



MANAGING RISK

## Energy Management; Utviklingen av energieffektivitet i skipsfarten



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Energiøkonomisering i fiskeflåten  
26. – 27.november 2008 - Ålesund

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## From Boardroom to Engine Room

Applying knowledge, creating lasting value

### Approach

- Our projects are process driven
- The solutions are implemented in close cooperation with our clients
- Transfer of knowledge and competence is a key success factor
- Sharing industry best practice and benchmarking results with our clients is a central part of our model

### Expertise



DNV  
Maritime  
Solutions

Management Consulting

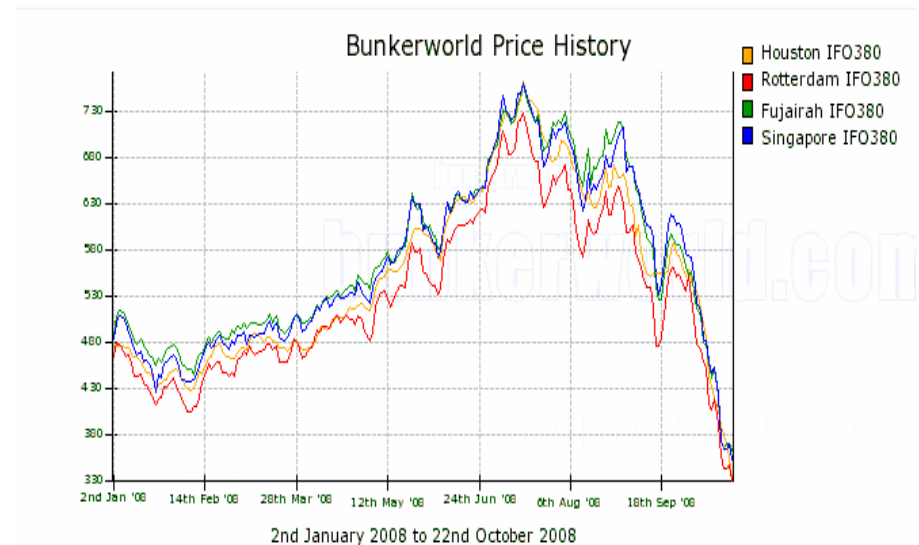
Technology Consulting



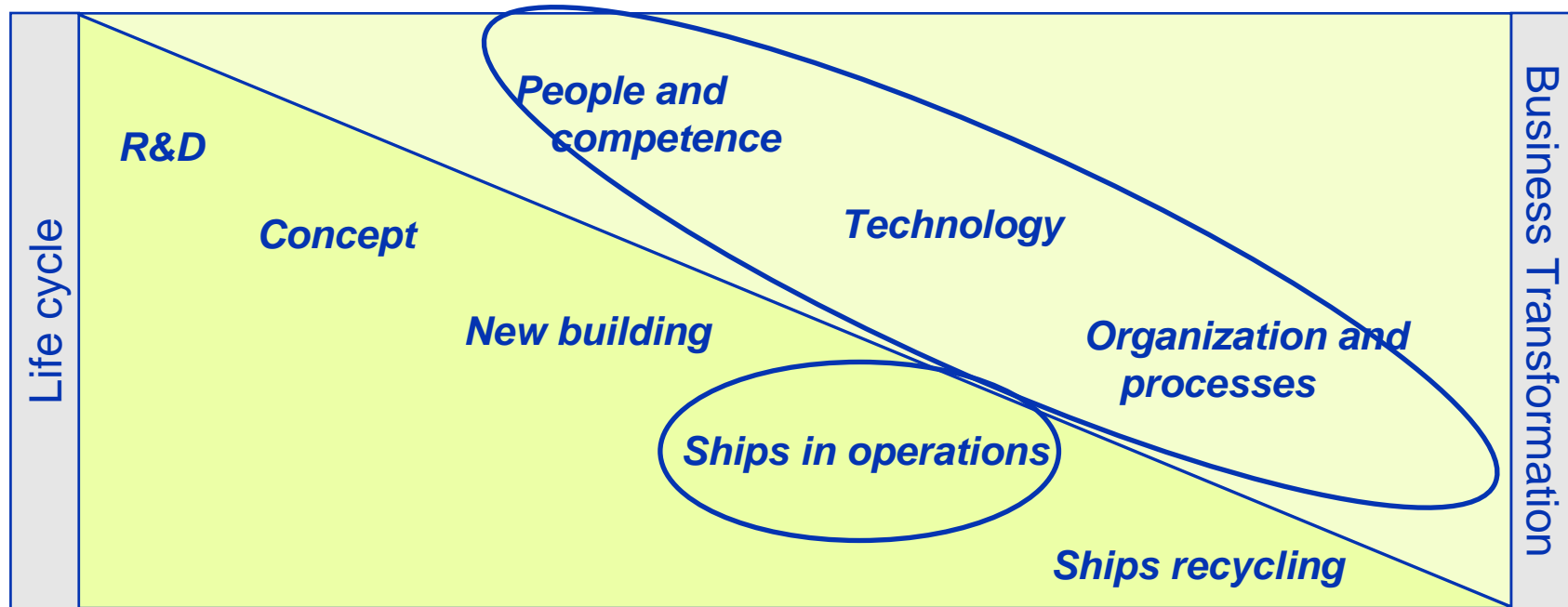
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# There are many reasons for saving fuel.....

