

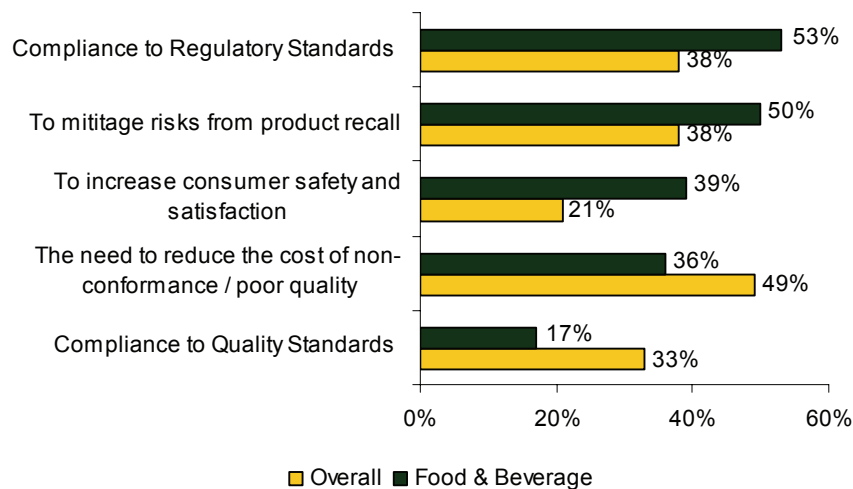
Compliance and Traceability: Food and Beverage Manufacturers

The factors driving Food and Beverage (F&B) manufacturers to focus on compliance and traceability are unique in that they are not simply tied up in compliance to regulatory standards (despite operating in a strictly regulated industry) or reducing costs, but are also concerned with the risk of product recalls and maintaining customer safety and satisfaction. In response to these pressures, F&B manufacturers have adopted many of the capabilities that Aberdeen Group's December 2007 *Compliance and Traceability in Manufacturing* found to be critical to an effective compliance and traceability program, often exceeding what Aberdeen found to be Best-in-Class performance. However, while these manufacturers have gone a long way to building traceability into production processes, they generally lack the visibility to respond effectively when incidents of non-conformance do occur.

A Unique Outlook on Compliance and Traceability

The pressures driving the F&B industry to focus on addressing compliance and traceability issues differ greatly from what was reported by the aggregate (Figure 1).

Figure 1: Top Pressures Driving Compliance and Traceability



Source: Aberdeen Group, December 2007

F&B manufacturers are considerably more likely to focus on compliance to regulatory standards (53%), risk mitigation (50%), and consumer safety (39%). By contrast, the overall population reported the need to reduce the cost of non-conformance and poor quality as the top pressure (49%). This is not surprising given the current state of media coverage and public opinion in regards to food safety. F&B manufacturers are under greater public scrutiny as an industry than their peers in other sectors. Not only are they

Sector Insight

Aberdeen's Sector Insights provide strategic introspective and analysis of primary research results by industry, market segment, or geography

Sector Definition

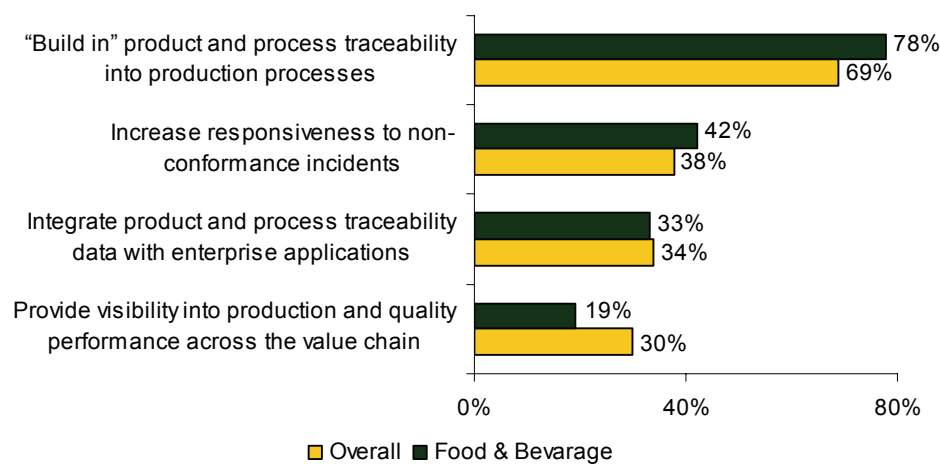
For the purposes of this study, respondents who indicated that they operated within the F&B space were isolated and aggregated for comparison against peer manufacturers across industries in Aberdeen Group's performance framework

held to regulatory standards, such as the Food and Drug Administration (FDA), but they must also maintain a high standard of product compliance and public perception of safety in order to compete.

