Right Sizing Your Risk Management Program

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OSH (R)evolution

- OSH Professionals rethinking the tenets that determine how we practice and lead
- Compliance-based approaches running out of steam
- Managing risks of the workplace required a risk-based approach
- Mistakes or evolution?

transforming ideas into reality®

5

Risk Transformation

"Reliance on traditional approaches to fatality prevention has not always proven effective. This fact has been demonstrated by many companies, including some thought of as top performers in safety and health, as they continue to experience fatalities, while at the same time achieving benchmark performance in reducing less-serious injuries and illnesses."

Lon Ferguson
Chair – IUP Safety Sciences Department
2012 Fatality Prevention Forum

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How "Safe" Are We?

- Incident rate reductions slowing down
- Fatality and serious incident (FSI) rates steady (increasing in some areas)
- Traditional focus on injury rate reduction forces an after-the-fact approach
- Incorrect assumption that incidents are caused primarily by unsafe acts of employees
- Low level controls not effective in preventing FSIs

Risk Transformation

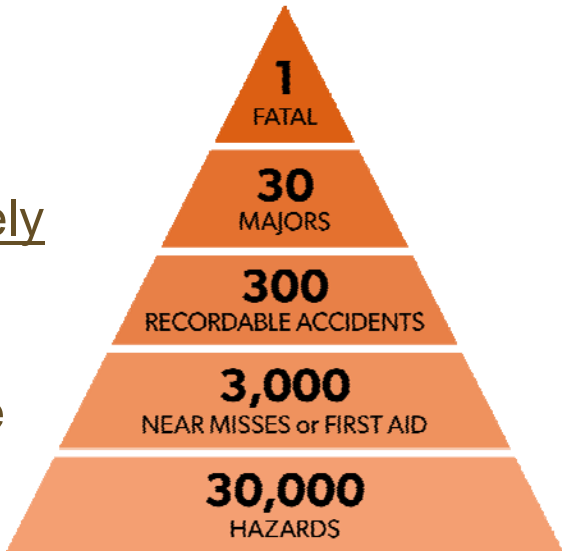
OSH professionals are working to redefine what “safe” means

- Heinrich’s Pyramid is not the complete answer.

Poor Heinrich

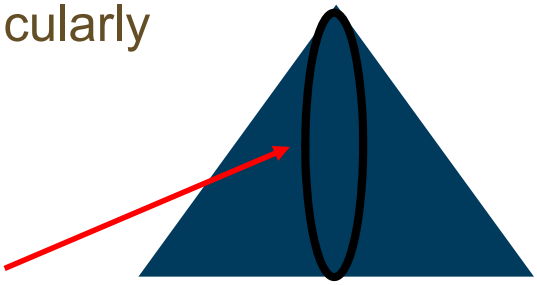
The triangle is:

- Accurate descriptively regarding incident type ratios
- Correct that a single incident can be significant



But it isn't…

Accurate predictively in terms of potential for injuries, particularly FSIs.



21% of all types of incidents have the potential to become a FSI, based on known precursors

Risk Transformation

OSH professionals are working to redefine what "safe" means

- Most incidents are NOT caused by "operator error."

The Human Factor

- A factor in nearly every incident, but it is not the only one and it is never the true "root" cause.
- Flawed incident investigations reinforce this concept
  - Limited understanding of multi-causal analysis
  - Frequency of "operator error" as the first (last and only) cause identified

"Operator Error"?

Expecting 100% of your workers to behave safely 100% of the time?

Risk Transformation

OSH professionals are working to redefine what “safe” means

- OSHA Incident Rates do not provide the data needed to effectively drive safety performance initiatives.

2007 Rand Study

- No relationship between OSHA injury rates and FSIs
- Absence of minor injuries is NOT predictive of the absence of future FSIs
- Presence of minor injuries is NOT predictive of the presence of future FSIs

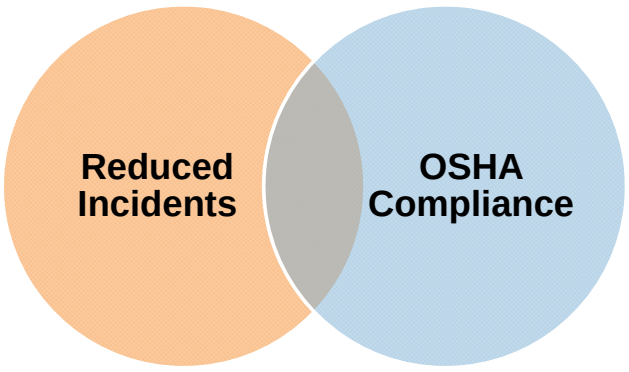
RAND CORPORATION

2014 Rand Study

RAND CORPORATION

- The fatality rate in the UK is about 1/3 of the US rate.
  - 1/4 the rate in construction
- Lower rates are associated with management attention to safety and a risk management approach

In Other Words



That sweet spot is too small.