- Strong fluctuating in fuel prices
  - Substantial business risk
  - Cargo owners concern about relative cost picture
  
- Maintain market attractiveness
  - Need to actively demonstrate fuel efficiency
  
- Innovation in technology and IT
  
- Reduction in environmental footprint
  - Rapidly emerging legislations
  - Increased attention



# Energy Management should encompass all elements in an organization....



# Typical implementation bottlenecks for EM

## Bottlenecks

- No defined Energy Management vision
  - Unclear strategy
  - Embedded organisational barriers
- Shortage of resources
  - Day to day focused
- Shortage of structured approach
  - Focus on single initiatives
  - Difficult to prioritise
- Principles of change management not applied in projects
  - Managing people during change
  - Performance management
- Poor implementation record



## DNV assistance...

...anchor & verify

...guide & assist

...plan & initiate

...communicate

...follow-through

# DNV Energy Management work process



# DNV Energy Management focus areas

## Voyage Planning ( 2 - 5%)

- Voyage planning & execution
- Weather routing & sea current
- Shipping contracts
- Speed Management
- Port operations
- Logistic planning (scm)



## Main and AUX engines (2 – 4%)

- Main Engine tuning & efficiency
- Aux Engines tuning & utilization
- Steam boilers



## Ship Performance ( 1 - 3%)

- Hull condition
- Propeller condition
- Autopilot & rudder
- Trim & draft
- Technical modifications
- Operational procedures



## E – Consumers (1 – 2%)

- Thruster operations
- Ventilation and HVAC
- Insulation
- Water productions
- Incinerator
- Reefer systems



## Fuel Management (2 – 5%)

- Pre-bunkering
  - Contracts securing fuel quality
- During bunkering
  - Processes securing fuel quantity
- Post-bunkering
  - Secure equipment condition



## Management and organisation ( > eff)

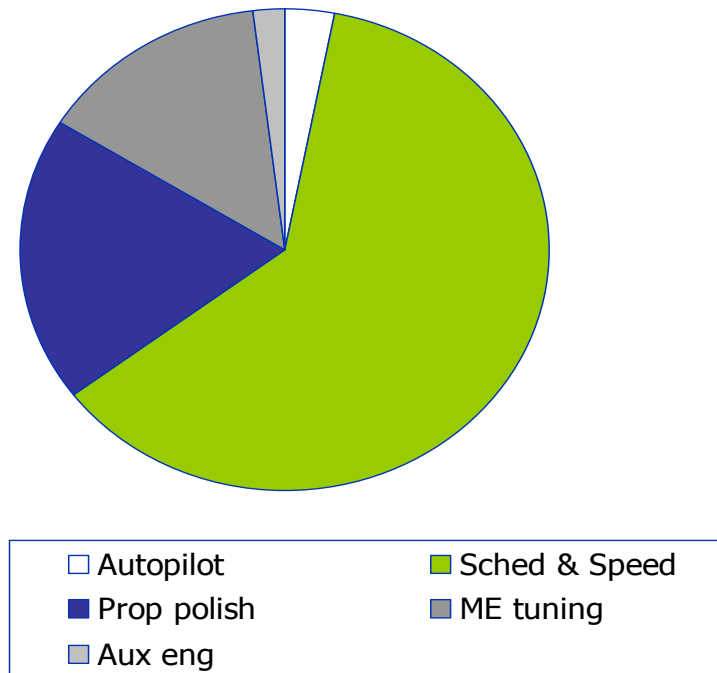
- Cross departmental cooperation
- Performance Management
- Roles and responsibilities
- Culture and awareness
- Integrate with environmental profile



## Background

Pilot trials – approx 12 weeks

- Reason for project
  - Lower cost
  - Benchmarking
  - Environmental
- Pilot implementation of phase one  
“Quick Wins”: (8 vessels)
  - Autopilot
  - Voyage scheduling
  - Propeller
  - Main/aux engines
- Benefits
  - Pilot project documented 5,8 % savings and enabled fleet wide implementation
  - Improved performance management and communication
  - Future training need requirements identified

