

# Targeting Zero

## Eight Questions to Ask Before Using Zero as a Safety Target

By Michael Burnham

### IN BRIEF

- Although zero-injury safety targets are more common than ever, their underlying logic may be suspect in places.
- Achieving zero-injury targets requires the will to support perfection and the ability to recognize and change every factor that could lead to an injury. Organizational conflicts and inefficiencies, and the realities of human cognition limit the capacity to identify latent hazards, so each must be overcome if perfection is to be realized.
- This article examines several real-world issues that make achieving perfect safety problematic, and also offers alternate goals that may prove better at advancing a safety culture and its corresponding performance.

**G**reat golfers do not set a target of making 18 eagles per round. Great hitters do not set a goal of batting 1.000 over a full baseball season. As terrific as it would be to shoot 36 or go 550-for-550, standards of absolute perfection are not part of the professional sports landscape.

Yet, when it comes to safety and business, absolute perfection targets are common. Leaders follow logic that says if the company considers safety a priority it must be unwilling to accept even one injury and, therefore, it must set a target of zero. They believe that all injuries are preventable. They reason that if an organization can record one day without an injury, it can record 365 days without an injury. These leaders believe that employee effort and commitment may be the key obstacles to overcome when pursuing a perfect safety record.

Zero-injury safety targets are easy to communicate and seem to be everywhere. However, such targets can be counterproductive to a company's safety efforts if the context in which they are used is not thoroughly examined. Therefore, before setting zero as a safety target, a company should ask eight important questions.

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### Question 1: How Well Will Zero as a Target Motivate Employees?

When goals are perceived as too hard to reach, employee motivation is not increased (Livingston, 1969). True motivation is ascribed to achievement, recognition, responsibility, advancement and the work itself, not to goals, which fall under hygiene factors, causing dissatisfaction when they are not adequate but providing no satisfaction when they are (Herzberg, 1968). Top performers are motivated by intrinsic factors, not external ones (Csikszentmihalyi, 1990), and goals-as-motivators are most effective when they are individualized, meaning they are tailored to the person who will work toward them and designed with that person's perspective in mind (Deci & Flaste, 1995). If the odds of reaching a goal are less than 50%, Daniels (2000) says management is trying to fool employees into performing, and it will not work. Deming (1985) even recommends that managers "eliminate slogans, exhortations and targets for the workforce."

An ideal goal, then, appears to conflict with a zero-injury safety target, because the zero-injury target is likely to be perceived as too difficult to at-

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tain, qualifies as a hygiene factor and is an external factor applied in a one-size-fits-all manner. From the perspective of employee motivation, a better approach, one that identifies tasks with intrinsic value to the employee, specifies behavior within the employee's control, and presents an equal or slightly greater challenge to the employee's current set of skills and abilities, cannot succeed if a zero-injury target is part of the package.

This does not mean a high bar for performance cannot be set, however. In fact, one psychological condition for what Csikszentmihalyi (1990) calls a flow experience rests in the individual challenge presented by a goal:

In agonistic games, the participant must stretch her skills to meet the challenge provided by the skills of her opponents. The roots of the word *compete* are the Latin *con petire*, which meant "to seek together." What each person seeks is to actualize her potential, and this task is made easier when others force us to do our best.

When goals challenge employees, require skill learning, provide feedback and create in the performer a sense of personal control, optimum motivation can be achieved (Csikszentmihalyi, 1990). High expectations, when presented well, lead to high performance (Donahue, 2005). Also note that requiring perfection is not a problem as long as the target is specific, motivational, achievable, relevant and trackable (Geller, 2001). Suppose, for example, a company wants to have no injuries on its shop floor and observes that an employee does not always wear PPE when required. A good approach would be to get the employee to agree to wear PPE each time s/he steps onto the shop floor.

