



World Class OHSMS

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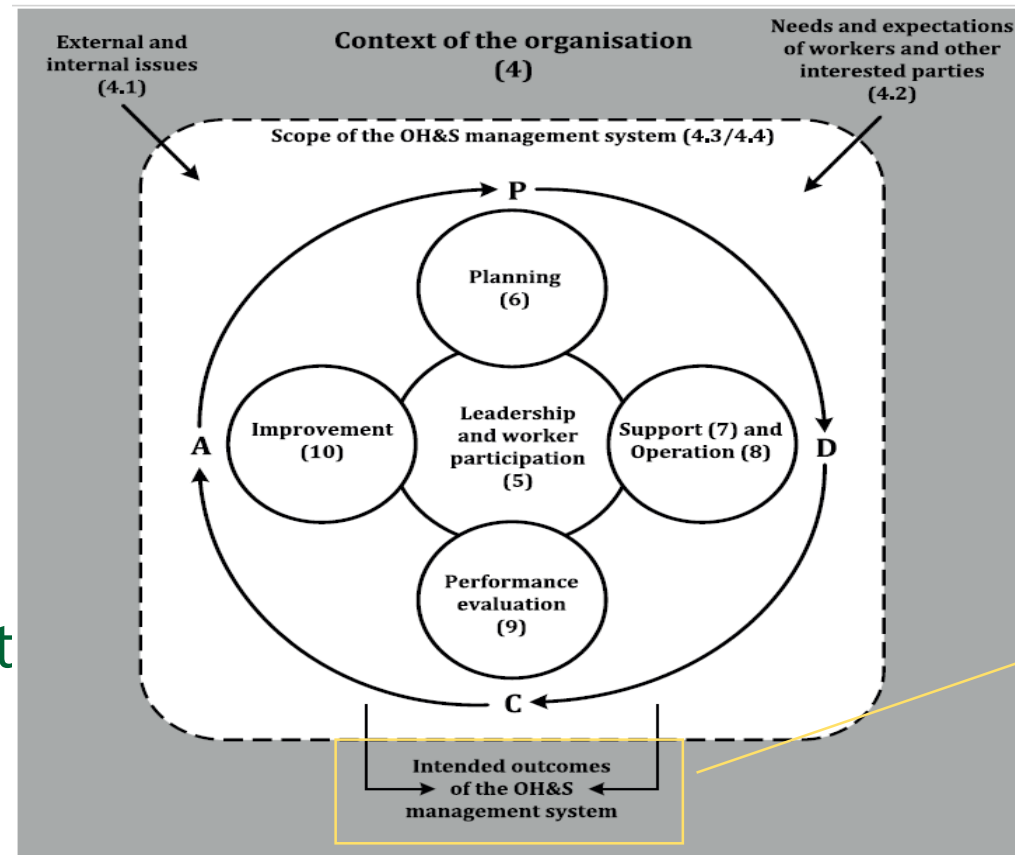
Objectives

- ISO 45001 OHSMS: Strengths and Weaknesses
 - Comparisons to other SMS
 - Where are the Implementation Strategies?
- Maturity Path Model:
 - PEP
 - Form 33
 - Safety Through Accountability and Recognition STAR
- Metrics are the Key
 - Measuring the Right People on the Right Things
 - Safety Through Accountability and Recognition

ISO 45001 OHSMS

• Strengths

- Finally! Leadership and Worker Participation!
- Risk Assessment
- Management Review
- Continual Improvement
- Plan, Do, Check, Act



• Weaknesses (missing)

- Management Accountability
- Trend Analysis
- Safety Critical Equipment Maintenance
- Industrial Hygiene
- Occupational Medicine
- Intended Outcomes Unclear (Metrics)

ISO 45001 - 2018

Leadership and Worker Participation

Leadership and Commitment
OH&S Policy
Roles, Responsibility and Authority
Consultation and Participation of Workers

Planning

Risks and Opportunities

- Hazard ID
- Assessment of Risk
- Assessment of Opportunities
- Legal Requirements
- Planning Action

Objectives

- OH&S objectives
- Achieving Objectives

Support

Resources
Competence
Awareness
Communication

- Process
- Internal
- External

Documentation

- Necessary for Effectiveness
- Creating and Updating
- Document Control

Operation

Operational Planning and Control

- Process
- Eliminating Hazards and Reducing Risks (Hierarchy of Control)
- Management of Change
- Procurement

