OPERATIONALIZING EHS MANAGEMENT
Bridge the Gap from Strategy to Execution
# OPERATIONALIZING EHS MANAGEMENT

*Bridge the Gap from Strategy to Execution*

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*Insresearch.com*
Executive Summary
Executive Summary

Remember when the Environment, Health, and Safety (EHS) business function was a "necessary evil" for compliance enforcement? Today EHS is taking its place as a key business initiative that contributes to business performance. With the evolution of EHS management systems and new enabling technologies, EHS business leaders now have an unprecedented opportunity to create sustainable business value for their organizations.

Challenges abound in accomplishing this. Compliance obligations become more complicated. Increasingly complex business networks and dynamic operating environments expose organizations to new risks that must be properly managed to safeguard operations. Stakeholder expectations for transparency and accuracy in disclosing risks and performance are more intense than ever.

Formal management systems, such as those based on ISO standards, have been widely deployed across industry as the means to manage EHS performance and drive continuous improvement. Yet many organizations continue to hit EHS performance plateaus and experience adverse events that harm people, production, the environment, and ultimately business performance.

We can invariably trace the root cause of such failures to a breakdown in some aspect of the in-place management systems. Management systems define how an organization intends to manage an aspect of the business. Despite good intentions and the implementation of well-designed programs, many organizations continue to experience execution gaps in day-to-day operations.

In this research, we explore how businesses can overcome the key challenges to EHS performance improvement through more consistent execution of management systems. Furthermore, this report highlights the critical role of next-generation technologies such as Big Data analytics, cloud applications, mobile solutions, and the Industrial Internet of Things (IIoT) to effectively operationalize EHS management. This eBook includes the LNS Research EHS Excellence maturity model as an improvement roadmap, along with actionable recommendations to help EHS leaders seize the opportunity to contribute to the operational excellence aspirations of their organizations.
SECTION 1

Research Demographics
Research Demographics

The data presented in this eBook represents over 300 survey responses which were collected mainly during 2015 and early 2016. LNS Research deploys a social research model in which our online English language surveys are open to the general public. Companies participate in LNS Research surveys to gain access to the LNS Research library; survey respondents are also the consumers of the research. We contact each survey respondent via email and phone, and a research analyst reviews the responses for accuracy.

The industry demographics of the survey are congruent with the demographics of the industrial landscape; discrete manufacturing is the largest segment, followed by process and batch industries. The research has a broad distribution across industry verticals and company sizes.
SECTION 2

EHS Performance Improvement Barriers and Opportunities
Drivers of EHS Performance Improvement Initiatives

Why do organizations undertake EHS performance improvement initiatives? Most frequently, it’s to improve operational performance to support corporate goals and initiatives. We often see EHS initiatives aligned with strategic programs such as Six Sigma, Lean, and Operational Excellence. For manufacturing and other asset-intensive companies, strong EHS performance is considered a lynchpin of strong operational performance through effective risk management and productivity improvement.

Meeting compliance obligations is another top reason for investing in EHS management initiatives. An organization must achieve and sustain compliance as a prerequisite to maintain its license to operate. This foundation applies not just to regulatory requirements, but to obligations related to multiple stakeholders such as employees, customers, and investors.

From an organizational perspective, strategic EHS objectives focus on improving the corporate culture needed to drive continuous improvement, and build cross-functional alignment in the pursuit to embed EHS into enterprise-wide operations.

A common thread across these top strategic objectives for EHS performance improvement is that they all directly contribute to operational excellence. Clearly, EHS leaders focus on delivering value to the business.