A more problematic approach would be to impose on the employee a requirement that s/he avoid injury. The former goal is intrinsic, simple, clear and within the employee's control, so motivation to achieve the desired behavior may occur. The latter is extrinsic, more complex and sometimes beyond the employee's control, so less motivation toward the desired behavior would be expected. Both standards reflect perfection—wear PPE 100% of the time versus avoid injury 100% of the time. The difference lies in how each version of perfect is crafted.

A goal is intended to motivate employees to perform at high levels. Although goals are part of the fabric in many corporations, they are not mandatory. If a goal does not motivate employees to continue current levels of performance or to improve performance, its very purpose is defeated.

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### Question 2: What Is the Organization's True Purpose?

Safety competes with other organizational departments for finite resources, which encompasses compromises that are not only necessary but also desirable. An organization has legitimate reasons for capping the level of safety it offers its workforce because it has stakeholders (e.g., employees, customers, regulators, investors) with competing interests to satisfy. Safety cannot

be an organization's only priority, because every organization has some other reason for being.

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### Question 3: To What Extent Is the Company Willing to Support Perfection?

An organization cannot achieve perfection unless it is willing to support perfection. Before considering this, let's review three families of safety theories:

1) Domino theory and its cause-and-effect cousins, arise from the work of H.W. Heinrich and his colleagues and suggest that incidents stem primarily from unsafe acts and conditions.

2) Systems theory, including approaches articulated by Charles Perrow and Sidney Dekker, suggest that incidents occur when factors combine in a way nobody anticipated.

3) Behavior-based safety and its variants, which originate in the work of researchers such as John Watson and B.F. Skinner and are typified in the work of authors such as E. Scott Geller and Aubrey Daniels, contend that safe behavior results from the antecedents and consequences perceived by individual workers.

Despite their differences, the three families share a belief that human beings can exert influence over injuries, at least to a limited extent, and that some situations exist in which injuries are more likely than in others. In other words, all three families agree that human observation, intelligence and effort can reduce the likelihood of injuries, and that by changing something, such as employee acts, the context of a work environment, or rewards and punishments, safety can be improved.

Thus, to some degree, this boils safety down to a matter of institutional will: Where a strong desire exists to anticipate every factor that has led to or could lead to an injury, and where a strong desire exists to alter that factor to the benefit of employee safety, safety excellence can be achieved. On the flip side, organizations and their leaders, by their actions or inaction, create root causes (domino theory family), form emergent systems that produce injuries as symptoms (systems theory family), or reward risk-taking while neglecting to extinguish unwanted behavior (behavior-based safety family).

To achieve a perfect safety record, one that can be predicted and is not simply the result of luck or random occurrence, an organization and its leaders must effectively identify and address everything that could lead to an injury. Imperfect inputs are unlikely to yield perfect outputs. Perfect in the end has to mean perfect in the beginning.

To illustrate the difficulties this presents in the real world, let's perform a simple thought experiment. Imagine an organization that supports perfect safety. This means:

- All organizational conflicts are resolved in favor of safety.
- Safety has unlimited resources.
- An employee's score of 90 on the final training exam is not good enough because the employee just showed s/he does not know 10% of what was taught.

If a goal does not motivate employees to continue current levels of performance or to improve performance, its very purpose is defeated.

- Every known hazard is mitigated, regardless of its effect on customers, shareholders, members of the public or any other constituents.

- The negotiating team trades whatever it must at the bargaining table to get contracts with enforceable safety provisions.

- Purchasing personnel rank safety above all other considerations when buying tools and equipment.

Compromising in any of these scenarios opens the door to injury. Any compromise creates an imperfect input that should diminish the expectation of a perfect output.

This thought experiment puts to the test the belief that zero-injury targets are achievable. Perfect safety dictates closing a street when a crew is working on its side. But what if the city will not allow street closure? Perfect safety dictates that additional professional or clerical staff be hired when the safety group's human resources are lacking. But what if the staffing plan or budget will not allow it?

