EHSQ and 360-Degree Organizational Performance

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INTELEX
What is Performance?

“Outputs and their outcomes obtained from processes, products and customers that permit you to evaluate and compare your organization’s results to performance projections, standards, past results, goal, and other organizations’ results.”

Objectives

You will learn about:

1. What EHSQ performance means

2. The many layers of performance management in an organizational ecosystem

3. How EHSQ performance contributes to business performance

4. How you can connect EHSQ performance to business performance to build a better business case to your CEO & CFO for investing in better integrated management approaches (whether they involve software or not)
1: EHSQ Performance
assessing the utility of operational management systems
ISO 9001:2015
Focus on Delivering Customer Value through Products and Processes

ISO 14001:2015
Focus on Controlling Environmental Impacts

ISO 45001:2018
Focus on Worker Safety and Well-being
### Environmental Performance

<table>
<thead>
<tr>
<th>Actions</th>
<th>Outputs</th>
<th>Outcomes</th>
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<tbody>
<tr>
<td>• Asset maintenance</td>
<td>• Air, water, soil pollutants</td>
<td>• Community health/wellbeing</td>
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<td>• Sustainable product and process design (ecodesign)</td>
<td>• Emissions</td>
<td>• Efficient use of resources</td>
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<td>• Sustainable procurement</td>
<td>• Noise</td>
<td>• Minimizing waste</td>
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<td>• Traceability</td>
<td>• Vibration</td>
<td>• Sustainable business practices</td>
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<tr>
<td>• Monitor impact on local/regional environmental situation (e.g. noise,</td>
<td>• Ecodesign efficacy metrics (Rodrigues)</td>
<td>• Protect local environment</td>
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<td>effluent discharge)</td>
<td>• Resource utilization</td>
<td>• Protect global environment</td>
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<td>• Provide infrastructure/management processes to sustain responsible</td>
<td>• Raw materials</td>
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<td>practices</td>
<td>• Rare materials</td>
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<td></td>
<td>• Energy use</td>
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<td>• Fuel consumption</td>
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<td>• Power consumption</td>
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<td>• Water use</td>
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<td></td>
<td>• Recycling</td>
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<td>• Waste produced</td>
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**Performance Related to Occupational Health**

**Common metrics** include lagging indicators like frequency of illnesses, lost workdays, Lost Time Injuries (LTI), and injury severity.

Recommended proactive approaches include:
- Conduct industrial hygiene exposure assessments
- Communicate health hazard assessments to employees in a timely manner
- Utilize continuous industrial hygiene monitoring where appropriate
- Implement medical surveillance for employees where appropriate
- Assessment of leadership competencies

Common metrics include incident rates (TCIR, TRIR), completed inspections, behavior observations, completed training, overdue corrective actions (and time to close).

Strong safety culture decreases likelihood of accidents and injuries. Assess via:

• Management commitment
• Degree of collaboration
• Reported incidents as a proportion of actual incidents
• Frequency of communication about safety issues and conditions
• Commitment to safety
• Compliance outcomes
• Regularity of training

“We consistently, sometimes indignantly, aim toward the wrong targets and measure the wrong things without ever empirically proving we have any effect at all…

We should be looking for solutions that make a difference to our workers. We should think about the way our outlook and definition of the word ‘safe’ makes people devalue our goal.”

• Incident rates don’t capture context of unsafe scenarios, anticipated frequency, or availability of a corrective action… knowledge that could improve safety practice
• Instead of trying to pretend like human error doesn’t exist (or can be trained out of people), design the possibility of human error into safer work systems
Quality Performance

Quality Events indicate that quality goals are not being met and action is needed.

- Nonconforming product
- Incidents/near misses
- Customer complaints
- Recalls/warranty calls
- Deviations (from SOP)
- Out-of-control Action Plans
- Industry-specific events (e.g. MDRs)

Serious or systematic?

- yes → CAPA
- not really → containment
Quality Performance

Quality Controls
preven or correct unwanted or unexpected change → stability and consistency

- Calibrations
- Maintenance
- Inspections
- Sampling incoming parts
- Process validation
- Mistake-proofing
- In-situ process monitoring
- Environment monitoring
- Professional testing/competency assessment
- Training programs and reminders
- Corrective actions taken
- Information security/network security

INTELEX
From https://abraic.com/2017/10/cost-of-quality

AUDITS, TESTS, REVIEWS, INSPECTIONS

SUPPLIER QUALITY, SPECS, PROCESSES, MAINTENANCE

PROBLEMS YOU CATCH BEFORE THEY REACH CUSTOMERS: SCRAP, REWORK, DOWNTIME

WARRANTY CALLS, RECALLS, CUSTOMER COMPLAINTS, LAWSUITS, BAD PRESS

COST OF GOOD QUALITY (CONFORMANCE) + COST OF POOR QUALITY (NON-CONFORMANCE)

EXTERNAL FAILURE COSTS

From https://abraic.com/2017/10/cost-of-quality/
Cost of Quality (CoQ) Caution!

- There are *many* ways to measure it.
- The values are dominated by *labor* so if the calculation is not connected to a timekeeping or time estimating system, CoQ will be underestimated.
- Executives don’t understand it unless expressed as % of total operating costs or % of sales.
- It’s the distribution – not the magnitude of the CoQ estimate – that reveals how well your QMS is performing!
2: Holistic Performance
& how to address performance at all levels of your organization
Business Risk Taxonomy
(Inherent within the Stratex framework)

From http://ascendore.com
Process
Product
Customer
Leadership & Governance
Workforce
Strategy
Financial
Market
3: 360-Degree EHSQ Performance
connecting EHSQ outputs & outcomes to the business
Change

Transformation
Shifting Your Perspective

From http://hoskere2.web.engr.illinois.edu/cs445/finalProject/
Frames of Reference

- Order
- Part/Product
- Customer

From http://hoskere2.web.engr.illinois.edu/cs445/finalProject/
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<td>Monitor/ maintain equipment and facilities</td>
<td>Substitute assets with smart technology, building components, and software-defined systems</td>
<td>Virtualize; shift software/processes/maintenance/monitoring to cloud</td>
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<td>Reduce Need for Working Capital</td>
<td>Measure/monitor resource productivity; consume less</td>
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<td>Grow Sales/Revenue</td>
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<td>Reduce product carbon footprint (etc.) to increase value to stakeholders</td>
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<td>Demonstrate ability to comply with standards and regulations</td>
<td>Demonstrate ability to manage risk, protect business continuity</td>
<td>Demonstrate ability to anticipate risks and take intelligent risks</td>
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<td>Transparency into current operations; demonstrated improvement</td>
<td>Management systems support digitally-enabled product/process innovation</td>
<td>Business model transformation</td>
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Investing in EHSQ makes your business **stronger** and **more resilient**, impacting most (if not all) of your top business priorities.
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Supplemental Slides