Moving Forward - The New Paradigms

- One injury prevention strategy will not reach all injuries equally
- Reducing frequency is not the way reduce severity
- Identify FSI causes in your organization in order to redirect your OSH program efforts and resources to high risk tasks/activities

Common FSI Precursors

1. Unusual and non-routine work
2. Non-production activities
3. In-plant modification/construction operations
4. Outage work – repair, maintenance, start-ups
5. High energy sources are present
6. Upsets occurring

Common FSI Causes

1. Struck by/crushed by objects
2. Operation of/interaction with mechanical equipment
3. Falls from height or same level
4. Electrical contact
5. Contact with non-electrical hazardous energy
6. Explosions and fires

Risk is the Word

- Risk-based approaches provide the best way forward toward preventing FSIs
- Hazard and risk analysis techniques must be embedded into an organization's culture
- Employees must have a risk analysis mindset – they must be skilled at it

The New Normal

- Risk management approaches embedded in safety management systems → Plan (Plan, Do, Check, Act)
- ISO/ANSI
  - Risk Management Standards
  - Safety Management Systems Standards
  - Prevention through Design Standards

Right Sizing

- SME's and Risk

SME

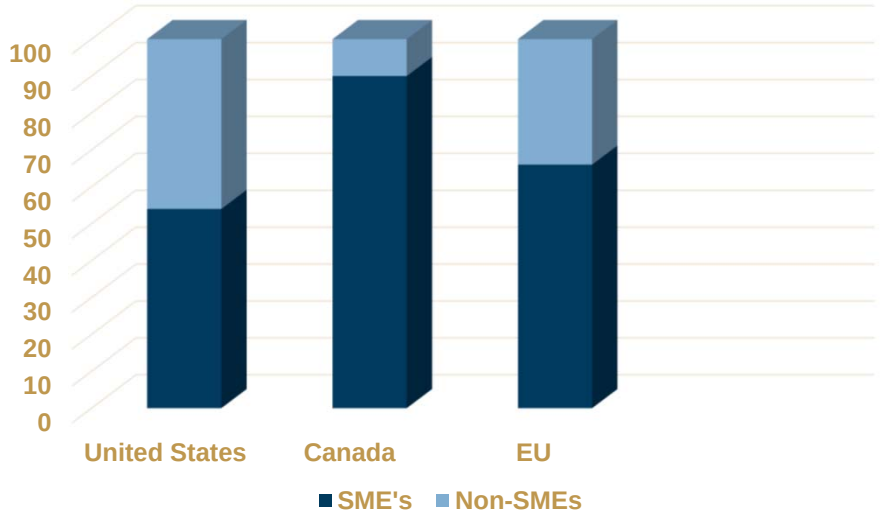
SMALL & MEDIUM ENTERPRISES

100-1,500 workers (NAICS Code)

United States
- 28 million SMEs

European Union
- 10 million SMEs

Percent of Workforce in SMEs



Who Can Afford It?

- SMEs
  - Higher exposure to negative aspects of risk
  - Nimble in ability to adapt due to size
  - Easier to adopt risk management framework
  - Ultimately increases growth

How can they not afford it?

Benefits of Risk Management

1. Incident Prevention
2. Caring Culture
3. Operating Efficiency
4. Operating Costs Reduced
5. Risk Profile Reduced
6. Safe Designs Utilized
7. Resources Managed
8. Proactive Approach

Regardless of size

Right Sizing

Now What?
Become an Expert on Risk Management

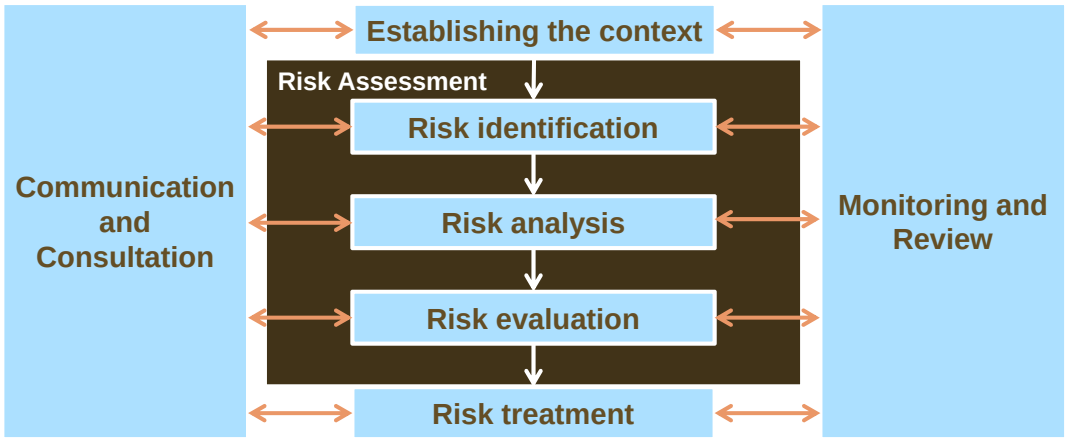
How Do You Start?

Someone has to take up the flag…..

