

Extending the Lean Enterprise

February 2008



Executive Summary

Enterprises of all types, from Tier 1 auto suppliers, to food and beverage manufacturers, and even to healthcare services firms, are focusing on Lean to reduce overall operating costs. Based on the survey responses of over 300 manufacturing and service industry professionals, Aberdeen has identified specific strategies for manufacturers to deploy at every stage along the Lean journey. These strategies characterize best practices in extending the Lean enterprise, managing Lean expertise and education within an organization, managing performance across operations, and effectively leveraging technology. The deployment of these best practices can be attributed to demonstrable performance benefits and should be leveraged when implementing and extending Lean within your organization

Research Benchmark

Aberdeen's Research Benchmarks provide an in-depth and comprehensive look into process, procedure, methodologies, and technologies with best practice identification and actionable recommendations

Best-in-Class Performance

The value of any Lean endeavor should be tied to the results that can be attributed to it. In the following analysis, Aberdeen uses three KPIs to identify Best-in-Class performance in Lean. Across these metrics Best-in-Class manufacturers averaged the following performances:

- 98% On Time Delivery (OTD)
- 93% Overall Equipment Effectiveness (OEE)
- 5% inventory costs as a share of revenue

This performance, when compared to Industry Average firms, accounts for 7% more on time deliveries, an 11% higher performance in OEE, and 64% lower inventory costs as a share of revenue. Clearly, the Best-in-Class are enjoying significantly lower operating costs, coupled with better customer service. The key to this benchmark study is in determining just how the Best-in-Class are achieving these results.

“We utilize Lean tools to reduce manufacturing time and eliminate waste in our manufacturing processes. We also utilize Lean six sigma to improve quality and minimize variations in our processes.”

~ David Money
DPM Industries, Inc.

Competitive Maturity Assessment

In addition to sharing similar performance, Aberdeen's analysis shows that the Best-in-Class also differentiate themselves by sharing common capabilities in several key areas of operation. These areas include: the extension of Lean across the enterprise and the use of supporting technologies. Specific examples of this differentiation include the following:

- Best-in-Class enterprises are 31% more likely than other enterprises to use consultants with specific vertical industry experience when implementing Lean
- Best-in-Class enterprises are 121% more likely than Laggard manufacturers to have expertise in Lean at the executive level
- Best-in-Class enterprises are 150% more likely than Laggard enterprises to be sharing collaborative best practices across the enterprise

- Best-in-Class enterprises are 206% more likely than Laggard manufacturers to be extending Lean to the supply chain
- Best-in-Class enterprises are 168% more likely than Laggard manufacturers to be using Business Intelligence (BI) to support Lean
- Best-in-Class enterprises are 233% more likely than Laggard manufacturers to be using Enterprise Asset Management (EAM) to support Lean

Required Actions

To achieve Best-in-Class performance, companies should:

- Extend the scope of Lean initiatives. The Best-in-Class are more likely to stay the course and remaining Lean for five years or more, extend Lean to all facilities, extending Lean to all levels of the organization, and extend Lean to multiple functional groups within the enterprise.
- Leverage external domain experts for Lean initiatives and ensure that consultants have specific domain experience. Of the Best-in-Class currently leveraging consultants, 93% leverage consultants with industry specific experience implementing Lean.
- Technology is the final differentiator of Best-in-Class performance. The Best-in-Class are integrating multiple technology solutions to extend the functionality of traditional enterprise applications supporting Lean. These technologies include both enterprise and line of business solutions.

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Chapter One: Benchmarking the Best-in-Class

For decades the Toyota Production System (TPS) and Total Quality Management (TQM) have been de facto standards for implementing and sustaining Lean in many manufacturing verticals. This is no longer true among leading global enterprises. From hybrid manufacturing, to the process industries, and even to service providers like healthcare and finance companies, Aberdeen is seeing a host of new approaches to implementing and sustaining Lean that are industry and often enterprise specific.

