

A photograph of an offshore oil rig at sunset. The rig is silhouetted against a sky with orange and yellow clouds. The rig's reflection is visible in the calm water below. The overall scene is serene and industrial.

Annual Performance Report

2019 Reporting Year

Thursday, September 24, 10:00am (CST)



Webinar Agenda



Opening Remarks

Russell Holmes, Center for Offshore Safety



SEMS Audit Results

Ajay Shah, Chevron



Safety Performance Indicators

Bridget Todd, Baker Hughes



Correlations and Observations

Brad Smolen, BP



Learning from Incidents and Events

Christy Lafferty, Oceaneering



Questions & Answers

Julia FitzGerald, Center for Offshore Safety



Welcome / Brief History

Russell Holmes, COS

4 Pillars of COS



**SEMS Audits and
Certificates**



**Good Practice
Development**



**Data Collection,
Analysis and
Reporting**



**Sharing Industry
Knowledge**

2019 ANNUAL PERFORMANCE REPORT

COS APR for the 2019 Reporting Year

- Seventh annual report
- COS Member Data Participation
 - 100% Operators
 - 88% Contractors
 - 44+ Million Work Hours
- Key Findings
 - 2 Incidents involving fatalities
 - 0 Level 1 or Level 2 Well Control Incidents
 - Uptick in Mechanical Lifting Incidents
 - 4 SEMS Elements account for majority of Non-Conformances and Areas for Concern reported to BSEE from 2017-2019



CENTER FOR
OFFSHORE
SAFETY

SEPTEMBER 2020

COS SAFETY SHARE

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COS SAFETY SHARE

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COS SAFETY SHARE

WHAT WILL WE DO TO PREVENT THIS FROM HAPPENING HERE?

LIFTING EYE UNEXPECTEDLY CAME FREE

What happened?

While rigging a centralizer plate using the well bay crane, the lifting eye assembly unexpectedly came free from the plate while under approximately 800lbs of lifting pressure. This caused the lifting eye to travel upwards approximately 30' then downwards and land on the grating below. The lifting eye remained attached to the crane rigging (lifting eye attached to the single leg nylon sling attached to the crane's wire rope). The lifting eye weighs 6 Gbs.

What went wrong?

- Legacy procedures not aligned with manufacturer recommendations.
- Procedures do not specify to torque to Swivel Hoist Rings specifications.
- Swivel Hoist Rings have proper torquing specification identified on each ring. Crews complete this task from memory.
- Hazard of swivel hoist ring breaking free during the lift was not recognized by personnel conducting the task...not recognized or discussed during the JSA by personnel conducting the task.
- Cone of exposure was not addressed during the JSA.

Why did it happen?

- Improper tools used to torque swivel hoist ring.
- Crews routinely complete a "pull test" of the Swivel Hoist Rings prior to attempting the centralizer lift. According to witness statements, this was completed by crews but did not identify that one ring was not properly tightened through proper torquing according to OEM specifications.
- Lack of Quality Assurance/Quality Control process for selection or installation of swivel hoist rings.
- Poor Toolbox QA/QC and general housekeeping of the tool bin.

What areas were identified for improvement?


- QA/QC requirement will be established for any customer-owned offshore equipment/tools on site and maintained by field inspection(s), calibration(s), or certification(s).
- The procedure updated. A two points lift is recommended during the lifting of each quadrant of the centralizer operation procedure.
- A diagram will be updated in the procedure to reflect dual lifting points and turn buckle areas.
- Held a Safety Stand Down with employees to discuss the hazards of selecting the wrong installation equipment, how to verify the correct selection was chosen during the visual inspection/installation, and proper tools to be used during the installation of swivel hoist rings.

2019018
NOTICE: CO you used a variety of of the after supports.
Changes 2 and/or other

2019009
NOTICE: CO you used a variety of of the after supports.
Changes 3 and/or other

2019005
NOTICE: COS Safety Shares are based on data, which may require by O.S. Operations and Construction at you and your crew. All has not verified the accuracy of equipment data and the use of equipment data in safety, while the engine or engine, or a measure of liability, with respect to the accuracy, completeness, or utility of the information contained herein. All is not intended to mean the duty of employees, the safety team, or equipment, use and properly use and use the equipment or other as required to health and safety risks.

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COS Safety Shares

- 10 new Safety Shares
 - Based on LFI reports
 - Available at www.centerforoffshoresafety.org

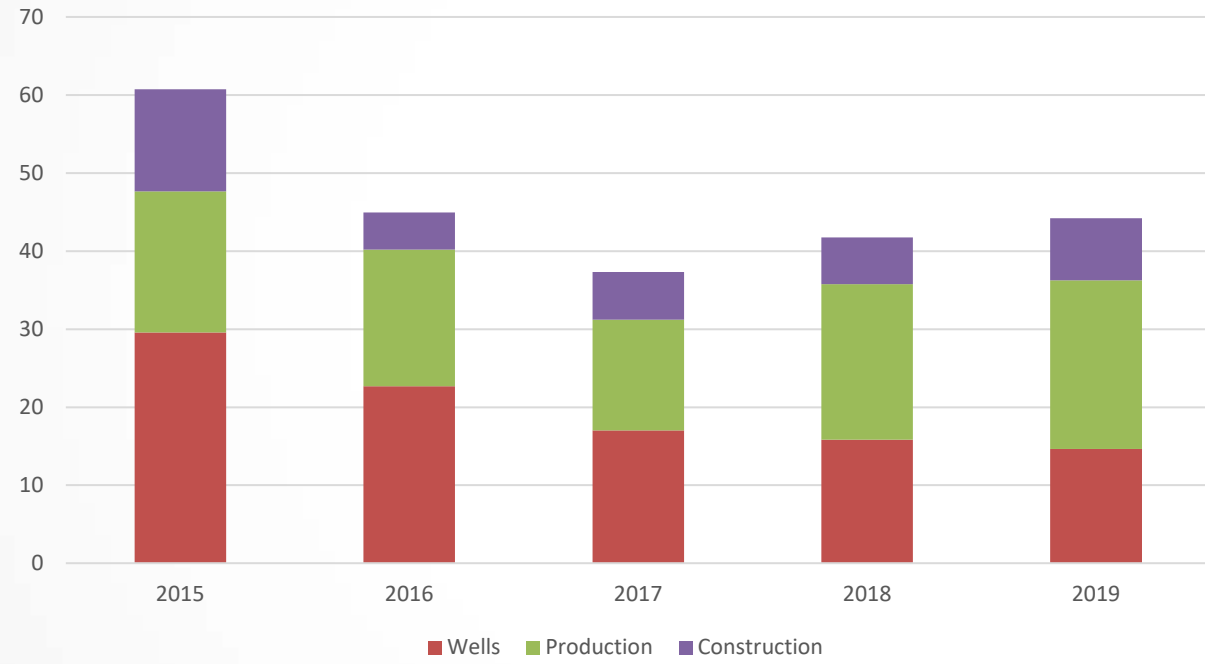


Safety Performance Indicators

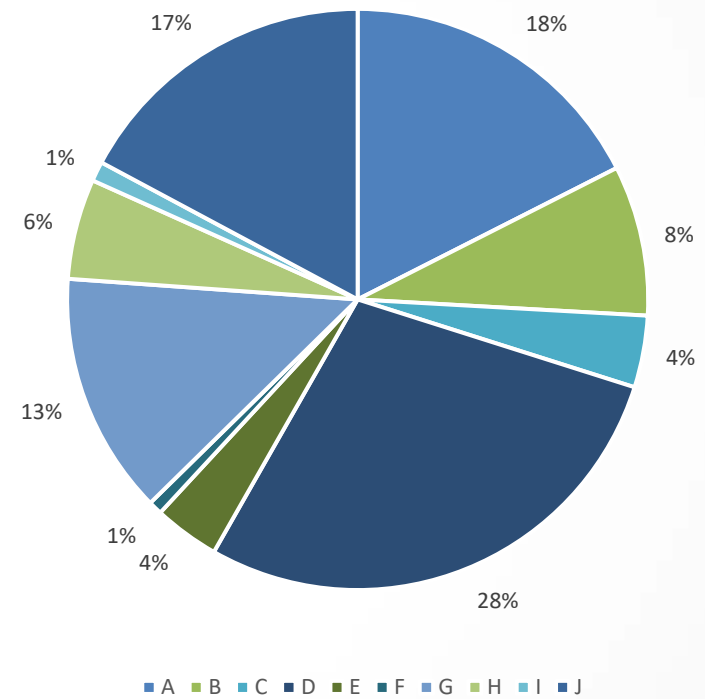
Bridget Todd, Baker Hughes

Work Hours (Normalization Factor)

Work Hours (Millions) by Operation Type



Work Hours by Company



SPI 1-2

SPI 1 is the frequency of incidents that resulted in one or more of the following:

- Fatality
- Five or more injuries in a single incident
- Tier 1 process safety event
- Level 1 Well Control Incident - Loss of well control
- \geq \$1 million direct cost from damage to or loss of facility, vessel and/or equipment
- Oil spill to water \geq 10,000 gallons (238 barrels)

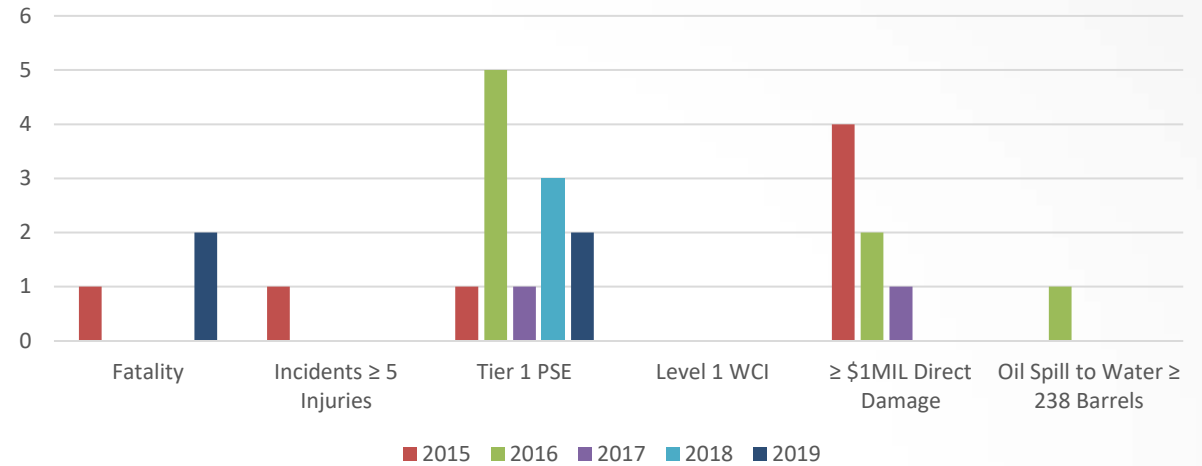
SPI 2 is the frequency of incidents that do not meet the SPI 1 definition but have resulted in one or more of the following:

- Tier 2 process safety event
- Collision resulting in property or equipment damage \geq \$25,000
- Mechanical Lifting or Lowering Incident
- Loss of station keeping resulting in a drive off or drift off
- Life boat, life raft, rescue boat event
- Level 2 Well Control Incident - Multiple Barrier Systems Failures and Challenges

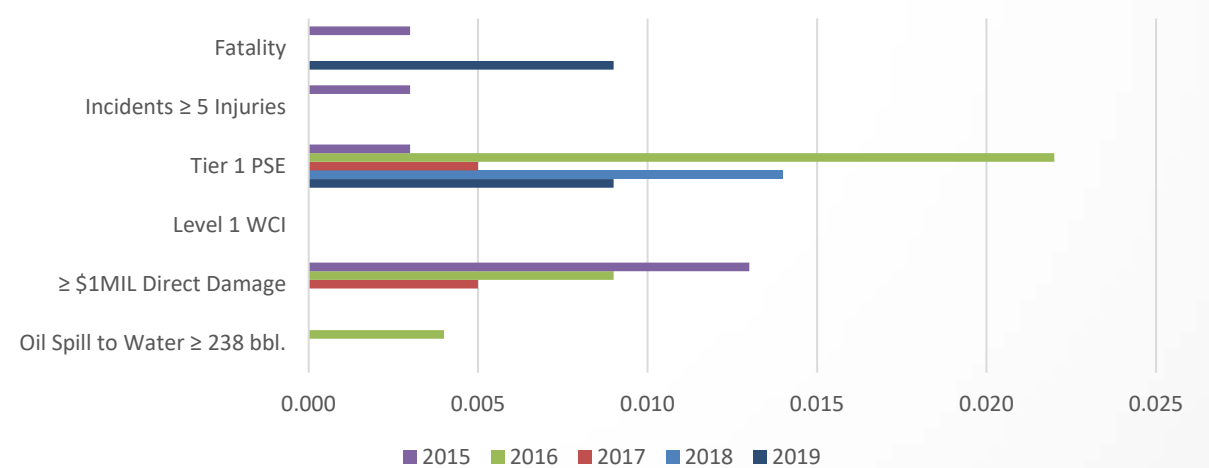
SPI 1

- 1A – 2 Incidents involving 1 or more fatalities
- 1B – 0 Incidents with Injuries to 5 or More
- 1C – 2 Tier 1 Process Safety Events (PSE)
- 1D – 0 Level 1 Well Control Incidents
- 1E – 0 Incidents resulting in damage \geq \$1MIL
- 1F – 0 Oil Spills to water \geq 238 bbl

SPI 1 Incident Count per Sub-Group



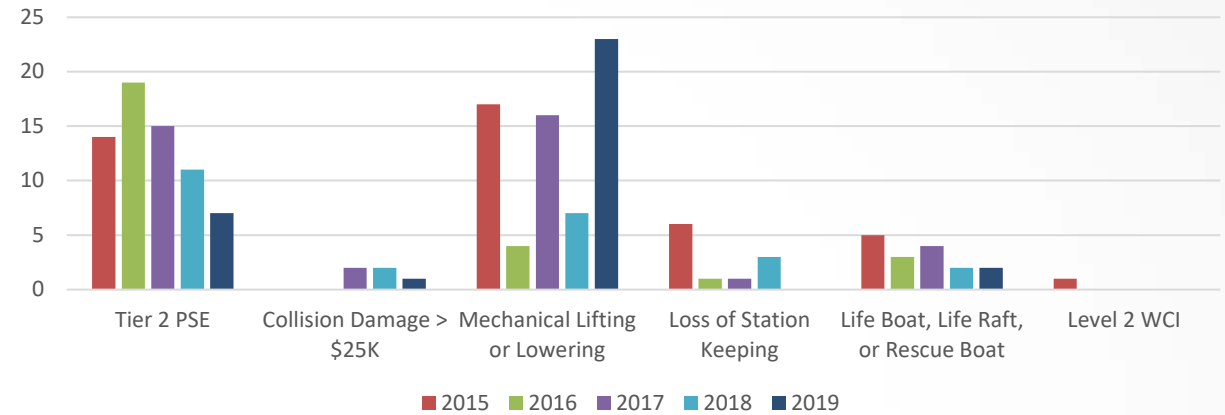
SPI 1 Incident Frequency per Sub-Group



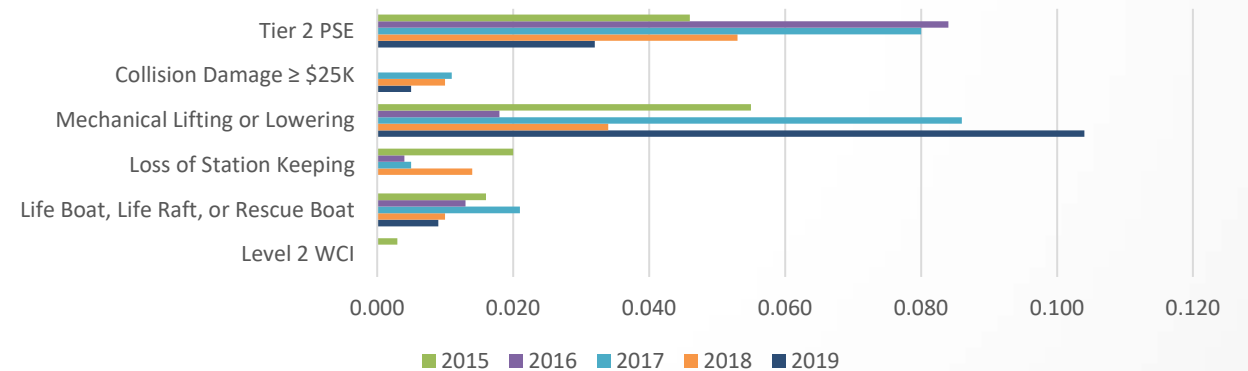
SPI 2

- 2A – 7 Tier 2 PSE
- 2B – 1 Collision Damage \geq \$25,000
- 2C – 23 Mechanical Lifting Incidents
- 2D – 0 Loss of Station Keeping
- 2E – 2 Life Boat, Life Raft, Rescue Boat Incidents
- 2F – 0 Level 2 Well Control Incidents

