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The Future Subsea Digital Toolbox

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Background to autonomous marine systems

- Advances in autonomous technology
  - unmanned seagoing ships conducting short journeys with limited cargo
  - smaller offshore survey vessels
  - military vessels.
- Some projects underway on a larger scale:
  - the joint industry Windfarm Autonomous Ship Project (“WASP”)
  - the Hronn – a joint initiative between Bourbon and Kongsberg
  - the Yara Birkeland
- Developments in the global maritime industry
- The IMO’s “regulatory scoping exercise”

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Key drivers to autonomous technology in the offshore sector

- Safety
  - Eliminating the “human factor”
- Costs
  - Operating costs
  - Construction costs
- Productivity
  - Lessons from the onshore sector?

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Regulatory framework

- Background
  - Technical challenges are significant but will be overcome
  - Lack of a clear international regulatory framework is an ongoing concern
  - Flag states and Classification societies to bridge the gap?

- Framework
  - The 1983 UN Convention on the Law of the Sea (UNCLOS)
  - Key IMO instruments:
    - the International Convention for Safety of Life at Sea (SOLAS)
    - the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW)
    - and the collision regulations (Colregs).
  - Private law regimes

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Regulatory framework (2)

- Questions arising as to the operation of Avs
  - Who is in charge of the AV?
  - Assistance to others at sea
  - Location of remote control operators
- Stakeholders need to give real attention to the legal regimes and develop rapidly their understanding of key technical issues
- Challenges that might arise from the perspective of vessel construction and third party liability
  - Recourse to manufacturers of AV technology
  - Third party/product liability
  - Insurance
  - Systems vulnerability

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Recourse to manufacturers

- The shipbuilding industry – largely independent contractual relationships
- In the construction of AVs,
  - there is likely to be a tension between the legal regimes that govern physical technical matters and regimes that govern the “human factors” like crewing levels and qualifications.
  - ship builders are likely to sub-contract a substantial element of AV control system work.
- This builder’s warranty of quality – substantially revised?
- Directly enforceable sub-contractor warranties in relation to the AV control system
  - Extended warranty periods
  - Enhanced performance guarantees

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Third party and product Liability

- Liability of manufacturers to third parties
- Claims by third parties suffering damage as a consequence of a defective AV
- Highly dependent upon the choice of law / jurisdiction where damage occurs
- English law:
  - the Consumer Protection Act 1987, which enacted the EU Product Liability Directive (85/374)
  - and law of negligence
- Technology is still developing – changing regulations and industry standards?
- Indemnities in favour of suppliers of AV technology

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Insurance

- Exposure to third party liability
- Recourse by owners' insurers to suppliers.
- A hindrance to progress?

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Vulnerability of systems

- Characteristics of the control system and procedures for updating - significant in determining an AV's ability to undertake operations
- Disruptive effect of malicious software
- Means of setting (and rapidly updating) minimum standards for AV control systems - Class notations?
- But may not be appropriate to consider AV control system vulnerabilities in isolation…

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Anything else?

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Andreas is a partner and disputes lawyer helping clients resolve problems in the energy, shipping and construction sectors.

Andreas mostly advises on international projects ranging between the construction of offshore units and ships, upstream exploration and production and major infrastructure works.

He holds a post-graduate Master's degree in construction law and dispute resolution and is a co-author of the chapter on Offshore Vessel Construction Disputes within Global Arbitration Review's Guide to Energy Arbitrations.

Andreas is a recommended lawyer in the 2020 edition of *The Legal 500.*

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