# ABS Project on Safety Culture and Leading Indicators of Safety – Part of ABS' Mariner Safety Research Initiative

Safety Culture & Leading Indicators of Safety

- Purpose: to enable organizations with cargo-carrying vessels to self-assess their safety culture and leading indicators of safety

- Contents:
  - How to administer the survey
  - Actual safety culture questionnaire
  - Definition of safety factors
  - How to perform data analyses
  - Lists of potential objective and subjective leading indicators
  - How to interpret the results
  - How to develop an action plan

GUIDANCES NOTES ON

Safety Culture and Leading Indicators of Safety
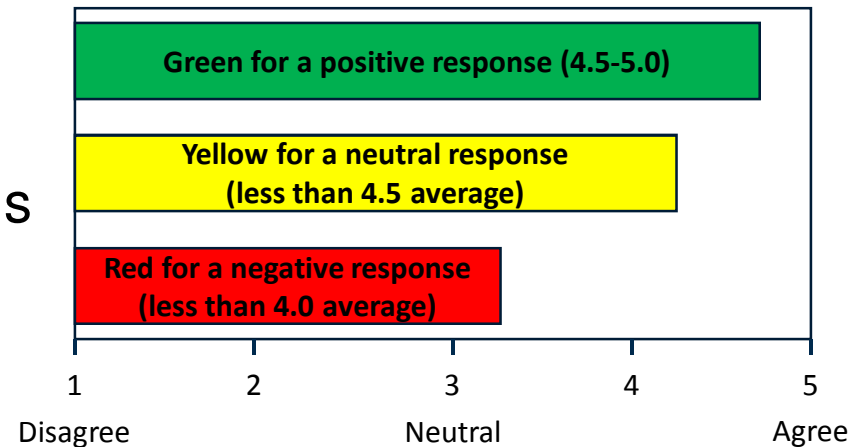
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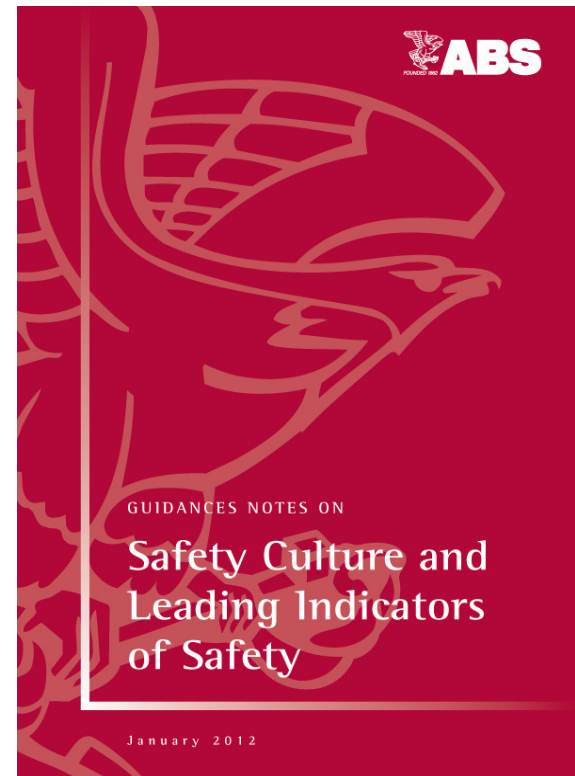
Safety Culture Survey (Shipboard & Shore-Side)

- 40 Statements/Questions (in 3 Sections)
  - Ship Safety
  - Health & Safety
  - Survey Respondent's Own Job

- 8 Safety Factors (5 Statements per Safety Factor)
  - Communication (COM)
  - Promotion of Safety/Leadership (POS)
  - Empowerment (EMP)
  - Feedback (FDB)
  - Mutual Trust (MTR)
  - Problem Identification (PID)
  - Responsiveness (RSP)
  - Safety Awareness (SAW)

