SIMPLIFYING THE AUDIT AND INSPECTION PROCESS TO IMPROVE SAFETY

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Report Highlights

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The top challenge experienced by companies today is a lack of resources within the organization dedicated towards safety.

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Best-in-Class companies focus on standardizing their business processes to make audits and inspections easier to conduct.

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Best-in-Class companies are over two times more likely than their peers to utilize mobile devices when performing audits and inspections.

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The proof is in the performance, Best-in-Class have 98% of their audit action items completed on time, their competitors... only 84%.

Based on the experiences of over 175 organizations, this report will explore how Best-in-Class companies simplify their audit and inspection process to reduce repeat mistakes and drive down overall risk. The research focuses on the role collaboration, standardization, and technology play in improving safety performance.

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> **Audits and inspections have a tendency to be viewed as a chore in most companies, not a critical function for safety and compliance. This inertia must be overcome to be successful.**

Top Pressures Driving Focus on Safety

Ensure compliance to regulations:
- All Respondents - 65%

Concern over the risk of an adverse event:
- All Respondents - 44%

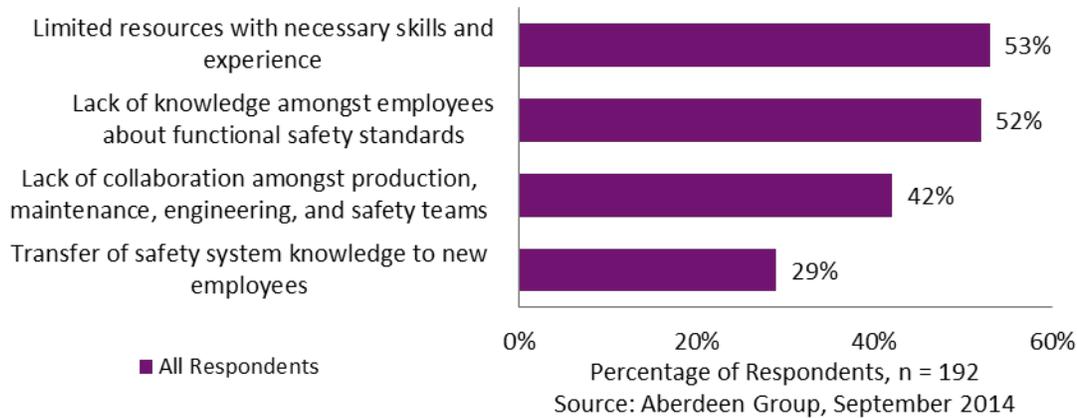**Reduce manufacturing cost**:
- All Respondents - 21%

Improve manufacturing efficiency:
- All Respondents - 14%

Investments in safety are more than just cost avoidance measures. Today, safety must be considered vital not only to the health of your employees, but also to the health of the business. Companies that are not working to eliminate incidents and comply with safety mandates are introducing large amounts of risk into their organization. This realization by Best-in-Class companies has driven a rethinking in the way they approach safety audits & inspections. Best-in-Class companies have recognized the benefits of streamlining this process and making safety the responsibility of everyone within the organization.

The Role of Audits / Inspections and Safety

In the past, those responsible for operations focused on cost cutting and production efficiency and those responsible for safety focused singularly on safety. However, in recent years, safety and operational excellence have become intertwined. Leaders in the industry are looking at new ways to have the best of both worlds – a safer work environment for employees and optimized productivity. These companies aim to transform their business into one that strives to achieve optimal performance while preventing all incidents. Incidents and compliance citations can be viewed as a form of waste that can be identified and targeted for removal (see sidebar). Audits & Inspections programs provide an integral tool for measurement and evaluation of safety and operational performance.

However, audits and inspections are frequently viewed as a chore – action items that are easily de-prioritized or completely ignored. There are many reasons for this mindset to be prevalent, but it can all be traced back to the internal barriers and silos most companies unknowingly build when constructing their audits and inspections program. The top challenge

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identified by respondents is a lack of resources within the safety organization (Figure 1).

