



What Were You Thinking? Optimizing the Brain For Workplace Safety

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Introduction

The human brain is a highly efficient machine that is part of every organization's work system. Optimized right and it can be a catalyst for creating a world class culture.

There is now a massive shift in thinking regarding what impact the brain has on the workplace and the strategies organizations can apply to leverage its power. Many organizations have seen remarkable advances in safety performance as they add in more effective layers of protection related to human performance reliability including tools, technology, and key skills training.

However, some gaps remain. This is evidenced by common questions leadership are asking:

- Given that traditionally strong safety performance and robust safety management systems exist, what is continually allowing near-hits with serious injury and fatality (SIF) potential?

- Why do human performance tools such as procedures, job briefings, pause work authority and take-fives not always work as intended?
- What is left for an organization to do when it believes it has exhausted all capabilities to prevent SIFs? Which other area warrants exploration to find a solution?

Senior leaders and safety professionals are now analyzing the human performance reliability gaps within their work systems. They are broadening their understanding of how employees make critical decisions and perform key operational tasks.

C-suite leaders are also actively building capabilities within the organization to defend against human performance error. They are arming employees with new ways of reducing exposure and related risk that stem from within the natural functioning of the human brain.

The brain is the new frontier for safety. Internal brain hazards such as distraction, habituation, fatigue and social implications are being addressed to protect people and allow business continuity. This paper will explore the human factor in safety, how the brain operates, and the brain-centric protections organizations can adopt in order to promote the strongest culture it can produce.

The Human Factor in Safety

Besides the noticeable safety gaps, leadership is leaning toward strategies involving the brain because data shows a noticeable crisis.

For example, it is evident that human factors play a role in many SIFs. The World Health Organization says human factors “refer to environmental, organizational and job factors, and human and individual characteristics which influence behavior at work in a way which can affect health and safety. A simple way to view human factors is to think about three aspects: the job, the individual and the organization and how they impact on people’s health and safety-related behavior.”

According to U.S. Bureau of Labor data, 71 percent of SIF events are directly connected to breakdowns in life-saving rules or processes and the low quality of pre-task risk assessments. DEKRA OSR findings show that Brain-Centered Hazards™ (precursors to performance error) commonly contribute to more than 80 percent of incidents and near misses.

Anecdotal evidence also shows that workers tend to underestimate risks if they perceive their tasks are “safe.” When those tasks are repeated without producing a SIF, those behaviors unfortunately get reinforced. However, when a SIF or unplanned event occurs, it often leaves leadership feeling perplexed as to why. Too often the incident itself or the individual worker becomes the sole focus of investigations. Neither approach will get to the heart of what needs to be improved for a safe and reliable outcome in the future

SIFs result from a system that fails to address the natural infallibility of human behavior. To understand how human factors play a role in exposure requires going beyond just focusing on individual employees. Instead, organizations need to examine all aspects of the workplace and its processes when creating strategies designed to protect workers.

The World Health Organization agrees that assessing risk requires a holistic look at the workplace as the potential for risk is present in operational procedures, training, staffing levels and workloads, the organizational culture, safety communications, fatigue and shiftwork, and even the design of the workplace itself. Because so many things can impact behavior, it is more sensible to examine how the worker interacts with his or her environment.

How the Brain Operates

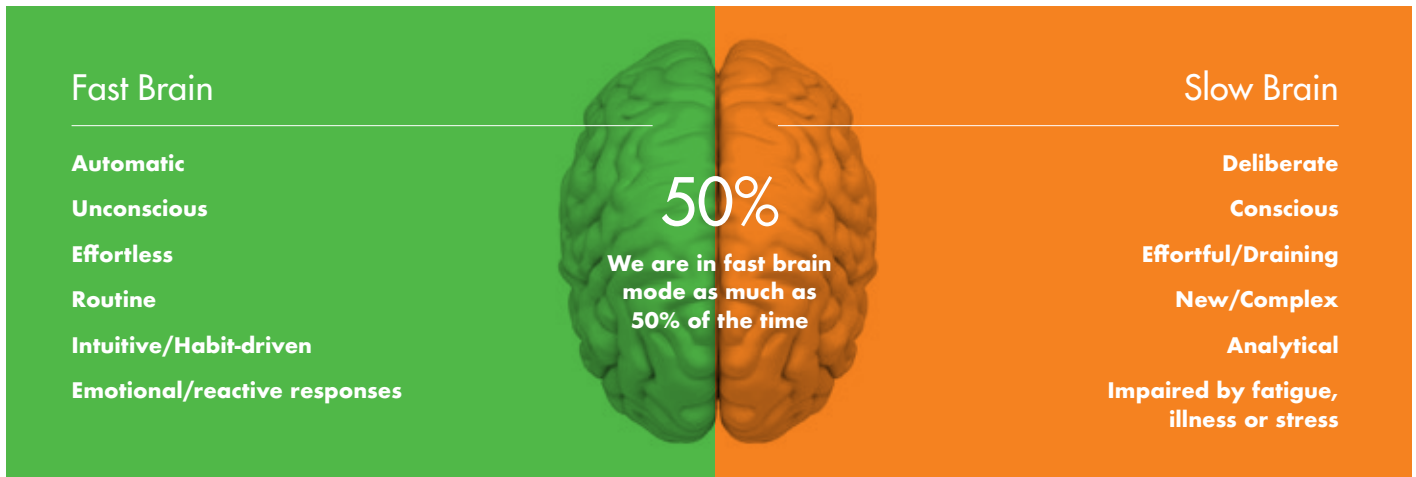
Neuroscience is a vital area organizations need to understand when structuring safety programs and the work itself. First, there are three core principles that are worth considering:

1. While humans dominate the planet by possessing big, brilliant brains, they also make errors. Energy conservation functionality built within the brain’s design often inhibits and reduces conscious thought. Simply put: We biologically zone out, often with our brains in neutral. That makes us coast through activities at work, at home and on the road.

