



# The Full Circle Journey

Management System Design and Implementation

April 18, 2024



Mining Health and Safety Conference 2024



# Talking Points

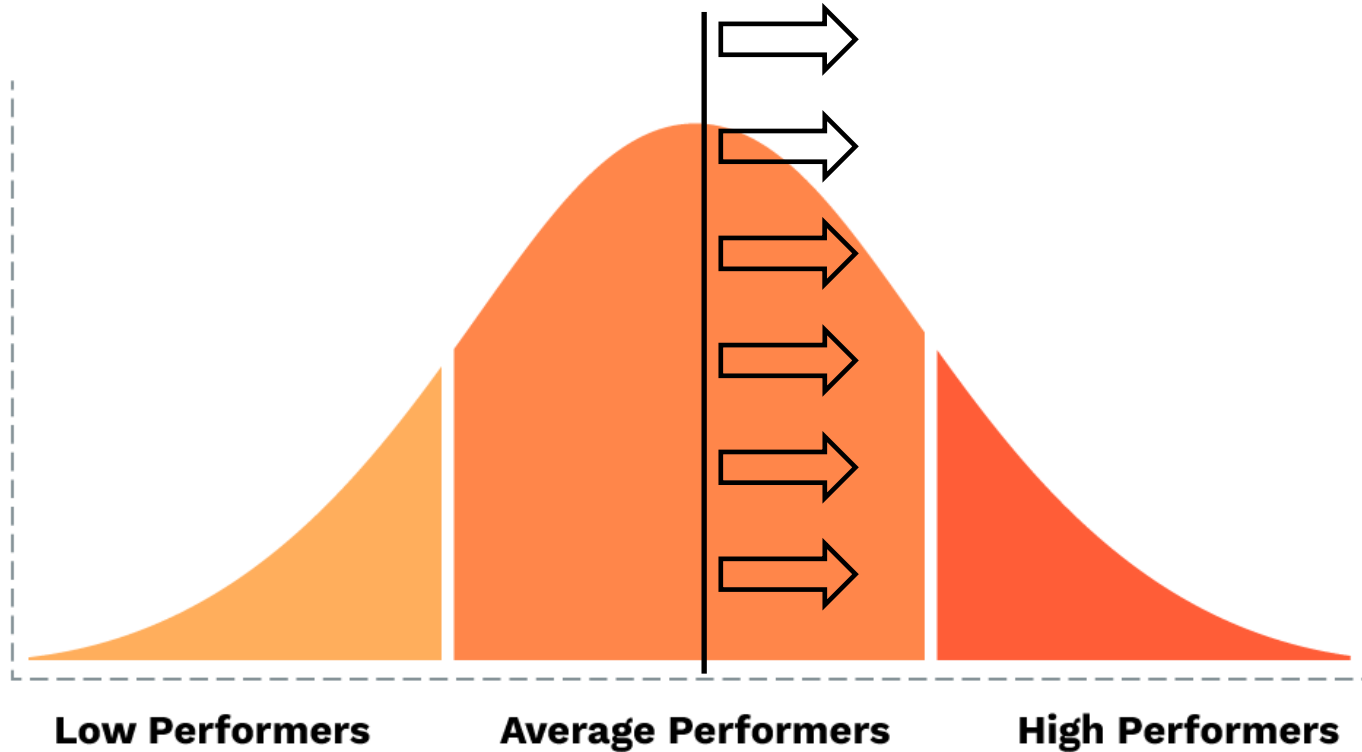
- Changing Safety and SMS Landscape
- Navigating SMS Standards
- Culture vs. Systems
- Importance of Fit-for-Purpose System Design
- Designing Maturity into Systems
- Concept of Diminishing Returns
- Organizational Demands on System Design, Implementation, Maintenance
- Be One with the System



# The Landscape

Safety Management “Systems” in Mining – Early 2000s

# How Safety Evolves



# Common Themes

- Compartmentalized, simple procedures
- Stand-alone audits and inspections
- Lack of formal tracking, “loop closing”, and escalation
- Limited resources – people, information, software
- Non-system thinking, lack of system-level procedures
- Lots of “flavors of the month” cause distractions
- Focus on lagging indicators
- Limited formalized risk assessment

