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Environment, Health, and Safety

Ensuring Compliance by Mitigating Risk and Managing Change

April 2013

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Analyst Insight

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Environment, Health, and Safety: Ensuring Compliance by Mitigating Risk and Managing Change

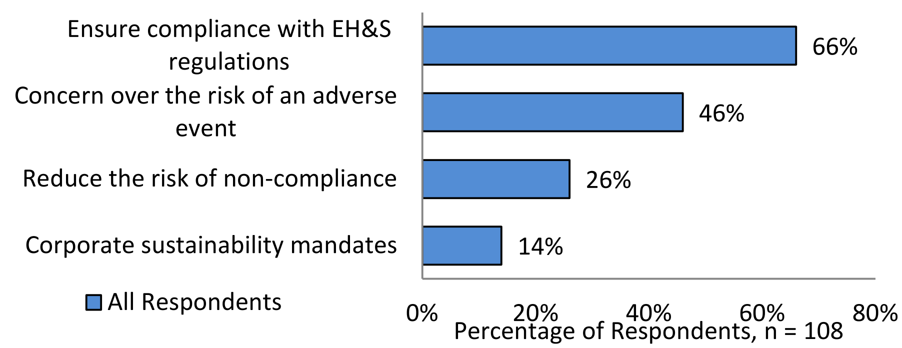
Compliance to a plethora of regulations, and the need to manage risk, has compelled organizations to adopt new strategies to approach their Environment, Health, and Safety (EH&S) across the enterprise. The goals of doing this are to reduce the cost of compliance, improve the safety of people, products, and processes, ensure quality, and meet corporate goals around EH&S. Companies that are not able to comply with EH&S mandates in an effective fashion are at risk of losing their competitive advantage.

This Analyst Insight will provide a roadmap to an effective EH&S initiative within an organization, while also examining the supporting technology solutions that can help organizations get on track towards compliance, as well as raise awareness, mitigate risk, and get a handle on change to further drive compliance.

Business Context

Environment, Health, and Safety affects all levels of an organization, from plant manager to CEO. EH&S has always been important from an operational perspective, but now it has become increasingly important beyond the operation in brand reputation, sales, marketing, and more. Employee injuries, illnesses, and environmental incidents — the hallmarks of EH&S — are an ethical, legal, and financial responsibility everyone must deal with. These issues are further compounded by the need to address the growing concern of removing hazardous materials from products. In March of 2013, Aberdeen surveyed 141 executives about their EH&S procedures and the interconnected business process that they have implemented to address these pressures (Figure 1).

Figure 1: Pressures Driving a Focus on EH&S



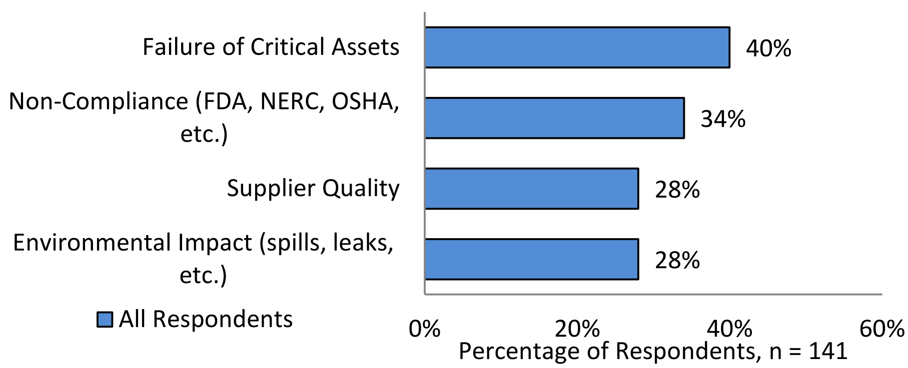
Source: Aberdeen Group, March 2013

Analyst Insight

Aberdeen's Insights provide the analyst's perspective on the research as drawn from an aggregated view of research surveys, interviews, and data analysis.

