

# Safety Leadership

*A four-factor model for establishing  
a high-functioning organization*

By Thomas R. Krause and Thomas Weekley

**T**HE ROLE OF SAFETY LEADERSHIP is changing. As the need for improved organizational performance becomes evident, leaders are realizing that frontline employee involvement is a necessary but insufficient condition for performance excellence. Furthermore, getting employees effectively involved is a leadership task in itself.

Many organizations have reduced recordable injuries, yet continue to have serious injuries and even fatalities that do not correspond with the low recordable injury rates they have achieved. This is an issue that rightly troubles leaders.

The next level of safety improvement for organizations requires more than refining current practices

and norms. It means defining a new approach to leadership in safety that accounts for the leader's role in reducing exposure and in creating a climate and culture which is favorable for safety.

### **The Leader/Safety Connection**

While the importance of leadership may seem obvious, its role in safety has not always been completely clear. Some SH&E practitioners have focused on employee-driven or behavior-based safety systems to the exclusion of all else (including a meaningful role for leadership) and as a result have eroded the understanding of who needs to do what and how to improve safety performance [Blair; Manuele(a)].

Starting in 1994, Krause and his colleagues began an outcome study designed to quantify the results of companies using a safety improvement methodology over a period of several years. This research, which was later published in a peer-reviewed journal in 1999 (Krause, et al), tracked 73 individual implementation projects and found that on average the organizations reduced incident frequency by nearly 55 percent during a five-year period.

These results, however, produced an unexpected finding. The site-by-site results showed wide variation in the reduction of incident frequency. Some organizations achieved results almost immediately and maintained them throughout the five-year period. Others took longer—several years in some cases—but eventually achieved desired results. Still others produced virtually no results, and a few worsened. These findings suggested that while the improvement mechanism was important, something more was at work that distinguished the successful organizations from those which struggled or failed.

A follow-up study using an extreme-groups design sought to isolate factors most strongly related to success and failure in the earlier studies. Two clusters of organizations were identified as representing the best and the worst ends of the improvement continuum. The research team studied these organizations carefully through site visits, surveys and interviews. Results of this follow-up study, published in 1998 (Hidley), revealed a set of critical success factors found to be common in the successful organizations and lacking in those that failed.

However, two findings stood out—one formal and explicit, the other informal and less well-defined: 1) Leadership, commitment and practices predict

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#### **Elements of Effective Safety Leadership**

Leadership in an organization essentially encompasses two tasks: 1) getting employees to perform the right work in the right way and 2) maintaining a successful relationship with the people performing that work. The first is commonly called management and it is task-focused. It is where the leader tells other people what to do, such as schedule training, perform jobs at particular times,

**Abstract:** *Many organizations are rethinking the role of leadership in safety and are seeking a new understanding of the role of leadership. This article begins with a definition of leadership at its most basic. The article defines four elements critical to leadership: personality and values, influence style, best practices and organizational culture. It then discusses why hazard elimination and control are fundamental roles of the leader with regard to safety. Finally, the article reexamines the accident causality paradigm, concluding that a leader must eliminate the blame mindset in order to establish a high-functioning organization that productively reduces and eliminates exposure.*

success. The most important factor in predicting success of safety improvement initiatives was the quality of leadership they were given. This was intriguing given that the initiatives studied were employee-driven. Many leaders at the sites studied were unclear at that time about what role—if any—they should play in these initiatives.

2) Success in safety correlated to success in business generally. The second finding was that companies highly successful in safety were also generally successful in operational performance. Again, this may not be startling to the experienced observer of organizational performance, but the implications of this finding for safety strategy are compelling.

Most immediately, this suggests that safety is an ideal starting point for performance improvement. Safety enjoys a nationally recognized standard of measurement (OSHA recordable rates) and, compared to other performance areas, it has an immediate value for all levels throughout the organization. This finding also suggests that safety is a proper focus of leadership—not only because safety correlates to strong business performance, but also because it provides a natural starting place to engage the workforce in meeting organizational goals.

start work now and stop later. It engages the minds of workers. The second is more properly called leadership and it is people-focused. It involves how the task to be performed fits with the organization's overall goals and engages workers.