Figure 1: Safety is Everyone's Responsibility

Limited resources with necessary skills and experience — 53%
Lack of knowledge amongst employees about functional safety standards — 52%
Lack of collaboration amongst production, maintenance, engineering, and safety teams — 42%
Transfer of safety system knowledge to new employees — 29%

■ All Respondents

Percentage of Respondents, n = 192
Source: Aberdeen Group, September 2014

Safety investments can be the most difficult to justify because most companies aren't aware they are operating in an unsafe manner until an incident occurs. Limited human resources not only impact safety teams, Aberdeen research has shown that companies are impacted by this demographics issue across all functional groups. This causes companies to rely on less experienced personnel throughout their operations. These employees are limited in their knowledge of company policies and best practices for safety. Combined with the fact that implemented safety systems are often far from intuitive, finding operators with the right skill sets can be challenging. All of these obstacles are interdependent and form an environment where operating safely is difficult.

To improve the audit and inspection process, companies must look for ways to start addressing these roadblocks. The underlying issue is that companies struggle to get the message across that safety should be every employee's responsibility. Audits and inspections are a critical function for safety and this inertia must be overcome to be successful.

Best-in-Class:
For the purposes of this study, Best-in-Class companies are the top 20% of those surveyed who have outperformed their peers in recordable injuries, efficiency, and TCO for safety.

"One of our top challenges included finding appropriate resources to be members of the project team. By adding production engineers who understand the process, we are able to develop Safety System scopes that do not have to be revised multiple times."

~ Process Safety Manager, Medium Chemical Company

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Definition for the Key Performance Indicators

- **Recordable Injury Frequency Rate:** Expressed as the average number of recordable injuries per 100 full-time employees per year

- **Overall Equipment Effectiveness (OEE):** Measured as a percentage by multiplying availability times performance times quality

- **Unscheduled Asset Downtime:** Measured as the amount of unscheduled time the asset is offline against total asset availability due to a safety or environmental incident

- **Total Cost of Ownership (TCO):** percent change in total cost of ownership to manage your safety system over the last 12 months

Defining the Best-in-Class

Aberdeen used four key performance criteria to distinguish the Best-in-Class from Industry Average and Laggard organizations. These metrics measure the success of an organization's safety management system not only in terms of how it has limited incidents, but also how successful these companies are from an overall business perspective. This is outlined in Table 1 below.

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	0.1 Recordable Injury Frequency Rate 90% Overall Equipment Effectiveness (OEE) 2.3% Unscheduled asset downtime is due to safety or environmental incidents 7% Decrease in TCO to manage safety systems
Industry Average: Middle 50% of aggregate performance scorers	0.5 Recordable Injury Frequency Rate 83% Overall Equipment Effectiveness (OEE) 4.3% Unscheduled asset downtime is due to safety or environmental incidents 2% Increase in TCO to manage safety systems
Laggard: Bottom 30% of aggregate performance scorers	1.7 Recordable Injury Frequency Rate 70% Overall Equipment Effectiveness (OEE) 8.1% Unscheduled asset downtime is due to safety or environmental incidents 4% Decrease in TCO to manage safety systems

