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Human Error - Fresh Thinking for Managing Non-Compliant Behaviors

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1912. The RMS Titanic steams toward a known ice field while maintaining close to full speed…

1986. The Challenger space shuttle takes off despite a known problem with a critical component requiring NASA to circumvent and by-pass its own safety rules to make the launch time…

1987: The *"Herald of Free Enterprise"* a roll-on/roll-off car ferry leaves the port of Zeebrugge in Belgium with its bow door open. This is not an uncommon practice when ferry crossings fall behind schedule.

2005. Operators at the Texas City refinery routinely overfill a distillate column as part of normal start-up practices, even though this is seen as an unacceptable procedural violation….

2010. The offshore drillship "Deepwater-Horizon" is seriously behind schedule on the Macondo well and with ever rising operating costs, there is an immediate desire to finish the job. And while the crews have been congratulated for a "safe job", the same can't be said of key barriers to prevent catastrophic loss.

What do these all have in common? Simple… Human Error.
Despite spanning almost a hundred years, in each and every case, the past experience of those involved conspired with an operating culture that had "normalized" elevated levels of risk. Any yet, when disaster stuck, it was met with utter disbelief and questions around how this could possibly have ever happened.

1. Introduction

Though such catastrophic events are rare, the relationship between Human Error and its potential devastating consequences are often masked in such a way that it goes unrecognized, unappreciated or in many cases, just plain missed. And yet there is still a common misconception that says if such events are infrequent, then surely the behaviors and actions that directly contributed to these outcomes must in some way be equally uncommon or unique and that the people directly involved must have been doing something highly irregular. This line of reasoning - while palatable to senior leadership demanding assurance that a repeat event isn't imminent (or even a remote possibility) - may not necessarily reflect the true state of affairs. And yet at this juncture, organizations still typically charge headlong towards attempting to uncover and punish those select procedural "violations" or other individual wrong doings directly associated with the event. So while it may be convenient to seemingly place blame on those directly involved, the harsh reality might be that while such disasters are indeed rare, unauthorized deviations from policy and procedures are not. In fact, widespread non-compliances (or cultures of "casual compliance") may actually be more often the *norm* rather than the exception.

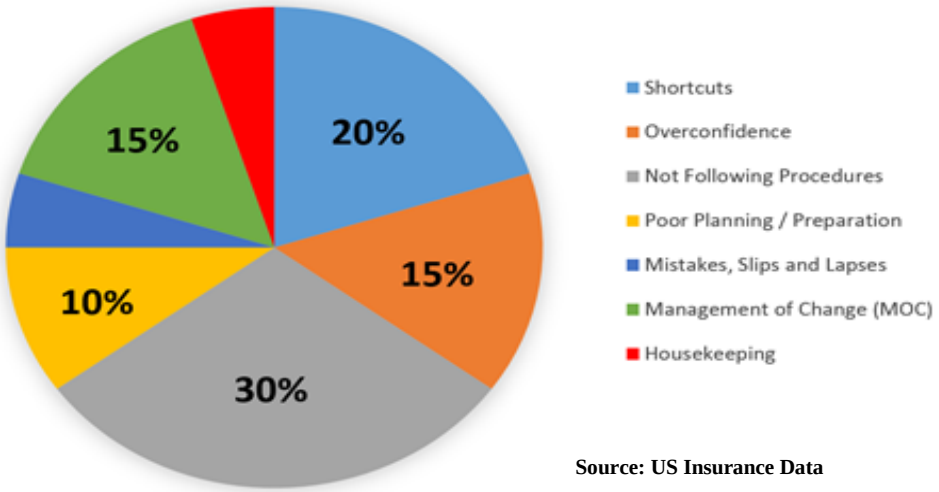
Behaviors that result in undesired outcomes are so commonplace that when investigating the underlying causes of such serious

events, the corresponding behaviors and individual wrong doings are conveniently labelled under the header of Human Error. And yet this description is often so broad and without much definition, that attempting to effectively address the issue becomes cumbersome and convoluted.

