Offen Group

SHIPMANAGEMENT AT ITS BEST

WELL TRAINED CREW FOR FUEL SAVING

How to establish a successful and proven training concept?

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CPO Containerschiffreederei

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1. Background of CCPO staff working on board

- International crew from all over the world.
- Employing professional mariners in compliance with international regulations.
- Ensuring availability of qualified crew in terms of satisfying charterer‘s requirements and applying their strategy in operation.

2. Requirements and motivation for fuel saving

Protecting the environment is at the forefront of our operations

- Reduction of carbon footprint

Operational instruments to gain and verify fuel savings

- Ship Energy Efficiency Management Plan (SEEMP)
- Monitoring, Reporting, Verification (MRV)

Charterer demands

- Specified reporting systems
- Different charterers → different strategies

Complying with the highest state-of-the-art standards: Excellence Award

- ISO 50001
- Advanced Internal Training Scheme

3. Fuel saving as a distinctive performance criteria

Reliability of Service | **Fuel Saving** | Operational Safety

- ✓ Reduction of carbon footprint.
- ✓ Lower fuel costs.
- ✓ Better performance.
- ✓ Better ranking in scorecards.
- ✓ Good understanding of impact of measures.
- ✓ Communication of real achievements.
- ✓ Pro-active approach towards charterers.

4. Training as a must

Internal Training Concept

In-house training for fuel saving		
Day 1		
Part 1	- **Fleet management software**	(*System Administrator, Technical SI)*
	- **QHSE system: Impact on ship operation and company related processes**	(*DMR)*
Part 2	- **Basic conception on how to save fuel**	(*Energy Responsible, Technical SI)*
	- **Charterer voyage reporting systems**	(*Energy Responsible*)
Day 2		
Part 1	- Masters and C/O: **Weather Routing**	(*Nautical SI*)
	- C/E: **Engine Performance Evaluation, Hull and Propeller Evaluation**	(*Technical SI, System Administrator*)
Part 2	- Masters and C/O: **Trim Optimization**	(*Nautical SI*)
	- C/E: **Planned Maintenance**	(*Technical SI*)