Source: Aberdeen Group September 2014

Performance on the four metrics outlined in Table 1 link directly to the success of a company's safety endeavors. They have a miniscule injury frequency rate and reduced TCO, all while maintaining superior levels of productivity. The numbers speak for themselves; the Best-in-Class are clearly doing something right when it comes to safety and limiting incidents.
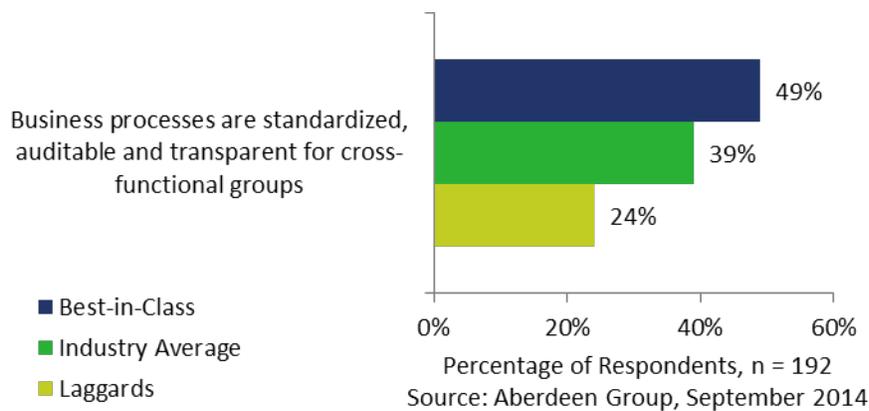
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Rethinking Audits and Inspections

The current operating environment for these companies has strained workforce that is unaware of safety procedures. Safety cannot be managed in a siloed and independent manner, but rather must be treated holistically. This has caused Best-in-Class companies to focus on standardization for cross-functional teams to improve the overall performance of the organization (Figure 2).

"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

Figure 2: Standardizing the Process

Business processes are standardized, auditable and transparent for cross-functional groups

- Best-in-Class: 49%
- Industry Average: 39%
- Laggards: 24%

Percentage of Respondents, n = 192
Source: Aberdeen Group, September 2014

This action brings two main benefits; improved awareness and accountability across these groups and breaking down the knowledge silos that can naturally form in most companies. This is important to start changing the mindset that audits and inspections are a secondary task. Also, if the actual process to complete these actions is still too tedious, employees will revert back to their old ways of thinking. The second benefit of standardization is that it ensures that everyone conducts audits and inspection with the same approach. This allows for consistency in an unpredictable environment and for processes to be easily audited. This lowers the "barrier for entry" when it comes to conducting audits and inspections. This action alone increases the number of employees available to perform

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"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 Manufacturer

## Automating Audit / Inspection Management

Best-in-Class companies were found to be 54% more likely than their peers to automate their audit and inspection management through the use of software (43% vs. 28%)

audits/inspections. Also, employees with less experience and from other groups have an easier time performing their own safety related tasks. As outlined earlier in this report, a lack of resources and safety knowledge were the top two challenges companies are combatting today. Standardization of processes for cross-functional teams is what Best-in-Class companies rely on to win this battle.

Even with standardized processes and cross-functional teams, managing the day-to-day logistics, as well as long-term goals of the audit and inspection process can be a daunting task if the right system is not employed. The research shows that Best-in-Class companies are 54% more likely than their peers to automate the management of their audit and inspection processes (see sidebar). This system helps the Best-in-Class drive the execution and awareness of the process and ensures that skipping or fudging of the more mundane tasks does not occur. Also, the use of software allows the audit and inspection process to be fluid and flexible, so as your company evolves so can your SMS. A manual or paper-based system simply cannot keep up with the demands and requirements of an effective audit / inspection program.

However, standardization and automation are not all that is needed to improve. A large component of the overall success of a company's audit and inspection processes, as well as overall safety program, is converting information and insight into action. If a company does not have visibility into their performance then there is no way to effectively identify unsafe conditions or practices that may be present. This notion is supported by the research; Best-in-Class companies clearly have an advantage when it comes to visibility into audit and inspection performance (Figure 3).