Top 5 Strategic Objectives for Improving EHS Performance

<table>
<thead>
<tr>
<th>Objective</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve operational performance</td>
<td>65%</td>
</tr>
<tr>
<td>Achieve sustained regulatory compliance</td>
<td>45%</td>
</tr>
<tr>
<td>Improve corporate culture</td>
<td>40%</td>
</tr>
<tr>
<td>Align EHS processes with other organizational processes</td>
<td>37%</td>
</tr>
<tr>
<td>Improve overall sustainability performance</td>
<td>34%</td>
</tr>
<tr>
<td>Improve financial performance</td>
<td>31%</td>
</tr>
<tr>
<td>Improve brand equity and public brand perception</td>
<td>9%</td>
</tr>
</tbody>
</table>
The Need for EHS Excellence

Most industrial organizations have well-intentioned goals and strategies for EHS management. Despite the expenditure of significant resources on improving results, EHS performance gaps persist across economies and industries, and within organizations.

At a macro level, the economic impact of poor EHS management is significant, with an estimated 4% of global GDP going towards the direct and indirect cost of occupational injuries and illnesses.¹ In the US alone, employers pay $88.5 billion in Worker’s Compensation costs, not to mention the indirect costs of injuries and accidents.²

Industries with inherently hazardous processes continue to experience industrial disasters. These "black swan" events – such as large-scale explosions, fires, and hazardous material releases – can cause major harm to people, production, and the environment, not to mention shareholder value.

Despite high aspirations to prevent all workplace accidents and injuries, there are nearly one-half million OSHA recordable injuries and illness each year among US manufacturing employees.³

A gap persists between strategy and execution in daily operations, as organizations struggle to improve EHS performance.

¹http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4003859/#R29
Challenges to EHS Performance Improvement

Several main barriers undermine efforts to improve EHS performance. The top challenge is trying to manage with disparate systems and data sources (49% of respondents), followed closely by poor collaboration across departments (46%). Siloed, fragmented information systems, and disconnected business functions are the key challenges. It’s quite clear, companies still struggle to collaborate.

The inability to demonstrate a compelling business case for investment and the lack of effective metrics for performance management are also big barriers.

These are long-standing, thorny issues to deal with, and they are not unique to EHS management. The problem can be traced back to the lack of visibility to performance, fragmented processes and departmental silos. Given the prevalence of these barriers, it’s no wonder that continuous improvement of EHS performance often stalls.

Top challenges to EHS Performance Improvement

- Disparate systems and data sources: 49%
- Poor collaboration across departments: 46%
- Inadequate ROI justifications for improvement: 31%
- Ineffective metrics program: 31%
- Lack of continuous improvement: 28%
- Lack of executive support: 17%
- Lack of talent: 12%
EHS Performance Management Processes and Technology are Inadequate

LNS Research survey results show that most companies still manage EHS without the benefit of dedicated EHS software, with 64% of respondents not having implemented it. Point solutions and homegrown systems such as spreadsheets and custom databases are still prevalent.

Even where EHS software exists, it is often not integrated with other business systems and processes. And in many cases (25%), there is no defined program or system in place.

This data shows that there is a large opportunity for organizations to use modern information management technology more effectively to manage EHS performance systematically, on par with other lines of business such as sales, procurement, supply chain, and so forth.

How are EHS processes and performance managed today?

- EHS Software not implemented: 64%
- EHS Software currently implemented: 36%
- Spreadsheets, databases, and other homegrown software systems: 29%
- No defined program in place: 25%
- EHS software as part of an enterprise software: 14%
- Standalone EHS management software: 14%
SECTION 3

Management Systems: Key to Driving Operational Consistency and Improvement
Management Systems Enable Continuous Improvement

Management systems are the go-to tool organizations use to manage performance and drive continuous improvement. They define the framework of organizations, processes, and initiatives that will be used to achieve the goals of today and tomorrow. They’re based on the well-known Plan-Do-Check-Act cycle of continuous improvement.

Most large companies have a variety of management systems in place, typically structured to meet the requirements of a consensus standard such as those issued by the International Standards Organization (ISO), or industry groups such as the American Chemistry Council. Companies might develop them internally, or they could be a hybrid unique to that organization.

