



THE HUMAN FACTOR IN SAFETY AND OPERATIONS

How to change instinctive and habitual at risk behaviour

Despite stringent regulations, advanced process automation, safety management systems, and the well-intentioned efforts of investigations, work accidents still happen at many facilities, and in some cases are repeated in a similar fashion. But the individual is hardly ever solely responsible and the incident hardly ever isolated. Why? Because humans aren't perfect. Facilities are not simply operated by humans, they are also designed, built and maintained by them. This provides ample opportunity for people to contribute to incidents. And that is why technical solutions, business models, corporate strategy, rules and regulations may help a business to improve its safety and operational performance but are rarely enough in themselves. Fully understanding the many roles humans play at facilities and the factors that influence their decision-making is therefore vital to preventing incidents and to achieving operational excellence if we define operational excellence as minimising risk, eliminating defects and maximising value creation.

What is evident from a review of incident reports is a long history of the significant role of human factors in causing incidents. The phrase "*human factors*" is often used to describe the interaction of individuals with each other, with equipment and facilities, and with management systems. It is also used to describe how such interactions are influenced by a work environment and culture. Understanding and improving "*human factors*" in causing incidents requires a focus on people's inherent behaviours, characteristics, needs, abilities and limitations, as well as the development of sustainable and safe working cultures. Gaining a comprehensive understanding of the root causes of incidents and addressing them holistically is key to preventing them effectively.

In order to achieve a step change in safety, we have to therefore go beyond the traditional safety management approach. Many at-risk behaviours occur intuitively and are the result of experientially-based feelings associated with anticipated outcomes. The key to advancing the effectiveness of safety management practices involves a better understanding of motivational factors and their subsequent impact on decision-making.

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THE ROOTS OF BEHAVIOURAL SAFETY MANAGEMENT

Organisations should therefore clearly establish and effectively convey expectations regarding behaviours in the workplace. Secondly, a process should be put in place to monitor actions and behaviours to ensure conformance with standardised work practices. Finally, feedback must be used to reinforce or modify behaviours.

But the number of resources and time available to most companies for this has diminished over the past 10 to 20 years and has reduced the feedback process. The effectiveness of this model, when executed as a line function, is further strained when applied to remote, distributed, or self-directed work forces. However, when at-risk behaviours occur without consistent or immediate feedback, the effectiveness of the process is greatly reduced.

THE EFFECT OF FEELINGS AND EMOTIONS ON BEHAVIOUR

There is now a growing body of research reinforced through recent advances in neuroscience that sheds new light on human behaviour. Feelings and emotions as a primary source of motivation appear to be of increasing importance; a revelation that could offer new insight into why we don't always follow the rules and may act irrationally. Applied to the workplace, this notion suggests how employees *"feel"* about a situation may be more representative of subsequent behaviours than what they actually *"think"*.

The notion of a two-track mind, one part logical and rational, the other intuitive and automatic, is not new. Its systematic application to the practice of safety, however, is new and could hold the answer to some of our biggest challenges. The basis of most defined safety practices is logic-oriented. The basis of most human behaviour, on the other hand, is not. Most behaviours are intuitive, occurring automatically, and are the result of our affective response, or *"gut feeling"* to a situation.



To better understand how feelings associated with a set of circumstances can dictate the most likely course of actions, let's look at several important factors. As humans, we live in an environment that is forever changing. We constantly process information and monitor situations for potential risks or rewards, experienced intuitively as feelings and even emotions. By our very nature, we are extremely efficient at managing this enormous amount of information. So how do we determine what remains below the threshold of our awareness and what gets flagged for further attention and processing? It's a filtration-process, largely influenced by past experience.

EXPERIENCE-BASED RISKY BEHAVIOUR

The role of experience is key to understanding why many at-risk behaviours occur and what can be done about them. Consider for a moment the typical behaviour of a driver on a motorway. Many will set cruise-control speeds slightly above posted speed limits. The balance between traveling at a faster speed for an anticipated benefit and the possible cost of going too fast and getting a ticket is heavily influenced by past experience. This process occurs intuitively and automatically and doesn't involve analytical risk assessments supported by data. Each time the benefit is realised without a negative consequence, the behaviour becomes more habitual and more automatic. Experimentally-based at-risk behaviours driven by anticipated gains that outweigh any perceived costs are not limited to the motorways or to drivers. They occur all too often in the workplace too.

A study conducted by T. Dell and J. Berkhout found that injuries were 88% more likely to occur in a perceived *"safe"* job, compared to those regarded as the most dangerous. This data is supported by a number of organisations; perceived low-risk tasks typically involve the highest frequency of injury. Secondly, when people make repeated choices that involve at-risk behaviour and experience first-hand benefits aligned with anticipated outcomes, they tend to underestimate the actual risks. Finally, if there is a conflict between intuition and our rational system, our experientially-based intuitive response appears to have the strongest influence on decisions and subsequent actions. This explains in part why words and data may have very little influence on someone's behaviour. Labelling a behaviour as *"unsafe"*, when it has been performed hundreds or even thousands of times before without negative consequence is more than a challenge. If the behaviour was associated with a forecast benefit that was realised, you are now at odds with actual experience; a hurdle in which logic and reason alone will have limited success.

INFLUENCING AT-RISK BEHAVIOUR

While experience may be the driving factor behind most at-risk behaviours, it is also the key to overcoming them. Although logic and reason are influenced by words, data, and analytical comparisons, our intuitive system is not. To effectively influence

behaviours, you must employ images, emotions, personal stories and experiential techniques that connect with your workforce, and subsequently move them.

An industry that has embraced experiential techniques to improve on-the-job safety performance is commercial aviation. In spite of numerous efforts to improve pilot performance, crashes due to pilot error remained at 65% for more than 50 years. That changed in 1990 when the industry introduced flight simulators, a tool designed to provide experiential learning in a safe and controlled setting. Since then, crashes due to pilot error have declined by more than 54%. The field stands alone with six sigma operational performance, demonstrating fewer than 3.4 defects per 1 million opportunities.

The next frontier for the practice of safety, and an area of emerging interest for DuPont Sustainable Solutions (DSS), involves the practical application of affective-based research to address some of the biggest challenges related to safety. Within this research is a wealth of information regarding more effective communication using techniques that inspire and influence, and not just inform; characterised by, but not limited to, a foundation in sound management practices and driven by leaders who rely on influence, and not just edict, to reduce at risk behaviours and improve operational performance.

“The true test of a man’s character is what he does when no one is watching,” American basketball coach John Wooden once said. It is a truth companies come up against every day. They cannot monitor the employees in their facilities round the clock, though many may try. Even if they could, supervision is not as good a driver of performance – whether it is safety or operational performance – as changing habitual and instinctive behaviour from the outset.



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For more information, visit our website at:
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