

**IBC FPSO Training Course  
Paris, December 2016**



## **REGULATORY SUPERVISION of FPSOs**

### **Division of Responsibilities and Implications**

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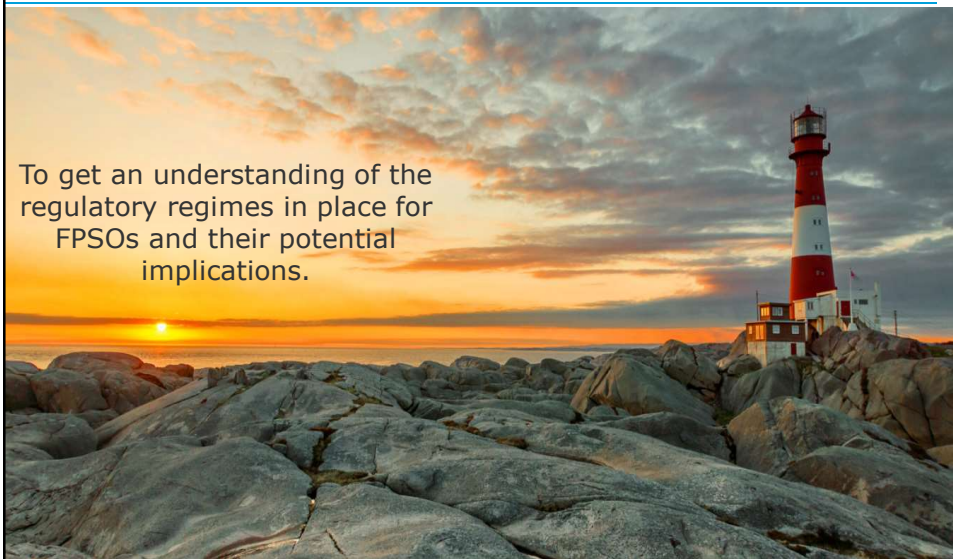
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### **PURPOSE**

To get an understanding of the  
regulatory regimes in place for  
FPSOs and their potential  
implications.



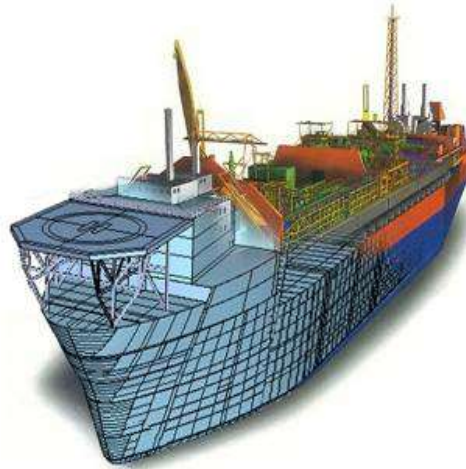
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## CONTENT

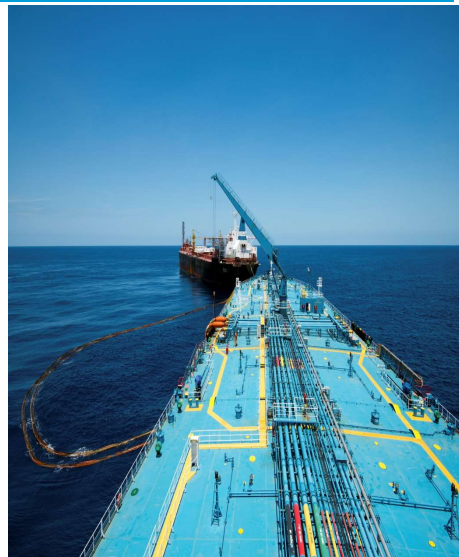
- Safety Regimes – Overview
- Shelf State Regulations
- Maritime Safety Legislation
- Class Systematics
- Regional Regulations
- Local Content Regulations
- Implications and Experiences
- Success Criteria



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## SAFETY REGIMES - OVERVIEW

- Which rules are valid when and for what:
  - Shelf State legislations
  - Flag state regulations
  - Regional regulations
  - Classification rules
- How are these related?

