Why Leading Metrics may be Misleading!

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Process Metrics

This presentation may be found on our website at www.starconsultants.net. Go to Presentations and Conferences.
 Definitions

★ Data:
★ The numbers themselves

★ Metrics:
★ the collection of data into a meaningful boundaries and targets
  ➢ Leading and Lagging
  ➢ Activity or Progress
  ➢ Process vs. Outcome

★ Performance Indicators
★ Indirect indicators of a result

★ Performance Measures
★ The actual measurement of a result
Leading vs. Lagging?

**Leading**
- Event index
- Medical Treatment Report
- Occupational Health Inspection Findings
- Program Implementation
- Training
- Behavior
- Etc.

**Lagging**
- Hazardous Material Overexposure
- Worker’s Comp Loss Experience
- Illness Rate
- Etc.

It depends on the perspective you are trying to measure!
Why Goals Like “Cut Rates 20%” Don’t Work?

Short term, we often get results. However, they do not seem to sustain. Why?

- Law of Averages
- Hawthorne Effect
- Delivering to Expectations
- Not Program-Specific
Leading or Lagging?

- Exam scores
- Training program assessment
- # of inspections performed
- # of qualified inspectors performing inspections
- % reduction in accidents
- # of employee concerns reports
- # of safety work orders completed within 7 days
- # of equipment installed without proper guards
- # of industrial hygiene over-exposures
- % reduction in people exposed to noise
- Assessment of the performance appraisal process
Do We Measure Progress or Activity?

Activity (good)

Progress (better)

The Committee held 12 meetings

The Committee implemented 10 corrective actions.
Progress or Activity?

- Exam scores
- Training program assessment
- # of inspections performed
- # of qualified inspectors performing inspections
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Process and Outcome

**Input**
- Manpower
- Design
- Procedures
- Materials
- Training

**Process**

**Output**
- Product
- Service
- Waste

**Outcome**
- Mission Progress
- Commitments Met
- Safety (IIR)
- Satisfaction
- Compliance
- Citations

**Theory**
- Rework
Job Hazard Analysis:

Process and Outcome

1. Define Steps
   - Interview Employee(s)
   - Review Job Task
   - Injury/Illness History

2. Identify Hazards
   - “High” Hazard Tasks
     - 1. Define Steps
     - 2. Identify Hazards
     - 3. Develop and Integrate Safe Working Procedures

3. Develop and Integrate Safe Working Procedures

4. Perform JSA
   - Training and Communication

5. Follow-Up
   - Program Assessment

6. Job Safety Analysis (JSA) Program
   - Establish JSA Team
   - Training
Measuring JHA Success:

- **Input**
  - Manpower = Diversity of team
  - Design = Benchmark
  - Procedures = Field Tested
  - Materials = ?
  - Training = Quality (student evaluation)

- **Output**

- **Process**

- **Theory**

- **Outcome**
Measuring JHA Success:

Input → Process → Output → Theory → Outcome

Assessment Score
% Actions Met
% Actions Met on time?

Waste = % failed after QC
Rework = % modified after QC
Measuring JHA Success:

**Process**
- Product = # of JSAs
- Service = # of Changes
- Training Attendance
- Training Retention

**Output**
- Theory

**Outcome**
Measuring JHA Success:

- # of incidents with Hazard Analysis as a Root Cause or Contributing Factor
- % of behavior observations in Compliance to procedures
Input, Process, Output or Outcome?

- Exam scores
- Training program assessment
- # of inspections performed
- # of qualified inspectors performing inspections
- % reduction in accidents
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Types of Metrics

★ Retrospective (Lagging)
  ★ Incidence Rates
  ★ Industrial Hygiene Overexposures

★ Prospective (Leading)
  ★ Process
    ➢ Self-Assessment Scores
    ➢ Action Plan Completions
    ➢ Training Effectiveness
    ➢ Root Cause/Causal Factor Analysis
    ➢ Number of times a Program is Used
  ★ Outcome
    ➢ Corrective action plans/commitments developed/completed
      – Safety Work Orders Completed
      – Training Completed
      – Inspection Findings Closure
      – Investigation Finding Closure
    ➢ Safety Observation Scores
    ➢ Employee Perception Survey Results
    ➢ Conformance Rate

# 1 Metric = Closure Rate

Newest common metric
Metrics

“What Gets Measured Gets Done.”

