Autonomous technology in shipping: an increased role for product liability?

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The current liability framework

- **Maritime liability regimes funnel third-party liability to *shipowner* (generally)**

Strict liability regimes

- International Convention on Civil Liability for Oil **Pollution** Damage, 1969

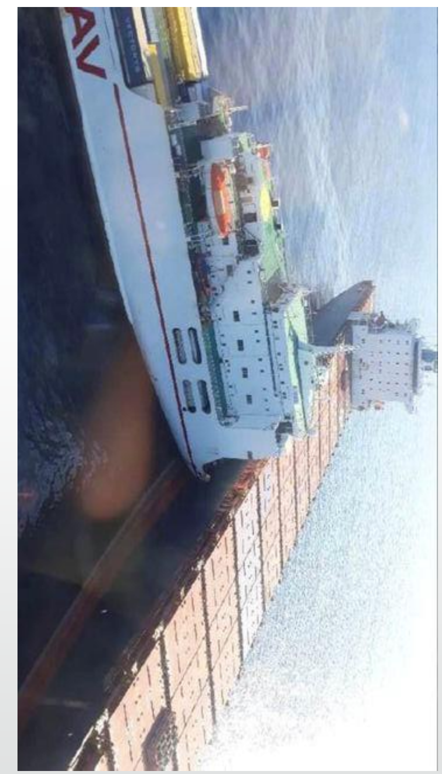
- International Convention on Civil Liability for **Bunker Oil** Pollution Damage 2001

- Nairobi International Convention on the Removal of **Wrecks** 2007

Fault-based regimes

- Tort (negligence)

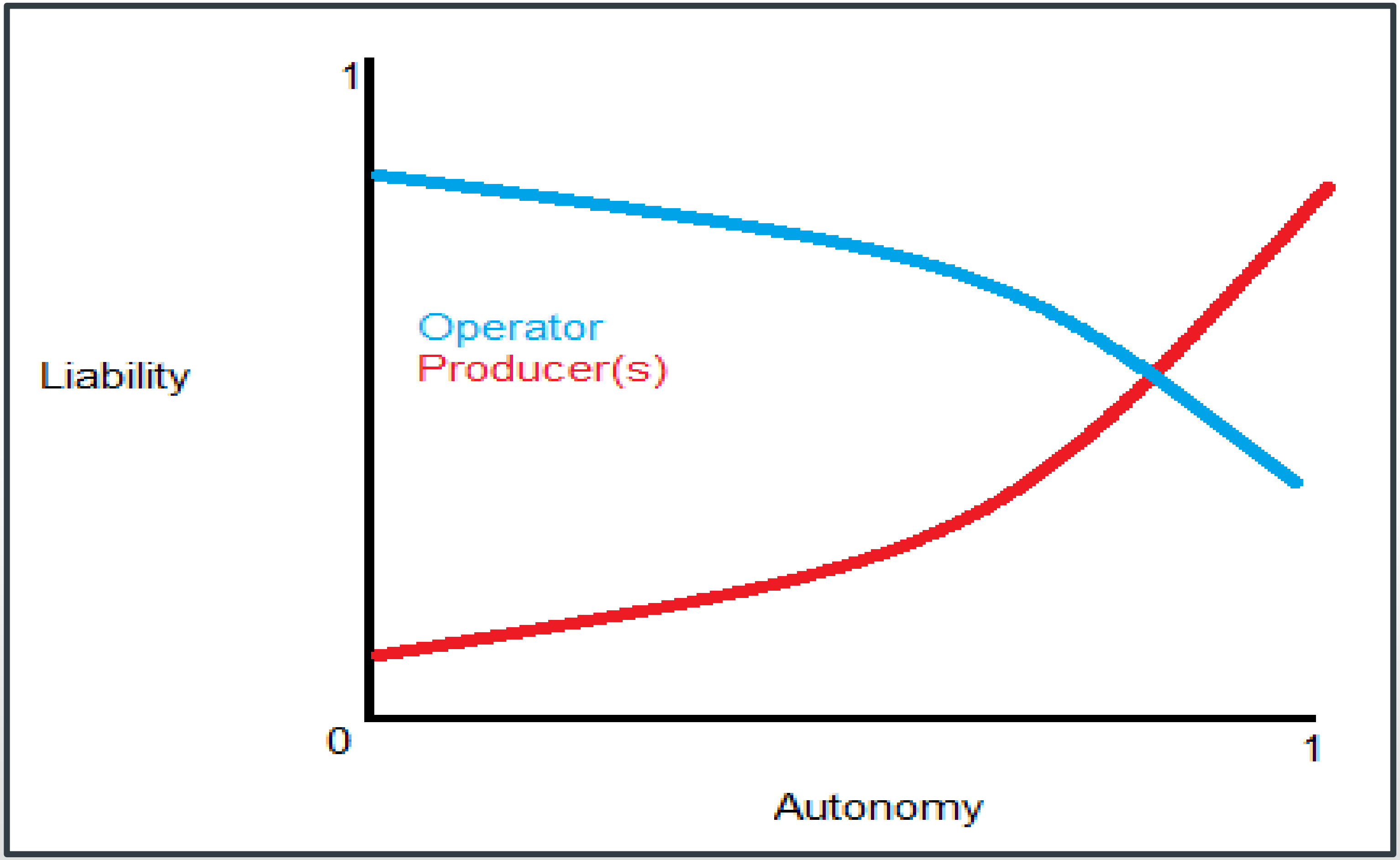
- Convention for the Unification of Certain Rules of Law with respect to **Collisions** between Vessels 1910



