RISK APPETITES AT
The Unacceptable Risk

By Fred Straub

IMAGINE YOU ARE an upper-level manager conducting a safety walk on your worksite with your OSH director. You place a high value on your low risk appetite gained through personal experiences and learning from the wisdom of others. You also see your involvement in these safety observations as critical to your company's OSH culture while developing your eye for safety. As you and your director round the corner, you observe a long-term employee standing on the top cap of a 12-ft stepladder while overreaching to change the lightbulb in an energized overhead fixture. Imagine your consternation.

You know this experienced employee has received your OSH director's ladder safety training each year per OSHA's requirements; you initialed the training rosters. Further, you signed off on your company's written (and subsequently trained) policy that requires any electrical fixture to be safely deenergized before replacing parts. Lastly, you are keenly aware of your repeated participation in the weekly safety stand-down chats with your employees, during which you have addressed your ongoing commitment to reducing risks for a safer worksite. Where is the disconnect? How can an employee misunderstand your ever-clear management directive to work safely 100% of the time?

That question is valid and likely voiced by thousands of your counterparts nationwide. Unfortunately, an individual's risk appetite and tolerance are one of the primary reasons for unsafe behavior in the workplace and are commonly identified as an important causal factor for most workplace incidents (Kumar & Bhattacharjee, 2023).

Does your organization display different risk appetites between top management, line management and the hourly workforce? If so, the author posits that an opportunity exists to reduce further the risk within the organization and the correlated chance of those loss events that could result. Failure to manage this issue may present an unacceptable risk of serious injury or fatality (SIF) to the workforce.

The author intends the reader to gain the following five skills from this article:
- an understanding of the concept of risk,
- the process involved in analyzing risk,
- agreeing on the concept of risk versus regulatory compliance,
- determining your workforce's risk appetites (How far apart are you? Should you care?), and
- valuable takeaways in the structure of risk control treatments to apply when risk appetites are polar opposites within an organization.

To better understand the concept and value of risk appetites, a transitory primer for risk management is beneficial and worthy of review.

Primer of Risk Management

Risk may be defined as the effect or uncertainty of objectives (ISO, 2018a), and a deviation from the expected, which can be positive but is most likely seen as unfavorable. A company's risk appetite, an integral component of risk management, can be influenced by various factors, including the OSH culture of the organization and its leaders, the industry the company is operating within, the company's competitors, the types of work projects pursued, and current industry position and financial strength (Gillis, 2023).

A company's risk appetite reflects how much risk it is willing to accept during its operations and may be scribed into a risk appetite statement for communication to employees, customers and shareholders. Related, risk tolerance is that boundary of risk-taking outside of which the organization is not prepared to venture to pursue its objectives (e.g., OSHA regulations, industry best practices, insurance carrier restrictions; Croner-i, 2023).

Risk is at the core of all safety decision-making and is present daily in everyone's lives. OSH professionals associated

KEY TAKEAWAYS
- Understanding the risk appetites of the workforce and top management is valuable when growing a corporate OSH culture and governing an organization's safety and health management system.
- Failure to manage the relationship between the workforce and top management may increase risk and result in severe loss events.
- Risk control treatments are available for counteracting opposing risk appetites on a worksite.
- Workers presenting elevated risk appetites should not be deployed to high-risk job tasks.

KEY TERMS

Below are key terms as defined by ASSP (2023), IRM (2018) and ISO (2018a).
- **Risk:** effect or uncertainty on objectives
- **Risk appetite:** one's risk capacity; the amount and type of risk one is willing to chase or retain while pursuing its objectives
- **Risk alignment:** agreement between parties as to similar risk appetites and tolerances
- **Risk management:** coordinated activities to direct and control an organization with regard to risk
- **Risk tolerance:** the boundary of risk-taking outside of which one is not prepared to venture to pursue its objectives
- **Risk source:** element which alone or in combination has the potential to give rise to risk
- **Risk universe:** the full range of risks that could impact an organization's ability to achieve its long-term objectives

POLAR OPPOSITES

with inherently hazardous industries such as mining, aviation, construction, chemicals and nuclear plants are more likely concerned with an individual's risk appetite and tolerance level, as the consequence of a risky decision may be catastrophic (Kumar & Bhattacharjee, 2023). Workers with an elevated risk appetite are more likely to expose themselves to hazards, thereby increasing the likelihood of loss incidents. It makes sense, then, that workers with a lower risk appetite are more suitable to perform higher-risk job tasks (Kumar & Bhattacharjee, 2023).