These initiatives all still incorporate the basic tenants of TPS and TPM: continuous improvement, waste removal, and standardized work (among others) but do not necessarily respond to demand variability, rely on executive stewardship, manage performance, or leverage technology in the same way. Fortunately for shareholders, these enterprises are just as vigilant as their TPS and TQM predecessors; with a laser focus on reducing overall costs.

The Focus Remains Cost Reduction

Waste reduction has been a TPS core tenant since its inception and, not surprisingly, the overwhelming majority of enterprises are still focusing resources on Lean to reduce operating costs. This is in alignment with much of our previous research on the topic. We saw the same finding in the July 2007 [Lean Scheduling and Execution Report](#), where again reducing operating costs was the number one pressure with 79% of manufactures citing it is one of the top two pressures driving focus on Lean.

Furthermore, in the face of a contracting manufacturing market and a possible overall economic downturn, there is no reason to assume that there will be a near tem reduction in the focus on Lean and operating cost reductions. In fact, it is considerably more likely that the opposite will prove to be true and that enterprises will continue to focus energy on extending the Lean enterprise and further reducing costs.

Table 1: Top Five Pressures Driving a Focus on Lean

Top Pressures	All Respondents
Need to reduce overall operating costs	79%
Demand for shorter lead times	43%
Operational process complexity	19%
Globalization	18%
Demand for higher quality products	16%

Source: Aberdeen Group, February 2008

Fast Facts

Best-in-Class enterprises significantly out perform their competition in all three KPIs. These manufacturers enjoy:

- √ 97% On Time Delivery (OTD)
- √ 93% Overall Equipment Effectiveness (OEE)
- √ 5% inventory costs as a share of revenue

The Maturity Class Framework

In determining the relative success of Lean endeavors, Aberdeen uses three Key Performance Indicators (KPIs) to distinguish the Best-in-Class from Industry Average and Laggard organizations. These are:

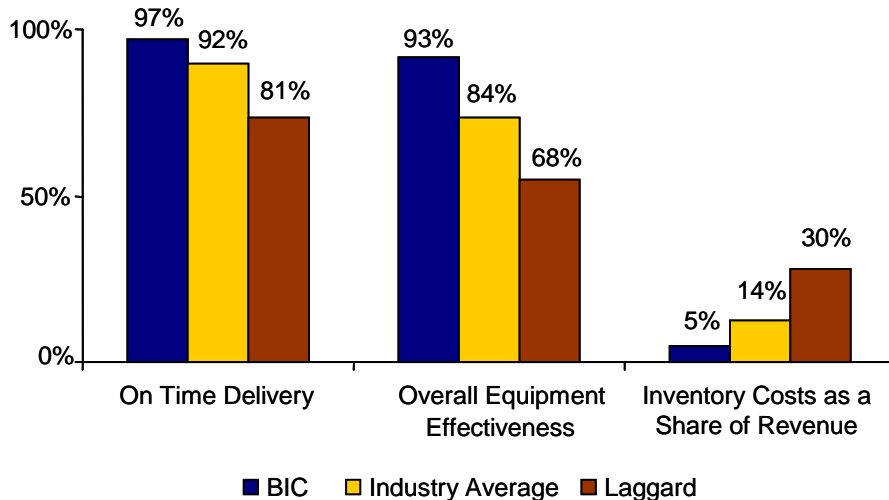
- **On Time Delivery (OTD).** Measured as a percentage of products delivered on time as compared to the total original commitment
- **Overall Equipment Effectiveness (OEE).** Measured as composite metric encompassing availability, performance, and quality
- **Inventory costs as a share of revenue.** Measured as ratio of total inventory costs (raw material, Work in Process (WIP), and finished goods) to revenue

Respondents are segmented into three categories based on their aggregate performances in these three metrics: the top 20% of performers (Best-in-Class), the middle 50% (Industry Average), and the bottom 30% of performers (Laggards). Figure 1 displays the mean performance of Best-in-Class, Industry Average, and Laggard organizations.