- Demographics, Free-Text & Optional Questions

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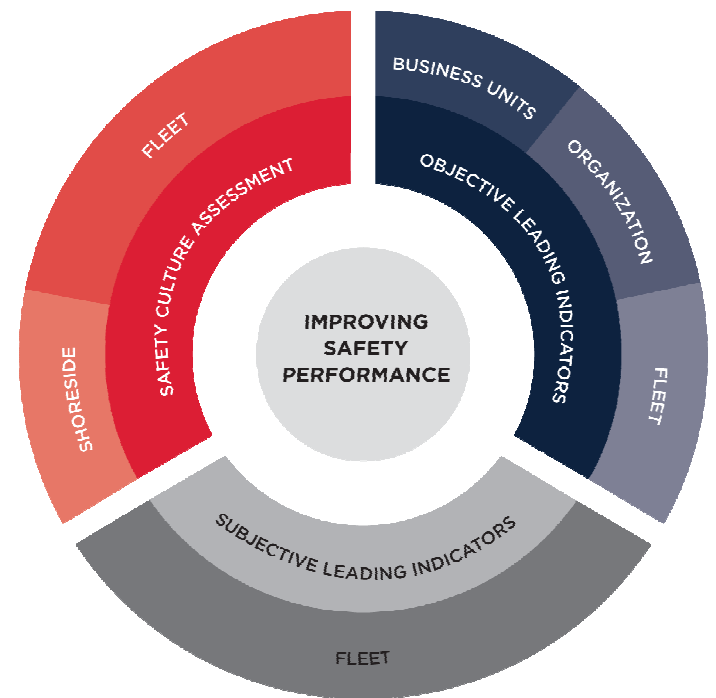
Safety Culture Survey: Scoring

- Survey responses receive a score Disagree = 1 to Agree = 5

- The ABS SC questionnaire contains forty (40) 5-scale questions

Green for a positive response (4.5-5.0)

Yellow for a neutral response (less than 4.5 average)

Red for a negative response (less than 4.0 average)

1	2	3	4	5
Disagree		Neutral		Agree

Question	Average Response	Safety Factor
• Shore-side managers never put schedule or costs above safety	3.66	POS
• Language differences in multi-cultural crews are not a threat to safety	3.88	COM
• There are no differences in the performance of crew members from different cultures	4.11	MTR

MTR = Mutual Trust   COM = Communication   POS = Promotion of Safety/Leadership

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Traffic Light Snapshot of Results

What is your position aboard ship?

Values	A/B	D/CDT	MSTR	CHF/ OFF	CHF/ ENG	2/OFF	E/CDT	ORD/ SEA
Responses	474	236	232	214	201	197	197	191
2. Shore-side managers never put schedule or costs above safety	3.90 ⬇	3.81 ⬇	3.77 ⬇	3.64 ⬇	3.83 ⬇	3.65 ⬇	3.75 ⬇	3.86 ⬇
6. This company has excellent maintenance standards	4.62 ⬆	4.59 ⬆	4.24 ➡	4.14 ➡	4.39 ➡	4.34 ➡	4.58 ⬆	4.63 ⬆
8. People are hired for their ability and willingness to work safely	4.81 ⬆	4.70 ⬆	4.29 ➡	4.40 ➡	4.43 ➡	4.55 ⬆	4.71 ⬆	4.82 ⬆
9. Language differences in multi-cultural crews are not a threat to	4.19 ➡	4.03 ➡	3.90 ⬇	3.81 ⬇	4.00 ⬇	3.74 ⬇	4.29 ➡	4.20 ➡
10. There are no differences in the performance of crew members from different cultures	4.36 ➡	4.30 ➡	3.75 ⬇	3.90 ⬇	4.06 ➡	3.94 ⬇	4.37 ➡	4.31 ➡
Overall Response Average	**4.37 ➡**	**4.28 ➡**	**3.99 ⬇**	**3.98 ⬇**	**4.14 ➡**	**4.04 ➡**	**4.34 ➡**	**4.36 ➡**

- Experience (in maritime, with company, in position)
- Age/Gender
- Nationality

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Areas of Excellence: Benchmarking

- XXXXX results vs. ABS' Combined Safety Culture Dataset (CSCD)

Question	XXXXX Average Response	CSCD Average Response	Safety Factor
• I fully understand my responsibilities for health and safety	4.96	4.96	MTR
• Crew members are actively encouraged to improve safety	4.94	4.87	EMP
• I always ask questions if I don't understand the instructions given to me, or I am unsure of the relevant safety precautions	4.94	4.95	COM
• Safety is the top priority for crew onboard this ship	4.94	4.91	SAW
• The crew has access to all necessary personal protective equipment (PPE)	4.92	4.81	RSP

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Opportunities for Improvement: Benchmarking