Within the risk management framework, once a safety professional has assessed and scored their operation's risks, top management decides whether the risk is to be:

• avoided (e.g., cease making widgets),

• removed (e.g., replace the 1918 vintage widget press with a 2023 model possessing OSHA-compliant guarding),

• transferred (e.g., obtaining a workers' compensation insurance policy to pay for injuries to widget workers working on the old widget press),

• changed (e.g., reduce the severity by lowering the speed of the aged widget press, reduce the likelihood by reducing the press's operating hours),

• controlled (e.g., installing machine guarding on that ancient widget press), or

• accepted (e.g., no further action because the operation is within the company's risk tolerance).

Subsequent actions to bring risks within tolerance reflect the organization's core risk response strategies (Deloitte, 2019). There are many suggested methods to calculate risk. Utilizing a hybrid of the ANSI/ASSP/ISO 31000-2018 criteria and the U.S. Department of Defense (2023) System Safety MIL-STD-882(e), the author suggests that two primary variables are present for ease of calculating a job task's risk score:

• severity: the consequence or outcome of the event (e.g., how much it will hurt)

• likelihood: the probability or frequency of exposure (e.g., how often it will occur)

Workplace hazards and related risks are first identified, then assessed, scored, prioritized and reduced to the lowest acceptable level by taking preventive (and, in some cases, reactive) measures in order of risk-classified priority. The author recommends using the ANSI/ASSP Z10-2019 hierarchy of risk controls to begin attacking the highest risk-scored concerns in the worksite (Straub, 2021). Those risk control measures selected by top management begin to reflect their risk appetite.

Risk appetite can be further defined as how much risk an employer or employee is willing to assume and how one wants to balance risks and opportunities. The OSH professional typically sees a manager's or employee's risk appetite as low

or high. An example of an employer that likely has a high risk appetite can be found in an OSHA (2022a) press release, which describes the company's negative response to regulatory citations: "Birdsboro ignored the court's order, failing to pay the penalties or provide abatement certification. A subsequent OSHA inspection revealed violations of some of the same standards underlying the court's 2020 order and enforcement decree."

In another example, a frontline supervisor displays an elevated risk appetite when he refuses to comply with an OSHA compliance officer's request in the field to remove employees from a high-hazard exposure:

> While federal workplace safety inspectors are used to some employers' disregard for workplace safety, the response of a Chicago-area carpentry company's site supervisor to a U.S. Department of Labor OSHA inspector's notification at the site about workers without fall protection exposed to the construction industry's most lethal hazard—falls from elevation—was especially blatant.
>
> "The show must go on," said the site supervisor for KW Framing Inc.—a contractor based in Justice—before directing employees to keep setting joists at heights up to 48 ft. atop a multi-unit residential building in River Grove on July 18. When the general contractor became aware of the condition, the workers were removed from the roof. (OSHA, 2022b)

Unfortunately, top management or line management can possess an elevated risk appetite far beyond the appetite of the hourly workers or vice versa. This would represent an example of polar opposites (e.g., "The show must go on"). Such a lack of communication and risk alignment, and the absence of a cohesive risk management approach can lead to severe and unnecessary loss events.

On a more acceptable note, another example shows a positive risk alignment between management and the workforce, presenting a mutual low risk appetite: "In recognition of its efforts, the U.S. Department of Labor's Occupational Safety and Health Administration has designated the Chicago-based company as a Star Mobile Workforce Voluntary Protection Program, the highest safety achievement earned in OSHA's Voluntary Protection Programs" (OSHA, 2022c).

We will always have risk with us. Our capacity to effectively manage that risk and our appetite to take risks and make forward-looking choices are key elements of the energy that drives the economic system forward (Bernstein, 1998). One's risk appetite may be referred to as acceptable risk, meaning the risk level accepted for a given task or hazard. Specific

FIGURE 1
ALL HAZARDS RISK MAP

Likelihood of loss (L)

