

Go Beyond lagging indicators to link safety measures back to the mission of your organization.

Safety has historically been measured by its failures. We first measured simply the cost of safety failures and then began to calculate the number and severity of failures. When we realized that numbers did not account for exposure, and thus did not enable comparative metrics, we began to calculate the ratio or rate of our failures per exposure. OSHA selected the magic number of 200,000 hours worked as the standard for calculating accident rates. The standards were then set to define what an accident is and determine what severity of injury constituted the necessity to report the accident.

Interestingly, this rate of accidents per 200,000 hours worked is the most quoted safety statistic in the United States. Ask any safety professional how he or she is doing, and chances are you will hear how the rate is changing due to their efforts. Companies and organizations benchmark each other based on this ratio. Insurance companies often rank their clients based on their injury rate compared to industry averages. Many safety goals directly relate to impacting this number.

So, if this number is so universally accepted, why is it not considered the ultimate metric for safety performance? The answer to this question is multi-faceted:

- It is reactive (a lagging indicator),
- It is not prescriptive. It does not tell you how to do better.
- It is a measurement of what we don't want rather than a measurement of what we do want.
- The measurement is often used to evaluate rather than to understand.

For these and other reasons, many organizations began to explore other, more meaningful ways to measure safety.

Better Metrics Result in Continuous –Improvement Loop

The traditional metrics of safety measure safety results: the number of accidents, the severity, the frequency rate, and the cost. The search for other metrics has led to five other areas which can potentially impact the results:

1. **Safety Activities** – organizational functions such as training, on-boarding new employees, leadership, supervision, safety meetings, and others. All these can impact the results, but how do you measure them? The quest for such metrics is ongoing.
2. **Participation** – what percent of workers participate in training or meetings, or serve on safety teams or committees. Participation can impact results and can be measured rather easily in terms of committee membership or meeting attendance percentages.
3. **Perceptions** – what do people think of safety and how do they perceive the effectiveness of other strategies in helping them avoid accidents. Perceptions impact behaviors and behaviors impact accidents. Perceptions can be scored as a percentage of ideal and trended across time or benchmarked against other organizations or industry averages.
4. **Behaviors** – worker performance toward safety goals involving specific precautions. Behavior is, by definition, observable and therefore measurable in workplace observations. Certain behaviors can be targeted based on Pareto analysis of accident data and can be measured and trended as a percentage of safe behavior vs. at-risk behavior.

5. **Conditions** – unsafe workplace conditions and potential hazards. Physical audits can be conducted and targeted to Pareto analysis of accident data to determine which conditions contribute to most accidents. These audits can be measured by number and also by how many work orders result and how many are completed.

Experimentation has been done in measuring each of these areas. As the measurements have been made and analyzed, newer and better metrics have evolved and the process gets into a continuous-improvement loop. Going from simple results metrics to multiple metrics is challenging for some organizations and truly understanding the new metrics is even more challenging. Many organizations that managed safety with only an accident rate now have a digital dashboard of safety indicators. Various interpretations of the data usually emerge and the battle against accidents evolves from one safety professional fighting fires to an entire management team fighting over strategy and interpretation.

Gain True Understanding

Multiple metrics make safety multi-dimensional. But which leading indicators of safety best predict those old safety results? Even in a world full of engineers and scientists, good data analysis is a challenge and usually becomes a process rather than an event. Organizations begin to realize that these metrics are interrelated and understanding the relations between them is probably what Deming meant when he used the term “profound knowledge” to describe true understanding of an issue. For example, the algorithm that describes the relationship between training and accident reduction is worth knowing. In fact, such knowledge is the key to the next step change in safety results.

Leading Indicators Evolve Measurement

Strategic managers suffered from this same limitation of metrics and solved their problem with something called a balanced scorecard. They, like many safety professionals, began with a results metric. They know how much money they collected, how much they spent, and how much was profit. But these metrics were lagging, non-prescriptive, and often misused. They told you how you were doing, but not how to do better.

Strategic managers, with the help of Kaplan and Norton, learned how to measure multiple leading indicators and ultimately how to understand the relationship of these metrics with their traditional results metrics. Each of these areas of measurement was linked back to the mission of the organization to ensure the accomplishment of targeted results. The balanced scorecard is the standard for strategic management after being developed less than 20 years ago.

The evolution of safety metrics to a much more sophisticated model has already begun. Many organizations have digital dashboards and others are already calling their metrics a balanced scorecard. The journey is not complete and there is not much consensus on the exact set of metrics or the algorithms that describe their interrelations. But there is no doubt that the world of safety has self diagnosed its needs and is moving toward a solution that has the potential to take the whole profession and its impact on the world of workers to a new level of excellence.