Perfect safety dictates that an electric company's crews avoid digging until all underground utilities are marked. But what if an underground electric line must be repaired and the gas company has not responded to an emergency call to mark mains nearby? Once the utility crew has satisfied the legally required waiting period, how much longer should the crew wait to dig, and at what point does the electric company's desire to support perfect safety for its own employees conflict with the safety of customers now without power?

Achieving zero injuries is not impossible. However, doing so usually requires difficult decisions that put concerns about employee safety above other concerns typically seen as legitimate. Ours is not a perfect world.

Dekker (2011) describes how even sincere, safety-conscious organizations can succumb to drift:

Local decisions that made sense at the time, given the goals, knowledge and mind-set of decision makers, can cumulatively become a set of socially organized circumstances that make the system more likely to produce a harmful outcome. Locally sensible decisions about balancing safety and productivity—once made and successfully repeated—can eventually grow into unreflective, routine, taken-for-granted scripts that become part of the worldview that people all over the organization or system bring to their decision problems. . . . Production and schedule pressure, cost issues and resource scarcity translate into multiple, conflicting goals of a complex system that get resolved or reconciled or balanced in thousands of larger and little trade-offs by people throughout the system and its surrounding environment every day.

Drift can occur because of competition or uncertainties in the environment. It usually occurs in small steps. It can occur when people make assumptions about things that are impossible to know for sure.

In the real world, it can also make summoning the will to support perfection problematic, even when the desire for zero injuries is sincere.



#### **Question 4: How Can the Company Control All the Factors That Contribute to Injuries?**

In theory, all injuries are preventable, but they are not always preventable by the victim, which means there are times when an employee does exactly as directed and still is injured.

For example, consider a person who, when stopped at a red light, is rammed from behind by a person texting while driving. Is the incident preventable? Of course: Do not text and drive. But from the perspective of the person stopped at the red light, the answer is no, the incident is not preventable, especially if the vehicle has properly operating brake lights, is equipped with retro-reflective warning tape, and has caution memos posted on its rear. Simply put, there are times when a company has no control over the person most responsible for the injury or over the context in which the injury occurs. Simply by placing employees on the road, a company runs the risk that somebody will crash into them through no fault of their own.

According to the domino theory family, incidents arise not on their own, but as products of "poor management policy, inadequate controls, lack of knowledge, improper assessment of existing hazards or other personal factors" (Heinrich, Peterson & Roos, 1980). Controlling incidents in cause-and-effect models, then, means carefully crafted procedures; detailed understanding of physical and administrative controls and how to implement them; outstanding training; and teaching and empowering people to recognize and mitigate hazards. Shortfalls in any area reduce an organization's ability to support and achieve perfection.

According to the system theory family, an organization can attempt to foresee all the ways in which events can combine in unanticipated ways. Building preconditions for diversity can also help. Correcting small issues before they become larger problems or full-blown disasters becomes, in effect, a way to try to control all the factors that contribute to injuries. However, designing solutions to safety problems in complex systems is not likely to be successful on its own because of the system's unpredictable nature (Dekker, 2011).

Two other points about controlling injury factors are important. First, products on the market are designed and manufactured to be safe enough. In the minds of the engineers, a satisfactory level of product safety is attained at some point, and pushing safety to a higher level becomes cost-prohibitive, takes too much space or is not technically feasible (Dekker, 2011).

Reason (1997) notes that components of larger systems are commonly designed with shorter operational lives than the system itself, such as headlights, blinkers, brake lights or fuses in a car, which means a component could fail during system operation. This means maintenance is required, which in turn introduces to the system the opportunity for inadvertent human error. Even if an organization intends to support perfection, its ability to do so must then rely on compromises made by others, from the car manufacturer to the tool makers and

even to the people who design and sell office furniture and kitchen appliances.