Severity of loss (S)		(1) Very unlikely	(2) Unlikely	(3) Possible	(4) Likely	(5) Very likely
	(16) Catastrophic	• Hostage situation • Mudslide • Nuclear emergency • NH_3 exposure • Solar flare • Terrorist attack • Tsunami • Volcano	• Drowning • Dust explosion • Earthquake • Electrical contact • Flammable explosion • Gas leak • Lightning strike to person	• Active shooter • Carbon dioxide exposure • Carbon monoxide exposure • Crane failure • Falls - elevation • Fire • Flood • Pandemic • Permit-required confined space event • Roof failure	• Excavation collapse • Forklifts • Lockout/tagout • Struck-by vehicle • Vehicular collision • Working alone	
	(8) Critical	• Asbestos exposure • Chemical, biological, radiological threats • Lead exposure • Silica exposure	• Suicide • Windstorm (tornado)	• Bloodborne pathogens • Hearing loss • Intruder • Hot work • Line breaking • Oxygen leak	• Assault • Chain saws • Hurricane • Machine safeguarding • Temperature extremes	
	(4) Major	• Bomb threat • Hazardous mail • Mold and fungi • Robbery	• Generator loss • Occupational fatigue • Sprinkler head discharge • Whole body vibration • Work stoppage (strike)	• Business off-site loss • Electric loss • Lightning strike to building • Sewage loss • Sprinkler loss	• Ergonomic • Falls - same level • Hazard communication • Major injury • Ultraviolet radiation	• Snow/ice (winter weather)
	(2) Moderate	• Elevator evacuation	• Boiling water advisory • Hazardous chemical spill on site • Public demonstration (riot)	• Air conditioning loss • Boiler loss • Fire alarm loss • Hazardous chemical spill off-site • Utility damage	• Eye injury • Security system loss • Vehicle breakdown	• Lacerations • Potable water loss
	(1) Minor			• Hailstorm • Internet loss	• Soft/hardware loss • Telephone loss	

FIGURE 2
RISK REGISTER

			Before controls						**After controls**		
No.	Hazard	Trigger/cause	L	S	RS		Consequence	Risk control treatments	L	S	RRS
1	Active shooter Severe injury and fatality potential (SIF)*	Disturbed individual targeting site for a "reason" or at random due the presence of soft targets and weak defenses	3	16	48	A. B. C. D. E.	Serious injury or fatality potential Direct/indirect workers' compensation costs Property damage Business interruption Adverse PR	1) Implement workplace violence prevention program 2) Train workers in response - run/hide/fight 3) Coordinate active shooter drills with local law enforcement 4) Work in conjunction with local emergency response personnel 5) Implement active shooter emergency action plan	2	4	8
2	Carbon dioxide exposure (SIF)*	Permit-required confined space entry with decomposing organics, composting, thermal combustion, brewery operations, fermentation processes, wastewater treatment, carbonated beverage bottling or distribution, bakery, slaughterhouse, FES discharge, coal mining	3	16	48	A. B. C.	Carbon dioxide intoxication Carbon dioxide poisoning Death	1) Implement carbon dioxide exposure control program 2) Engineer all out fugitive emissions 3) Install carbon dioxide alarms 4) Train workers 5) Implement carbon dioxide release emergency action plan 6) Train carbon dioxide release with local emergency response personnel	2	2	4

Note: L = likelihood (1 to 5), S = severity (1 to 16), RS = risk score (LxS) before controls, RRS = residual risk score (LxS) after controls.
Risk control treatments: ANSI Z10 hierarchy of risk controls (risk avoidance elimination, substitution, engineering, warnings, administrative, behavior-based controls and PPE).

to risk appetites, it is this level of risk at which the company or the worker is comfortable and accepts that risk as it pertains to an identified OSH hazard. Acceptable risk may also be described as the risk for which the likelihood of an incident or exposure occurring and the severity of harm or damage that may result are considered as low as reasonably practicable (ALARP) in the work setting (Manuele, 2018). Reasonably practicable involves weighing a risk against the trouble, time and money needed to control it. Fortunately for the OSH professional, this risk can be determined quantitatively through a risk score.

The OSH profession can agree that most occupational injuries and illnesses can be attributed to unsafe conditions and unsafe acts. "Researchers have proven that unsafe acts are caused by two factors: 1) internal factors such as risk tolerance, risk perception and self-efficacy, and 2) external factors like safety culture, work environment and conditions" (Kumar & Bhattacharjee, 2023).

In the larger picture, risk management as a concept can be seen as coordinated activities to direct and control an organization regarding risk and managing uncertainty (ISO, 2018a). Several templates are available to the OSH professional for further information on risk management (e.g., ISO 31000, ANSI/ASSE Z690). "Dealing with risk is part of governance and leadership, is fundamental within an organization, and managed at all levels" (ISO, 2018a). When integrating risk management within an organization, the safety professional's primary objective is to obtain top management support to reduce risk levels to ALARP (Straub, 2018a). This lowest level may be achieved by intensely analyzing and controlling workplace risks.