Become an Expert on Risk Management

- ANSI/ASSE Z690 series – Risk Management
- ANSI/ASSE Z10 – Safety Management Systems
- ISO 31000 - Risk Management – A practical guide for SMEs (Lark)

Become an Expert on Risk Management

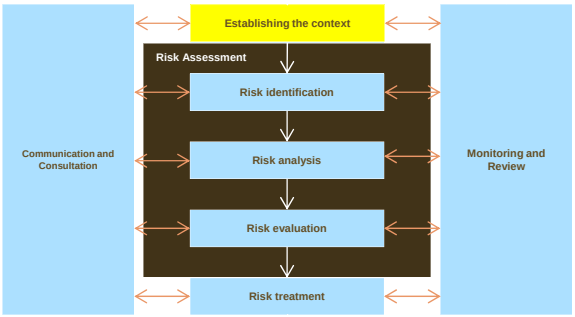


ANSI/ASSE Z690

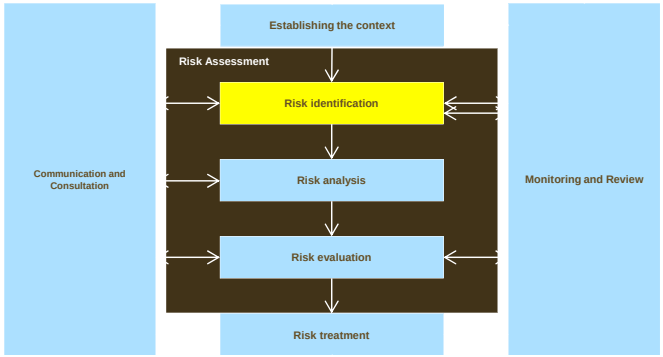
Establishing the Context

Define and document:

- Objectives
- External/internal parameters
- Scope and risk ranking criteria
- Risk acceptability criteria
- Risk assessment process
- Risk management steps



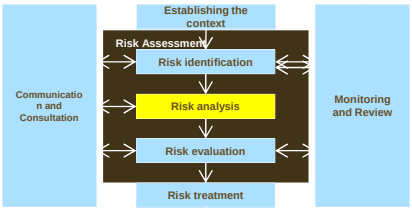
Risk Identification



- Identify the hazards
- Numerous tools available
- Varying strengths and limitations
- Select the one which works best

Risk Analysis

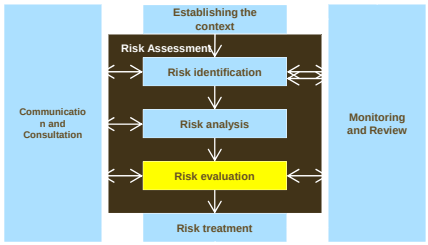
- Quantify the risk
- Over 30 tools available
- Simple matrices
- Complex models

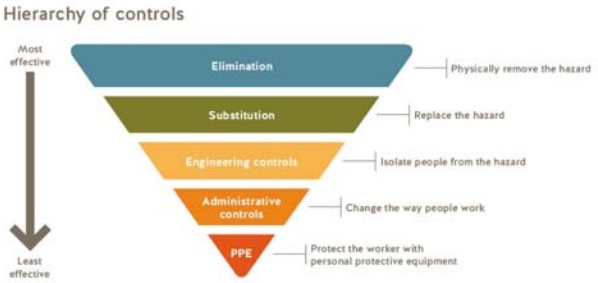


Likelihood Rating							
	E	IV	III	II	I	I	I
	D	IV	III	III	II	I	I
	C	V	IV	III	II	II	I
	B	V	IV	III	III	II	I
	A	V	V	IV	III	II	II
		1	2	3	4	5	6
		Consequence Rating					

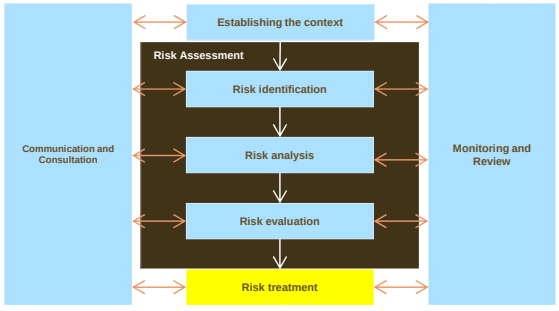
Risk Evaluation

- Evaluate controls to determine if the risk is acceptable
- Consider additional controls for unacceptable risks
- Create data to make decisions and monitor future actions