Strategic Actions

While the factors driving F&B manufacturers to focus on compliance and traceability differ greatly from the greater population, the strategies they take to ensure compliance align closely with those of all manufacturers (Figure 2).

Figure 2: Strategies



Source: Aberdeen Group, December 2007

Interestingly, the two areas that see some differentiation are in actions that manufacturers adopt most and least frequently. While building product and process traceability into production processes is still the top pressure, overall, F&B manufacturers show a lesser focus in this area. However, in a related action, F&B manufacturers are more likely than other manufacturers to attempt to build in visibility across the supply chain. However, success will not solely be determined by the strategic actions taken but by how well they align with the market pressures faced and the capabilities adopted to support the success of these actions.

Aberdeen Analysis

To uncover how manufacturers address the aforementioned pressures, Aberdeen classified research participants into one of three performance categories. These include the top 20% of performances (the Best-in-Class), the bottom 30% of performers (Laggard), and the remaining 50% (the Industry Average). Four key criteria were used to measure and categorize the performance of respondents:

- **Percentage of products in compliance.** The percent of total products produced in compliance with internal production processes and regulations set up by governmental organizations.

- **First pass yield.** The percent of finished products that, on average, go through the production process the first time within the established specifications.
- **Response time to non-conforming shipment.** Given that a nonconforming product has shipped: the average time needed to locate and hold the product after the detection of a non-conforming incident.
- **On Time Delivery (OTD).** The percent of total products delivered on time per the originally promised delivery date.

Table I details the differentiation between Best-in-Class, Industry Average, and Laggard companies across these four metrics.

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

Definition of Maturity Class	Mean Class Performance
Best in Class: Top 20% of aggregate performance scorers	<ul style="list-style-type: none"> ▪ 98 % products in compliance ▪ 95 % first pass yield ▪ 96 % on time delivery ▪ 36 minute response time
Food and Beverage	<ul style="list-style-type: none"> ▪ 96 % products in compliance ▪ 94 % first pass yield ▪ 95 % on time delivery ▪ 7 hour 16 minute response time
Industry Average: Middle 50% of aggregate performance scorers	<ul style="list-style-type: none"> ▪ 94 % products in compliance ▪ 91 % first pass yield ▪ 91 % on time delivery ▪ 8 hour response time

Source: Aberdeen Group, December 2007

The F&B industry is performing well among these metrics, exceeding Industry Average in each category. This is interesting given the demands that are placed on the F&B manufacturers by the FDA and the media, which brink upon perfection. To reach this point, F&B manufacturers have invested in a great deal of the capabilities that differentiate Best-in-Class performance.

Building in Compliance and Traceability

Improvement in responsiveness to a product recall begins with standardized process for handling a product recall at the enterprise level. Food and beverage manufacturers have done a good job of positioning the enterprise for success in regards to both the standardization of processes and the organizational structure of the enterprise (Table 2). These manufacturers indicate that standardizing processes is necessary to handle product recalls and traceability programs by product line to a greater extent than the Best-in-Class. Standardization is a key component for many of the additional capabilities that have been shown to enable Best-in-Class performance, and standardization of these processes should be seen as a key starting point.

F&B manufacturers are also supporting strategic actions with executive level sponsorship of both traceability and risk mitigation initiatives as well as implementing continuous improvement teams to focus on product and process traceability. Here as well, they show adoption in excess of Best-in-Class performers.

Table 2: The Competitive Framework - Process and Organization

	Best-in-Class	Food & Beverage	Industry Average
Process	Standardized process to handle product recalls at enterprise level		
	63%	69%	52%
	Standardized traceability programs by product line / division		
	66%	78%	60%
Organization	Continuous improvement team focusing on product and process traceability across the enterprise		
	64%	67%	55%
	Executive ownership of product and process traceability initiatives across the enterprise		
	57%	63%	50%
	Executive ownership of risk mitigation initiatives across the enterprise		
	61%	70%	55%

Source: Aberdeen Group, December 2007

Knowledge Management

While F&B manufacturers have taken the steps to transform the organization in order to build in compliance beyond that of the Best-in-Class, they significantly underperform the Industry Average when it comes to having the knowledge management capabilities necessary to act effectively on instances of non-compliance. In particular, F&B manufacturers are less likely to automate data collection from both the plant floor and the supply chain. Similarly, they are less likely to leverage historical data as actionable intelligence, a key capability for root cause analysis and an effective NC / CAPA program.

These three attributes, considered in tandem, assure real time visibility both into the production process and across the value chain, enabling manufacturers to become more responsive to non-conformance incidents. Without these capabilities in place, F&B manufacturers report response times that linger at par with the Industry Average, even as they show near-Best-in-Class performance on the metrics such as of first pass yield and the percent of products in compliance.

