

A Dual Approach to Transforming SAFETY PERFORMANCE MEASUREMENT

By Chris C. Johnsen

Safety management is paramount for any organization striving to demonstrate its commitment to worker welfare. Traditionally, safety professionals have leaned on lagging indicators to gauge their safety programs' effectiveness (Hinze et al., 2013).

Examples of such traditional lagging indicators include the OSHA total case incident rate (TCIR), days away, restricted work or transferred (DART) injury rate, and the experience modification rating (EMR). While these metrics are essential, they primarily reflect past performance. In contrast, leading indicators that predict future safety outcomes are increasingly recognized for their ability to drive proactive safety management. This article explores integrating leading and lagging indicators to enhance safety performance and foster a safer work environment.

Understanding Leading & Lagging Indicators

Indicators serve as metrics to reflect an organization's performance in specific areas. Lagging indicators tell us how we have performed to date while leading indicators provide insights about future performance. Safety professionals often debate the efficacy of lagging indicators, arguing that they offer limited predictive value and may inadvertently suggest that safety prevention is less critical (Hinze et al., 2013). However, both indicators play crucial roles in a comprehensive safety strategy.

Implement a balanced approach by incorporating leading and lagging indicators into a safety management system. Ensure that safety metrics include past performance data (e.g., TCIR, DART, EMR) and predictive measures (e.g., frequency of safety training, near-miss reports, safety audits). Develop a tracking system that records and analyzes both types of indicators. Regularly review this data to identify trends and areas needing improvement.

The Value of Leading Indicators

Leading indicators act as early warning signs, helping organizations identify and mitigate potential hazards before they result in incidents. These indicators include the

frequency of safety training sessions, the number of safety audits conducted and employee participation in safety programs. By focusing on these proactive measures, companies can alter behaviors, implement effective strategies and ultimately prevent incidents (ASSP, 2019).

Prioritize leading indicators to address potential hazards proactively. Use these indicators to drive behavior change and improve safety policies and procedures. Create specific leading indicators relevant to your workplace. For example, track the number of near-miss reports, safety observations and safety training sessions attended by employees.

The Role of Lagging Indicators

While leading indicators are vital, lagging indicators still hold value in understanding historical safety performance. Metrics such as TCIR, DART and EMR provide a retrospective view of safety incidents, helping organizations identify trends and evaluate the effectiveness of their safety programs. However, relying solely on lagging indicators can lead to a reactive approach to safety management, where changes are only made after incidents occur (Hinze et al., 2013).

Personal Safety vs. Process Safety Indicators

Safety indicators can be broadly categorized into personal and process safety

indicators. Personal safety indicators focus on individual incidents such as slips, trips, falls, and other common workplace incidents. These indicators are typically measured using lagging metrics. Conversely, process safety indicators are concerned with preventing catastrophic incidents that could result in significant damage and fatalities, such as releasing toxic substances or explosions (Hopkins, 2007).

Implementing a Dual Approach to Safety Management

Organizations should implement leading and lagging indicators to effectively enhance safety performance. This dual approach allows companies to monitor historical data while proactively identifying and addressing potential hazards.

1) Leading Indicators: Building a Proactive Safety Culture

Leading indicators are not traditionally tracked but are essential for fostering a proactive safety culture. Examples include near-miss reporting and safety climate surveys.

Near-Miss Reporting

Near misses are unplanned incidents that did not result in injury but had the potential to do so. Organizations can identify root causes and implement corrective actions before an incident by treating near misses with the same seriousness as actual incidents. This proactive approach can significantly reduce the likelihood of future incidents and enhance the overall safety culture.

Encourage a culture where near-miss reporting is valued and seen as a critical component of safety management. Treat near misses with the same importance as actual incidents. Implement a near-miss reporting system that is easy to use and ensures anonymity to encourage



participation. Train employees on the importance of reporting near misses and how to do so effectively.

Safety Climate Surveys

Safety climate surveys are a pivotal tool in gauging the perceptions and attitudes of employees toward safety within an organization. Developing robust methodologies for their design and implementation is crucial to maximize their effectiveness. These surveys should include questions that assess the current safety climate and uncover underlying issues that may not be immediately apparent. For instance, questions should address areas such as trust in management's commitment to safety, the adequacy of safety training, and employees' willingness to report near misses or unsafe conditions. By analyzing case studies where safety climate surveys have led to measurable improvements in safety performance, safety professionals can gain insights into best practices and potential pitfalls.

Furthermore, understanding the psychological and organizational factors influencing survey responses, such as fear of retaliation or skepticism about management's intent, can help in designing strategies to mitigate these influences and obtain more accurate data. This deeper exploration into safety climate surveys provides a practical framework for safety professionals to enhance their safety programs and foster a more proactive safety culture. By regularly conducting these surveys and acting on the feedback, organizations can create a safer work environment and improve employee morale (Flin et al., 2000).

One pioneer in safety climate surveys is Robert Long, an Honorary Fellow at Australian Catholic University. Long developed the Safety Observations and Conversations Program, a tool to survey on-site workers. Integrating insights into perception, motivation, recognition, sensemaking, mindfulness, and personality type, participants are equipped with tools and knowledge to foster a safety culture through meaningful conversations and interactions. The program is designed to instill in participants enthusiasm for engaging with others in safety conversations and empower them to play an active role in shaping a safer workplace environment, as well as help organizations understand employees' perceptions of safety. The survey results are used to make

informed decisions about safety initiatives and improvements.

Develop or choose a comprehensive safety climate survey tool, administer the survey periodically, and analyze the results to identify strengths and weaknesses in your safety culture. Follow up with actionable steps to address any issues revealed by the survey.