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Figure 3: Collecting and Storing Data
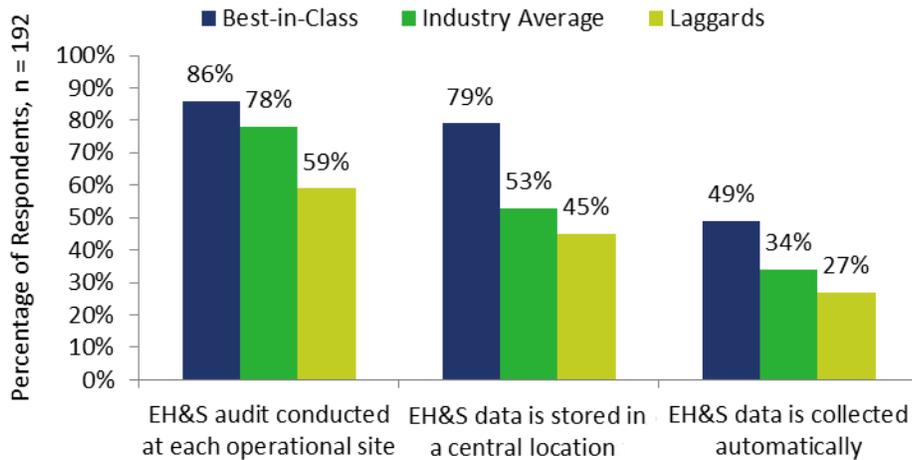
Source: Aberdeen Group, September 2014

Further, Best-in-Class companies are more proactive about their audits, making sure they are conducted at each operational site. Al l other organizations rely on more of an ad-hoc system where audits are only conducted sporadically. The combination of these capabilities simplifies the audit and inspection process, setting Best-in-Class companies up for success.
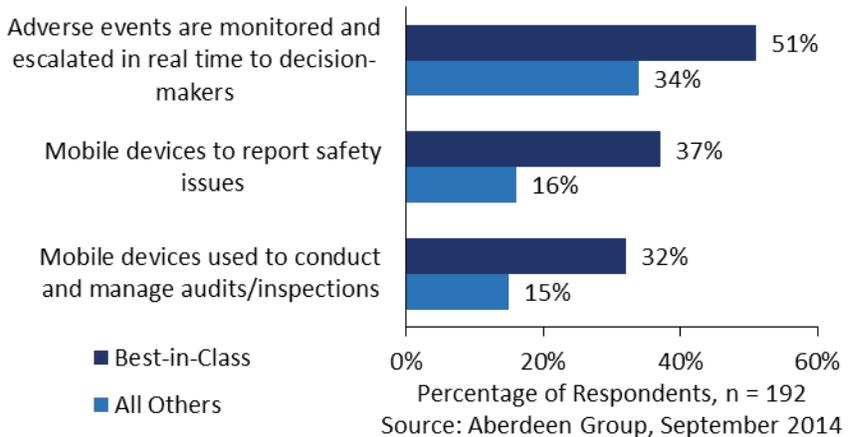
Introducing Technology to Further Improve

The overall goal of every company should be ensuring that the audit and inspection process is not so onerous that employees want to avoid it. A key factor for that is introducing enablers to speed up the process. Aberdeen research has consistently shown that mobilizing an application provides better ease of use and greater overall adoption of the business process as a result. This holds true for Best-in-Class companies when it comes to audits and inspections, as they are over two times more likely than their peers to utilize mobile devices for this safety process (Figure 4).

"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

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Figure 4: Simplifying the Process

Adverse events are monitored and escalated in real time to decision-makers: Best-in-Class 51%, All Others 34%

Mobile devices to report safety issues: Best-in-Class 37%, All Others 16%

Mobile devices used to conduct and manage audits/inspections: Best-in-Class 32%, All Others 15%

■ Best-in-Class
■ All Others

Percentage of Respondents, n = 192
Source: Aberdeen Group, September 2014

Conducting an audit or inspection through a mobile device gives workers a standardized platform to work on, which is much easier to use. A user-friendly mobile application combined with standardized business processes further enables employees from any functional group to conduct their own audit or inspection and identify any issues that may arise. This encourages workers to make this process part of their daily routine, instead of a task they *have* to do. Also, mobilizing provides improved efficiency gains by eliminating traditional paper-based auditing systems and the need to go back to work stations to turn in the results. With the majority of companies dealing with limited resources for safety, this benefit should be taken into account when exploring mobile applications.