This year, two-thirds of surveyed organizations chose compliance as a top market pressure, followed by the risk of an adverse event as a distant second at almost half of respondents. As new regulations evolve, internal and external stakeholders must increasingly direct their attention to sustainable business; the need to stay in compliance with these regulations is top of mind for these companies. And for good reason, as the consequences of not being in compliance with EH&S regulations can be drastic. The impact of non-compliance can include penalties, fines, damage to the brand image, erosion of shareholder value, plant shutdowns, and even, in the worst cases, fatalities. While it is not a surprise to see compliance as the top market pressure, as it has been for the past three years, there is a sizeable drop from last year, when compliance ranked at 80%. However, as shown in the research, manufacturers feel an increased focus on risk in their operations. EH&S risks not only threaten the health and safety of employees, but also the business as well (Figure 2).

Figure 2: Risks with the Highest Impact



Source: Aberdeen Group, November 2012

When asked about which risks had the biggest impact on their organization, Aberdeen found that manufacturers juggle a multitude of risks, without any single one being the most dominant. Because of this, it has become extremely challenging for manufacturers to identify and reduce the impact of risk to the organization. Additionally, as the number of organizational and geographic "silos" for risk and compliance information and analysis grows, it becomes virtually impossible to manage risks with homegrown solutions or on a disjointed, inconsistent basis.

"EH&S has seen its budget rise and receive board endorsement giving it more legitimacy across the company."

~ EH&S Staff, Large Utilities Company

While managing the failure of critical assets proved to be the top pressure, it is telling that non-compliance, environmental, and supplier issues — all environment, health, and safety risks — come in so high. In late March 2013, a global oil company was fined 1.7 million US dollars for safety violations linked to a pipeline rupture that dumped 63,000 gallons of crude oil into a local river. Investigators said the size of the spill could have been reduced by about two-thirds if pipeline controllers had acted quicker. This fine is on top of the 135 million dollars that was spent on cleanup and repair work.

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Adverse events like these wreak havoc on a company, not only in hard costs like fines and penalties, but in soft costs like tarnishing your brand image.

Defining the Best-in-Class

Aberdeen used four key performance criteria to distinguish the Best-in-Class from Industry Average and Laggard organizations. The metrics used to determine the leading companies are critical to measuring the success of any EH&S program. Not only are metrics around workforce and workplace safety taken into consideration, but also indicators that distinguish organizations that perform as leaders in defining productivity and operational metrics.

- **Recordable injury frequency rate** is expressed as the number of injuries recorded per 100 full time employees per year.
- **Operating margin versus corporate plan** is measured as the percentage difference between last year's actual operating margin and target operating margin.
- **Overall Equipment Effectiveness (OEE)** is a composite metric accounting for availability, performance, and quality averaged over all assets (no penalty for unproductive assets when the asset has scheduled down time).
- **Audit action items completed on-time** is defined as the percent of time audit action items are completed on time.

Table 1: Top Performers Earn Best-in-Class Status

Definition of Maturity Class	Mean Class Performance
Best-in-Class: Top 20% of aggregate performance scorers	▪ 0.18 Injury Frequency Rate ▪ +23% Operating Margin vs. Corporate Plan ▪ 90% Overall Equipment Effectiveness (OEE) ▪ 98% Audit Action Items Completed On Time
Industry Average: Middle 50% of aggregate performance scorers	▪ 1.01 Injury Frequency Rate ▪ +4% Operating Margin vs. Corporate Plan ▪ 82% Overall Equipment Effectiveness (OEE) ▪ 90% Audit Action Items Completed On Time
Laggard: Bottom 30% of aggregate performance scorers	▪ 2.21 Injury Frequency Rate ▪ -4% Operating Margin vs. Corporate Plan ▪ 69% Overall Equipment Effectiveness (OEE) ▪ 70% Audit Action Items Completed On Time

Source: Aberdeen Group, March 2013

Fast Fact

Of the 141 organizations polled, 11 indicated that they had zero recorded injuries for the past year — all were Best-in-Class.

