Is Our *Industrial Culture* The Problem?

US Coast Guard Photo

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Is Industrial Culture the Problem?

The answer to this important question should not be about targeting managers as convenient scapegoats—the most available culprits when industrial accidents occur. There are too many incidents for it to be a problem with individual managers. And we've witnessed our share of accidents lately—the oil spill in the Gulf of Mexico, and mining catastrophes in West Virginia and Chile. Why is it that with all our technology we can't prevent these disasters? Many are starting to believe that the problem lies with the industry's culture. Can this be true? Is it possible that all our technology is being thwarted by this nebulous thing called "culture"?

Software of the Mind

In order to determine if culture is the problem, we need to understand a bit about culture. So let's begin by thinking about the nature and the inevitability of culture. Whether we are aware of it or not, culture is part of the organizational landscape—and it is active. Culture has been described as "the software of the mind." It is a key "operating system." We don't really know when it is directing activity or when "conscious applications" are controlling. We all accumulate patterns of thinking and acting across our lifetime. These patterns are driven from the beliefs and assumptions we hold about the way the world works. Like operating system software, these beliefs and assumptions operate in the background. We are normally unaware of them unless something disturbs our way of thinking or differs from our historical way of doing things. Shifting metaphors for a moment, if we think of culture as an iceberg, most of our values and assumptions exist below the waterline. They are at once stealthy and enormously powerful. But we are mostly unaware of them.

The groups to which we belong are the primary programmers of our "cultural operating system." Patterns of thinking and acting are what make us human, both as individuals and as team members. These behavioral templates are typically imposed and accepted as "the way things are done around here." Culture takes hold as the beliefs and assumptions that generate the behavioral patterns drop out of conscious awareness and are taken for granted. Unconscious beliefs and assumptions have a profound effect on decisions and behaviors. This is why the "new guy" does not begin to feel comfortable until he understands what is expected and then falls into line. We seldom examine assumptions that have slipped beneath the waterline, into the realm of the unconscious. Since they are not conscious, we cannot discuss them. Unfortunately, when our beliefs and assumptions are challenged, our normal reaction is to defend our assumptions rather than examining their validity.

The inability and/or unwillingness to discuss deeply held assumptions have been called the "shadow side" of personality. Individuals have "shadow sides" and so do groups, which make cultural issues difficult to discern and alter. Meanwhile, these underlying, hidden assumptions run silent and deep, dominating the organization's landscape and decision-making. Our experience with root cause analysis reveals that assumptions—about such things as priorities, risk, and expectations—are buried deep beneath most every incident . For example, some years back, we were working with a client-team, investigating a refinery fire that cost the company hundreds of millions of dollars in lost production. We determined that a large air/hydrocarbon heater exchanger chronically leaked hydrocarbons, prompting one team member to remark, "It always looks like a rain forest down there." When it was suggested that we should extend our investigation to ask why the heat exchanger was allowed to leak, one of the senior representatives responded, "You don't understand. Leaks are just part of this business." This assumption, accepted and defended rather than examined, was the root cause of the problem. It was a widely held belief that hydrocarbon leaks were inevitable, so they did not really try to eliminate them. They had come to an accommodation: living with the consequences.

Pervasive Patterns

Culture is not clearly reflected by isolated instances of behavior; rather, by pervasive patterns of behavior. These persistent patterns reveal a set of shared beliefs and expectations. It is true, groups don't have minds like individuals, but group patterns do influence the mindset of members. Adoption of group patterns is necessary for inclusion in the group and non-conforming people are regarded as "outsiders." Phrases like "This is the way things are" or "This is the way things work here" are cultural clues because of the pervasive patterns they reflect. Accepted practices provide another set of clues. Are hydrocarbon leaks routinely accepted? Is procedure compliance regarded as "wimpy" or "not a man's game"? Is heroism—dodging the non-compliance bullet—celebrated? Cultural norms like these apply great pressure on individuals to conform. Such was the case cited above. The senior member's response was a clear indication of a deep cultural assumption about hydrocarbon leaks; it was also intended to place the newcomer in his place so he would not present any further challenges.

The Industrial Cowboy

The success of "cowboy" individuals is an important cultural phenomenon in these settings. Power plants, refineries, chemical plants and other industrial facilities, require heavy work. Massive equipment, piping filled with high energy fluids and dangerous materials are handled in settings populated with numerous hazards. This work carries large inherent risk and the potential for harm is great. These industries have traditionally attracted individuals with an appetite for this risk. Risk-taking has produced success, been rewarded and, over time, incorporated into the culture as a fundamental value. We have found this to be true of virtually all high-hazard industrial sectors. There is a common set of values associated with these facilities. Employee beliefs about risk will continue to prevail until they are exposed and demonstrated to be invalid and outdated.

