

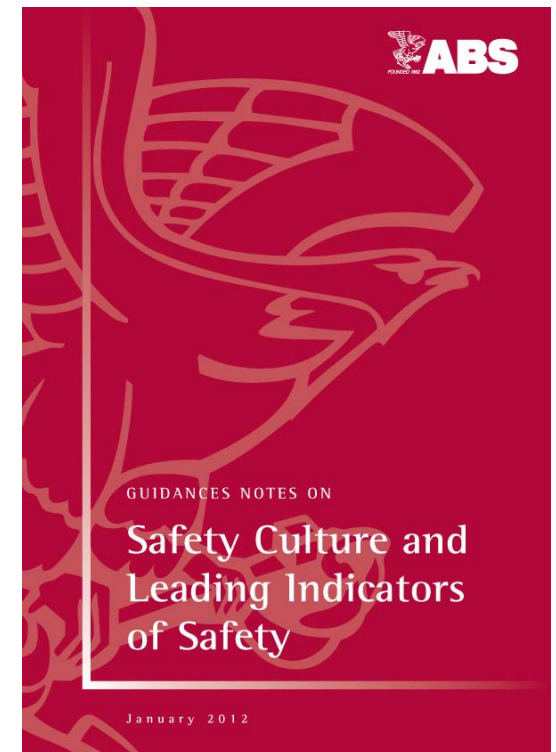


ABS

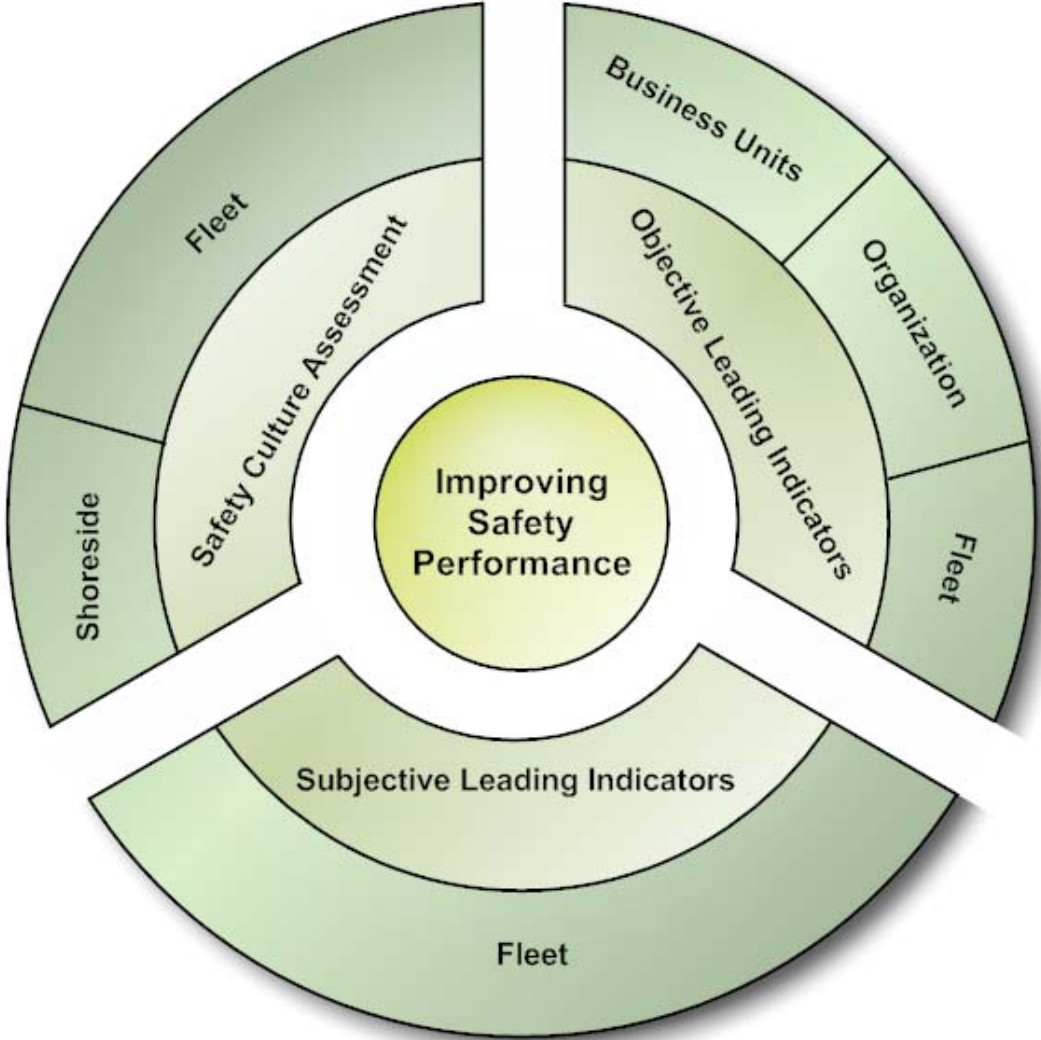
ABS Project on Safety Culture & Leading Indicators of Safety