2. When human performance results in error, it is usually not due to a lack of intelligence, skill or motivation of the employee. Rather, error is often linked to the task being completed inconsistently. Employees want to do a good job and get things right. They are even motivated to do so. But everyone sometimes simply gets it wrong. Knowing what factors increase the risk of this taking place can be extremely helpful in addressing human performance error.

3. The human visual system is designed to miss important information. That is, the eyes see what the brain directs them to find and largely miss the rest. The biology behind hazard identification can empower employees to understand how they can take better control of the hazards they notice. Humans have the ability to dial up their focused attention like the volume of a favorite song, so they can learn to heighten attention and situational awareness for those important tasks such as assessing risks and making critical decisions.

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Turning to Neuroscience For a New Understanding

At the center of recent neuroscience research has been a confirmation of two basic functions of the human brain that operate independently and at times cooperate to direct all human action. We call these the Fast Brain and the Slow Brain.

The Fast Brain is reactive and habitual. It's the brain we use when we engage in routine actions like driving a car, navigating a crowded sidewalk, or mowing a lawn. The fast brain involves habit and "muscle memory" to accomplish such tasks.

The Fast Brain is great when we engage in low exposure tasks, but the Fast Brain's response to routine tasks can lead to missed steps, incomplete work and a dangerous reliance on past experiences to predict and direct current actions. That means, if the circumstances are not identical, incorrect actions will be taken.

The Slow Brain is analytical, reasoned and intentional. People operating in slow brain mode pay greater attention to detail, have greater accurate memory recall, plan ahead, and think analytically. The Slow Brain actually has to be intentionally activated to spur conscious cognition — the brain state that enables analysis, accurate problem identification, reasoning, planning, and decision making.

Unfortunately, the Fast Brain controls the majority of waking time. We are habitual creatures so rely on the Fast Brain to get us through the routines of our day. The Slow Brain, not surprisingly, requires more energy, which means we use it less by default.

Work incidents take place much more often when we operate solely with the Fast Brain. Neuroscience shows us that the Fast Brain operates quickly and is reactive. Worse yet, when fatigue sets in, reaction times and irritability can be heightened and judgement can be greatly impaired. Sleep deprivation has emerged as a dangerous exposure that hinders human performance reliability and safety. When workers experience either acute or cumulative fatigue, they put themselves and others at significant risk.

Brain-Centric Protections

Wherever humans perform safety and operation critical job tasks, companies must implement systemic layers of protection that are designed to drive human performance reliability practices and behaviors.

More specifically, leaders need to redesign their worksites. This requires instituting brain-aligned organizational structures, systems, practices, and procedures. The organization, team, and individual levels of the enterprise must support engaging employee capabilities for conscious cognition.

For this reason, everything from culture and messaging to workforce training, work schedules, operating procedures, human machine interfaces, and even incident investigations need to be revamped to align with new brain science.

Human performance reliability can be increased through a defensive layering approach that prompts leaders and employees to execute critical tasks (such as human performance capability training, performance tools and nudges, effective leadership messaging) along with organization-wide interventions (such as operating procedures designed with the brain in mind for reduced error, fatigue management policy and practices, and alignment on operational risks, goal conflicts, and values based decision making).

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Skills to Improve Human Performance Reliability:

Three examples of training that organizations can invest in to improve human performance reliability are:

The Making Safe Decisions® Approach

Four modules of both human performance content and skills enhancement give the workforce an opportunity to share in a common understanding of how to best accomplish important tasks. It also provides an understanding of the human brain as it relates to work tasks. Ultimately, this intervention allows employees to plan for reliability and participate in improved situational awareness processes.

Controlling Brain-Centered Hazards™

This training allows supervisors and line managers to learn the practical application of human performance improvement actions to better support their teams for “right-first-time” performance. Findings from a DEKRA OSR webinar poll conducted in October 2019 reveals that supervisors generally lack skills in human performance but show a desire to develop this important area.

Building Shiftwork Vitality™ Training

This training focuses on fatigue risk management. It provides information and insight on how the brain benefits from sleep. It also shows how sleep hygiene, the neuroscience of sleep, dietary choices and digestion, and shiftwork guidance will deliver optimal performance results every day. This intervention improves individual decision-making that fosters alert, well-rested employees at all levels.

Conclusion

It is now recognized that leadership messaging and behavior impact the organization’s culture. For example, when leaders transmit urgent messages to their workforce, they probably don’t realize that such time pressures actually diminish Slow Brain engagement. Instead, the Fast Brain takes over because the worker has been instructed to finish the task as quickly as possible. And as quickly as possible typically means doing it by routine, or habit.

But a finished task is not the same as error-free performance. Facilitating high performance reliability requires different cultural messaging from leaders. Specifically, the human brain needs to be primed with messages of “Right-First-Time Reliability,” such as:

- You always have the time to do the job right.
- Take your time so you do the task right the first time.

This type of reliability-centered messaging signals the human brain to “think through” job tasks, focusing on execution of correct actions rather than the speed of actions.

For companies that have reached a plateau in safety improvement, are experiencing high potential near misses, or increases in injuries or critical errors, the solution is clear: Investing in human performance reliability driven by neuroscience will get them to the next level of safety performance.

[Learn More](#)

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