

# Overcome the Conflict Between Safety & Production With Risk Management & Behavioral Safety Principles

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**A**n issue yet to be fully addressed in safety management is the conflict between safety and production. The implications of this conflict are numerous in terms of management practice, organizational culture and individual behavior. In most industries, production is core business. This means that safety management is relegated to “servant” to production, or at best, seen as supportive of the production function. We are yet to achieve the full integration of safety and production.

This article presents elements of the methodology described in *Productive Safety Management: A Strategic Multi-disciplinary Management System for Hazardous Industries That Ties Safety and Production Together* (Mol, 2003), which sets out to integrate safety and production using risk management and behavioral safety principles.

## The Alignment Fallacy

While many companies have a safety policy and a genuine commitment to employee health, safety and welfare at the corporate level, this does not necessarily translate into operational practice. This is particularly evident where risk-taking behavior is found to have contributed to an incident. Clearly, in these cases, the corporate message has not been driven down the hierarchy to the operational level. This is referred to as the “alignment fallacy.”

In theory, company policy, goals and values translate into strategic management decisions, then middle management decisions and, finally, operational decisions. It is assumed that employee goals and values are congruent with company goals and values. This is meant to result in safe behaviors at the operational level.

In reality, however, mixed messages are common at the middle-management level. These include the assumption that employees adopt company values and beliefs. Specifically, while policy and signs may say, “Safety First,” other messages such as output graphs, management instructions, production pressures and

reporting systems suggest that production is the top priority. Accordingly, despite the safety messages given, employees perceive that production takes precedence.

Secondly, accounting practices work against the safety first approach. There is a financial conflict between profit and the costs of managing risk. In addition, it is not possible to account for all costs of poor risk management or the full benefits of effective risk management. Further, human capital is treated as an expenditure, not as an asset. Therefore, the benefits of training and development are often underestimated.

In addition, management systems often contain weaknesses in terms of non-alignment with the safety first message. Examples include reward systems based on production bonuses and individual performance evaluations that are output-focused without equal weighting to management of safety.

The operational level is where the conflict between safety and production is most evident. This is particularly the case in the role of the frontline supervisor who is concurrently responsible for safety and production within management systems that do not necessarily support both roles simultaneously.

For example, if a shift supervisor fails to achieve production as a result of fixing all safety and maintenance issues that have arisen on the shift, s/he is accountable. If production is pushed to the detriment of safety and an incident occurs, s/he is also held accountable. The frontline supervisor faces a dilemma, which is inherent in the role and not well supported by the management system.

The consequences of failing to address the alignment fallacy include poor risk management and an unhealthy culture. Symptoms of the latter include production centricity, risk-taking behavior, poor decision making, lack of effective leadership and lack of heartfelt commitment to the safety management system.

## Aligning Safety & Production

Many issues must be addressed to

align safety and production, some of which are beyond the scope of this article. Key issues include:

1) Understanding how production environments encourage risk-taking behavior and the relationship between such behavior and the culture. This will be explained using the risk behavior model.

2) A shift away from safety per se (as safety does not exist for its own sake) to managing risk for the sake of safety and production. This will be described using the risk management model.

3) Review of management systems to identify and rectify areas of nonalignment between different functions, such as risk management and human resource management practices, to achieve aligned and fully integrated strategies and practices.

4) Review of management behaviors, particularly decision-making practices, to ensure that leadership behaviors demonstrate core values and that standard business practice is to manage risk to achieve safety and production concurrently.

## Safety as a Value

To create positive change and gain the buy-in of the workforce, which is critical to safety performance, we first must be clear about what safety means as a value. Ask your workforce for a definitive answer on what safety means to them and they often struggle to find an answer. Safety as a value is centered on the sanctity of life and the individual's right to quality of life. Safety as a company value is reflective of social values. It is both a legal and moral responsibility of each and every employee regardless of their position.

Concurrently, employees value financial security, which is often linked to their perception of the rewards associated with greater production output. Ask them what production means and they will likely state “profit,” “money in the bank,” etc.

