

*New Paradigm For
Safety And Health Metrics:*

*Framework, Tools, Applications,
And Opportunities*

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- **Key Words:** measure, metric, safety, health, performance, indicator, task force

Abstract

Measuring Safety and Health performance has been a challenge for many in industry over the years. The traditional system in place today does not work well; OSHA data, used by many as the primary metric for workplace Safety and Health, are inherently flawed and not entirely appropriate for this purpose. Ironically, the metrics "solution" for health and safety has seemed elusive, even though much has been written on the subject and there are many consultants and experts in industry with a thorough knowledge of the Safety and Health performance measurement issues.

Abstract (continued)

As a result of dissatisfaction with their reliance on the current "*trailing measures*", many companies are now developing "*leading indicators*" to measure and track actions, events, and processes that precede and influence Safety and Health performance. *Financial measures* are also important because linking Safety and Health performance to the overall business is more critical than ever. As companies look to improve the bottom line, there is more and more interest in demonstrating the contributions made by Safety and Health.

Abstract (continued)

The ORC Alternative Metrics Task Force includes more than 55 member companies committed to developing and implementing a more balanced metrics approach, which includes *leading, trailing, and financial* indicators.

The ORC Alternative Metrics Task Force goals have been to:

1. Capture and catalog metrics work on Safety and Health metrics that has been done in the past.
2. Create a useful set of measurement reference materials that:

Abstract (continued)

- includes a balanced, menu-driven approach, candidate measures, and examples of model metrics processes, and
- is capable of eventually being "owned" by operators, and easily understood and internalized by company leadership. This may require approaches that are outside of traditional Safety and Health thinking.

3. Develop benchmarking alternatives.

Abstract (continued)

The work of the ORC Task Force has been completed and will be covered in this session. In addition, the group will focus on identifying metrics appropriate for industrial hygiene, and will address issues of data availability and reliability. Leadership communication issues will also be addressed, along with the potential use of "out of the box" measures linked to other parts.

*A New Paradigm For
Safety And Health Metrics:
Framework, Tools, Applications,
And Opportunities*



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Framework

- “If You Don’t Know Where You Are Going, Chances Are You Will End Up Somewhere Else.”

Yogi Berra

Why Measure??

- Defines Vision And Mission Statements In Operational Terms
- Supports Continuous Improvement
- Allows Us To Demonstrate The Value of EH&S Programs and Services In Business Terms
- Axiom = “What Gets Measured Gets Done, What Gets Celebrated Gets Done Well”

*ORC Alternative Metrics
Task Force*

- 55 Companies Promoting A Balance Approach For S&H Metrics
- Reference Document Is Being Created That Will Be Provided To ORC Membership And Shared With Industry
- Initial Domestic S&H Focus Will Expand To International and Environmental Issues

Task Force Objectives

- Address Current Use Of OSHA Data As Primary S&H Metric
- Create A Useful Set Of Measurement Reference Materials That:
 - Includes candidate measures and examples of model metrics processes
 - Are capable of eventually being “owned” by operators, and easily understood by company leadership
- Develop Benchmarking Alternatives

“Reference Manual” Outline

- I. Framework
- History of S&H Performance Measurement
 - Problems With Current Measures
 - New Framework For Driving S&H Performance
 - Leading
 - Trailing
 - Financial
 - Tailoring Metrics To Your Organization

“Reference Manual”, cont.

II. Tools

- Safety System Assessments
- Perception Surveys
- Incident Investigations (to causes of behavior)
- Behavioral Metrics
- Statistical Metrics
- IH Metrics
- Metrics on Risk
- Metrics for the Executive

“Reference Manual,” cont.

III. Applications

- **Implementation**
 - Securing the Data
 - Making It Operational
 - Integrating S&H Metrics Into Other Business Measures
- **Communication**
- **Metrics Examples**
- **Case Scenarios**
- **Executive Tools**
- **“Out of the Box” Measures**
- **Emerging Business Trends**

*Reference Manual Must Support
Wide Array of Users*

- Menu driven -- one size can't fit all
- Metrics will be hierarchical
- Linkages are important
- Metrics expressed in terms used by other parts of the business
- Different metrics are appropriate for different levels of the enterprise -- corporate, business unit, facility