In many organizations, the two tasks appear to be at odds. Often, leaders believe that doing one well (for instance, being job-focused) means sacrificing the other (being people-focused). While this tension must be balanced, leaders who perform these tasks well are able to maintain a healthy and appropriate balance (Blake and Mouton). The successful realization of this balance both on the interpersonal level and on a level that impacts the whole organization can be described as made up of four basic elements: personality and values, influence style, best practices and organizational culture.

#### **Personality & Values**

At the core of who a leader is—and consequently how s/he acts and responds as a leader—are personality and values. Psychological research on personality has been going on for at least 50 years. This research advanced significantly when computer-based factor analysis revealed that dozens of identified personality

## The Five Stable Elements of Personality

### Emotional Resilience

Ability to deal with frustration, worry, anger management, moodiness, self-indulgence, impulsivity and sensitivity to stress.

### Learning Orientation

Imagination, aesthetic sense, willingness to experiment, intellectual curiosity, tolerance for diversity and values other than your own.

### Conscientiousness

Sense of competence and responsibility, your need for orderliness, the will to achieve, and the level of self-discipline and deliberateness.

### Collegiality

Agreeableness, trust, being straightforward, sympathy and consideration for others, as well as modesty and compliance with standards.

### Extroversion

Level of positive emotions and warmth toward others, outgoingness, assertiveness, optimism, level of activity and tendency to seek excitement.

traits could be reduced to five key attributes that make up the fundamental core of personality (Judge, et al): emotional resilience, learning orientation, conscientiousness, collegiality and extroversion (sidebar, left).

These five personality characteristics (known in the personality research as the “Big Five”) are not easily changed; they reflect traits that tend to hold across situations. For the leader, personality can be thought of as the built-in tendencies—strengths or constraints—that s/he brings to the table. These traits, along with the leader’s values, play out in real-time leadership situations. Personality, however, is not

destiny. The leader can develop an understanding of his/her personality attributes and learn to perform the right behaviors. Many leaders do this naturally, others do so with coaching. While it is difficult to change personality and values (Vaidya, et al), it is possible to adjust behavior to enhance one’s overall influence as a leader.

### Influence Style

Good research exists on the relationship between leadership style and safety results [e.g., Hofman and Morgeson; Zohar(a)]. Two basic styles of influence that leaders use are transactional and transformational (Bass). A transactional style is based on a simple exchange—if you do X, you will receive Y. A transformational style is based on building engagement and participation. Leaders who have a strong transformational leadership style typically have groups that perform better in various ways, including safety outcomes.

As the sidebar on pg. 37 shows, transformational leadership has four dimensions (Den Hartog, et al). The first is charisma. Does the leader provide vision and a sense of mission, instill pride, gain respect and trust, and increase optimism? The second is inspiration, which can be grouped with charisma. Essentially, it defines whether the leader acts as a model, communicates a vision, sets high standards and uses symbols to focus efforts. The third is individual

attention. Does the leader coach, mentor, provide feedback, link individuals’ needs to the organization’s mission and provide personal attention? The fourth dimension is intellectual challenge. Does the leader provide subordinates with a flow of challenging new ideas aimed at rethinking old ways of doing things, challenge dysfunctional paradigms, and promote rationality and careful problem solving?

In the authors’ experience, leaders who have high levels of transformational leadership are not dependent on their bosses to place a high priority on safety. Their safety best practices are strong whether or not an external emphasis is placed on safety. This is likely related to who the leader is. A transformational leader tends to demonstrate a value for the well-being of subordinates (Avolio), and this motivation to protect employees stems from a different—and more internal—place than organizational authority. In addition, the relationship of transformational leadership to safety outcomes is entirely mediated by preventive action (Barling, et al). In other words, it is not just the leader’s influence style that matters, but also what the leader does. Supervisors who have strong relationships with workers (transformational style) talk and listen to them and take action about safety (preventive action), which leads to lower injury rates [Zohar(b)].