In recent years, much focus has been afforded to better understanding the underlying causes of Human Error. However in many cases, much of this effort had been directed toward the bottom-half of organizations and in particular, focused toward human performance challenges in the form of mistakes, errors, slips and lapses. Yet while this particular category of wrong doing is certainly valid, the vast majority of behaviors that constitute Human Error are often not associated with these at all. Figure 1 illustrates that non-compliant behaviors (procedural violations) arise because of other multiple reasons, such as shortcuts, overconfidence, poor planning and / or poor risk perception. To make matters worse, companies may unknowingly be actually fostering behaviors that directly support and contribute to a culture of "casual compliance"*.

How so?

Figure 1: Underlying Causes of Human Error - US Companies



Source: US Insurance Data

For every non-compliant behavior (e.g. a risk or shortcut) there may be only something like a 1-2% chance of anything going seriously wrong. So conversely, there must be something like a 98-99% chance of getting it right. In other words, if risky behaviors result in saved time and money, then individuals are actually more likely to receive *positive reinforcement and recognition* for their efforts. The result? Individuals and teams will almost certainly repeat the same behaviors next time around. Consequently, this provides the seeds for a culture of "casual compliance" where elevated levels of risk become "normalized".

So in the vast majority of cases, Human Error isn't actually an error at all, but a deliberate and premeditated choice where individuals and teams willingly deviate from documented work practices based on the genuine belief that this is actually what is really being asked for. A win-win combination that is good for the company and good for the employee.

To better manage Human Error requires a better understanding of why people act in the way they do and in taking a leap of faith that says most employees actually show up for work wanting to do a good job. So while a focus on Human Error has traditionally been directed toward the bottom-half of the organization, this paper illustrates that in many instances, the origins of such behaviors reside much closer to the top-half of the organization.

Therefore, if such non-compliant behaviors (Human Error), are prevalent among many organizations, then it's probably high time that organizations stopped looking at individual failures and started looking to the reasons for such widespread behaviors and their "normalization" to elevated levels of risk. And it's only at this point when organizations fully understand the reasons why people do the things they do, that employees can truly be held to account for their actions.

2. The Problem with Risk:

While gaining more transparency around operating risk sounds straightforward enough, the problem is that risk itself is often quite elusive. One minute you think you have it, while the next it reinvents itself, double backs on you and morphs into something quite different (and sometimes more deadly) - often catching you completely off-guard. Risk is much less tangible than something like an injury, a spill or lost production time. So for risk to become a useful measure, its situation and context (i.e. the what, the where, the when and the who), must also be clearly defined. And even if there's a good understanding around risk management principles where such knowledge is well embedded within day-to-day operating practices, managing risk can still prove problematic.

The challenge being that while reduced risk may be a key desired operating outcome, so too are other equally important (but much more tangible) outputs like time and cost. So this results in a dilemma for many - especially those close to the worksite. With the probabilities involved, its highly likely that taking a few short cuts (thereby resulting in elevated levels of risk) will likely produce the *exact same outcomes* (in terms of tangible negative consequences like an injury or a spill) as when there's strict procedural compliance. But if these same short cuts lead to time saved and reduced costs, this may actually translate to a "job well done" if outputs and results are the principal metrics. At this point, the right conditions exist for non-compliant behaviors (Human Error) and higher levels of operating risk to become the "new normal". Ever hear someone say *"I've done this job a thousand times before and I'm telling you nothing bad has ever happened"*. This leaves those who have worked diligently to drive down the operating risk through strict procedural compliance wondering how they ever got it all so wrong. And this situation can be repeated over and over for weeks, months and even years, but without effective checks and balances to offset, measure and manage "normalized" elevated levels of risk, then it simply becomes a matter of time before probability catches up and disaster inevitably strikes. And yet, right up until this point, there is often still the perception that things are perfectly ok and Human Error rarely even registers on anyone's radar.