The current liability framework

- **Third-party liability funnelled to *shipowner***

A shift in the liability trend?



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Autonomous technology

- **Hardware (sensors)**
- **Software**
- **Algorithms**
- **Components thereof**
- **More than automation**

An increased role for product liability?

- **Product liability:** liability claims against manufacturers and designers of *products*

- **Will the increased reliance on autonomy mean an increased number of product liability claims?**

Product liability: sources of law

- No *international* framework
- Varies from state to state

1. EU Product Liability Directive 85/374 concerning liability for defective products
2. Tort of negligence (England and Wales)

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EU Directive 85/374

- Article 1
  - *The producer shall be liable for damage caused by a defect in his* ***product****.*
  - **Is a MASS a "product"?**
- Article 2
  - *For the purpose of this Directive 'product'* ***means all movables*** *… 'Product' includes* ***electricity****.*
    - Hardware
    - Spatial sensors
    - Software?
    - Algorithms?

- Transposed into English law via the Consumer Protection Act 1987

EU Directive 85/374

- Article 1
  - *The producer shall be liable for damage caused by a defect in his **product**.*

- **<u>When is autonomous technology “defective”?</u>**
  - Article 4
  - 1 . A product is defective when it does not **provide the safety which a person is entitled to expect**, taking **all circumstances** into account, including :
    - (a) the **presentation** of the product ;
    - (b) the **use** to which it could **reasonably** be expected that the product would be put ;
    - (c) the time when the product was put into circulation.

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EU Directive 85/374

- Article 7 – Defences to liability
- The producer **shall not be liable** as a result of this Directive if he proves :
  - (d) that the defect is due to **compliance** of the product with **mandatory regulations** issued by the **public authorities** ; or
  - (e) that the state of **scientific and technical knowledge** at the time when he put the product into circulation was **not such as to enable the existence of the defect to be discovered** ; or

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EU Directive 85/374

- Article 9 – **What claims does the Directive apply to:**

- *For the purpose of Article 1 , 'damage' means :*
  a) *damage caused by **death** or by **personal injuries** ;*

  b) *damage to, or destruction of, any item of **property** other than the defective product itself, provided that the item of property :*
    - *(i) is of a type ordinarily intended for **private use** or consumption*

- **Excludes**: damage to commercial property
- ***Includes***: personal injury at sea, damage to pleasure craft

The tort of negligence

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- Manufacturers owe duty of care to users of product and public at large
- Relevant to *all* sectors
- **Applicable to all foreseeable personal and property damage**

562 HOUSE OF LORDS [1932]

[HOUSE OF LORDS.]

H. L. (Sc.)* M'ALISTER (OR DONOGHUE) (PAUPER) . APPELLANT ;

1932 AND

May 26. STEVENSON . . . . RESPONDENT.