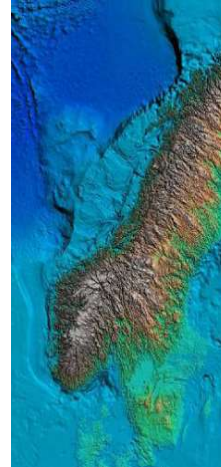


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## SHELF STATE REGULATIONS

### - **FPSOS must comply with the Shelf State Legislation of the Country it is to operate**

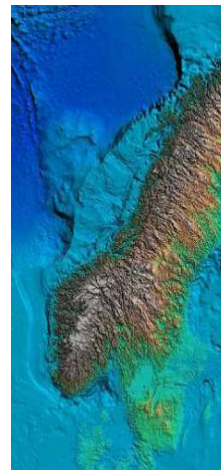
- All states have **full sovereignty** w.r.t regulating activities on their continental shelves
- Activities on the shelf are generally **not** regulated by **international conventions**
- **Industrialised countries** are normally well regulated and have comprehensive rules for activities on the continental shelf
- **Developing countries** have only in exceptional cases comprehensive shelf state State Rules for petroleum activities



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## SHELF STATE REGULATIONS

- The legislation applies to **all activities** on the shelf
- Shelf state legislation precede Maritime (Flag State) Rules, but will normally refer to flag state rules w.r.t. maritime aspects and will occasionally require flag as well as class.
- Approval systematics normally **deviates** from maritime practise



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## MARITIME SAFETY LEGISLATION

### IMO – INTERNATIONAL MARITIME ORGANISATIONS

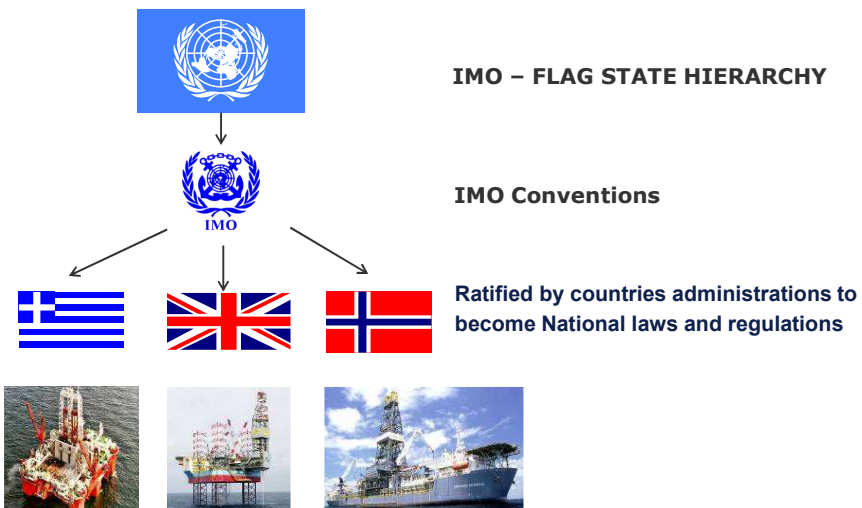
- United Nation's body for maritime affairs
- Develops and maintains conventions giving safety regulations for ships and MOUs trading internationally
- 169 nations are members of IMO
- Secretariat and meetings in London
- IMO has no operational role



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## MARITIME SAFETY LEGISLATION

### IMO – FLAG STATE HIERARCHY



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## MARITIME SAFETY LEGISLATION



- Ships and Mobile Offshore Units **trading internationally** have to comply with safety regulations of the Maritime Authority in the country whose flag the unit is flying (the Flag State)
- Flag states adopt and implement the safety regulations given in conventions issued by **IMO** (International Maritime Organisation)
- An Owner generally has the **choice** of which flag to operate under. ( A few shelf states requires local flag)

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## MARITIME SAFETY LEGISLATION



- Production/storage units may not need flag** but are free to move in international waters when carrying flag
- Seaworthiness may be documented by way of **maritime certificates** issued by Maritime Administrations
- Shelf states may require FPSOs to be flagged and classed

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## MARITIME SAFETY LEGISLATION

### IMO Conventions and Resolutions

- Important IMO conventions include:
  - SOLAS (Safety of Life at Sea)
  - MARPOL (Pollution prevention)
  - Load Line
  - Tonnage
  - MODU (Safety code for drilling units)
- Important to check flag authority position early in a project, e.g.
  - MARPOL Double Hull requirement enforced or not
  - MARPOL stability requirements enforced or not
  - SOLAS or MODU code



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## MARITIME SAFETY LEGISLATION

### SOLAS

vs

### MODU CODE

#### Based on SOLAS

- Safety Construction Certificate
- Safety Equipment Certificate
- Safety Radio Certificate

#### Based on IMO MODU Code:

- Mobile Offshore Drilling Unit Safety Certificate

#### Comments:

- Adoption of MODU Code is voluntary
- Some flag states require MODU Code (e.g. Liberia)
- Some require SOLAS (e.g. U.K.)
- Some accept both (e.g. Bahamas)



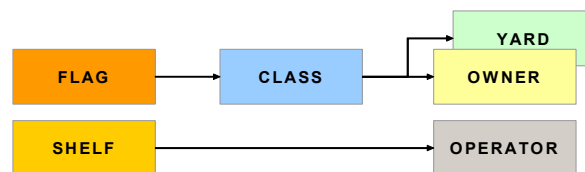
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## MARITIME SAFETY LEGISLATION

### Relations – Shelf State, Flag and Class

- Flag state require classification
- Delegation of authority from Flag State to Class is normal
- Delegation of authority from Shelf State Authority to Class is rare

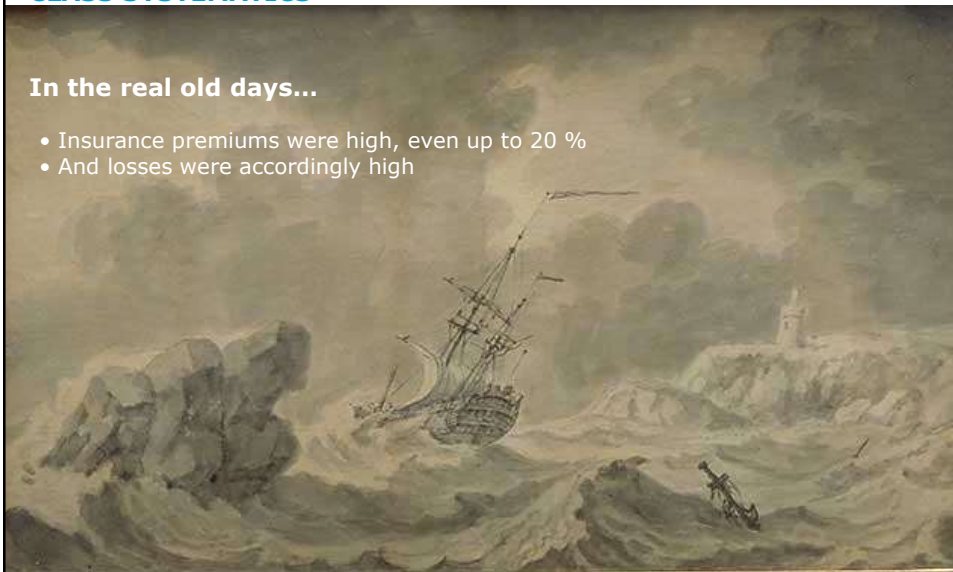


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## CLASS SYSTEMATICS

### In the real old days...

- Insurance premiums were high, even up to 20 %
- And losses were accordingly high



## CLASS SYSTEMATICS

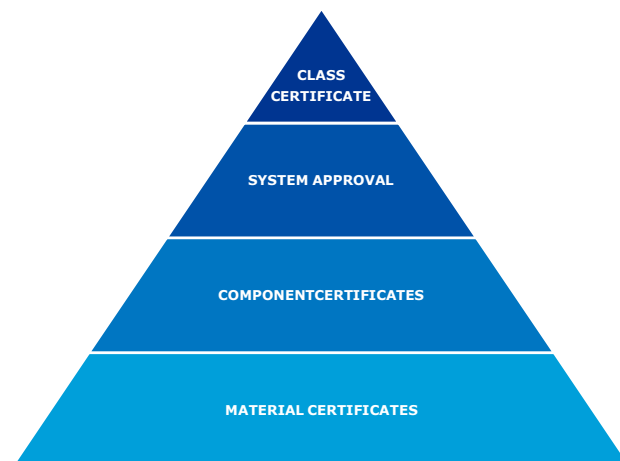
- Classification is a **system** for safeguarding life, property and the environment due to operational consequences
- Classification implies a process of verifying **that ships and offshore units are built and maintained according to a set of requirements developed by the Class Society – Class Rules and Standards**



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## CLASS SYSTEMATICS

### Hierarchy of classification certificates

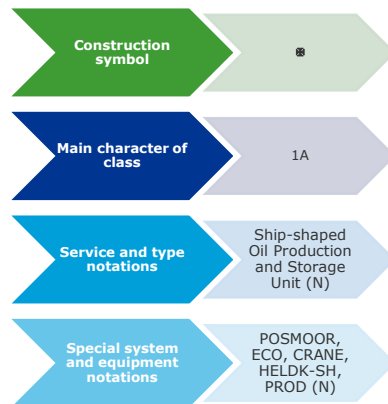


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## CLASS SYSTEMATICS

### Class notations



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## CLASS SYSTEMATICS

### Typical FPSO Main Class Includes:

- Arrangement, incl. area classification and escape
- Emergency safety systems
- Structural strength including hull and superstructure, materials, welding, fabrication and corrosion protection
- Stability
- Watertight and weather-tight integrity
- Machinery and systems for marine use
- Electrical installations for marine use
- Instrumentation and automation
- Fire protection
- Position keeping



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## CLASS SYSTEMATICS

### What is not covered by class?

- Functionality/reliability of non-safety critical systems
- Life time considerations equipment
- Requirements to user friendliness
- Requirements to maintenance friendliness
- Requirements to personnel protection only partly



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## REGIONAL REGULATIONS

### Production units may need to comply with regional regulations

EU-directives apply to FPSOs on continental shelves of member countries and other countries adopting EU-directives into own legislation



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## REGIONAL REGULATIONS

### EU Directives

- Low voltage
- Electromagnetic Compatibility
- Personal Protective Equipment
- Explosive Atmospheres
- Lifts
- Marine Equipment
- Pressure Equipment
- Machinery
- Radio and Telecommunications Terminal Equipment



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## LOCAL CONTENT REGULATIONS

### A complex subject....

- Promote maximization of value-addition and job creation through the use of local expertise
- Develop local capacity and competence in the petroleum industry value chain
- Increase the capability and international competitiveness of domestic businesses
- Essentially act as import quotas on specific goods and services
- Some countries' local content efforts has been stymied by poor institutional leadership and corruption
- Not related to design

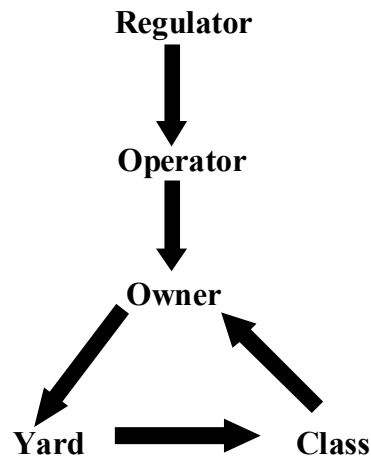


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## IMPLICATIONS & EXPERIENCES

### Process of communication

- The builder has no channel of communication with the regulator (e.g. PSA, UK HSE)
- Traditional triangular communication is yard/class/ owner
- Shelf State regulations leave a lot of room for interpretations - how can this be resolved when yard cannot discuss with Regulator ?

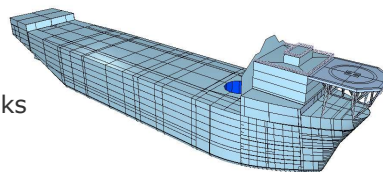


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## IMPLICATIONS & EXPERIENCES

### Success criteria

- Clarify requirements for systems used for both marine systems and process, covered by double set of requirements:
  - E.g. compressed air, instrument air, fresh water, sea water cooling
- To avoid additional costs and re-work:
  - Detail interpretations and spec. breaks to be made early.
  - Relevant clarifications listed in purchase orders etc.

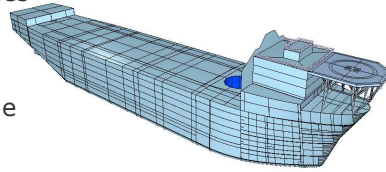


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## IMPLICATIONS & EXPERIENCES

### Success criteria

- Goal-setting requirements must be turned into prescriptive verifiable requirements
- Active and professional owner organisation aware of its responsibilities and project requirements
- Responsibilities of risk analyses and the handling of their outcome

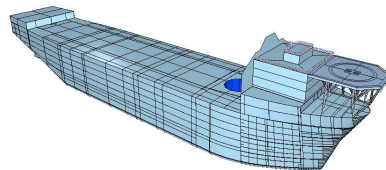


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## IMPLICATIONS & EXPERIENCES

### Success criteria

- Standardisation; keeping the cost down.
- Integration with normal yard procedures to the extent possible



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**THANK YOU FOR YOUR ATTENTION.**