Emergency Preparedness **and Response**

Performance Evaluation

Measurement, Monitoring, Analysis and Performance Evaluation

- **Compliance**

Internal Audit Program
Management Review

Improvement

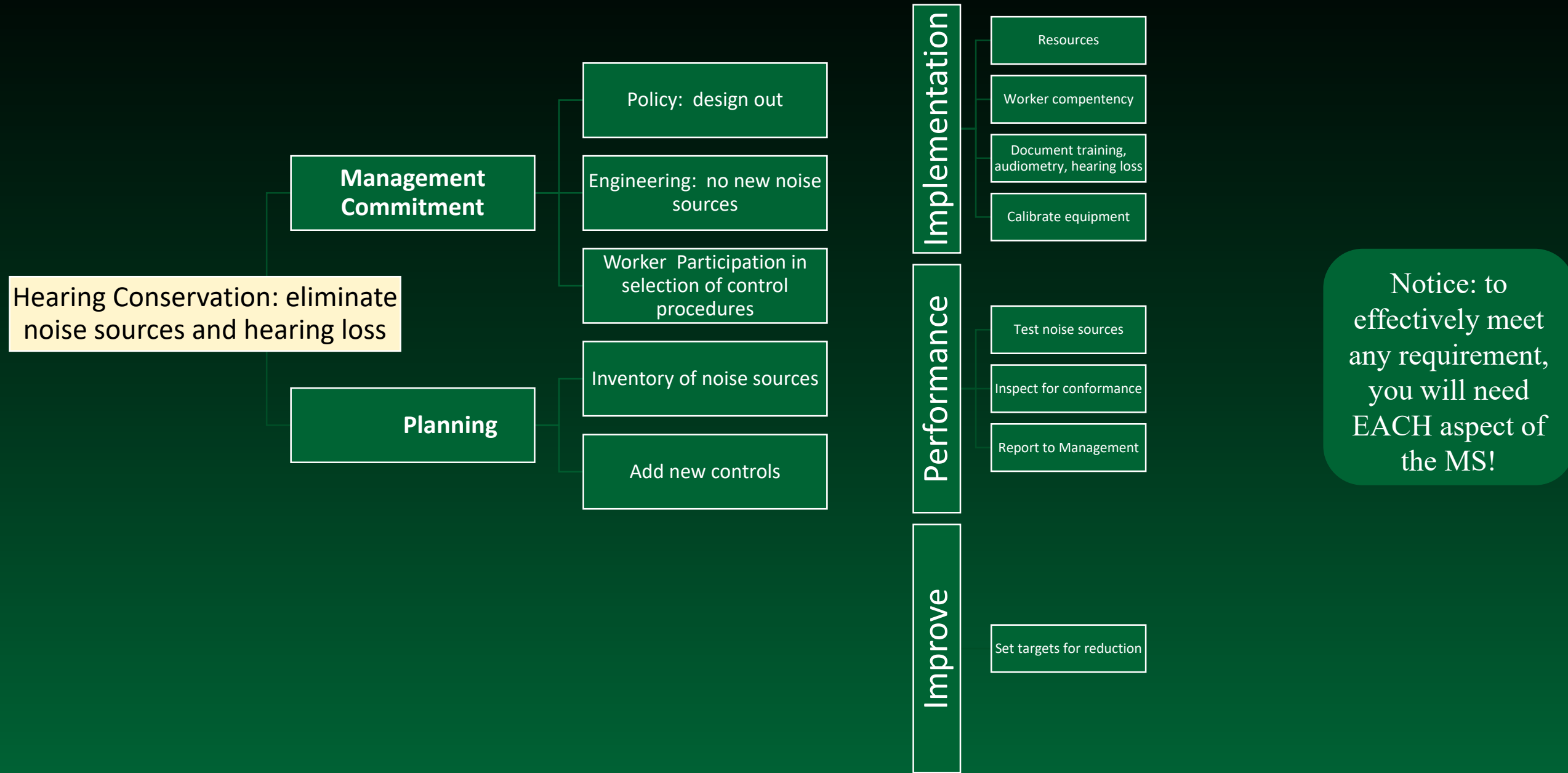
Incident, Non-conformity and Corrective Action

Continual Improvement

ANSI Z10 - 2019



Value of SMS: A System



ISO 45001: New Terms

- Competence vs. Training (Also in Z-10)
- Continual vs. Continuous (also in ILO)
- Conformity (not exactly new)
- Worker and Workplace vs. Employee
- Others!