### Best Practices

The next element is the set of practices that successful leaders use in their daily activities:

- vision;
- credibility;
- action orientation;
- communication;
- collaborative;
- feedback and recognition;
- accountability.

These practices manifest the leader’s personality and influence style, and in turn strongly influence organizational culture. Existing literature on leadership influences on safety and organizational culture show that certain definable behavioral practices recur among effective safety leaders (e.g., Kotter; Erickson; Fairhurst, et al). At the same time, the organization must have the right systems in place and leaders must understand them.

**Systems management.** A leader must have a clear understanding of systems management if s/he is to be effective in establishing a culture that promotes safety. Regardless of how well-trained a person is, if the systems and processes s/he must use and operate within permit exposure to hazards, eventually day-to-day work pressures will encourage work practices that may contribute to injuries. These system flaws must be addressed if long-term goals are to be reached. Operations and systems must be carefully examined for the worker/system interface and advance design must eliminate areas of potential harm.

**Vision.** The effective leader can “see” what safety performance excellence would look like and can convey that vision in a compelling way throughout the organization.

**Credibility.** The effective leader is credible, is will-

# The Four Dimensions of Transformational Leadership

## Challenging

Providing subordinates with a flow of challenging new ideas aimed at rethinking old ways of doing things; challenging dysfunctional paradigms; and promoting rationality and careful problem solving.

## Engaging

Helping others to commit to the desired direction, including the ability to coach, mentor, provide feedback and personal attention, and link the individual's needs to the organization's mission.

## Inspiring

Setting high standards; using symbols to focus effort; modeling new standards; and communicating a vision and translating it into language that resonates with individuals at all levels of the organization.

## Influencing

Building a sense of mission and commitment to the vision; gaining respect and trust; increasing optimism and instilling pride.

the safety leader's task has traditionally focused on setting objectives and influencing site-level improvement mechanisms, leaders who want to produce successful outcomes must also be able to influence the organization's culture and safety climate. Site-level mechanisms are managed, but organizational culture and safety climate are led. An extensive body of research identifies nine measurable cultural characteristics shown to be predictive of successful performance outcomes [Krause(b)]:

1) Teamwork: the effectiveness of workgroups in meeting targets and deadlines.

2) Workgroup relations: the degree to which coworkers respect each other.

3) Procedural justice: the level at which workers rate the

ing to admit mistakes, supports direct reports and the interests of the group, and delivers honest information about safety—even if it is not well-received.

**Collaboration.** The effective leader works well with others, promotes cooperation and collaboration in safety, actively seeks input from people on issues that affect them, and encourages others to implement their decisions and solutions for improving safety.

**Feedback and recognition.** The effective leader is good at providing feedback and recognizing people for their accomplishments. This person publicly recognizes the contributions of others, uses praise more often than criticism, gives positive feedback and recognition, and finds ways to celebrate accomplishments in safety.

**Accountability.** The effective leader gives people a fair appraisal of safety efforts and results; clearly communicates people's roles in the safety effort; and fosters the sense that each person is responsible for the level of safety in his/her organizational unit.

**Communication.** The effective leader is a great communicator. S/he encourages people to provide honest and complete information about safety—even if the information is unfavorable. This leader keeps people informed about the big picture in safety, and communicates frequently and effectively up, down and across the organization.

**Action-oriented.** The effective leader is proactive rather than reactive in addressing safety issues. This person gives timely, considered responses for safety concerns, demonstrates a sense of personal urgency and energy to achieve safety results, and demonstrates a performance-driven focus by delivering results with speed and excellence.

## Organizational Culture

The last element of successful safety leadership is the formation of a high-performance culture. While

fairness of first-level supervisors.

4) Perceived organizational support: the level at which employees feel the organization is concerned for their overall well-being.

5) Leader/member exchange: the strength of relationship that workers feel they have with their supervisors.

6) Management credibility: the perception of consistency and fairness of management in dealing with workers.

7) Organizational value for safety: the perceived level of the organization's commitment to safety.

8) Upward communication: the adequacy of upward messages about safety.

9) Approaching others: probability that workers will speak to each other about performance issues.