The Best-in-Class also have mobility touching on the reporting side of safety. The Best-in-Class are able to escalate events quickly, which allows for immediate action to be taken and thus reduce the effect of an incident. Tasks will be created, emails sent out to those who need be alerted, and reports produced immediately. This allows managers to optimize their resources and complete action items in a faster timeframe. Essentially, by incorporating mobility into their audit and inspection process,

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Best-in-Class companies make the work easier to complete, which means a "safer" safety program.

This formal management system that the Best-in-Class have implemented is a great tool to maintain compliance, analyze audit results, and identify gaps or areas for improvement. Drilling down further in to metric performance, it is clear that improving the timeliness of audit actions items brings direct improvements to the overall safety performance of a company (Table 2).

Table 2: Metrics Speak Louder than Words

Metric	Best-in-Class	All Others
Audit action items are completed on time	98%	84%
Change in the number of regulation citations	13% Decrease	1% Increase

Source: Aberdeen Group, September 2014

The proof is in the metrics, Best-in-Class have 98% of their audit action items completed on time, their competitors… only 84%. The Best-in-Class get their audits done on time at a higher rate and as a result they have fewer citations in their operations. In fact, when we compare the performance of companies who complete their audits on time versus those who do not, the correlation between timeliness of audits and compliance further stands out (see sidebar).

In February, 2015, OSHA handed out $1.76M in fines to a furniture manufacturer for willful and repeated safety violations (see sidebar below for further information). In addition to the fines, the company has been placed on the Severe Violator Enforcement Program, which means increased governance and inspections by OSHA. With the type of audit and inspection process that Best-in-Class companies employ, these violations could have been identified and remediated faster, before any incidents occurred. Issues are a reality in any industrial

Audits & Compliance

- *Audits completed on time*: **9% Decrease in citations**

- *Audits not completed on time*: **7% increase in citations**

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Safety Cannot be Sacrificed

In a three-and-a-half year period, 4,500 employees experienced more than 1,000 work-related injuries.

After an incident involving loss of limb, the U.S. Department of Labor's Occupational Safety and Health Administration conducted an inspection of the facility. Investigators identified 12 willful, 12 repeated and 14 serious safety violations, carrying a total of $1,766,000 in penalties.

For further information, read the full press release from OSHA.

environment; streamlined management of these processes play a vital role in efficient and safe operations.

Key Takeaways and Recommendations

While the need to reduce costs and stay productive is constant for any company, compliance and the risk of an adverse event are still top of mind. By realizing that audits and inspections are not just chores, but rather critical processes that enable compliance and safety, companies will begin to see improvements in performance. With the lack of resources dedicated and focused on safety, this can be a hard mindset to break. Successful companies have built audit and inspection processes that are easy to conduct and properly managed. Companies looking to emulate the Best-in-Class and implement a simplified yet effective audit and inspection system should:

➔ Form cross-functional groups to align the business and reinforce a safety culture that is cognizant of how important audits and inspections are.

➔ Standardize, automate, and monitor your business processes to lower the barrier for entry when it comes to conducting audits or inspections.

➔ Collect and store audit/inspection data automatically and in a central location – analysis can't be conducted on 3-ring binders of audit sheets.

➔ Simpler is safer. Make the audit process less of a hassle and more efficient through mobile tools with real-time alerts.

➔ Manage your audits and inspections through a formal system to ensure that action items are being completed and repeat incidents are eliminated.

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

Related Research
Managing Safety to Promote Operational Excellence; September 2014   _Operational Risk Management: Building a Framework to Identify, Assess, and Remediate_; February 2014

Managing Safety to Promote Operational Excellence; September 2014

JHA + Incident Management + Continuous Improvement = A Safety Culture; March 2014

Operational Risk Management: Building a Framework to Identify, Assess, and Remediate; February 2014

Safety Technology: Don't Wait Until it's Too Late; July 2013

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