A further value is social acceptance. It is human nature to want to identify with the group. Herein lies a potential issue for the safety culture. Which behaviors are

acceptable and which are not? That depends on the priorities that drive the culture, specifically, production or safety and with what level of consistency.

Most people believe in sanctity of life and quality of life as highest priority, however, these are easily forgotten in a production-driven environment. The tendency is that the perceived benefits of taking shortcuts outweigh the consequences of taking additional risk. The underlying cause of these behaviors is imbalanced values as explained by the risk behavior model. Some of the thought processes behind this include:

- The need for financial security. “If I get the job done quicker, I will get more money.” This is supported by a system in which production pressures and output bonuses exist.

- The need for social acceptance. “I will be respected by my peers.” This is encouraged by a system that provides recognition for “just getting on with it.”

- Sanctity and quality of life are marginalized when workers believe, “It will not happen to me. I got away with it before.” This is exacerbated within a system that says, “We have never had . . .” or has a short memory.

### The Risk Behavior Model

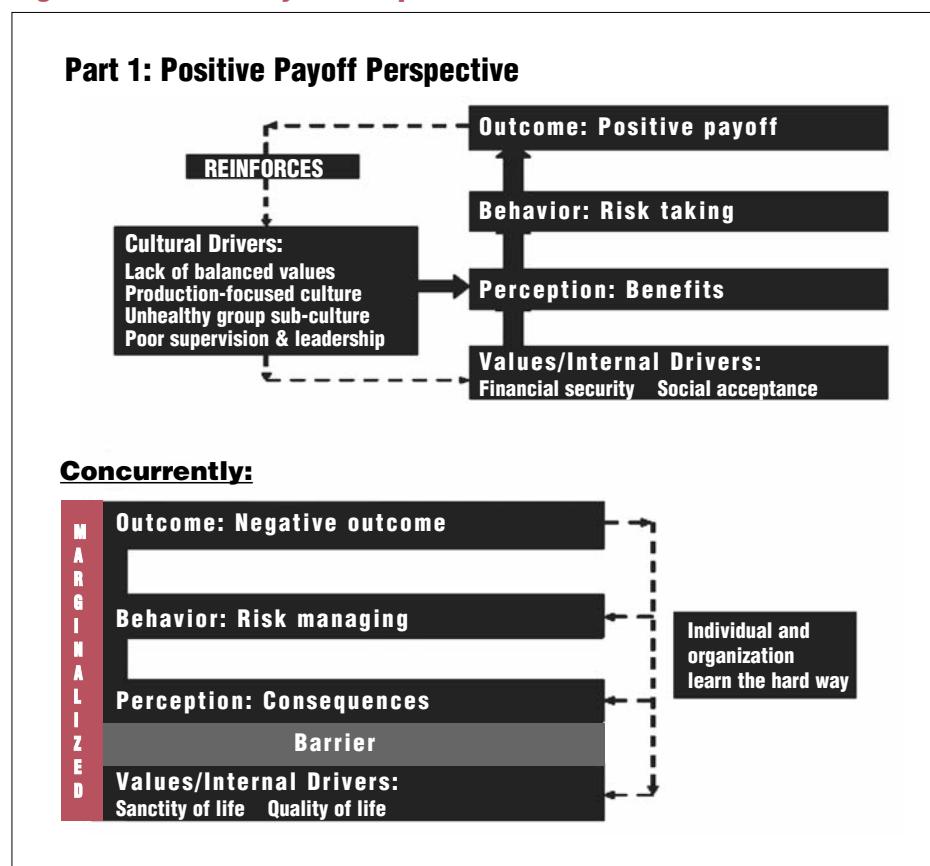
The risk behavior model is used to illustrate the relationship between individual behavior and the safety culture. The model is in two parts—one on risk-taking, the other on risk-managing. The first part looks at the positive payoff of risk-taking.

Figure 1 shows that the root of all behavior lies in values or internal drivers. Motivational theory indicates that employees expect extrinsic rewards such as financial return for work. They also expect intrinsic rewards, especially social acceptance.

In relating this to safety behaviors, if employees perceive they will get more money by taking shortcuts, it will lead to risk taking. If peer acceptance results from “just getting on with the job,” then risk taking will be perceived as beneficial. Both drivers can be present in production-centered businesses. If the employee gets away with the behavior, there are no consequences, only a positive payoff.