Risk Assessment

The accepted risk assessment process first identifies the hazards and risks within an organization. After identifying all the significant operations within a workplace, the risk is analyzed by establishing a numerical risk score utilizing the two key variables of severity and likelihood. The author prefers slightly modifying the ANSI/ASSE Z690-2011 consensus standard, whereas severity is rated on a low to high increasing scale of 1 to 16 and likelihood, similarly, on an increasing scale of 1 to 5. The severity score multiplied by the likelihood score gives us the risk score.

For example, an active shooter incident in a facility may possess a severity of 16 and a likelihood of 3 for an overall risk score of 48 (assuming no risk control treatments are applied). These risk scores may then be incorporated into a risk map, as shown in Figure 1. Workplace exposures exceeding a risk score of 32 (red) would then be considered unacceptable and should not be continued unless specific permit-to-work controls are implemented on a case-by-case basis for additional (albeit temporary) risk reduction. Written approval from the top manager having the authority to accept the risk would then be required until that risk is permanently reduced below 32 via permanent risk controls.

To thoroughly evaluate the risk, the risk scores from the risk map can then be transferred into a risk register, as seen in Figure 2. The risk register reflects the reduction in the initial risk score by applying suitable risk control treatments. The downward trending score is known as the residual risk

FIGURE 3
OSHA TOP 10 CITATIONS ICONS

score (RRS). Following through on this concept with the active shooter example, the risk register displays an RRS of 8 for an active shooter event by implementing the five risk control treatments listed.

The OSH professional generating the risk map and register is responsible for presenting the material to their top management to convince the management team to lower the risk score to ALARP. Bottom line: Whatever management agrees to for risk reduction and the RRS reflects top management's risk appetite.

As OSH professionals, our workforce generally perceives our professional and personal risk appetite as low. Typically, management shares this lower risk appetite. Conversely, hourly workers may possess a high-risk appetite on or off the job. An important note: OSH professionals should always reflect a low risk appetite in their recommendations to top management, line management and employees. Regardless of current regulatory limitations, risk reduction consistently outperforms simple regulatory compliance.

Risk Management vs. Regulatory Approach

Sometimes, change is necessary. The author posits and encourages OSH professionals to move away from a 100% regulatory compliance approach for safety. Instead, shift the paradigm and adopt a risk-based approach, achieving mandatory regulatory compliance while preventing as many loss events as possible with the goal of zero losses.

Risk management philosophy strives to reduce risk and prevent all loss events. Suitable guides are found in ISO 31000:2018, ISO 45001:2018, ANSI/ASSP Z10-2019 and ANSI/ASSE Z690-2011. OSHA regulatory compliance, on the other hand, strives to prevent only targeted loss potentials. Under this older approach, most OSH professionals would typically utilize OSHA's 29 CFR 1910 and 1926, and MSHA's CFR 30.

While risk management correctly focuses OSH efforts upon the most critical hazards and exposures in the workplace, unfortunately, OSHA regulations and enforcement can be observed as primarily focusing on frequency, not risk. A typical example is the industry's annual publication of OSHA's top 10 citations. A review of their icons in Figure 3 reflects this observation. The disconnect is evident once we recall the top SIF risk factors killing most American workers today:
- motor vehicle collisions
- falls from an elevation
- workplace violence
- opioid overdose (U.S. BLS, 2022)

Figure 3 reflects OSHA efforts and citations issued by hazard. Currently, of the top four leading causes of death to workers (U.S. BLS, 2022), only one (i.e., fall protection) is identified by OSHA. The other three risks currently have no OSHA regulations. Many severe exposures may be unforeseen and neglected if the OSH professional focused primarily on the top 10 issues or the

FIGURE 4

RISK SCALE SAMPLE ACTIVITY

PRAETORIANPHOTO/E+/GETTY IMAGES

YACOBCHUK/ISTOCK/GETTY IMAGES PLUS

WILLIAM JAMES/PUBLIC DOMAIN/WIKIMEDIA COMMONS

LCLPHOTO/E+/GETTY IMAGES

No LOTO

SERSOL/ISTOCK/GETTY IMAGES PLUS

MEDIAPHOTOS/ISTOCK/GETTY IMAGES PLUS

14 Si Silicon 28.085

MAN: RAPPENSUNCLE/E+/GETTY IMAGES; SILICON: OLEKSANDR HRUTS/ISTOCK/GETTY IMAGES PLUS

ROJOIMAGES/ISTOCK/GETTY IMAGES PLUS

DOUCEFLEUR/ISTOCK/GETTY IMAGES PLUS

KIKOSTOCK/ISTOCK/GETTY IMAGES PLUS

LOS ANGELES TIMES, CC BY 4.0/WIKIMEDIA COMMONS

CO$_2$

ZORANM/E+/GETTY IMAGES

ZORANM/E+/GETTY IMAGES

U.S. EPA

JOVANAMILANKO/ISTOCK/GETTY IMAGES PLUS

Sum total of score: _____ **(Turn to p. 29 for scoring)**

OSHA or MSHA regulations in general. Sound risk management trumps simple regulatory compliance every time.