- XXXXX results vs. ABS' Combined Safety Culture Dataset (CSCD)

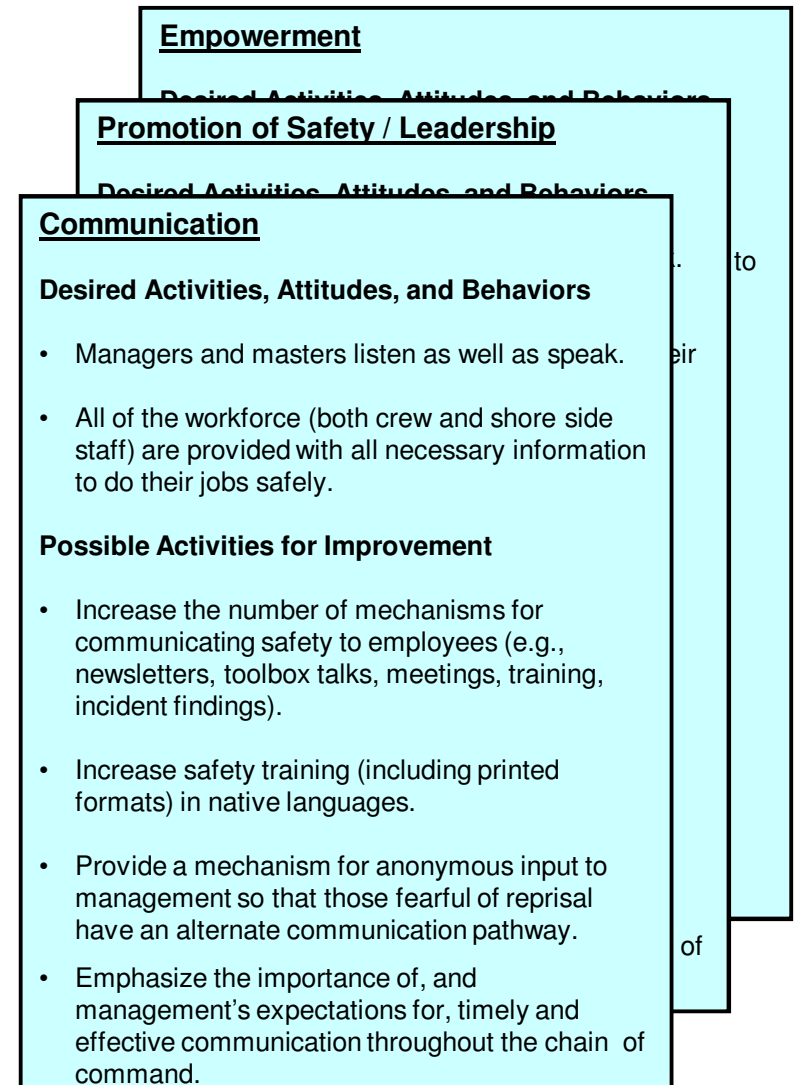| Question	XXXXX Average Response	CSCD Average Response	Safety Factor
• Shore-side managers never put schedule or costs above safety	3.66	3.89	POS
• Language differences in multi-cultural crews are not a threat to safety	3.88	4.16	COM
• There are no differences in the performance of crew members from different cultures	4.11	4.27	MTR
• Mistakes are corrected without punishment and treated as a learning opportunity	4.67	4.59	MTR
• People are hired for their ability and willingness to work safely	4.69	4.69	MTR

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Shipboard & Shore-side: Shared Themes

- Training/instruction (for new crew, before changing jobs, hands-on/drills, hand-over, and general refresher training)
  - Safety training while on shore leave also mentioned

- Increased safety meetings and communication
  - Onboard, ship to shore, shore to ship

- Implement a no blame culture

- Improve safety culture

- "Close the loop" ships/shore safety issues

- Keep crews up to date on company and regulatory issues

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Utilizing the Results

- Study the findings, and note the safety factors (SFs) that need to be addressed

- Study the desired activities, attitudes, and behaviors, and activities for improvement for those safety factors

- Consider if the findings could relate to a different SF as there may be overlap

- Communicate the results to the workforce and let them know how weak areas will be addressed and monitored…

Empowerment

Desired Activities, Attitudes, and Behaviors

Promotion of Safety / Leadership

Desired Activities, Attitudes, and Behaviors

Communication

Desired Activities, Attitudes, and Behaviors

- Managers and masters listen as well as speak.