4. Training as a must

Training structure in blocks

1) Basic conception

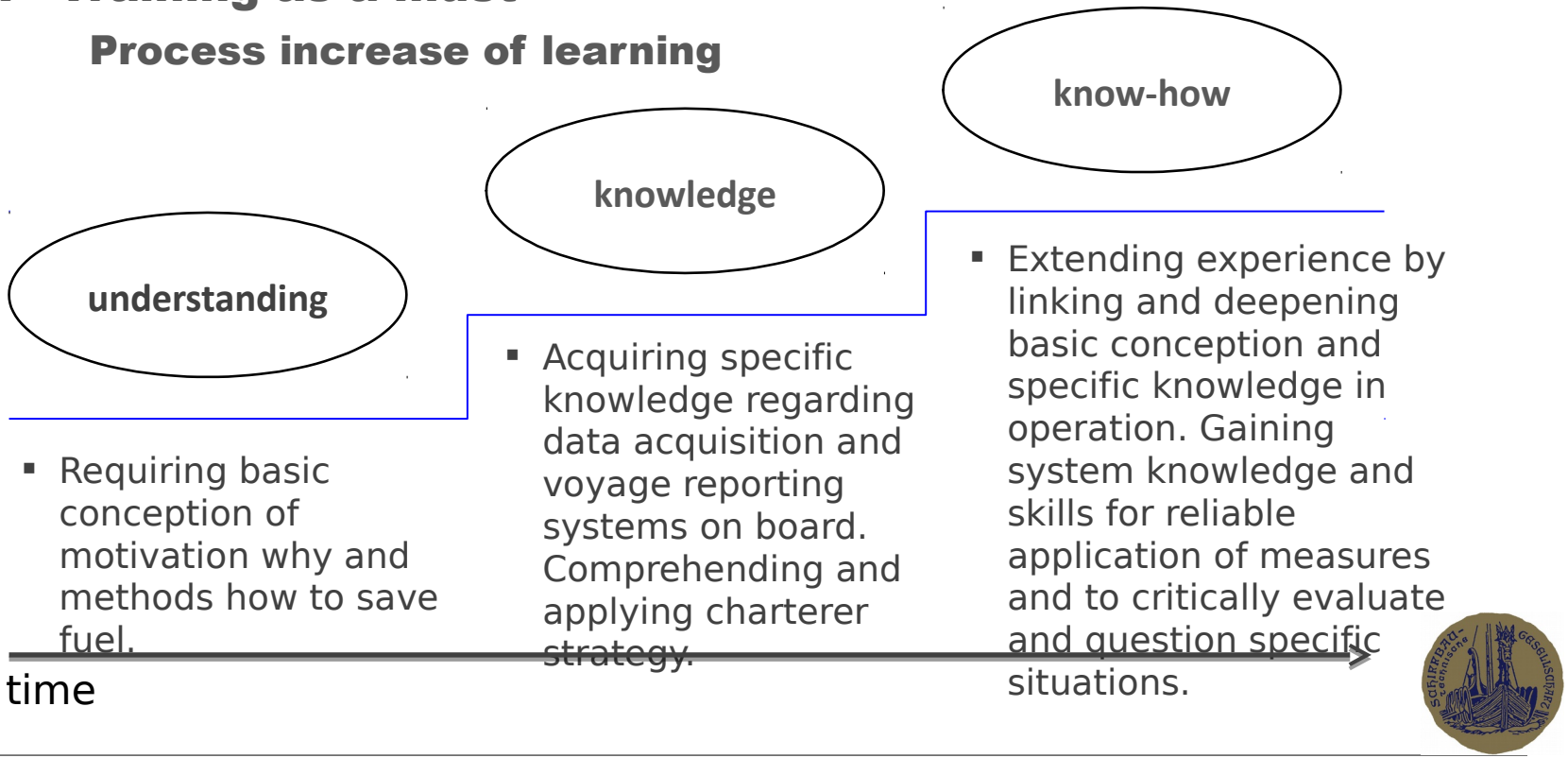
- Speed optimization.
- Constant power.
- Weather routing.
- Impact of resistance by hull and propeller.
- Trim and draft optimization.
- Engine performance evaluation and fuel consumption monitoring.
- Baseload of auxiliary engines.
- Reduction of on board power demand.

2) Specific knowledge

- Measuring devices for fuel consumption and energy use on board.
- Different charterer strategies.
- Application of software integrating and optimizing energy saving operational decisions.

4. Training as a must

Process increase of learning



4. Training as a must

How can we verify an excellent state of knowledge?

- ✓ Less support from office required.
- ✓ Less errors and gaps in voyage reporting.
- ✓ Pro-active communication.
- ✓ Constantly fuel efficient performing vessels.
- ✓ Top ranking in scorecards.
- ✓ Questions from crew exceeding the content of user manuals.
- ✓ Valuable feedback from crew → auditor / trainer is widening his / her expertise based on the experience gained on board.
- ✓ Training records.

5. Crew is crucial. How to get crew motivated for fuel saving?

Retrospect 4 years ago: facing the following initial situation

Willingness to learn – 3 major user categories

INQUISITIVE	Achieving the optimum with interest and curiosity
USER-ORIENTED	Ensuring the basic functionality of application
RELUCTANT	Acquiring basic knowledge is hampered by defensive attitude

5. Crew is crucial. How to get crew motivated for fuel saving?

Our crews are motivated. How do we keep their drive?

a) Clear and lean instructions.
b) Providing feedback / open for constructive feedback – positive or negative.
c) Introducing new systems with proper explanation.
d) Appreciation of work done.
e) Clear contact persons.
f) The feeling, that it makes sense.
g) Honour efforts.

5. Crew is crucial. How to get crew motivated for fuel saving?

a) Clear and lean instructions

- QHSE Manual updates
- Technical / Nautical / Purchasing Memo
- CPO News

5. Crew is crucial. How to get crew motivated for fuel saving?

b) Providing feedback / open for constructive feedback - positive or negative

- Feedback loops by monthly voyage and KPI reporting.
- User questionnaires in regular intervals and their evaluation on shore. Distributing the results throughout the fleet.
- Discussions during internal audits and regular visits on board.
- Master system review / shipboard management meetings.

5. Crew is crucial. How to get crew motivated for fuel saving?

c) Introducing new systems with proper explanation

•) During the implementation of the fleet management software, all senior officers received a 2-days initial training.