Companies with high levels of these nine characteristics tend to achieve higher performance overall in critical business functions than companies with low levels of these factors (Hofmann and Morgeson; Tansky and Cohen; Wayne, et al; Lynch, et al; Koy; Williams). The authors are currently gathering data to test whether such organizations are also more successful in initiatives they undertake and generate change more rapidly.

## The Leader's Role in Eliminating Hazards

Today's corporate leaders understand that by nature the workplace will contain some hazards. One fundamental role of the leader relating to safety is enabling hazard elimination and control. Before describing how leaders achieve this, let's first outline a method by which organizations eliminate or mitigate exposure to hazards.

When hazards are identified by design risk assessments, incident investigations or other means, they must be controlled. The logic of applying controls in

the most effective manner is known as the hierarchy of controls [Manuele(b)]. As Figure 1 shows, the five levels within the hierarchy are 1) elimination or substitution; 2) engineering controls; 3) warnings; 4) training and procedures/administrative controls; and 5) PPE.

Leaders at every level must ensure that each identified hazard is controlled in some manner. The most effective control of any hazard is elimination or substitution (Level 1). When hazards can be eliminated, the workplace is made immediately safer. For example, if an adhesive used in a given operation contains highly toxic solvents, replacing it with an adhesive that contains no toxic ingredients would be the most complete control (substitution).

However, since many hazards cannot be eliminated, they must be controlled in some other manner. The second most effective control is engineering controls. Consider this example. Use of electron beam welders produces a radiation hazard. An effective Level 2 control would be to use lead-based guarding to shield against exposure to the radiation.

Beyond Level 2, each subsequent level is less effective and, therefore, less desirable. Level 3 controls—warnings—can be effective in certain situations. For example, when conveyors are idle, employees can position themselves near the conveyor—an action that would be hazardous if the conveyor were operating. Signs and buzzers or audible controls can warn employees that the conveyor is going to begin operation. This would be an effective Level 3 control; however, posting signs that warn employees of toxic materials contained in an adhesive would fall far short of an effective solution.

Level 4 controls can also be effective in certain cases. In these situations, safe work practices or

methods are developed for a given task. Training is often required to prepare workers to follow the developed procedures. A simple example is the proper use of hand tools or the use of the proper tool for the job. For example, consider the task of tightening a screw in a small object with a screwdriver. If the object is held in the palm of the hand and the screwdriver slips, the employee can suffer a hand injury. A safe procedure would be to hold the object against a workbench so if the screwdriver slips it would simply hit the surface of the bench.

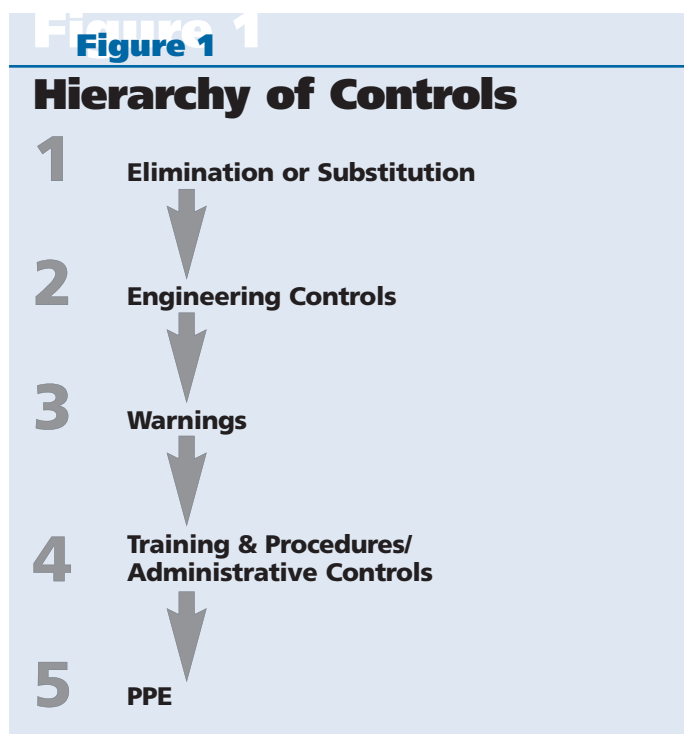
Level 5 controls are essential to protect against many hazards. From safety glasses and gloves to chemical-resistant suits, PPE can be an effective control. The problem with Level 5 controls (and often with Level 3 and 4 controls) is that they must often be used in combination and require strict supervision responsibilities. For instance, PPE almost always requires training on how to use it. Inspections and specific procedures may also be required, as may specific medical exams.