Effective management systems help businesses to improve processes and operations to:

- run more efficiently
- produce high-quality products
- manage risk and compliance
- operate safely and sustainably

The business benefits can be substantial. For example, companies that adopt ISO 9001 improve sales, customer satisfaction, corporate image and market share; and those that adopt ISO 14001 enhance environmental performance.¹

¹http://www.iso.org/iso/home/standards/benefitsofstandards.htm
EHS Management Systems Are Widely Deployed

Companies have widely deployed management systems to handle a variety of business operations, including EHS. Such systems provide the framework of policies, procedures, and processes to achieve organizational objectives and drive continuous performance improvement.

Our research data shows that the most widely implemented EHS-related management system standards are ISO 14001 for Environmental Management, and OHSAS 18001 for Occupational Health and Safety. As would be expected, companies have also widely adopted the closely-related ISO 9001 standard for Quality Management.

Most organizations have deployed multiple management system standards. Indeed, two-thirds of organizations surveyed report having two or more standards in place, with over a third having three or more. This widespread adoption indicates that organizations rely heavily on management system standards as a key approach to managing performance.

Which management system standards has your organization adopted?

<table>
<thead>
<tr>
<th>Management System Standards</th>
<th>% of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO 9001</td>
<td>27.6%</td>
</tr>
<tr>
<td>ISO 14001</td>
<td>21.8%</td>
</tr>
<tr>
<td>OHSAS 18001</td>
<td>13.6%</td>
</tr>
<tr>
<td>Internal PDCA</td>
<td>12.9%</td>
</tr>
<tr>
<td>Six Sigma</td>
<td>12.4%</td>
</tr>
<tr>
<td>ISO 50001</td>
<td>4.2%</td>
</tr>
<tr>
<td>ISO 31000</td>
<td>4%</td>
</tr>
<tr>
<td>ANSI Z10</td>
<td>3.5%</td>
</tr>
</tbody>
</table>

Number of management system standards implemented per organization

<table>
<thead>
<tr>
<th>Number of Standards</th>
<th>% of Organizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>34%</td>
</tr>
<tr>
<td>Two</td>
<td>27%</td>
</tr>
<tr>
<td>Three</td>
<td>20%</td>
</tr>
<tr>
<td>Four</td>
<td>13%</td>
</tr>
<tr>
<td>Five</td>
<td>2%</td>
</tr>
<tr>
<td>Six</td>
<td>1%</td>
</tr>
<tr>
<td>Seven</td>
<td>3%</td>
</tr>
</tbody>
</table>
SECTION 4

A Strategic Approach to Operationalizing EHS Management
EHS is Integral to Operational Excellence

Smooth-running, high performing operations depend on getting EHS right to avoid incidents and accidents and improve productivity. In many industrial organizations, EHS and Operations staff work together to achieve safety and environmental goals. However, lack of cross-functional collaboration continues to surface as a key barrier to reach those goals.

Fundamentally, operational excellence requires close alignment of people, process and technology capabilities across the key functional pillars of operations, asset management, quality, and EHS. Shortcomings in any one pillar will create some instability. If two or more pillars are ineffective, the platform becomes unstable.

Manufacturers maximize operational excellence when they embed EHS management in core business operations to optimize compliance, risk management, and productivity.

People - Process - Technology
OPERATIONAL EXCELLENCE PLATFORM

Fall short on any pillar and your OpEx platform becomes fragile
Fall short on two or more pillars and your OpEx platform becomes totally unstable
Achieving Operational Excellence: Align People, Process, Technologies

The research results show that barriers to EHS performance span enabling technologies, organizational issues, and business processes. This is consistent with the LNS model of Operational Excellence, based on aligning the right combination of people, process, technology capabilities.

To improve EHS performance companies need to take such a holistic approach. There is no “silver bullet” solution, technology or otherwise, that will work in isolation. An integrated approach is a reflection of, and indeed a requirement for the elements of management system standards such as ISO 14001 and OHSAS 18001.