"The 'cowboy,'" it has been said, "built the industrial city… with individualist freedom, and that… freedom requires an open frontier." Industrial settings that are rich with risk attract cowboy-types—individuals who resist bureaucracy and constraints, preferring fenceless arenas in which their autonomy can flourish. Industrial cowboys assume that their bravery and inventiveness can "save the day" in dangerous situations. This perspective was illustrated several years ago. As we were rolling out a business process designed to streamline and standardize the way a large utility was operating its power plants, a respected supervisor observed, "You guys are going to take all the fun out of running these plants. I love solving the crisis in the middle of the night. You guys are going to change all that."

The stereotypical "cowboy" embodies four pervasive patterns that represent the "problem" with our industry's culture: 1) The normalization of risk, 2) the attempt to "balance" safety and productivity, 3) a focus on the individual, and 4) an aversion to structure.

Risk Normalization (A Pervasive Pattern)

If there are no negative consequences when risk is taken, it becomes progressively easier to take the risk each "next time." Thus, the risk is normalized. Consider the office worker who wants to fix the ceiling light. He knows it is risky to stand on his rolling chair to reach the light. But he has done it several times before and using the chair eliminates the need to go find a ladder. This solution works well until he finds himself on the floor with a broken arm. The 1986 Challenger explosion resulted from risk normalization or, as one author referred to it, "the normalization of deviance." Over three or four years, technical issues that were first classified as outside the acceptable bounds of risk were accepted in order to achieve successive launches. The risk did not change;

NASA's acceptance of the risk changed. This normalization of risk paid off… until one day it did not. Questions and accusations followed the disaster and, since NASA "knew about the problem," they appeared negligent. Risk normalization must be understood as a cultural phenomenon and a serious threat. Accepting risk is a slippery slope. Once you start down that path, it leads downhill to disaster.

Returning to the refinery fire story, it was clear that this organization had discounted the risks associated with leaking hydrocarbons. They had let leaks exist before and the consequences were judged acceptable. The fire that prompted the investigation was expensive and it cost the company enough to replace both of the leaking heat exchangers several times over. Thankfully, no one was killed, but the plant managers had come down the risk-slope to a quarter billion dollar incident. A death or two might wait at the bottom next time.

"Balancing" Safety and Productivity (A Pervasive Pattern)

Over the years the "industrial cowboy" has had to come to grips with the fact that society was not going to accept the environmental and safety consequences of unbridled production. Our communities have mandated increasing constraints on the way these facilities are operated. Originally the "cowboys" saw this as an intrusion on their prerogatives and tended to resist the regulation. Over time the industries came to understand that part of the social contract for operating their business was that they must accommodate regulations. They evolved the concept of balanced objectives to make this accommodation. Balanced objectives have been seen as an honorable way to demonstrate social responsibility by giving the regulatory mandates an equal footing with the production imperative.

The result of this approach is that all decisions resolve down to a judgment call about this balance between production, safety, and the environment. "How much production do I give up to remain in compliance with safety or environmental requirements?" Or "what safety/environmental risks do I take in order to meet my production goals?" The attempt to "balance" safety and production frequently shows up as a decision to take safety or environmental shortcuts in the name of production. These shortcuts appear profitable and "safe" as long as nothing goes wrong; when something does go wrong, shortcuts can be devastating. Balancing is corrosive because it encourages risk-taking and risk normalization. This normalization, which begins with balancing, has to change. The industry needs to avoid shortcuts, learning instead to achieve production within the framework of rigorous compliance with the regulatory intent.

Another problem with balancing is that the organization becomes vulnerable to decisions made by very junior and perhaps the least qualified people. For instance, the facility's front-line staff may end up making these difficult decisions. We know of a young, newly promoted supervisor who was responsible for issuing work permits on a day when there were an unusually large number of requests, and scores of people waiting in line. He reviewed the reference drawings for the work on one project, concluded that the work was relatively simple and straight forward, and issued the permit without the required visual verification. When an incident resulted, his superiors uniformly responded, "He should know when he is overloaded and he should have made them wait." On the other hand, this very junior supervisor may have been trying to prove he was up to the job; meanwhile, the organization was requiring him to make the balancing decision between keeping the work going and risking injury or possible death.

Focus on the Individual (A Pervasive Pattern)

High performers are valued in high-hazard industries; they are seen and treated as individual assets. Problems are also seen through this individualized lens. Good results happen because of quality people; poor performing people are either fixed or dismissed. When a problem occurs, the responsible person is identified and attempts to correct the behavior or action are set in motion. What is missing in this scenario? Culture! The individual may be the actor but he is probably reflecting a cultural script. This script is provided by the group of people to which the individual belongs. It is crafted from the pervasive behavior and communication patterns the individual actor observes in the group every day. The problem, then, must be addressed in the group setting, not just in the individual setting. Otherwise, the individual returns to an unreformed environment and the group will try to press the individual back into its mold, to align his behavior again with the cultural script.