Risk Treatment

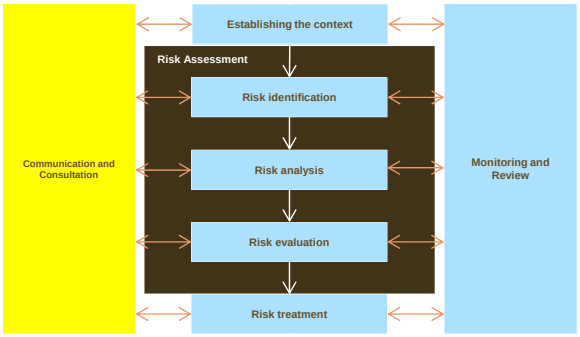


Document how treatment options will be implemented

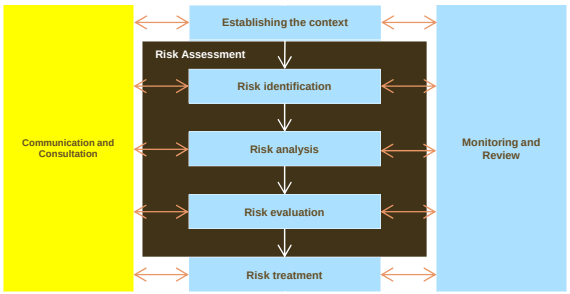
- Proposed actions
- Priority order
- Assign responsibilities
- Available resources
- Timelines
- Performance measures
- Reporting and monitoring

Communication

- External/internal stakeholders
- All stages of the process
- Controls communicated to those performing the tasks:
  - Training and conformance testing
  - Observation and feedback
  - Coaching



Consultation

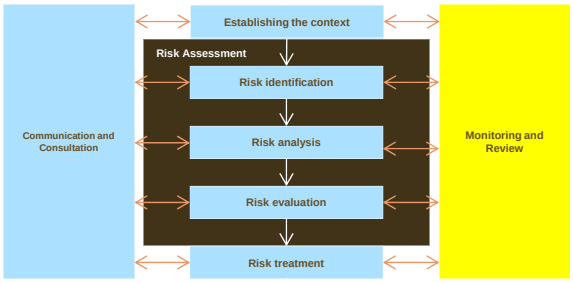


- Stakeholders interests
- All risks identified
- Variety of expertise
- Different views considered when defining risk criteria/evaluating risks
- Secures endorsement for treatment plan

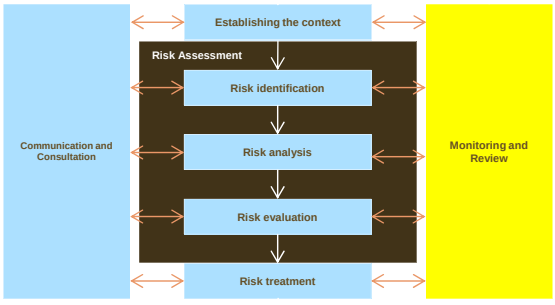
Monitoring

During all aspects of the process to:

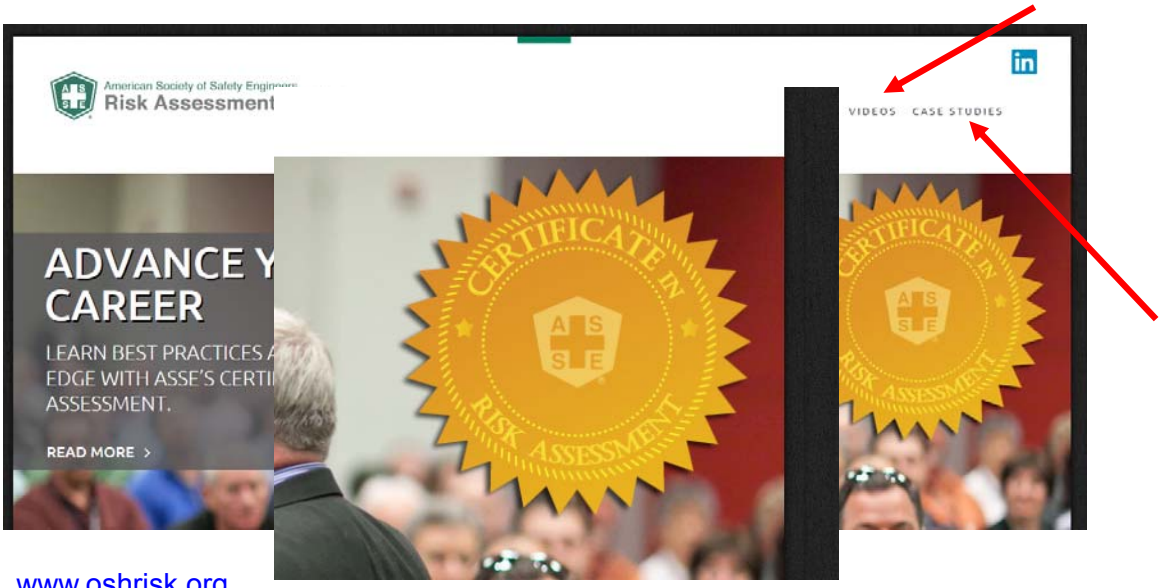
- Ensure controls are effective
- Obtain process improvement information
- Produce “lessons learned”
- Detect changes/revise treatments
- Identify emerging risks



