



Leveraging Actionable Leading Indicators to Drive Improved Safety Performance



March 7, 2013

Featuring...



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EHS & Sustainability

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Purpose and Objectives

Purpose:

Share the latest findings from the IHS Operational Excellence leading indicator research. Explain how these findings are being implemented to improve safety and operational performance.

From this webinar, you will learn:

- How organizations are predicting performance in a way that is actionable and measureable so that results can be acted upon by leaders
- How risk management data can be used as predictive analytics for operational excellence
- Industry best practices for benchmarking your own operational risk management program

Enterprise Sustainability Management (ESM) Leadership and Expertise from IHS



Among the first to recognize Enterprise Sustainability Management as major new business strategy for:

- Protecting people, assets, products and the environment
- Driving Operational Excellence

Investing in acquisition of best-in-market, mature providers of enterprise software, information content and expert services for:

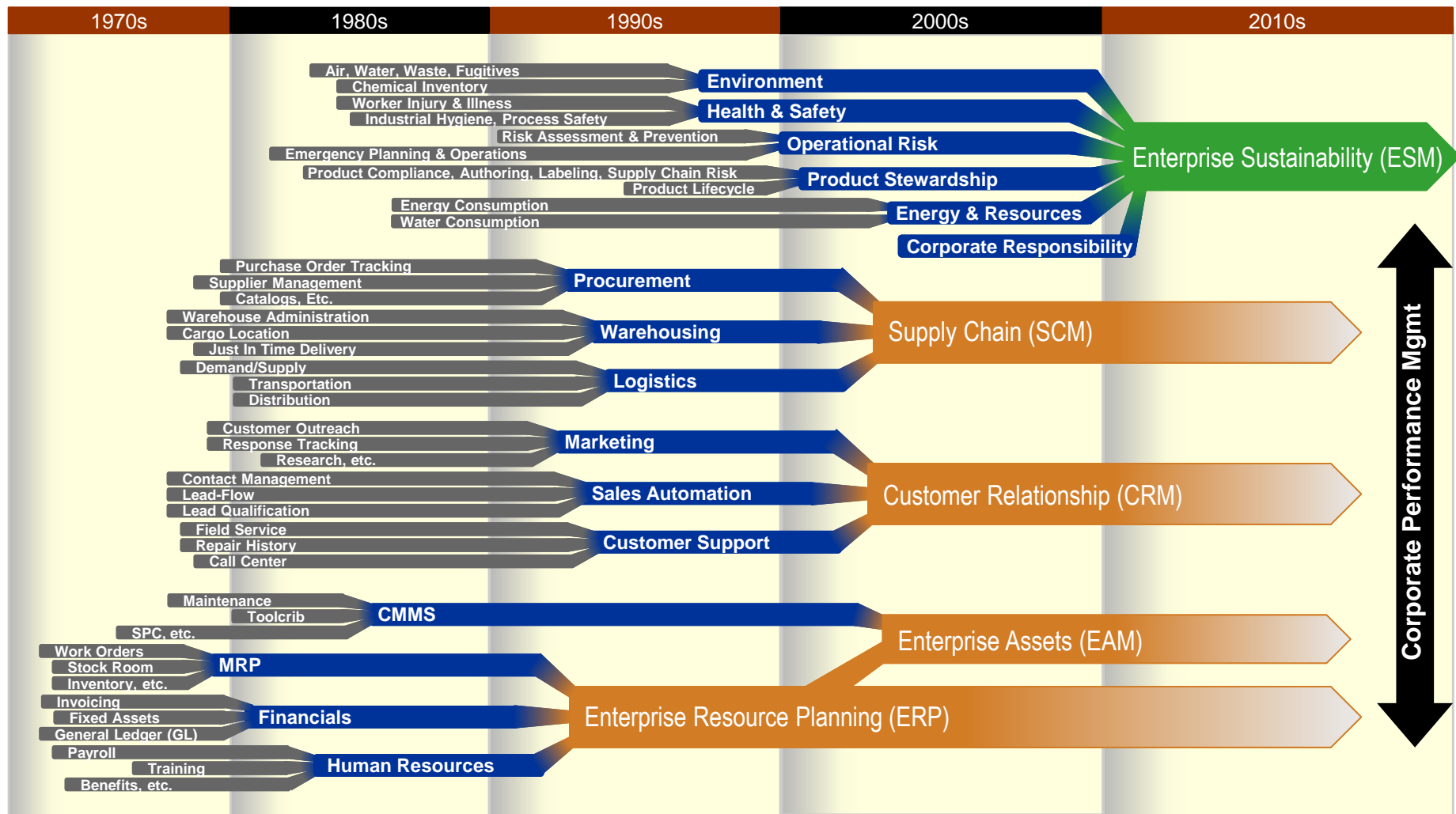
- Operational Risk
- Environmental Performance
- Product Stewardship
- Health & Safety
- Energy & Carbon
- Corporate Responsibility