SPI 2 Incident Count per Sub-Group



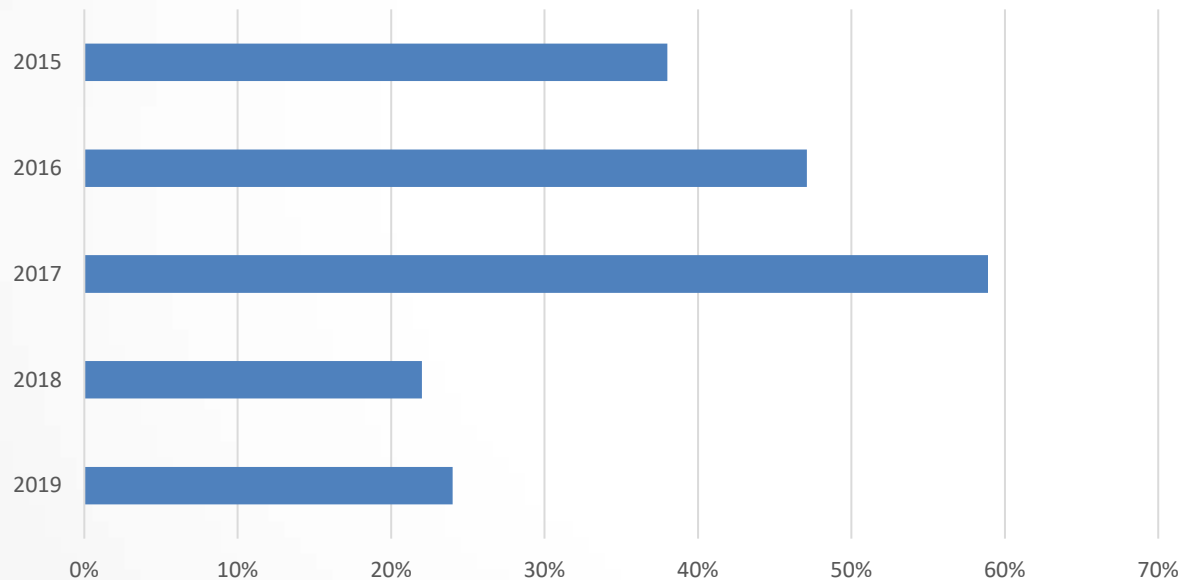
SPI 2 Incident Frequency per Sub-Group



SPI 3

SPI 3 is the number of SPI 1 and SPI 2 incidents that involved failure of one or more pieces of equipment as a contributing factor.

Equipment Failure as Contributing Factor

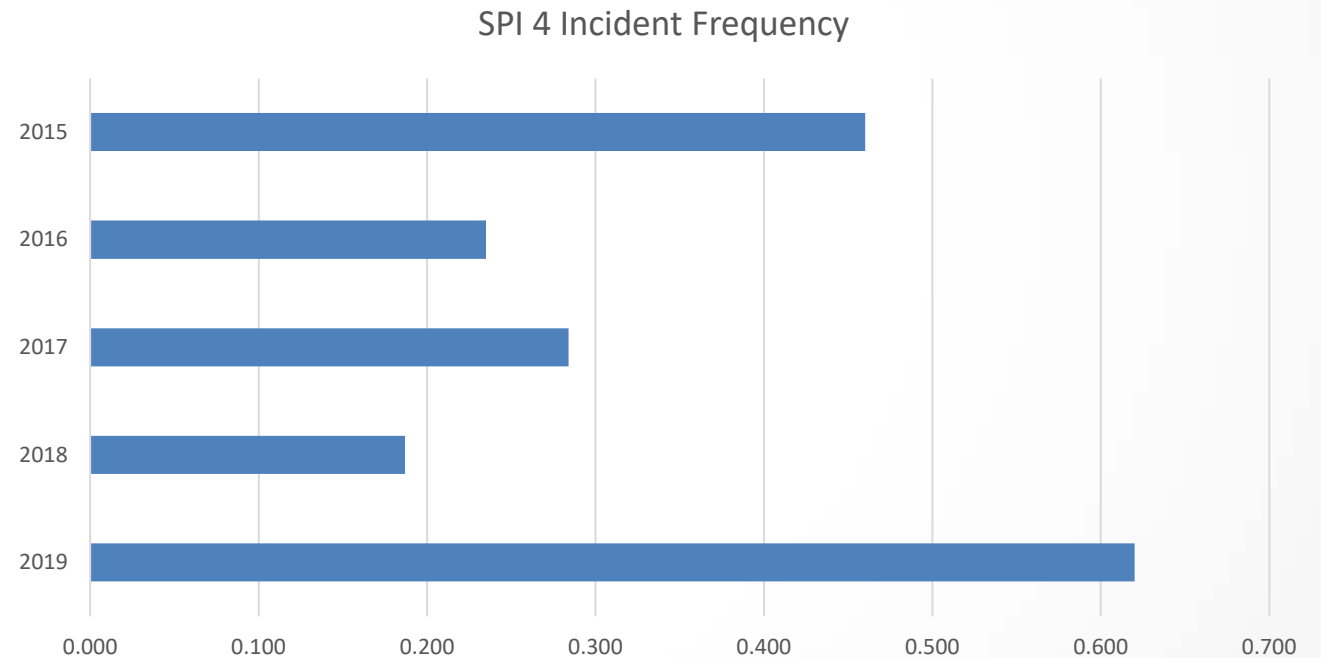


- 37 SPI 1 and SPI 2 Incidents Reported
- 9 (24%) of those 37 cited failure of equipment as a contributing factor
- 5 (56%) of those 9 involved Mechanical Lifting Equipment / Personnel Transport Systems

SPI 4

SPI 4 is a crane or personnel/material handling operations incident.

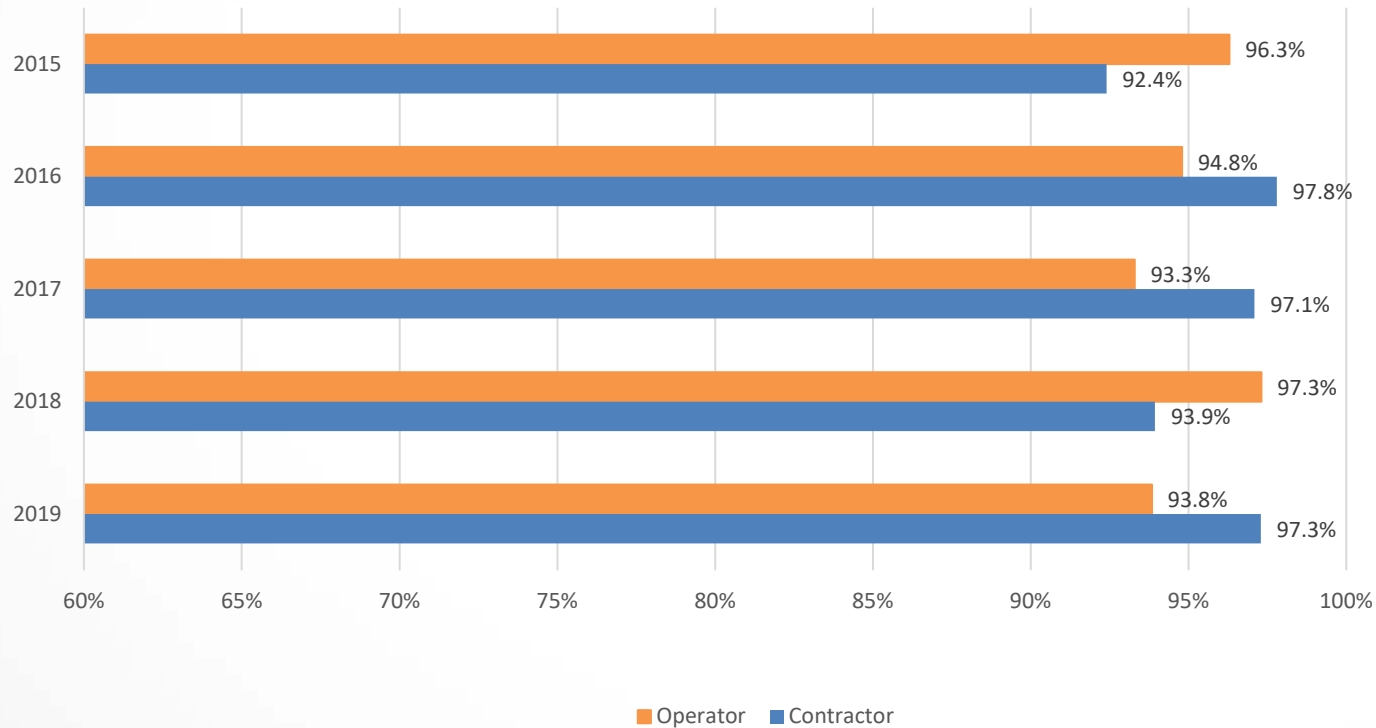
- Highest frequency of SPI 4 reported from 2015-2019
- 137 SPI 4 reported for 2019
 - 38 for 2018; 53 for 2017
 - 102 (74%) of incidents reported were from 2 Operators



SPI 5

SPI 5 is the percentage of planned critical maintenance, inspection and testing (MIT) completed on time. Planned critical MIT deferred with a formal risk assessment and appropriate level of approval is not considered overdue.

Percentage of Planned Critical MIT Completed on Time



- Combined Operator and Contractor avg for 2019 – 94.9%
- Slightly down from 2018 combined avg – 96.7%

SPI 6-9

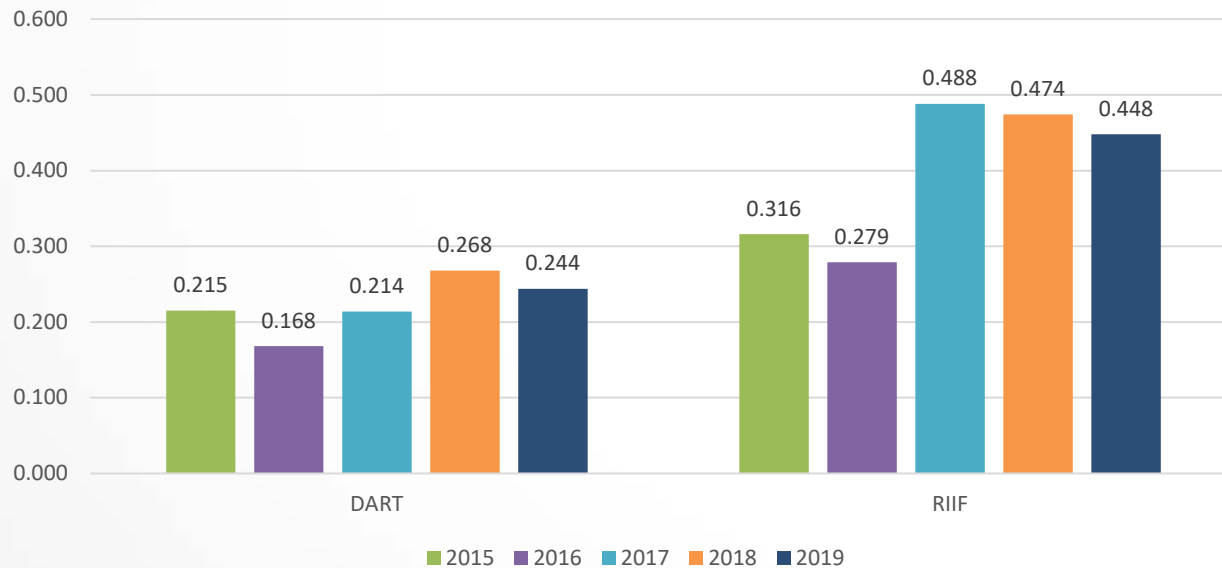
SPI 6 is number of work-related fatalities

SPI 7 is the frequency of days away from work, restricted work, and job-transfer injuries and illnesses (DART)

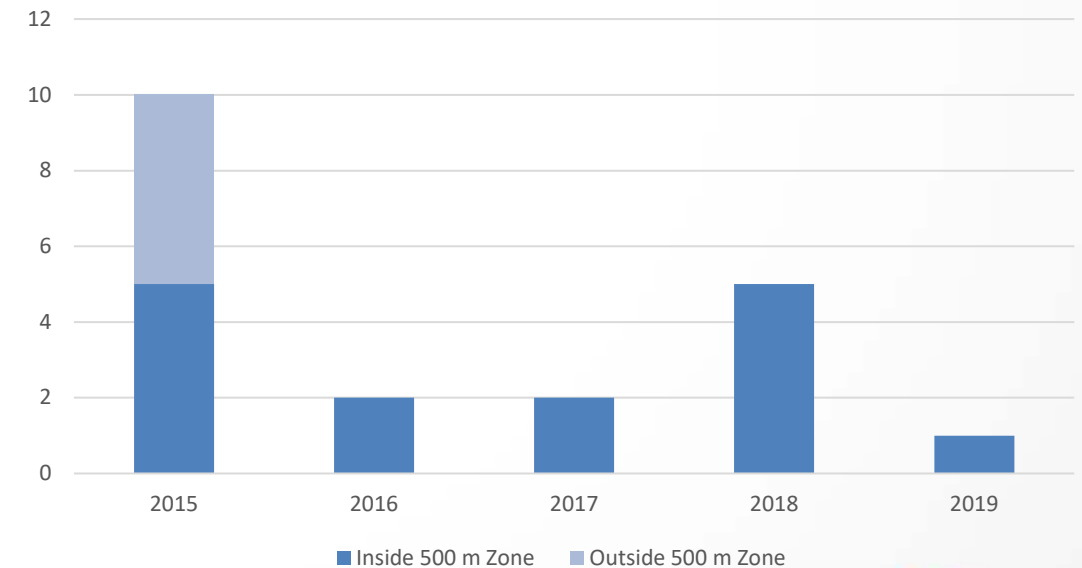
SPI 8 is the frequency of recordable injuries and illnesses (RIIF)

SPI 9 is the frequency of oil spills to water ≥ 1 barrel

DART and RIIF



Oil Spill to Water ≥ 1 bbls

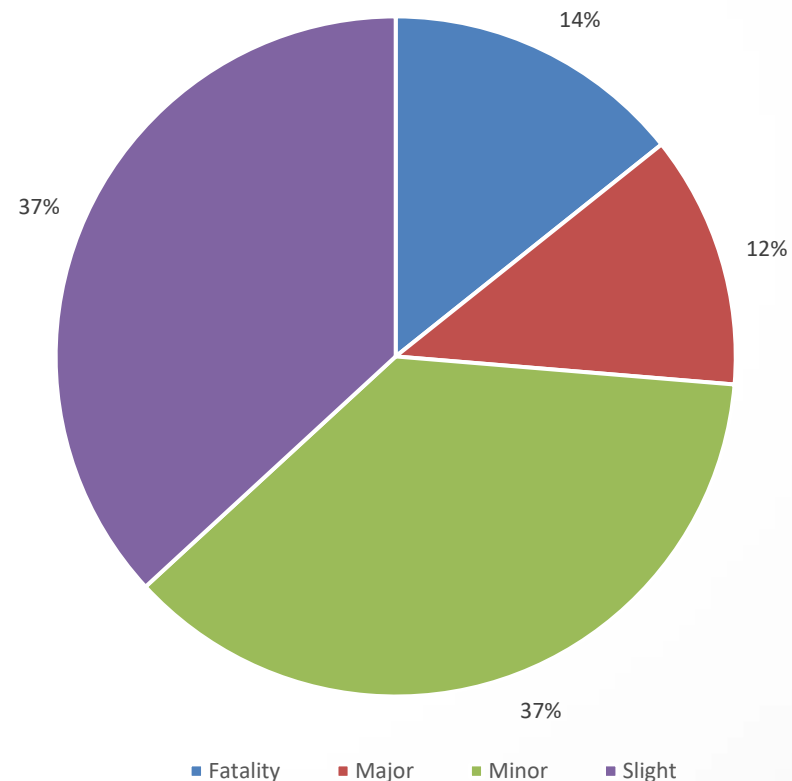


SPI 10

SPI 10 is the severity *potential* of incidents involving a dropped object

- NEW for 2019 APR
- Based on definitions developed by the [DROPSOnline](#) network
- 266 Dropped Objects reported
 - 98 Slight injury potential
 - 98 Minor injury potential
 - 38 Major injury potential
 - 32 Fatal injury potential

Dropped Objects Potential (*not actual*) Results



COS SAFETY SHARE

WHAT WILL WE DO TO PREVENT THIS FROM HAPPENING HERE?

STORED 2,500 Lb ELEVATOR LINKS DESCEND 69" TO DECK

What happened?