3. Setting Worksite Employees Up for Failure: A "Job Well Done":

In the last 10-15 years, many organizations have implemented new behavior observation programs designed to get employees to more consistently do the "right things" - especially around safety. While there has been increasing recognition that revising procedures or conducting the same old "refresher" training may no longer be hitting the mark, behavior observation programs have been undergoing something of a renaissance by aligning them around individual and personal motivators. The idea being that if employees can establish a relationship between their own behaviors and a potential negative impact to those things that really matter to them on a personal level (such as friends, family and loved ones), then it may be sufficient to get employees to think twice before taking short cuts and risks and other non-compliant behaviors. But if the metrics to determine a "job well done" remain unchanged, then irrespective of whether worksite employees begin to *"get it"*, ultimately employees will likely buckle under the weight of the carrots and sticks the organization maintains to drive performance. And if these remain centered on outputs and results (e.g. cost, time and the absence of tangible negative outcomes such as injuries, spills etc.) then this will likely be sufficient to realign employee's actions back toward non-compliant behaviors. So in other words, the desire to achieve a "job well done" is so strong among employees that it is often sufficient to trump and by-pass their own personal and individual motivators.

The Milgram experiment conducted by Yale University psychologist Stanley Milgram back in the 1960's is a good example of this where the vast majority of participants willfully carried out actions that they believed to be fundamentally wrong. And yet, when placed in an environment where they were not only instructed to do so, but importantly, rewarded for their actions, over 90% compliance was achieved. This powerful experiment illustrated not only the value of recognition, but an inherent desire of each participant to meet expectations, even if this meant undermining or circumventing their own values and moral compass.

4. Operational Discipline:

So how to proceed? Well to accurately determine the degree of Human Error within an organization and its corresponding impact on overall operating risk, requires metrics to be established that clearly demonstrates whether work is routinely being performed as expected (in control of the risk), or alternatively, not as expected (not in control of the risk). This requires that *work execution* be measured, understood and made clearly visible to all. Organizational dashboards would measure *work execution* and register the number of times known higher risk work deviated from documented standards (non-compliant behaviors). For example, the dashboard could read something like *"In the past 6 months for all the higher risk jobs performed, 70% of the time, employees deviated from expected or documented ways of work"*. In other words, for the vast majority of higher risk jobs performed, the organization *lost control* of the risk (given they didn't know exactly what their employees were doing). And if such measures become much more visible and transparent to the organization as a whole, then in turn it shouldn't really be surprised if in the future, bad things happen.

Though simply waiting for undesired outcomes may be one strategy (reactive), in the end, this often simply results in comprehensive investigations and analysis being conducted that do nothing more than confirm what is already known i.e. that in many cases, key policies and procedures are not being followed (Human Error). But whereas in the past, organizations have often looked to take action against those select individuals directly involved in the event (perhaps by exercising some form of discipline), if the organization's performance dashboard now registers that 70% of the time for known higher risk work, employees do not routinely follow key policies and procedures, then such actions can no longer be supported. In other words, the organization would now have to discipline 70% of the entire workforce if the same logic was upheld, not just to those select non-compliant behaviors that gave rise to the event, but for all non-compliant behaviors known to exist. Since this is obviously unrealistic and unpalatable to most organizations, the only alternative is to understand the *wider reasons* for such non-compliant behaviors (Human Error). Doing so, translates to a greater level of Operational Discipline.

Organizations really believe they have good and well-disciplined operating practices, but seldom do they proactively seek assurance that this is actually the case when it comes to how work is routinely executed. Why? Because as long as bad things aren't happening on a regular basis (i.e. tangible negative consequences such as injuries, spills or near misses) then this in itself is often sufficient to provide the organization with the necessary level of assurance.

But Operational Discipline is part of being able to reasonably predict what tomorrow brings i.e. *"Because we are in control of the operating risk, we have a good sense that tomorrow will look similar to today"*. However, for those organizations that are stuck in a purely reactive mode, they have to rely more on hope that the absence of negative outcomes and results today will also be repeated tomorrow. But the harsh fact is that if you don't maintain high levels of Operational Discipline and measure how work is routinely being executed, then ultimately you really don't know what is going on and are ignorant of whether a culture of "casual compliance" is enabling elevated levels of risk to become "normalized". That's why such organizations are genuinely surprised when bad things happen. However in tough operating climates where margins are getting squeezed, this inability to accurately and reliably predict performance can create uncertainty around the organization's means to determine their forward looking operating costs and that always makes a certain group of stakeholders very nervous.

