

Taking Control of Human Performance Error Through BRAIN-CENTRIC LAYERS OF PROTECTION

By David Musgrave

Having spent his career fostering the success of others by harnessing the power of the human brain, the author's central question remains the same: How can people get things right when it counts? When applying this question to achieving goals related to working safely and avoiding unplanned events, one must investigate what organizations, individuals and teams are doing to work in alignment with how the brain operates.

The human brain is a highly efficient machine that is part of every organization's work system and knowing how to optimize its use requires some additional capabilities.

There has been a massive shift in thinking, especially over the past 2 decades, in incorporating human performance reliability strategy, and today it takes center stage. Many organizations have seen remarkable advances in safety performance as they add in more effective layers of protection including tools and technology, key skills training and so on.

However, some gaps remain that have business leaders asking helpful questions:

- Given traditionally strong safety performance and operational reliability, what is allowing continued near-hits with serious injury and fatality (SIF) potential?

- Why are human performance tools such as procedures, job briefings, pause work authority and take-fives not always working as intended?

- Why are significant unplanned events leaving stakeholders questioning their link to the brand?

Senior operations leaders and safety professionals have moved to analyzing the human performance reliability gaps within their work systems. They are responding by broadening their understanding of how employees make critical decisions

and perform key operational tasks as prescribed. C-suite leaders are actively building capabilities within the organization to defend against human performance error, while also arming employees with new ways of reducing exposure and related risk that stem from within the natural functioning of the human brain. Internal brain hazards such as distraction, habituation, fatigue and social implications are being addressed to protect people and allow business continuity. Operationalizing human performance interventions allows a hand-in-glove fit at the frontline where human performance success manifests.

Operating Procedures for the Brain

The brain operates based on some basic principles, such as:

- 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. Humans biologically zone out, often with their brains in neutral coasting 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, and are motivated to do so, but everyone sometimes simply gets it wrong. Knowing what factors increase the risk of this occurring can be extremely helpful in the addressing human performance error. Human performance reliability can be increased through a defensive layering approach that prompts leaders and employees within critical tasks (e.g., human performance capability training, performance tools and nudges, effective leadership messaging) along with organization-wide interventions (e.g., operating procedures designed with the brain in mind for reduced error, fatigue management policy and practices, and alignment on operational risks).

- 3) The human visual system is designed to miss important information. That is, the eyes

HOW YOUR BRAIN CAN BE A JOB HAZARD

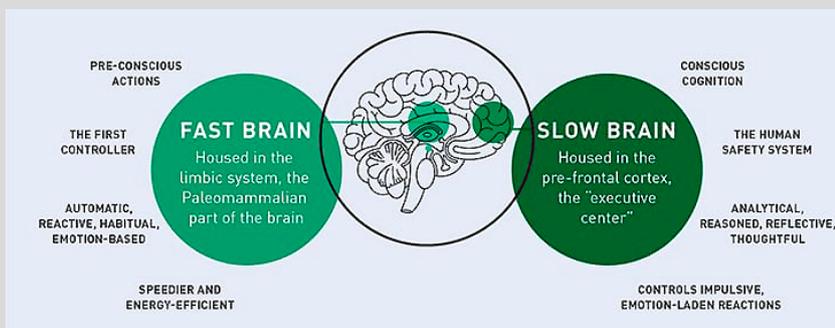
Some of our most serious organizational incidents have involved brain-centered hazards typically identified as human errors.

DANGER AHEAD

Critical organizational elements can exacerbate brain-centered hazards when they are not aligned with **how** the human brain actually works.



Different factions in the human brain compete to control the single output channel of human behavior. Of most importance is the dual-process system of the fast brain and slow brain.



Note. Excerpted from <https://bit.ly/2NfbSzH>.

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 can dial up their focused attention like the volume of a favorite song, so they can learn to heighten attention for those important tasks that require focused attention such as assessing risks and making decisions.