In other words, 40% of the Best-in-Class ensured that all of their workers left work the same way they came in.

Zero incidents is not a dream, it is a reality.

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Addressing the Pressures

Figure 3 highlights the different approaches that companies take to deal with the pressures in Figure 1. With compliance continually being the top pressure faced by manufacturers, it is no surprise to see everyone build compliance into their business processes. However, as the sidebar shows, the Best-in-Class take this initiative a step further and create cross-functional teams to further ensure compliance. By comprising teams from various groups, like procurement, engineering, manufacturing, and the supply chain, the Best-in-Class combine the knowledge and viewpoints from multiple areas — one small change in your operations can affect all these areas. When coupled with the fact that the Best-in-Class are more than twice as likely to invest in a knowledge base to keep up to date with all regulatory requirements, it is no wonder the Best-in-Class outperform their peers.

Fast Fact

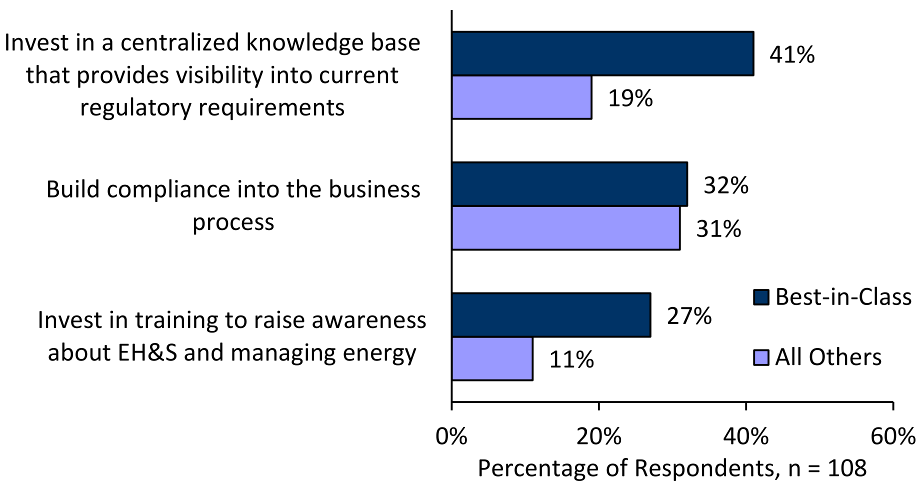
Established cross-functional team to ensure compliance from design, sourcing, delivery, and disposal of product:

√ Best-in-Class – 73%

√ Industry Average – 37%

√ Laggards – 33%

Figure 3: Strategic Actions



Source: Aberdeen Group, March 2013

"The biggest thing our company is doing is to integrate EH&S into our culture. EH&S is not an add-on to our business, it is how we do business."

~ Paul Kleinen, VP Product Development, Bredero Shaw

Where the Best-in-Class really differentiate themselves from their peers is in their efforts to raise risk awareness. Not only is appropriate training and instruction needed for employees working directly with hazardous machines or processes, but all employees should be aware of the risks. Regular training is needed to reinforce this awareness and to make sure all safety procedures, policies, and methods are adhered to and still effective. By providing effective training, a company fosters a safety-focused workplace culture where employees focus not only on their individual well-being but the well-being of their coworkers. Visual or audible reminders, like additional signs or annunciators near potential risks can go a long way to promote awareness. A sign or board indicating the number of days worked without an incident also further cultivates this focus on safety. This commitment to training, coupled with the executive sponsorship the Best-in-Class provide (see sidebar), really stresses the importance of environment, health, and safety to the workforce and is key to meeting corporate goals.