In many cases, Level 1 and 2 controls involve a one-time effort to effectively control a given hazard, while Level 3, 4 and 5 controls generally require additional training, communication, inspection, cleaning, maintenance, periodic replacements, enforcement and audits in various combinations.

Many hazards in today's workplace have some controls applied. The challenge to leadership is to establish an environment and a process whereby hazards are routinely examined to verify that the most effective and practical controls are, in fact, applied and that where lower-level controls (e.g., PPE) are being used their use is fully implemented and effective. In many cases, if the right people are teamed to review a given hazard, a Level 1 or 2 control may be applied and, therefore, eliminate complicated and onerous lower-level controls.

The earlier example of a toxic adhesive illustrates how lower-level solutions can involve far greater complications in some situations. Suppose the adhesive in question was determined to have characteristics that compel its use. Since substitution is not possible, a different control must be applied. The control requirements could then include ventilation systems (Level 2), warning signs and alarms connected to the ventilation (Level 3), hazard communication training (Level 4), and gloves and perhaps a respirator (Level 5). As this shows, the higher-level solutions can provide many benefits as well as cost-effective solutions.

Effective leaders insist on substantial control of hazards, understanding that each eliminated hazard and those systematically neutralized free the enterprise to focus more energy on quality and productivity issues while demonstrating a commitment to the workforce. Many leaders



are able to contribute to hazard control directly, both by providing the means (such as authorizing equipment expenses or procedure changes) as well as by creating real consequences for the organization (for example, following up on the status of identified hazards with subordinates).

However, not every leader has direct contact with day-to-day hazard control activities. Effective leaders at the site level, as well as those higher in the organization, also contribute to hazard control through their influence on safety-enabling systems—those mechanisms designed to reduce and eliminate exposure to hazards. In addition to hazard control, these mechanisms can include training, regulations, procedures, policies and safety improvement mechanisms.

Just as important, leaders help sustain organizational systems—those elements that sustain safety-enabling systems and ensure their effectiveness. These can include various methods, such as selection and development of managers, performance management methods for supervisors, changes in organizational structure, employee engagement and related management systems.

### **Redefining the Accident Causality Paradigm**

The primary purpose of organizational safety initiatives, whether at the site or corporate level, is to reduce exposure to hazards in the work environment [Manuele(c)]. Hazards refer to the configuration of equipment, facilities, systems and actions that define the interaction of the worker with the technology. This has been characterized as the working interface [Krause(a)].

Note that the authors have avoided discussing what proportion of incidents are caused by what type of exposure in the working interface. This is intentional. Many within the SH&E community have said that some high percentage—perhaps 80 to 90 percent—of incidents come from behavioral causes, while the remainder are related to equipment and facilities. However, this dichotomy of causes is now being questioned within the SH&E community. Many rightly recognize that this approach is not useful or accurate and can actually be a harmful way of thinking about incident causality.

The traditional division between “human error” and “mechanical failure” is not well-suited to the modern workplace. A better approach is to address the interaction between worker and technology. This avoids the problem of blame and brings real prevention into focus. The question is not “Whose fault was the accident?” but rather “How should the whole system of design, technology and worker be influenced to create safety and prevent accidents?”

The traditional approach is harmful in several ways. First, the dichotomy is not representative of what actually occurs in the chain of events that causes injuries. It is not that the equipment simply malfunctions, independently of how it is maintained and designed, and it is not that the worker simply behaves unsafely, independently of the system configuration in which s/he operates. Rather, the work-

er interacts with the technology, and the interface that results comprises a system.