When many employees have the same experience, this reinforces a negative culture. It becomes self-perpetuating because cultural dynamics in turn reinforce employees’ beliefs that risk-taking behavior

**Figure 1 Positive Payoff Perspective**



is rewarding. It can also be perceived as acceptable when supervisors fail to take corrective action. The peer group focuses on increasing rewards via collective effort to maximize production to the detriment of effective risk management.

This has the effect of teaching individuals and the organization the hard way. Such values, consequences and the need for risk managing are then given importance in response. It is a reactive approach that, unfortunately, depending on the severity of the injury, may be a short-lived lesson. Old habits may soon reemerge as the fundamentals of the culture and employees’ beliefs and values have not genuinely shifted.

In production-centered cultures, employees fail to adequately consider consequences. They also fail to realistically relate the consequences to their own quality of life and future financial earning capacity. They feel a sense of powerlessness to change the system. Do they understand how they personally contribute to this system? Do they understand that each behavioral choice they make as an individual either challenges or reinforces the existing culture?

Risk taking is chosen over risk manag-

ing where the benefits are perceived to be greater than the consequences. Risk taking provides a positive payoff in the short-term with the job done quickly with minimal effort. The reality of risk is that in most cases employees will get away with taking shortcuts. So the very nature of risk is part of the challenge in shifting from risk taking to risk managing as a norm.

To change employee behavior, we must provide learning experiences that lead to balanced values or internal drivers. Figure 2 shows four key values that influence risk-taking versus risk-managing behavior. These are sanctity of life, quality of life, financial security and social acceptance.

As a result of learning, financial security and social acceptance no longer receive greater weighting than sanctity and quality of life. What employees now consider is their life priorities. Most employees admit they want both money and positive relationships from work. However, their primary reason for working is to provide for life outside of work. By helping them understand the consequences of workplace injuries on a personal level, they are better able to

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realistically weigh the benefits versus consequences of behavior.

Employees must also understand how their behavior affects the business culture, their peer group subculture and supervisor behavior. A key part of the process is to bring them to an understanding of how they can contribute to positive change. This delivers acknowledgement that each individual has the power to exercise free will and to choose behavior. Collectively, employee behaviors define the workplace culture.

The positive payoff for the individual is preservation of life and health, financial security through the ongoing capacity to work and social acceptance within a culture that continually activates and shares

core values. This positive payoff also reinforces a healthy organizational culture. The system must provide communication processes where values are discussed. It must focus on managing risk as an organizational lifestyle—the essence of “how we do things around here.”

It is also important to invest in the development of supervisory and leadership skills. Middle managers and frontline supervisors can be a barrier between a safety first policy and making that policy an operational reality. Again, it is unbalanced values and distorted perceptions of benefits versus consequences that create nonalignment and conflict.

Figure 3 shows the impact of balanced values on risk-taking behavior. Employees now have realistic perceptions about the benefits versus consequences of behavioral choices. There is a barrier to risk taking because through informed

choice, employees now consider risk-taking unacceptable. The likelihood of injuries is reduced because risk-taking is marginalized. When an injury occurs, it reinforces the need for effective risk management. It reinforces the importance of sanctity of life and quality of life as the core values driving safety.

The key theme of the risk behavior model can be summarized using a parallel from chemistry. If culture is like chemistry, then we must acknowledge its compound nature. That means it is complex, made up of different molecules and it may be weakly or strongly bonded. The basic building block is the atom or individual beliefs and values. If you change these, then you change the compound. The future of behavioral safety lies in individual beliefs and values. An emerging role of the managers and safety practitioners is to reach the hearts and minds of the people we seek to protect from harm.