Second, some events are so improbable that people simply are not aware of them or of their potential impact. These black swans (Taleb, 2010) reveal human's inability to predict the future with certainty, since people cannot predict what they have not experienced. According to Taleb (2010), black swans also reveal a natural reluctance to fully prepare for certain events even when aware, in general, that catastrophe is possible. Examples include the Indian Ocean tsunami in December 2004 and Hurricane Katrina in August 2005. In each case, had people acknowledged in advance the devastation to come, all concerned would likely have taken stronger steps to mitigate the subsequent damage and suffering.

Controlling factors that contribute to injuries is a critical component of achieving perfection. Where companies acknowledge that they or their workers have no control over certain factors, or where companies suspect they may be unable to deliver excellence in several areas at once (e.g., writing procedures, conducting training), or where organizations recognize that some events are too unpredictable to accurately forecast, they may wish to pause before enacting zero-injury safety targets that hold employees accountable when they get hurt.



#### **Question 5: What Cognitive Limitations Make People Susceptible to Error, Even in the Best Management Systems?**

Chabris and Simons (2009) contend that cognitive limitations lead people to believe things about their abilities that are not true, and that sometimes people's cognitive abilities are poor matches for the tasks at hand. They describe several illusions.

- The illusion of attention.** Humans experience far less of the world than we think we do. Although we vividly experience some aspects of the world, all the detailed information available is not processed, particularly when focused on a specific task. This is how people can count the number of passes made by a basketball team and fail to notice a person in a gorilla suit who walks into the middle of the scene, beats his chest and walks out.

- The illusion of memory.** A basic contrast exists between what we think we will remember and what we actually remember. Memories can be influenced by suggestion, or by new information learned long after the initial memory formed. Chabris and Simons (2009) also report that research indicates that memories are recalled by the brain in a certain context, and that the context can influence the accuracy of the recalled memory. In short, memories people insist are correct are often quite wrong.

- The illusion of confidence.** Humans often overestimate their own qualities, and tend to interpret the confidence of others (or lack thereof) as valid signals of their own abilities, the extent of their knowledge and the accuracy of their memories. We have all encountered people who despite having no knowledge about a topic display the most confidence in their knowledge about it.

- The illusion of knowledge.** We think we know more than we do.

- The illusion of cause.** Human minds are built to detect meaning in patterns, infer causal relationships from coincidence and believe earlier events cause later ones. Two events occurring together may correlate, but that does not mean one caused the other.

- The illusion of potential.** Humans tend to think that vast reservoirs of untapped mental ability exist in the brain, just waiting to be accessed if possible. People believe they can perform at higher levels and in a wider range of contexts and situations than actually able. People also tend to believe they can achieve that potential by using simple techniques that are easy and fast to implement.

Kahneman (2011) illustrates other human biases and areas of overconfidence. The law of small numbers leads people to underappreciate the extent of variability in small samples, making it difficult to distinguish between cause-and-effect and random chance. The planning fallacy describes the human tendency to forecast in ways that are unrealistically close to best-case scenarios. The anchoring effect occurs when people consider a particular value for an unknown quantity before estimating that quantity; the estimates stay close to the number that people considered. Humans are risk averse when both gains and losses are possible, but risk seeking when a sure loss is compared to a larger loss that is merely probable.

In addition, when companies set zero as a target but have an injury, they risk what Arielly (2012) calls the "what the hell effect." Arielly's research shows that once a goal is blown, cognitive letdown occurs in the direction opposite the goal. The research also shows that when members of a peer group cheat, others in the peer group are significantly more likely to cheat too, suggesting pressure to meet zero will compete against pressure to follow safe procedures, wear PPE, and identify and mitigate hazards. Thus, one can conclude that preventing error sometimes involves overcoming limitations that are hardwired into the brain.