Review



- Ongoing review of leading metrics including:
  - Monitoring results
  - Treatment plan results
  - Risk reductions
- All are recorded and externally and internally reported



www.oshrisk.org

- Benefits of Risk Assessment
- Communicating Your Top 5 Risks

ANSI/ASSE Z590.3

Safety by Hazard

- Looks at the system in pieces on a case-by-case basis
- Hazards-based approach to minimizing workplace injuries
- Procedures and processes that rely almost exclusively on worker behavior

ANSI/ASSE Z590.3

Safety by Design

- Risk assessment approach to managing workplace incidents
- Assessing risks and designing systems to reduce them to an acceptable level.
- Emphasis on preventing incidents through designing them out

ANSI/ASSE Z590.3

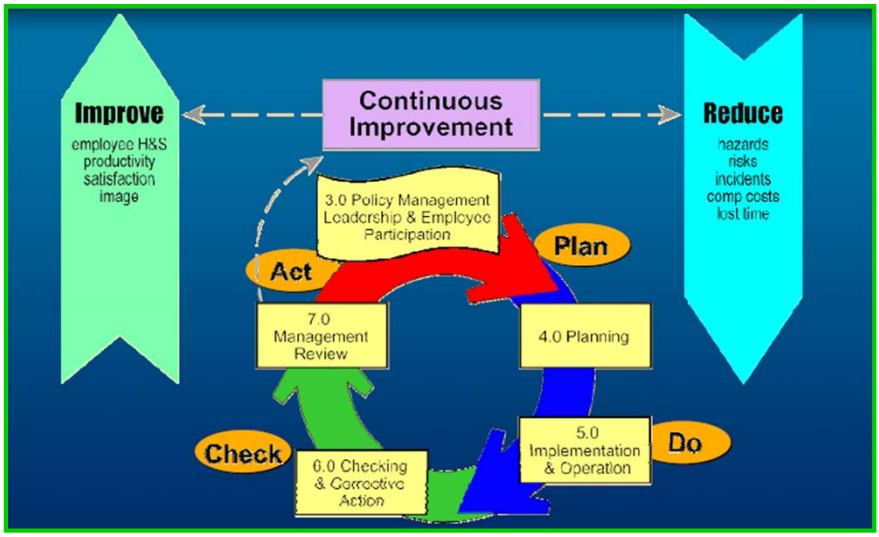
The only controls that will reduce risk severity.

Hierarchy of Controls

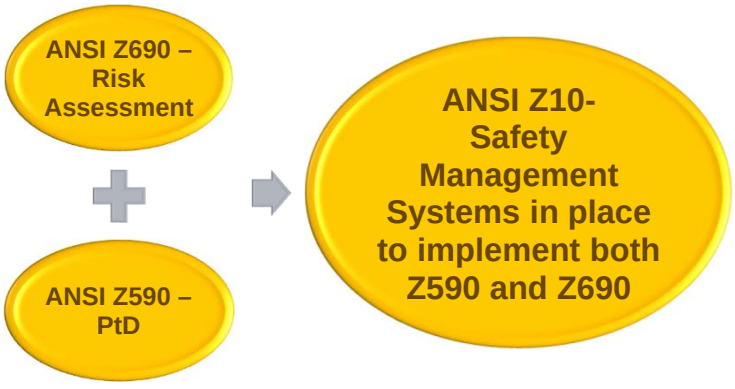
1. Risk avoidance
2. Eliminate or reduce in design and redesign process
3. Reduce risk by substitution

- ✓ Preventative actions
- ✓ Rely least on performance of personnel
- ✓ Difficult to defeat

Continuous Improvement – ANSI Z10



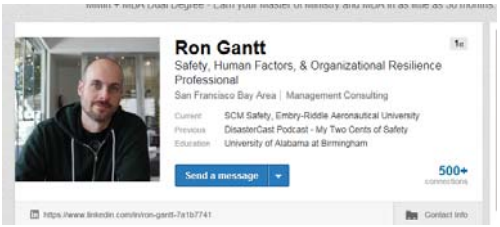
How Does it All Fit Together?

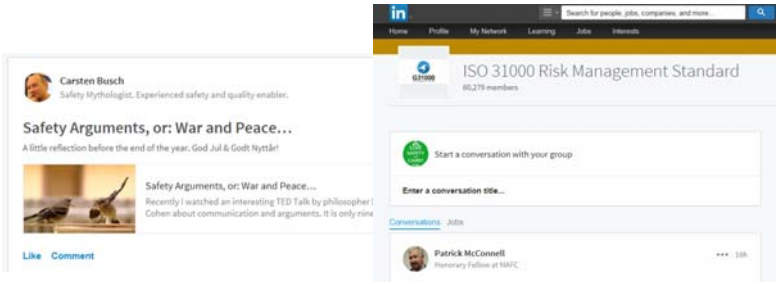


Become an Expert on Risk Management

Get to know the thought leaders

- Erik Hollnagel – Safety-I and Safety-II
- Sidney Dekker – Safety Differently
- Ron Gannt – SCM Safety
- Carsten Busch – “Safety Mythologist”
- Who else?