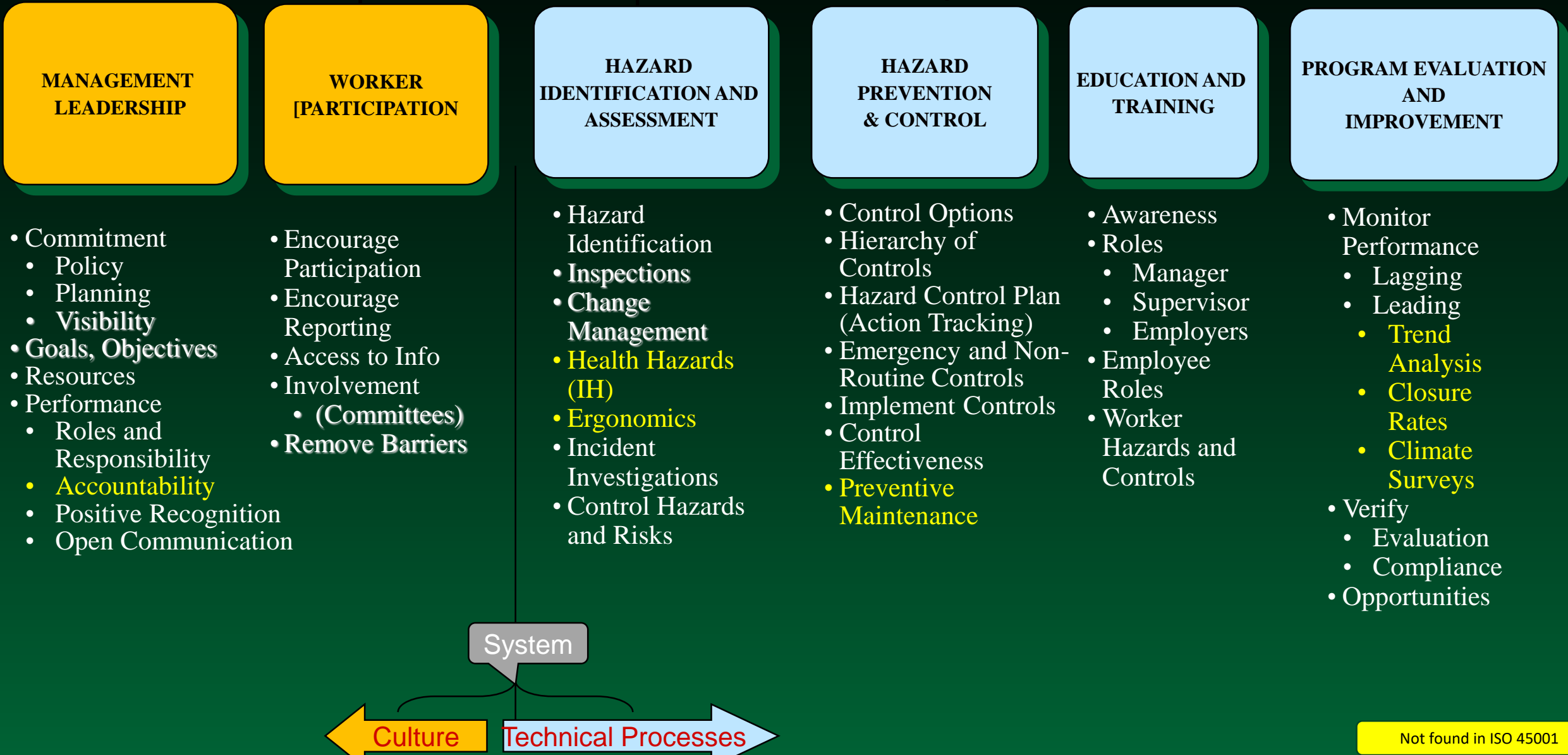
Other SMS

- ANSI Z 10 – 2019
 - Appendices
- OSHA Program Management Guidelines
 - First Published in 1989
 - New 2016
- OSHA VPP (2008)
- OSHA Program Evaluation Profile (PEP)
 - First Published in 1996 (no longer used by OSHA)
- OSHA Form 33 (SHARP)
 - Revised Oct 2000
- International Labour Org; Guidelines on Occupational S&H Management (2001)
- NSC: Journey to Safety Excellence
 - People, Planning, Programs, Progress, Performance.
- Canada Z 1000 (Suspended - Replaced with ISO 45001+)
- Global STAR (proprietary)
 - Used by a number of Fortune 500 companies.

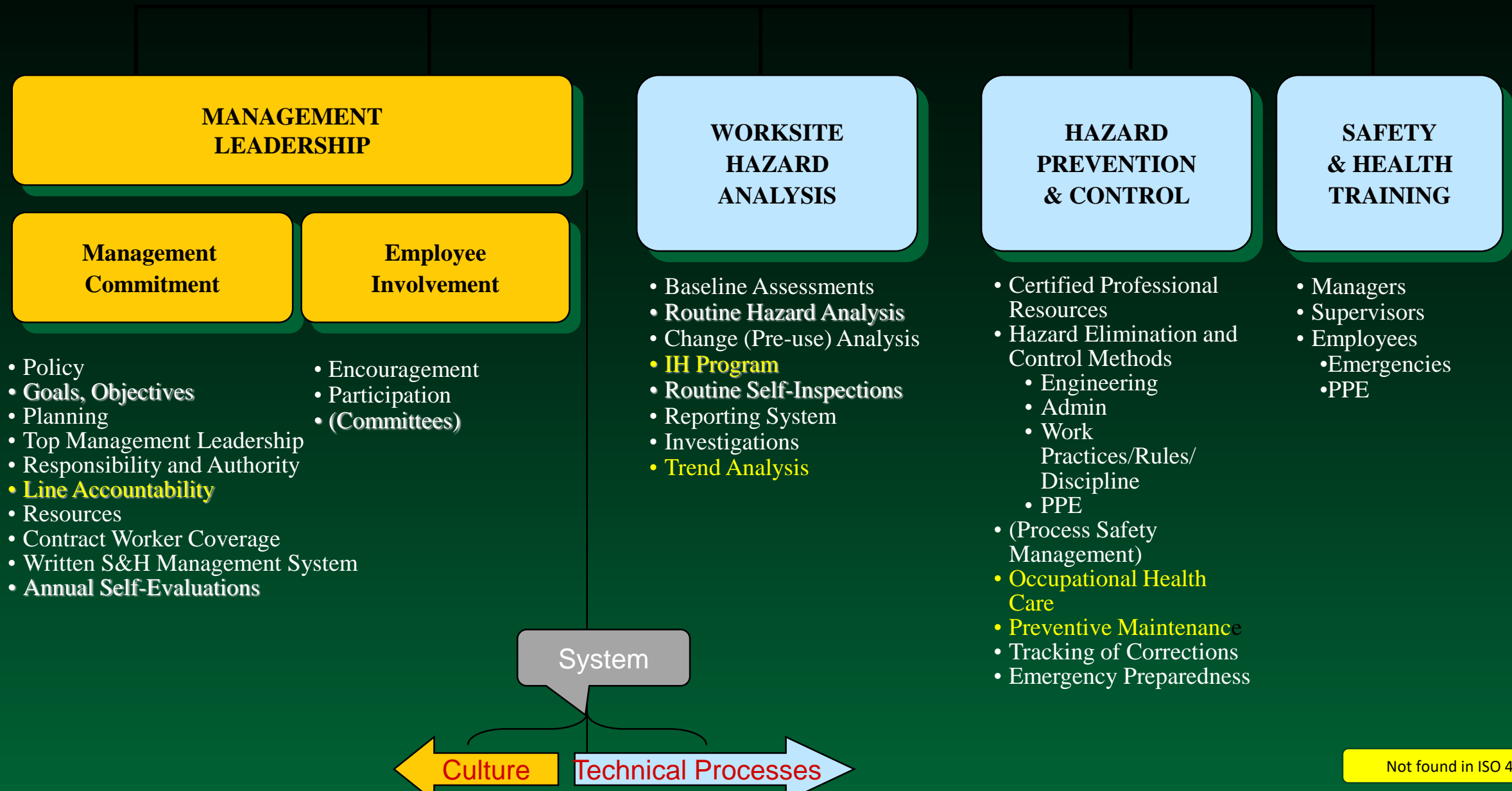
Crosswalk:

https://www.osha.gov/shpguidelines/docs/Crosswalk_to_Voluntary_OSHA_Standards_7-3-18.pdf

OSHA's Program Management Guidelines (1989, and RPs 2016)



OSHA's Voluntary Protection Program (CSP 03-01-005)



Management Accountability

- Let's look at some of the language in the SMSs that address Management Accountability...