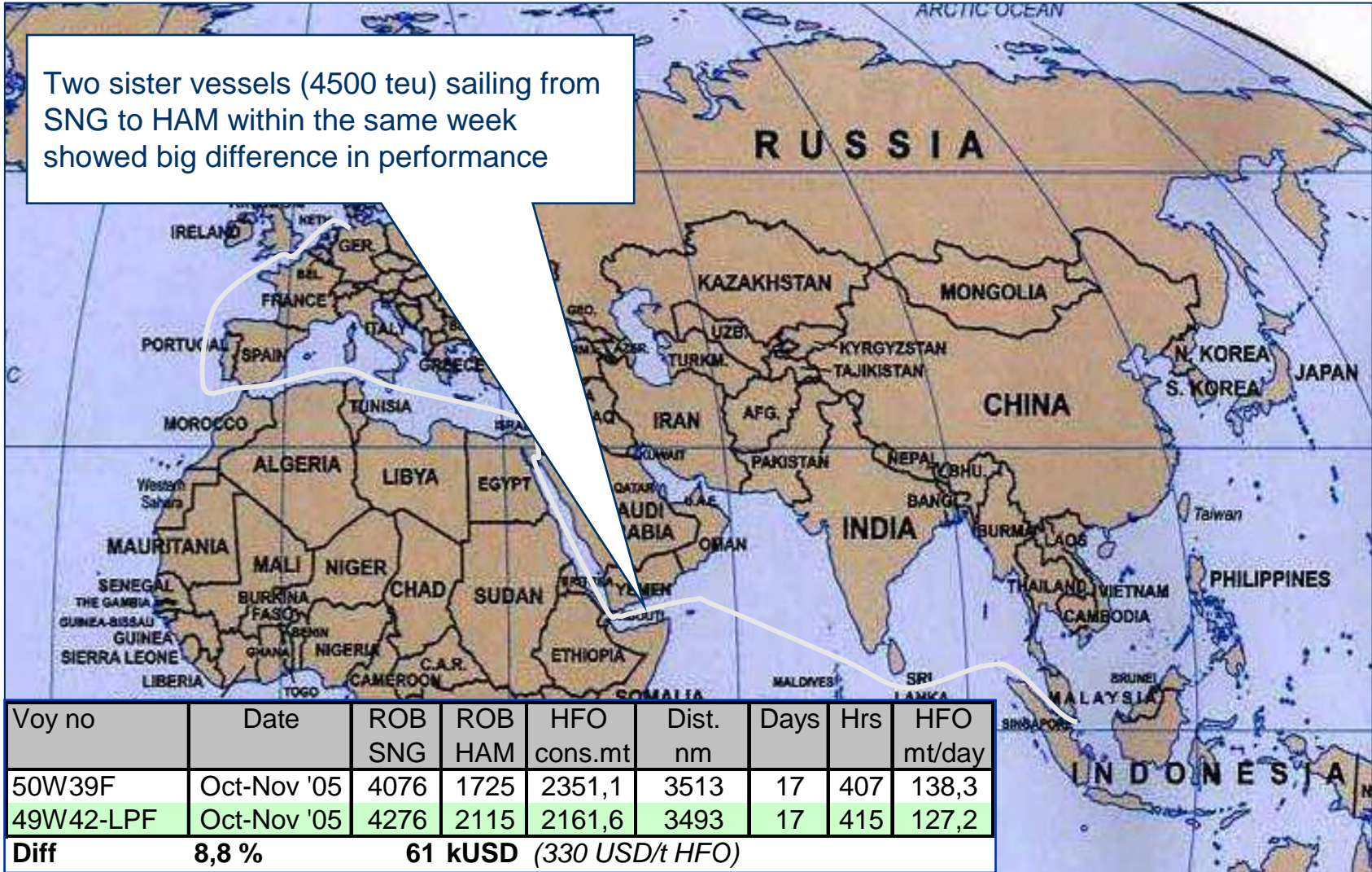




# The importance of cross fleet fuel consumption monitoring and sharing of best practice



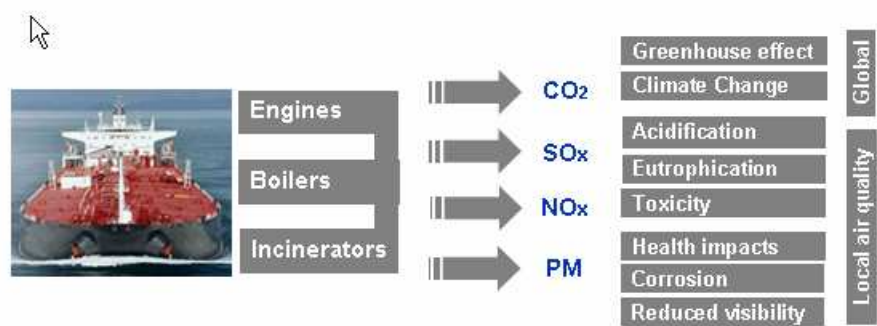
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# DNV`s projects have addressed fuel savings potentials within all market segments