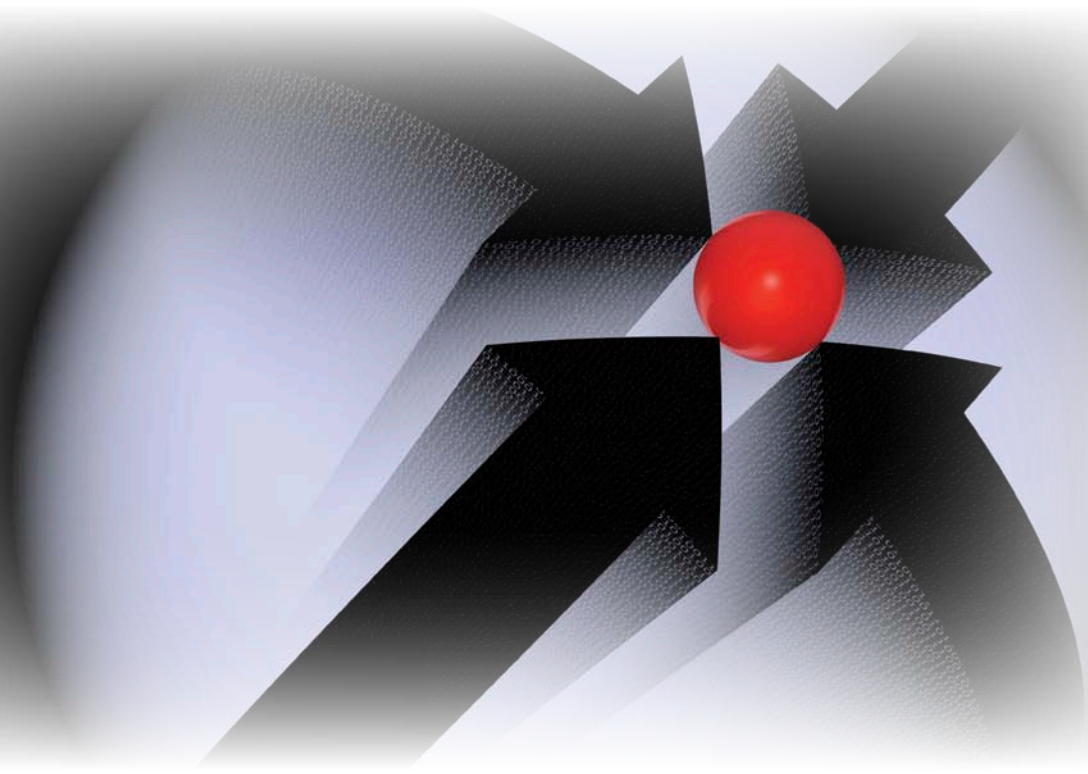


#### **Question 6: How Could Zero as a Target Undermine the Ability to Lead?**

Leadership implies a relationship to other people that involves bonds of loyalty and commitment. It requires the articulation of a vision and the building of a covenant between the leader and his/her followers, and it requires the leader to communicate the vision, both in word and in action, in ways that live up to the covenant (Sergiovanni & Starratt, 1988).

When a leader sets zero as a target and meets the target, all is well, but that assumes the company can prevent all injuries and will support perfection. If injuries still occur, it exposes the leader who communicated a vision that is not being realized. How will followers respond when a leader disciplines or terminates an employee they perceive as simply being in the wrong place at the wrong time? How will followers respond when a leader enacts

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solutions that still do not achieve results? Above all, how will followers respond when the leader does nothing, in effect telling them that zero injuries is a priority but showing them it is not?

This sampling from research suggests that leaders must be perceived as people who always say what they mean:

- Gardner (2006): "The most important ingredient for a story to embody is truth, and the most important trait for a leader to have is integrity."

- Daniels (2000): "To be trusted, all you have to do is what you say you are going to do."

- Patterson, Grenny, Maxwell, et al. (2008):

How important is trust for a leader? It is the most important thing. Trust is the foundation of leadership. It is the glue that holds an organization together. Leaders cannot repeatedly break trust with people and continue to influence them. It just doesn't happen.