This discussion is certainly not intended to demean or criticize OSHA. Its limitations on quickly responding to changing risk factors are handcuffed by the legislative and regulatory process in which it operates. For OSH professionals, this review supports the author's recommendation that efforts should instead focus on a risk-based approach versus solely OSHA and MSHA regulatory compliance.

In a point of alignment and on a parallel track to the same destination of zero SIF losses, risk management is integral to a comprehensive safety and health management system. Risk management follows the plan-do-check-act cycle recommended by several current safety and health management system models. The author identifies six such models worthy of an OSH professional's consideration:

• OSHA's Voluntary Protection Programs 1982
• ILO-OSH 2001 Guidelines on Occupational Safety and Health Management Systems
• BSI 18001:2007 Occupational Health and Safety Management Systems
• ANSI/ASSP Z10-2019 Occupational Health and Safety Management Systems
• OSHA's 2015 Safety and Health Program Management Guidelines
• ISO 45001-2018 Occupational Health and Safety Management Systems

FIGURE 5
RISK APPETITE SURVEY

Your employer is conducting this confidential 20-question OSH risk appetite survey to further enhance our reduced risk approach to OSH. We recognize that you, the employee, are our greatest asset in risk reduction. Please share your honest answers with us through this anonymous survey document. When finished, please place your survey in the blank envelope provided. The results will be tabulated and displayed for your review within 10 workdays. In the future, please do not hesitate to notify your supervisor or our OSH director if you observe an OSH concern in our worksite. Thank you.

Department: (circle one)   Production | Warehouse | Transportation | Engineering | Administration

Rating Scale: 1................2................3................4

                   Disagree   **Agree**   **Strongly Agree**

                      ☹   ☺   ☺

Circle one

1) 1 2 3 4   I am familiar with the company's risk appetite statement.
2) 1 2 3 4   Our top management team supports our corporate low risk appetite.
3) 1 2 3 4   I believe our top management displays a low risk appetite.
4) 1 2 3 4   My supervisor displays a low risk appetite.
5) 1 2 3 4   I believe our hourly staff displays a low risk appetite.
6) 1 2 3 4   I personally possess a low risk appetite at work.
7) 1 2 3 4   I personally possess a low risk appetite off the job.
8) 1 2 3 4   I personally believe the reduction of risk and pursuing a safer work environment
                   are goals we can achieve at our company.
9) 1 2 3 4   I am aware I may refuse to perform an assigned work task if I believe it is unsafe.
10) 1 2 3 4   My voiced concerns for high-risk work have been appropriately handled.
11) 1 2 3 4   I have been trained by my employer to perform my job tasks safely.
12) 1 2 3 4   My employer is more interested in my safety than profits.
13) 1 2 3 4   My employer provides me with the correct safety equipment whenever requested.
14) 1 2 3 4   I am a contributing partner in making safety decisions here.
15) 1 2 3 4   My interactions with our OSH director are positive toward my personal safety.
16) 1 2 3 4   My interactions with my supervisor are positive toward my personal safety.
17) 1 2 3 4   My interactions with our top management are positive toward my personal safety.
18) 1 2 3 4   I feel we hold our contract employers to our same high level of safety.
19) 1 2 3 4   I am aware I can submit my OSH concerns anonymously.
20) 1 2 3 4   I am personally committed to working safely here.

Please list two current, high-risk job tasks you are **especially concerned** about.
   1) _____
   2) _____

☐ Other comments – please check this box and use the other side.

The author is often asked which of these six models is best. In the author's view, they all have valuable elements that the OSH professional should consider fully implementing at their site. Personally, the author utilizes the entirety and format of ISO 45001, then gleans the best of the other five into a comprehensive safety and health management system customized to a client's workplace. Each of the suggested formats encourages or requires the clarification of an organization's risk appetite.

Risk Appetites

With a primer on risk and risk management completed, let's consider determining the risk appetites of a management team and hourly workforce.

In presentations, the author frequently asks the audience, "How will you die?" Catching most participants off guard, the question requires individuals to rapidly conduct a personal risk assessment of their exposures and appetites.