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
- Published January 2012
- Directed at cargo-carrying vessel owners and operators
- Contents
 - Administering the survey
 - Safety culture questionnaire
 - Safety factors
 - Analysis with worked examples
 - Objective and subjective leading indicators
 - Interpreting the results
 - Action plan
 - Comprehensive appendices



ABS Safety Culture & Leading Indicators Model



Safety Culture Survey (Shipboard & Shoreside)

- 40 Statements/Questions (in 3 sections)
 - Ship safety
 - Health and safety
 - Respondent's own job
- 8 Safety Factors (5 statements per safety factor)
 - Communication (COM)
 - Empowerment (EMP)
 - Feedback (FDB)
 - Mutual trust (MTR)
 - Problem identification (PID)
 - Promotion of safety (POS)
 - Responsiveness (RSP)
 - Safety awareness (SAW)
- Demographics, free-text and optional questions



Safety Culture Survey (Shipboard & Shore-side)

- 40 Statements/Questions (in 3 sections)
 - Ship safety
 - Health and safety
 - Respondent's own job
- 8 Safety Factors (5 statements per safety factor)
 - Communication (COM)
 - Mutual Trust (MTR)
 - Empowerment (EMP)
 - Feedback (FDB)
 - Problem Identification (PID)
 - Promotion of Safety (POS)
 - Responsiveness (RSP)
 - Safety Awareness (SAW)
- Demographics, free-text and optional questions

Fragment of Shore-side Survey

Shoreside Safety Culture Survey

SECTION A

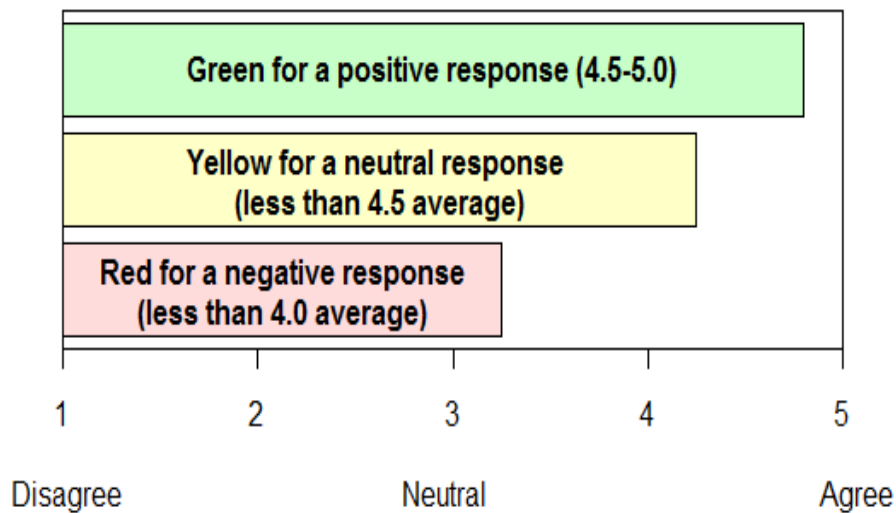
This section is about SHIP safety i.e. the policies, procedures, attitudes and actions that are taken to mitigate risk and prevent collisions, groundings, loss of life, or major injuries. It asks for YOUR views from the perspective of a shoreside employee.

Please rate ALL statements using the scale shown. If you do not know, choose Don't Know.

	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Don't Know
1. When line safety managers are told about accidents, incidents, or near misses, corrective action is taken promptly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Shoreside managers never put schedule or costs above safety.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Senior management is personally involved in safety activities on a routine basis.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Management places a high priority on safety training.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Employees are actively encouraged to improve safety.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Don't Know
6. This company has excellent maintenance standards.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