#### **Question 7: How Could Zero as a Target Hinder the Organization's Ability to Learn?**

Targets of zero discourage incident reporting (Geller, 2001). When management loses touch with what is happening in the field, it is unable to identify downward trends before injuries occur. In addition, focusing on the end result, and nothing else, ignores the complexity of many serious injuries and incidents (Dekker, 2006). Within that complexity are areas for improvement.

Also consider that failure is essential to learning (Conklin, 2012; Dweck, 2006; Lehrer, 2009). Nobody wants serious injuries, but when they occur they can spur more extensive change than is possible in peaceful waters (Colvin, 2008). According to Colvin (2008), mastery in a given field comes from deliberate practice. Low performers who make mistakes during a task avoid those tasks in the future, while high performers are more willing to take on those tasks and make the same mistakes repeatedly

until they learn to correct them. Dweck's (2006) research shows that people with a growth mind-set—those who believe their basic qualities can be cultivated through effort—outperform people with a fixed mind-set, in which people believe their basic qualities do not change. In this context, purposes, making mistakes as part of a learning curve and exposing oneself to injuries while doing so, conflicts with a desire for zero injuries.



#### **Question 8: Instead of Zero, What Approaches Can a Company Focus on to Achieve Better Results?**

Consider these ideas:

- Focus on getting employees to teach each other. Tapping the strength of peer-to-peer relationships can allow employees to learn from teachable moments as they arise on the job (Lakey, 2010). In a given year, a large organization could benefit from tens of thousands of teachable moments that might otherwise fall by the wayside.

- Focus on the specific behaviors desired and how the company will respond when they are exhibited (Agnew & Snyder, 2008). Track the behaviors and responses until the desired habits have developed in others. Teach people how to recognize obstacles, and empower them to build appropriate behavioral pathways around obstacles.

- Remind people of the organization's purpose (Pink, 2009). This has been shown to improve motivation.

- Treat safety management like a long-term fitness program (Reason, 1997). As Reason says:

Rather than struggling vainly to exercise direct control over incidents and accidents, managers should regularly measure and improve those processes—design, hardware, training, procedures, maintenance, planning, budgeting, communication, goal conflict and the like—that are known to be implicated in the occurrence

of organization accidents. . . . (T)he only attainable goal for safety management is not zero accidents, but to reach that region of the safety space associated with maximum resistance—and then staying there. Simply moving in the direction of greater safety is not difficult. But sustaining these improvements is very hard.

- Focus on small rewards that everyone who meets a goal (e.g., wearing PPE when required) receives (Geller, 2001). Where possible, avoid making the rewards an if-this, then-that proposition; instead, present unexpected rewards to people who exhibit the desired behavior (Kohn, 1993).

- Focus on building a work environment in which minor problems are addressed immediately and effectively. Some theorists believe deviant behavior is the inevitable result of perceived disorder (Wilson & Kelling, 1982, as cited in Gladwell, 2000).

- Focus on teaching the elements of emotional intelligence (Goleman, 2006). Studies conducted in group settings found that the most important factor in the quality of the group's product was the degree to which its members created harmony within the group. The group's collective IQ mattered less than its emotional IQ.

## Conclusion

Shooting 60 on a golf course or batting 0.380 for a baseball season are rare achievements of excellence even though they fall well short of perfection. Setting zero as a target may seem logical and it may feel easy to administer, but it could harm an organization's safety efforts. It may have questionable effects on employee motivation; it may involve assumptions that are either wrong or unreliable; and it may prevent an organization from improving.

Since zero-injury targets are voluntary, and since they are merely one option among many, doubts surrounding their effectiveness should spur any organization to consider other approaches. Instead of focusing on zero, talk about something else. Such conversations may be the first steps toward an improved safety culture that may actually lead to (you guessed it) zero injuries. **PS**

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