

GREY PAPER

insights



BUILDING AN EFFECTIVE OPERATIONAL
RISK MANAGEMENT PROCESS



Pilko & Associates Grey Paper

Concise summaries of key Operations/EHS and Transaction Risk challenges and how to unlock value for your project, assets and enterprise.

Pilko & Associates is the industry leading Operational and Environmental, Health, and Safety Risk advisory firm — working with clients in 78 countries and advising on M&A deals worth more than \$600 billion.



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BUILDING AN EFFECTIVE OPERATIONAL RISK MANAGEMENT PROCESS

INTRODUCTION

The key to effectively managing risk is developing a culture of high hazard awareness and low risk tolerance. While many paths exist to building such a culture within a company, perhaps the most effective way to ensure broad alignment and consistency is through an effective operational risk management process that addresses both “hard” and “soft” risks.

Many companies claim to have an Enterprise Risk Management Process in place, but it is typically an exercise done at the executive management level that primarily identifies classic financial risks. While necessary, such a process falls far short of the fundamental elements of a sound operational risk management process that identifies, analyzes, prioritizes, and mitigates risk at every level in the organization. This Grey Paper describes the key elements of an effective operational risk management process and how those elements can be implemented.

HAZARD IDENTIFICATION

Hazard identification is the foundation of any effective operational risk management process, as hazards must first be recognized before they can be addressed. In order to effectively identify hazards, several inputs must be employed. Some companies feel that a strong Process Hazard Analysis (PHA) process will effectively identify all of the hazards with catastrophic risk potential, but in many cases, PHAs fail to recognize the profound affect that human factors can have on risk.

A Job Safety Analysis (JSA) is a powerful hazard identification tool that should be a part of any strong risk management process, where employees and contractors identify, assess, and address hazards just before executing a task. Many of the hazards identified through this process are ultimately addressed through procedure or facility changes; and the increased hazard awareness that results from this process helps to reduce the probability of an event through safer

work behaviors. Unfortunately, with the high frequency of JSAs, participants can fall into the trap of seeing it as a “check the box” exercise, failing to truly be aware of the hazards.

Another key input for hazard identification is through incident investigations. Most important in incident investigations is to ensure that the few “critical” hazards aren’t hidden by trivial minor events that occur. Many companies are focusing on those incidents that have Serious Injury or Fatality (SIF) potential to narrow the focus and gather useful information that can identify not only risks for specific facilities or technologies, but also globally.

Some companies expand their learning from incidents to include incidents that occur outside of their company. The Chemical Safety Board has reviews of a number of incidents online that can help identify hazards that could lead to similar incidents elsewhere.

Interestingly, an approach not broadly used but one that has proven to identify the most high potential hazards at one company is to conduct facilitated risk workshops on a periodic basis. Properly structured and facilitated, these workshops can dramatically increase hazard awareness, identify risks, and improve engagement. These workshops are particularly effective in identifying soft risks — those risks that are more related to behaviors and culture.

ASSESSING AND PRIORITIZING RISK



Most chemical and energy companies have a risk matrix that is particularly helpful in analyzing and prioritizing hard, or technical risks. These risk matrices provide both quantitative and qualitative descriptors to determine both the consequence that a given failure could have, and the likely frequency of such a failure based on the level of mitigation already in place. A hazard with both a high consequence and a high probability of occurrence receives the highest priority for action; while those with both a low consequence and low probability of occurrence will likely receive very little or no attention. For traditional process safety risks, such as a loss of primary containment

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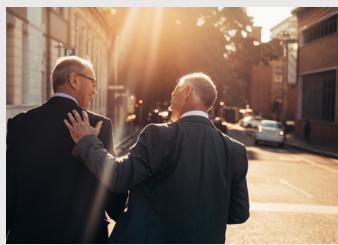
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due to overpressure or corrosion, a risk matrix can be used to help determine the level of capital resourcing needed over time to implement the physical changes required to reduce risk.

The traditional risk matrix, however, does not lend itself well to “soft” risks, where in many cases the consequences are not very clear and specific and the likelihood is difficult to determine. In fact, when a soft risk is identified, many conclude that “it happens all of the time” but in most cases, the consequence from such failures is insubstantial. We have found that a more effective way to prioritize these “soft” risks is through a different matrix, where the impact of addressing the risk and the ease of implementation are considered. Those “soft” risks that will make a big difference if addressed and that are relatively easy to address would receive the highest priority. Interestingly, some “soft” risks that are difficult to address, but would make a very big difference to the organization, can be prioritized higher than those with a medium impact that are easy to implement.

COMMUNICATION AND ENGAGEMENT AT EACH LEVEL

Ideally, risks should be identified at the lowest levels in an organization, where the work and the associated risks is best understood. That said, in many cases, support is required, sometimes from the highest level in an organization, to effectively address the risk. Because of this need, an important element of any effective operational risk management process is to establish formal



periodic two-way communication on the identified and prioritized risks. This communication is staged so that every level in the organization fully understands the greatest risks for which they are responsible. This process ensures

strong engagement — level to level — throughout the organization in effectively prioritizing risk mitigation.

Because some risks require significant financial commitment for resolution, this staged, typically annual communication must take

place so that every level of the organization fully understands their top risks prior to the onset of the capital and operating budget process.