# The Mandate

- Top management decision
- Combined ISO 14001 + OHSAS 18001 Management System
- 3 operating mines, extensive surface exploration program
- 1000 employees + contractors
- 12-month timeline

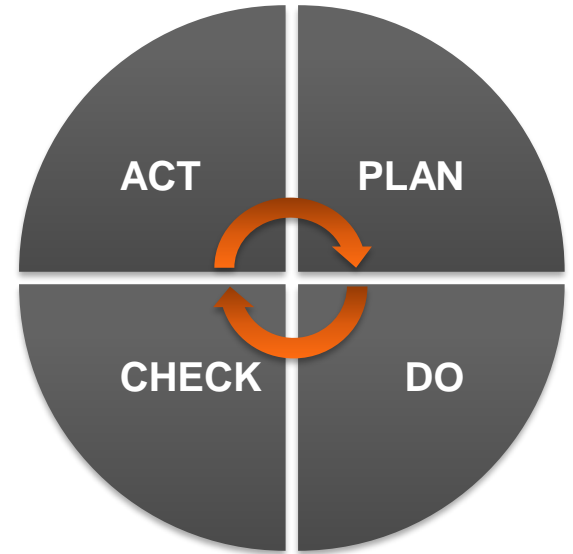
# The Journey Begins

- Consultant
- Budget
- Management commitment
- Software + infrastructure
- Allocate internal resources



# SMS Design Lifecycle

- Define context, scope of SMS
- Outline framework for documentation
- Identify legal requirements (register)
- Identify, assess risks
- Develop documentation
- Set objectives and targets, management review
- Training – roles, general awareness
- Implementation, data collection
- Improvement model, planning





# Reflection

- Aggressive timeline wasn't aligned with the current culture / landscape
- Effort towards making sure boxes were checked
- Development / implementation done in more “manageable” chunks would have been easier, better received
- We didn't allow much flexibility within in our SMS framework (time + understanding)
- End users didn't understand the intent of the project



# SMS Design Philosophy

Make it Fit-For-Purpose

# The Journey Continues

- Oh boy, 2008!
- Just experienced a full-blown SMS design and implementation process
- Understood the landscape
- Felt ahead of the curve
- Had take-aways



# SMS Standards

Several other SMS standards emerged and continue to do so.

Considerations:

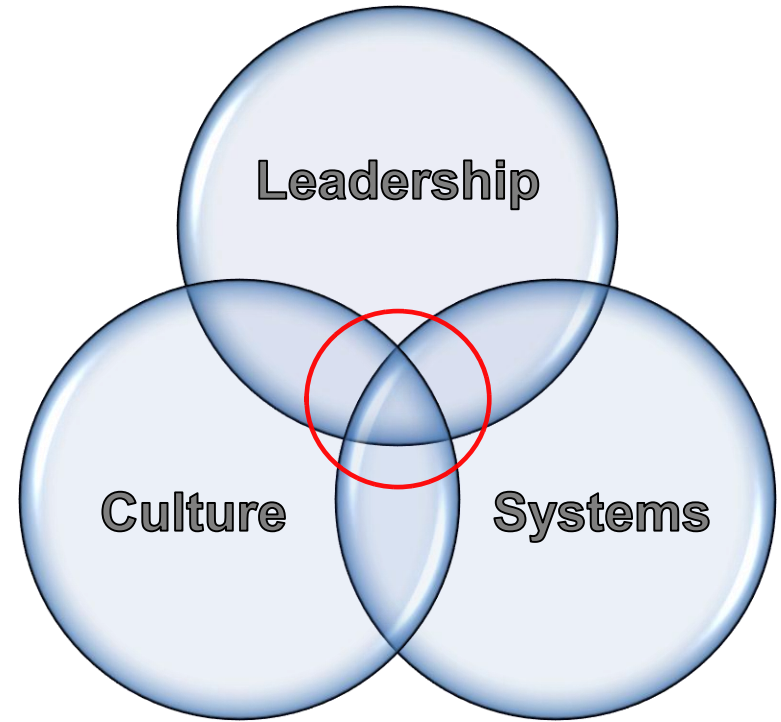
- Is the SMS Standard suitable for your organization / industry?
- What is your motive for choosing a particular SMS Standard?
- Can you predict the amount of work / cost that will be involved?
- Are you just trying to gain a certificate? Why?
- Is it right for your current culture?

