

REFERENCES AND RESOURCES

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PERFORMANCE MEASUREMENT REALITIES

- The absence of something (injuries) does not prove the presence of something else (safe work practices).
- Metrics are meaningful if specific activities can be tied to the result
 - Relying on metrics without a clear understanding of what affects them is like managing a budget without an understanding of revenue and expenses. Like a bank account, the number means nothing without an understanding of what created it and what can deplete it.
- Lagging indicators support ‘arrested development’—why improve if you are already hitting the desired target?

DEFINITIONS, EXAMPLES AND LIMITATIONS

Lagging indicators ('after the fact')

Known as the 'rear view' mirror approach to safety performance (OSHA/DOE). Examples: number of injury and illness cases and workdays without injury

Measures **consequences** of problems and system failures

Does not measure what has 'not happened'-such as unacceptable risks taken by people without an injury/exposure

Does not measure preventative measures—may not indicate a direct correlation between mitigations and absence of injuries

Can drive reporting underground especially when tied to a safety incentive program (prizes relating to zero accidents or incidents)

Leading Indicators

Proactive, performance based measures implemented to prevent the causes of unmet expectations (failures)

Measures risk reduction activities and demonstrates continuous improvement

Focused on milestones not tombstones-what is being deliberately practiced rather than simply the absence of injuries and accidents

Examples include training session attendance with follow-up Level II or II evaluations, safety inspections conducted, safety-related work orders completed, aging reports on safety related items with target goals, process improvement suggestions implemented with associated point of origin (worker, manager, audit, assessment, etc.),

THE PROBLEM WITH LAGGING INDICATORS

They are reactive—after the fact

- Not prescriptive--does not tell you how to do better

Unless tied to an effective causal analysis process that tracks conditions, behaviors and actions connected specifically to the event/incident

- Measurement of what we don't want rather than a measurement of what we do want.

The measurement can be manipulated by underreporting and managing the categorization of the injury (First aid versus OSHA recordable) rather than through better prevention and mitigation practices.

DOE-HDBK-1028-2009, HUMAN PERFORMANCE TOOLS

- “Monitoring results is a lagging indicator—whether they are good or bad. It may be a worthwhile indicator but it does not prove that current or past performance will continue. Monitoring the conditions and behaviors considered to be important to success provides a leading indicator—a forecast of things to come” DOE-HDBK-1028, page 77.
- Lagging Indicators: Measures of results or outcomes which represent where you are and what you have accomplished, but do not necessarily predict future accomplishments
- Lagging indicators include: Lost time injury rates, OSHA recordable and first aid cases, incident reports, near misses and close call reports, and corrective action lists.
- Leading Indicators: Measures of system conditions which provide a forecast of future performance, including measures of organizational health, which can predict results and achievements.
- Trend analysis helps to ensure organizational health through awareness and identifying underlying conditions that create future concerns. Lagging indicators provide limited data (LTDs), and a single event could appear to be a trend. Statistical analysis is required to be meaningful.

CAUTION WHEN USING INDICATORS

(SAFETY AT THE SHARP END, RHONDA FLINN AND PAUL O'CONNOR)

- Using the record of individual incidents as indicators of Organizational Health such as Lost Time Injuries and OSHA recordable injuries does not provide a reliable guide to a system's vulnerability to organizational incidents or accidents.
- Most of the companies involved in the greatest contemporary crises had award-winning performance as measured at the individual level
 - BP experienced seven consecutive years of a perfect safety record as measured by lagging indicators. Crew of Deep Water Horizon was receiving an award for their performance the night eleven people lost their lives due to a complexity of human errors and equipment failures. Their Zero Recordable Accidents program was based on slips, trips and falls and DROPS program objectives (the frequency and severity of incidents relating to things falling off mezzanines to the level below).
 - Between 2010-2014, Weyerhaeuser experienced seven fatalities in five separate operations (two in Cottage Grove, Pitt County, Longview, Vancouver B.C.) All seven fatalities occurred in facilities that had 'perfect' safety records as measured by Lost Work Day cases and OSHA recordable injury rates.

EHS MAGAZINE REPORT: UNDERREPORTING EPIDEMIC

- Programs discouraging workers from reporting incidents that may be predictive of future or more serious accidents can have a detrimental effect on worker safety.
- Chemical Safety Board, in its report on the 2005 AMOCO/BP Texas City explosion that killed 15 workers, noted that one thing missing at the facility was a *“reporting culture where personnel are willing to inform managers about errors, incidents, near-misses, and other safety concerns.”*
- Workers were not encouraged to report and managers did not investigate incidents or take appropriate corrective action. It should be noted prior to the explosion, this facility celebrated nearly a decade achieving its zero lost work day goals.

BE CAREFUL WHAT YOU ASK FOR: WHAT GETS MEASURED IS THE ONLY THING THAT GETS DONE ("MAKING THE IMPOSSIBLE, POSSIBLE"-THE STORY OF ROCKY FLATS)

- Facility incentivized workforce to process "X" number of containers through its acid separations operation by offering a BBQ every Friday to the shift that had the highest throughput (amount of materials processed).
- No other indicator was set to determine proficiency or profitability—throughput was single performance indicator
- The facility ran a batch-wise process (feed stock bought in, processed, and product and waste removed in final phase) five days a week, twenty-four hours per day.
- Within six weeks, the facility was shut down by the Federal Oversight Representative, due to environmental compliance issues and equipment failures that endangered the long term mission of the facility.
- When questioned about the use of the single performance indicator as an incentive, senior facility managers explained that "in no way were we asking employees and supervisors to abandon their commitment to safety and other important issues. We thought it was understood that throughput was being measured but that didn't mean we give up on being good stewards".
- Supervisors and employees, speaking on the condition of anonymity stated: "We know what's important—none of us wanted to be the shift that did not meet the throughput goal because you had to shut down to do preventative maintenance, get feed stock or take care of the waste".