Research is an IHS core competency focused on:

- Development of benchmarking and analytics solutions
- IHS CERA Operational Excellence Forum – data, best practices
- Customer-specific consulting assessments

Evolution of Enterprise Information Management

ESM Convergence Leads to Big Data Challenges and Opportunities

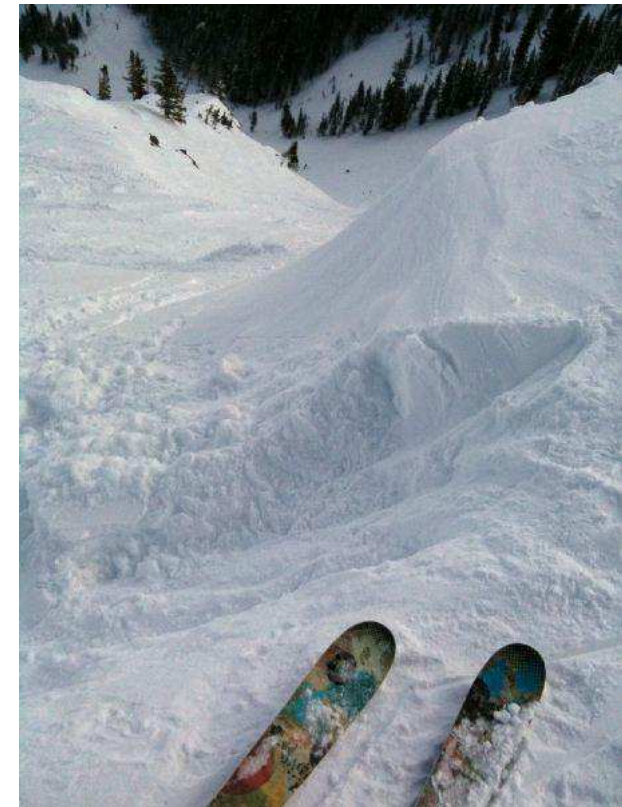




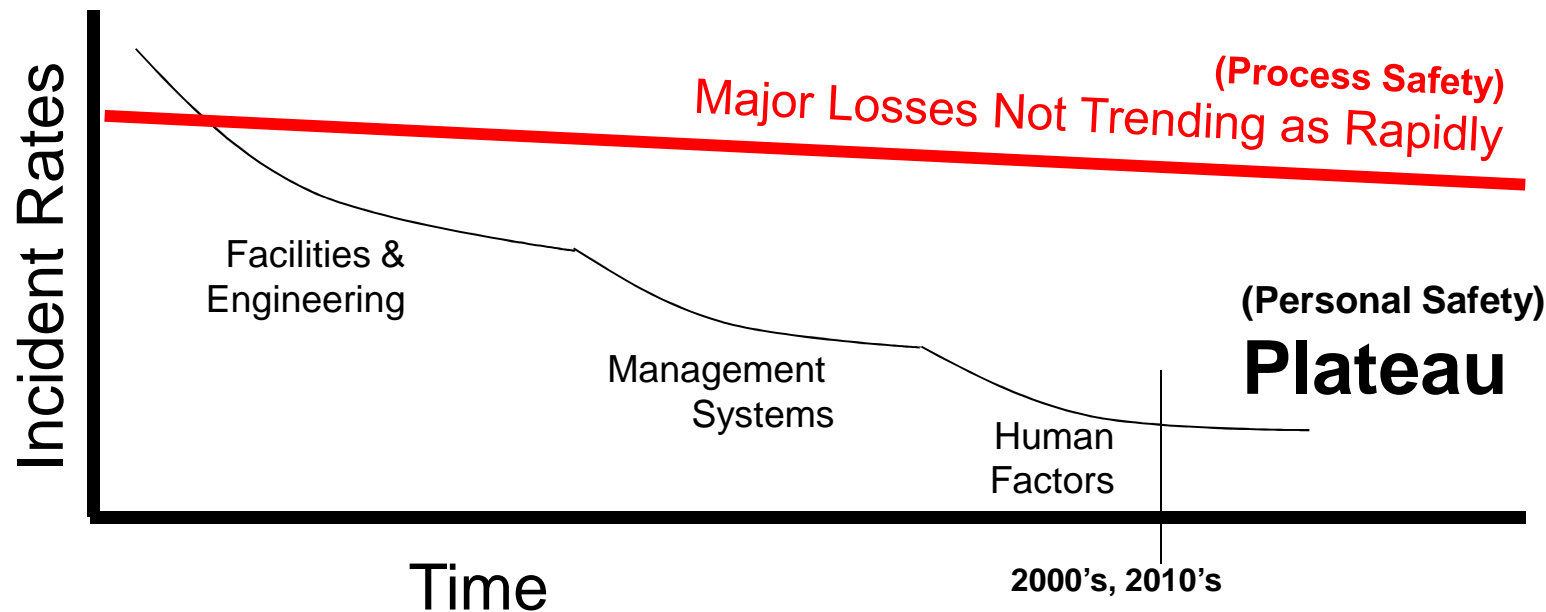
Leading Indicators of Todd's # of Ski Days