Fast Fact

Established formal program endorsed by executive sponsorship:

√ Best-in-Class – 62%

√ Industry Average – 59%

√ Laggards – 31%

Case-in-Point

Take for example a multi-billion dollar power and automation supplier, headquartered in Europe, with over 145,000 employees, and operations in over 100 countries. In 2004 this company choose to put in place a formal EH&S structure, which consisted of management systems and some high level processes and procedures. This push was driven from the C-level down, as there were more and more requests from shareholders and directors asking for metrics on sustainability (GRI) and health and safety in their annual report.

"Safety culture is key to the overall strategy for areas to look at. If you asked me 10-15 years ago I would not think the safety culture would have a role in improving the process, and data is very important to this culture improvement."

~ V.P. of Safety & Health, Large Power and Automation Supplier

This company had no formal Health and Safety system in place prior to 2004; there were no standards or safe work practices. After a formal structure was put in place, they started to take targeted initiatives in regards to safety. The organization implemented initiatives that were aimed towards changing the culture and behavior of workers to promote a safer work environment. In addition, the company launched a global occupational health and safety (OHS) database and provided safety training online to their employees. By implementing these initiatives, they fostered an interdependent safety culture that results in zero incidents by choice instead of by chance.

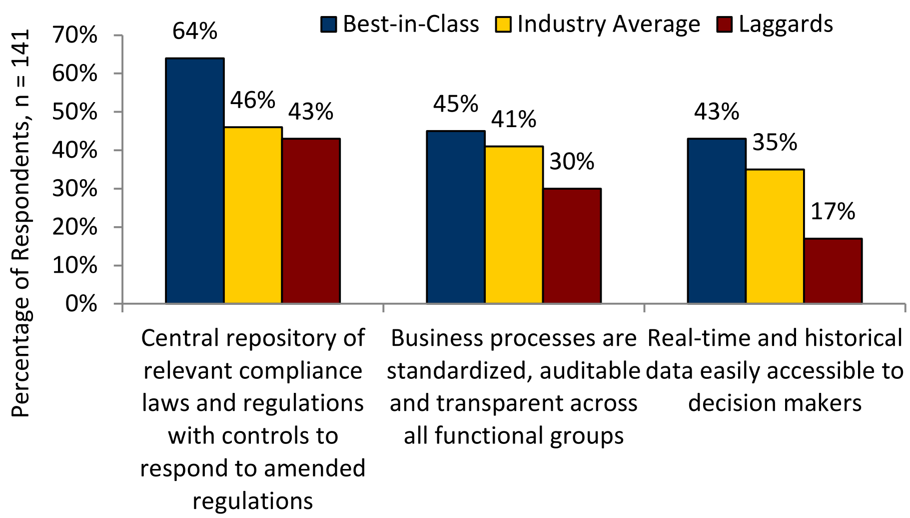
In the beginning of 2012, this company decided to invest in an integrated Safety Management System to track near misses and audits, as well as reasons why an incident occurs. The main goal of this investment was to improve overall efficiency and reduce costs. They were using internal data collection processes and Excel spreadsheets to manage their data. If they had to report workers compensation, they had so many different processes to complete the action, having to input the same information two or three times, now they only need to input the information once and it gets fed into all relevant systems. This integrated management system or database is what allows this company to now record, track, and manage data. They are now able to look at Pareto charts, conduct analysis, and better predict where safety incidents are likely to occur. Currently this system is in a pilot program, implemented in the North American group of the organization, to debug and optimize the process. As the V.P. of Health and Safety explains, "This Safety Management System has provided more efficient and consistent data, for the first two years the estimated savings will be 1.4 million dollars." Moving forward, the company will look to further implement this system to all modules in their business, with two-thirds of the applications implemented by the second quarter of 2013, and 2014 being the target date for all applications to be rolled out to all business units.

Business Capabilities

To understand why Best-in-Class organizations have such successful EH&S programs it is important to look at what business capabilities they adopt that their competition doesn't. With constantly changing laws and regulations, complex business processes, and the large amounts of data generated in manufacturing, it can be a nightmare to manage EH&S.