For example, these standards encompass policies, procedures and processes for:

- **PEOPLE**: leadership, executive participation, employee engagement, management review
- **PROCESS**: compliance obligations, risk management, audits, lifecycle analysis
- **TECHNOLOGY**: process standardization, operational control, metrics, reporting, monitoring

Operational Excellence requires alignment of **PEOPLE**, **PROCESS**, and **TECHNOLOGY** capabilities.
The Journey to EHS Excellence

The LNS Research Operational Excellence Maturity Model is a framework for describing the stages organizations typically go through in their evolution towards being Innovation Leaders that influence the market by driving standards and expectations.

We have extended that model to describe the steps organizations take in their journey towards EHS excellence. Less mature organizations lack standardized processes, are reactive, and lack continuous improvement.

More mature organizations have well-defined management systems in place, and use them to meet compliance obligations and manage operational risk. At these levels, there is a concentrated focus on continuous improvement with broad employee engagement.

At the top level, the company has fully operationalized EHS in the sense that it’s part of the core business strategy and incorporated into daily operations at all organizational levels. The staff consistently executes the management system, and senior management has an active role in reviewing performance and driving improvement. The ability to adapt to changing conditions and events, both internal and external, contributes to the resilience of the organization.

The following matrix will allow companies to evaluate their current position based on their capabilities.
Changes to Management System Standards Create Risk and Opportunity

Management systems are the basis for organizing people, process, and technology to drive continuous improvement in EHS performance. Consensus standards such as ISO 14001 and OHSAS 18001 have been widely adopted for environmental and occupational health and safety management, respectively.

These standards, as well as more recent ones such as ISO 31000 for risk management, are being increasingly adopted globally as organizations seek to ensure, systematically, that they meet compliance obligations, and deal with increased operational and supply chain risk and the pressure for transparency.

These standards have evolved over the years with conflicting and overlapping requirements in key areas such as compliance and risk management. Recent changes in the standards reflect harmonization across key elements, as well as placing a greater emphasis on business outcomes rather than process and documentation compliance.

As well as increasing the burden of demonstrating effective systems, the ongoing changes provide the opportunity to streamline and standardize EHS management, while increasing collaboration across business functions using integrated management systems.

Management System Standards

- **QUALITY MANAGEMENT**
  - ISO 9001 – 2015 update

- **ENVIRONMENTAL MANAGEMENT**
  - ISO 14001 – 2015 update

- **HEALTH & SAFETY MANAGEMENT**
  - ISO 45001 – 2017 launch

- **RISK MANAGEMENT**
  - ISO 31000

- **ENERGY MANAGEMENT**
  - ISO 50001

Harmonized Requirements

- Business strategy
- Risk management
- Executive involvement
- Lifecycle analysis
- ...

Integrated Management Systems
SECTION 5

Leveraging Innovative Technologies to Operationalize EHS Management
EHS Information Technology Has Advanced Rapidly

The technology available for EHS information management has improved exponentially since the advent of PC-based point applications in the 1980s. Early applications focused on solving single, narrow EHS problems such as incident management and emissions reporting at the work group level.

Later, enterprise applications based on client-server technology provided broader functionality across environmental, health and safety dimensions, with cross-organization access provided through web-based portals. These applications provided greatly increased levels of visibility and control of EHS performance.

Today, EHS leaders and practitioners can take advantage of cloud-based platforms that help integrate EHS into operations not only within the enterprise but across the extended value chain. Leveraging sophisticated capabilities such as mobile apps, Internet of Things (IoT), and Big Data analytics enables organizations to move from reactive compliance to more of a risk-based, predictive approach to EHS management.

The Evolution of EHS Software

- **POINT SOLUTIONS**
  - PC-based applications
  - Narrow functionality
  - Work group tasks
  - Compliance

- **ENTERPRISE SOLUTIONS**
  - Client-server applications
  - Broad EHS functionality
  - Enterprise efficiency
  - Preventative

- **VALUE CHAIN SOLUTIONS**
  - Cloud applications
  - Integrated EHS platforms
  - Business integration
  - Predictive

1980s | 1990s | 2000s | 2010s
Next-generation technologies are now available to help standardize, automate, and optimize EHS management systems. These enablers offer significant new capabilities to bring EHS management systems to life with consistent execution. They can help meet the new management system standard requirements and stakeholder expectations while taking advantage of the opportunities for further business integration.