Addressing Reliability Gaps Risk Alignment

While there are several places where human performance reliability gaps tend to lurk, one often overlooked gap is linked to risk-based decision making. When humans are faced with two or more competing or conflicting goals (e.g., working safely and meeting an unrealistic customer delivery deadline), people quickly and often subconsciously act based on the contribution of various brain structures offering up decision criteria. Thoughts, emotions and social implications feed into decision making in this regard in a sometimes instantaneous electrochemical snap. Too often, leaders and their peers are not well aligned on how to best prioritize competing operational risks, and employees are left to figure some of this out for themselves in the moment. The result is misaligned risk-based decisions that result in near-hits, damage to assets, processes out of control, injury and sometimes catastrophe. Alignment around risk prioritization is necessary at the top of the organization and down through all levels. With just a few simple questions, even the best and brightest operations leaders usually realize there is more alignment work to be done to shore up the safety foundations that were created so long ago. Asking what is most important among competing demands and listening intently within the answers will be enlightening and highlight alignment around risk.

Risk-Based Principles

As noted, many actions taken by employees and leaders alike that should be consciously attended to (slow brain processing) are not decided at all, but rather are habitually driven by the nonthinking limbic system (fast brain processing). In fact, the fast brain drives action approximately 50% of the time and this varies based on the task and other factors. It would be great to have every employee consciously attending to every critical decision (and fostering this is important); and for situations where currently no clear-cut

decision is obvious, it is important to have a simple set of risk-based principles well embedded within the organization. Principles are absolutes, and are different than important rules, expectations and even values. Well encoded and lived principles are part of the DNA of all employees and can guide the team like a drum beat when tough decisions are upon them. Importantly, if someone is operating habitually, but is about to violate a risk-based principle, the brain is more likely to trigger emotion and memory that make this known to the individual by prompting conscious thought in such situations. Principles operationalize values and are great guides, but also act as an alarm system that warns of a misaligned critical decision in the making.

When discussions of complacency erupt pre- or postincident, listen for the message inherent within. Statements such as “The employee got complacent and that led to the injury” subtly suggest that some other, better employee would not have had such an injury if in a similar situation. The fact is all humans experience complacency as a natural function, so a more accurate statement might be “The task requires redesign or human performance supports so it can be done correctly every time.” Automobile manufacturers understand that humans will mentally drift off into fast brain processing while driving and so continue to develop and implement technology features that correct for human performance error when the car drifts outside the lines or does not stop to avoid impact. This offers a good example of designing equipment with the human brain in mind, rather than hoping the driver will always drive as intended.

Urgency Upsets

Still ever impressive is a leader who remains unshaken when faced with an acute crisis and logically guides the group in the right direction rather than crumbling in emotion. Such leaders have overridden their natural tendency to react in anger or run away from danger and instead remain focused and in control. Organizations that allow a chronic sense of unhelpful urgency (going well beyond driven and busy) will soon see highly capable leaders unravel and do what they are meant to do biologically: react, which may include leaving

the organization and will certainly include poor decision quality given such stress and pressure (whether real or perceived). This highlights why layers of protection exist for the organization to put in place, and layers for the individual and team to take on for optimal coverage.

Keeping the Social Brain in Check

All operations will see new situations arise that require individuals to notice increasing exposure and elevated risk and apply their own capabilities in the moment. As an example, an employee with newly acquired human performance reliability capabilities (through training and coaching) noticed a change to how goods were being unloaded via forklift adjacent to him. The worker noticed that exposure had increased, triggering him to take deliberative action to change position and make the scene safe. The employee avoided susceptibility to groupthink (going along to get along with the group) and other naturally occurring forms of unhelpful group process, and instead changed what he was doing, likely saving his own life by all reports. Organizations need to prevent such situations from occurring, and individuals and teams must have advanced level capabilities to intervene when the brain is leading them astray with thoughts such as “I’m sure I’m overreacting, she is senior to me and knows what she is doing” or “I’m sure they have thought through the hazards here so I’ll just keep working. No sense making a fuss or tomorrow will be tense.” Safe decision making through capability building can be improved upon, thus reducing risk for error.

Conclusion

In closing it is important for senior leaders to discuss what brain-centric layers of protection are in place to ensure that they are set on a trajectory aligned with world-class safety while avoiding reputational damage to the company caused by public, unplanned events. Past safety and financial success does not ensure human performance reliability today and tomorrow, so installing effective layers to strengthen human performance reliability is the key to protecting gains made and securing reliably safe operations in future. **PSJ**

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