ISO 45001

3.12 top management

person or group of people who directs and controls an *organization* (3.1) at the highest level

5.1 Leadership and commitment

- a) taking overall responsibility and **accountability** for the prevention of work-related injury and ill health, as well as the provision of safe and healthy workplaces and activities

5.3 Organizational roles, responsibilities and authorities

Note: While responsibility and authority can be assigned, ultimately top management is still **accountable** for the functioning of the OH&S management system.

Accountability Systems



ILO

3.3.2 Responsibility, Accountability and Authority

- Senior Management Level – develop, implement, evaluation and review OHS MS and Objectives

3.11 Performance Measurement

- Performance indicators
- Based on hazards and risks

3.14 Management Review

- Findings



Form 33

28. An **accountability** mechanism is included with each assignment of safety and health responsibility.

41. Top management considers safety and health to be a line rather than a staff function.

48. Top management is involved in the planning and evaluation of safety and health performance.



PMG

Define and regularly communicate responsibilities and authorities for implementing and maintaining the program and hold people **accountable** for performance.



PEP

Implementation means tools, provided by management, that include:

- budget
- information
- personnel
- assigned responsibility
- adequate expertise and authority
- means to hold responsible persons **accountable (line accountability)**
- program review procedures.

Accountability

Specifically calls out the performance appraisal system!



VPP 2008 / 2020 –
Management
Accountability

Holding those assigned responsibility for safety and health accountable for meeting their responsibilities through a documented **performance standards and appraisal system**.

Planning for typical as well as unusual/emergency safety and health expenditures in the **budget**, including funding for **prompt correction** of uncontrolled hazards.

Program Management Guidelines 1989

(vii) Hold managers, supervisors, and employees accountable for meeting their responsibilities, so that essential tasks will be performed.

To be effective, a **system of accountability** must be **applied to everyone**, from **senior management** to hourly employees.

Summary of Similarities



Management

Leadership
Roles and Responsibilities
Written OHSMS
Resources



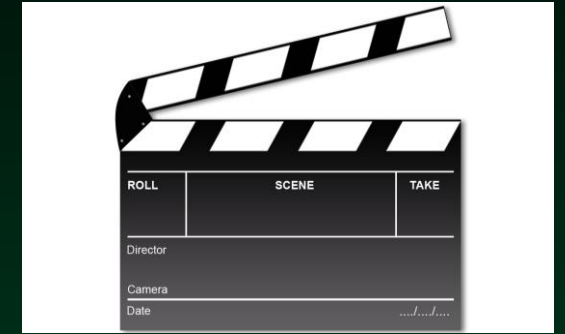
Worker

Consultation
Participation
Recognition



Implementation

Risk Assessment (hazard analysis)
Legal
Objectives
Competency (training)
Hierarchy of Control
Procurement (Contractors)
Management of Change
Inspections
Investigations
Audits / Assessments
Emergency Preparation



Action

Corrective Action –
generation and tracking
Evaluation and Analysis
Non-Conformity
Management Review and
Action
Continual Improvement

Summary of Strengths

> based on OSHA X walk



45001 - 2018

Worker consultation and Participation

Risk Assessment

Competence

Document Control

Outsourcing

Emergency preparedness and response

Compliance evaluation

Non-conformity corrective action



Z10- 2019

Competence

Document Control

Process Verification (MOC)

Risk Assessment

Outsourcing

Occupational Health

Organizational Learning

Leading Indicators

Management Follow-up



VPP 2000, PMG 1989, RPs 2016

Accountability

Worker participation

Industrial Hygiene

Certified Professional Resource

Occupational Health Care

Preventive Maintenance

Disciplinary System

Supervisor and Manager Training



OSH - 2001

Accountability

Competence

Emergency Prevention, Preparedness and response

Overall Weaknesses

- Implementation Strategy
- Auditing Standard
- What does “Good” look like

As a result, many references have attempted to lay out a step-by-step implementation strategy, or maturity model, similar to quality's Malcom Baldrige.

Maturity Models

- PEP

Score	Level of Safety and Health Program
5	Outstanding program
4	Superior program
3	Basic program
2	Developmental program
1	No program or ineffective program

- Form 33

No	0
No-Needs Major Improvement	1
Yes – Needs Minor Improvement	2
Yes	3

- STAR

World Class (Sustainability)	5
Advanced (ISO)	4
Standard (Compliance)	3
Developmental II	2
Developmental	1

PEP (Performance Evaluation Profile)

6 Sections
15 Elements
Five Levels
each

Program Evaluation Profile (PEP) Chart

PEP Program Evaluation Profile Employer: Inspection No.: Date: CSHO ID:		Management Leadership and Employee Participation				Workplace Analysis			Accident and Record Analysis		Hazard Prevention and Control			Emergency Response		Safety and Health Training	
		Management Leadership	Employee Participation	Implementation	Contractor Safety	Survey and Hazard Analysis	Inspection	Reporting	Accident Investigation	Data Analysis	Hazard Control	Maintenance	Medical Program	Emergency Preparedness	First Aid	Training	
Outstanding	5																5
Superior	4																4
Basic	3																3
Developmental	2																2
Absent or Ineffective	1																1
Score for element																	
Overall Score																	

Form 33 (SHARP)