However, as Figure 4 shows, the Best-in-Class realize the benefit of providing visibility to address these issues.

Figure 4: Enabling Visibility



Source: Aberdeen Group, March 2013

The first step that differentiates the Best-in-Class is the fact that they leverage their own central repository by including controls and workflows that will alert them of changes to regulations. This allows for any immediate analysis of any regulatory change and action to be taken to ensure that all products and processes can update to stay in compliance. The Best-in-Class also realize the importance of providing their decision makers with data. Not only do they provide past EH&S performance, but also real-time data so that what occurs at any moment can be cross-referenced with historical performance. This provides decision-makers with the ability to make the right choices faster, as well as optimize and improve processes. The Best-in-Class are 2.5-times more likely than Laggards to provide this data access.

To make sure that compliance is adhered to throughout all functional groups, all business units need to follow the same processes in the same manner. Top companies standardize these processes throughout all groups and make sure they are followed through regular audits as well as provide transparency into business-unit performance. This allows for consistency in an unpredictable environment.

"The best thing we did was create regional compliance offices across business units. These professionals have expertise above the facility level and can also support facilities during personnel turnover or other change management."

~ Director, Large Consumer Packaged Goods Manufacturer

Additional Data Capabilities

EH&S data is stored in a central location:

√ Best-in-Class – 62%

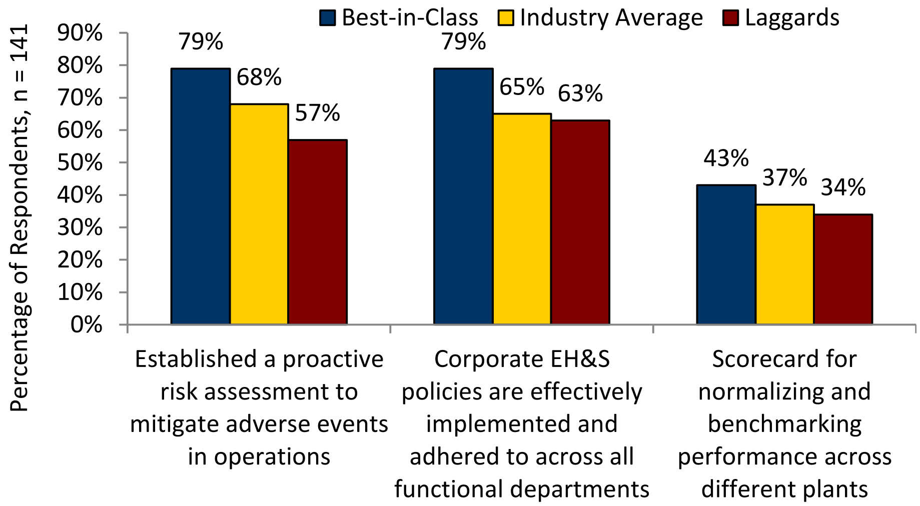
√ All Others – 51%

EH&S metrics are monitored automatically:

√ Best-in-Class – 38%

√ All Others – 31%

Figure 5: Getting a Holistic View



Source: Aberdeen Group, March 2013

Taking the enforcement of their processes a step further, the Best-in-Class also have a process in place to make sure that their corporate mandates are adhered to. All departments need to be on the same page and following the same policies to reach the goal of compliance. All it takes is one group deviating from a policy to put the entire enterprise at risk. One of the most important capabilities the Best-in-Class possess is a way to compare performance in all their plants. By having a normalized scorecard, companies can identify problem areas and allocate the right resources to determine and amend the problem. Scorecards like this provide an enterprise-wide, holistic view of EH&S performance.

Being proactive in your risk assessment is essential to mitigating adverse events. There is an inherent challenge in conducting a risk analysis without a formal risk management strategy or the necessary supporting tools. This is because the variables in an industrial environment are often difficult to define and quantify. By proactively identifying and addressing risks, organizations ensure and create value for their stakeholders, employees, and customers.