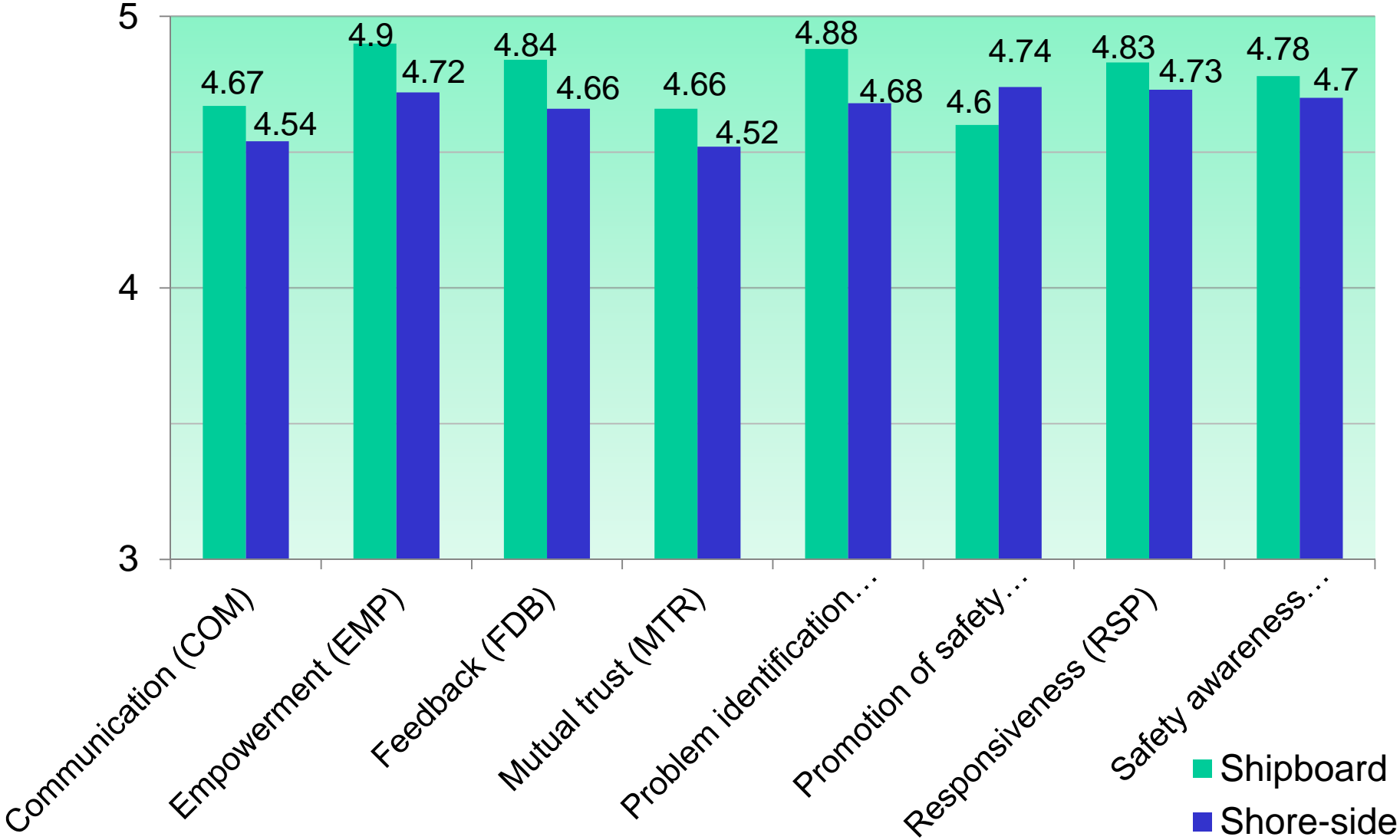
Safety Culture Survey: Scoring

- Questions could receive a score from Disagree = 1 and Agree = 5
- The questionnaire contained forty (40) 5-scale questions



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

All Safety Factors: Averages



Areas of Excellence: Shipboard

Question	Average Response	Safety Factor
• I fully understand my responsibilities for health and safety	4.96	MTR
• Crew members are actively encouraged to improve safety	4.94	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	COM
• Safety is the top priority for crew onboard this ship	4.94	SAW
• The crew has access to all necessary personal protective equipment (PPE)	4.92	RSP

MTR = Mutual Trust, EMP = Empowerment,
COM = Communication, SAW = Safety Awareness
RSP = Responsiveness

Opportunities for Improvement: Shipboard

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
• Mistakes are corrected without punishment and treated as a learning opportunity	4.67	MTR
• People are hired for their ability and willingness to work safely	4.69	MTR