5. Create a direct line of sight between the C-Suite and the Worksite:

So where to start? The key to achieving greater Operational Discipline and in turn achieving more predictable results, is in recognizing and accepting that the origins and causes of non-compliant behaviors (Human Error) do not solely reside at the worksite. That's not to say that C-level executives (or even Board members) are somehow singularly accountable either, but more the recognition that *all levels* of the organization have a key role to play. And even though C-suite executives may demand more predictable results and talk to lower operating risk by re-stating the need for better procedural compliance, if the metrics for determining overall performance do not include *work execution*, then the message from the top will ultimately become filtered, distorted and ultimately lost or replaced. Employees are no fools and if they repeatedly see that cost, time and other outputs and results are actually the most important thing, then they will deliver as required in order to get ahead. So it's not enough that company leadership stand on the sidelines, they must be much more "hands-on" and proactive around Operational Discipline.

One way to achieve this is to implement a formal Senior Management Site Visit program and / or a Management By Walking Around (MBWA) program. While neither of these are new, they help company leadership and key line managers become much more informed regarding how known higher risk work is being routinely executed. If there exists significant deviations from what was expected (i.e. non-compliant behaviors), then the opportunity for immediate corrections on the spot might be possible, but in any event, certainly before they give rise to serious negative consequences.

More importantly however, besides being able to directly address specific and perhaps localized non-compliant behaviors, such interventions are critical to supporting organizational dashboards by providing key data points around *work execution*. This helps organizations better determine the actual levels of Operational Discipline, the degree of non-compliant behaviors (Human Error) and any "normalization" to elevated levels of risk. And here is an important distinction from typical behavioral based observation programs that often only target individual and specific actions at the worksite. With Senior Management Site Visits in particular, the underlying reasons for more widespread non-compliant behaviors (that are negatively shaping the overall operating culture) can be directly seen and understood. Better still, this is achieved by those persons who have the authority and accountability to directly address it. In other words, don't expect a welder or machinist to fix a broken operating culture that is supporting and enabling widespread non-compliant behaviors (Human Error) when its causes are actually owned by the top-half of the organization.

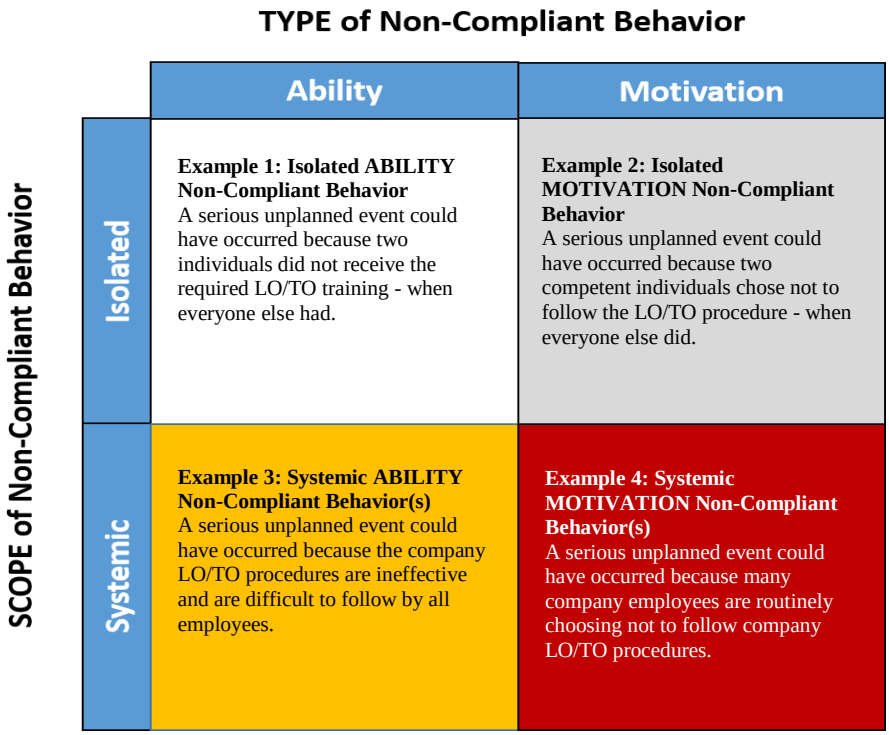
6. The 2 x 2 Matrix for Non-Compliant Behaviors:

For the Senior Management Site Visit program and Management By Walking Around (MBWA) programs to be fully effective, they need to be able to quickly and easily categorize and distinguish between the different underlying causes for any non-compliant behaviors (Human Error).