Table 3: The Competitive Framework - Knowledge Management

	Best-in-Class	Food & Beverage	Industry Average
Knowledge Management	Plant floor quality data is collected automatically		
	54%	40%	43%
	Supplier quality data is collected automatically		
	35%	26%	34%
Knowledge Management	Historic information about non-conformance used as actionable intelligence		
	81%	51%	65%

Source: Aberdeen Group, December 2007

Technology Enablers

Despite lagging adoption of knowledge management capabilities, technology is another area where F&B manufacturers exhibit strong adoption. These manufacturers are near Best-in-Class levels in the adoption of key technology enablers, such as Manufacturing Execution System (MES), Enterprise Manufacturing Intelligence (EMI), Quality Management System (QMS), and Enterprise Resource Planning (ERP) applications. However, the area where they fall significantly behind is in the adoption of Supply Chain Management (SCM) tools, which unfortunately only continues to support the lack of investment in achieving traceability across the supply chain.

Table 4: The Competitive Framework - Technology

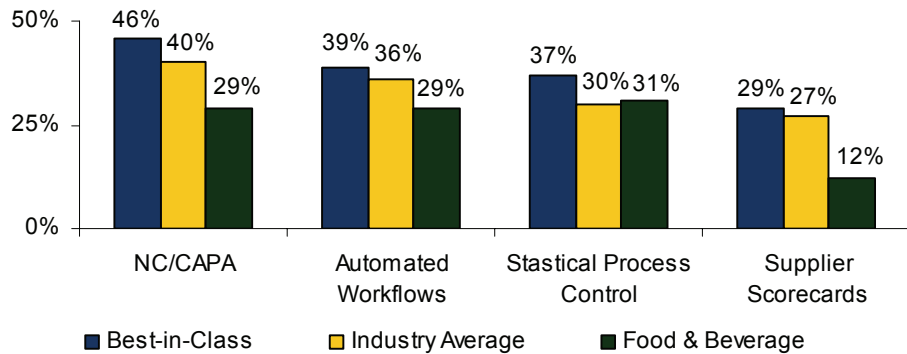
	Best-in-Class	Food & Beverage	Industry Average
Technology	Quality Management System (QMS)		
	86%	83%	79%
	Manufacturing Execution System (MES)		
	29%	29%	22%
	Enterprise Manufacturing Intelligence (EMI)		
	22%	18%	13%
	Enterprise Resource Planning (ERP)		
	62%	61%	51%
Technology	Supply Chain Management (SCM)		
	70%	51%	53%

Source: Aberdeen Group, December 2007

F&B manufacturers have done a good job of automating process and product traceability and those that have not yet achieved this should focus on doing such. However, many of the other key capabilities that support Best-in-Class compliance initiatives are not being adopted at the rate they should be. NC / CAPA programs, automated workflows, and SPC are all critical in an FDA regulated environment. Adopting these capabilities in an

integrated enterprise-wide fashion and leveraging their existing technology footprint is the next step for achieving and surpassing Best-in-Class performance.

Table 3: Technology Modules



Source: Aberdeen Group, December 2007

“Our key requirement for a traceability solution was around strong functionality, including the need for extensive demand and supply planning capabilities, as well as production and scheduling, traceability, and yield management. Meat products are high value consumable products, so the more you manage the yield, the better you can optimize margins which goes straight on the bottom line.”

~ James Feeney,
Chief Information Officer,
FoodCap International Limited

Required Actions

To achieve Best-in-Class performance and ensure complete traceability across the supply chain, F&B manufacturers should adopt the following recommendations:

- Continue to focus on the basic building blocks. Best-in-Class manufacturers are more likely to have standardized processes, executive ownership of compliance and traceability and risk mitigation, and continuous improvement teams focused on these issues.
- Continue to focus on building compliance and traceability into production processes. The Best-in-Class are more likely to have traceability and real-time visibility throughout the supply chain.
- Many F&B manufacturers already have an integrated enterprise-wide technology footprint that spans several technologies, MES, EMI, QMS, and ERP. Improving traceability initiatives requires following the lead of the Best-in-Class and integrating SCM to this stack as well.
- Building in compliance and traceability also requires additional, complimentary capabilities. Leverage the existing technology footprint to deliver non-conformance alerting, automated workflows, SPC, audit documentation, and SOP documentation. This will ensure complete compliance and traceability.

For more information, please visit www.aberdeen.com.

Related Research

[Compliance and Traceability in Manufacturing](#); December 2007

[The Cost of Quality: Benchmarking Enterprise Quality Management](#); July 2007

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