- All of the workforce (both crew and shore side staff) are provided with all necessary information to do their jobs safely.

Possible Activities for Improvement

- Increase the number of mechanisms for communicating safety to employees (e.g., newsletters, toolbox talks, meetings, training, incident findings).

- Increase safety training (including printed formats) in native languages.

- Provide a mechanism for anonymous input to management so that those fearful of reprisal have an alternate communication pathway.

- Emphasize the importance of, and management's expectations for, timely and effective communication throughout the chain of command.
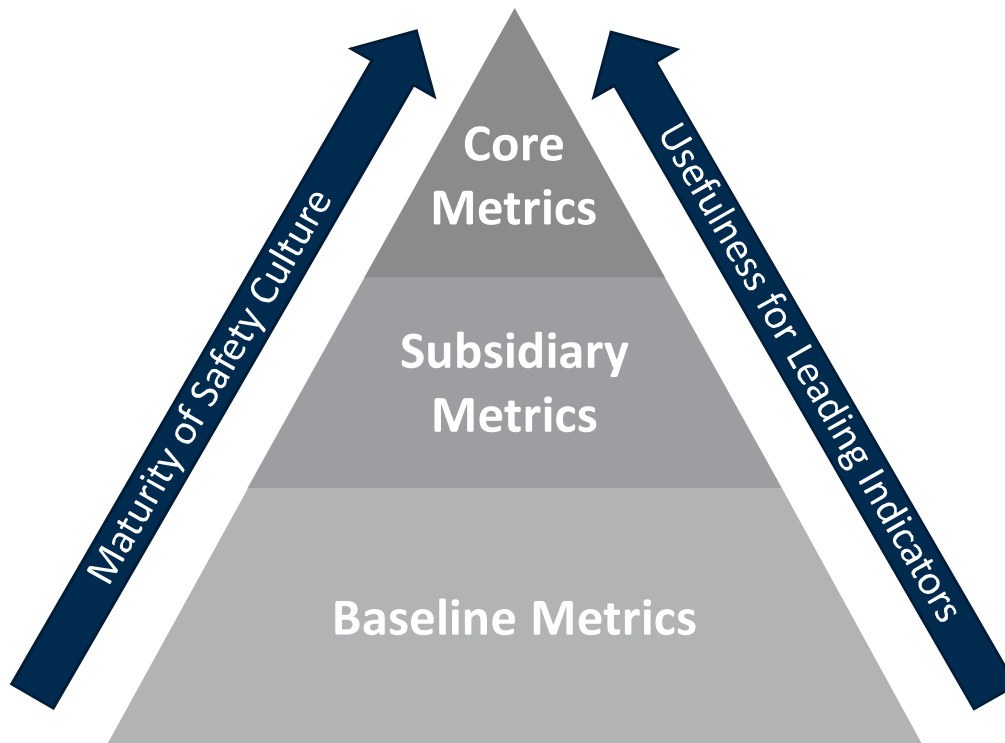
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Identifying Leading Indicators

- Objective Leading Indicators are identified by correlating
  - Safety metrics with safety performance data
  - 5+ years of safety metrics and safety performance data required for organizational level analysis
  - 12+ months for business unit or vessel level analysis

- Subjective Leading Indicators are identified by correlating
  - Survey responses with safety performance data

- Example Safety Performance Data
  - Ship Safety (e.g., operational incidents frequency)
  - Individual H&S (e.g., total recordable case frequency)
  - Etc…

The Metrics Hierarchy

Core
Metrics

Subsidiary
Metrics

Baseline Metrics

Maturity of Safety Culture

Usefulness for Leading Indicators

- **Baseline Metrics**
  - Typically expressed as absolutes (presence/absence of an activity)

- **Subsidiary Metrics**
  - Useful until they peak

- **Core Metrics**
  - Continue to vary in a mature safety culture

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Sample Leading Indicators

- Subjective Leading Indicators
  - Employee perception about management support of safety improvements efforts
  - Employee empowerment to fulfill safety responsibilities
  - Management response to safety issues and concerns

- Objective Leading Indicators
  - Number of near miss reports
    - Percent closed-out
  - Time to implement corrective actions
  - Size of safety budgets (YoY)
  - Number of safety meetings involving senior management
  - Number of incidents/near misses followed by incident investigations

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Thank You

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