“We use a TQM-type process to get visibility into the highest causes of losses. We then use focused teams to develop root cause analysis and after that, workable solutions to specific problems. All plants have adopted some aspects of this process. The best plants are at an achievement level approaching 50% of what we think can be done. Our corporation has also adopted industry-specific program for these processes in specific areas.”

~ Procurement Manager
1 Billion Dollar
Mining Enterprise

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



Source: Aberdeen Group, February 2008

The performance of the Best-in-Class, when compared to Industry Average firms, accounts for 7% more on time deliveries, an 11% higher performance in OEE, and 64% lower inventory costs. Clearly, the Best-in-Class are enjoying significantly lower operating costs as a share of revenue, coupled with better customer service. It is also important to note that these calculations are across all industries and that significant differences can exist between industries. However, the differentiation between the Best-in-Class and Industry Average or Laggards remains consistent across all industries.

The remainder of this benchmark study will focus on determining just how the Best-in-Class are achieving these results and, for those not yet Best-in-Class, determining a roadmap for keeping pace.

The Best-in-Class PACE Model

Reducing operating costs through Lean initiatives can be a daunting task, especially given the numerous challenges that stand in the way, such as: needed cultural change, capacity constrained resources, and a lack of internal expertise. Table 2 summarizes some of the strategic actions, business process capabilities, and technology enablers Best-in-Class companies are implementing to address these market pressures and challenges.

Table 2: The Best-in-Class PACE Framework

Pressures	Actions	Capabilities	Enablers
<ul style="list-style-type: none"> Reduce overall operating costs 	<ul style="list-style-type: none"> Collaboratively share best practices Use an industry specific approach to implementing and sustaining Lean 	<ul style="list-style-type: none"> Measurement of operational KPIs are standardized across the enterprise A grassroots approach to Lean with executive support and line of business accountability Operational data is collected automatically, related to financial performance, and delivered in a role based fashion to decision makers as actionable intelligence 	<ul style="list-style-type: none"> Simulation Enterprise Asset Management (EAM) Manufacturing Execution Systems (MES) Manufacturing intelligence Lean scheduling Advanced Planning and Scheduling (APS) Quality Management Systems (QMS) Business Intelligence (BI) Value stream mapping Statistical Process Control (SPC)

“We are adopting Lean as a philosophical paradigm shift for our company. Our attempt is to successfully move a large portion of the ownership and responsibility for specific process improvement to the areas of highest expertise, regardless of whether that is a production employee, an accounting clerk, or a department manager.”

~ Director
100 Million Dollar CPG Co.

Source: Aberdeen Group, February 2008

Best-in-Class Strategies

When it comes to Lean, there is no single strategy that a majority of respondents are deploying. This is interesting given that a large majority of enterprises are adopting Lean for a common purpose; to reduce operating costs. With four separate strategies being deployed by 30% or more of all enterprises it is clear that there are many enterprises attempting to reduce

operating costs in multiple ways. In many cases, a fair amount of synergy exists between the multiple strategic actions enterprises are adopting to support Lean. Table 3 shows the most prevalent approaches, however further analysis will be required to determine which of these strategic actions is most likely to result in Best-in-Class performance.

