing your chosen areas of risk

Traditional shipping

- overview of main participants



How is risk distributed within the maritime industries – legal context

- By “international” maritime law but all regulations take effect through state power: flag, port or coastal.
- Some international conventions create mandatory contract law for e.g. cargo, passenger liability and employment of seafarer
- Through the contractual network but every contract must be enforceable within a national legal system

Two main sources of international maritime law

- International conventions that directly regulate safety but also rights, duties and liabilities of various participants.
- Often originate from International Maritime Organisation (IMO)
- Come into force when a sufficient number of states have ratified relevant convention

See :

<http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/Default.aspx>

Event and operational risks

– shipowner's options

Retain and manage

- Quality systems
- Budget – maintenance, contingency etc
- Loss Prevention activities
- Small claims management

Transfer by:

Contract:

- Allocation of risk between contracting parties, e.g. 'freight' risk

Insurance:

- Assets
- Income
- Liabilities
- Large unbudgeted costs

Today: Frihet under ansvar

Extensive international legal regime regulates nearly all aspects of shipping

Safety

Manning

Registration

Environment

HNS

+ +

Large degree of freedom of contract as between participants

Owners – charterers

Owners – crew

Owners – classification society

Vessel owners - port owners

+ +

In total an extremely (and increasingly) complex system

Rationale for autonomous vessels

- Safer and more efficient operations
- Less need for traditional insurance products
- But some risks will increase and new ones might emerge
- Most importantly ...

New technologies lead to New business systems

- E-navigation and collision avoidance
- Shore based control centers
- Cyber security and communication failures
- Real time sensors and big data
- Cargo with sensors
- Greening of transport
- Hybrid/electric/solar/fuel cell power

How will risk be regulated?

Public

- Already a large amount of material on regulatory matters in the public domain
- E.g. IMO, Class, Flag & Coastal Administrations
- GAP analysis have been completed by various parties and academic institutions.

Private

- Much less thought has been given to how business systems in the private domain might be affected
- Who will employ and be responsible for the people who remotely operate or programme autonomous or semi-autonomous ships
- What kind of contractual arrangements will they make?

How can Gard help?

- Follow the developments in all maritime industries
- Advice to Members and clients on contracts and risk solutions
- Cooperate with regulatory bodies/studies
- Participate in industry discussions

A (too) simple solution?

- Channel all risk to the vessel
- Strict liability in all relationships
- E.g. strict liability for cargo – insured bill of lading
- What will coastal states and port owners demand?



Thank you!

www.gard.no