Become an Expert on Risk Management

Learn to speak a new language

- Risk sources
- Trigger event
- Consequences
- Probability
- Exposure
- Critical to safety
- Prevention through Design

Become an Expert on Risk Management

Risk is not the sole purview of OSH –
ANSI Z690 is not exclusive to OSH risk

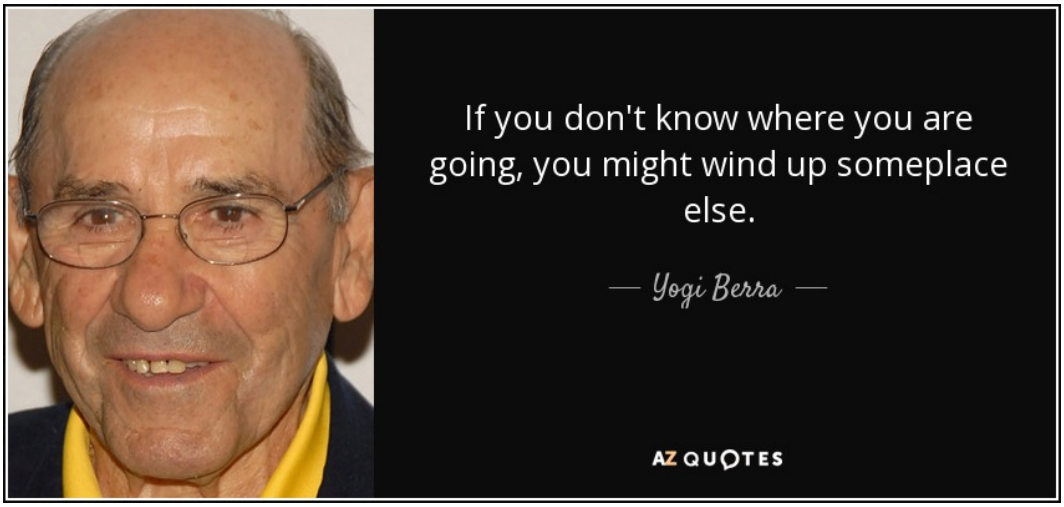
"Organizations with clear accountabilities and good internal communication often have a culture that is receptive to implementation of risk management."

Lark

Right Sizing

- **Now What?**
  Conduct a Gap Analysis

Gap Analysis



Gap Analysis

- Principles that guide risk assessment
- Relevant policy
- Accountabilities
- Guidance on when and where risk management will be done and how the results will be used
- Risk management resources (financial, people, tools)
- Communication and reporting

Lark - 38

Gap Analysis

Answers the questions:

- How does the SME gather and utilize information related to operations?
- Who is responsible for gathering it and what do they gather?
- What internal and external information sources are used?
- How is the information disseminated to both internal and external stakeholders?
- How does SME address uncertainty in its markets?

Gap Analysis

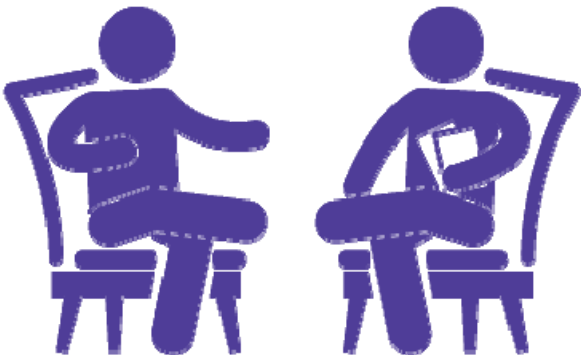
Answers the questions:

- How does the SME plan for growth?
- How does the SME create and protect the value of its operations and assets?
- How does the SME protect the integrity of its assets and of its supply chain?
- Who is responsible for identifying threats and opportunities?
- Who develops and implements plans to address them?

Gap Analysis

Two spheres:

1. What you know about how your organization functions
   - informal knowledge based upon experience
   - structured interviews



Gap Analysis

Two spheres:

2. What policies and procedures say about how your organization functions – formal document review
   - Strategic Plans
   - Procedures – governance, budgeting, internal/external communication
   - Insurance policies
   - Patents/Trade Secrets
   - Marketing/PR Plans

Conduct a Gap Analysis

Document review → looking for:

- Existing policies that utilize risk concepts/principles (insurance, financial, marketing)
- Accountability policies (purchasing, quality)
- Resource allocation processes
- Communication/reporting mechanisms

Conduct a Gap Analysis

Identify risk management principles in place:

- How does SME gather/utilize information related to operations?
- How does SME create/protect value?
  - Who assesses risks, who decides to take them?
- How does SME address uncertainty → markets, supply chain, etc.
  - Threats, opportunities

Conduct a Gap Analysis

Governance ⟷ Risk Management

- Risk Management - coordinated activities to direct and control an organization with regard to risk

Conduct a Gap Analysis

- Governance – coordinated activities to direct and control an organization
  - How and when decisions are made with accountability considerations
  - Clarify over roles and responsibility
- Understand organization's governance procedures
  - Will establish how the organization will control risk activities
  - Clarifies lines of authority ⟶ Org Charts

Conduct a Gap Analysis

- Align with organization's strategic plan
  - Helps sell the approach
- Understand organization's governance procedures
  - Will establish how the organization will control risk activities
  - Clarifies lines of authority

Conduct a Gap Analysis

- What's your SMEs "risk attitude"?