Hazard Anticipation and Detection

	0	1	2	3	NA	NE
1. A comprehensive, baseline hazard survey has been conducted within the past five (5) years.						
Comments:						
2. Effective safety and health self-inspections are performed regularly.						
Comments:						
3. Effective surveillance of established hazard controls is conducted.						
Comments:						
4. An effective hazard reporting system exists.						
Comments:						
5. Change analysis is performed whenever a change in facilities, equipment, materials, or processes occurs.						
Comments:						
6. Accidents are investigated for root causes.						
Comments:						
7. Material Safety Data Sheets are used to reveal potential hazards associated with chemical products in the workplace.						
Comments:						

FORM 33 SUMMARY			# of Rankings / Level				
Synthesis Item Score (Synthesis score is an average of all scores)	#DIV/0!	Current					
	#DIV/0!	Previous					
			0	1	2	3	NA
Hazard Anticipation and Detection	#DIV/0!	Current	0	0	0	0	0
	#DIV/0!	Previous	0	0	0	0	0
Hazard Prevention and Control	#DIV/0!	Current	0	0	0	0	0
	#DIV/0!	Previous	0	0	0	0	0
Planning and Evaluation	67%	Current	0	0	1	0	0
	#DIV/0!	Previous	0	0	0	0	0
Administration and Supervision	#DIV/0!	Current	0	0	0	0	0
	#DIV/0!	Previous	0	0	0	0	0
Safety and Health Training	#DIV/0!	Current	0	0	0	0	0
	#DIV/0!	Previous	0	0	0	0	0
Management Leadership	#DIV/0!	Current	0	0	0	0	0
	#DIV/0!	Previous	0	0	0	0	0
Employee Participation	#DIV/0!	Current	0	0	0	0	0
	#DIV/0!	Previous	0	0	0	0	0
		Current	0	0	1	0	0
		Previous	0	0	0	0	0

7 Sections, 58 Criteria
Four Levels!

STAR SMS

- As an example how to integrate the best of the SMSs into one systems, let's walk through an example
- Hopefully, you can use this to create your own...
- Thx To GE for the initial creation of this maturity model (1996)

STAR SMS

100 Total points!
20 Elements, 5 points max each



STAR			Leadership		Planning (Plan)		Support and Operations (Implement)								Performanc e Evaluation (Check)	Impro ve (Act)						
			Commitment	Worker Participation			Support	Operation														
Assessors:		Element Level	1.0 Management Leadership and accountability	2.0 OH&S Roles and Responsibilities	3.0 Consultation and Participation	4.0 Hazard Identification and Risk Assessment	5.0 Ergonomics	6.0 Legal and Other Requirements	7.0 OH&S Objectives	8.0 Competence and Communication	9.0 Document Control	10.0 Eliminating Hazards and Reducing Risks	11.0 Chemical and Physical Agent Management	12.0 Procurement / Contractor / Outsourcing Management	13.0 Change Management	14.0 Emergency Preparedness and Response	15.0 Maintenance	16.0 Monitoring and Analysis	17.0 Internal Audit Program	18.0 Management Review	19.0 Incident, Non-conformity and Corrective Action	20.0 Continual Improvement
World Class (Sustainability)		5																				
Advanced (ISO)		4																				
Standard (Compliance)		3																				
Developmental II		2																				
Developmental		1																				

Document No:

Assessors:

Multiple Sub-Elements

- Each Element Has Sub-Elements
- Some are driven by ISO 45001
- Some are driven by ANSI Z 10
- Some are driven by OSHA's Program Management Guidelines (1989 and VPP 2020, and RPs of 2016)

COMMITMENT	
Element #1 - Management Leadership	
1.1 Management Commitment	
1.2 Management Accountability	
1.3 OH&S Policy	
Element #2 Roles and Responsibilities	
2.1 Management OH&S Responsibilities	
2.2 Worker OH&S Responsibilities	
2.3 OH&S Specialist	
WORKER PARTICIPATION	
Element #3 - Worker Consultation and Participation	
3.1 Worker Engagement	
3.2 Worker Consultation	
3.3 Recognition and Encouragement	
3.4 – Committees	

Multiple Sub-Elements

- Chemical and Physical agent management includes
 - Industrial Hygiene
- Emergency planning includes
 - Occupational Health (Medical)
 - Prevention
 - Early recognition and treatment
 - Limiting severity

OPERATIONS	
Element #10 -Eliminating Hazards and Reducing Risks	
10.1 Hierarchy of Controls	
10.2 PPE	
Element #11 - Chemical and Physical Agent Management	
Chemical Management	
Piping Labeling	
Industrial Hygiene: Qualitative assessment	
Industrial Hygiene: Quantitative assessment	
Element #12 - Procurement / Contractor / Outsourcing	
12.1 Selection	
12.2 Orientation	
12.3 Operations and hazardous materials	
12.4 Oversight	
Element #13 - Change Management	
13.1 Change Management	
13.2 Design Standards	
Element #14- Emergency Preparedness and Response	
14.1 Medical Prevention	
14.2 Emergency Response Plan	
14.3 Early medical recognition and treatment	
14.4 Emergency Training	
14.5 Emergency Response Practice	
14.6 Limiting Severity of Injury and Illness	
Element #15- Maintenance	
15.1 Preventive Maintenance	
15.2 Regular Maintenance	

Management Accountability – STAR

- Maintains ultimate accountability with top management for the functioning of the OH&S management system.

LEVEL:	<u>1</u> <u>Developmental</u>	<u>2</u> <u>Developmental II</u>
1.2 Management Accountability Maintains ultimate accountability with top management for the functioning of the OH&S management system and continual improvement of risks and the system.	1. OH&S performance evaluations occur for some line managers.	1. Records are maintained of performance appraisals to OH&S responsibilities. 2. Appraisals are reviewed with each employee, at all levels. 3. OH&S metrics are part of management and supervisor performance appraisals. 4. OH&S metrics include TRIR and LWCR. 5. Site Level OH&S metrics cascade down to Management and Department level metrics.