Negligence—Liability of Manufacturer to ultimate Consumer—Article of Food—Defect likely to cause Injury to Health.

By Scots and English law alike the manufacturer of an article of food, medicine or the like, sold by him to a distributor in circumstances which prevent the distributor or the ultimate purchaser or consumer from discovering by inspection any defect, is under a legal duty to the ultimate purchaser or consumer to take reasonable care that the article is free from defect likely to cause injury to health :—

So *held*, by Lord Atkin, Lord Thankerton and Lord Macmillan ; Lord Buckmaster and Lord Tomlin dissenting.

George v. *Skivington* (1869) L. R. 5 Ex. 1 approved.

Dicta of Brett M.R. in *Heaven* v. *Pender* (1883) 11 Q. B. D. 503, 509–11 considered.

Mullen v. *Barr & Co., Ld.*, and *M'Gowan* v. *Barr & Co., Ld.*, 1929 S. C. 461 overruled.

The tort of negligence

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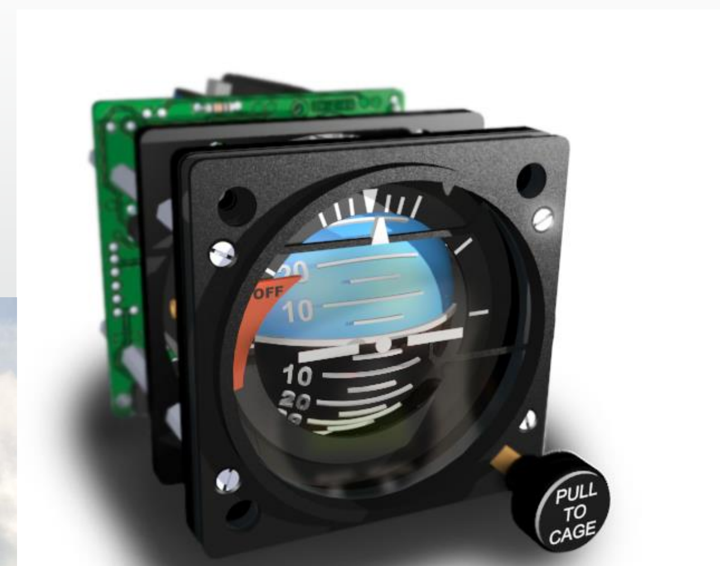
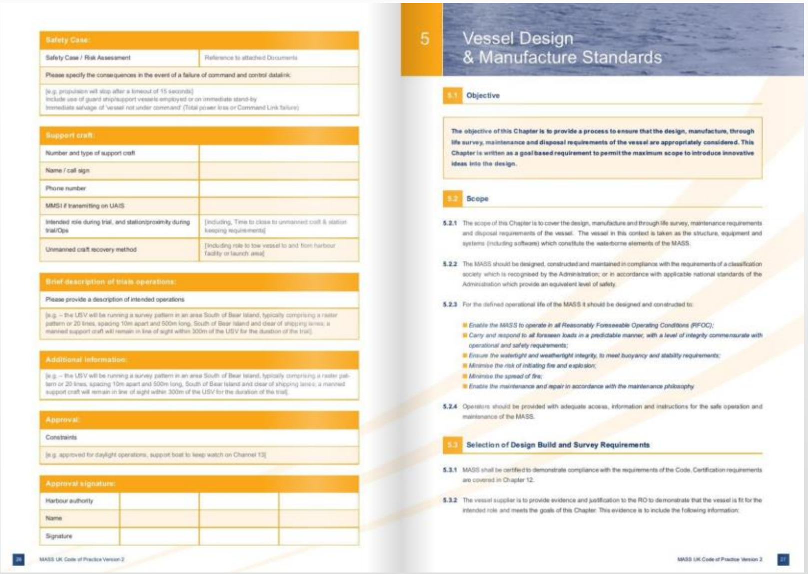
- Lessons from aviation …
- *Lambson Aviation v Empresa Aeronautica* [2001] All ER (D) 152.
  - Crash after failure of Artificial Horizon gyroscope
    - <u>Gyroscope manufacturers NOT negligent</u>
  - Important factors:
    - Expectations of on-board crew
    - Compliance with CAA standards
      - *"considerable but not decisive weight"*



Product liability generally ….

