Session No. 572

Closing the Loop:
A Concept Needed for Continuous Process Improvement

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Introduction

This paper presents an overview of managing information within a SMS with a focus on continuous process improvement. The fundamental premise of this talk will include the following concepts.

Variances. What are variances within the workplace system, and why are they important in a safety management system (SMS)? In the ongoing pursuit of safety excellence, the identification of variances and understanding of how they can have a detrimental impact on the functionality of the overall workplace system is a critical skill that all safety professionals must possess. This paper will reveal the value of uncovering variances, skills needed to determine actual root causes not just proximal causes of the variances, and how to use the SMS and human resources to interpret the results. Sound simple? It is, but more and more people get lost in the numbers or information before finding the end. To be successful the safety professional must ask, "Will the variance cause a change in policy, task analysis, standard operating procedure, or will it create a corrective action?" The ultimate question that will be answered is: By closing the loop and understanding the role of variances within the safety management system, is risk reduced, and are efforts to successfully manage risk enhanced? The resounding answer will be shown to be YES!!!

Explore the path of discovery that leads from investigation, to root cause determination and corrective action. A good SMS must require that these steps become the standard operating procedure whenever a variance is discovered. Following the process through to its logical conclusion allows the discovery of what important systemic opportunities for improvement and latent residual risk are hiding under the radar. Without this ability to identify variances within a SMS, the organization will continue to flounder, chasing lagging indicators and not solving any real problems.

The Role of the Safety Management System

Many SMSs exist in multi-layered modes of increasing complexity that make variances difficult to identify and track. Combining information from one program to another may be difficult, but it is necessary for continuous process improvement. The methodology described will provide a means to identify variances, determine leading and lagging indicators, and establish proximal and root causes. It will also help create the understanding that otherwise common and routine information will inexorably create cohesive SMS outcomes.

Closing the Loop

All workplace elements of the SMS are interconnected. This interconnection can be measured and quantified. The relationship between the different elements of the SMS can be understood when variances in one system affect another. As an example, when a poor safety audit process fails to find or identify an unsafe condition that leads to an injury, the variance is manifested in increased injury frequency as well as additional work investigating the root cause of the event that could have been discovered and remedied by the original audit. The identification and quantification of the poor audit process will result in a more effective SMS.

Elements of the Safety Management System

The elements of a well-designed safety management system (SMS) include all systemic workplace components that are directly related to the identification of risk, the remediation of hazards, the prevention of loss, and the reduction and control of loss after an incident occurs. Some of the most common specific elements of the SMS are the following:

1. Written Safety Policies and Standard Operating Procedures (SOPs)
2. Job Safety Analysis (JSA)
3. Safety Accountability Systems
4. Safety Communication Protocols
5. Safety Committees
6. Behavioral Safety Systems
7. Risk Assessment Processes
8. Safety Incentive Programs
9. Injury and Accident Tracking and Trending Systems
10. Incident Investigation Protocols
11. Claims Management
12. Risk Management
13. Procurement and Maintenance Activities
14. Ergonomics
15. Occupational Health
16. Contractor Safety Process
17. Employee Wellness
18. Driver Safety and Vehicle Safety

19. General Liability Control
20. Product Safety
21. Safety Training
22. Leadership Training
23. Role and Function of the Safety Department
24. Security
25. Environmental Stewardship

Variances

The idea that variances exist within the context of the workplace is not a new one. However, the identification of lack of safety policies, poor performance of safety audits, incomplete accident investigations, or inappropriate use of a behavioral safety system as a quantifiable and weighable variance is a new approach. Using a balanced-scorecard approach, a safety climate index measure can be created that gives a momentary snapshot of the performance of key indicators.

Simply put, a variance is an identifiable opportunity for improvement within any element of the SMS. These opportunities for improvement can include items like training not completed on time, accident investigations not signed off by senior management, countermeasures not completed, action items not reviewed, behavioral safety observations not completed, or audit items without actionable remediation strategies.

Identification of Variances

The identification of variances is at the very heart of most positions in Occupational Safety and Health (OSH). Whether the tools are safety audits, accident investigations, job safety analysis or barriers in a behavior-based safety process, the identification and quantification of barriers is commonplace in the safety field. Unfortunately, the linkages between variances in not routinely explored and opportunities to minimize the impact of variances once they are identified are not usually capitalized upon.