POS = Promotion of Safety, COM = Communication, MTR = Mutual Trust

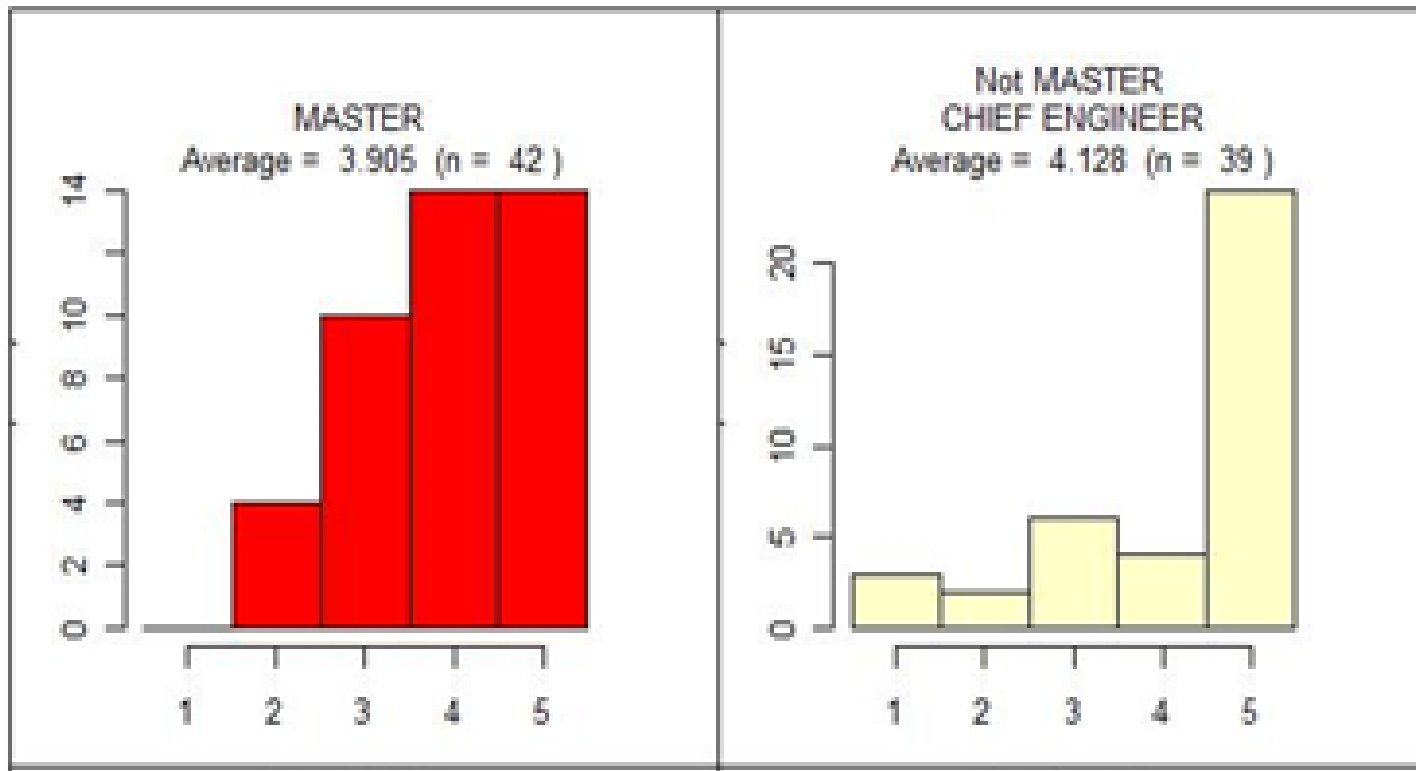
Largest Differences Between Questions

Question	Average Shipboard	Average Shore-side	% Diff.	Safety Factor
• Shore-side managers never put schedule or costs above safety	3.66	4.54	21%	POS
• I am usually consulted on matters that affect how I do my job	4.87	4.30	12%	EMP
• There are no differences in the performance of crew members from different cultures	4.11	3.69	11%	MTR
• Whenever I see safety regulations being broken, I report it	4.83	4.46	8%	PID
• Watch hand-overs are thorough and not hurried	4.80	4.45	8%	SAW

Significant Subgroup/Within Group Differences

Shipboard question 8: People are hired for their ability and willingness to work safely.

The overall average for this question was 4.69 (green), but Masters (3.9) & Chief Engineers (4.1) responded significantly more negatively



Traffic Light Results Presentation

<p>What is your nationality?</p>	<p>Key findings: Question 2 responses are generally negative, but more so for some nationalities. Other findings include question 8, 9, and 10</p>					
<p>Question</p>	<p>PRC CHINESE</p>		<p>FILIPINO</p>		<p>INDIAN</p>	
<p># of Responses</p>	<p>229</p>		<p>193</p>		<p>120</p>	
<p>2. Shoreside managers never put schedule or costs above safety.</p>	<p>↓</p>	<p>3.29</p>	<p>↓</p>	<p>3.61</p>	<p>→</p>	<p>4.25</p>
<p>8. People are hired for their ability and willingness to work safely.</p>	<p>↑</p>	<p>4.81</p>	<p>↑</p>	<p>4.91</p>	<p>↑</p>	<p>4.69</p>
<p>9. Language differences in multi-cultural crews are not a threat to safety.</p>	<p>↓</p>	<p>3.79</p>	<p>→</p>	<p>4.02</p>	<p>↓</p>	<p>3.93</p>
<p>10. There are no differences in the performance of crew members from different cultures.</p>	<p>→</p>	<p>4.01</p>	<p>→</p>	<p>4.18</p>	<p>→</p>	<p>4.19</p>