# Culture vs. Systems

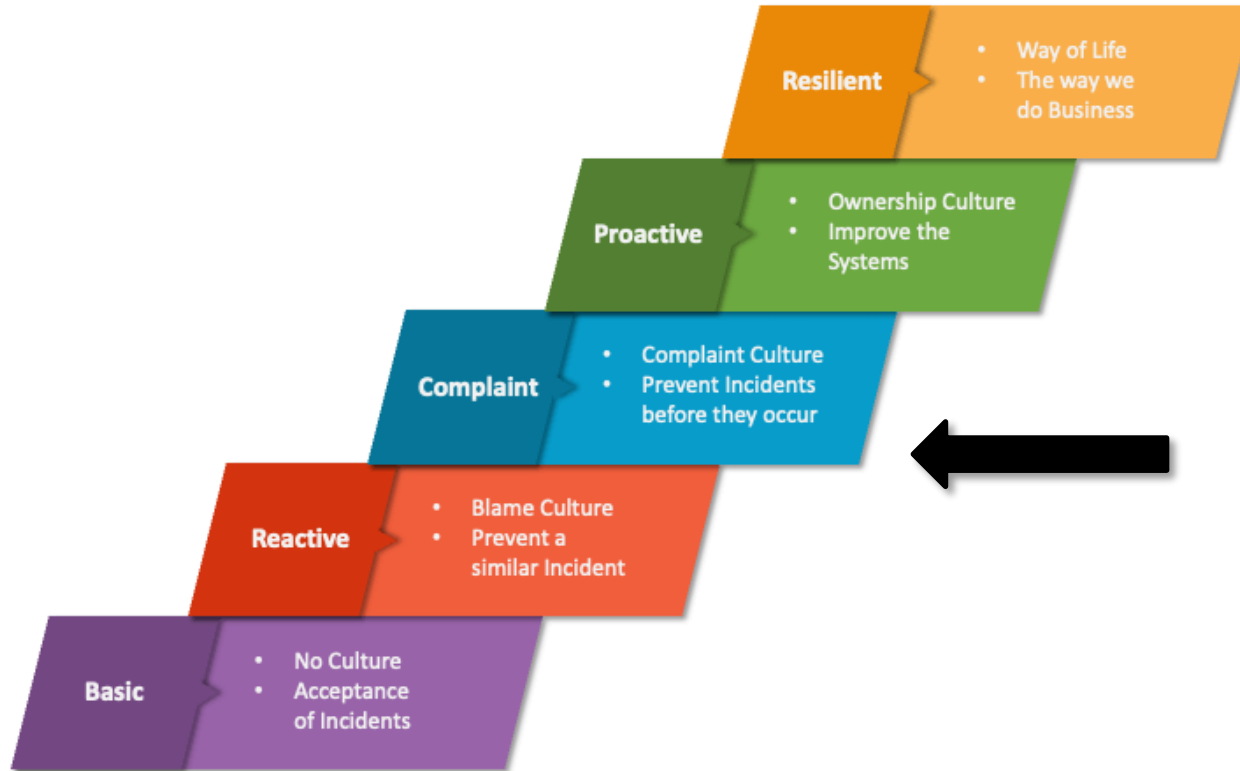
Three main pillars of safety:

- Leadership
- Culture
- Systems

Organizations want systems to help improve culture, but the culture dictates the level of challenge you will face when developing and implementing your SMS.