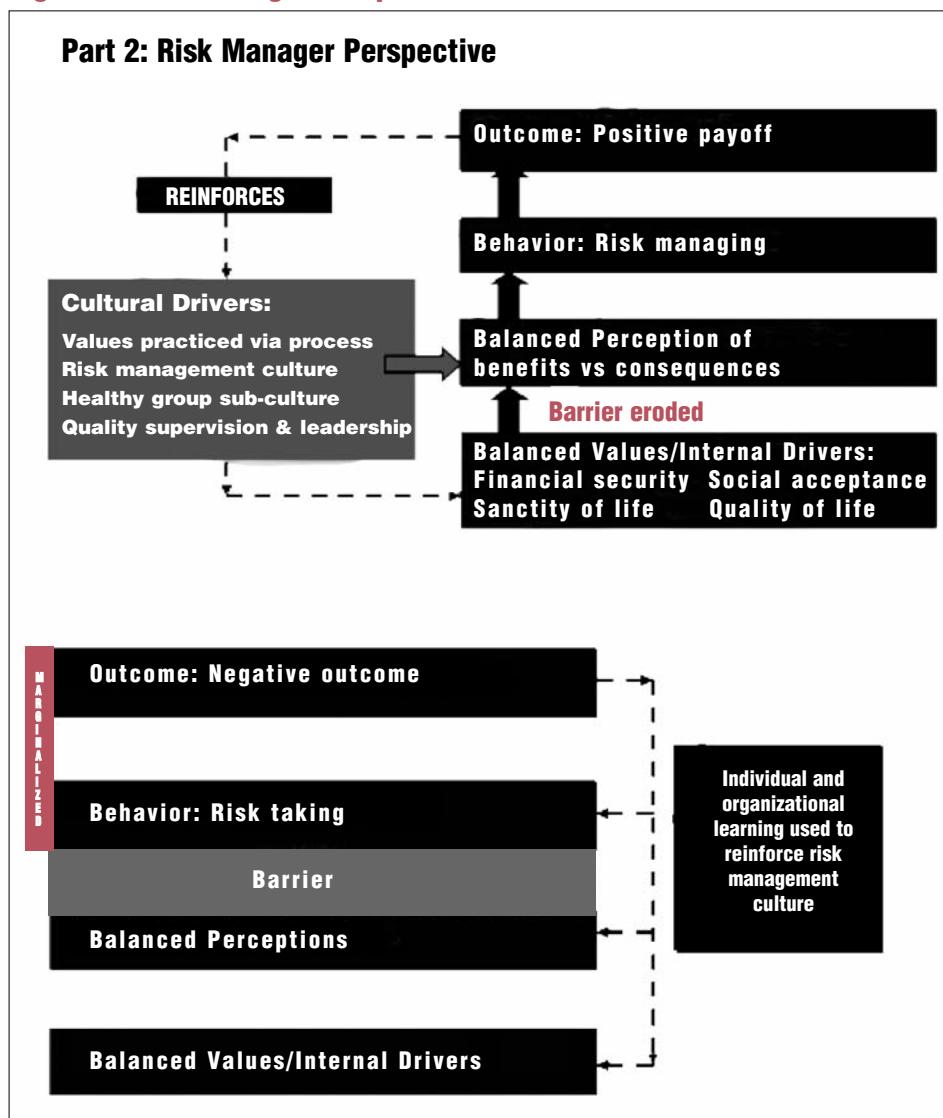
## Culture, Behavior & Learning to Choose

To understand the relationship between individual behavior and culture, employees must be provided with learning experiences. This is best achieved using small group workshops that have structure but also provide an open forum. It is effective to begin by leading participants to air current perceptions of workplace challenges, for example, safety versus production, what drives risk taking, the benefits of risk-taking, plus any cultural issues they might want to explore.

Discuss the nature of workplace hazards. What are the inherent risks associated with the business? After all controls are implemented, what are the residual risks? What are the potential consequences of these risks? How does behavior contribute to hazard creation? How does the current system address hazards and associated risks? The point is to acknowledge the nature of hazards in the workplace and to highlight how important it is to manage those hazards well, not just from a systems perspective, but also at the individual behavior level.

At this stage in the workshop, employees should understand the challenges faced in the workplace. The consequences of these must be personalized. This is when the discussion should go from the organizational level to the individual level.

**Figure 2 Risk Manager Perspective**



Discuss individual work/life expectations, priorities and goals.