Behavior	Score
Complete "honey-do" lists (on-time rate)	10
Keep kids while wife goes out (duration)	8
Help around the house (total # jobs)	9
Compliment wife (total # times)	3

= more than 20 ski days



Problem: Significant Incidents Still Occur Even as Safety Rates Improve



“A reduction in less serious injuries does not necessarily correspond to a proportionate reduction in serious incidents and fatalities.”

— Thomas Krause Ph.D. (Behavioral Science Technology, Inc.)

Corporate Leaders are Addicted to Lagging Metrics



Injury	AVG Workforce	Hours Worked	First Aid	Days Away from Work				Total Recordable Injuries			
				Actual	Target Number	DAFW Rate	Target Rate	Actual	Target Number	TRI Rate	Target Rate
Employee	0	0	0	0	0	0.000	0.000	0	0	0.000	0.000
Contractor	0	0	0	0	0	0.000	0.000	0	0	0.000	0.000
Workforce	0	0	0	0	0	0.000	0.000	0	0	0.000	0.000

Limited insight = limited ability to prescribe or recommend improvements

What If You Could Gain Additional Insight Into Your Culture?



What If You Could Manage with Actionable, Leading KPIs?



Start with Practical Field-level Metrics

Managed KPI Scorecard			
	Recordable Rate (lagging)	Event Rpt Ratio (as %)	% On-Time Actions
Site 1	2.50	37%	67%
Site 2	3.10	22%	62%
Site 3	1.70	83%	95%
Site 4	1.30	75%	77%
Site 5	0.95	93%	75%
Site 6	5.10	5%	34%
Corp Mean	2.44	53%	68%
1st Quartile	0.51	91%	87%
50% Level	1.75	63%	64%

Improve reporting culture and action item effectiveness at Site 6 to improve safety culture and ultimately lower incident rates

“You can’t manage what you can’t measure.”
– William Hewlett



The Journey to Operational Excellence



IHS Research: The Goal of Perfect Operational Excellence



- Best-in-class productivity, financial performance
- 100% compliance
 - With government regulations
 - With internal management systems, industry standards, etc...

- Zero operational losses of:

- Production up-time
- Asset integrity
- The environment
- Safety
- etc....



- Safety outcomes as measure of OE performance

Severity-weighted TRIR = common statistic across asset types, costs

IHS Operational Excellence Leading Indicator Research

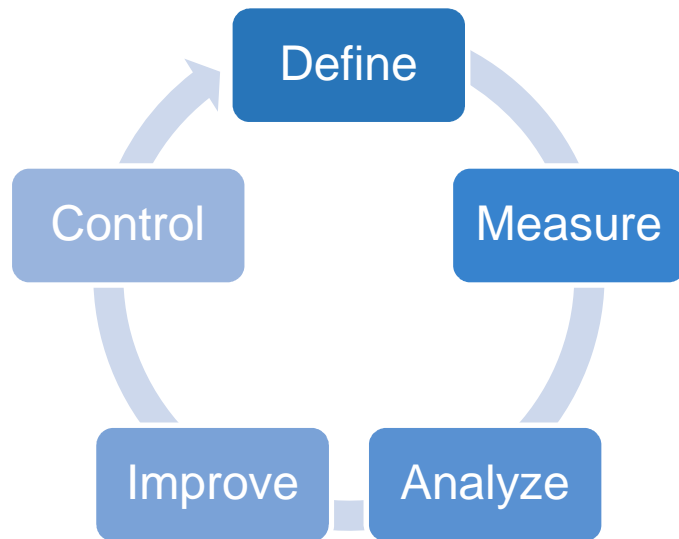


- 4-year multi-company study
- Data set → millions of assessments, observations, surveys, audits, near misses, incidents, investigations, action items