RISK MITIGATION

The approach for mitigating “hard” and “soft” risks tend to be very different, just as we’ve experienced with assessing and prioritizing these risks. “Hard” risks are typically mitigated through engineering controls, which lend themselves to a classic project approach. Ideally, companies strive to eliminate such risks if practical; but they may also introduce additional layers of protection, or when nothing else can be devised, perhaps transfer or share the risk through insurance.

In the case of “soft” risks, where human factors are almost always at the center of the problem, Pilko has found that a structured, team-based problem-solving approach is most effective. There are many possible variations to this approach, but the common steps generally include:

- Define the Problem
- Setting Expectations
- Go See and Assess
- Determine Root Cause
- Develop a Solution
- Pilot the Solution
- Migrate the Solution

In addition to following these steps, the company must form an active steering team with the resources and the capability to support the project team, a strong project sponsor and project leader, and capable project team members that have a clear understanding of the problem that needs to be solved. The steering team is responsible for selecting the problem to be solved and for selection of the project sponsor and project leader.

Defining the Problem is harder than it looks. Of extreme importance is developing a problem statement which (a) is clear and understandable; and (b) defines a scope that is manageable. A sound Problem Statement provides the clarity and focus required for the creation of an effective solution.

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Setting Expectations is a key role of the Steering Team. Part of defining the problem is to describe the extent of the problem and the impact that the problem is causing. The Steering Team needs to make it clear to the project team to concisely describe how much of an improvement is required and how quickly that improvement is expected. This definition will help guide the project team as they set out to solve the problem.

Go See and Assess is essential to the problem-solving process as through this process, data is gathered to fully understand the as-is. In many cases, leadership has a skewed view of the as-is prior to this step, because they do not have frequent, direct access to the details of how work is actually executed in the field and the issues and roadblocks that get in the way of safely completing work. The project team learns a great deal through observation, interviews, and a careful review of the available data. In some cases, they need to gather new data that was not being collected to fully understand the problem.

Once the as-is is fully understood, the project team can then **Determine Root Cause**. Here a number of methodologies can be employed — including 5 whys and fishbone diagrams — to get to the root cause. As one of the most difficult steps in the process, many teams have a tendency to stop short of the true root cause. This outcome is especially true when working through a human factors issue, where many teams stop when they determine that a procedure was not followed. While it can be very challenging, the team needs to dig into what the factors were that caused the procedure not to be followed. In most cases, simply moving to a disciplinary action with the individual involved will not prevent recurrence.

Next, the team **Develops a Solution** designed to directly address the root cause, then **Pilots the Solution** and measures the results to ensure that the solution is effective. These two steps require a significant level of planning, communication, and preparation to ensure that the pilot is conducted in a disciplined manner. One of the critical elements of this step is to plan and execute specific periodic measurements during the pilot so that the effectiveness of the solution can be gauged.

Before **Migrating the Solution**, the project team will need to evaluate the pilot, make adjustments to improve the solution as needed, and build a migration plan that takes into account the communications, resourcing, and tools needed to assure an effective, consistent migration.

The first five steps normally take about three months to complete, and the remaining two steps can take an additional three to six months. Many organizations choose to address the soft risk issues in parallel through the first five steps, then roll into the next tranche of opportunities once those projects have moved into the pilot stage.

Organizations using this process have enjoyed an immediate financial payback for their work, even when investing in third party



facilitation and training to accelerate results. They have also accelerated the development of their less experienced leaders while increasing the level of trust

and transparency in the organization AND significantly reducing “soft” risk.

CONCLUSION

Many companies focus their risk management efforts on Process Hazard Analyses and Mechanical Integrity. While these measures are necessary and extremely important, companies must institute additional measures to fully engage the workforce in identifying, analyzing, prioritizing, and mitigating all risks, including “soft” risks, to have a truly effective operational risk management process.

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Pilko & Associates knows building an effective operational risk management process is a direct contributor to risk control. Through our experience, Pilko has shared industry-leading insights and created methods and processes that substantially increase operational risk management in diverse operational and regulatory environments.

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Pilko & Associates has a number of Advisors who have successfully addressed the challenges of operational risk management in complex environments. Each is available to help you understand the challenges and succeed in enhancing your operational risk management to increase operational excellence and risk control.

Contact Pilko & Associates today for support in assessing your operational risk management process and prioritizing the steps necessary to sustainably deliver expected results.

About the Author:



Mike McCandless is Managing Director at Pilko & Associates. Over the past 7 years, Mike has led a variety of Operational Excellence projects for midstream, pipeline, energy and chemical clients, working with corporate officers to deliver rapid, dramatic, and sustainable improvement in Operational and EHS risk management performance. Mike has maintained and built his relationship to become a trusted partner with all of these clients. Mike played a key role in the development of the 8IGHT DRIVERS®, and is responsible for assuring that this IP reflects industry and best practice over time. Mike also provides leadership and support internally to ensure that Pilko continuously improves its approach to effectively serving our client base. Prior to joining Pilko, Mike had 37 years of operations experience with Union Carbide, Dow, and Hexion Specialty Chemicals, retiring as Vice President of Manufacturing. His experience spanned over 30 sites and multiple process technologies. Mike has extensive experience with Six Sigma and other structured problem-solving methodologies, and a proven track record of improving performance. Mike is a graduate of Pennsylvania State University, where he earned a bachelor's degree in Chemical Engineering. He currently resides in Columbus, Ohio.



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