Again, OSH professionals generally demonstrate a low risk appetite. Thinking back to the top four causes of

occupational fatality, the OSH professional may realize that, statistically, vehicular collisions would be their personal leading cause of risk for fatality during their work hours. With this knowledge, their personal risk score for a vehicular collision can be significantly reduced by applying suitable risk control treatments (e.g., using seatbelts properly, turning off their mobile phones, avoiding roadways during high-crash periods, vehicle maintenance, fatigue and stress management). Applying these risk treatments reflects a corresponding low risk appetite.

The OSH professional can use an activity-based learning technique to drive home the importance of risk appetite within the organization. Using the following nonscientific exercise, participants are asked to view the images in Figure 4 (p. 24; Straub, 2022). Using a simplified, combined (i.e., severity and likelihood) risk scale of 1, 3 or 5, they apply a score to each image. This abbreviated scale enables the exercise to proceed quickly, generating a favorable understanding of risk appetites. If one image presents an elevated risk that the participant is uncomfortable undertaking, the individual registers a score of 5. They score a 3 if they felt the image presented an average risk they were willing to undertake with caution. If they felt the image presented a low risk, they gave it a score of 1.

Readers are encouraged to review the 15 images in Figure 4 (p. 24), recording your personal risk appetite of 1 for low risk to you and others, 3 for a medium risk to which you would feel uncomfortable, and a score of 5 if you deem the risk elevated and that you would not undertake. Once you have entered the score in each picture, total the scores. Then turn to p. 29 to see the author's nonscientific scoring and compare your score against the perceived risk appetite as an OSH professional.

When this exercise is completed in a group setting, it allows the participants to interact with those in their group, comparing their overall risk score with coworkers. After taking this test, the resulting conversations are always engaging and insightful for better comprehending one's risk appetites.

Fortunately, a workforce's risk appetites can be clarified. ISO 31000:2018 has its enterprise risk management framework for use in determining the same, focusing on upper leadership and governance. Measurement can be achieved via the quiz in Figure 4 (p. 24) or a risk appetite survey developed in-house or obtained commercially. Questions should be close-ended and allow scoring on a Likert scale. A sample survey is provided in Figure 5 (p. 25) for the reader's consideration and modification.

The author believes that there is great value in illuminating the risk appetite of the workforce. As noted, the goal is to align top management, line management and the hourly workforce to promote a low risk appetite. Uncovering wide variances between the risk appetite scores of these groups enables the top management team to implement positive actions and recalibrate. In the absence of measurement, this ignorance can become a contributing causal factor to SIFs at a worksite.

Regardless of the outcome of assessing risk appetites, top management sets the bar. Secondly, line management motivates the workforce to that bar. Third, the OSH professional continuously assesses the company's risk scoring through quarterly risk register updates, striving to move all job tasks to the southwest corner of the risk map—from red and yellow down to green (Figure 1, p. 22). These communicated updates dovetail with the other periodically published results to the workforce of leading safety performance indicators that accurately reflect

POTENTIAL ADVERSE INFLUENCERS FOR AN ELEVATED RISK APPETITE

Combining the author's field experience and a literature review provides professional and researched findings to support the identification of more than 25 influencers possessing the potential to adversely impact a worker's risk appetite (Airswift, n.d.; Bhandari & Hallowell, 2022; Danso et al., 2022; Dawson, 2023; Ji et al., 2011; Kumar & Bhattacharjee, 2023; Majdabadi et al., 2022; Mata et al., 2011; Mental Health America, 2024; ReachOut Australia, 2023). Utilizing these data may enable the OSH professional and management to understand why some workers take excessive and unnecessary risks in their workplace.

1) ignorance of the risk or absence of effective OSH training
2) overestimating one's capability or experience
3) control of situation by the worker or no supervision
4) no family responsibility to fulfill, not married or no children
5) absence of personal experience with serious adverse outcomes
6) inexperience or new hire
7) overconfidence in equipment
8) gender/males
9) age/adolescent to 25, or 65 and older
10) production incentives utilized
11) drug or alcohol addictions
12) profit or gain from unsafe actions
13) cultural influences
14) absence of a strong safety culture
15) fatigue
16) mental illness, depression or anxiety
17) overoptimism in protection offered by PPE
18) role models accepting risk
19) high frequency of job task repetitions or complacency
20) peer pressure from unsafe coworkers
21) socioeconomic condition of the worker
22) voluntary work versus paid
23) uncontrolled aggression, verbal or physical
24) absence of formal education
25) no or low penalty for statutory noncompliance
26) lenient management style induces higher risk tolerance levels
27) no OSH commitment by top management through their actions and initiatives
28) low emotional intelligence/poor self-regulation and social skills
29) unsafe acts or conditions over a long period may lead to acceptance of such acts as usual and safe practice in general

FIGURE 6
SAMPLE RISK APPETITE STATEMENT

Risk appetite statement: At ABC Widget Corporation, we recognize that sound risk management principles for occupational work results in reduced risk of injury and illness to our employees. Hence, our corporate risk appetite is low for all occupational exposures. We will strive for, and continue to pursue, ongoing reduced risk within our operations to ensure a safe workplace and full compliance with regulatory requirements. The following risk-reduction metrics will guide us toward achieving and maintaining this goal.