Insights Into An Alternative Approach

- Measure S&H consistent with other parts of the business (e.g. quality)
- Use S&H metrics to:
 - Drive performance
 - Support continuous improvement
 - Measure process variables and outcomes
 - Incentivise the right behavior
 - Track progress
 - Make the “business case”

What Is Different About ORC Effort

- Includes performance “drivers”
- Identifies metrics/linkages outside of S&H “Silo”
- Uses financials and other means to bridge communication gap
- Focuses on positive contributions S&H can make to the business
- Hopefully will initiate mass change -- incorporates “truth and labeling” re. the OSHA data

Measurement Data Must Be:

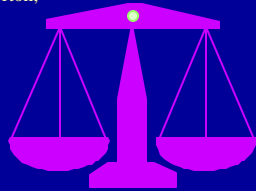
- Precise and accurate
- Difficult to manipulate
- Significant to the organization
- Able to be benchmarked

ORC Criteria for A Balanced Approach

“...measures...should consist of a linked series of objectives and metrics that are both consistent and mutually reinforcing.”

Robert S. Kaplan and David P. Norton,
The Balanced Scorecard

- Leading Indicators
- Trailing Indicators
- Financials



Leading Indicators

“Leading indicators are the performance drivers that communicate how outcome measures are to be achieved.”

Robert S. Kaplan and
David P. Norton,
The Balanced Scorecard



Task Force Approach

- Identify key areas to be measured
- Create S&H measurement questions
- Develop measures to answer the questions
- Rank candidates



Safety and Health Management System

- ◆ Active Leadership
- ◆ Expectations and Involvement
- ◆ Goal Setting and Action Planning
- ◆ Communications
- ◆ Employee Involvement
- ◆ Employee Accountability
- ◆ Hazard Identification and Elimination, and Safe Practices
- ◆ Incident Investigation
- ◆ Behavioral Feedback
- ◆ Training and Education
- ◆ Planning for Safe Conditions

Incident Investigation Measures

Q. Are incidents being investigated in a timely fashion?
Measure:
 – Average time from incident notification to investigation

Q. Are the results being acted upon in a timely fashion?
Measures:
 – Average time from incident investigation to hazard abatement
 – Completion rate of recommendations
 – Average age of outstanding recommendations

“Trailing” Metrics

Definition: S&H outcomes that result from injury or illness-related events or exposures in the work environment.

- These outcomes may be positive or negative, depending upon the level of safety and health performance.
- Trailing measures not only gage performance, but are critical for focusing S&H management system improvement efforts.

*Examples of Negative
“Outcomes”*

- Fatalities
- BLS/OSHA Injury/Illness Data
- Workers Compensation Data
- Production Downtime
- Litigation Expenses
- Labor Replacement
- Property Loss
- Regulatory Fines and Penalties
- Absenteeism
- Other

*Examples of Positive
“Outcomes”*

- Improved employee perceptions, morale, etc.
- Improved productivity
- Improved product quality
- Better employee retention, recruiting
- Improved customer perception/satisfaction

***Trailing Metrics -- Proposed
Approach***

- Modified use of OSHA data
- Supplement with other information
 - Workers Compensation
 - Property Loss
 - Fines and Penalties
 - Other Management System Drivers
- Include “out of the box” metrics to demonstrate positive effects on the rest of business and overall business strategy

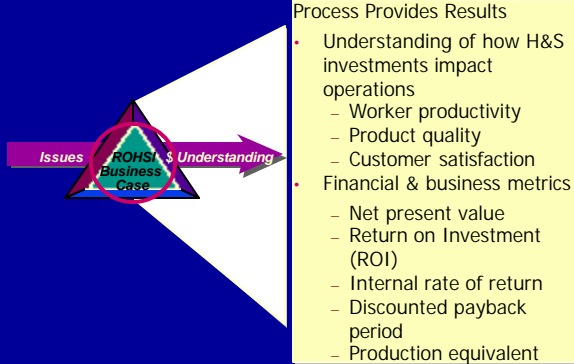
Goal of Financial Metrics

- Leading and trailing S&H metrics assess functioning of people, programs, and processes
- Financial metrics answer:
 - ⇒ *What contribution does S&H make to the "bottom line"?*
 - ⇒ *What is the financial impact of S&H decisions?*

Financial Analysis Tools

- ROHSI
- Financial analysis -- "light"

ROHSI - What Does It Do?