6 Sigma DMAIC Statistical Research Process

- **2008:** Defined more than 200 metrics with customer study group
- **2009:** Tested more than 100 metrics with statistical model
- **2010:** Reduced to composite index
- **2011 / 2012:** Benchmarking and continued analytics research
- **2013:** IHS CERA OE Summit (March) with 2013 analysis



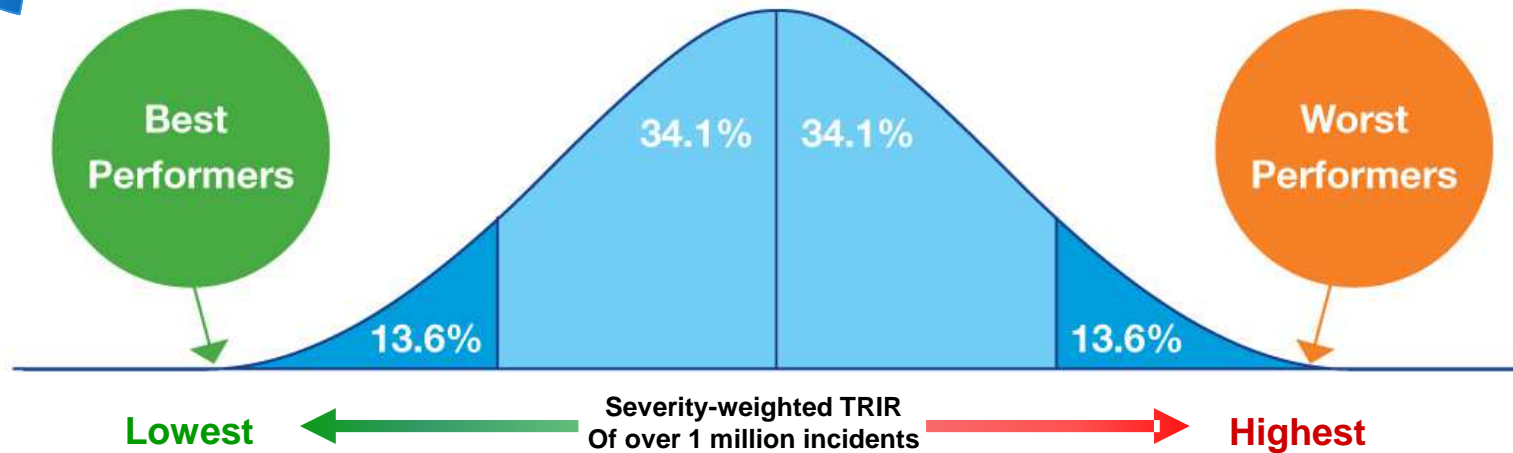
“We are on the journey to make
world-class repeatable”
– Joe Stough, IHS

IHS Operational Excellence Leading Indicator Research



Research: Answer the Question...

What are the actionable, measurable differences that lead to the below results?



0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 3 3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8 3.9 4 4.1 4.2 4.3 4.4 4.5 4.6 4.7 4.8 4.9 5

Sustaining near zero

Orders of magnitude worse



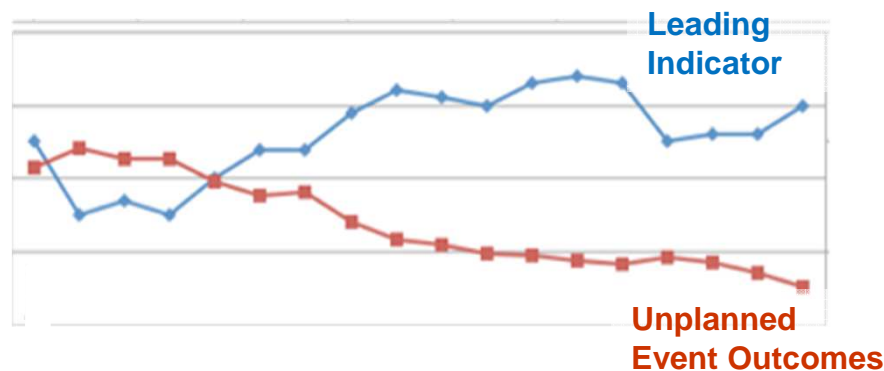
Desired Outcome from Statistical Research