Returning to the story of the junior supervisor, he was disciplined for his decision to issue the permit. Nothing was done about the problem of overloading at the permit window, however. For this reason, the problem will likely reoccur. Handling the pressure applied by multiple actors in a variety of ways—pressure from supervisors to keep things moving, from impatient people in line, or his desire to look competent—is a heavy burden to put on an individual. It would be more effective to establish rules and protocols for determining when an overload situation develops, and to craft an appropriate group response. This is the alternative to a focus on the individual. You do not take a peg out of a round hole, make it square, and put it back in the round hole. It will not fit. The hole needs to be reshaped as well as the peg! Focus on the individual is inadequate.

Aversion to Structure (A Pervasive Pattern)

As industry consultants, we continually encounter a schizophrenic battle with what we call "structure." In this context, structure does not represent the organization's hierarchy; it represents the written policies and procedures as well as the business systems that specify how to do the work. As part of the "industrial cowboy's" accommodation to society's requirements, he has come to understand that structure is needed. However, he has a deep-down aversion to the intrusion it represents. He believes that structure represents management's attempt to control his work. It takes away his flexibility, placing fences around the "individualist freedom" and "open frontier" that he treasures.

The organization is suspicious of structure for different reasons. Management often feels like structure represents bureaucracy, boxing them in and limiting the organization's ability to respond to evolving situations. Not too long ago, we were working with a management team to craft a response to an incident where several managers had collaborated to make a series of rather bad decisions. They had relied on the organization's collective memory that asbestos was not present in an old boiler that was being refurbished. Although they had the material tested, they did not adequately protect the workers during the testing period. Consequently, dozens of workers were potentially exposed to asbestos. We considered several protocols to improve the decision making process when managers were confronting significant safety decisions. Ultimately, the plant manager decided that he did not want to provide any decision guidance, saying he "did not want people questioning his manager's decisions."

Without question, structure challenges the autonomy valued by industry culture. This is particularly true for high-hazard companies that have a history of exalting risk-taking and celebrating heroes. Viewed differently, structure has the potential to marginalize the demons of industrial life and redirect the energies of its employees to improving the quality of life through attention to prevention. This solution lacks the rush of adrenalin produced by the hero's gamble. On the other hand, why engage the demon if we don't have to? A safety culture benefits everyone—the plant's employees, the community in which it resides, society, the environment, and the plant's bottom-line. Everyone, that is, except the "cowboy" with his risk addiction.

Is the Industry Culture Part of the Problem?

It is clear that our industry has not been able to stop disasters from happening. We argue that this is not limited to any one industrial segment. It is pervasive in most high-hazard industries. We acknowledge that some groups are doing a much better job at addressing these issues than others. To some extent, however, they are like the round peg and the industry is the square hole. When enlightened leaders move on, there is the risk that the old dysfunctional patterns will return.

In the early stages of the twenty-first century, we have developed phenomenal technologies. Our industry can slant drill for oil in 5,000 feet of water and we can rescue miners from a collapsed mine 2,000 feet underground. However, the more sophisticated our technologies, the greater the consequence of failure. Within the high-hazard industry, the culture of risk addiction is a fundamental problem. We are a culture of risk takers and largely, we are proud of it. But times have changed. Society has little patience for disasters. And yet, against this pressurized backdrop, we know that our industrial culture too often mitigates our best technology. While a final determination may be long in coming, it is a good bet that the cause of failed blowout preventers and faulty cement mixes on the Deep Water Horizon can be traced back to these very same cultural issues.

Unraveling the Power and Potential of Culture

Our industry culture is a problem because it has the power to coerce decisions and actions that individuals would not make otherwise. Organizations have not provided a solution; instead, the industry's pervasive cultural patterns have been allowed to create dilemmas for workers: conform to the dominant expectation or lose your job, your influence. In addition, poorly formed culture has the ability to "trump" safety initiatives—to over-ride or overpower well-framed strategies, plans and infrastructures. The industry has historically viewed culture as too mysterious and intractable to address. Unfortunately, culture is not a concrete object that can be operated on with engineering precision; culture requires, instead, that we deal with "soft" human abstractions and the work is intensely messy. Nevertheless, MetaPower sees culture as a navigable and worthy challenge. We are reshaping our product suite to harness the power of technology-enabled cultural change. Sometimes the biggest part of a challenge is to name the problem. We believe the time has come to squarely address the culprit: culture is job-one.

This is the second in a series of white papers MetaPower is developing to explore the issues of Culture and Technology. The first paper was entitled "Is Plant Management a Noble Endeavor?" and it explored the challenges faced by managers of heavy industrial facilities. The next paper in the series will address the issue of structure and how it is used to influence culture.

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