Financial Analysis -- "Light"

- Support Safety and Health Programs with Financial Analyses of Costs and Benefits
- Calculate Cost Savings
- Determine Return on Investment (ROI)
- Determine Payback Period
- Prioritize for Implementation

"Out Of The Box" Measures

- Where possible link S&H "outcomes" to critical business indicators
 - Productivity
 - Equipment downtime
 - Product quality
 - Absenteeism
- Show impact on business strategy
- Translate loss avoided/value added into financial terms understood by the rest of the business

Potential "Out of the Box" Sources

- Enterprise business cycle
- Measures used by other parts of the business
- Existing data streams within the company
- Emerging business trends

Emerging Trends

- **Increased scrutiny on all aspects of the business**
 - Pressure for greater quality and efficiency
 - Stockholder push for greater profits/ ROI
- **Changes in the workplace**
 - Third party manufacturing, toll processing
 - Mergers, acquisitions, divestitures
 - Shift from hard core safety to “softer” issues (e.g., ergo, stress)
- **Changes in worker demographics**
- **Globalization**
- **Scientific developments**
- **Sustainability**

Communication Is Critical

- Technical improvements in measuring safety and health efforts, by themselves, will not drive change.
- S&H professionals must learn to communicate to the rest of the business in terms that they understand.

Tools To Create Usable Metrics

- Safety System Assessments (audits, indexing, etc.)
- Perception Surveys
- Incident Investigations (to causes of behavior)
- Behavioral Measures (has behavior changed?)
- Statistical Metrics (paretos, fishbones, etc.).
- Metrics on Risk (based on probability and severity)
- IH Measures
- Sigma Logic
- Metrics for the Executive

Perception Surveys

- Why?/Value Of Perception Surveys
- Instruments Available
- What Is Covered -- 20 Elements
- 20 Elements to ORC's 9
- How to Conduct
- How to Analyze Results
- How to Benchmark

Metrics for the Executive

- How to Analyze the Safety System
 - Metrics to Score the System
 - Interpreting the Scores
 - Comparing to Others
- Assessing Your System
 - OK/Not OK System Elements
 - Who to Check With

Applications: Four General Categories

- I. Drive Performance
- II. Support Continuous Improvement
- III. Track Progress
- IV. Make the Business Case

I. Driving Performance

- Translates mission and vision statements into operational terms
- Integrates S&H with the rest of the business
- Links S&H functions throughout the organization to overall business goals and objectives

Managing With Measures: Vertical Linkage Through Cascading Metrics

Enterprise:

Vision/Mission □ Goals/Objectives □ Strategies/Milestones /Measures

Bus. Unit

G/O ↓ S/M/M

Bus. Unit HSE

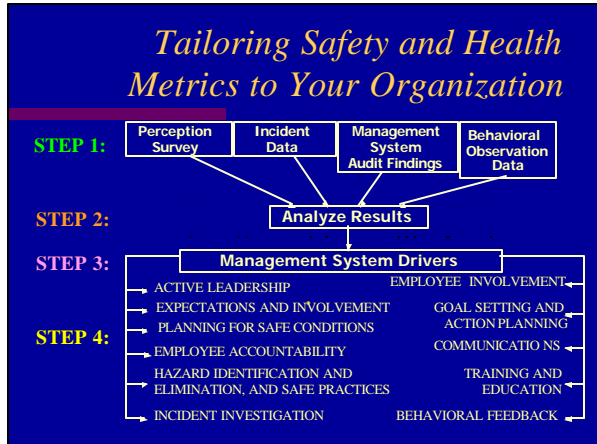
G/Q ↓ S/M/M

Site HSE

G/Q ↓ S/M/M
(R. Fulwiler)

II. Support Continuous Improvement

- Gather Information
- Analyze Results
- Identify Areas of Management System Deficiency
- Develop and Select Metrics to Improve/Manage System
- Evaluate Regularly



Which Indicators Matter?