For example, an employee's primary goal may be to spend quality time with children or to provide for family. What are the prerequisites for achieving this goal? What would be the impact if the employee were to have a workplace accident? What are the consequences?

Once trainees have gone through this process, relate it back to the core values of safety. What is safety all about? Is it just a legislative requirement or is it also a moral obligation? Who bears the consequences of workplace accidents? Revisit the influence of financials and code of respect that goes with risk taking. Challenge the trainees to reconsider the benefits versus consequences of taking risks.

Lessons learned must then be reinforced through storytelling. This is a key means by which people learn and remember. The group dynamics become centered on common values when stories of workplace accidents are shared. Revisit perceptions to emphasize the power of the individual to exercise free will, to make informed decisions about workplace behaviors and to contribute to the positive changes that lie ahead. Empower and provide ownership.

## Risk Management as a Life Skill

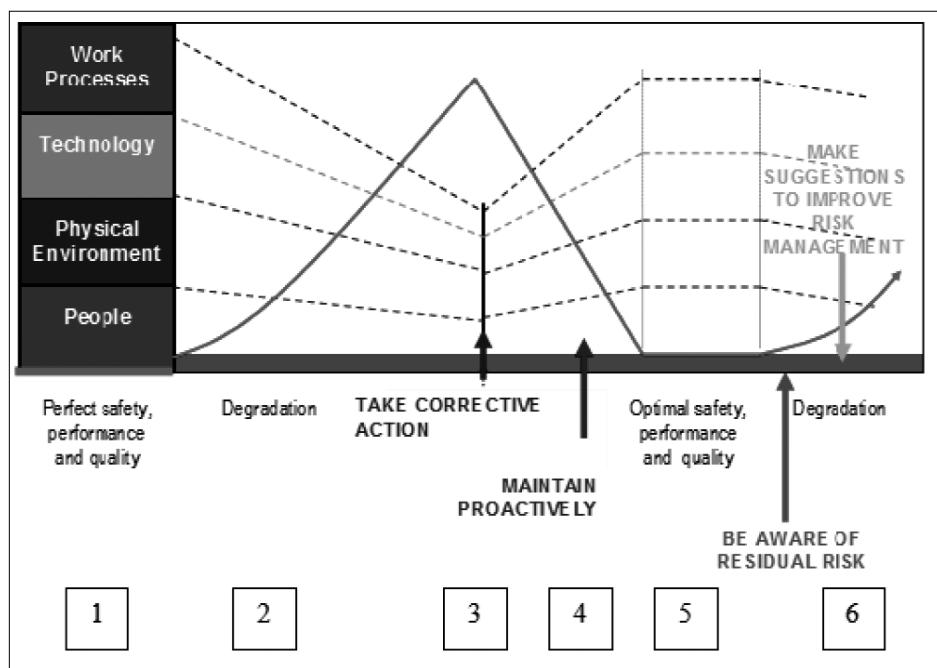
Understanding behavioral choices and their impact on the safety culture is one aspect of empowering employees to consciously manage risk effectively. The second issue is to give them effective risk management skills and specific rules of thumb to apply in the workplace. These are designed not for the sake of safety per se, but for the effective management of risk to achieve safety and production concurrently.

The tool used to provide this learning is the risk management model. The model explains the nature of risk and how to manage it for the sake of both safety and production using a four-pronged strategy.

According to the model, worker exposure, particularly in hazardous industries, is not simply contact with known hazards. It is the combined effect of all inherent dangers and sources of degradation in the workplace as well as worker-specific risk factors.

To prevent accidents and systemic failures, companies must view risk from a wider perspective than the current approach, which associates risk with specific,

**Figure 3 Risk Management Model**



known hazards and appreciate that poor management of risk is detrimental to safety, production and the longer-term sustainability of the business.

The risk management model illustrated here explains that two types of risk exist—residual risks (inherent dangers), which cannot be completely eliminated, and degradation risks caused by the deterioration of business systems. These two risk types are found in the four system factors that combine and interface when a business activity is carried out. These are:

- 1) processes (work practices);
- 2) technology (plant, equipment, tools and chemicals);
- 3) physical environment (location and structural factors);
- 4) human resources (people).