"The most successful action our company has taken is to implement a consistent EH&S auditing program. This ensures all sites use the same format and audit against applicable regulations."

~ EH&S Manager, Medium Chemical Company

Focusing on Suppliers to stay in Compliance

Assessing / tracking of compliant suppliers:

√ Best-in-Class – 67%

√ All Others – 39%

Procurement team establishes best practices for sourcing from compliant suppliers:

√ Best-in-Class – 67%

√ All Others – 40%

Automated requests to supplier for material disclosure:

√ Best-in-Class – 33%

√ All Others – 26%

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Table 2: Approach to Managing Risk

Risk-Specific / Governance-Driven	Best-in-Class	All Others
Risk Management is closely linked to insurance	43%	51%
Risks are seen as events — mostly with negative consequences	29%	38%
There are inconsistent approaches for managing different types of risk	21%	29%
Risk Management is stimulated or motivated by reporting	7%	26%
Enterprise Wide	**Best-in-Class**	**All Others**
Risk Management is culturally driven	43%	31%
Risk Management processes are integrated in all key organizational processes	36%	30%
Risk Management is about gaining strategic advantage	29%	21%
Risk Management is implicit in all decisions	29%	25%

Source: Aberdeen Group, March 2013

In order to make meaningful and better decisions to reduce the impact of an adverse event, risks need to be identified, quantified, and prioritized across all functional areas of the operation. Naturally, events will occur — but it is better for organization to be prepared and better able to have a contingency plan to not only react to, but more importantly, contain the event so that it doesn't become a bigger issue. As Table 2 shows, the Best-in-Class and All Others have two different approaches to managing risk — the first utilizing an enterprise wide approach, while the other resorts to specific events or governance to drive their focus on risk.

The biggest difference between these two approaches is the efficiency seen for the risk management process (returns versus efforts). By factoring in risk throughout the enterprise, the Best-in-Class make sure risk is factored in every step of the way. Ingraining risk into the culture of an organization and making it integrated in all of a company's processes will get a clearer picture of the risks affecting each business group, and make the company more able to manage and mitigate these risks.

Enabling Technologies

Investing in technology to gain access to critical information on the plant floor is a significant differentiator for Best-in-Class performance. Best-in-Class companies are more likely to invest in enterprise wide solutions to ensure that information is collected in a central location and decisions are made from a single version of the truth (see sidebar).

Software Implemented

The Best-in-Class also lead the charge in adopting the following software to support their program (Best-in-Class vs. All Others):

√ EH&S – 55% vs. 48%

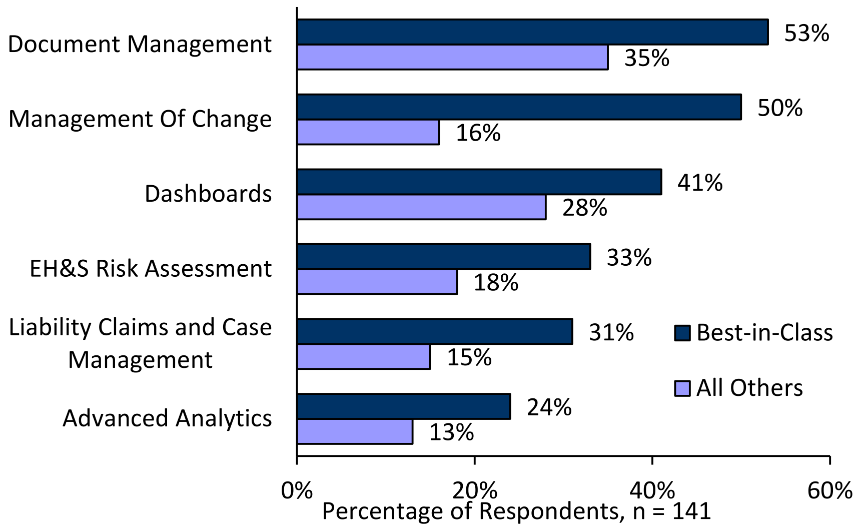
√ Enterprise Asset Management (EAM) – 45% vs. 21%