Table 3: Top Five Strategies Supporting Lean

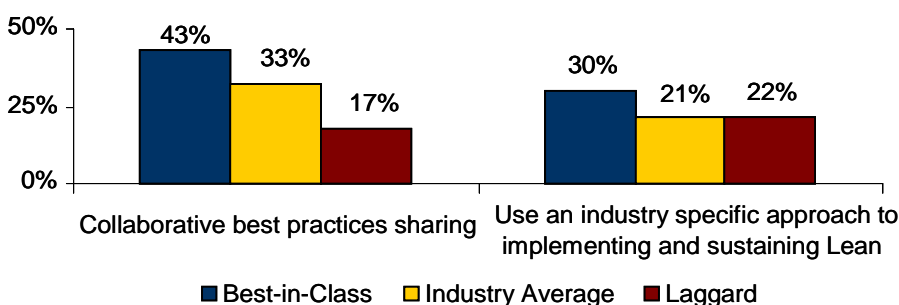
Top Actions	All Respondents
Increase the level of participation in continuous improvement teams	42%
Integrate Lean tools with enterprise applications	37%
Collaborative best practices sharing	30%
Extend Lean initiatives to the entire value chain	30%
Use an industry specific approach to implementing and sustaining Lean	22%

Source: Aberdeen Group, February 2008

Although the two most prevalent strategic actions certainly have merit in regards to extending Lean across the enterprise, these are not the strategic actions that most differentiate the Best-in-Class. The strategies that do: collaborative best practice sharing and taking an industry specific approach to implementing and sustaining Lean. Interestingly, these two strategic actions are very closely related.

The use of an industry specific approach requires the adoption of best practices from other industries and intelligently applying them to the current situation based upon prior experience. Examples can include applying TPS tools to the food and beverage industry or Lean Six Sigma tools to the healthcare industry. Similarly, collaboratively sharing best practices across the enterprise relies upon taking lessons learned from one functional area of the enterprise and intelligently applying it to another. This can be as simple as taking best practices from manufacturing and applying them to the supply chain or as complex as taking those same best practices and applying them to product development or even sales and marketing.

Figure 2: Strategies of the Best-in-Class



Source: Aberdeen Group, February 2008

The Scope of Lean

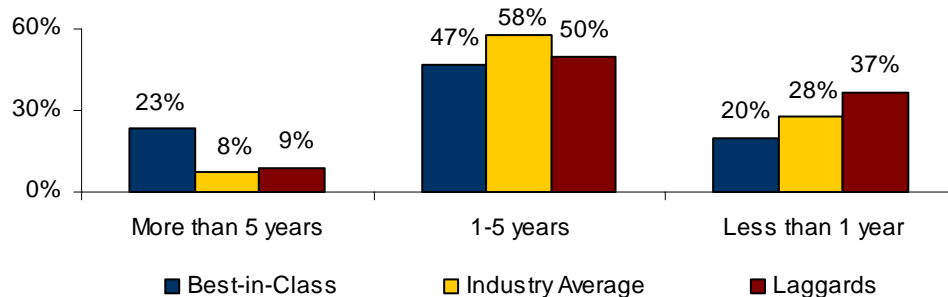
There are some very interesting findings regarding how the scope of a Lean deployment relates to Best-in-Class performance. When the length of a Lean deployment is considered, it turns out that enterprises having focused on Lean for one year or less are 35% more likely to be Laggards, enterprises having focused on Lean for one to five years are 21% more likely to be Industry Average, and enterprises having focused on Lean for more than five years are 187% more likely to be Best-in-Class. The message here is clear; if you haven't started Lean you better, if you have already started stay the course, it may take several more years before you achieve Best-in-Class performance, and if you are Best-in-Class and well into a Lean deployment; invest in the sustainment and reinvigoration of these programs. It is likely that they have been and will continue to be the key to your performance gains.

In addition, when we look at how many facilities and functional departments have gone Lean across an organization, again we see a strong correlation with Best-in-Class performance. The Best-in-Class are 69% more likely to deploy Lean across all facilities.

“Lean is not only focused on the continuous improvement of existing process but we are using Lean tools to develop and optimize complex processes for new business contracts. Lean practices are also being deployed up and down the value chain to ensure that processes are optimized with critical supplier and customer input.”