“What Gets Celebrated Gets Done Well.”
Key Principles of Effective Measurement

- Measure Results, not Activities
- Must be Visible
- Must be Kept Current
- Provides Feedback
- Must be Compared to Something

- Is Shown in Context
- Uncluttered
- At the Point of Work
- Realistic and Attainable Goals
- Don’t Change Often
- Result in Action Plans

Critical Metric Concepts
What you need are metrics that are **Specific**, **Measurable**, **Actionable**, **Relevant**, and **Timely** or SMART objectives.

* "Specific" in that your metrics are specific and targeted to the area you are measuring.
* "Measurable" in that you can collect data that is accurate and complete.
* "Actionable" in that the metrics are easy-to-understand, and it is clear when you chart your performance over time which direction is "good" and which direction is "bad", so that you know when to take action.
* "Relevant" simply means don't measure things that are not important.
* "Timely" metrics are those for which you can get the data when you need it.
S M A R T Metrics

What you need are metrics that are **Specific**, **Measurable**, **Actionable**, **Relevant**, and **Timely** or SMART objectives.

- **Specific**: Implement A Job Hazard Analysis Process.
- **Measurable**: do one JHA a month, each Department, followed by monthly training (attendance = 100%) and observations (achieve 99% compliance with procedure over 6 months).
- **Actionable**: JHAs will be performed by the JHA team. Attendance will be measured by Quality’s Change Management Process and be a requirement of the supervisor, with observations performed by the Safety Committee. Observations not meeting 99% will result in procedure changes or additional action plans by the Supervisor. Action plans must be completed within 30 days.
- **Relevant**: JHA is selected because our root cause trend analysis identified the development and communication of safe work procedures as our #1 weaknesses, or contributor to incidents. It is also in the Performance Plan for Line Management.
- **Timely**: Existing data collection systems will collect and publish this data monthly, within 2 days of the end of the month, buy Department.
Dan Petersen – Safety System Metrics

- Incidence Rates (frequency and severity)
- Management System Assessment Score
- Employee Opinion (Perception) Surveys
- Behavior
- % to goal on system improvements
- WC $$$

Essential
Suggested
Supervisor Performance Metrics

Behavior of supervisors, employees and managers are influenced most by **WHAT IS MEASURED**!

- **Proactive measures**
  - Issue closure rate and turnaround time
  - Number of safety violations observed and closed
  - Number of employee training completed, and on time
  - Participation of employee safety activity encouraged
  - Documents completed (accident investigations, inspections, Job Safety Analysis, etc.)
  - Near-miss (close call) investigations and action plans completed
  - Employee Opinion Surveys
  - Behavior Observation Scores
  - Conformance Rate of Staff
  - Etc.
Balanced Scorecard

**Financial**
“To succeed financially, how should we appear to our shareholders?”

**Customer**
“To achieve our vision, how should we appear to our customers?”

**Vision and Strategy**

**Internal Business Processes**
“To satisfy our shareholders and customers, what business processes must we excel at?”

**Learning and Growth**
“To achieve our vision, how will we sustain our ability to change and improve?”

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*STAR Consultants*

*Where Safety is a Science*
S&H Balanced Scorecard

**Customer (employees)**
- Worker Perception Surveys
- Injury and Illness Rates
- IH Overexposures
- Employee Involvement

**Learning and Growth**
- Continuous Improvement (Closure Rates)
  - Inspections, investigations, notices, hazard analysis, IH, SWOs, etc.
- Training Retention
- Activities
  - Training Completed, etc.
  - Programs performed
- Trend Analysis

**Internal Business Processes**
- Management Systems Assessment Scores
- Process-Specific Implementation
- Progress
  - Action Plans/Objective completion
- Risk Reduction
  - More engineering controls