Determine the Top Leading Indicators

- Applied by leadership to drive OE / EHS performance results
- Used to enable iterative continuous improvement process

Provide Ability for Management Control

- Diagnostic (reveals problem areas)
- Practically actionable (problems can be fixed)
- Routinely measurable (practical to gather and analyze)



Negative correlation



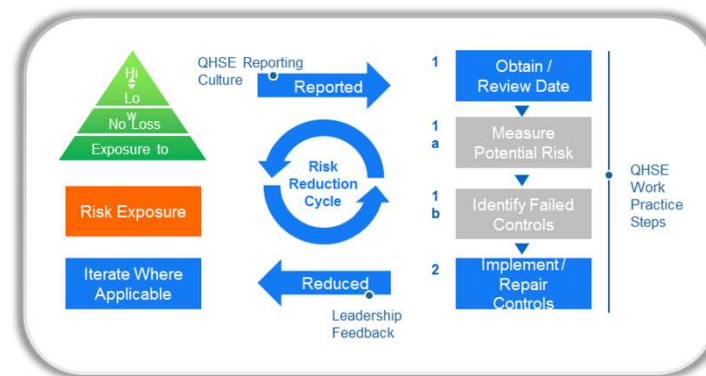
Desired Outcome from Statistical Research

The Premise

- Org A and B are operationally similar
- Org A is measurably better than Org B at reducing operational risks
- Org A has measurably better safety (and OE) performance

The Goal: Make It Measurable

- Better at reducing operational risks → Risk Reduction Cycle



Business Process Measurement = Insight Into Culture



Reporting Culture Metrics

- Rate of reporting (per wk hours)
- Distribution of involvement
- Ratio of low to high (triangle)
- Other reporting culture...

Action Execution Metrics

- % of total events with action
- Rate of action (per wk hours)
- % on-time complete findings
- % lateness of late items
- Other action items...

Leadership, Process Metrics

- % of events with leader involved
- Mean days to supervisor response
- Mean days to authorize action
- % of events with risk or cause
- Other metrics...

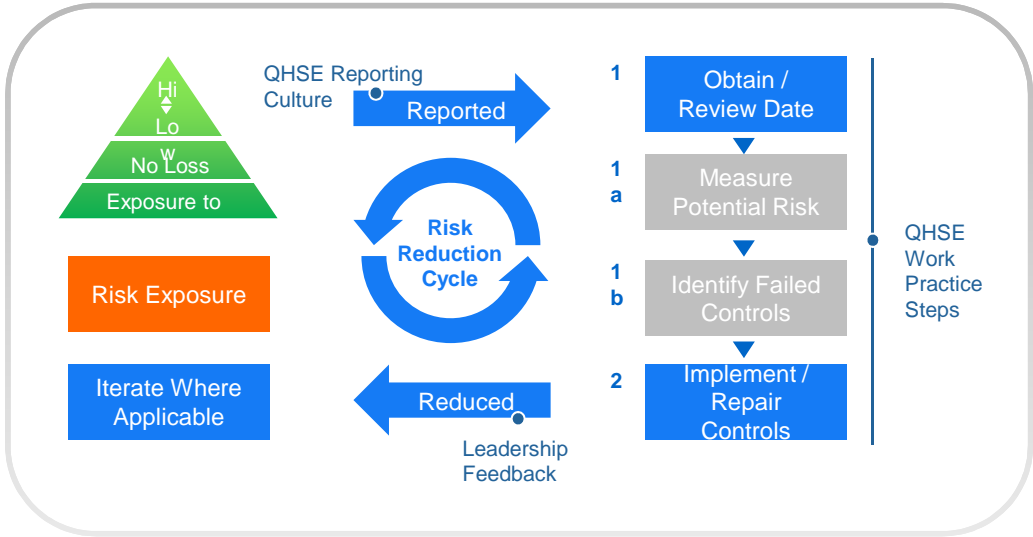
Reactive Activities

- ✓ Injuries
- ✓ Spills/Releases
- ✓ Product/Service Quality
- ✓ Property Damage
- ✓ Security
- ✓ Transportation
- ✓ Near misses

Proactive Activities

- ✓ Supervisor walk-around
 - ✓ Behavioral observation
 - ✓ Safety issue suggestion
 - ✓ Hazard ID's
 - ✓ Management of change
 - ✓ Process hazard analysis
 - ✓ Mgmt system assessment
 - ✓ Risk Assessments
- The list goes on and on...