~ Vice President of Quality
250 Million Dollar
Plastics Manufacturer

Figure 3: The Length of Lean Implementations



Source: Aberdeen Group, February 2008

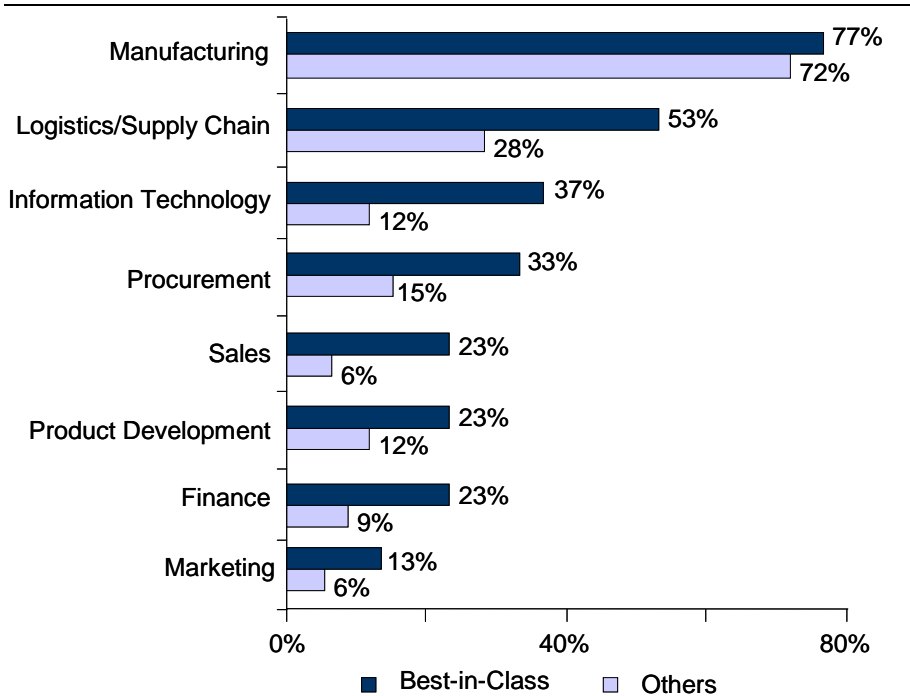
Case Study

Eagle Picher Inc. is a privately held manufacturing company with products supplying the automotive, consumer electronics, and industrial sectors. Recently, the Wolverine Gaskets Division experienced sales growth of 14% year over year, for three consecutive years; highlighting the enterprises inability to adjust to changing demands given current business processes and supporting technologies. In Jay Pittas' words, Division President, "We were constantly changing over lines and had much more scrap than desired."

In response, Wolverine eliminated manual processes from the floor, automated data collection across facilities, and standardized Lean processes across the enterprise. In support, the technologies adopted included integrated ERP, MES, QMS, and Lean Manufacturing Solutions. Less than a year after this extension of Lean and supporting technologies across the enterprise, Wolverine reported a 96% OTD, a 30% reduction in WIP, and a 50% reduction in Finished Goods Inventories.

Similarly, the Best-in-Class are considerably more likely to extend Lean outside of core manufacturing functions.

Figure 4: Functional Groups Deploying Lean



Source: Aberdeen Group, February 2008

“We are just starting to implement Lean Six Sigma. We plan to use it to streamline delivery schedule and other office processes for our services.”

~ Tonya Lambert
General Dynamics SATCOM
Technologies

Aberdeen Insights — Strategy

In general, the Best-in-Class are more likely to have been focusing on Lean for a longer period of time than other manufacturers but this has not changed why the Best-in-Class focus on Lean. It is for the same reason as almost every other enterprise: to reduce overall operating costs. However, the Best-in-Class are deploying Lean in a different way than Industry Average and Laggard manufacturers - the Best-in-Class are extending Lean across the enterprise. This means they are more likely to deploy Lean across every facility and more likely to deploy Lean across multiple functional groups. Furthermore, the Best-in-Class are deploying a different set of strategic actions. These companies are more likely to rely on collaborative best practices sharing and an industry specific approach to Lean.