Risk-reduction metrics:
1. Accomplish a comprehensive hazard analysis and risk assessment of all primary job tasks within our operations.
    1.1. All identified SIF job tasks will be risk scored within 30 days.
    1.2. All other job tasks will be risk scored within 60 days.
    1.3. Repeat this process every 2 years.
2. Prohibit any SIF job task risk-scored **35** or more, unless:
    2.1. Specific permit-to-work controls are temporarily implemented on a case-by-case basis for additional risk reduction to ALARP.
    2.2. Written approval of the top manager having the authority to accept the risk would then be required until that risk is permanently reduced below **35**.
3. Implement risk control treatments over any job task initially risk scored **35**, to reduce the risk score below **35** within 90 days.
4. Establish leading safety performance indicators to track progress in reducing our risk.
    4.1. The OSH director will also update our corporate risk map and risk register each quarter.
    4.2. Revised risk map, register, and safety performance indicators results will be communicated to every employee quarterly.
5. Conduct a risk appetite assessment survey annually to measure alignment of risk appetites between top and middle management and hourly employees.
    5.1. The OSH director and top management will develop risk treatments and an action plan to align the risk appetites for all employees within 60 days of the annual survey.
    5.2. Annual assessment results will be communicated to all affected employees through the OSH committee.
6. In the event of an emergency situation, our management team, in conjunction with our OSH director, will strive to have the associated risk exposures reduced to ALARP as soon as possible.

the future performance of the safety and health management system (e.g., third-party audits of SIF topics, OSH training on hire and ongoing, OSH worksite inspections, completion of near-hit investigations for corrective action; Straub, 2018b).

The OSH professional should be prepared to deal with employees who may reflect an elevated risk appetite on and off the job. These individuals may present a more significant management and supervisory challenge within organizations with a low risk appetite. Of particular concern would be their assignment to high risk-rated job tasks. Workers presenting elevated risk appetites should not be deployed to high-risk job tasks. An employee merely scanning their fingerprint or punching a time card at the beginning of their shift does not automatically alter their elevated risk appetite to the organization's low risk intention. Focused effort on behalf of the line supervisor may be required.

Combining the author's field experience and a literature review provides us with professional and researched findings to support the identification of more than 25 influencers possessing the potential to adversely impact a worker's risk appetite (see the "Potential Adverse Influencers" sidebar). Utilizing these data may enable the OSH professional and top management to understand why some workers take excessive and unnecessary risks in their workplace. Realistically, possessing one such influencing trait may likely elevate a worker's risk appetite; combining several may raise that risk exponentially.

Working through a human resources department for Equal Employment Opportunity Commission issues, these influencers also enable OSH directors and top management to better align the best worker to those job tasks for which residual risk remains elevated despite the application of risk control treatments (e.g., commercial pilot, emergency responder, excavator, iron worker, permit space entrant, maintenance worker at a process safety management site). It bears repeating: Workers presenting elevated risk appetites should not be deployed to high-risk job tasks.

All workers may benefit from a daily assessment and risk reduction by completing a simple task hazard analysis at the start of their workday. No matter how simple and mundane, evaluate the task objectively through a task hazard analysis while interjecting the employer's low risk appetite. Valuable questions to ask may include:

- Do I clearly understand the task?
- Do I see the risk?
- Do I understand the risk?
- Do I accept the risk?
- What could go wrong?
- How bad could it be?
- Has anything with the process or worksite changed?
- Am I physically and mentally ready for the task?
- Do I have the right tools and equipment? (Airswift, n.d.)

Another activity-based learning process of value to gauge risk and risk appetites involves "popcorning" the affected workforce to identify, communicate and consult on SIF exposures occurring in the workplace. The popcorning process also engages affected personnel and can establish ownership for the hazard identification process, risk assessment and subsequent risk control treatments. Conducted with a flip chart or whiteboard, this activity can also be seen as part of the risk assessment process and involves all shareholders within the organization (e.g., top management, line management, hourly workforce). While a qualified OSH professional may likely self-identify most SIF exposures in the workplace beforehand, those performing the work and managing the tasks may present new exposures of which the OSH professional is unaware. The author cannot overemphasize the importance of this activity: identify and eliminate or control SIFs taking place in the worksite through effective risk control treatments. Effective management of risks enables a company to thrive.