**Financial**
- Worker’s Compensation
- Program Implementation Budget

H&S equivalent of a Balanced Scorecard
*Translates mission and strategy into objectives and measures*
### Suggested Starting Point: Leading Metrics

#### ESH PM Report Topics

<table>
<thead>
<tr>
<th>ESH PM Report Topics</th>
<th># of Events</th>
<th># of Changes Identified/Needed</th>
<th>Closure Rate (From Date Closed)</th>
<th>Effectiveness (Control Type or conformance)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Actual</td>
<td>Target</td>
<td>Actual</td>
<td>Target</td>
</tr>
<tr>
<td>Current Program Risk Assessment Changes to Controls</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Monthly Safety Review - Incidents</td>
<td>0</td>
<td>3</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Monthly Inspections/Discrepancies high risk control conformance</td>
<td>20</td>
<td>10</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Monthly Observations (Optional) conformance or % safe operations</td>
<td>50</td>
<td>10</td>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td>Communication by Supervisors (ESH ToolBox)</td>
<td>10</td>
<td>20</td>
<td>5</td>
<td>10</td>
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<tr>
<td>ESH Action Plan Status</td>
<td>5</td>
<td>20</td>
<td></td>
<td>60%</td>
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</table>

#### ESH PM Report Topics

<table>
<thead>
<tr>
<th>ESH PM Report Topics</th>
<th>Awarded</th>
<th>Actual</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESH Rewards &amp; Recognitions</td>
<td></td>
<td>50</td>
<td>30</td>
</tr>
</tbody>
</table>

Date Delivered: Media Used to Deliver: 

Who was Recognized for what? (Describe below or attach copy): 

If only one metric

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**Set Targets, Use Multiple Metrics, Achieve and Reward Greens**
Measure What You Ask For?

- If you want a Safety Contact process to stimulate new ideas, measure the # of new Ideas, **not just** the # of Safety Contacts.
- If you want employees to retain course materials, measure their retention, **not just** their attendance.
- If you want reduce incidents, measure exposure reduction, both conditions and behaviors, **not just** incident #’s
- If you want management to use your safety programs, measure how much they use the programs, **not just** the # of people who get hurt.
- If you want safety committees to get involved, measure how often each of them get involved, **not just** how often they meet.
Why Do Most Fail?

☆ Not Measurable
  ☆ (e.g., Improve employee involvement, no target)

☆ No Relationship Between Data and Plans
  ☆ (e.g., most injuries are ergonomic, yet emphasizing PPE)

☆ Measures Activities
  ☆ (e.g., Training was accomplished, but ineffective)

☆ Subjective
  ☆ (e.g., Above average performance, without defining average)

☆ They Are a Secret
  ☆ (e.g., Only known by H&S, no line management ownership)

☆ Not Attainable
  ☆ (e.g., 0 injuries)
Why do Most Succeed?

★ Measured Regularly
★ (e.g., Part of monthly production meetings)

★ Reported Publicly
★ (e.g., Posted and presented to all workers)

★ Measured at Line Management
★ (e.g., Department and Division Levels)

★ Part of Performance Appraisal/Bonus
★ (e.g., Audit scores/improvements tied to % of raise/bonus)

★ Tracks Objectives, Not Just Goals
★ (e.g., did meeting a goal have anything to do with meeting your accomplishments?)
Summary

- Major companies, such as GE and Eaton Corporation, use Annual Reports of program and process metrics to drive their safety and health programs.
- VPP uses annual management systems evaluations, list of action plans and comparisons to incidence rate results.
- Some companies require Periodic submittal of Action Plan status reports to Division VP’s.
- Some companies require their Plant Management to present these Reports.

All companies and organizations use multiple metrics to measure important programs.
Summary

Use these metrics for:

1) Team or department Based recognitions and

2) Supervisor and department manager safety performance appraisals!
The more you can use prospective and process metrics…


Summary and References


☆ How do you measure safety?. Kyle Dotson., Executive Strategies, Industrial Hygiene and Safety News.


Visit www.STARconsultants.net / Products, for our sample Safety Scorecard!