Although technology is just one capability area needed to enable operational and EHS excellence, it is foundational to implementing the people and process dimensions of a management system, and emerging capabilities are opening up new horizons through the digital transformation of EHS.

The Internet of Things (IoT) is a technology trend that is enabling the creation of new business models and processes. In an industrial context, the IoT enables a network of smart connected devices and assets with advanced data capture and analysis capabilities. Along with cloud-based applications, mobile solutions, and Big Data and predictive analytics, the IIoT opens up new avenues for EHS management.

**EHS PERFORMANCE IMPROVEMENT**

- **Smart connected devices** to learn from and respond to worker and workplace conditions in real time
- **Internet of Things (IoT)**: Collect and analyze large volumes of operational and EHS data to predictively reduce risk
- **Big Data**: Easily deployed modular EHS applications with rapid innovation cycles and powerful analytics
- **Mobile**: Capture and deliver information where and when needed to engage employees in EHS improvement
Adoption of Modern EHS Software is Gaining Traction

Despite the availability of advanced information technology solutions for EHS management, their adoption remains relatively low. As shown previously, LNS Research survey data reveals that across industries, 64% of organizations have yet to implement dedicated EHS software solutions of any kind.

Of those organizations having already implemented EHS software, narrow point solution approaches are common. Most have achieved little or no integration between EHS and other business systems, indicating a lack of data and business process integration of EHS into daily operations.

While the adoption of the latest generation technology solutions is lagging, it is gaining momentum. For example, only 37% of those organizations having implemented EHS software have done so with a cloud-based deployment model, while among those planning projects, 52% expect to do so with the advantage of a cloud deployment model.

How EHS Software Deployment Models are Shifting to Next-Generations Cloud Solutions

- On Premises: Current 63%, Planned 48%
- Private Cloud: Current 21%, Planned 26%
- Public Cloud - SW Vendor: Current 10%, Planned 18%
- Public Cloud - Third Party: Current 6%, Planned 8%
Smart Connected Devices Power the Industrial Internet of Things

The Industrial Internet of Things (IIoT) is having a transformative impact on the operations of manufacturers and other asset-intensive enterprises including EHS management. Smart connected devices are a fundamental part of an IIoT platform, enabling new insights to drive EHS performance improvement.

Cost-effective networks of sensors and devices can be deployed throughout the workplace to capture large amounts of data related to operating conditions, asset health, environmental factors, worker status, etc. This data can then be analyzed, providing new levels of insights to make smarter, faster decisions to optimize EHS performance.

Such smart connected devices can sense and respond to internal and external environment factors as an intelligent agent, identifying and mitigating operational risks predictively and even autonomously. Examples of these capabilities include:

- Wearables – embedded sensors can monitor worker status and alert to hazardous conditions
- Real-time monitoring of workplace environmental conditions and automated control measures
- Collection of machine operational data and analysis for predictive risk management
- Asset health monitoring and failure prediction
Cloud Computing Enhances EHS Management

Enterprises face unprecedented levels of complexity and change across global business networks. EHS leaders are challenged to contribute to business performance by managing the resulting risks while improving productivity and facilitating innovation. Cloud computing is a key tool for accomplishing this.

With cloud computing, business software is accessible as an internet service, on demand. Moreover, information and powerful analytics capabilities are readily available to enable smarter, faster decision-making.

Cloud computing offers significant cost benefits, as IT resources are pooled and shared among organizations, and software is scalable as needed. This is a sharp contrast to traditional on-premises deployments in which each business buys, installs and maintains its own software and hardware.

The adoption of cloud-based software solutions is accelerating across most business functions including EHS. Advantages over traditional on-premises deployment include:

- Faster deployment of modular applications
- More adaptable via configuration and extension
- Easier updates and shorter innovation cycles
- Lower total cost of ownership
- Flexible pay-as-you-go subscription pricing
- Ability to scale up and down with changing business conditions
Mobile EHS Solutions Foster Employee Participation

With mobile apps and devices, employees at all organizational levels can access and capture information when and where needed without being tied to a fixed location. Operational quality, speed, and decision-making all benefit.