# Safety Culture Maturity

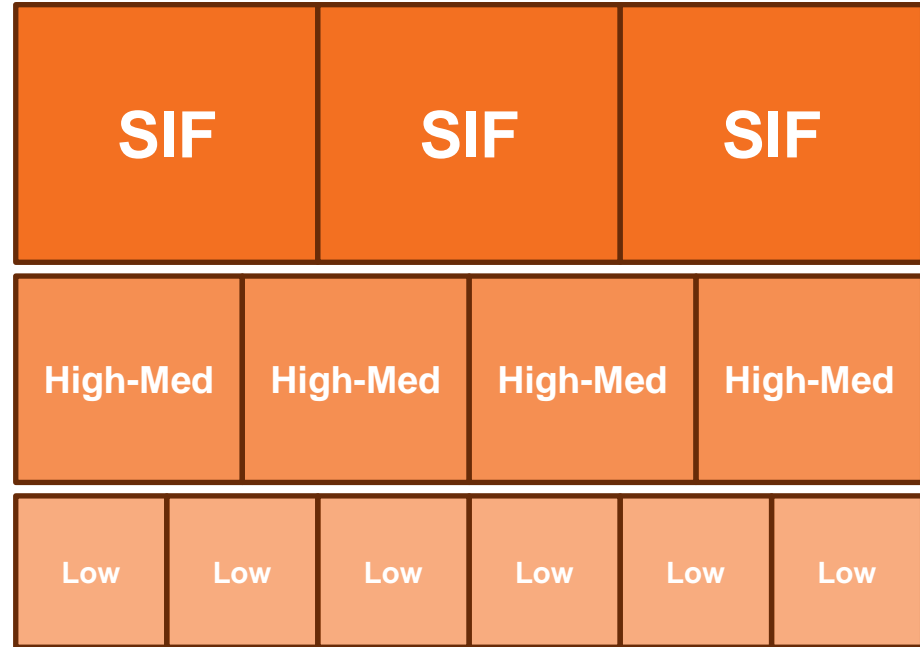


# Risk Management is the Cornerstone

- Good management systems should be risk-based
- **Effective** risk management will yield strong performance results
- Conversations shift to managing risks
- Risk management becomes part of business decisions
- Change management is tied back to risk assessment
- Risk management activities produce a lot of data that is used for metrics, system improvements, objectives and targets, etc.

# Not All Risks are Equal

- Some SMS frameworks require a similar amount of effort for all risks
- Your methodology should allow a dynamic approach
  - Qualitative vs. quantitative
  - Various tools, methods
  - Complexity of control strategies
  - Internal communication, programs
- This also hinges on culture





# Interpreting Fit For Purpose

Fit-for-purpose solutions are often a better early-stage approach to implementing an SMS.

- Understand the basic framework for how you wish your SMS to function
  - You can loosely base your SMS design around an existing standard, or elements from different standards
- Identify where your focus areas should be
- Allows for flexibility in design and rollout
- Fits the organization
- Where do you want your SMS to be in one year? In 2+ years?
  - How will you get there?

# System Maturity

Systems should mature over time. You should gauge your starting point and look to the future.

- Addition or strengthening of SMS elements
- Expanded scope
- Reduction of non-value-added activities
- Increased or decreased complexity

Setting objectives and targets (SMART) is the best way to build maturity into your system.

# Objectives and Targets

A good SMS will involve the continual setting of objectives and targets. Setting objectives and targets each year allows for SMS growth while also satisfying requirements of the SMS.

- DO NOT focus strictly on improving lagging indicators – If you do, what tangible steps will help you get there?
- Use data being collected to help determine focus areas
- Examine shifts in culture and gauge what you are ready for
- Build a strong case for management



# Diminishing Returns

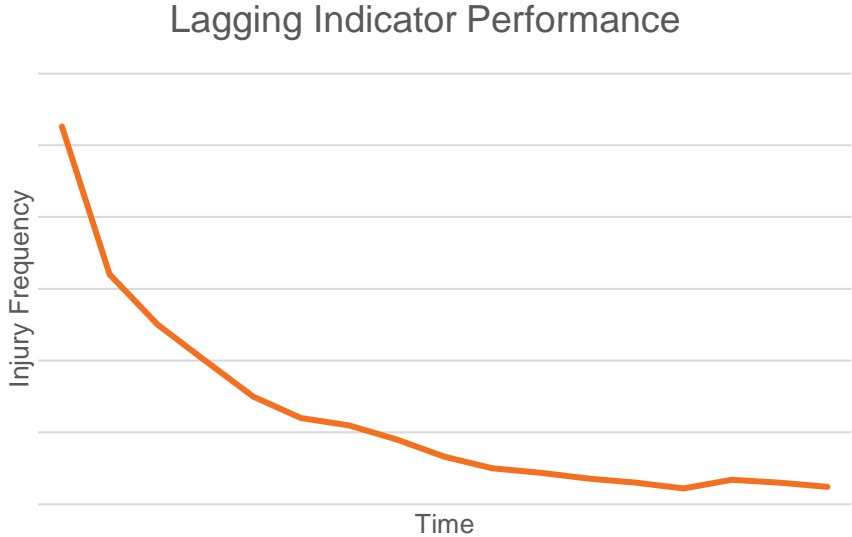
What is your actual return on investment?