Chapter Two will identify the additional business capabilities and technology enablers the Best-in-Class are using to extend Lean across the enterprise and successfully deploy strategy.

Chapter Two: Benchmarking Requirements for Success

The success of business process improvements through a Lean initiative depends heavily on how mature a particular enterprise is. Maturity affects how an enterprise should leverage supporting technologies and other business capabilities and in turn goes a long way to translating the strategies presented in Chapter One to financial gains.

Competitive Assessment

Aberdeen Group analyzed the aggregated metrics of surveyed companies to determine whether their performance ranked as Best-in-Class, Industry Average, or Laggard. In addition to having common performance levels, each class also shared characteristics in five key categories:

- 1) **Process.** The approaches taken to execute daily operations
- 2) **Organization.** Corporate focus and collaboration among stakeholders
- 3) **Knowledge Management.** Contextualizing data and exposing it to key stakeholders
- 4) **Performance Management.** The ability of the organization to measure results to and improve operations
- 5) **Technology.** The selection of appropriate technology solutions and the effective deployment of these solutions)

These characteristics (identified in Table 4 through Table 8) serve as a guideline for best practices and correlate directly with Best-in-Class performance across the key metrics.

Process

When we look at collaborative best practice sharing, analytics, optimization, and a self supporting Lean educational system, all, to some degree, rely on standardization across the enterprise. In fact, standardization of Lean processes across the entire enterprise show as a differentiator for Best-in-Class performance. These manufacturers are 30% more likely than other manufacturers to standardize Lean tools across the enterprise and are 33% more likely than other manufacturers to have standardized the measurement of Key Performance Indicators (KPIs) across the enterprise.

Some of the Lean tools that the Best-in-Class are most likely to have standardized across the enterprise are 5S, poke yoke, and standardized work based on SOPs. This standardization plays a crucial role as a building block for success of many aspects of the competitive framework.

Fast Facts

Best-in-Class enterprises are:

- √ **121%** more likely than Laggard manufacturers to have expertise in Lean at the executive level
- √ **187%** more likely than Laggard enterprises to be using a Lean center of excellence to provide relevant resources to Lean practitioners as needed
- √ **Twice** as likely as Laggard manufacturers to be using Lean scheduling techniques

Table 4: Capabilities - Process

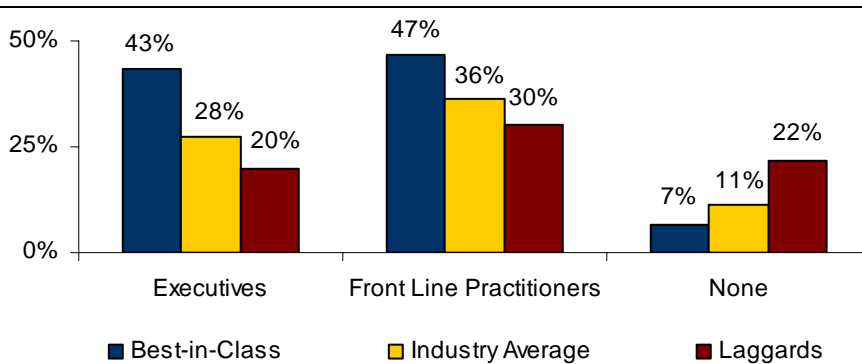
	Best-in-Class	Average	Laggards
Process	Measurement of operational KPIs are standardized across the enterprise		
	63%	49%	46%
	Standardized Lean methodologies across the enterprise		
	43%	38%	26%
	Standardized work based on SOPs		
	67%	60%	48%
	5S		
	73%	71%	57%
Poke yoke (error proofing)			
	50%	29%	26%

Source: Aberdeen Group, February 2008

Organization

The approach an organization takes to implementing and sustaining Lean goes a long way to achieving Best-in-Class performance. The data shows that these companies are more likely to engage and maintain Lean expertise at every level of the organization (Figure 5).