√ Supply Chain Management (SCM) – 41% vs. 42%

√ Manufacturing Operations Management (MOM) – 36% vs. 25%

√ Sustainability Management – 18% vs. 12%

Figure 6: Technology Enablers



Source: Aberdeen Group, March 2013

This research highlights some of the key modules that differentiate Best-in-Class performance (Figure 6). Since being in compliance is top of mind for executives across different industries, the Best-in-Class ensure the accuracy and timeliness of information by being 51% more likely than their competitors to invest in a document management solution. When an organization performs an audit, a document management system ensures that the right data is captured, stored correctly, and easily accessible for future reference. A document management system is thus critical to reduce the risk of non-compliance and reduce the cost of compliance.

As mentioned earlier, there is an enormous amount of data created from EH&S processes. The Best-in-Class take this real-time data and derive trends and insights by leveraging analytics and dashboards. Rather than relying on multiple spreadsheets to view this information, the Best-in-Class have invested in dashboards and analytics tools to be able to quickly and easily pull the necessary data to view the environment, health, and safety KPIs of all their facilities and develop actionable intelligence.

The Best-in-Class are also more than three times as likely to have in place a form of change management in their operations. This is critical for any company looking to limit their risk profile and stay in compliance. The smallest change in operations can have potentially catastrophic results down the line — which most likely would not be discovered until it is too late.

"Our company has been focusing on automation to reduce spreadsheet reliance for EH&S event tracking. This has made it easier for EH&S to keep on top of events and due dates. This process has yet to be rolled out to all staff, so EH&S is primarily driving the system."

~ EH&S Staff, Medium Pharmaceutical Manufacturer

Leveraging Mobility

Bar code and RFID capabilities used for automated data collection:

√ Best-in-Class – 32%

√ All Others – 11%

Mobile devices to report safety and quality issues:

√ Best-in-Class – 36%

√ All Others – 15%

Mobile devices used to manage audits:

√ Best-in-Class – 23%

√ All Others – 12%

Mobile devices used to manage change requests:

√ Best-in-Class – 14%

√ All Others – 8%

Mobile devices used to conduct audits:

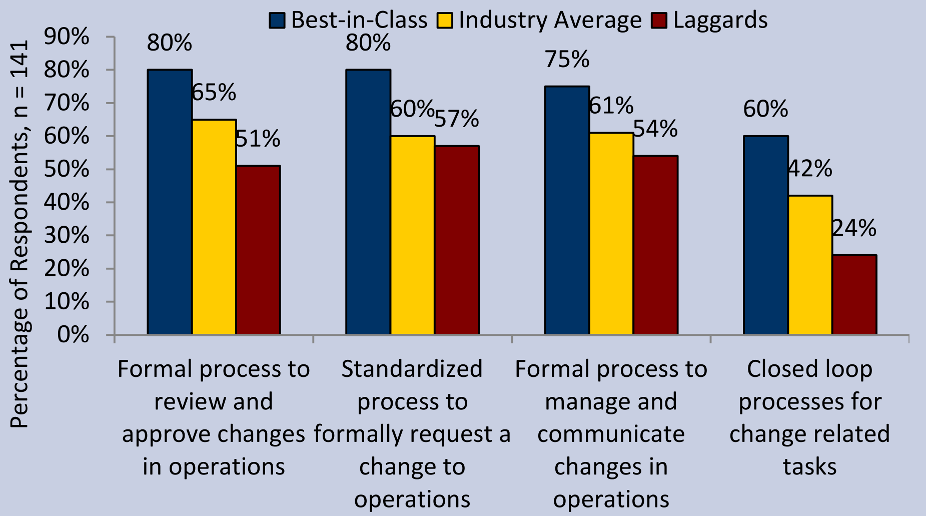
√ Best-in-Class – 23%

√ All Others – 15%

Aberdeen Insights — Managing Change

In fact, the Best-in-Class further their management of change by taking a systematic, closed loop approach. The Best-in-Class understand the importance of having a formalized change management request strategy and have implemented such a framework for their EH&S program (Figure 7).