  "organization's approach to assess, and eventually pursue, retain, turn away from or take risk"
- What's your SME's "risk tolerance"

  "organization's or stakeholder's readiness to bear risk after risk treatment in order to achieve its objectives."
- Understand "acceptable risk" in your organization.

Right Sizing

- **Now what?**
  Engage Senior Management

Engage Senior Management

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Is the glass half-full?

Engage Senior Management

- What's your SMEs "risk attitude"?

  "organization's approach to assess, and eventually pursue, retain, turn away from or take risk"

- What's your SME's "risk tolerance"

  "organization's or stakeholder's readiness to bear risk after risk treatment in order to achieve its objectives."

- Understand "acceptable risk" in your organization.

Engage Senior Management

Risk Rating			Remedial Action
L (Low)	Acceptable	< or = 3	Remedial Action may not be necessary
M (Medium)	Tolerable	>3 - <7	Remedial Action at an Appropriate time
S (Serious)	Tolerable	7 - 11	Remedial Action on a Priority Basis
H (High)	Not Acceptable	> 11	Immediate Remedial Action is Expected

Engage Senior Management

Develop and adopt risk policy:

- Commitment to consider risk in all decision making
- Commitment to implement 11 principles for effective risk management (ANSI/ASSE Z690.2-2011)

Engage Senior Management

Develop and adopt risk policy:

- Statement of objectives of risk management process/how measured
- Statement of roles/responsibilities of key personnel who implement, monitor and review the process
- Commitment to provide necessary resources (time and money) to implement

Engage Senior Management

- Transformation and ongoing implementation
- Resource needs
  - People → experience, competence
  - Financial → training, time away from duties
  - Systems development → document management, monitoring/review, who's in charge

Right Sizing

- **Now what?**
  Find Your Risk Champions

Find Your Risk Champions

Have any OSH champions?

- Make them Risk Champions

  "Advocates for risk management can be identified, but rarely created." (Lark)

- Help them be contagious

Find Your Risk Champions

- Identify those with prior risk management experience (finance, marketing, stakeholder relations)
- Can the scope of their responsibilities be expanded?
- Retain outside expertise

Right Sizing

- **Now what?**
  Train the Team and Lead Them to Success

Train Team – Lead Them to Success

- Team Make-up
  - Risk Champion
  - O&M Department
  - Front line supervisor
    - Willing to have department/process risk assessed
  - Safety Committee member

Train Team – Lead Them to Success

- Understanding of the risk management framework as provided in ANSE/ASSE Z690-2011
- Definitions for critical terms – hazard, risk, probability/likelihood, severity/consequences
- Risk assessment tools used to conduct the assessment
- Hierarchy of controls - emphasize how higher level controls provide better management of risk
- Application of risk treatment once the assessment is completed.

Train Team – Lead Them to Success

- Lead the team into success from the start
  - Word spreads faster in SMEs
- Start where you are welcome
  - Cherry pick away – make the team look good
  - Consider
    - Incident data
    - Known precursors for high severity incidents

Typical Precursors

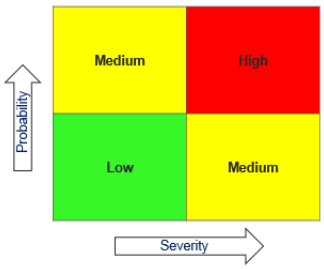
- The use of mobile equipment → pedestrians
- Confined space entry
- Control of hazardous energy
- Lifting of products, equipment or machinery
- Working at heights
- Manual material handling
- Process instability/process upsets
- Unexpected maintenance
- Emergency shutdown procedure use

Right Sizing

- **Now what?**
  Choose Your Tools Wisely

Choose Your Tools Wisely

- 30+ to pick from
- An effective arsenal may only require 1-2
- Get the team's feet wet with less complicated ones to start



Choose Your Tools Wisely

Must be able to:

- Identify hazards and risks
- Assess the risks based on existing controls
- Determine if additional controls are needed to reach acceptable level

Risk Analysis Goal:

- Determine consequences and probabilities
- Consider the presence (or absence) and effectiveness of controls

Selecting the Right Tool

- Complexity of the problem
- Nature and degree of uncertainty of the risk
- Extent and availability of resources
- Need for risk quantification
- Leader expertise
- Team knowledge