The Role of Leadership

Does senior leadership facilitate an open and honest process that allows for the identification of variances? It is not uncommon for an organization not to be completely open and honest about variances. In organizations with strict accountability systems, variances that are tied to individual performance, even if done so incorrectly, can lead to punitive actions against both individuals and/or work groups. This characteristic can result in an organization that is less likely to be able or willing to honestly identify and define variances.

Senior leadership has a crucial role for establishing a vision of safety performance where the expectation is that variances will be identified, quantified, tracked, trended, and remediated. Senior leaders must ensure that the actions of the organization align with this vision and must investigate situations when this alignment is not congruent.

Complexity of Systems

Workplace systems have necessarily become more and more complex over the years. These ever-increasing layers of complexity are often a direct result of new and innovative process and procedures for improving efficiency and productivity. However, much of the complexity of the workplace systems are created due to a lack of a rigorous understanding of the ground-level engagement that employees must face on a daily basis. When employees create "work-arounds" and increase the complexity of the system, variances and variables can become hidden deeper within the overall workplace.

The identification of redundant and unnecessary systemic components can lead to their elimination, as long as workplace culture supports continuous improvement and has embraced the use of leading versus lagging indicators. If the extra systems and extra activities are not identified, the role and function of variances becomes much more difficult to expose.

Organic Integration

Workplace systems initiate integration with one another almost immediately upon their establishment. This organic integration results in linkages that are typically unplanned, often unwanted, and almost universally misunderstood. Lack of appreciation about the presence and function of these links can result in the creation of risk and the development of variances that, if left unchecked, will likely create loss.

The exploration of these organic systemic integrations is made possible when variances are identified, thoroughly investigated, clearly understood, trended, and solved in a deliberate and structured manner. The importance of locating variances and systemically remediating them cannot be overstated.

Strategic Integration

When organizations have undertaken the due diligence to create planned and strategic linkages within their SMS, the strength of the process is almost immediately discernable. A well-structured linkage within the SMS allows potential variances to be stipulated. Measurement and metric protocols that clearly define success in terms of process improvement and progress towards risk reduction can be deliberately established. These established metrics can be managed more effectively, and any unplanned systemic events that occur can be quickly identified and the system can be recalibrated to control them.

The Role of Culture

Workplace culture is a key workplace system's component that is often overlooked, frequently misunderstood, and usually poorly managed. Culture is defined as the beliefs, values, traditions, behaviors, and perspectives of a work group when viewed within a historical context. Generally, culture is manifested by what employees will do when no one is watching. Culture is often defined with expressions like "this is the way we do things around here" and "don't ask me why, we've always done it this way."

In order for the loop to be closed on risk, the role and function of workplace culture as it relates to safety must be quantified and defined. Gaps that exist in the perceptions of management and employees need to be identified as variances, and plans for bridging these gaps must be established. The measurement of workplace culture as it relates to safety can be quantified and used as a very important leading indicator for the overall effectiveness of the SMS.

The Role of Climate

Climate can be defined as the state of culture for an organization at a given point in time. Climate is the way things are done around here today. Climate is also a concept that can be individually evaluated at a location level or facility level, whereas culture is a representation of perceptions, beliefs, and traditions for the entire organization. It is very important for companies to understand both the role of culture and climate, and to appreciate the differences.

Safety Climate Index

Safety climate can be defined as a balanced scorecard of weighted metrics that provide an accurate picture of overall current safety performance. Elements used to determine the safety climate should favor leading indicators with an acknowledgement of necessity to include outcome metrics as well. The results of the safety climate can be measured and trended on an indexed scale to give a highly diagnostic tool that is relevant at both the corporate and location level.

Leading or Lagging Indicators

Leading indicators are those measurable events that occur upstream and give rise to conditions or behaviors that can be directly correlated with accidents and injuries. Lagging indicators are those that measure the frequency and severity of the negative events once they have occurred. Organizations that have taken the time to identify their most meaningful leading indicators and measure their performance will inevitably be more successful with their process than those who do not. Companies that rely solely on lagging indicators to identify variances will continue to experience recurring issues without significant improvement to their safety performance.

The strength of an overall safety process is dependent upon its ability to identify meaningful leading indicators that have a clear and demonstrated link to accidents, injuries, and incidents. After identification of the leading indicators, the development of a process to quantify these indicators, trend their performance over time, create solutions to enhance the progress of improving execution of these processes, and measuring the overall effectiveness of these solutions is critically important. Finally, reacting to identified variances of leading indicators with the urgency usually reserved for the reaction to lagging indicators will create a high performing organization that is well on the road to safety excellence.