A business activity involves a human resource undertaking a process using a technology in a given physical environment. When a business activity is undertaken, the system factors interact and risks are combined. The model illustrates the impact of these risk types on the probability of an accident or systemic failure.

It begins by creating a business in an ideal context. This ideal consistently results in perfect safety, efficiency and quality. The accident rate and level of risk is zero. In reality, companies operate as natural systems. There are inherent dangers and systems tend to degrade.

For example, processes have residual risks because of the energy involved.

Technologies with large, moving components are inherently dangerous. The level of technological residual risk depends on the energy involved and its potential consequences if released in an uncontrolled manner.

The physical environment has residual risks. For example, in underground mines this can be attributed to unstable geological conditions, confined spaces, lack of light and other inherent hazards. Also, people with low levels of competencies are intrinsically less safe than skilled workers.

These residual risks are fixed in the short-term because of economic and knowledge constraints. Companies cannot make systems 100% safe and must do what is practicable to reduce/control risk. Thus, the model shows that there is always a residual risk. This risk type causes a constant probability of an accident or failure.

In addition, the four system factors tend to degrade. For example, equipment suffers wear and tear, the physical environment erodes and workers suffer from physical and mental fatigue (human resources degradation). Degradation is shown as the downward dashed lines for each system factor. This degradation is accompanied by a rising probability of an accident shown by the upward red line.

These risks affect the company's efficiency as well as safety. For example, people who are tired and equipment that

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is badly maintained are less safe and less efficient. The model shows that residual and degradation risks have a negative impact on both safety and production.

When it becomes apparent that degradation risk is rising, immediate correction action is required. This is important from a systems management and also an individual behavior perspective.

Next, future recurrences of this risk must be prevented using a program of maintenance. Maintenance strategies include developing safe work procedures, proactive upkeep of technologies and the workplace, and employee training. Effective maintenance lifts the company to a state of optimal safety, performance and quality. If maintenance is not ongoing, degradation occurs again, thus increasing the probability of an incident again.

### **Four Simple Steps for Risk Management**

The model provides a strategic approach to manage risk in the short- and longer-term. This methodology is called the four-fold strategy and it involves these steps:

### **Worker Exposure**

The model also provides a detailed understanding of worker exposure to risk as it relates to the business activity they are undertaking at the time. The total risk profile is a combination of factors, specifically:

$$\text{Worker exposure at a given time} = \text{levels of residual risk in system factors} + \text{levels of degradation risk in system factors.}$$

The residual risk includes the level of worker-specific competencies and the competencies of their fellow workers. The degradation risk includes workers' level of degradation and that of their fellow workers.

#### *Example: Worker Exposure When Returning Home After a Shift*

The formula can be used to illustrate the exposure of the worker under different circumstances and conditions such as traveling to or from work.

**Table 1 Worker Exposure at a Given Time**

Worst Case Scenario	Residual Risk	Degradation Risk
Processes	High speed	Long trip
Technology	Motorbike	Worn tires, faulty brakes
Physical environment	Unsealed road looking into a setting sun	Recent flooding causing washouts and potholes
Human resources: other drivers	Other drivers using the road have low competencies	Other drivers are not alert
Human resources: driver-specific	Inexperienced rider	Fatigued from working a long shift

- 1) Take corrective action when degradation is identified.
- 2) Help maintain systems and people (to prevent future degradation).

- 3) Always be aware of residual risks.
- 4) Make suggestions to improve risk management.

This strategy can be applied from a systems perspective, at the macro level, to achieve a fully integrated approach drawing on multidisciplinary competencies and input. It also applies equally at the micro level as a driver of individual behavior. Imagine a workplace where every individual took immediate corrective action, contributed to maintenance through good operating practices and compliance, was constantly alert because of residual risks and made suggestions to improve risk management. What impact would this have on safety and production if this level of ownership and discipline were applied? ■

### **Reference**

Mol, T. (2003). *Productive safety management: A strategic, multidisciplinary management system for hazardous industries that ties safety and production together*. Oxford: Butterworth-Heinemann.

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