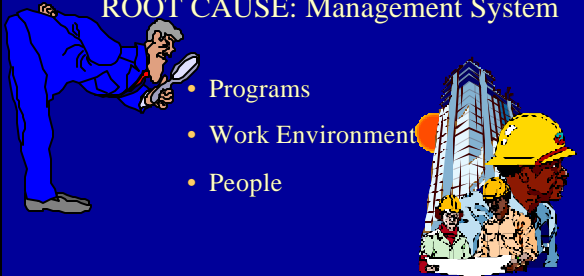
- Get to the root cause(s)
- Measure key factors that drive performance



- Correlate with other indicators
- Support safety & health improvement strategy
- Link to enterprise business plan

Key Indicators

ROOT CAUSE: Management System



- Programs
- Work Environment
- People

Demonstrating Performance: Integrated Metrics Matrix

PLANNING FOR SAFE CONDITIONS

Questions To Answer	Leading Metrics	Trailing Metrics	Financial Metrics	Perception Survey
Are Safety and Health factored into design?	<ul style="list-style-type: none"> *% of design staff using ergonomic and safety design tools. *% of design staff with S&H training. *% of design staff with ergonomics training. *% of project hours assigned to S&H *% of purchasing contracts with S&H specifications. 	<ul style="list-style-type: none"> Rate of injuries in which inadequate or faulty design was identified as a root cause. Ratio of contractor injury rate to host injury rate 	<ul style="list-style-type: none"> *% of projects with safety planning in the budget *Average ROI for design projects in which S&H are factored. *ROI of S&H design program 	<ul style="list-style-type: none"> Support for safety Is the whole organization seen as working together to create a safe work environment?
Are Safety and Health considered in purchasing and contracting?				

III. Track Progress

- Measure trends
- Track progress relative to your goals
- Track progress relative to others

IV. Making The "Business Case"

- Fear
 - S&H often isn't a real money maker
 - Companies will shift focus from human life/well being to dollars and cents
- Reality
 - S&H professionals can *still* keep companies focused on the high moral ground
 - S&H *is* good business investment
 - Quantifying investment/return (or loss) *strengthens* the moral case



Presenting Financial Information

- Metrics must be appropriate for the organizational level intended
- Metrics must reflect priorities and goals of the business cycle
 - ⇒ Determined by type of business
 - ⇒ Stage in life cycle of product or service

Product/Business Life Cycle

- Cash Flow Cycle
 - For Mfg. Show Impacts At Factory and Warehouse Stages -- Raw Materials, Labor, Inventory/Overhead
- Level of Business Maturity
 - **Product Development** -- S&H Metrics Support Getting New Product To Market Quicker & Cheaper
 - **Branded Product** -- S&H Metrics Support Increased Profit By Increasing Productivity, Reducing Per Unit Costs
 - **Generics** -- S&H Metrics Support Maximizing Production Out of Existing Investment with Minimal Cost
- Increased Shareholder Value

Opportunities

- Spreading the “Word” and “Walkin’ the Talk”
- Benchmarking
- S&H Measures Incorporated Into Socially Responsible Investing and Sustainability

Benchmarking: Why Companies Benchmark

- Gain Insights Into Best Practices
 - Facilitate Program Development
 - Less Time
 - Less Cost
 - Shorter Learning Curve
 - Allow Learning Across Companies, Industries, Geographic Lines
 - Find Out What's Possible
- Compare Performance With Peer Companies

Benchmarking Principles

- Compare Things That Matter
- Use Measures That Are Reasonably Consistent
- Harness Data Sources That Already Exist or Are Relatively Inexpensive To Build/Adapt
- Quantify Subjective Measures as Much as Possible
- Allowing Companies Flexibility Is Key

Benchmarking Possibilities

- Trailing Measures
 - OSHA Injury and Illness Rates
- Leading Indicators: Key Categories
 - Management Commitment
 - Employee Involvement
 - S&H Management System Implementation
- Financial Measures
 - Average ROI of S&H Investments
 - Average NPV of S&H Investments
- Employee Perceptions Are Critical

*Safety and Health Performance
and Social Responsibility*

- “SRI” Community Looking For a Way to Measure Safety and Health Performance
- ORC Has Been Contacted to Provide a S&H metrics “Module”
- Opportunity Worth Seizing?

*Will Improving S&H Metrics
Make A Difference?*

- Drive S&H excellence by focusing on things that matter
- Reduce effort spent on the OSHA numbers
- Link safety and health performance closer to the overall business strategy
- Enhance ability of S&H to compete for resources internally
- Improve usefulness of benchmarking