A worker was attaching a shipping label to a wash sub located on a horizontal storage rack in the pipe rack area. While the worker was attaching the label, the 18' elevator links stored above the wash sub shifted, and one end of the links descended to the deck. The worker was within 24 inches of the elevator links but was able to retreat without any injuries. The elevator links weigh 2,500 lbs each and fell 69 inches. Drops calculator potential outcome is fatality.

What went wrong?

The 18' elevator links were stored in the rack with eyes resting vertical on the horizontal members. The rack was too wide for the 18' length of the elevator links. The rack used in this event is intended for storage of 22' length elevator links. Tripping Pipe operations on the rig floor causes vibrations to the area.

Why did it happen?

There was no procedure, markings or otherwise formally set requirements detailing proper storage arrangements. A lack of formal guidance requiring identification and use of approved storage arrangements for the elevator links resulted in crews placing equipment in areas of opportunity and normalization of risk. The storage rack is in a well-travelled area but personnel did not recognize unsafe condition.

What areas were identified for improvement?

Develop specific storage arrangement for elevator links that are appropriate for length and weight that prevent bail from becoming unstable and falling. Survey locations for other similar equipment that may pose a drops risk if improperly stored and establish approved designated storage arrangements. Storage racks, shelving, etc. with the potential to be loaded beyond capacity should be labeled with the safe working limit to prevent overloading.

2019009

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COS Safety Share

STORED 2,500 Lb ELEVATOR LINKS DESCEND 69" TO DECK





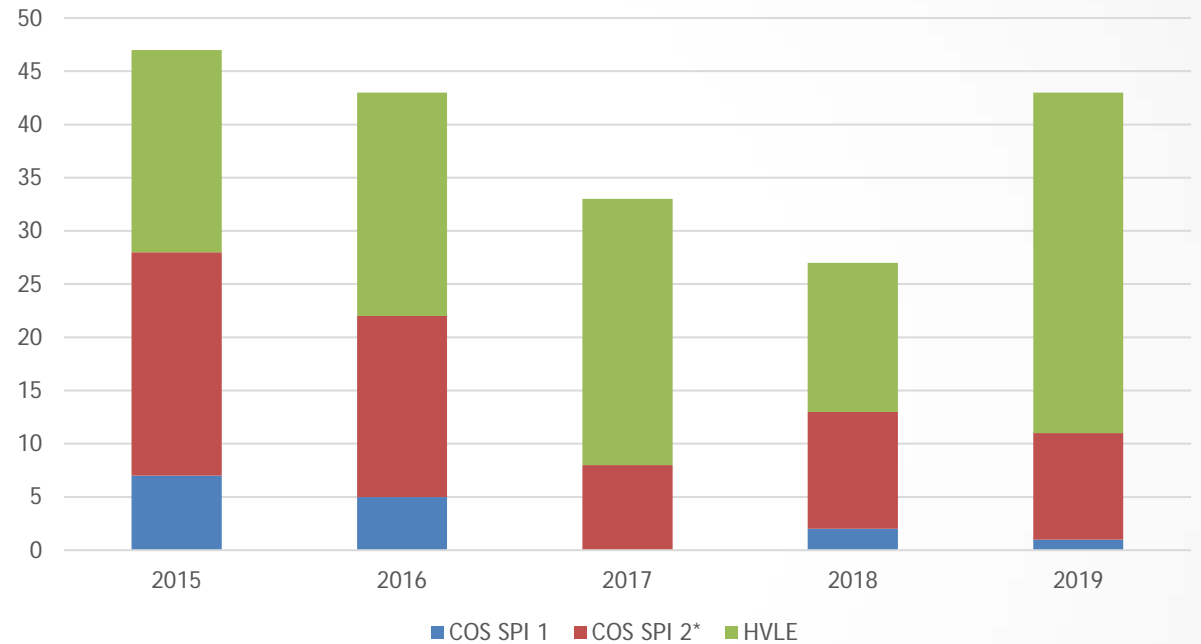
Learning from Incidents & Events

Christy Lafferty, Oceaneering

Learning from Incidents & Events (LFI) – U.S. OCS

- SPI 1 & SPI 2 Incidents
- High Value Learning Events (HVLE)
 - *HVLE is an event that may be considered by a COS member or the industry for use as a reference in process hazard analyses, management of change, project design, risk assessment, inspection, operating procedures review and / or training.*

SPI 1 - SPI 2 - HVLE



Year	2015	2016	2017	2018	2019
COS SPI 1	7	5	0	2	1
COS SPI 2*	21	17	8	11	10
HVLE	19	21	25	14	32
TOTAL	47	43	33	27	43



Areas for Improvement (AFI)



Physical Facility, Equipment, and Process

- *Process or Equipment Design or Layout*
- *Process or Equipment Material Specification, Fabrication and Construction*
- *Process or Equipment Reliability*
- *Instrument, Analyzer and Controls Reliability*



Administrative Processes

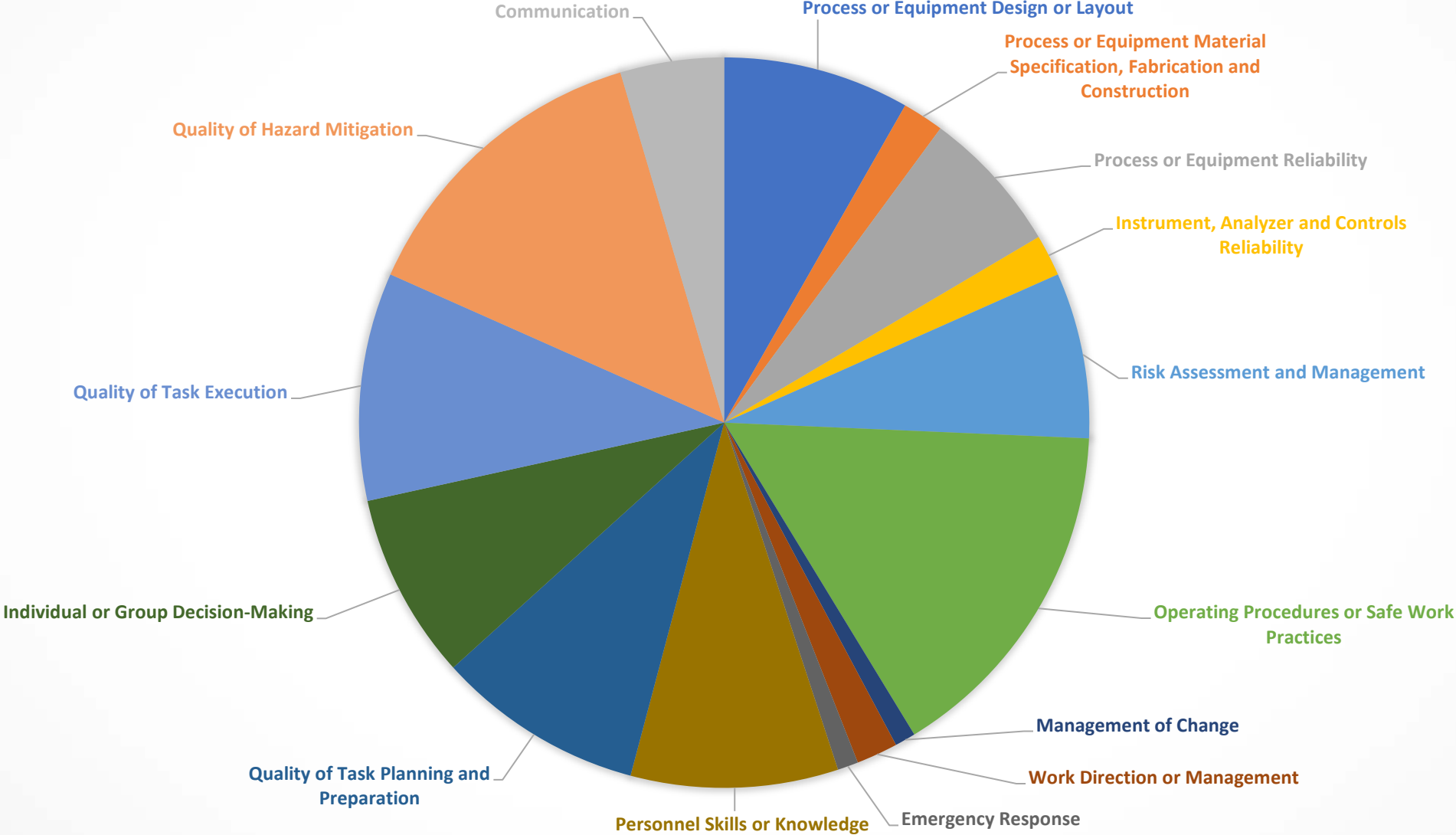
- *Risk Assessment and Management*
- *Operating Procedures or Safe Work Practices*
- *Management of Change*
- *Work Direction or Management*
- *Emergency Response*



People

- *Personnel Skills or Knowledge*
- *Quality of Task Planning and Preparation*
- *Individual or Group Decision Making*
- *Quality of Task Execution*
- *Quality of Hazard Mitigation*
- *Communication*

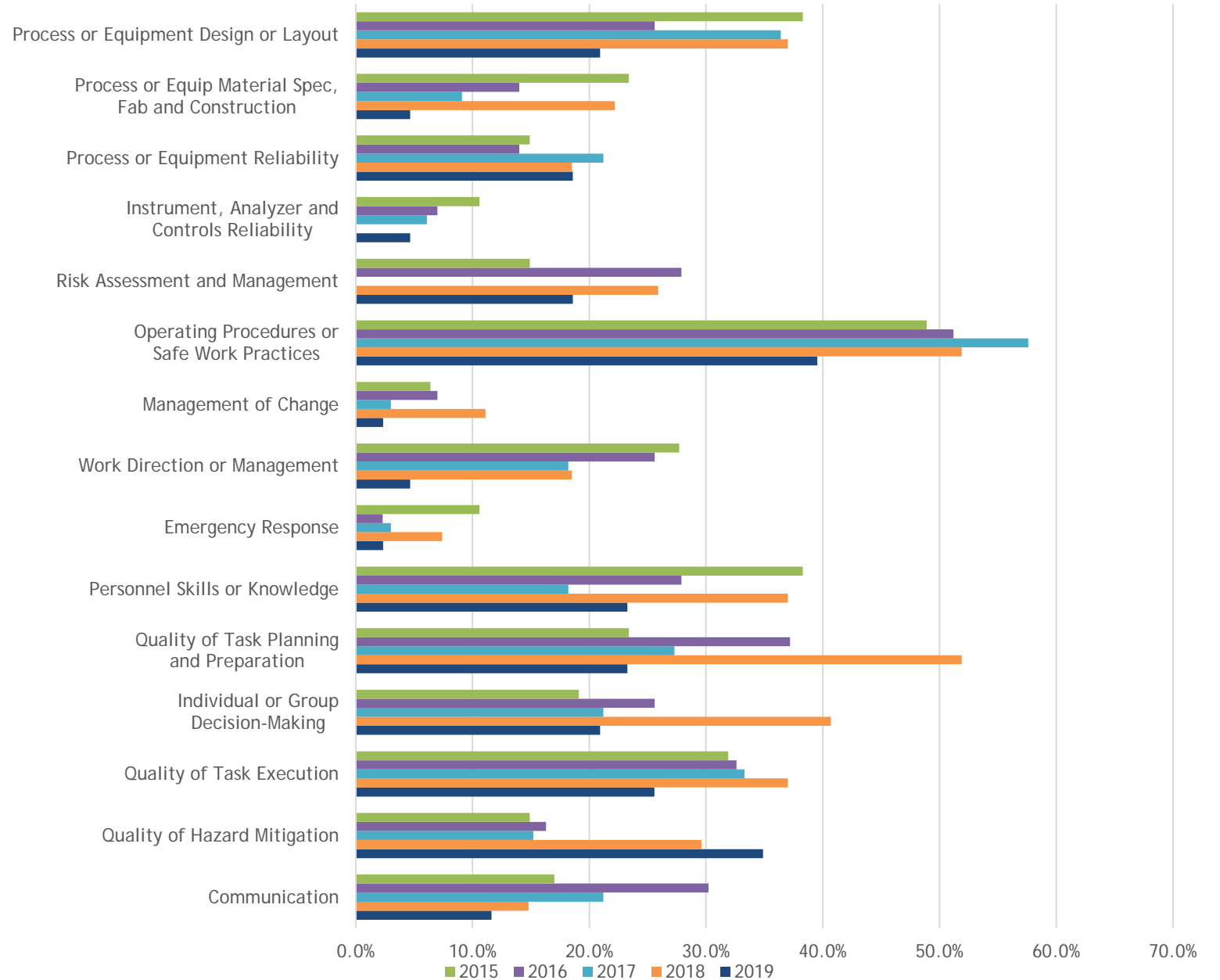
2019 Areas for Improvement – U.S. OCS



AFI - All

U.S. OCS
2015-2019

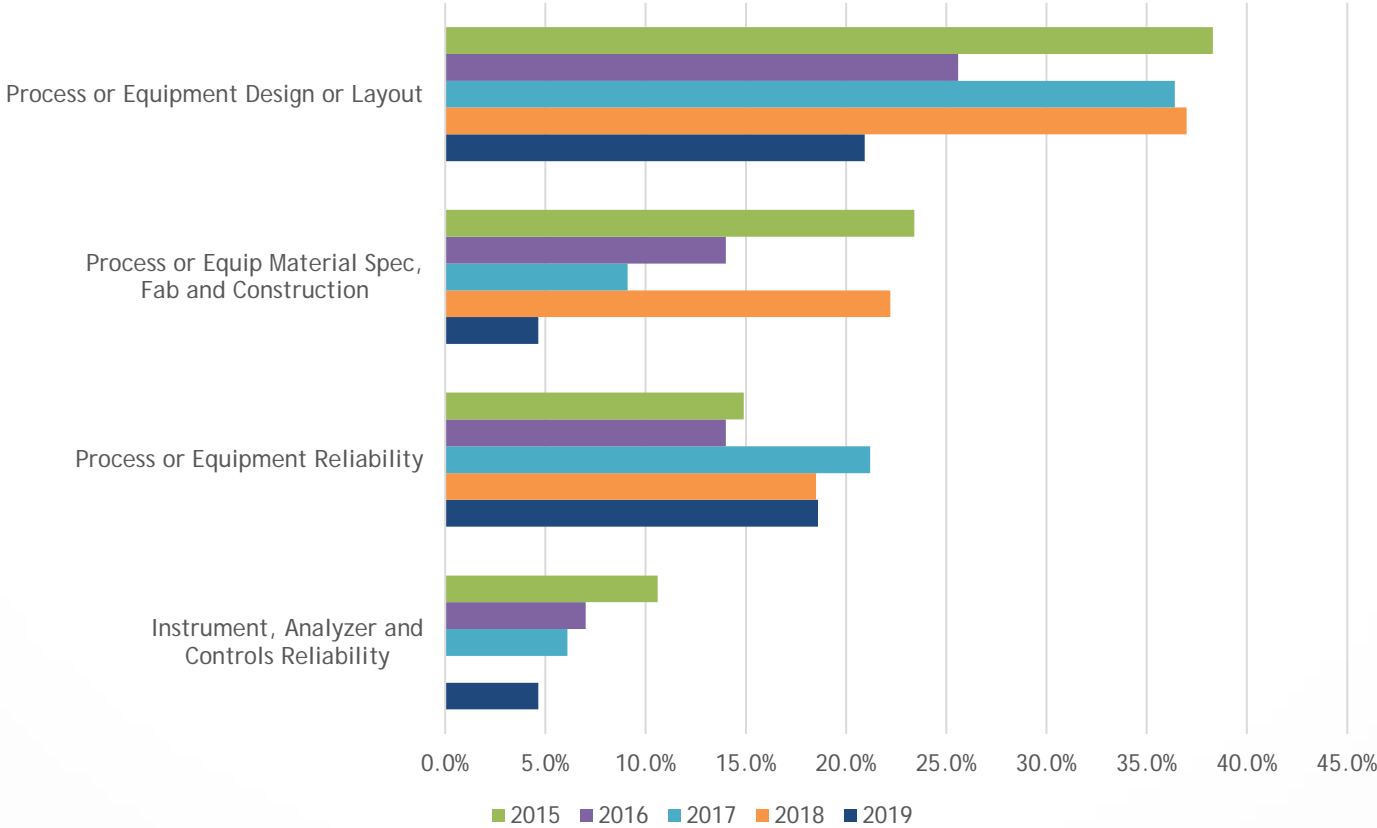
Areas for Improvement Distribution (US OCS only)