2) Lagging Indicators: Learning From the Past

While retrospective, lagging indicators are essential for understanding and learning from past incidents. They provide data that can be used to track safety performance trends and evaluate the effectiveness of safety programs.

Integrating Leading & Lagging Indicators

Combining leading and lagging indicators provides a comprehensive view of an organization's safety performance. This integration allows companies to learn from past incidents while proactively addressing potential hazards.

Developing a Safety Culture

A strong safety culture is the foundation of an effective safety program, and management commitment is crucial to fostering this culture. Leadership must establish clear, attainable safety goals and allocate sufficient resources, demonstrating their commitment to safety by encouraging employees to prioritize safety daily (Hinze et al., 2013). Integrating personal safety and process safety indicators ensures a holistic approach to safety management, addressing individual safety behaviors and broader process-related risks.

Develop specific indicators for personal safety, such as slip, trip, and fall incidents, and process safety, such as hazardous substance releases. Regularly monitor and analyze these indicators to improve safety protocols and prevent incidents.

Case Study: Transforming Safety Culture

One notable example of a dramatic transformation in safety culture occurred at Alcoa, a global aluminum manufacturing company, under the leadership of Paul O'Neill. When O'Neill became CEO in 1987, Alcoa had a poor safety record and a culture prioritizing productivity over safety. However, O'Neill made safety his top priority and implemented a revolutionary approach. He believed that focusing on improving safety would drive

overall organizational excellence. O'Neill instituted a policy where any workplace injury had to be reported to him within 24 hours, regardless of severity. This emphasis on transparency and accountability led to a significant shift in the company's safety culture. Employees were encouraged to identify and report hazards; safety became everyone's responsibility. Over time, Alcoa's safety performance dramatically improved, with injury rates dropping to a fraction of what they were before.

Furthermore, this focus on safety had broader positive effects on the company's performance, including increased productivity, improved employee morale, and enhanced overall organizational effectiveness. O'Neill's transformative approach to safety culture at Alcoa is a compelling example of how prioritizing safety can lead to profound organizational change and success.

Similarly, consider a company with manufacturing sites in two hemispheres. The company can create a holistic safety management system by integrating leading indicators such as near-miss reporting and safety climate surveys with traditional lagging indicators. This system would allow the company to proactively identify potential hazards while learning from past incidents to prevent future occurrences.

Management's Role in Safety Performance

Management must take an active role in safety performance by providing clear goals, allocating resources and holding employees accountable. A written safety and health management system that documents safety procedures and responsibilities is essential, ensuring that safety responsibilities are effectively carried out by assigning adequate authority to safety personnel and providing necessary resources (Hinze et al., 2013). To foster management commitment to safety, upper management must ensure their visibility by allocating resources, setting clear safety goals and holding employees accountable. Upper management should establish and communicate clear safety goals and objectives, provide necessary resources including funding, training and personnel to support safety initiatives, and conduct regular management reviews of safety performance and progress.

Additionally, create and maintain a comprehensive written safety and health management system that documents safety procedures, responsibilities and

performance standards. Develop a detailed safety and health management system manual, including hazard identification, risk assessment, safety training programs, and emergency response procedures, and ensure that all employees are familiar with and have access to this manual. Involve employees at all levels in safety programs to foster a strong safety culture, creating opportunities for employee involvement in safety committees, near-miss investigations, and safety training programs, and recognizing and rewarding employees for their contributions to improving workplace safety. Continuously evaluate and improve your safety management system based on feedback and performance data, striving for ongoing enhancement of safety practices and culture by establishing a regular review process for your safety management system, using leading and lagging indicators, survey results, and incident investigations to identify areas for improvement, implementing changes and monitoring their effectiveness over time.

Conclusion

Incorporating leading and lagging indicators into safety management systems provides a balanced approach to improving safety performance. Leading indicators offer a proactive means to identify and mitigate potential hazards while lagging indicators provide valuable insights on historical performance. Organizations can achieve their safety goals and create a safer work environment by fostering a strong safety culture through management commitment and employee involvement. Ultimately, this dual approach leads to happier, healthier employees and a more resilient organization. **PSJ**

References

ASSP. (2019, May 13). Leading with safety and health metrics. www.assp.org/

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Flin, R., Mearns, K., O'Connor, P. & Bryden, R. (2000). Measuring safety climate: Identifying the common features. *Safety Science*, 34(1-3), 177-192. [https://doi.org/10.1016/S0925-7535\(00\)00012-6](https://doi.org/10.1016/S0925-7535(00)00012-6)

Hinze, J., Thurman, S. & Wehle, A. (2013). Leading indicators of construction safety performance. *Safety Science*, 51(1), 23-28. <https://doi.org/10.1016/j.ssci.2012.05.016>

Hopkins, A. (2007). Thinking about process safety indicators (Working paper 53). National Research Center for OHS Regulation, Australian National University.

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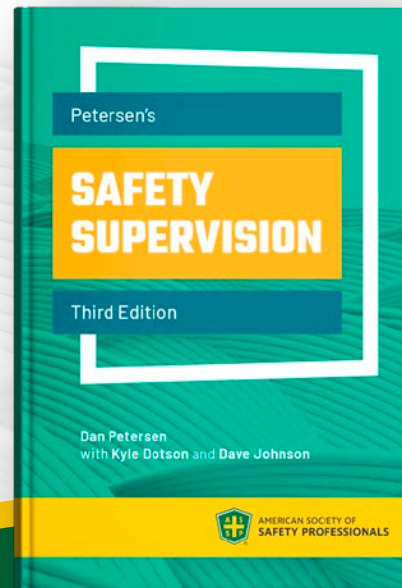
Johnsen, C.C. (2024, Oct.). A dual approach to transforming safety performance measurement. *Professional Safety*, 69(10), 23-25.

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