Reported



Accepted by supervisor

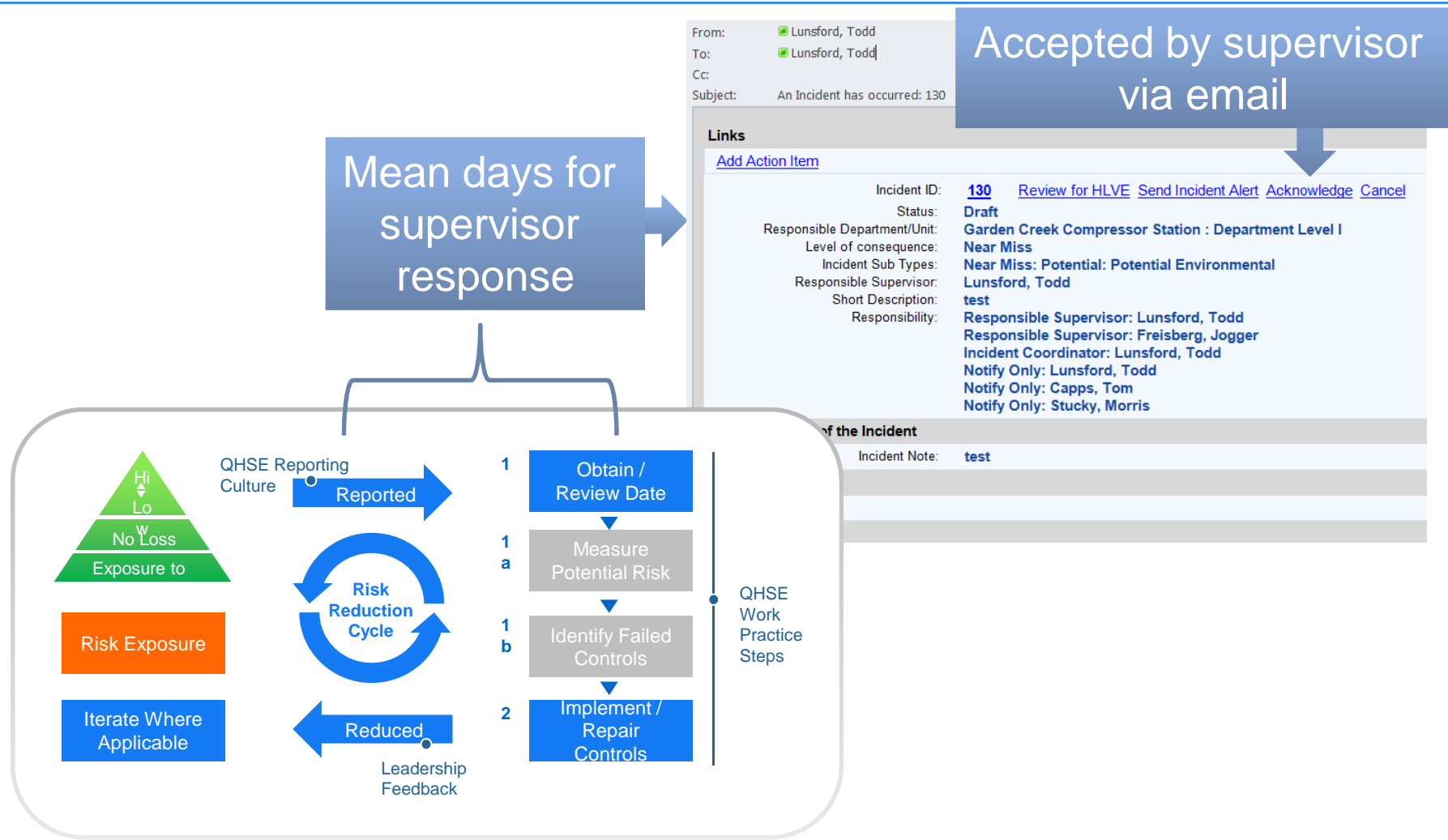
Assessed by SME, Leaders

Action authorized by leadership

Corrective action completed, verified



Example: Leadership Responsiveness





The Top 3: A Measurable Solution

Best performing assets have...