This system is influenced by multiple variables, including the quality of design, appropriateness of training, influence of culture and climate, and quality of leadership. Leaders in particular influence the working interface through what they focus on and how they go about their activities. A leader’s actions—and use of best practices as described earlier—affect the safety-enabling systems and organizational sustaining systems that feed into the working interface.

For example, a leader who is credible and action-oriented and who places a high value on safety not only personally pays more attention to safety improvement mechanisms, but also influences others to do so. This attention and influence cascade to the actual configuration of work systems, equipment and procedures with which the employees must interact each day.

Second, using either end of the dichotomy to explain the cause of injury encourages blaming. If the purpose of incident investigation is to establish fault, then it is useful to have neat (although inadequate) categories such as “worker behavior” or “equipment and facilities” as sources of the injury. This is a natural enough reaction and one that is cited regularly (e.g., “the accident was the result of operator error”). However, it is often counterproductive because it leads to blame—which is always a mistake.

The useful question is not “Who is at fault?” but rather “How can this injury and others like it be prevented in the future?” Failing to realize this leads to arguments over fault. In addition, the investigation procedure itself becomes biased by various points of view that want the outcome not to blame them. Anyone familiar with multiple incident investigations in a less-than-ideal organizational culture has seen how destructive this process can be. Incident investigation committees can waste time, make poor recommendations and undermine the safety climate at a facility, whether by citing operator error or by seeing everything as facility-related or the fault of supervision.

If assigning blame is nonproductive, how else can an organization hold people accountable for their actions? As noted, accountability is a best practice that is found in high-functioning organizations. However, a culture that emphasizes accountability and one that emphasizes blame are very different. Is the leader interested in addressing organizational issues that underlie hazards in order to find fault or to improve the system?

In the authors’ experience, improving the system is productive, while a culture of blame is not. Leaders must hold people accountable for their actions while supporting and enabling them with the systems needed for their assurance.

A blame-free environment is not one in which those involved do not seek to understand accountability and responsibility for incidents; it is one in which those involved avoid consequences to individuals (including subtle and indirect ones) outside of

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those normally triggered by the accountability system for all other positive and negative accountabilities.

Eliminating blame provides opportunities to learn from near-hits. Those involved must understand that reporting and investigating near-hit incidents (no injuries, no property damage) provide the organization a consequence-free opportunity to reduce or eliminate hazards and make the workplace safer. The organizations with which the authors have worked believe that in almost all situations near-hits precede injury incidents. If the organization can create a culture where the workforce understands the benefits of near-hit reporting and feels unthreatened to do so, many more injuries can be prevented.

Creating such a culture requires more than stating that near-hit reporting is important; it requires a measured, honest approach to existing practices and steps to adjust them so that such reporting becomes "how we do things here."

This can include steps such as eliminating punitive aspects of reporting, including near-hit reports and response as part of managers' performance evaluations; publicly recognizing employees for identifying exposures; and setting a time limit on investigating and resolving issues raised by such reporting. Ultimately, preventing an injury is far superior to preventing recurrence of an injury.

High-functioning organizations have gone beyond the entanglements of blame and recognize that getting safety right means designing and influencing systems that reduce and eliminate exposure. Doing this is a leadership function.

## Conclusion

Leadership is never an easy topic, and people have—and always will—debate what makes a great leader. However, it is also true that certain advances can be established and accepted by business as a whole. Many organizations with which the authors work have long recognized the insufficiency of the one-dimensional "prescribe and allocate" approaches. For just as long, however, these organizations have lacked solid evidence that indicated exactly what the role of leaders should be or how leaders should act on it.

As emerging evidence suggests, the nature of effective safety leadership is multidimensional. On one hand, effective safety leadership requires a rigorous understanding of and attention to the systems that control hazards and exposure reduction. On the other, effective safety leadership is also more personal. Leaders who know themselves and understand their effects on their relationships, team and organizational culture make themselves more personally robust and resilient in the face of the natural challenges and real problems of leadership. They also enable themselves to more effectively foster a higher level of teamwork and a more-productive organizational culture. Perhaps most importantly, it is clear that a specific set of leadership best practices can be identified and defined. This forms the foundation for creating a safety culture in which injuries are unacceptable. ■

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