Management Accountability - STAR

- Maintains ultimate accountability with top management for the functioning of the OH&S management system.

LEVEL 3 Standard

1. Annual performance appraisals at all levels include evaluation of performance against safety and health responsibilities as defined in Element 2, (action plan closure rates and enforcing safe work procedures) and written programs and procedures.
2. Meeting STAR Objectives as defined in Element 7 Level 3 are part of management's performance appraisal process and the Site level OH&S scorecard.
3. **OH&S metrics** at the department level are part of a Balanced Scorecard or equivalent. Includes **1)** closure rate for safety issues, **2)** conformance rates, **3)** the number of new controls **4)** worker participation and recognition, and **5)** trend reductions for inspections and observation non-conformances.

Management Accountability - STAR

- Maintains ultimate accountability with top management for the functioning of the OH&S management system.

LEVEL 4 ADVANCED (ISO)

1. Accountability to OH&S metrics at the Department Level includes 1) GSSF Objectives and Action Plans 2) CTS Conformance rates, 3) number of new engineering controls 4) risk reduction 5) training completion and 6) incident corrective action 90-day closure verification rate.
2. Measurements of Management OH&S performance use additional proactive leading measures, across at least three of the four Balanced Scorecard quadrants. (See Implementation Guide for list of KPIs by STAR Element for consideration).
3. Site level OH&S metrics are established for incident trend reductions. (e.g., causal factor, root cause, hazard type and control type trends).
4. Accountability to these leading metrics is proactively enforced Management (i.e., set targets, and motivate achieving targets).
5. Roles assigned responsibilities have the authority to accomplish Objectives and Action Plans.
6. OH&S Metrics include SIF.
7. Global STAR Element Owners track many of the OH&S metrics listed in the KPI Implementation Guide.

Management Accountability-STAR

- Maintains ultimate accountability with top management for the functioning of the OH&S management system.

LEVEL 5 WORLD CLASS

1. A percentage (%) of management's **bonus** requires success in proactive and leading safety metrics / measurements.
2. **Cultural improvement** metrics are included in the site level OH&S Balanced Scorecard.
3. OH&S Metrics include **severity reductions**.
4. The OH&S Balanced Scorecard has multiple metrics in each of the four quadrants.



Metrics

Measure the Right People on the Right Things
Safety Through Accountability and Recognition



One Number Can Measure Success

- Run your program like a business.

Leading Metrics are the Best!

- When are leading metrics misleading?

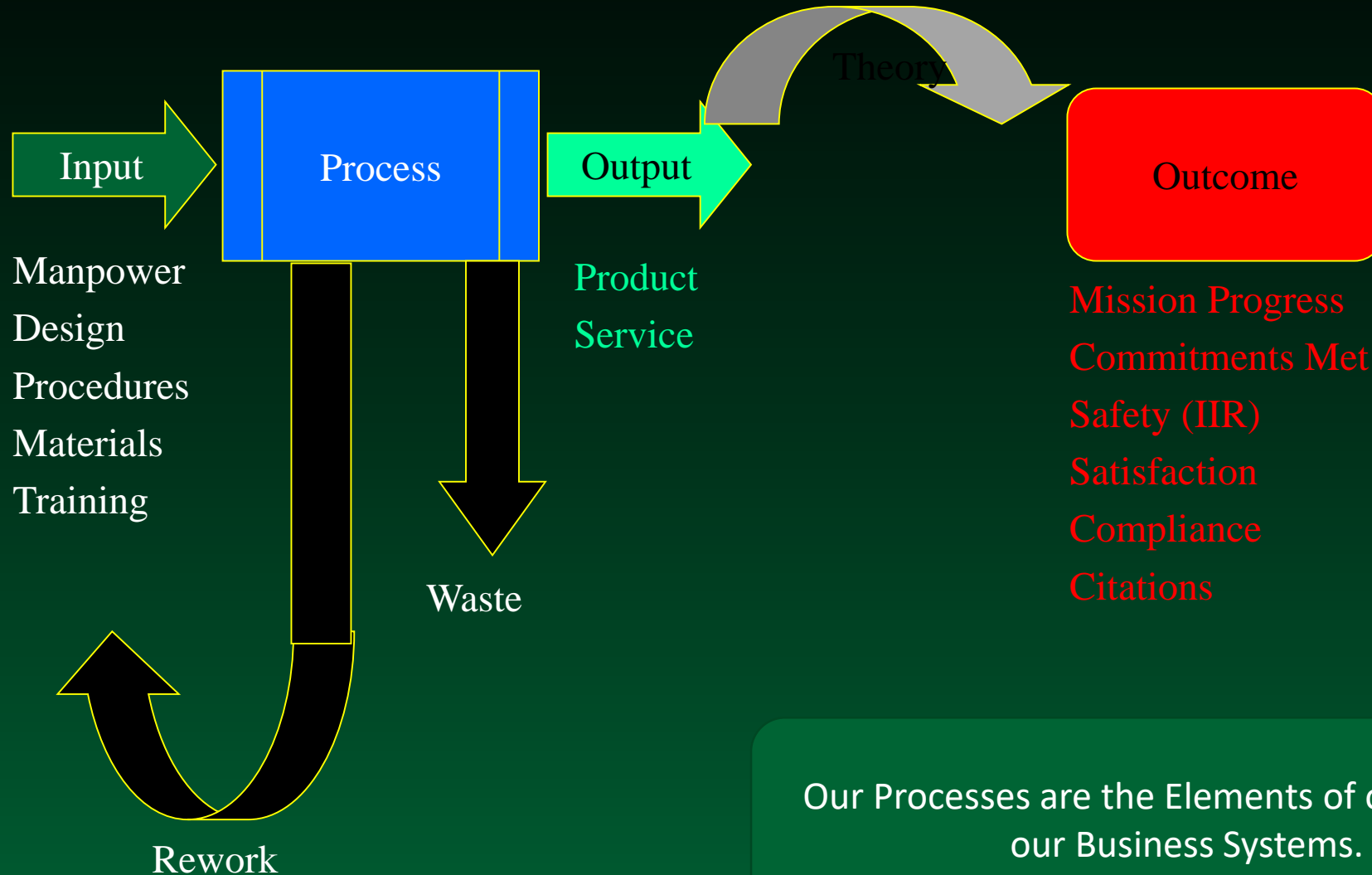
Are KPI's (Key Performance Indicators) the thing?