Free-text - Shipboard: Common Themes

- Opportunities for consideration
 - PPE (condition, availability, appropriateness, and that they not be shared by multiple crewmembers)
 - Numerous mentions of boiler suits, but also everything down to footwear and safety glasses.
 - Adhere to work/rest schedules
 - Hire quality people
 - Follow standard language (English) for communication
 - Crew needs adequate grasp of English

Free-text - Shore-side: Common Themes

- Opportunities for consideration:
 - Increase incident and near miss reporting
 - Evaluate corporate safety policies including overall culture
 - Seafarer engagement in safety issues
 - Corporate workshops/seminars to raise H&S awareness
- Several comments that this SC survey is a big step in establishing a safety culture baseline and improving safety culture
- Approximately half of the shore-side respondents offered comments on how to improve safety, this indicates that shore-side personnel are engaged

Shipboard & Shore-side: Shared Themes

- Training/instruction (for new crew, before changing jobs, hands on/drills, and in general refresher training
 - Safety training while on shore leave also mentioned
- Increased safety meetings and publications
- Increase safety communications and communication in general (onboard and ship to shore)
- Implement a no blame culture
- Improve safety culture
- "Close the loop"/effective communication on ship/shore safety issues
- Keep crews up to date on company and regulatory issues

ABS Safety Culture Dataset

- The Combined SC assessments:
 - A total of 4,205 members
 - A total of 251 shore-side staff
 - A total of 207 vessels
- Five (5) Industry Partner assessments



Areas of Excellence: Shipboard

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

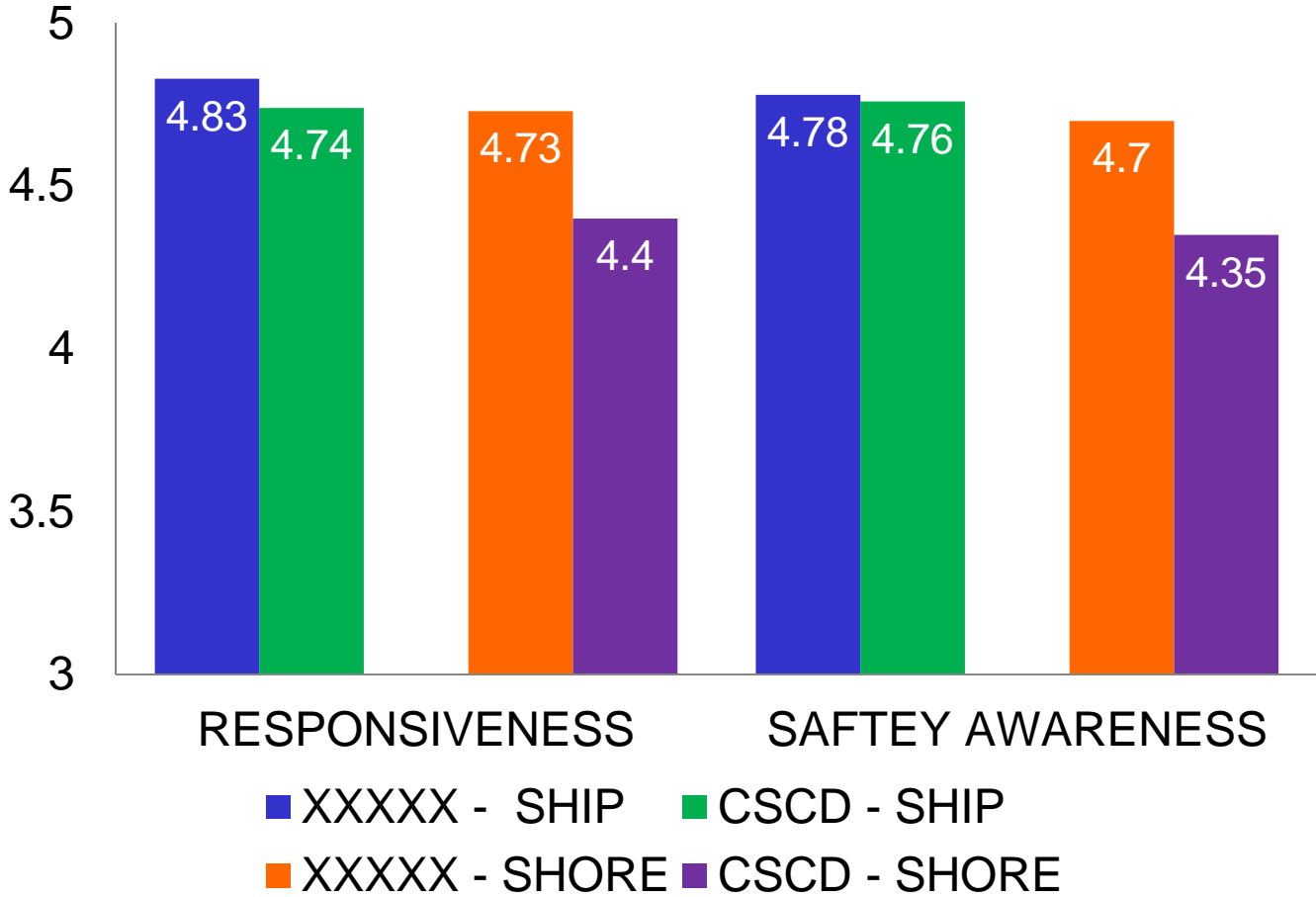
Question	XXXXX Average Response	CSCD Average Response	Safety Factor
• I fully understand my responsibilities for health and safety	4.96	4.96	MTR
• Crew members are actively encouraged to improve safety	4.94	4.87	EMP
• I always ask questions if I don't understand the instructions given to me, or I am 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