10 OSH Takeaways for Valuable Risk Treatments

Looking for an example of polar opposites in risk appetites? This scenario may sound familiar.

While leading a weekly OSH discussion, the OSH director inquires to the top manager about his risk appetite. In reply, "Our employees are required to work safely 100% of the time." he states. A line manager across the table answers, "We support safety. That said, we have production goals to achieve." An hourly maintenance engineer at the end of the table responds, "We are required to work unsafely at times to get the job done." Flustered, the top manager shares that he provides adequate OSH funding, has signed the safety and health management system policy statement and has assigned authority, responsibility and accountability to risk owners. The line manager adds that he has production goals that require workers to take risks. The hourly engineer quietly confides, "Yes, workers take risks to get the job done, and injuries occur, but that is nothing new. Worker morale is generally low, and absenteeism and workplace stress are high. Some third-shift workers are even thinking of filing a complaint with OSHA."

This perfect storm of opposite risk appetites is not only highly possible but completely reversible. Alignment of appetites and the resulting reduced OSH tension between management and hourly personnel can be accomplished.

Back to the initial problem at the beginning of the article, the veteran employee was observed using his stepladder unsafely and at risk of a potentially fatal fall of 12 ft. If you have assessed your risks and find polar opposites between top or middle management or hourly workforce with regard to risk appetites, what is a manager or OSH professional to do?

To address the unacceptable risk of polar opposite risk appetites before an SIF occurs and serious consequences unravel, consider the following 10 suggestions:

- Develop and implement a comprehensive safety and health management system (e.g., ISO 45001, plan-do-check-act cycle).
- Develop a corporate risk appetite statement and communicate same to all affected workers (example in Figure 6, p. 27).
- Assess the risk appetite of top management, middle management and the hourly workforce. Communicate the results and develop a plan to align with top management's appetite for risk (e.g., conduct an internal risk appetite survey; example in Figure 5, p. 25).
- Motivate line supervisors to manage toward the corporate risk appetite (e.g., coach line supervisors and then allow them to lead by example).
- Accomplish a full-court press to eliminate or control potential SIFs in the workplace.
- Reinforce a more risk-aware culture by empowering employees at all levels to deliberately consider risk at the start of each day and act within established boundaries (e.g., daily task hazard analyses and stop-work authority; Deloitte, 2019).
- Ensure ongoing fusion of the company's risk appetite statement into all worker OSH training (e.g., weekly in construction, monthly in general industry, post-loss stand-downs).
- Provide positive reinforcement for observed risk-reducing efforts (e.g., immediate, verbal, documented).
- Update the organization's risk appetite and inform all affected parties of progress (e.g., annual risk appetite surveys and quarterly risk map, register updates with brief summaries).
- Track measurable leading safety performance indicators against lagging indicators.

Conclusion

This article aids the reader in better understanding the concept of risk appetites and their impact on OSH culture. A vast difference between the risk appetites of top management, line management and the hourly workforce results in poor risk management and the genuine potential for increased SIF loss events at a worksite, and it presents an unacceptable risk.

A risk-based approach to OSH culture is more effective than a pure regulatory-based approach, as the latter is unlikely to impact leading SIF exposures encountered by employees. A thorough hazard assessment, analysis and scoring of the related risks, development of suitable risk control treatments for presentation and acceptance by top management, and alignment of the workforce's risk appetites present a firm foundation to reduce risk and loss events.

Risk management and aligned risk appetites reduce risk. This may be a paradigm shift for most U.S. businesses, but it is indubitably worth the effort. The author encourages OSH professionals

> Risk management and aligned risk appetites reduce risk. This may be a paradigm shift for most U.S. businesses, but it is indubitably worth the effort.

RISK SCORE OUTCOMES

The author's nonscientific scoring for the activity on p. 24:
   15-35: Serious risk taker (no fall harness at 48 ft; "The show must go on")
   36-60: Moderate risk taker (additional supervision may be required)
   61-75: Very risk averse (a safety director's dream employee)

to act today to familiarize themselves with their company employees' risk appetites and the risks they face, and to implement suitable risk control treatments to align those appetites and accomplish low residual risk scores to reduce losses. **PSJ**

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