- Do KPI's have to be just indicators?

What Does Deming and Harvard Say?

- Process Metrics
- Balanced Scorecards

Process and Outcome Metrics



Balanced Scorecard for Safety

—
Sample

- Budget
- Personnel
- WC

Financial



- Incidence Rates
- SIF
- Worker Participation

Customer



- STAR Scores
- STAR Action Plans
- Risk Reductions
- # New Controls

Process



- Training Retention
- Training Attendance
- Closure Rates
- Conformance Rates
- Trend Reductions

Learning and Growth



← Leading Metrics →

Leading Metric 1:

% Risk assessments performed to determine population exposed

Leading Metric 2:

% overexposed

Evaluation

Exposure or Risk.

Control

Actions, Systems, Programs, Controls, etc.

Leading Metric 3:

% hazards controlled in place

Leading Metric 4:

Conformance rate % of controls being demonstrated as effective

Leading Metric 5:

% of control enhancements or additional controls

Identification

What is the "Resulting Effect" (illness or disease) you are trying to prevent/control.

Lagging Metric

Lagging Metric

% population with identified potential for or currently active effects (illness or disease)

Balanced Set of Metrics

(IH Leading Health Metrics)

Management Accountability

- Hold managers, supervisors, and employees accountable for meeting their responsibilities, so that essential tasks will be performed.

(OSHA PMG)

Leading Metrics

- Closure Rates
- Conformance Rates
- # of New Controls
- Trend Reductions: inspections+root cause
- Worker Participation
- Risk Reduction

Lagging Metrics

- TRIR
- LWCR (DART)
- SIF
- Worker's comp

For a list of metrics, review my article in June 2018 *Professional Safety*: “The New Measure of Safety Performance”

Incident Data Collection and Analysis – Risk Based

Incident	Injury	Causal Factor	Hazard	Energy	Root Cause	Severity Potential	Highest Control Failure

Hazard Failures



■ Struck by ■ Overexertion - chronic
■ configuration design ■

Catastrophic Controls



■ Engineering ■ Administrative ■ PPE ■

Trend Analysis

- Inspection and Observation non-Conformances

- The YTD-Summary Sheet is an aggregate of all the information collected in the Monthly sheets.

All Depts.,
Safety items and
scores

	559 maint	988 HR	550 prchs
SCORE	8%	1%	1%
HOUSEKEEPING/GOOD MANAGEMENT PRACTICES	90%	100%	100%
Floors & work areas are clean & dry	21	0	0
Aisle lines clearly marked	23	0	0
Aisles clean & free of tripping hazard	20	24	24
Work areas are clean	21		0
Workbenches/ desks clean	23		0
Sufficient lighting	23	0	0
Flashlight available and working	23	0	0
Stairs clear and clean	22	0	
Material racks/ storage in place	20	0	
jun / jul / aug / sep / oct / nov / dec / YTD summary / Score-Category /			

Overall % for Dept

If non-conformance is CTS =
label and count

% for Dept/Section

YTD-Summary

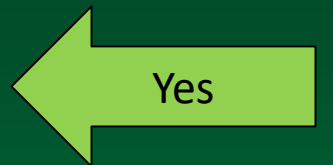
- Part of Supervisor's Performance Appraisal
- Part of Team based recognitions for workers.

Monthly Safety Data	# of Events		# of Changes Identified/Needed		Closure Rate (From Date Closed)		Effectiveness (Control Type) (% eng, sub, elim)		Conformance Rate		
EHS Report Topics	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Description
Risk Assessment Changes to Controls	25	10	69	10	16%	100%	61%	100%			
Monthly Incident Review	8	10	35	10	25%	100%	86%	100%	63%	100%	Still closed at 90 days
Monthly Inspections/Descrepancies	20	10	100	10			58%	100%	37%	100%	number of findings, vs total number of obseravtion
Monthly Observations (Optional)	20	10	33	10					93%	100%	Number at risk vs total number of observations.
Communication to Supervisors (EHS Tool)	21	10	189	10	29%	100%	77%	100%			
EHS Action Plan Status	5	10	0	10	60%	100%					
EHS Rewards & Recognition	40	10									
Incidence Rate (Incident Frequency)											
Incidence Rate (Lost Work Day Rate)											

Measuring the right things and people

Who should be measured on the closure rate of inspection findings?

1. Safety only
 - No
2. Maintenance only
 - No
3. Operations only
 - No
4. The supervisor and manager of the area (unsafe condition) or person (unsafe behavior)





Employee Participation

- Engagement is a superior level of participation

Participation	Engagement
Attend Safety committee	Chair safety committee
Perform a safety inspection	Revise the inspection checklist or schedule
Perform an accident investigation	Suggest corrective actions based on another department's lessons learned

Ex: Worker Involvement Options

- Study a video and modify the checklist
- Train other inspectors
- Change the schedule (more or different)
- Do inspections
- Prioritize high risk findings
- Determine high risk closure deadlines
- Do the trend analysis
- Recommend G&Os

ID Inspection Categories and Criteria

Train the Inspectors

Schedule the Inspections

DO THE INSPECTION

Track Inspection Findings

Measure Closure Rates

Do Trend Analysis

Develop Goals and Objectives

Notice: nothing about incidence rates!