- **Important common factors:**
    1. Marketing, product warnings & **management of expectations**
    2. Compliance with applicable **regulations** / industry standards, testing procedures



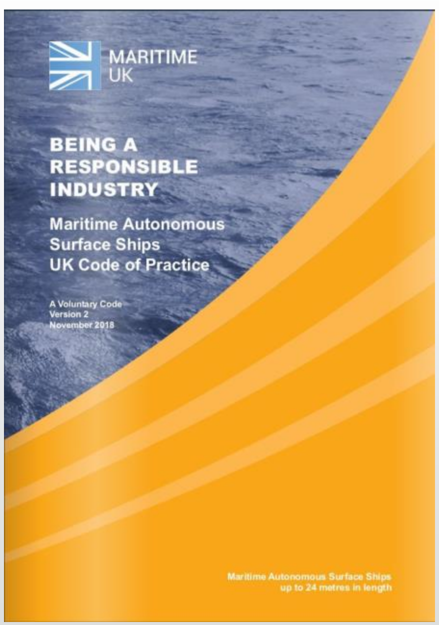
“Reasonable” usage, operations and expectations of MASS

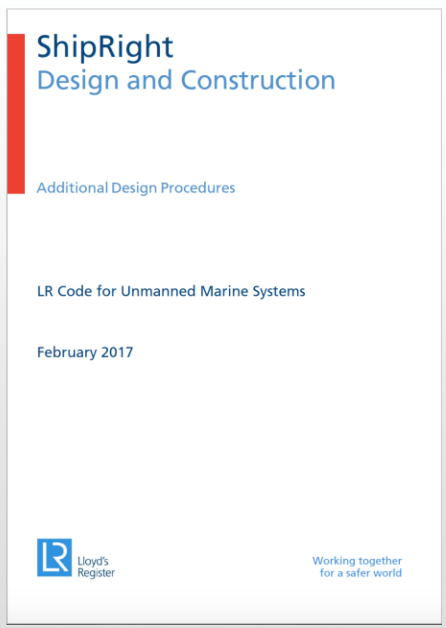
- **What MASS usage is “reasonable”?**
  – What kind of operations?
  – Relevance of manning?
  – *Degree* of autonomy?

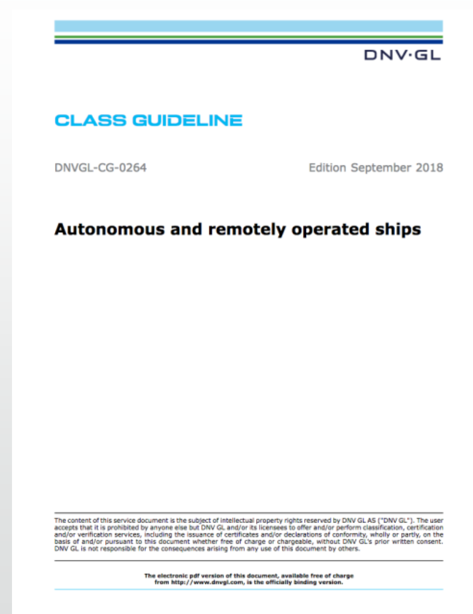
- *Hindustan Steam Shipping Co Ltd v Siemens Bros & Co Ltd* [1955] 1 Lloyd's Rep. 167.
  - Expectation of human intervention often prevents liability in *automation* context
  - Same expectation for *autonomy*?

MASS compliance with relevant standards

- Regulation and best practices still developing
- Importance of industry self-regulation
  - Compliance is important but *not* conclusive evidence of due care (under tort *and* Directive 85/374)







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Concluding thoughts

- ✓ Advent of autonomy *may* place more onus on system producers
- ✓ Liability risk can generally be managed
- ✓ Regulatory framework (and the technology) still developing
- ✓ Importance of management of consumer (and public) expectations of autonomy
- ✓ Importance of proactive engagement and prudent industry self-regulation

Thank you

For more information on MASS product liability, please contact R.Veal@soton.ac.uk