# Your Investment

- Time + resources
- Money
- Reputation

# Return on Investment

- Big focus on lagging indicator performance
- Other considerations
  - Better employee engagement
  - Cultural shift
  - Better management of risk
  - System element improvement
  - Useful data
  - Buy-in

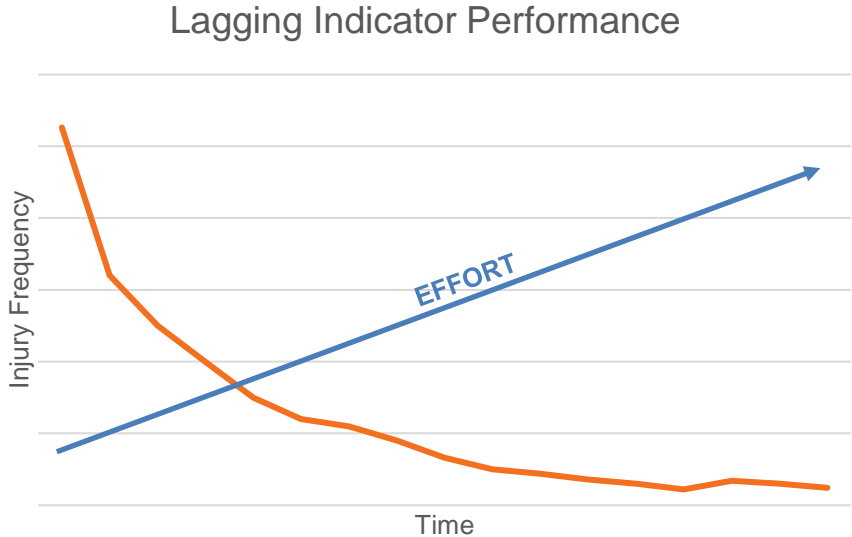


# Administrative Demands

- Top management
- Middle management
- Front line supervisors
- Workers and contractors

# Diminishing Returns

- Improving lagging indicator performance becomes harder over time
- Administrative tasks can prevent focus on the right things
  - Less time in the field
  - Chasing SMS compliance
- Even more individual effort is required to stay the course





# Managing Risks

Does/will your SMS require you to incorporate new “top risks” each cycle?

- Same level of effort?
- Maintenance activities on previously risks / control programs?
- When does this become an administrative exercise to ensure SMS compliance, or retain certification?

SIF			SIF			SIF		
High-Med		High-Med		High-Med		High-Med		
Low	Low	Low	Low	Low	Low	Low	Low	

# Design Criteria, Ready to Go

All things considered...

- Decided on a scope and framework
- Understand overall goals
- Confidence in the project
- Management and team endorsement
- Culture, resources and infrastructure understood

Design, implement, audit, maintain and improve (P-D-C-A)



# Be One with the System

You've designed and implemented your SMS, now what?

# The Journey Continues

- Analytics
- SMS auditing
- Culture assessments
- Further SMS development



# Common Problems

- SMS still viewed as a standalone element of the overall safety program
- Not well-communicated to stakeholders, end users
- People leave, lack of planning
- People feeling bogged down by paperwork, compliance reporting
- People find ways to strictly “stay compliant” with SMS requirements
- Leading indicator metrics distract focus – measured quantitatively, not qualitatively



# Data Analytics

The SMS can produce a lot of data, it is important to identify / maximize its usefulness.

- Areas of focus
- Objectives and targets
- SMS compliance and administration

The “keeping boxes checked” or “maintaining certification” mentality is harmful.

# Safety Management

A safety management system is system for managing safety.

- It's not a manual, it's not a policy, it's not a singular activity
- It should not be considered a stand-alone element
  - All elements should be incorporated into the system (e.g. A&D Testing)
- Well defined roles, responsibilities
- Strong communication at all levels
- Data analytics
- Desire to make improvements

# Closing Summary

- Plan your project well with reasonable timelines
- Certification should be a reward, not a short-term goal
- Design the right system for your organization
- Focus energy in the right places, maximize investment
- Plan for system maturity by setting achievable objectives
- Think long-term success
- Use data analytics to help stay focused, make improvements



**Thank You. Questions?**