AFI - Physical Facility, Equipment and Process

U.S. OCS 2015-2019

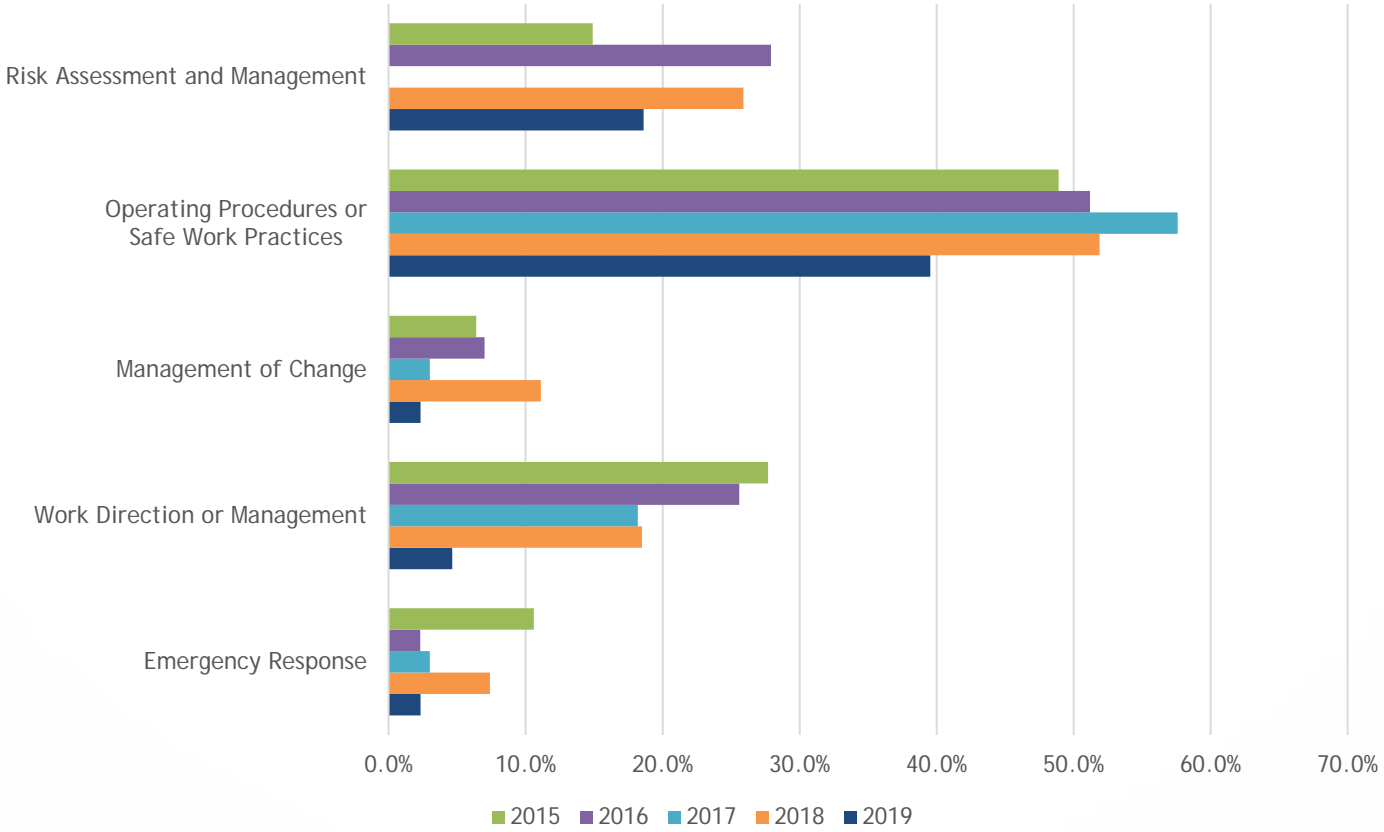
Areas for Improvement - Facility/Equipment



AFI - Administrative Processes

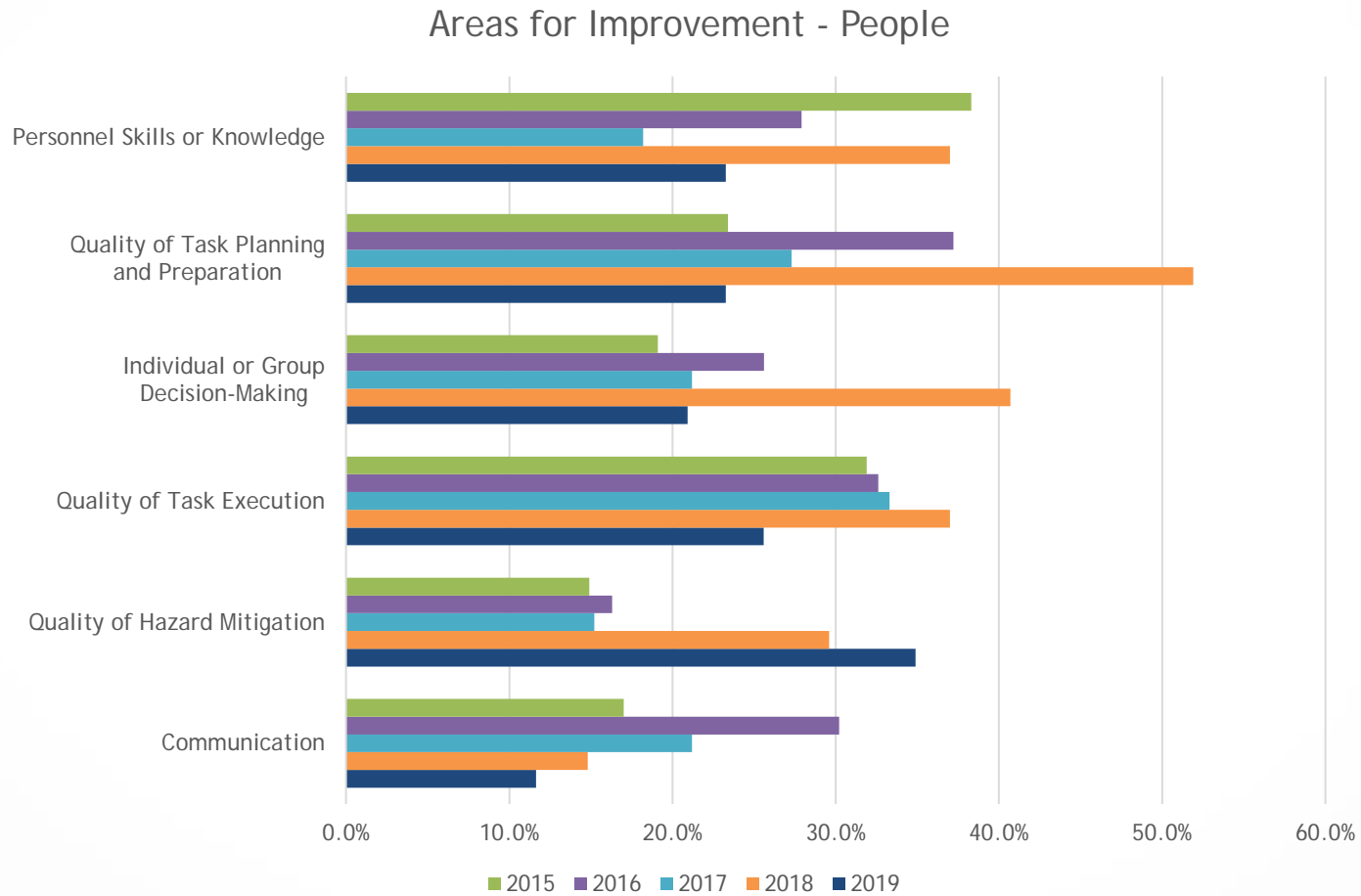
U.S. OCS 2015-2019

Areas for Improvement - Administrative Processes



AFI - People

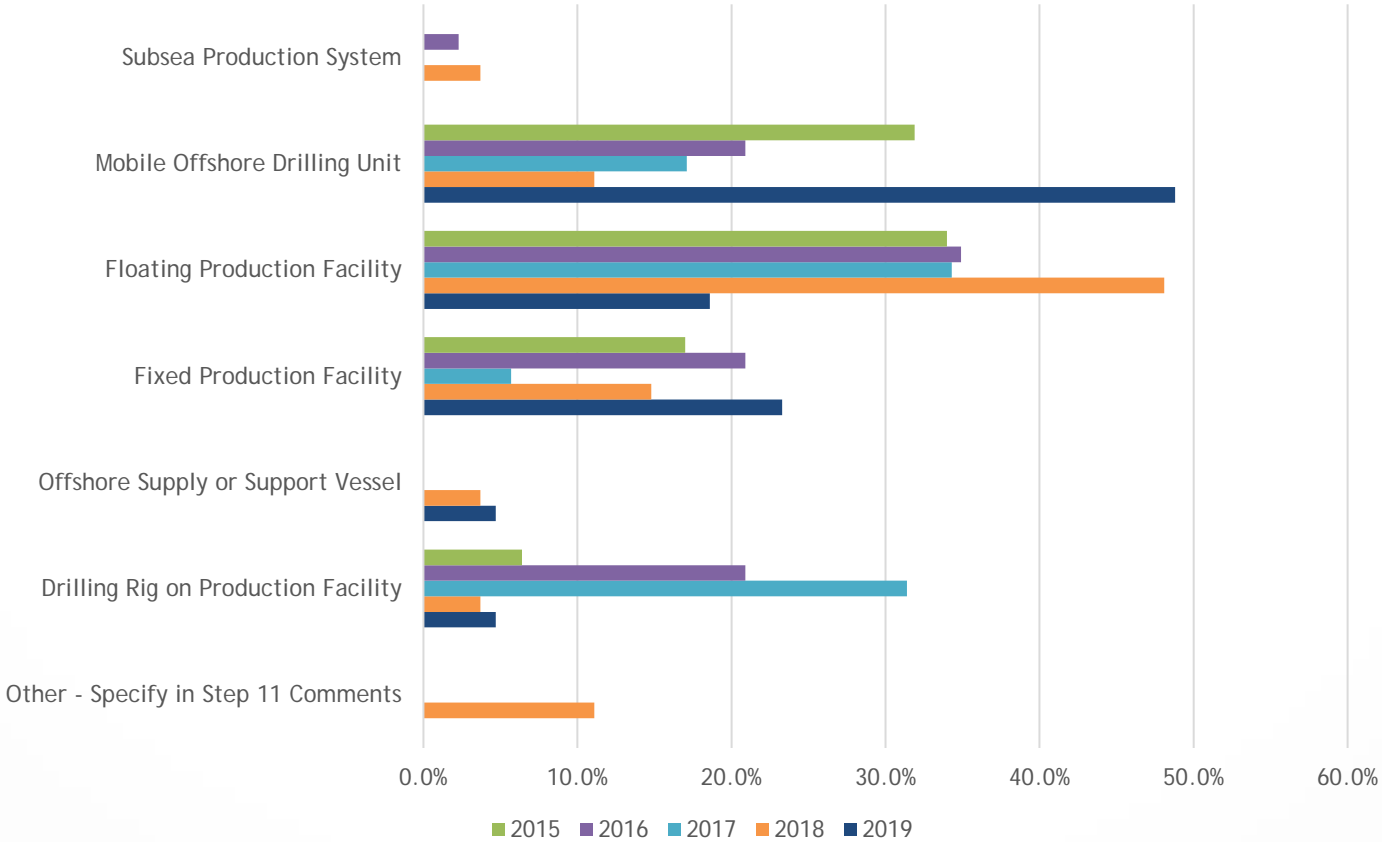
U.S. OCS 2015-2019



LFI Reports by Site Type

U.S. OCS 2015-2019

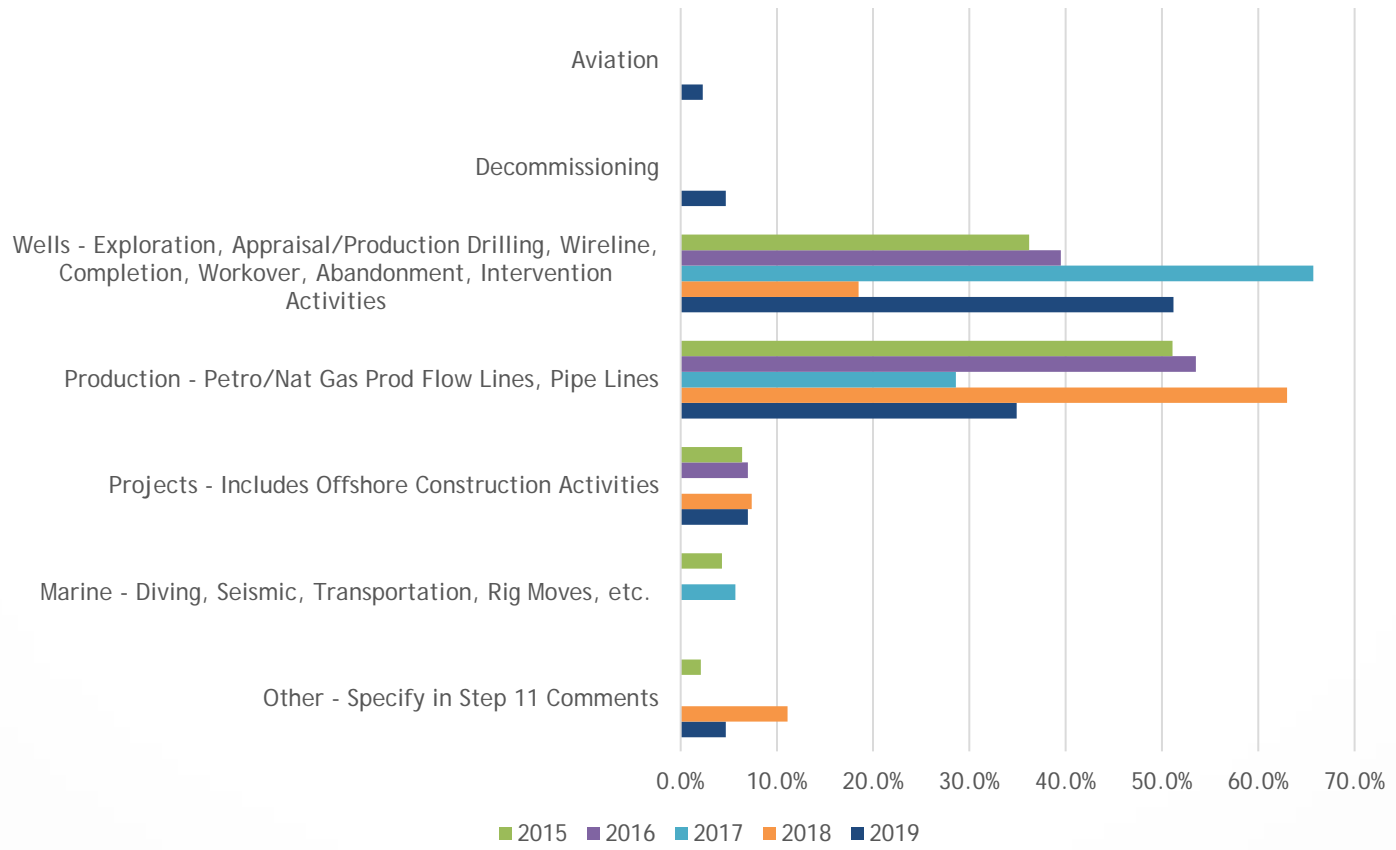
LFI Incident and HVLE Site Type Distribution



LFI Reports by Operation Type

U.S. OCS 2015-2019

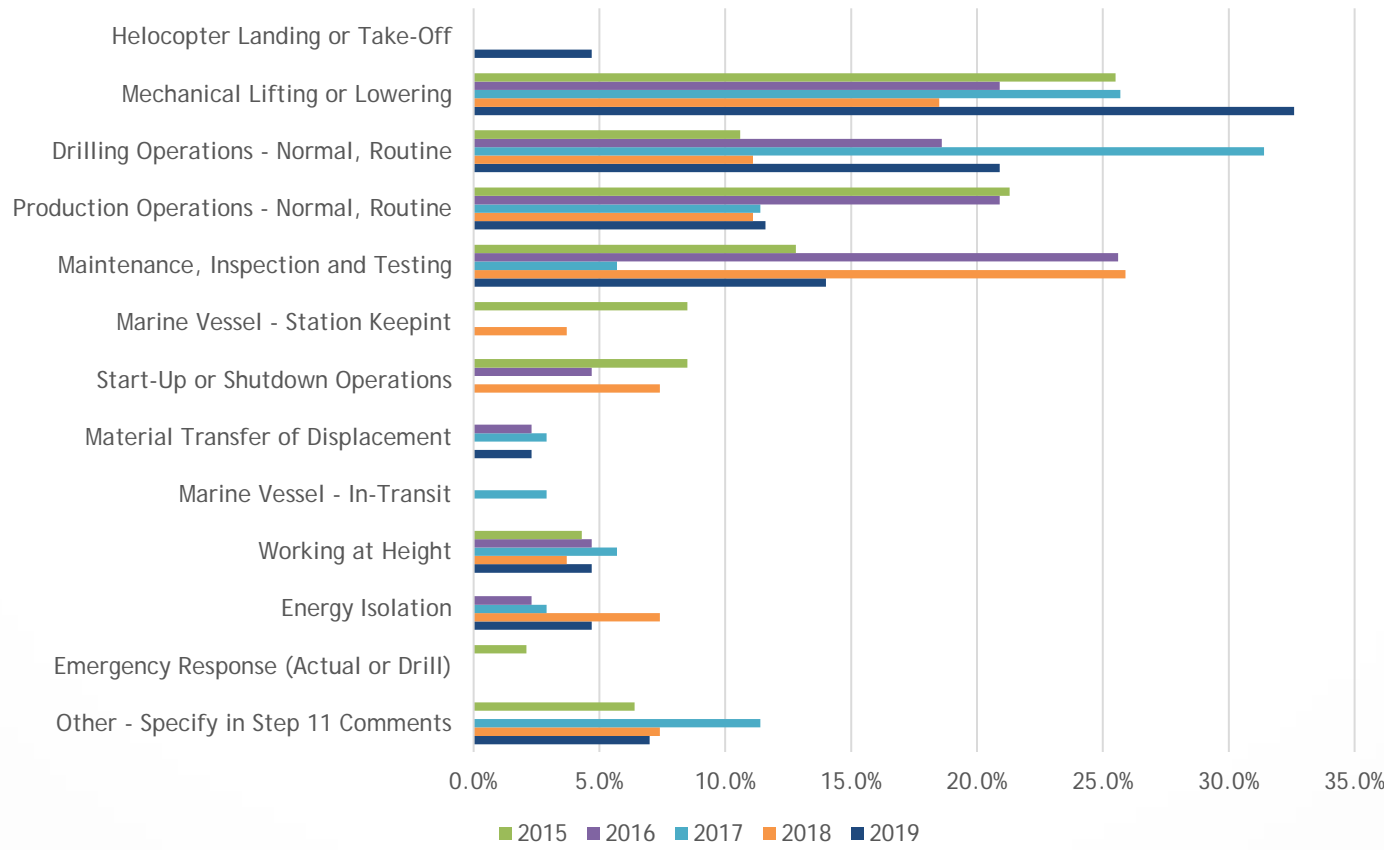
LFI Incident and HVLE Operation Type Distribution



LFI Reports by Activity Type

U.S. OCS 2015-2019

LFI Incident and HVLE Activity Type Distribution



COS SAFETY SHARE

WHAT WILL WE DO TO PREVENT THIS FROM HAPPENING HERE?

LIFTING EYE UNEXPECTEDLY CAME FREE

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What went wrong?

- Legacy procedures not aligned with manufacturer recommendations.
- Procedures do not specify to torque to Swivel Hoist Rings specifications.
- Swivel Hoist Rings have proper torquing specification identified on each ring. Crews complete this task from memory.
- Hazard of swivel hoist ring breaking free during the lift was not recognized by personnel conducting the task...not recognized or discussed during the JSA by personnel conducting the task.
- Cone of exposure was not addressed during the JSA.

Why did it happen?

- Improper tools used to torque swivel hoist ring.
- Crews routinely complete a "pull test" of the Swivel Hoist Rings prior to attempting the centralizer lift. According to witness statements, this was completed by crews but did not identify that one ring was not properly tightened through proper torquing according to OEM specifications.
- Lack of Quality Assurance/Quality Control process for selection or installation of swivel hoist rings.
- Poor Toolbox QA/QC and general housekeeping of the tool bin.

What areas were identified for improvement?

- QA/QC requirement will be established for any customer-owned offshore equipment/tools on site and maintained by field inspection(s), calibration(s), or certification(s).
- The procedure updated: A two points lift is recommended during the lifting of each quadrant of the centralizer operation procedure.
- A diagram will be updated in the procedure to reflect dual lifting points and turn buckle areas.
- Held a Safety Stand Down with employees to discuss the hazards of selecting the wrong installation equipment, how to verify the correct selection was chosen during the visual inspection/installation, and proper tools to be used during the installation of swivel hoist rings.

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2019005

COS Safety Share

LIFTING EYE UNEXPECTEDLY CAME FREE



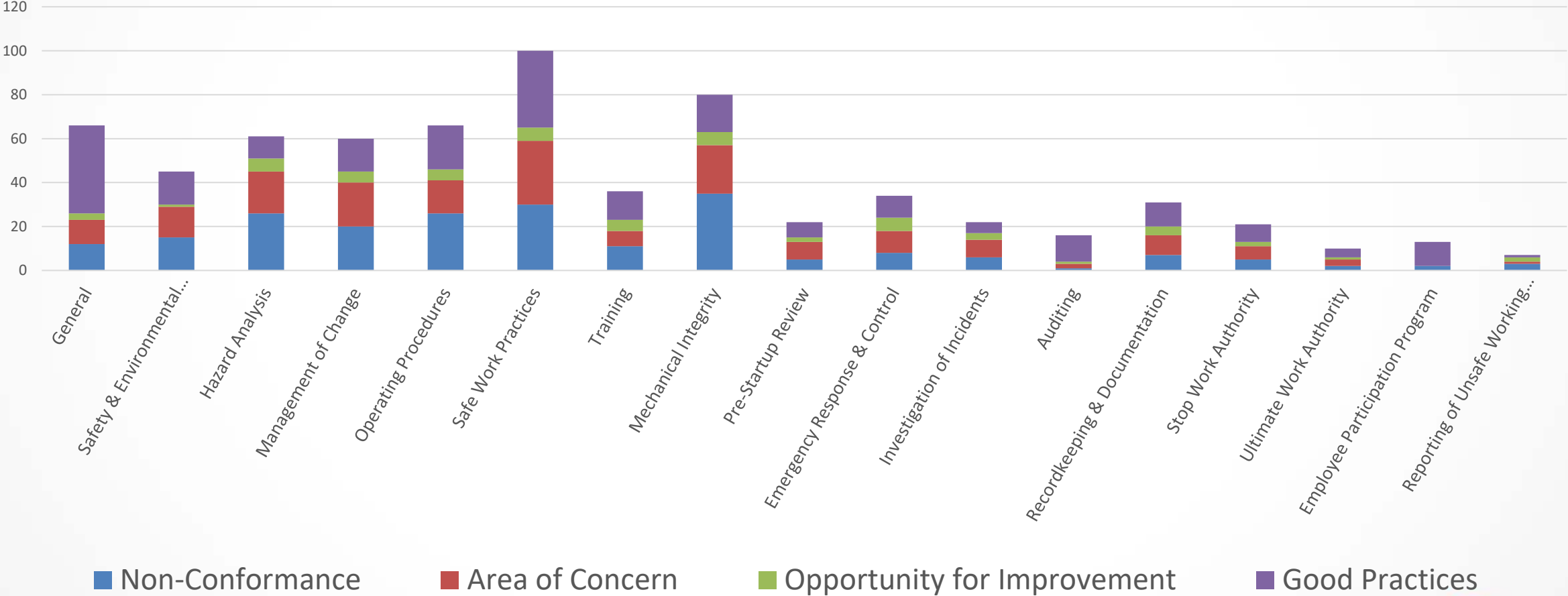


SEMS Audit Data

Ajay Shah, Chevron

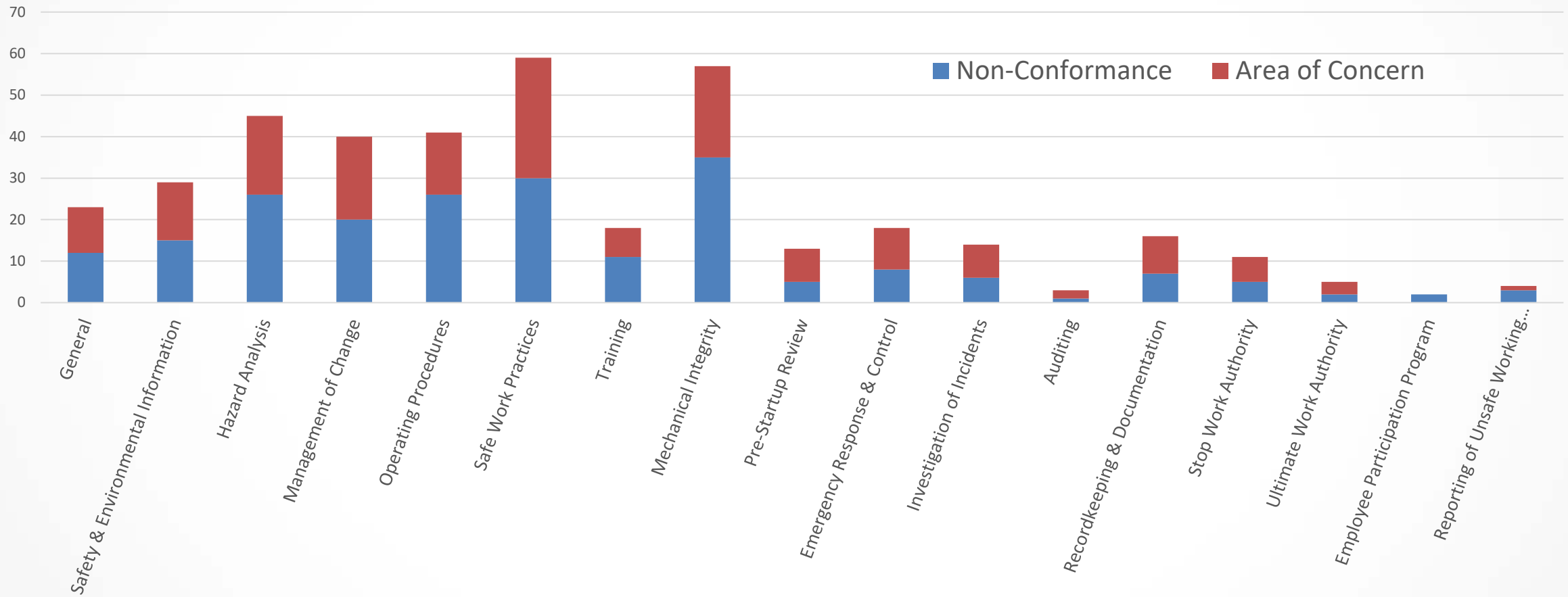
SEMS Audit Findings by Element Type

Findings by SEMS Element and Finding Type

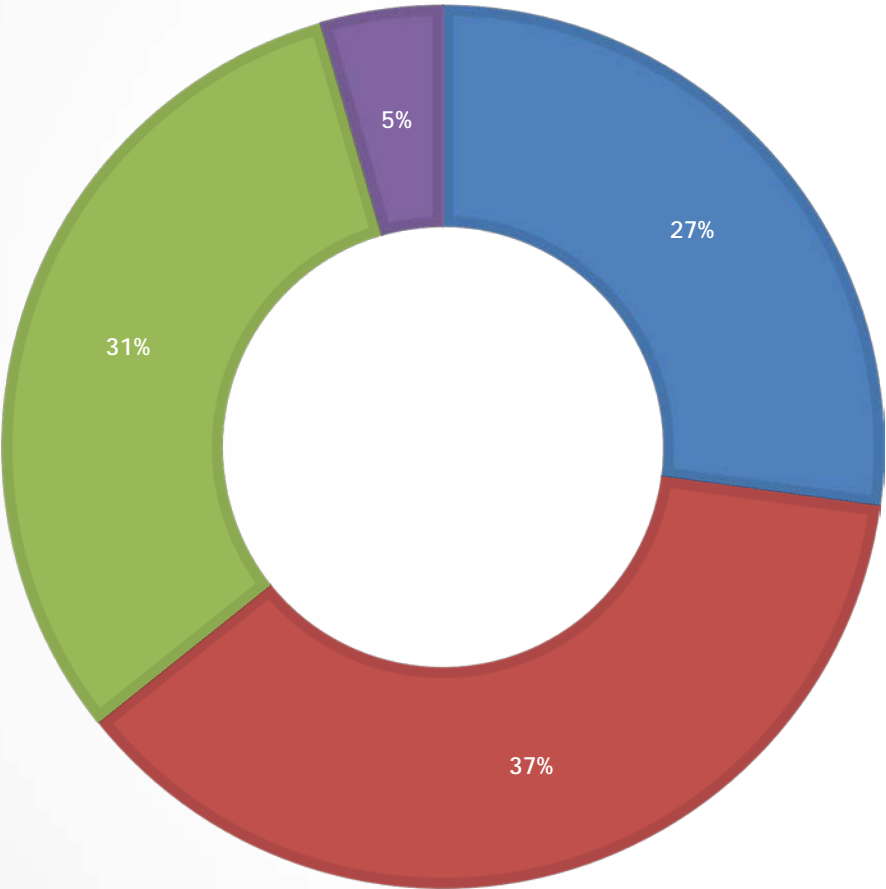


Deficiencies by SEMS Element

Deficiencies by SEMS Element



SEMS Audit Findings by SEMS Maturity Phase



Establish
Do you say what you do?

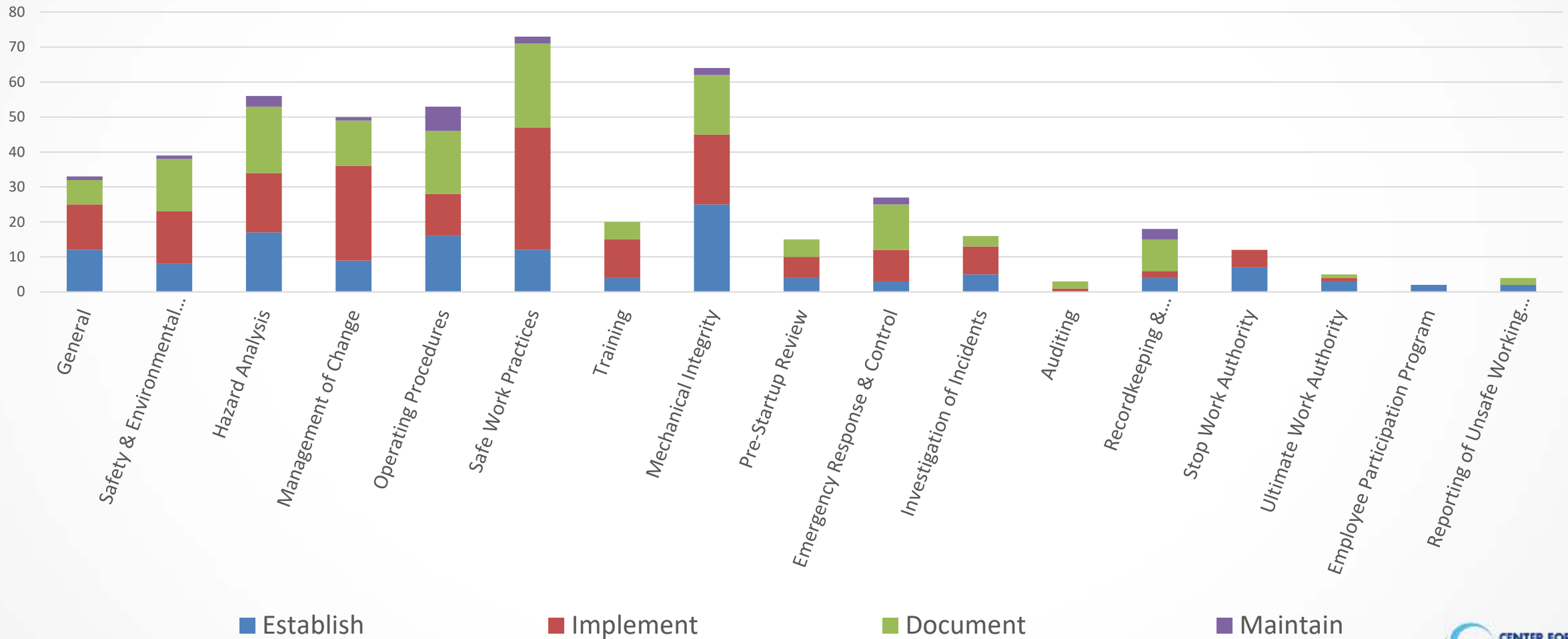
Implement – pt 1
Do you do what you say?

Implement – pt 2 (Document)
Do you document what you do, update documents appropriately, and provide access to the right people?

Maintain
Do you confirm your SEMS is working as designed and review and act when you say you will?

Deficiencies by SEMS Maturity Phase per SEMS Element

Deficiencies by SEMS Maturity Phase per SEMS Element



COS SAFETY SHARE

WHAT WILL WE DO TO PREVENT THIS FROM HAPPENING HERE?

HELICOPTER OPERATIONS - ROTOR WASH HAZARD

What happened?

During helicopter operations on a support vessel which was stationed outside of the 500m safety zone, a rotor wash from a helicopter caused the protective lid of the halo rotor box weighing 21.3 lbs. to lift and fall approximately 75 ft. into the water on the starboard side of the vessel. Per normal operations, no personnel were in the vicinity of the helideck during helicopter final approach.

What went wrong?

The box cover that was affected by the rotor wash was not adequately secured.

Why did it happen?

The investigation identified multiple opportunities for the organization to learn from past internal and external similar events. Despite repeated risk assessments, risk reviews, deep dives etc. Neither Operator, the Support Vessel Contractor, or the Aircraft Operator identified rotor wash as a significant hazard.

What areas were identified for improvement?

The pre-arrival inspection for helicopter operations needs to be specific and sufficient to cover the hazard identified from a process hazard analysis.

Aviation Risk is predominantly focused on aircraft crash, and the threat of hazardous rotor wash has not been included in any formal risk assessment.

Multiple leadership teams missed opportunities to learn from previous internal and external events, and improvements in industry practices.

2019018

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COS Safety Share

HELICOPTER OPERATIONS – ROTOR WASH HAZARD

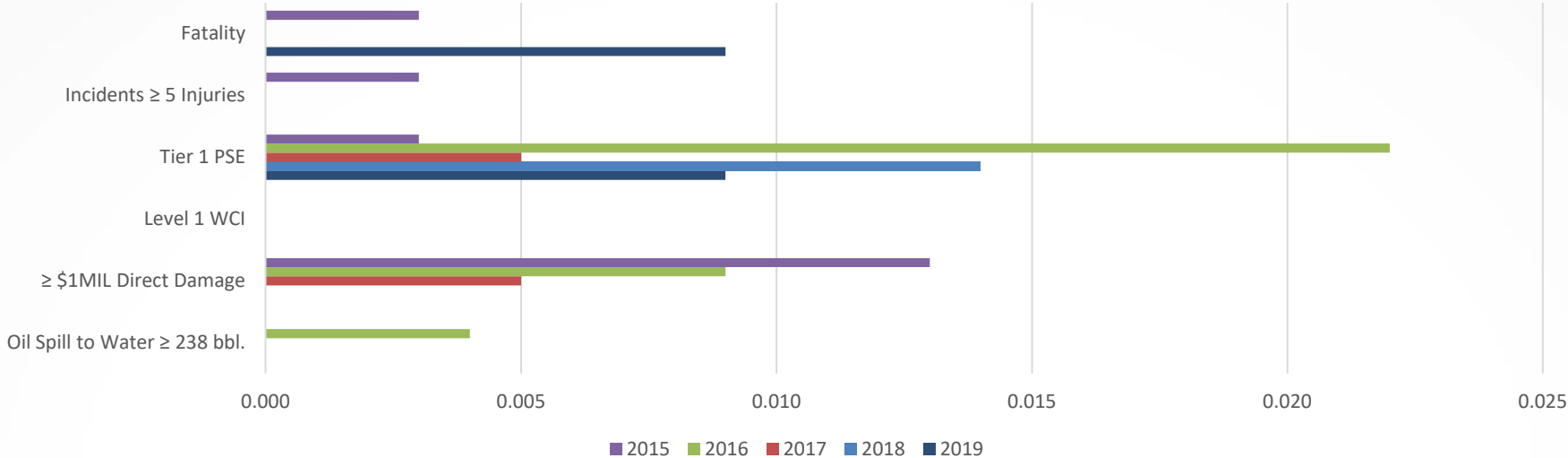


An offshore oil rig is visible in the background, partially obscured by a large blue geometric shape that frames the text. The rig is a complex structure with various levels, pipes, and a tall derrick, situated in the middle of the ocean under a cloudy sky.

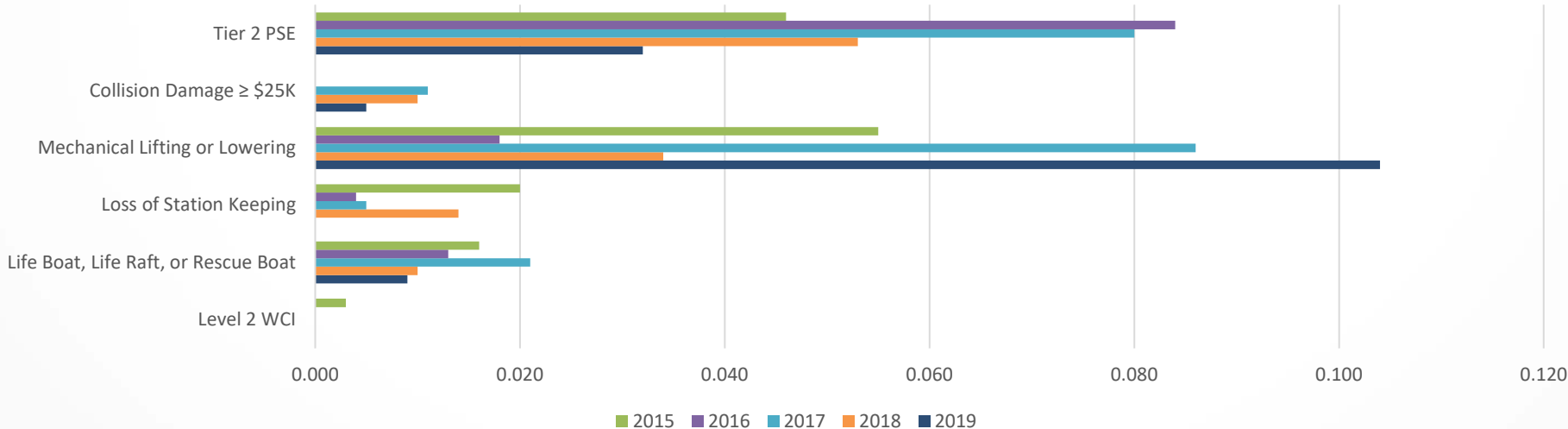
Correlations & Observations

Brad Smolen, BP

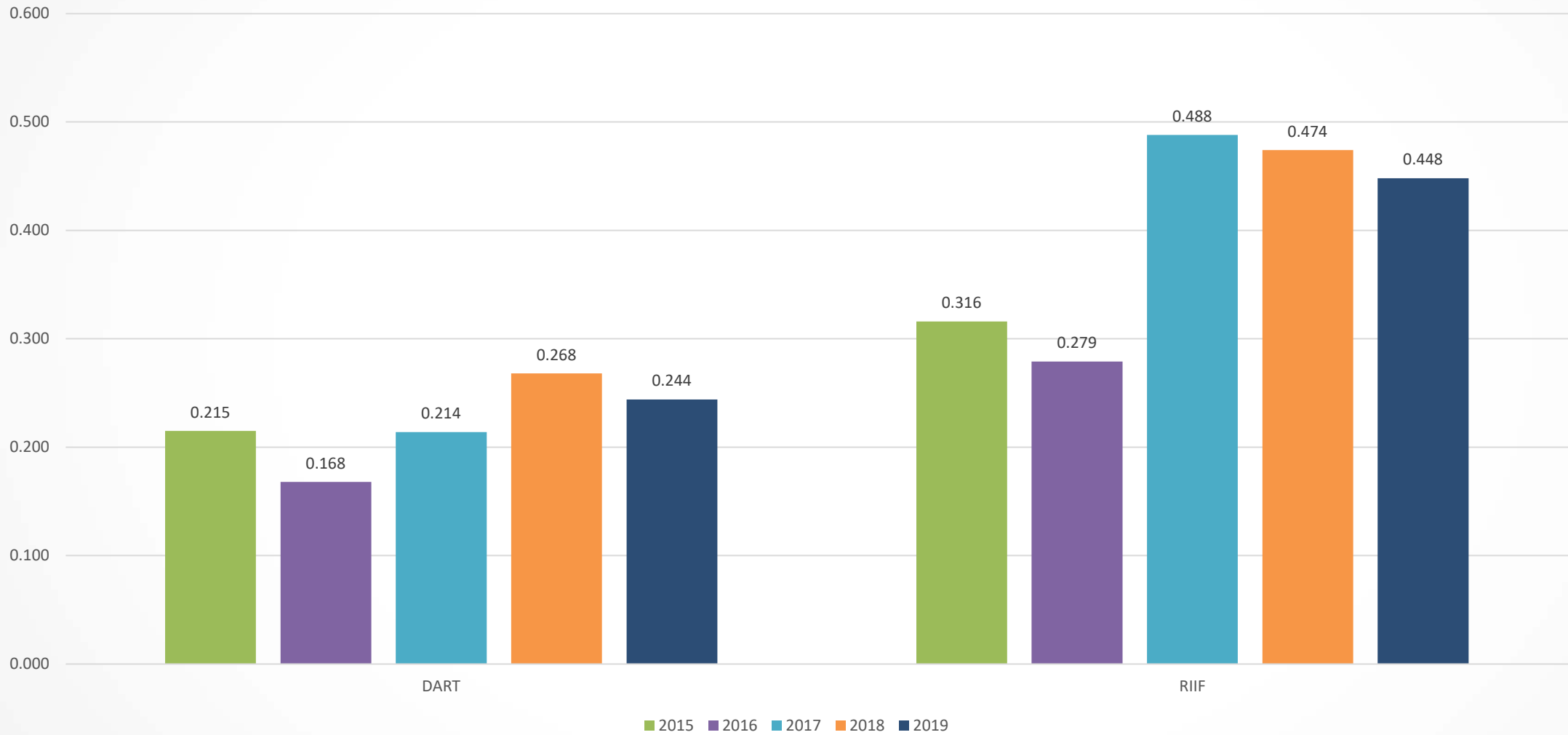
SPI 1 Incident Frequency per Sub-Group



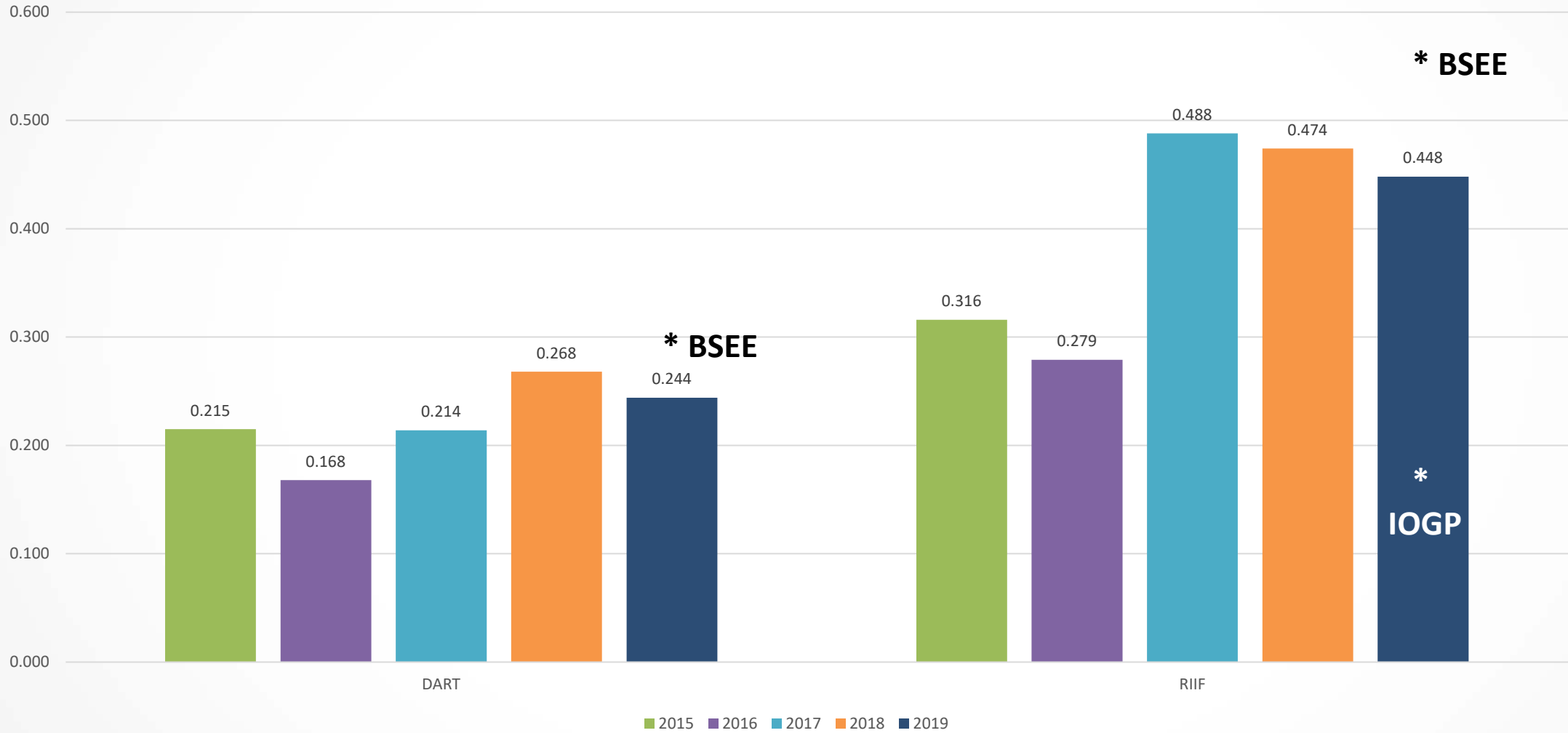
SPI 2 Incident Frequency per Sub-Group

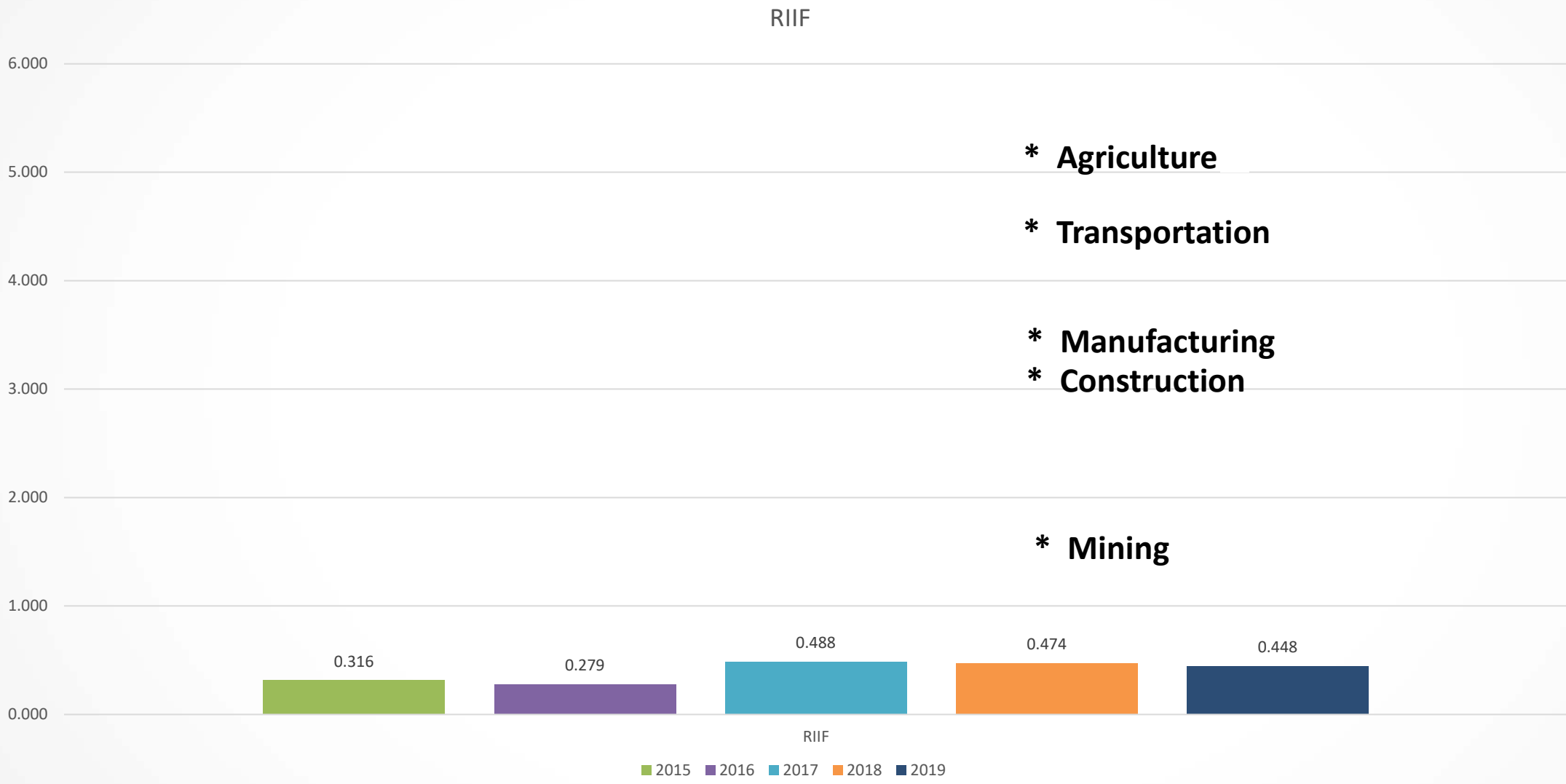


DART and RIIF

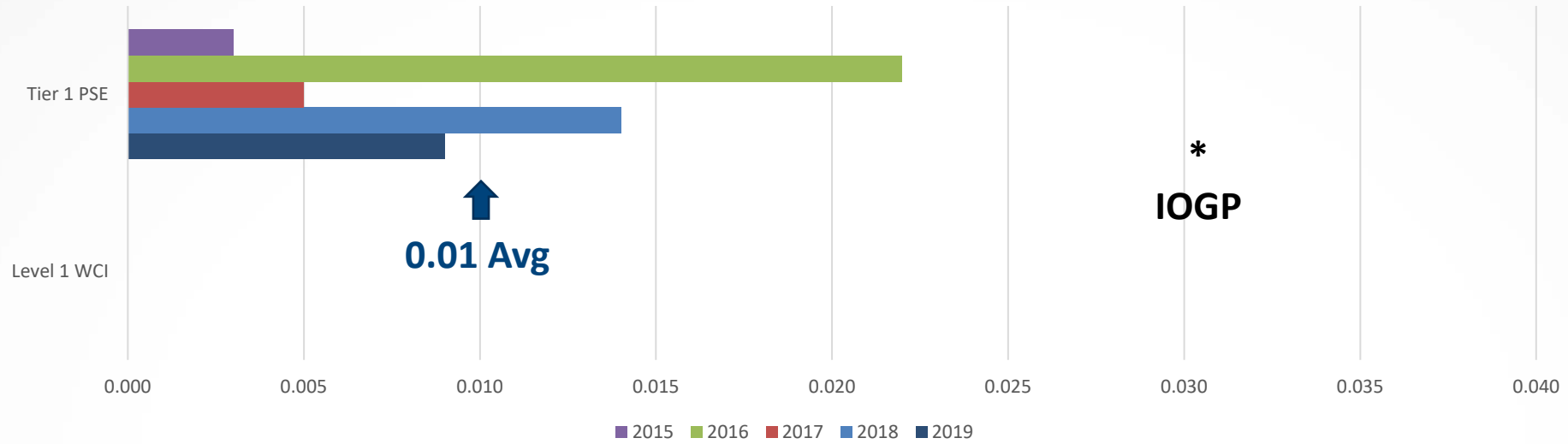


DART and RIIF

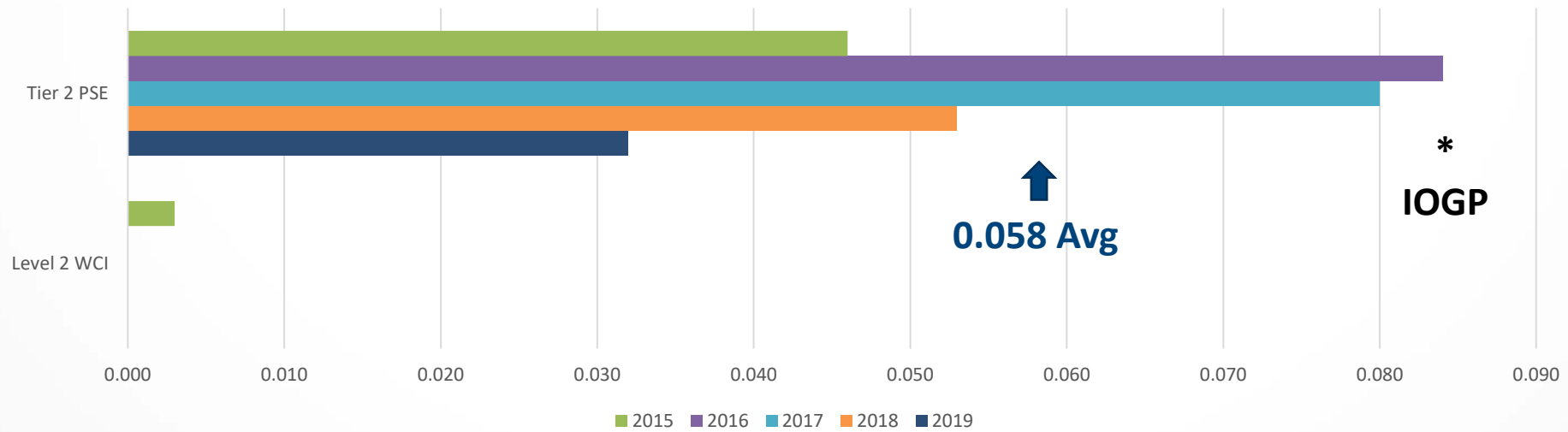




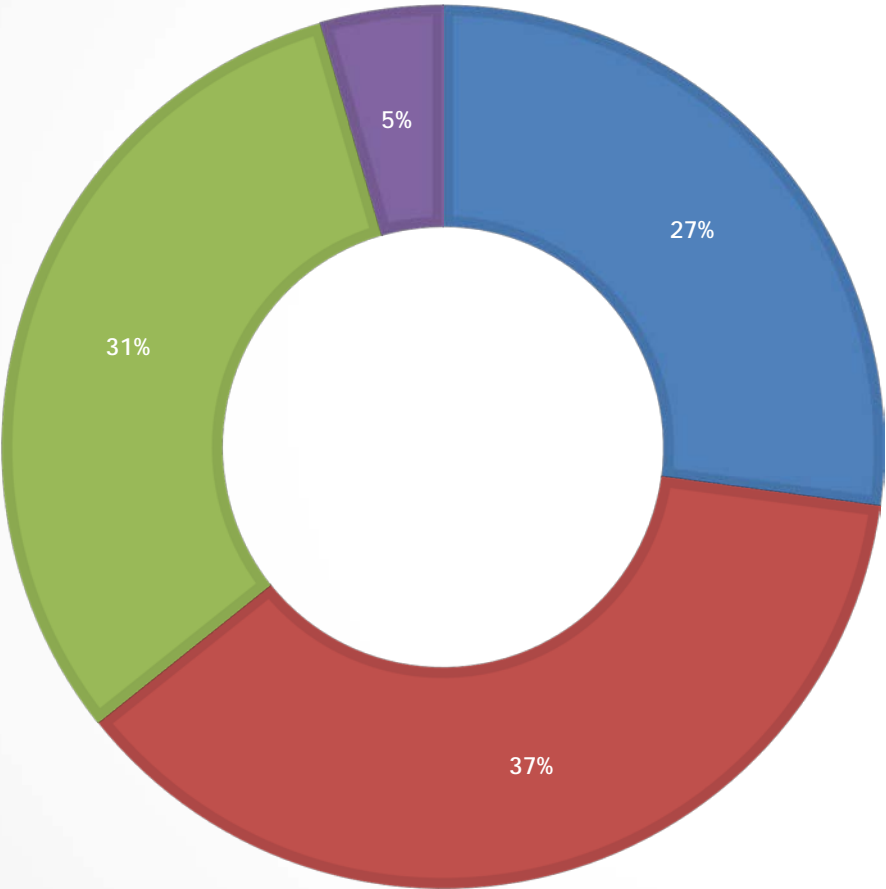
SPI 1 Incident Frequency per Sub-Group



SPI 2 Incident Frequency per Sub-Group



SEMS Audit Findings by SEMS Maturity Phase



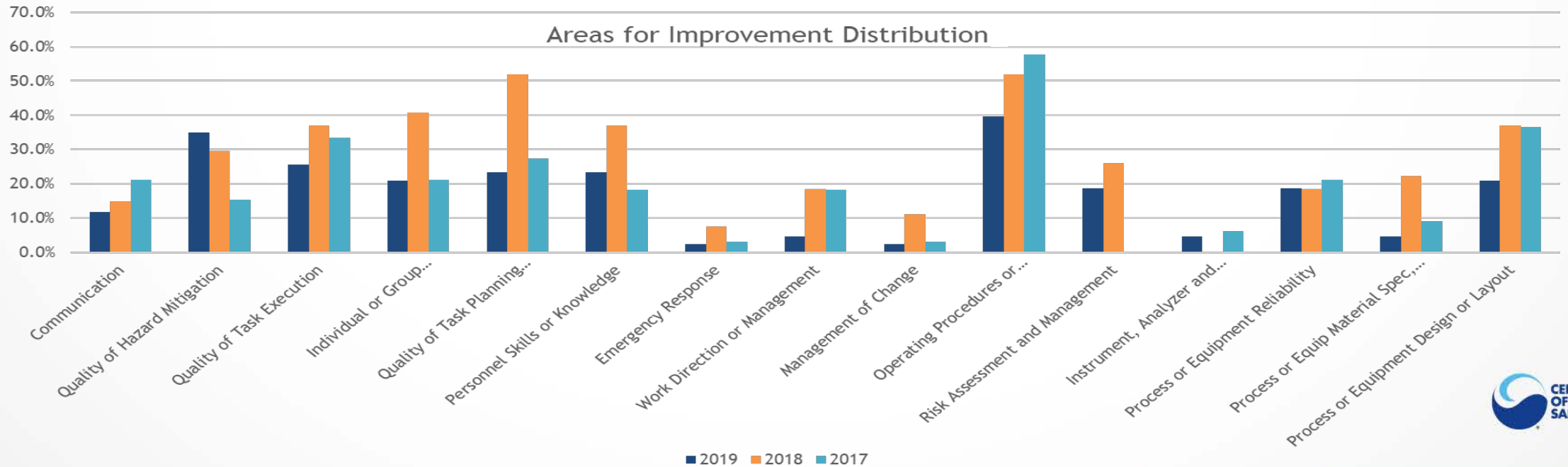
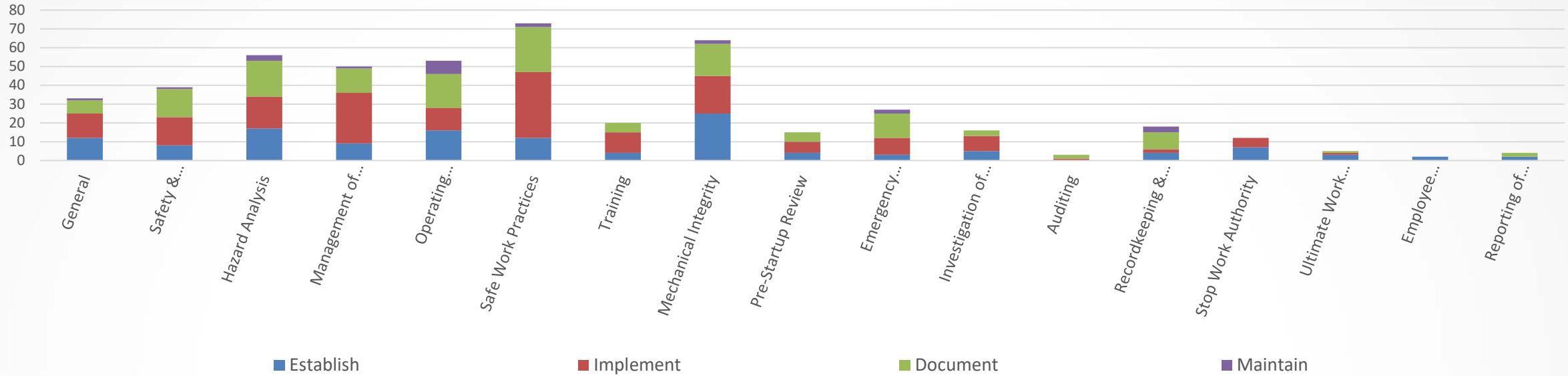
Establish
Do you say what you do?

Implement – pt 1
Do you do what you say?

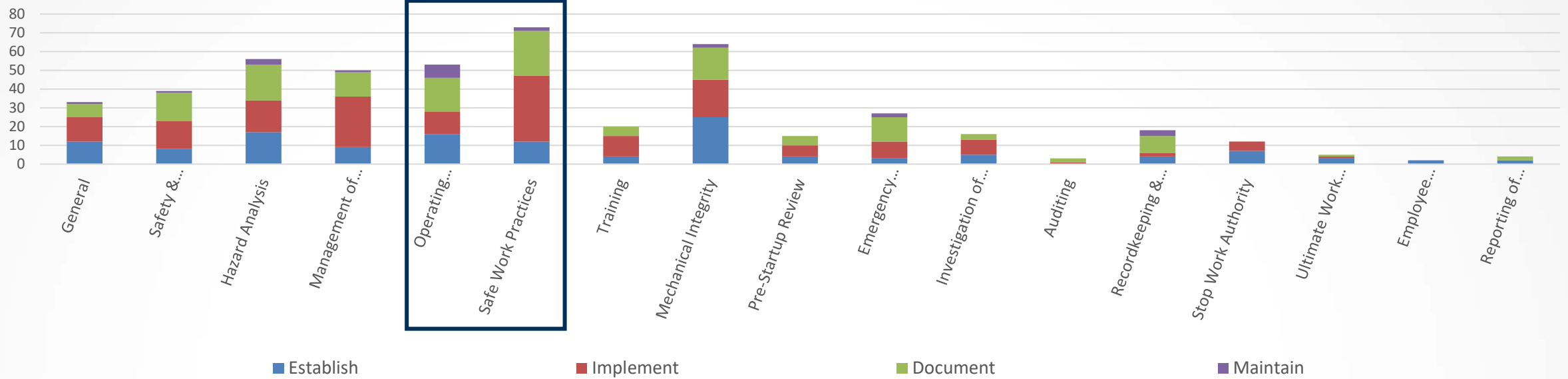
Implement – pt 2 (Document)
Do you document what you do, update documents appropriately, and provide access to the right people?

Maintain
Do you confirm you SEMS is working as designed and review and act when you say you will?

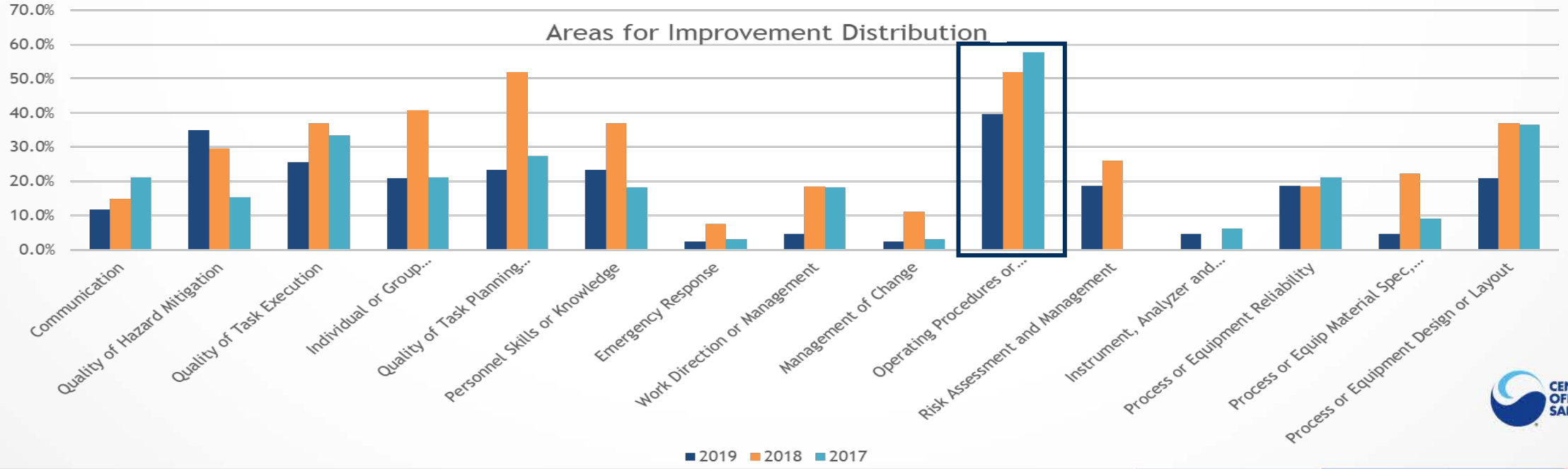
Deficiencies by SEMS Maturity Phase per SEMS Element



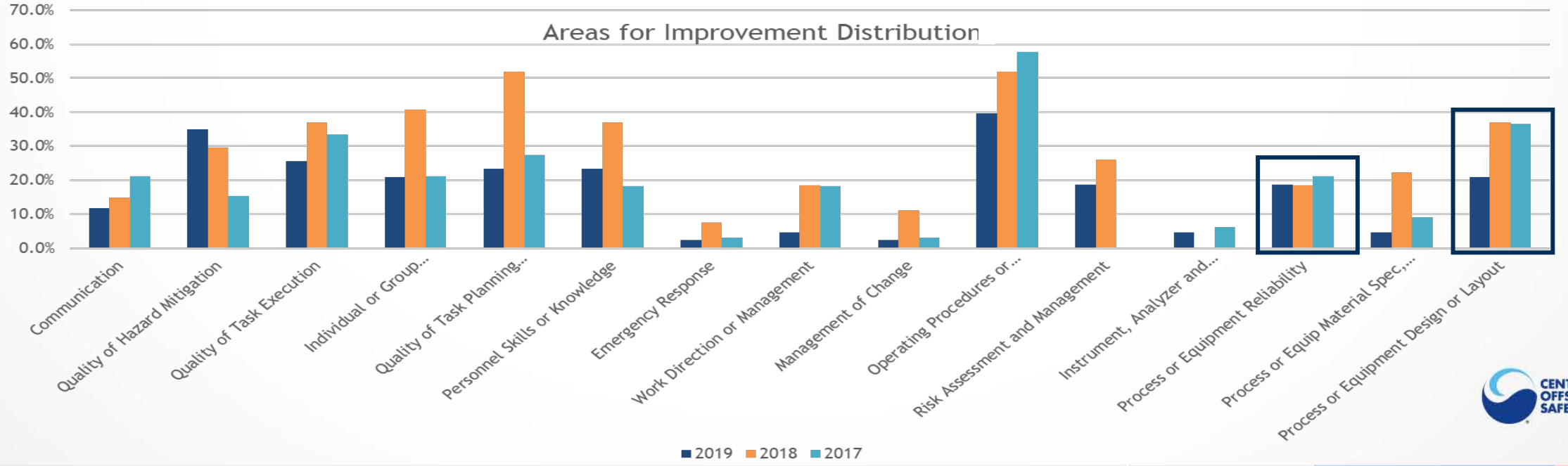
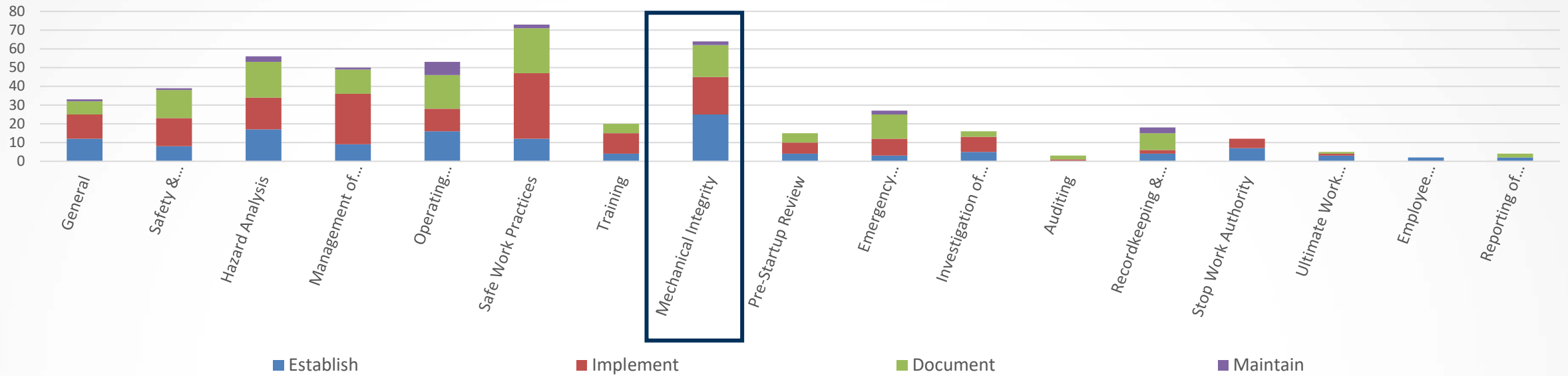
Deficiencies by SEMS Maturity Phase per SEMS Element



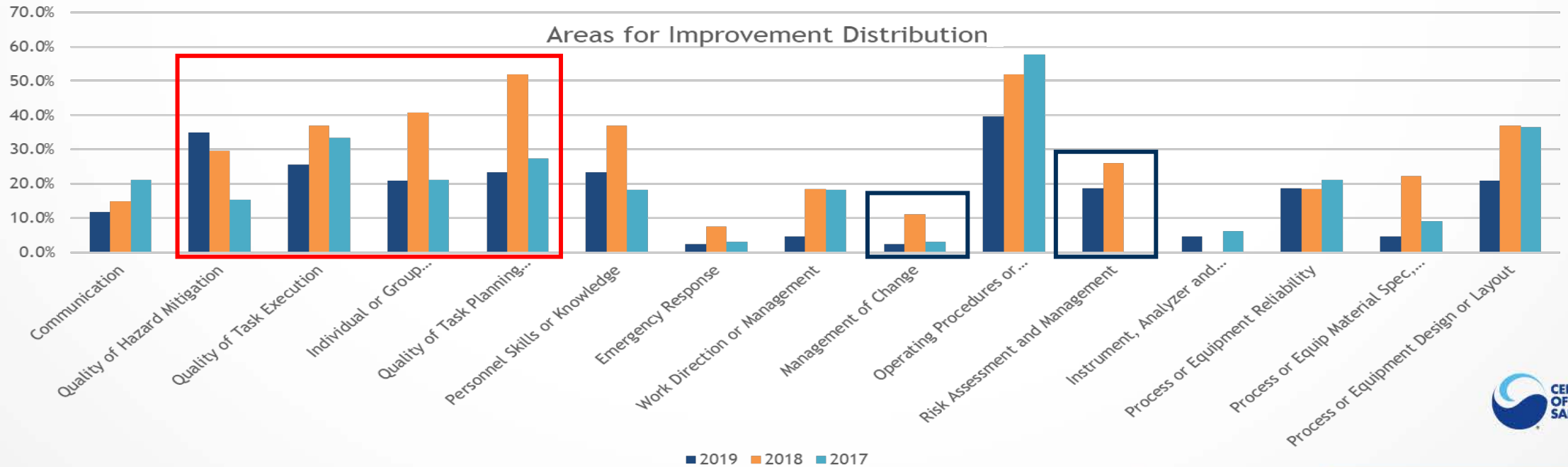
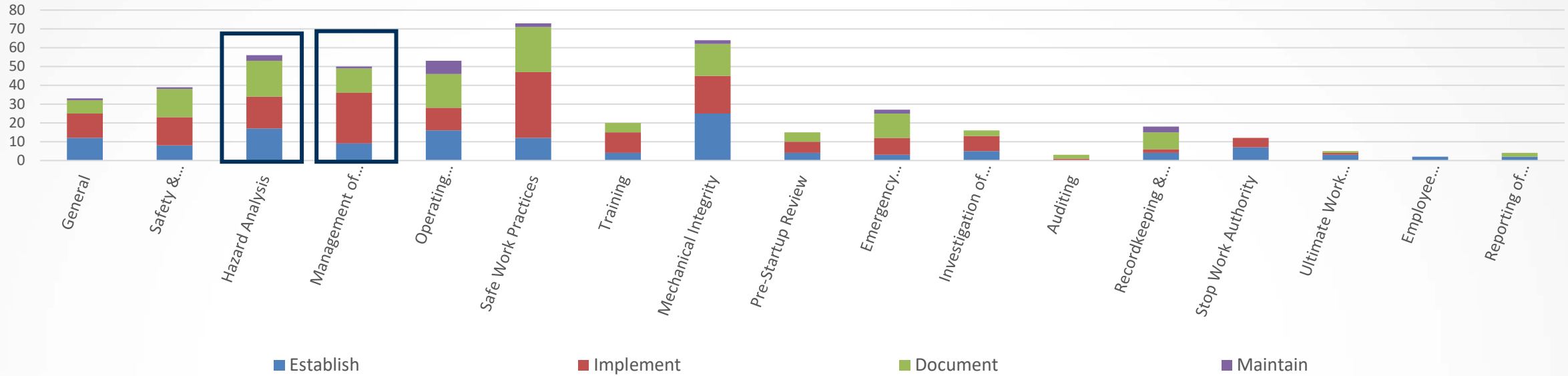
Areas for Improvement Distribution



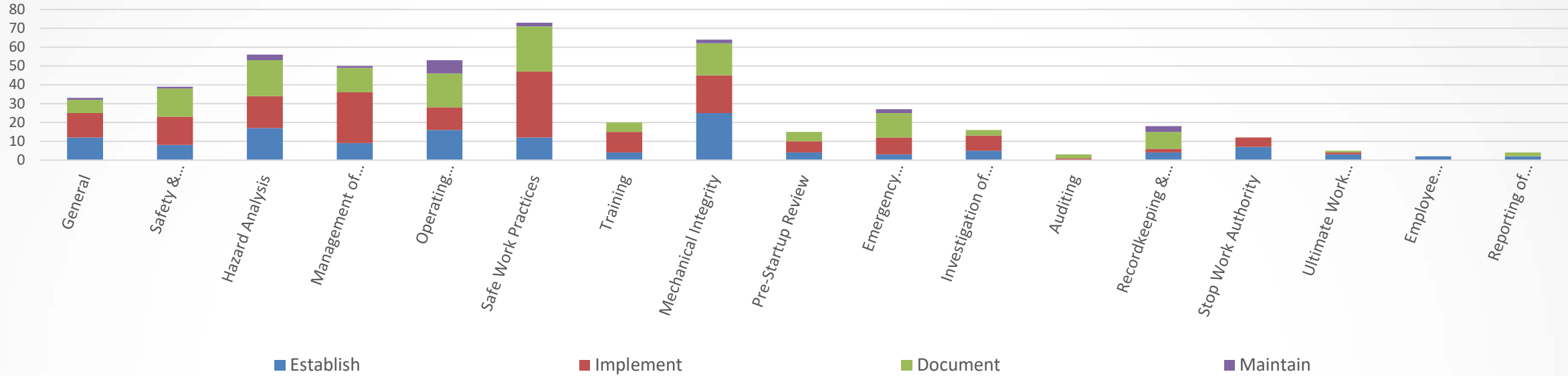
Deficiencies by SEMS Maturity Phase per SEMS Element



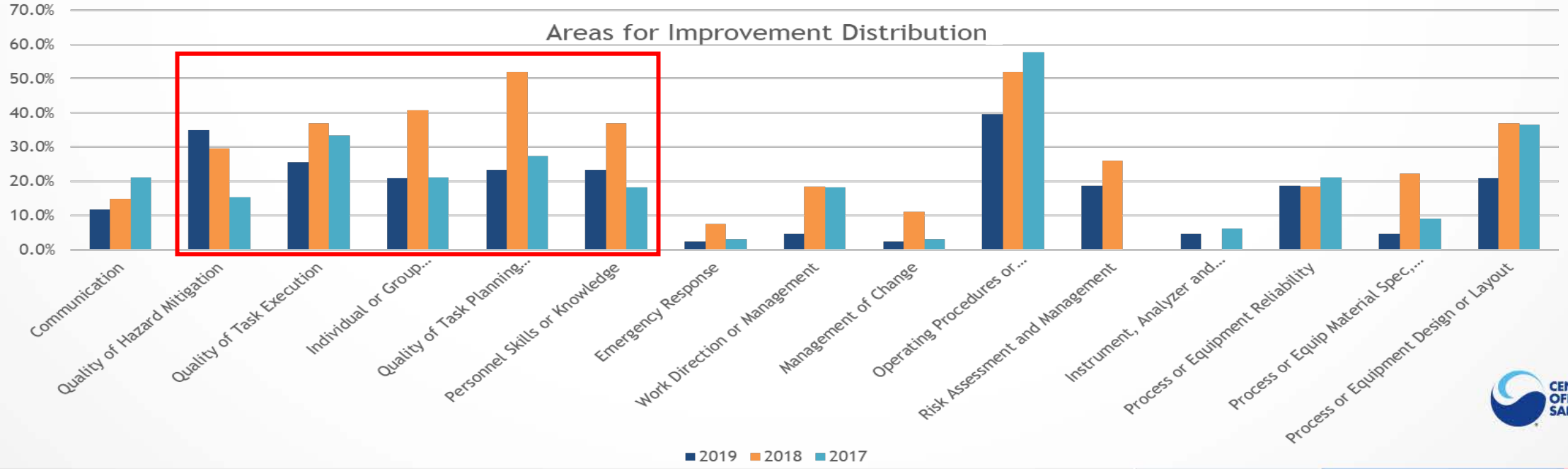
Deficiencies by SEMS Maturity Phase per SEMS Element



Deficiencies by SEMS Maturity Phase per SEMS Element

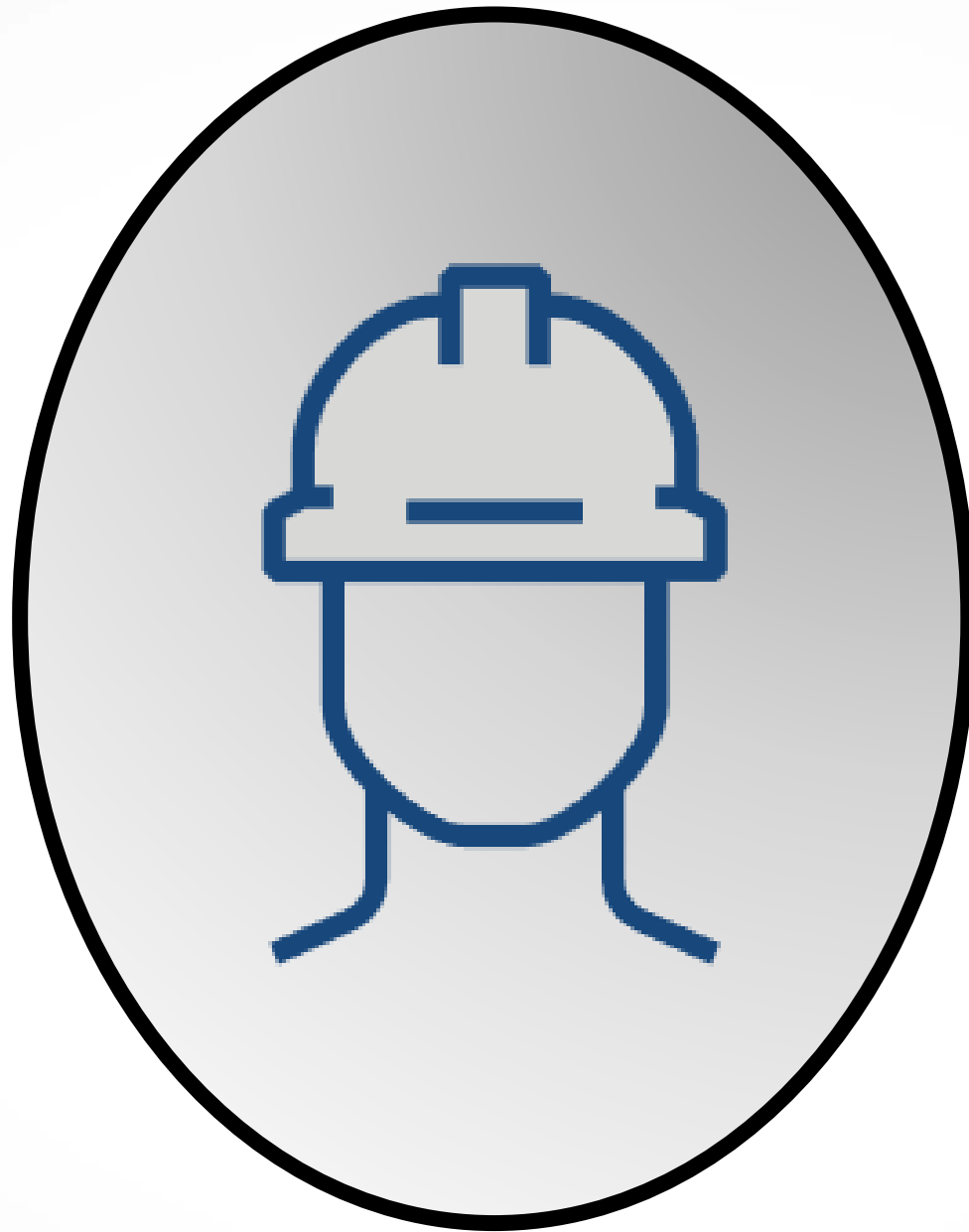


Areas for Improvement Distribution



Leaning Forward

- Safety Culture
- Developing and Managing Procedures
- Leadership Site Engagements
- API RP 75 4th Edition
- Process Safety Fundamentals - Verifying Existing Barriers
- Achieving SEMS Maturity
- Mechanical Lifting Good Practices





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Registration Information: www.centerforoffshoresafety.org

- Spotlights on Excellence – finalists for the 2020 COS Safety Leadership Award
- Conversations with BSEE and USCG
- API RP 75 4th Edition
- Process Safety
- Breakout sessions
 - SEMS Maturity
 - Mechanical Lifting
 - Life Boats
 - COVID

Q & A