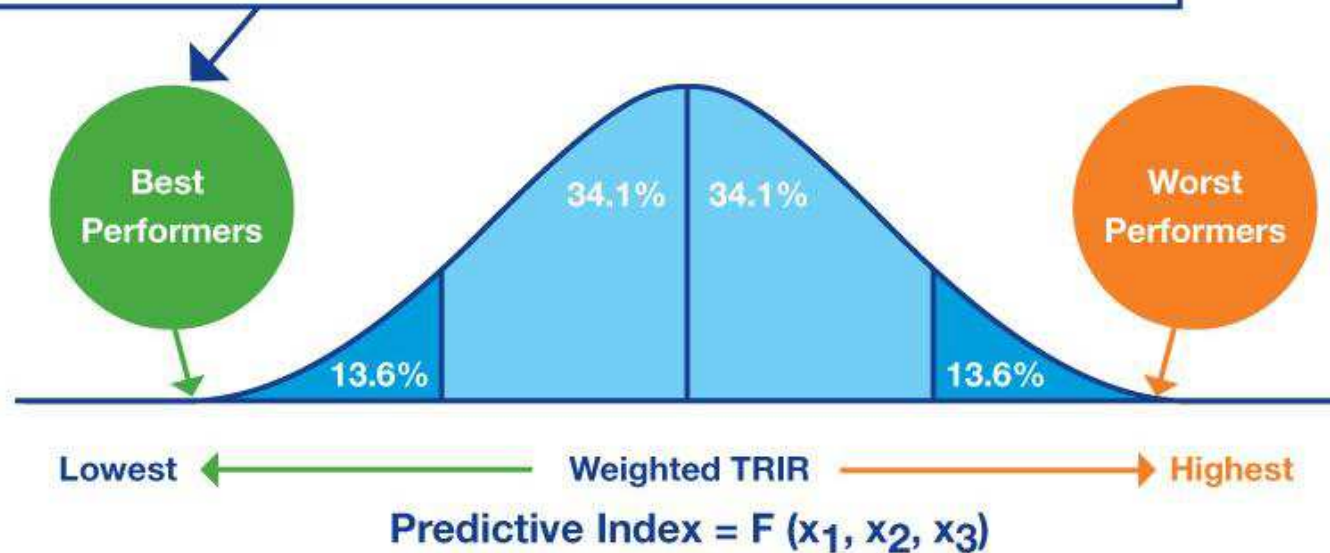
X1: Strong culture of reporting and fixing

AND

X2: High rate of action with timely execution

AND

X3: Responsive, disciplined leadership involvement



Pilot Findings as Foundation of IHS CERA OE Research and Benchmarking Forum



Managing with Practical, Leading KPIs

Practical Field-level Metrics

Managed KPI Scorecard			
	Recordable Rate (lagging)	Event Rpt Ratio (as %)	% High Actions On Time
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Owned by Line Managers

- choose short list of “stewarded” KPIs
- practical, relevant to management
- calculated / monitored on monthly basis
- accountability cascaded throughout operations leadership

Monthly in the field.

Preventive Index KPI Dashboard

Executive Analysis ONLY			
IMPACT Index	Reporting Culture	Action Execution	Leader / Process
4.79	2.10	24%	75%
5.25	1.40	17%	41%
17.10	7.50	54%	57%
7.10	4.10	72%	91%
22.00	18.30	46%	72%
5.20	6.10	64%	80%
10.24	6.58	45%	24%
4.10	1.50	93%	90%
9.70	6.30	71%	31%

Governed by Steering Committee

- reviewed only by exec steer committee
- looking for interesting trends
- calculated / monitored on quarterly basis
- consideration as future “managed” KPIs
→ Iterate / review benchmarks / evolve KPIs...

Quarterly in executive offices.

Questions? THANK YOU!

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Questions for our speaker?



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Press '*1' on your telephone keypad.

Thank you for attending!



- Check your inbox for an email to take a quick satisfaction survey.
- A recording will be available for download in 1-2 days.
- Upcoming Events
 - ❖ Using Sustainability to Drive Supply Chain Performance
 - March 27th, 1pm ET
 - ❖ 2013 Corporate Sustainability Management Conference
 - April 18th, 2013
 - Sheraton Pentagon City, Arlington, VA