The widespread availability of EHS mobile applications affords organizations a fresh opportunity to realize their management systems. Mobile apps can help drive employee participation in continuous improvement efforts in several ways:

- **INFORMATION DELIVERY**: ready access to workplace safety information promotes compliance
- **DATA CAPTURE**: more and higher quality EHS data such as incident information can be captured and analyzed sooner
- **TASK AND ACTION MANAGEMENT**: effective management of corrective and preventive actions
- **REAL-TIME PERFORMANCE VISIBILITY**: employees at all levels can monitor EHS performance and take action
- **COMMUNICATION**: enhanced cross-functional communication with real-time visibility and work-flow processes

**EHS Mobile Apps Drive Employee Engagement**
- Information when and where needed
- Capture more data, faster
- Improved task and action management
- Real-time performance visibility
- Cross-functional communication
Leveraging Big Data to Become More Predictive

Powerful new Big Data capabilities available as part of an IIoT platform have major implications for how companies implement EHS management systems. EHS business leaders and practitioners can now gain insights from large amounts of operational data to predict when and where incidents will occur, and take action to prevent them to systematically drive continuous improvement.

Examples of Big Data that can be analyzed along with EHS data are:

**OPERATIONAL:** machine and equipment performance data, asset maintenance history, production data

**BUSINESS DATA:** employee demographics such as work history, tenure, training records

**EXTERNAL:** weather conditions, GIS information, economic factors

Sophisticated predictive analytics tools can be used to identify correlations between EHS performance such as incidents, and other factors. This enables preventative actions to be taken to reduce risks that are most likely to lead to non-conformance. It also helps identify leading indicators that can be used to drive EHS performance improvement over time.
SECTION 6

Business Value and Recommended Actions
EHS Technology Adoption Enables Best Practices

As mentioned previously in this eBook, when it comes to EHS management, across the board industrial organizations have made limited use of the available technology enablers. Most have not implemented dedicated EHS software.

Of those that have, most have done so in a narrow way, with little integration to other business systems and processes. In terms of information, business process, and organizational integration, EHS tends to operate in a siloed fashion.

For those that have embraced technology and implemented EHS software, the advantages are substantial. These organizations have much more robust management and process capabilities than those that have not implemented EHS software. In key best practice areas such as risk management, visibility to metrics to manage performance, and alignment of EHS with other management systems and initiatives, there is a correlation between the use of EHS software and superior capabilities.

These findings indicate it is worthwhile to investigate how your organization could use innovative technologies and to create a roadmap to do so.

WHAT’S POSSIBLE: Enabling EHS Best Practices  

<table>
<thead>
<tr>
<th>Best Practice</th>
<th>EHS Software Not Implemented</th>
<th>EHS Software Implemented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal risk management framework established</td>
<td>20%</td>
<td>71%</td>
</tr>
<tr>
<td>Ability to identify risks across operations</td>
<td>34%</td>
<td>75%</td>
</tr>
<tr>
<td>Ability to track risk mitigation measures across organization</td>
<td>19%</td>
<td>59%</td>
</tr>
<tr>
<td>Real-time visibility of EHS metrics</td>
<td>9%</td>
<td>47%</td>
</tr>
<tr>
<td>EHS objectives aligned with Operational Excellence</td>
<td>17%</td>
<td>68%</td>
</tr>
<tr>
<td>EHS aligned with other management systems</td>
<td>20%</td>
<td>59%</td>
</tr>
<tr>
<td>Alignment of all EHS components to achieve sustainability goals</td>
<td>13%</td>
<td>45%</td>
</tr>
</tbody>
</table>
What’s Possible: Driving Operational Performance Improvements

Overall Equipment Effectiveness (OEE) is a key performance metric widely used in manufacturing industries to measure utilization and productivity. It is a combined metric that incorporates production quality, availability, and performance.