Less expertise → Checklists
More expertise → Quantitative methods

Selecting the Right Tool

Table A.1 – Applicability of Tools Used for Risk Assessment

Tools and Techniques	Risk Assessment Process				
	Risk Identification	Risk Analysis			Risk Evaluation
		Consequence	Probability	Level of Risk	
Brainstorming	SA[1]	NA[2]	NA	NA	NA
Structured or Semi-Structured Interviews	SA	NA	NA	NA	NA
Delphi	SA	NA	NA	NA	NA
Checklists	SA	NA	NA	NA	NA
Primary Hazard Analysis	SA	NA	NA	NA	NA
Hazard and Operability Studies (HAZOP)	SA	SA	A[3]	A	A
Hazard Analysis and Critical Control Points (HACCP)	SA	SA	NA	NA	SA
Environmental Risk Assessment	SA	SA	SA	SA	SA
Structure <<What if?>> (SWIFT)	SA	SA	SA	SA	SA
Scenario Analysis	SA	SA	A	A	A
Business Impact Analysis	A	SA	A	A	A

Selecting the Right Tool

Table A.2 – Attributes of a Selection of Risk Assessment Tools

Type of Risk Assessment Technique	Description	Relevance of Influencing Factors			Can Provide Quantitative Output
		Resources and Capability	Nature and Degree of Uncertainty	Complexity	
LOOK-UP METHODS					
Checklists	A simple form of risk identification. A technique which provides a listing of typical uncertainties which need to be considered. Users refer to a previously developed list, codes or standards.	Low	Low	Low	No
Preliminary Hazard Analysis	A simple inductive method of analysis whose objective is to identify the hazards and hazardous situations and events that can cause harm for a given activity, facility or system.	Low	High	Medium	No
SUPPORTING METHODS					
Structured Interview and	A means of collecting a broad set of ideas and evaluation, ranking them by a team. Brainstorming may be stimulated by prompts or by one-on-	Low	Low	Low	No

Right Sizing

- **Now what?**
  Know Your SME's 5 Top Risks

Top Five Risks

- Start with FSI precursors and causes for your organization
- Use historical data, audits/inspections, regulatory impact
- Consider affect to organization, facility, department
- Complete risk assessments
- Create a baseline risk profile
- Manage your worst risks first

Top Five Risks

- Management must ensure to allocate sufficient resources and focus
  - Time, training, capital, people and skills
  - Must have a defined action plan for mitigation
- Entire workforce should have “line of sight” to the Top Five
  - Can vary by facility or department
  - Mitigation typically has cross-organizational impact

Top Five Risks

- As one is mitigated, a new one takes its place
  - Risk profile changes over time
- Assure that metrics being tracked sync with all five
  - Completion and turnover rate of the Top Five risks

Department	Index #	Task (Activity / Equipment)	Hazard Aspect	Residual Risk Score	Target for reduction?	Target achevied	Revised Residual Risk Score	Critical to Safety?
S&R	1	Delivering Corrosive Chemicals	(S) Corrosive	10.4	Y	Completed	7.8	Y
S&R	1	Delivering Corrosive Chemicals	(C) Design	5.0	Y	Completed	3.5	N
S&R	1	Delivering Corrosive Chemicals	(G) Slips & trips (working surfaces)	5.0	Y	Completed	3.5	N
S&R	1	Walking	(C) Design	10.0	Y	Completed	6.0	N
S&R	1	Walking	(G) Slips & trips (working surfaces)	10.0	Y	Completed	6.0	N
S&R	1A	Delivering Corrosive Chemicals	(S) Corrosive	10.4	Y	Pending	1.0	N
Maint	2 Actual	Using a ladder - 7 feet off the ground over co	(G) Personnel at Heights	10.2	Y	Completed	5.5	Y
Maint	2 Actual	Using a ladder - 7 feet off the ground over co	(C) Design	5.0	Y	Completed	2.8	N
Maint	2 Potential A	Using a ladder - 7 feet off the ground over co	(G) Personnel at Heights	10.4	Y	Completed	6.2	Y

Right Sizing

- Now what?
  Develop an Elevator Pitch

Five Steps to an Elevator Pitch

1. Identify your goal
   - Reinforce the importance of risk management
   - Provide an update on the status, focusing on recent successes or goal completion
2. Explain what risk management is
   - Ask yourself what the receiver should know about risk management and why it's so important in your SME

Five Steps to an Elevator Pitch

3. Communicate one critical reason for implementing risk management
   - Reducing likelihood of FSI
   - Manage risk for better growth and prosperity of the SME

Five Steps to an Elevator Pitch

4. Engage with a question
   - Begins to start the process of closing the pitch but sets up future conversations
   - Open-ended – time constraints
     - Can I send you some completed risk assessments?
     - Can I show you the changes in our overall risk profile?

Five Steps to an Elevator Pitch

4. Put it all together
   - Summarize. Use paper if needed
   - Have several for differing situations/audiences

Practice
- Aim for 20-30 seconds
- Able to deliver without stumbling
- Mirror, friend, phone video

Closing Thought

The entirety of purpose of those responsible for safety, regardless of their titles is to identify, evaluate, and eliminate or control hazards so that the risks deriving from those hazards are acceptable.

Fred Manuele

Right Sizing Your Risk Management Program

Thanks for attending!