Recognition

- Individual

- Ex: Passport
 - Multiple activities, each gets approved
 - Accumulates points.
 - Into as part of new employee orientation

Participate on an inspection
Attend a safety committee
Turn in a suggestion
Turn in a near miss
Do a behavior observation
Etc.

- Team

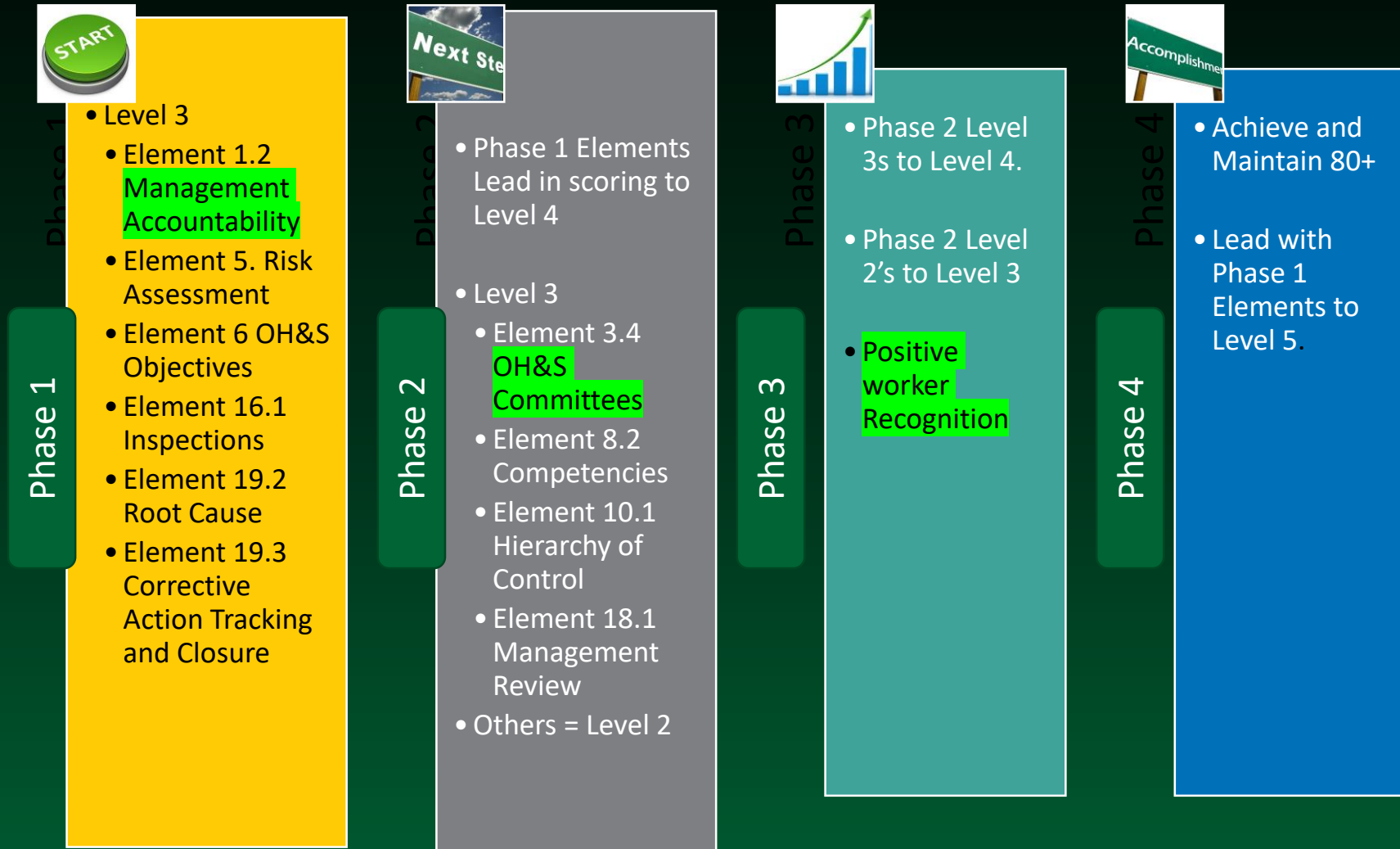
- Conformance Rate
- Critical to Safety (CTS) Conformance Rate
- Training Retention
- Etc.

Awards can be monthly or quarterly

Food, points, etc.

Getting Started

Phase Timetables Are Based on Resources and Leadership Directives



If possible, start with Management Accountability, then employee engagement, before recognition!

Elements Still Missing?

- Safety Committees
 - Oregon
 - <https://osha.oregon.gov/OSHAPubs/0989.pdf>



**Safety committees
and safety meetings**
*for general industry and
construction employers*

Objectives

- ✓ ISO 45001 Strengths and Weaknesses
 - ✓ Comparisons to other SMS
 - ✓ Where are the Implementation Strategies?
- ✓ Maturity Path Model:
 - ✓ PEP
 - ✓ Form 33 (Sharp)
 - ✓ Safety Through Accountability and Recognition (STAR)
- ✓ Metrics are the Key
 - ✓ If the Right People are Measured on the Right Things.
 - ✓ Safety Through Accountability and Recognition



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————— Safety Through Accountability and Recognition —————

Working together for a safer, stronger future.

YOUR FEEDBACK IS IMPORTANT

Three vertical yellow lines of varying lengths are positioned to the left of the text.

Session Evaluations can be completed: