

An offshore oil platform with a yellow crane and various structures, situated in the middle of a dark blue ocean under a clear blue sky.

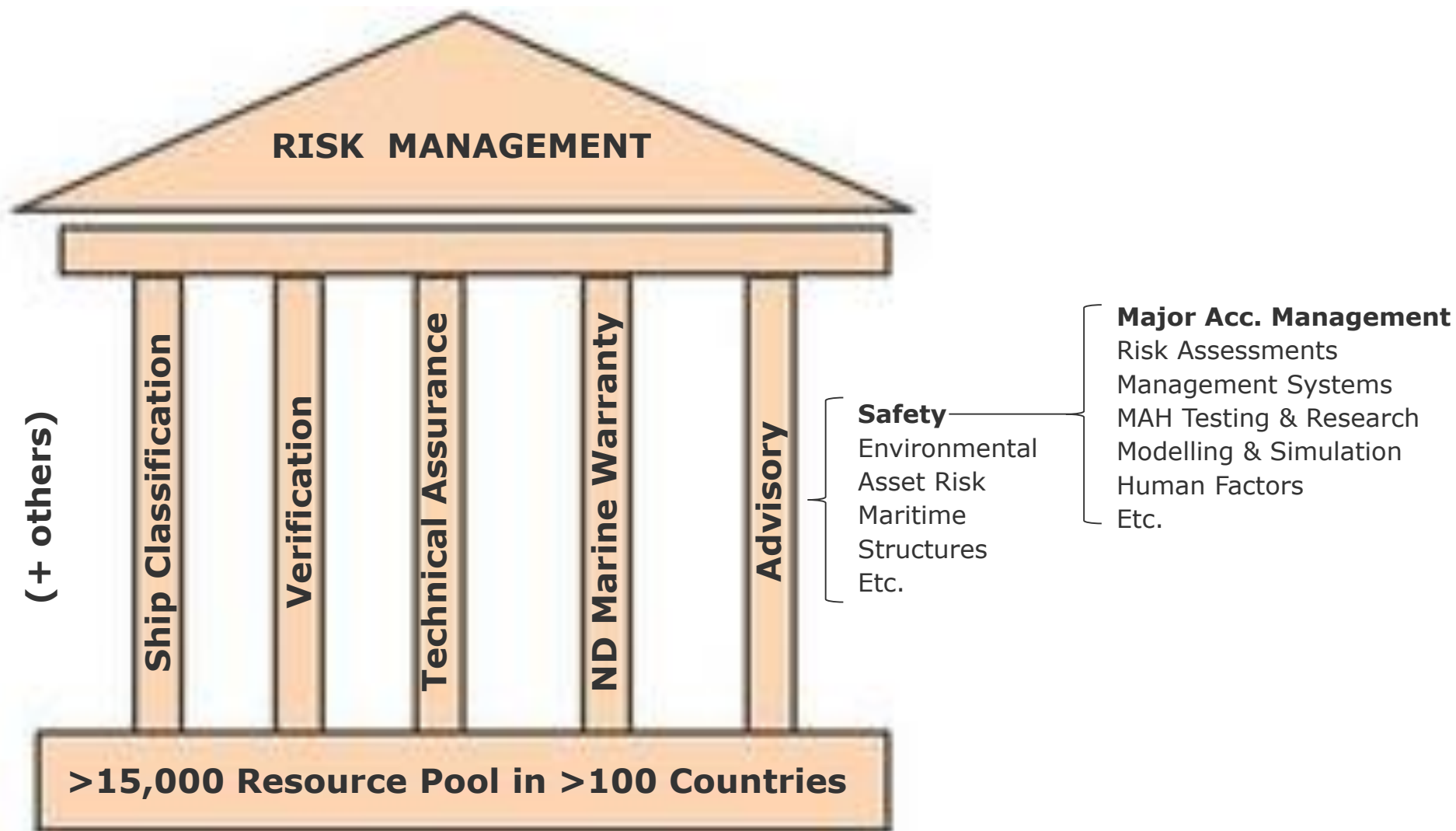
# Smarter Decommissioning

## Taking a Risk-Based, Knowledge Driven, Qualified Approach

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# DNV GL & My Perspective



# Operations to Decommissioning

## Challenges:

- Loss of production income
- Continued operating costs
- Accelerated aging and system obsolesce
- Uncertainty in decommissioning engineering approach and costs
- Maintaining legal compliance
- Avoiding reputational damage
- Competent Resource Loss



## Opportunities:

- Early decom activity during LL
- Right-sizing maintenance and spares philosophy
- Optimising legal compliance
- Planning to anticipate and reduce 'black swan' events
- Retention of critical positions and competencies
- Cost reduction by taking a life-cycle, wider view
- 'Smarter decom' to reduce cost, uncertainties and risk

# Smarter Decom: Understanding the Context

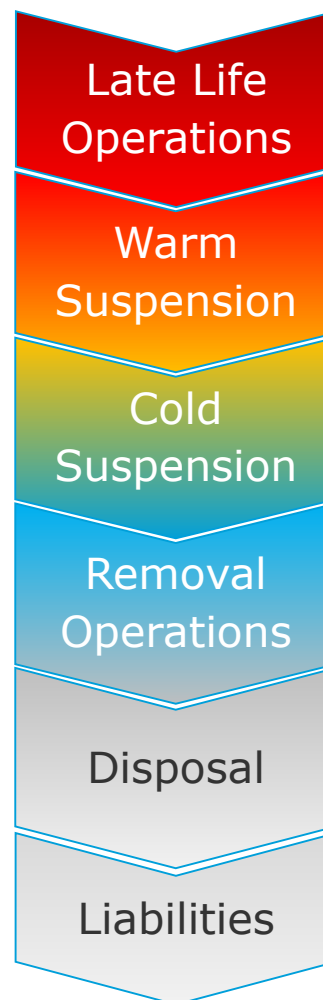
## Process

1. Identify key milestones in programme
2. Define stages and expected end states
3. Identify & evaluate threats & opportunities at each stage
4. Communicate with relevant stakeholders
5. Draft plan and review options/contingencies

## Milestones

Asset Under Transition  
Early P&A?  
**CoP**  
P&A  
Clean & Flush  
**HC Free**  
Structural Pre-works  
De-manning?  
Heavy Lifting  
Transport  
Materials Onshore  
**Scrapped**  
Seabed Survey  
**Completion**

## Stages

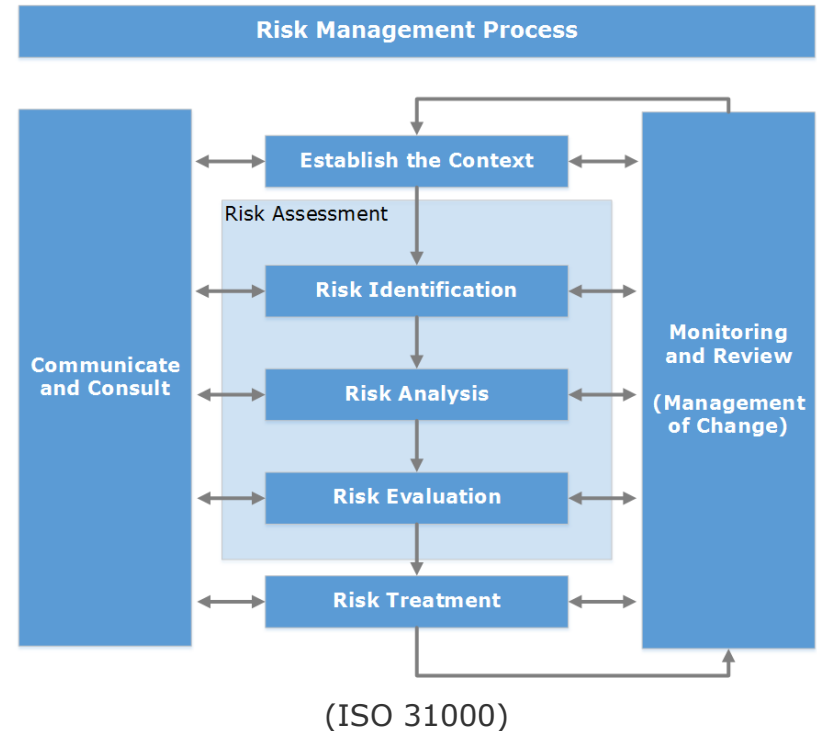


## Typical Threats

- Lack of clarity
- Insufficient planning
- Insufficient competence available
- Integrity management
- Pre-emptive start before being ready
- Permits & consents not in place
- Poor hand-over from Ops to Decom
- Availability of key equipment / contractors / yards
- Poor management through stages

# Smarter Decom: Addressing the Challenge

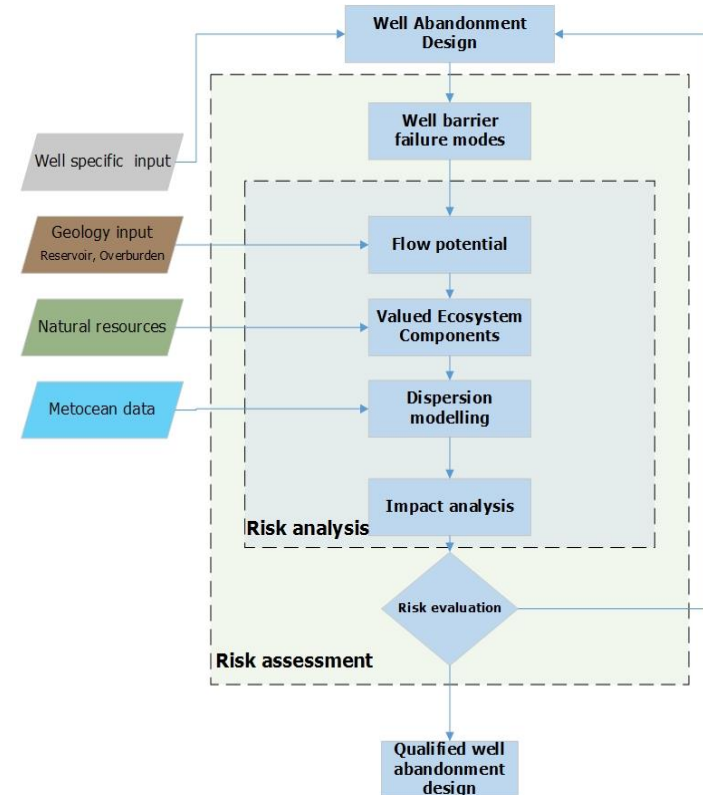
- Establish fundamentals early & clarify objectives
- Ensure consistent stage-gate decision making process (e.g. "Passport")
- Seek early input from specialists
- Exploit risk-based approaches
- Focus on "fit for purpose" solutions
- Manage competencies
- Expect the unexpected and manage uncertainty
- Challenge the "old ways"
- Reduce costs using robust hazard management
- Use a systematic risk management process



# Smarter Decom: Taking Risk-Based Approach

## e.g. Well P&A:

- Well P&A costs currently 40%+ of total
- Prescriptive requirements on plugging
- Requirements are for all types of wells
- Risk-based approach characterises wells
- Differentiates P&A on well-by-well basis
- **Allows for “fit for purpose” solution**

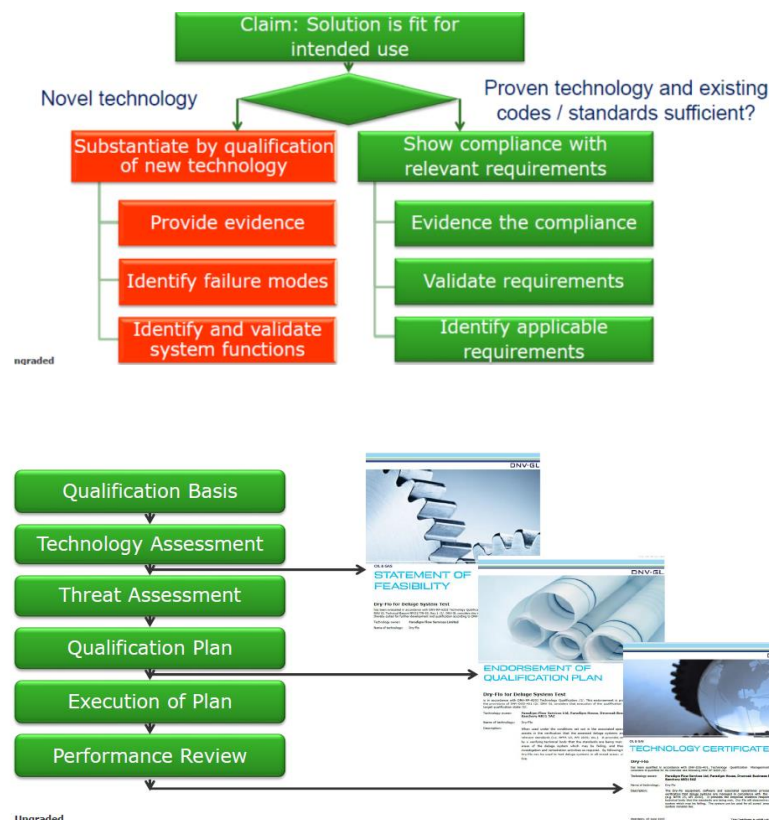


**DNV GL RP E103** - Well P&A Risk Assessment Process

# Smarter Decom: Managing Uncertainty

## e.g. Technology Qualification (TQ):

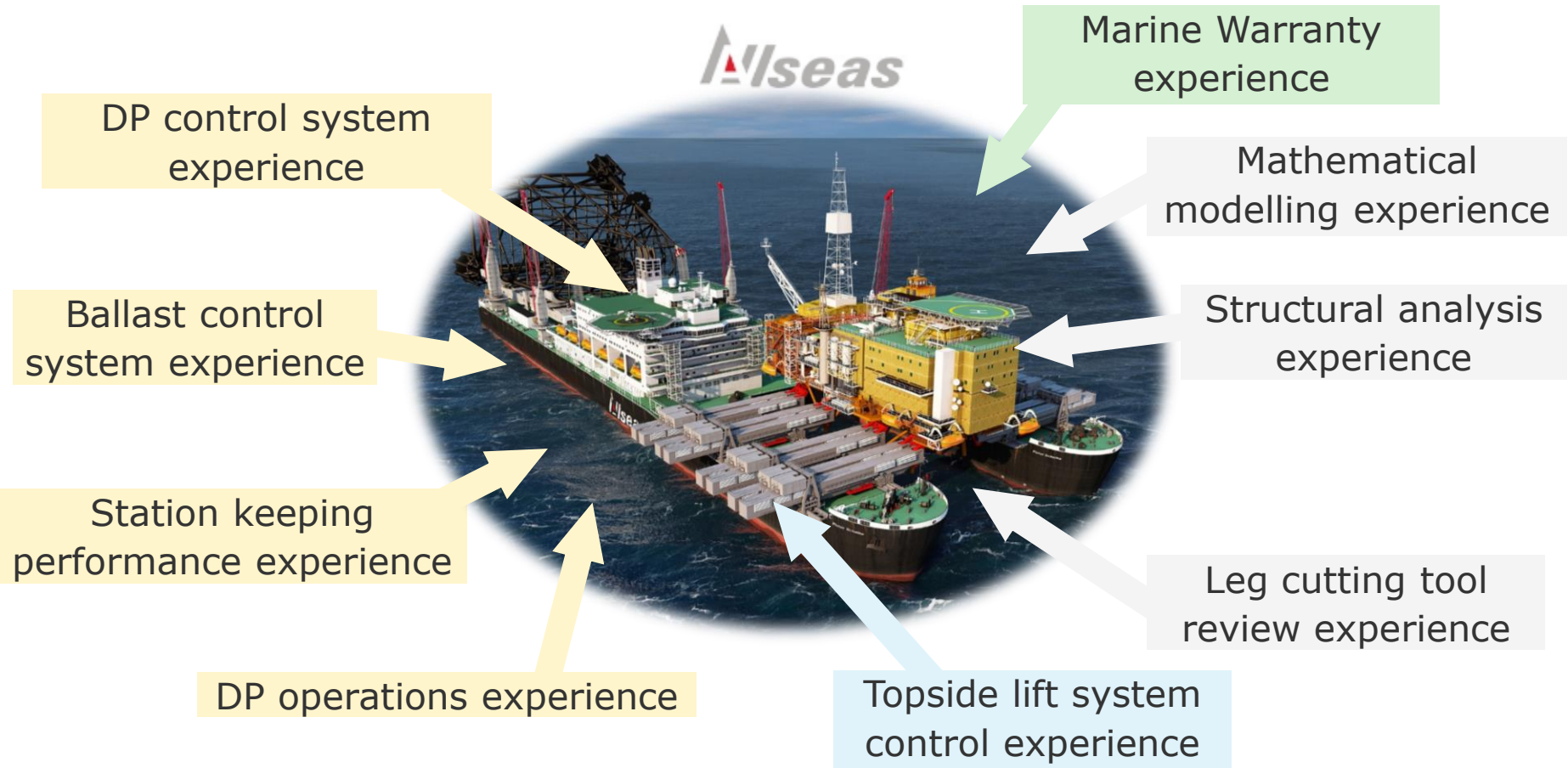
- Unique challenges and cost reduction will drive innovation
- Using new or untried technology adds uncertainty
- Uncertainty is a barrier for innovation as it may create unacceptable project risk
- Technology Qualification is a process to reduce uncertainty and increase confidence that technology will meet specified performance



**DNV-RP-A203 - Qualification Procedures for New Technology**

## Smarter Decom: Levering Knowledge and Experience

e.g. Early input from marine experts:





# Smarter Decom: By Standardising and Sharing Good Practices

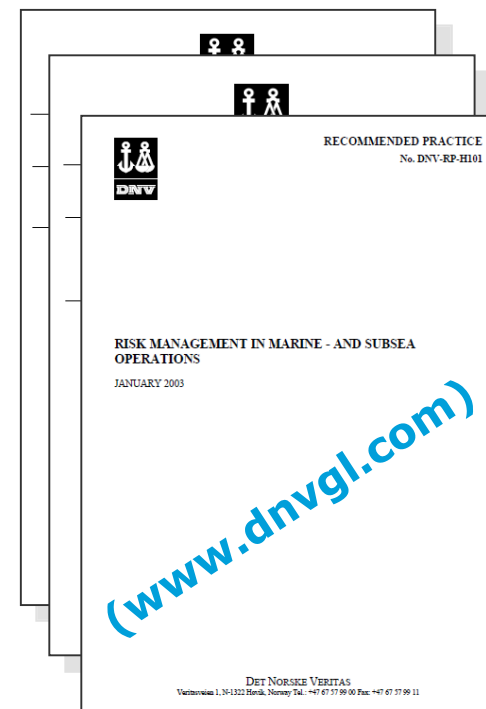
## e.g. already available:

- RP-H101: Risk Management in Marine - and Subsea Operations
- RP-H102: Marine operations during Removal of Offshore Installations
- RP-H103: Modelling and Analysis of Marine Operations
- RP-A203: Qualification Procedures for New Technology
- GL-RP-E103: Well P&A Risk Assessment Process
- OSS-300: Risk Based Verification
- Rules for Planning and Execution of Marine Operations
- Guidance for Gangway Access (W2W)

## Under development, guidance on ...

**“Effective and cost-efficient management of major accident hazards and regulatory compliance during an offshore installation’s late life phases”**

**(Due: Q4 2016)**



## Smarter Decom: Conclusions

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### Focus on improving:

- **Engagement:** early with the right people (supply chain, peers and regulators)
- **Clarity of process:** through a robust decision support framework (e.g. "Passport")
- **Critical Element management:** use SECE approach for all critical elements
- **EOL culture:** foster 'fit for purpose' thinking (everywhere)
- **Technology:** using qualification to reduce uncertainty and risk
- **Risk management:** to understand the issues and focus effort to deliver success
- **Cost reduction:** but balanced with robust hazard management

# Thank You!

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