HIDDEN TRAGEDY: 2008 US HOUSE REPORT ON INJURY REPORTING

- Numerous studies have found that the Bureau of Labor Statistics Survey of *“Occupational Illnesses and Injuries (SOII) drastically underestimates the number of workplace injuries and illnesses suffered by American workers each year. Studies also question the extent of the downward trend reported by the SOII.”* (Report Finding)
- According to the studies cited, the BLS annual survey may fail to report nearly 70 percent of lost-work time injuries and illnesses. In fact, one study demonstrates that changes in OSHA’s recordkeeping requirements—rather than a real reduction in workplace injuries and illnesses—have contributed significantly to the decline in injuries and illnesses reported in the SOII.
- Simply put, the SOII cannot be trusted as a gauge of the safety of American workplaces. As a result of its reliance on the flawed employer-based system underlying the SOII, OSHA may be failing to inspect dangerous workplaces, leaving many American workers at risk of injury, illness and exploitation.

WHY ARE INJURIES AND ILLNESSES UNDERREPORTED? (HIDDEN TRAGEDY REPORT, CONTINUED)

- Some workers do not want to get caught up in the slow difficult workers' compensation process. Others are not aware that their injury or illness is work-related or reportable, or do not report because they are afraid of being stigmatized.
- Some employers find OSHA's recordkeeping criteria confusing. But of far more concern are the incentives that employers have to underreport, and actions that some employers take to intimidate and harass workers who report injuries and illnesses, including disciplinary actions, demotions, reassignments and reduction in opportunities to progress professionally.
- Certain categories of workers, accounting for a significant portion of the workforce, are excluded from the survey.
- Occupational illnesses are particularly difficult to identify as work-related.

THE PROBLEM WITH METRICS: SAFETY DIFFERENTLY (DEKKER REPORT)

Methods used by employers to discourage accurate reporting:

Evidence compiled from worker interviews, academic studies and media investigations show that employer actions – some intentional and some unintentional – can discourage workers from reporting injuries and illnesses.

Workers in the steel industry report that they risk their jobs when they report safety hazards or even minor injuries. Steelworkers describe “bloody pocket syndrome” where workers who may have as little as a cut on their hand will hide it, fearing retaliation, and wait until after their shift to go to the hospital.

Buzzi Unicem USA has a policy that describes measures that may be taken against an employee for a “safety rule” violation that results in “medical treatment” for injuries or illnesses by a licensed physician or other health care giver. The “program,” involving three steps, places responsibility for accidents or illnesses squarely on the worker’s shoulders. Step three results in the employee’s termination.

SUMMARY: HOW COMPANIES GO FROM 'ZERO' TO TRAGEDY

- Safety is incentivized based upon what we avoid rather than what is practiced
- The higher the 'zero days without a lost work day case' tally rises, the more each individual wants to avoid setting the 'clock' back to '0'. For example, after 24 million person hours without a lost work day case, having a single incident resets the goal—there is a fear of loss, not a continued sense of accomplishment.
- VPP surveys indicate that workers would rather hide an injury than be the person who sets the clock back to zero. (Hollnagel)
- The focus of Dashboard Metrics (safety stats) becomes how the injury is treated rather than how it can be prevented. More effort is spent categorizing the injury as 'treated with an aspirin or a butterfly bandage' rather than 'prescribed codeine or required stitches' in order to reduce it to a non-reportable injury status.
- New Research Indicates 38% of Companies Underreport Injuries in Order to Meet Safety Performance Goals. (*"Exploring the Relationship Between Employer Recordkeeping and Underreporting in the BLS Survey of Occupational Injuries and Illnesses," American Journal of Industrial Medicine. 2016*)

RECOMMENDATION: A BALANCED APPROACH

When developing a **Balanced Scorecard** (or any other performance management system), it is recommended to use a combination of **Leading and Lagging Indicators**. Kaplan and Norton call these “Performance Drivers” and “Outcome Measures”.

BALANCED SCORECARD EXAMPLE

Strategic Objectives	Lead Measure	Lag Measure
Financial Perspective Usually this section concerns itself with key financial data such as revenue, cost of sale, gross margin, expenses and net profit, however it can also include financial initiatives such as risk assessments and cost-benefit data		
Improve return on investment	Add three more products to the portfolio this year	Return on investment
Broaden revenue portfolio		Revenue growth
Reduce overall costs		Expense costs
Customer Perspective The company seen from the customer's viewpoint. Unsatisfied customers will look for other suppliers to meet their needs. Customer satisfaction is in itself a lead indicator that can predict potential future loss		
Increase customer satisfaction	More account management	Customer satisfaction score
Increase company awareness	Number of press articles	Customers call us
Decrease customer attrition	Improved customer service	Number of customers
Internal Processes Perspective The ability to determine how well the business is running and whether or not the products and/or services meet the needs of its customers and are aligned to the companies objectives		
Create innovative products	Product development cycle	New product/service revenue
Improve the knowledge base	Number of articles submitted	Knowledge base in place
Reduce operational problems	Hours spent with customer	Product/service error rate
Learning and Growth Perspective The main resource in most companies today is its people, it is essential, especially in a climate where technology is changing rapidly, that they grow and learn continuously. Focus has to be on where best to spend ever decreasing budgets		

Goal:
Create similar
balanced scorecard
for HRO
performance