Figure 7: Management of Change



Source: Aberdeen Group, March 2013

The Best-in-Class have a standardized process to formally request a change in operations whether it occurs in equipment, manufacturing process, or materials. Following that, they have a formal process to review and approve changes in operations. In doing so, they go through the proper channels to ensure that if the change is made, it won't impact the business. Once a change has been approved, the Best-in-Class are also more likely to make sure that it is communicated across the organization, followed by having a formalized closed loop process. In doing so, the Best-in-Class ensure that change is not only communicated but also implemented and adhered to.

The overall adoption rate of all the technologies mentioned is not high even for Best-in-Class companies. However, a big percentage of companies have plans to invest in these solutions in the near future to enable visibility into their EH&S initiatives. Companies should invest in these solutions to efficiently manage the massive amounts of complex data related to energy, environment, safety, and compliance and provide employees and executives the ability to make connections between the day-to-day tactical operations and the overall strategic business goals.

"Dealing with organizational change management (people) issues such as communication and training has been a major challenge for our organization. Standardizing EH&S and Sustainability processes across the company has helped to deal with this issue."

~ Corporate Management Executive, Small IT Services Company

Key Takeaways

With the tightening of budgets, managers are asked to do more with less. Because of this, EH&S can take a backseat in the minds of executives and not receive the necessary attention as other functional groups. But, Best-in-Class organizations realize focusing and ingraining EH&S into the company's culture is not only a compliance measure, there are also tangible operational benefits. Employees must return home the same "healthy way" that they came in, and companies need to realize that zero incidents is a very attainable goal. Organizations looking to successfully manage the complexities of EH&S should:

- **Establish executive leadership for EH&S.** The vision of EH&S needs to be developed at the top level. It is extremely difficult to implement changes in strategy, processes, and collaboration without the buy-in and support of true budget and authority holders. Best-in-Class companies are twice as likely as Laggards to have established a high level executive role solely responsible for driving EH&S initiatives across the enterprise.
- **Establish standardized policies to minimize risk of business interruption due to EH&S events.** In order to effectively mitigate risks related to EH&S, organizations need to establish standardized business processes to proactively manage adverse events. This includes setting responsibilities and steps to take in case of adverse events. This will help contain the losses and prevent EH&S incidents in the plants.
- **Implement an Enterprise-Wide Risk Management Strategy.** There is a broad spectrum of risks facing organizations and it can be a nightmare to manage all the complexities encountered. Risks vary by department and how each are dealt with usually varies as well. By managing risk enterprise-wide a company will develop a unified picture of risk for decision makers and improve the organization's ability to manage their risks effectively.
- **Invest in a Document Management Solution.** A robust document management system helps manage the massive amounts of complex data related to energy, environment, safety, and compliance. The only way to keep track of this data, most of which may be stored on a paper based system, is to have a centralized, searchable, database.
- **Create a Closed Loop Process to Manage Change.** Best-in-Class companies understand the importance of having a formalized process to request, approve, and communicate changes across the value chain. Incidents, injuries, and unscheduled downtime often occur when someone within the value chain makes a change without understanding the business impact.

For more information on this or other research topics, please visit www.aberdeen.com

Related Research	
Compliance Management in Environment, Health and Safety: Europe versus North American Manufacturers; June 2012 Energy and Carbon Management: A Roadmap for Sustainable Production; July 2012 Machine Safety: The Correlation between Safety Systems and Productivity; March 2012	Environment, Health and Safety: Going Beyond Compliance; April 2012 Best Practices in Managing Compliance in Environment, Health and Safety; January 2010 Compliance Management in Environment, Health and Safety; April 2011 A Risk Management Approach for Improving Safety and Productivity; February 2011

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