Opportunities for Improvement: Shipboard

- 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

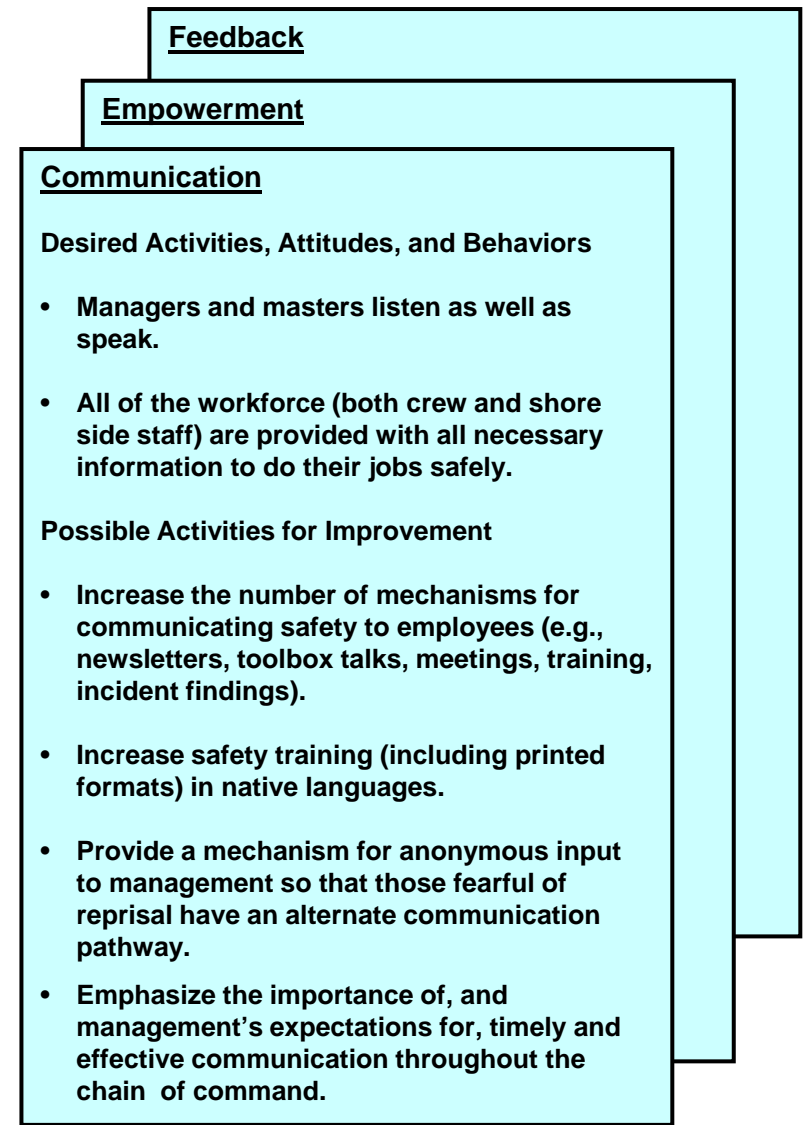
Safety Factors: Responsiveness / Safety Aware.



Safety Factor averages for shipboard and shore-side XXXXX and CSCD- Combined Safety Culture Dataset

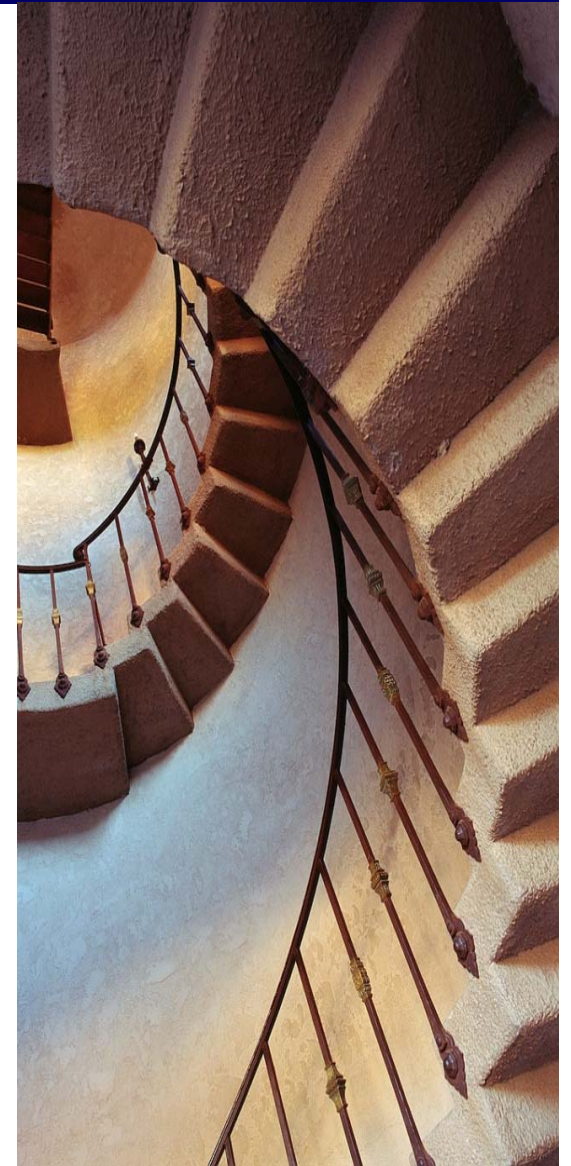
Utilizing the Results

- 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 is some overlap.
- Communicate the results to the workforce and let them know how weak areas will be addressed and monitored...



Next Steps: Safety Culture

- Areas of focus for consideration:
 - The least positive shipboard safety factors
 - Promotion of Safety
 - Communication
 - Mutual Trust
 - The least positive shore-side safety factors
 - Communication
 - Mutual Trust
 - Empowerment
 - Safety Awareness
 - Problem Identification



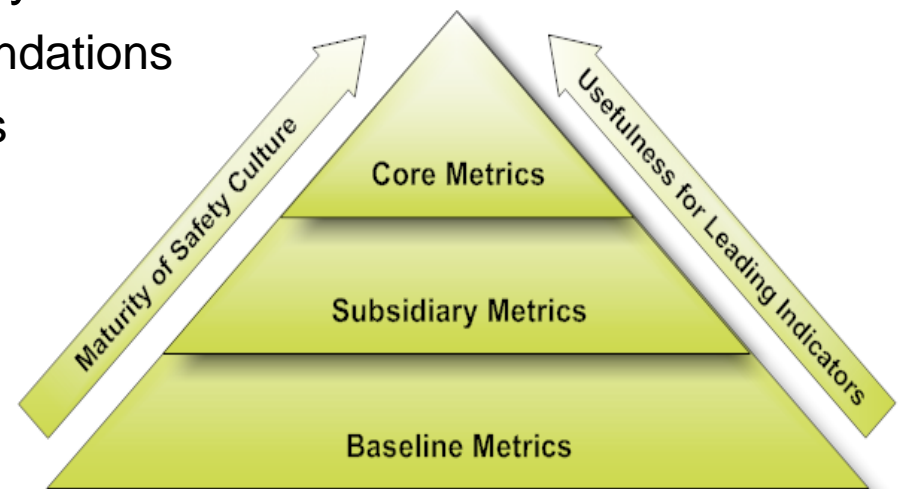
Identifying Leading Indicators

- Objective Leading Indicators are identified by correlating:
 - Safety metrics with safety performance data
 - 5+ years of safety metrics and safety performance data required (more years for delayed response analyses) for organizational level analysis
 - 12+ months for BU or vessel level analysis
- Subjective Leading Indicators are identified by correlating:
 - Survey responses with safety performance data
- Safety Performance Data
 - Ship safety e.g. operational incidents frequency
 - Individual H&S e.g. total recordable case frequency



The Metrics Hierarchy

- Baseline Metrics
 - Typically expressed as absolutes (presence/absence of an activity)
- Subsidiary Metrics
 - Useful until they peak, often expressed as percentages (e.g., percentage of crew who have PPE and requisite training)
- Core Metrics
 - Continue to vary in a mature safety culture
 - Number of safety audit recommendations
 - Recommendation close-out times
 - Size of safety budgets
 - Number of JHAs conducted

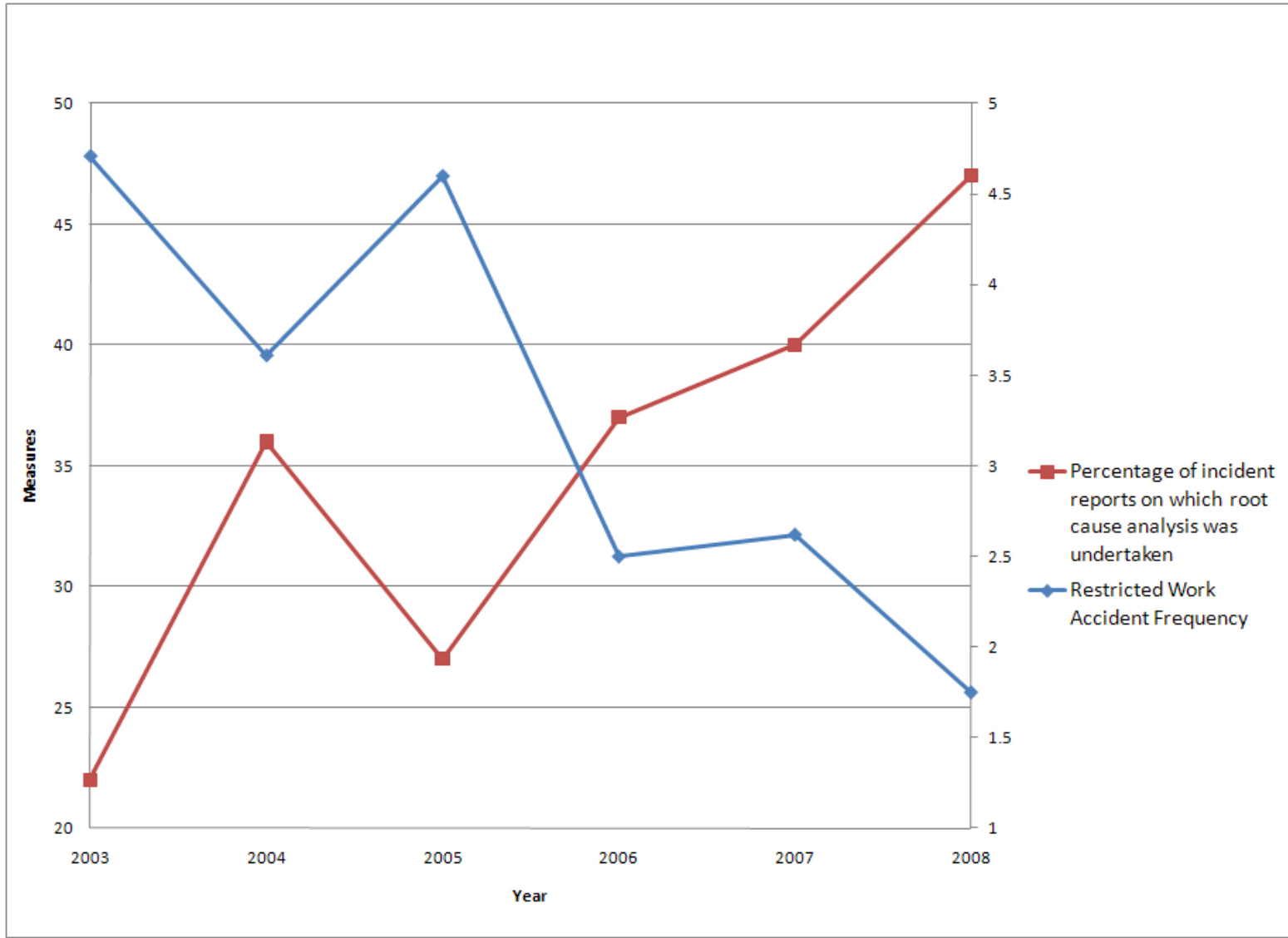


Sample Leading Indicators

- Subjective Leading Indicators
 - Employee perception about management support of safety improvement efforts
 - Employee empowerment to fulfill safety responsibilities
 - Management response to safety issues and concerns
- Objective Leading Indicators
 - Number of near miss reports submitted and percent closed-out
 - Time to implement corrective actions
 - Size of safety budgets
 - Number of safety meetings involving management
 - Number of incidents/near misses followed by incident investigations



Example Leading Indicators Results



Benefits of this Approach

- Ownership (and Understanding) of the Leading Indicators and safety culture methods
- Provides Company specific Information to help in improving Safety Performance
- Innovative statistical approach to identifying Leading Indicators from Metrics or Safety Culture from surveys
- Approach allows for benchmarking



www.eagle.org

ABS