

Overview of Leading Indicator Research and Usage

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Slide # 1

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Desired Outcome from Research

- Practically applied leading indicators

- Applied by leadership to DRIVE OE / HSE performance results
- Used to enable iterative continuous improvement process

- Criteria for “management” control

- Routinely measurable
- Practically actionable
- Objective
- Normalized
- Predictive

Model: “FICO”



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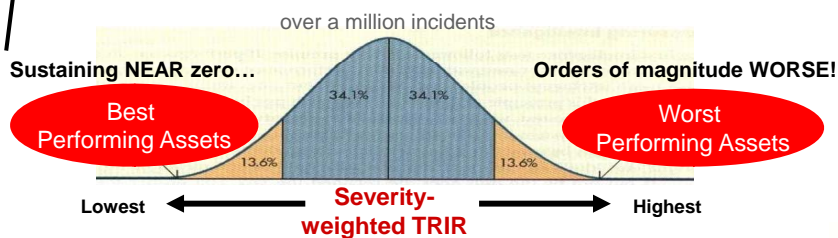
Data-driven Leading Indicator Research



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

Research: Answer the Question...

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



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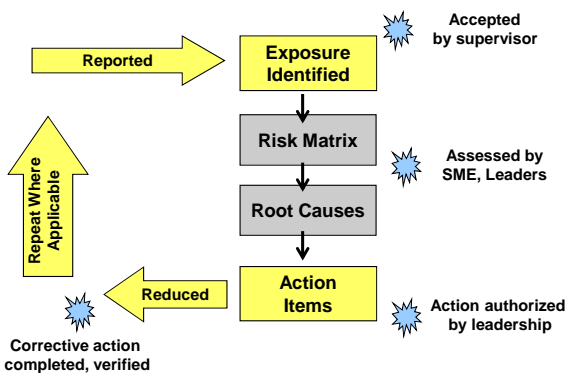


Data from Routine Process Execution

Routine Activities

- Recordable injuries
- First aid injuries
- Near misses
- Supervisor walk-around
- Behavioral observation
- Safety issue suggestion
- Hazard ID's
- Management of change
- Process hazard analysis
- Mgmt system assessment
- Formal risk assessment
- Task risk assessment
- Job hazard analysis
- The list goes on and on...

Organizational Process



Analytical process -- DMAIC

- Define** → started with over 200 leading metric definitions
- Measure** → applied factor / regression analysis to reduce to most meaningful list of ~ 70 metrics
- Analyze** → multi-component index most predictive of performance + practical as mgmt control

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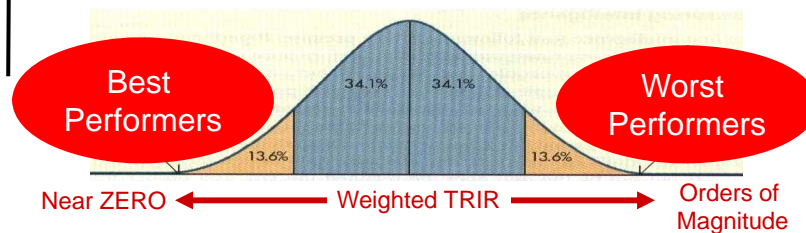
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Results: A Measurable Solution

Best performing organizations have...

- X1: Reporting Culture: Strong culture of reporting **and** fixing
AND
- X2: Action Execution: High rate of action **with** timely execution
AND
- X3: Leadership Responsiveness: Responsive, disciplined involvement



$$\text{Predictive Index} = F(X_1, X_2, X_3)$$

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The Practical Application

Practical Field-level Metrics

Managed KPI Scorecard			
	Loss Event Rate	Event Rpt Ratio	% 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%

Owned by Line Managers

- > choose short list of "stewarded" KPI's
- > 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	Report Culture	Action Execution	Leader / Process
4.79	2.10	24%	11%
5.25	1.40	17%	41%
17.10	7.50	54%	57%
7.10	4.10	72%	3%
22.00	18.30	46%	21%
5.20	6.10	64%	12%
10.24	6.58	45%	24%
4.10	1.50	93%	8%
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" KPI's
→ Iterate / review benchmarks / evolve KPI's...

QUARTERLY in executive offices.

*** The Key to Buy-in: Operative-value aligned

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Thanks...

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