- > 20 Projects
- > 10 Major clients
- All segments
- > 500 ships
- > 5000 Sailors
- >450 MUSD savings
- Substantial environmental impact

Segment	Fleet (# of ships)	Possible % fuel cost savings identified	
		Low	High
Tanker	50	2 %	6 %
Tanker	30	12 %	30 %
Chemical	80	6%	12 %
Container	100	5 %	8 %
Container	30	4 %	8 %
Container	>100	2 %	6 %
Cruise	15	4 %	8 %
LNG and RORO	75	12 %	32 %
<b>Total</b>	Approx 500 ships	190 MUSD	460 MUSD





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**Maritime Solutions is the leading worldwide Management and Technology consultancy unit of DNV, helping its clients in the maritime industry to unlock their full potential.**

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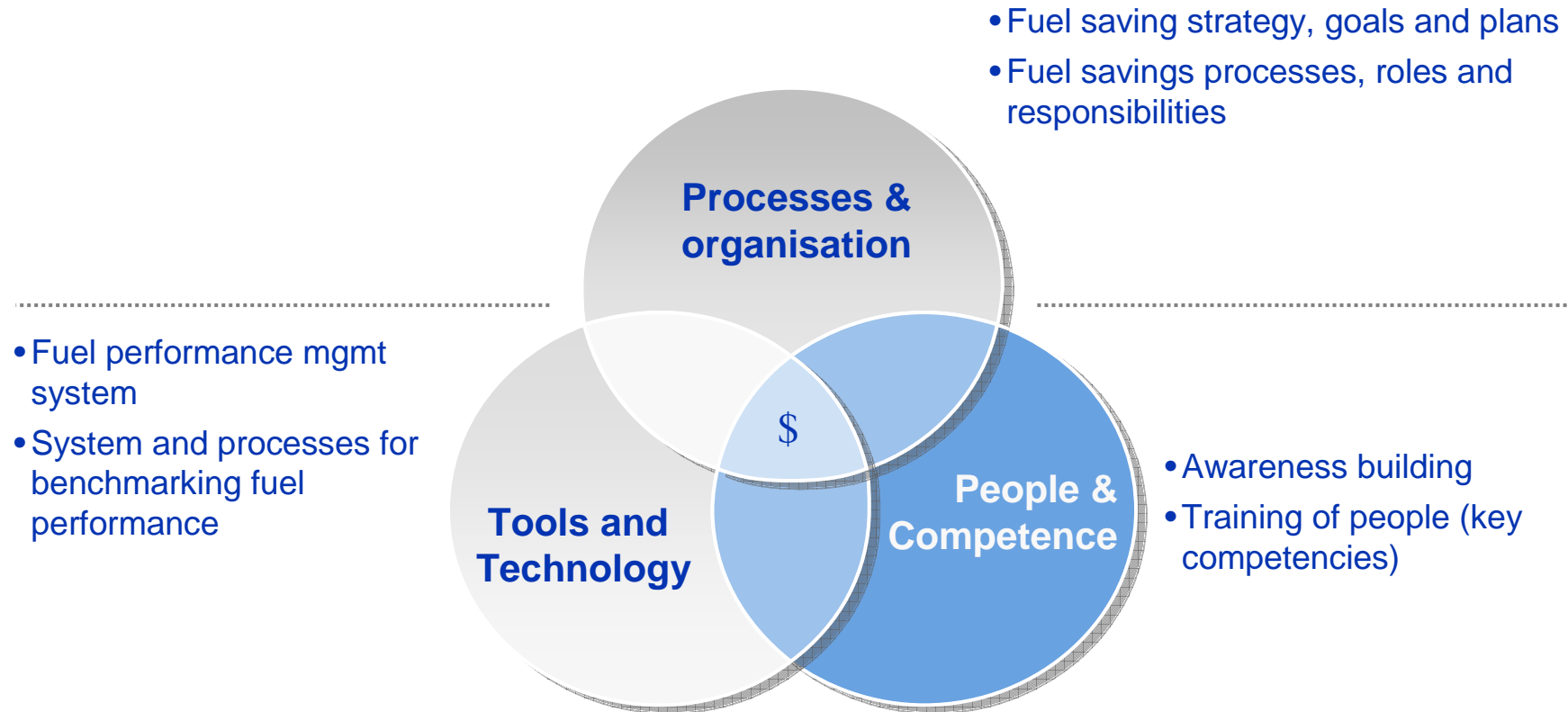
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# An holistic approach would lay the ground for sustained improvements



....and change management is key enabler in developing and implementing the solutions