•) Consecutive training on fuel saving.

•) Briefings in application of charterer software before signing on the vessel.

•) Internal harmonized audits.

•) Interactive Video Trainings on board.

•) Customized DVD on ISO standards provided on board and crewing agencies.

5. Crew is crucial. How to get crew motivated for fuel saving?

d) Appreciation of work done

- Senior officers seminar and feedback.

e) Clear contact persons

- Dedicated persons with group e-mail address which are taking care of all support issues and providing help.

5. Crew is crucial. How to get crew motivated for fuel saving?

f) The feeling that it makes sense

- Closed loop feedback with internal scorecards, displaying KPIs and their improvement.
- Feedback of aggregated data for verification on board in order to raise awareness for proper reporting of information.

g) Honour efforts

- Honouring best performing vessel of the month / year.
- Skills on fuel saving considered as aspect for promotion.

6. Performance Monitoring

Key aspects of fuel efficient operation

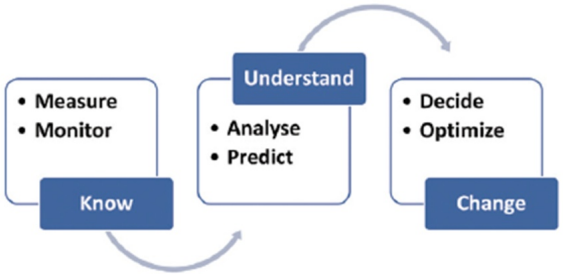
- Bunker management.
- Hull / propeller / machinery design.
- Hull and propeller maintenance.
- Weather routing and voyage execution.
- Draft and trim.
- Autopilot controller adjustments.
- Engine performance monitoring.
- Power management.
- Steam and heat management.
- Planned maintenance.

6. Performance Monitoring

How to assess if operation is fuel efficient?

Event based data reporting in monitoring systems

- Identification of energy affecting factors.
- Verification of ship performance by key indicat
- Identify fuel efficiency potential.
  → analysis of costs, savings, pay-back time
- Steer continuous energy improvement.



Performance Monitoring enables:

- Communication of real achievements to stakeholders.
- Better ranking in scorecards and positioning in charter negotiations.

6. Performance Monitoring

Ways of data acquisition

Pro manual reporting

- Make crew accountable for their responsibilities.
- Plausibility check through qualified personal.
- Favourable regarding costs for maintenance.
- No additional hardware on board required.

Pro automatic reporting

- Higher data density.
- Acquisition of a higher variety of measurements.
- Exclusion of „human error“.
- Ensuring correct data synchronisation.
- Difficult to manipulate.

6. Performance Monitoring

Challenges for performance management implementati

- Defining *lean* and comprehensive standard *procedures* in the management system → **less is more**
- Providing human resources for analysing performance data and to derive efficiency measures.
- Preventing lack of consistent data due to human errors.
- Solving problems in data acquisition caused by lack of devices on board or sensor errors.
- Avoiding double reporting by application of different performance management systems.
- Involving charterers in operational measures.

7. Summary

Effective actions leading to a successful training concept.

- Set standards (procedures, clear instructions, forms, templates).
- Define responsibilities.
- Communicate.
- Discuss deviations and discrepancies.
- Provide feedback and support.
- Share knowledge and best practices.
- Create common sense.
- Encourage personal competence.
- Establish appropriate IT-infrastructure.
- Promote acceptance for new tools and systems.
- Keep the same crew on the same groups of vessels.

TOGETHER
WE
ACHIEVE
MORE

7. Summary

Awareness, capabilities and commitment from people on board and on shore are key to achieve energy savings

Office

- Effectively train crews.
- Regular follow up.
- Monitor energy performance.
- Focus on improvement.
- Cooperate with energy team.

Crews

- Apply know-how.
- Use tools & systems.
- Focus on improvement.
- Give feedback.
- Show initiative.
- Cooperate with energy team.

Energy Team

- Monitor energy performance.
- Contact Superintendent in case of deviations.
- Prepare reports for stakeholders.
- Share best practice.
- Steer improvement.
- Maintain feedback loops.


THANK YOU FOR YOUR ATTENTION!
HAPPY TO ANSWER YOUR QUESTIONS.