Hunting lions and tigers

Improving maritime safety performance by taking the broader view
Overview

- Challenges in the maritime industry
- The next step in improving maritime safety performance
- DNV GL’s safety culture assessment
- A broader view to safety
What is the status of safety in maritime?

Average of 900 lives lost at sea every year in ship accidents.

10x higher fatality rate in maritime than for industry workers.

600-900 fatalities are caused by occupational accidents.

IMO aims to reduce the fatality rate (for ship accidents) to below 500.

DNV GL ambition to reduce the fatality rate by 90%.

1) IHS Fairplay 2003-2012
2) EMSA Annual Overview of Marine Casualties and Incidents 2014 and DNV GL Future of shipping (2014)
Challenge 1: Occupational accidents versus major accident risk
Different trends
“There are few good reasons to celebrate good statistics”
Risk matrix: Hunting lions or hunting tigers?
Different characteristics

a) Simple causal chain of events
b) Generally limited consequences
c) Breach of few barriers

d) Complex chain of events
b) Potentially catastrophic consequences and escalation
c) Breach of many barriers
d) Difficult to predict / great uncertainty

Occupational accident

Serious accident
Challenge 2: Human error?
Complex chain of events

Challenge 3: the «Paperwork Monster»


Captain Richard Madden. The Maritime Paperwork Monster plus new requirements to get more sleep. gCaptain, April 25, 2012.
How can we identify a company’s potential for safety improvement?

**Triangulation:**

- **M:** Are the attitudes, beliefs, perceptions, and behaviors aligned with best practices for safety?
- **T:** Is the technology aligned with best practices or standards?
- **O:** Are the processes in the company aligned with best practices or standards?
Safety culture

«How are things done around here?»

«How does the organization behave when no one is watching?»
What makes up Safety Culture?

Safety Culture
The product of individual and group values, attitudes, perceptions, competencies and patterns of behaviour that can determine the commitment to, and the style and proficiency of an organisation’s management of safety.

<table>
<thead>
<tr>
<th>Safety Climate</th>
<th>Behaviour</th>
<th>Organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘how people feel’</td>
<td>‘what people do’</td>
<td>‘what the organisation has’</td>
</tr>
<tr>
<td>Individual and group values, attitudes and perceptions.</td>
<td>Safety-related actions and behaviours.</td>
<td>Policies, procedures and management systems.</td>
</tr>
</tbody>
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Attitude and climate surveys
Safety audits and safety performance statistics
8 dimensions of safety culture

- Competence
  - Suffient Competence & Skills

- Error tolerance
  - "Human errors are inevitable"
  - Robust system design

- Collaboration
  - Within and between personnel/units

- Creative Worry
  - Pro-active/risk competence/risk awareness

- Conflicting goals
  - Management involvement/role/communication

- Organisational learning
  - Reporting, living the management loop
  - No blame

- Compliance
  - With procedures/relevance of procedures

- Incentives
  - Formal and informal rewards and punishments
Safety Culture is assessed on different levels of maturity

- The Safety Culture Maturity model used by DNV GL (based on the work by Parker, Lawrie and Hudson, 2014) has five levels.

- All 8 DNV GL Safety Culture dimensions are described at five levels of maturity.
How to measure safety culture?

It’s a fan!

It’s a wall!

It’s a spear!

It’s a snake!

It’s a tree!

It’s a rope!
Mixed methods: quantitative and qualitative methods

Survey
- Suitable for benchmarking/comparative purposes
- Economical assessment tool
- Answers "what" but not always "why"

Interview
- In depth analysis (explain and confirm survey results)
- Explorative
- Time and resource consuming
- Results are harder to compare

Quantitative

Qualitative
The company scores higher than the average on Collaboration, Conflicting Goals and Compliance (EXAMPLE)

Company vs average score

- Competence 4,5
- Error Tolerance 4
- Creative Worry 3,5
- Organisational Learning 3
- Incentives
- Compliance
- Collaboration
- Managing Conflicting Goals

Comments

- Compared to the average in offshore shipping, the company scores higher on Collaboration, Conflicting Goals and Compliance.
- There is very little difference between the company scores and the average score in offshore shipping on Error Tolerance, Creative Worry and Organizational Learning.
- The company scores lower on Incentives than the average.
Thank you for your attention

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