Figure 2 shows a 2 x 2 matrix that has been designed with this purpose in mind.

Being very user friendly, it is also an extremely effective way to immediately translate learnings from such interventions into actionable data points to quickly establish the **TYPE** and **SCOPE** of any non-compliant behavior.

Figure 1: The 2 x 2 Matrix for Categorizing Non-Compliant Behaviors:



The 2 x 2 matrix works on the principle that there are essentially two **TYPES** of non-compliant behaviors caused either by either insufficient **Ability** and / or **Motivation**.

Ability infers that the employee(s) are simply *not capable* of doing what is asked of them even though they have the motivation to do so. Examples of non-compliance behaviors due to **Ability** might include:

- Not being physically able;
- Insufficient or inadequate training, knowledge, skills or experience;
- Work environment is hostile (e.g. excessive heat, cold, noise etc.);
- Inadequate, insufficient, wrong or missing procedures;
- Inadequate communication process (e.g. repeat back communications; shift change etc.);

Motivation infers that employees have all the necessary ability to do what is being asked of them, but for whatever reason, they have chosen to do something different and deviate from what was expected. Examples of **Motivation** might include:

- Procedures not followed / equipment incorrectly used or applied;
- Task sequence changed, reduced or modified without authorization;

- Alarms and warning indicators ignored or by-passed;
- Operating outside normal equipment operating envelopes;
- Stop Work Authority (SWA) program known, but not exercised when required to do so;
- Management of Change (MOC) process known, but not applied when changes have occurred with the work scope;

In addition to the **TYPE** of non-compliant behavior its **SCOPE** also has to be determined. The **SCOPE** of non-compliant behaviors are split between **Isolated** and **Systemic.**

Isolated infers that the non-compliant behaviors are limited to a specific number of individuals and / or teams because of a given set of unique or specific circumstances.

Systemic infers that the non-compliant behaviors are much more widespread and often are simply the "standard" or usual way of doing things across multiple teams, projects or whole operating jurisdictions. In other words, when *work execution* is measured, the identification of non-compliant behaviors shouldn't surprise the organization.

Organizations are well versed in responding to Examples 1 and 3 (see Figure 2). They also have some limited responses to Example 2, but these often still miss the underlying cause. However, organizations are exceptionally inept at responding to Example 4 (Systemic Motivation). This is probably because organizations have predominantly measured performance by outputs and results and so the true scope of non-compliant behaviors (Human Error) will often be missed in favor at looking at only those behaviors and actions directly associated with any events. Furthermore, the actual owners of corrective actions to address **systemic motivation** are far removed from the worksite and often cannot be delegated to any single function such as HSE, Maintenance, Engineering, Human Resources etc. Example 4 requires company leadership and senior line managers to take action. In other words, those persons who help shape the overall operating culture by establishing what gets measured and what gets rewarded. Yet how many corrective actions in response to serious unplanned events, have the CEO, COO or even Board Member(s) been assigned as the accountable or action party? - probably very few.

7. Conclusions.

To conclude, organizations are often their own worst enemies. Yet the longer they go without anything bad happening (i.e. the absence of tangible negative outcomes such as injuries, spills etc.), the more they convince themselves that tomorrow must bring more of the same. And when it doesn't, they are seemingly shocked and surprised. But if organizations truly seek greater levels of assurance that tomorrow will not bring any surprises, this can only be achieved by understanding the overall level of operating risk being supported. Achieving this through measuring and managing *work execution* not only leads to a step change in eliminating non-compliant behaviors (Human Error), but in turn helps to establish levels of Operational Discipline that were previously unprecedented.

- Achieving a step change in reducing widespread, non-compliant behaviors (Human Error) can only come when it is driven by those people who shape the overall operating culture of the company;

- Employees want to do a good job. But if the organization recognize and rewards the wrong behaviors, don't be surprised if this is what you continue to get;

- If you're not routinely measuring *work execution,* then you're simply not in control of your operating risks, the degree of non-compliant behaviors (Human Error) and whether elevated levels of risk are being "normalized" by the organization;

- Operating risk and *work execution* has to be made much more visible throughout the organization if people are to truly to be held to account for the outputs and results;

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