We compared the OEE of organizations that had implemented EHS software with those that had not. Organizations with EHS software have OEE performance about 21% greater, a significant difference. Organizations that have real-time visibility of EHS metrics and the requisite technology enablers have a similar advantage.

Although it is not clear what direct contribution better EHS systems and visibility have on manufacturing performance, the correlation is positive. This bodes well for the opportunity for the EHS business function to add business value through improved systems and processes.

<table>
<thead>
<tr>
<th>KEY CAPABILITY</th>
<th>Implemented (mean OEE)</th>
<th>Not Implemented (mean OEE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHS Software</td>
<td>85%</td>
<td>70%</td>
</tr>
<tr>
<td>Real-Time Visibility of EHS Metrics</td>
<td>87%</td>
<td>72%</td>
</tr>
<tr>
<td>EHS and Operational Objectives Aligned</td>
<td>85%</td>
<td>50%</td>
</tr>
<tr>
<td>EHS Top Corporate Objective</td>
<td>83%</td>
<td>70%</td>
</tr>
</tbody>
</table>

Organizations that have implemented EHS software show a 21% improvement in OEE over those that have not.
Recommended Actions

The need to have strong EHS management systems has never been greater. With more operational complexity and change, and tougher compliance obligations, comes more risk and higher demand for transparency in all aspects of performance.

Even as companies set ambitious EHS goals, performance improvement remains elusive in an environment of increased demands and resource constraints. There is a gap between EHS strategy and its execution in daily operations. Management systems are the fundamental tools deployed in industry to close this gap. The challenge is how to operationalize these systems to make them more effective.

Two major trends create an opportunity for EHS leaders and professionals to facilitate such improvement and further integrate EHS with the business:

- Changes in, and convergence of, the management system standards themselves create new requirements and opportunities
- Innovative technology enablers such as Cloud computing, Big Data analytics, the Industrial Internet of Things (IIoT), and mobile apps support new ways of managing EHS performance

With these changes comes the opportunity to operationalize your EHS management system to achieve consistency and performance improvement. To capture this opportunity, we offer the following recommendations to apply in your organization:

1. **SEIZE THE OPPORTUNITY TO ELEVATE EHS AND ENGAGE SENIOR MANAGEMENT.** As EHS management system adoption and scrutiny increases across the supply chain, the window is open to secure executive sponsorship for EHS improvement initiatives. Recent changes to the management system standards explicitly call for more direct involvement by executives, and the consideration of EHS risks and opportunities in business strategy.

2. **BUILD CROSS-FUNCTIONAL COLLABORATION TOWARDS INTEGRATED MANAGEMENT SYSTEMS.** As management system standards continue to converge, foundational elements such as risk management will become more harmonized. As this occurs, look at integrating disparate management systems such as quality, environmental, health and safety, asset management, and so forth. Unification of cross-functional capabilities such as audits, change management, CAPA, and risk management may make sense.
Recommended Actions (Cont.)

3. **STEP UP YOUR RISK MANAGEMENT GAME.** Management systems standards increasingly call for strengthened risk management processes that are focused not just on preventing incidents, but on helping the organization achieve its strategic objectives. This is yet another opportunity to elevate EHS as part of a proactive enterprise risk management process to boost preventive and predictive risk control.

4. **LEVERAGE TECHNOLOGY INNOVATIONS TO MANAGE EHS IN NEW WAYS.** Align with your organization’s digital transformation leaders and show how EHS can help lead the way by taking advantage of innovative technologies that will help operationalize EHS management. The use of Big Data analytics with operational data to manage risk predictively and with leading indicators may be especially fruitful.

5. **DEVELOP A BUSINESS CASE FOR THE EHS EXCELLENCE JOURNEY.** Of course, each organization has relative strengths and opportunities for improvement in achieving a fully operationalized EHS management system. Gain executive support with an improvement and technology roadmap backed by a business case. View the business case as a journey starting with focused projects showing value early, and building to a master business case for strategic improvement.