Figure 5: Roles Possessing Lean Expertise



Source: Aberdeen Group, February 2008

Furthermore, when compared to other manufacturers, the Best-in-Class are 18% more likely to have executive sponsorship of Lean, 16% more likely to have executive responsibility of continuous improvement team success, 110% more likely to have managers responsible for value chain performance, 87% more likely to have a grass roots approach to galvanizing Lean throughout the organization, and 140% more likely to support Lean with a permanent infrastructure. When considered in concert these findings suggest that to be truly successful, Lean concepts must penetrate every level of the organization. Executives should focus on maintaining expertise at every level of the organization, requiring accountability for performance at the managerial level, and driving energy with a grass roots approach and supporting the lowest common denominator with the needed tools and resources along with a sense of permanence.

“We have trained and deployed a significant number of Black Belts and Green Belts. We utilize cross-functional performance management teams lead by personnel from a program or functional area. These teams have mandatory weekly meetings to focus on finding solutions to the challenges they face. Further Black and Green Belts organize, facilitate, or lead events throughout the year to keep their skills and certification. The culture has changed significantly from reactive to proactive.”

~ Tom Evans, Lockheed Martin

Table 5: Capabilities - Organization

	Best-in-Class	Average	Laggards
Organization	Managers have responsibilities in place for value stream performance		
	63%	33%	26%
	Support for Lean is given with a permanent infrastructure		
	57%	31%	11%
	Grassroots approach to establishing buy in for Lean methodologies		
	63%	44%	17%
	Executive support for continuous improvement team program performance		
	73%	64%	63%
Executive support for Lean initiatives			
77%	69%	59%	

Source: Aberdeen Group, February 2008

Knowledge Management

When examining how enterprises leverage external domain experts, Aberdeen's research found little differentiation in the use or lack thereof across the maturity framework. However, upon further analysis, of those enterprises that have used Lean consultants, 93% of the Best-in-Class have used consultants with experience implementing Lean in their specific sub vertical where only 57% of Industry Average and Laggard manufacturers have taken this approach. This makes the Best-in-Class 63% more likely than other enterprises to use consultants with specific industry experience versus consultants with only broad Lean experience. Furthermore, the Best-in-Class are more likely to be supporting these consultants and the teams they are training with both automated data collection, an educational system that is self supporting, and a Lean center of excellence that provides the necessary resources and learning tools to Lean practitioners.

“We try to adapt to all kinds of TPS tools. Two years ago we implemented Kanban system across all divisions (we have four divisions). Waste elimination activities have also become a core of our innovation activities. Currently we have established a center of excellence to introduce lean production systems to increase productivity.”

~ Business Process Manager
5 Billion Dollar
Electronics Manufacturer

Table 6: Capabilities - Knowledge Management

	Best-in-Class	Average	Laggards
Knowledge Management	Lean center of excellence providing needed resources to Lean practitioners		
	50%	24%	17%
	Lean educational system is designed to be self supporting		
	43%	24%	20%
	Kaizen - continuous improvement team blitzes		
70%	59%	48%	

Source: Aberdeen Group, February 2008

Performance Management

The performance management findings are among the strongest of the benchmark. Best-in-Class enterprises begin their efforts in regards to performance management with automated data collection and automated data collection allows for many of the other performance management capabilities to deliver the maximum amount of value. Beyond automated data collection the Best-in-Class also enable root cause analysis with analytics while at the same time provide visibility to decision makers with real time role based dashboards monitoring exception handling.

Furthermore, operational metrics have been contextualized via financial metrics and production optimization has been enhanced with real-time data. As a summary, we see the value proposition of manufacturing or business intelligence playing out among all of the aforementioned capabilities. These capabilities all enable Best-in-Class performance and in totality allow for the proper stakeholders to have the proper data, in the proper context, at the proper time to make optimal decisions.

Table 7: Capabilities - Performance Management

	Best-in-Class	Average	Laggards
Performance Management	Optimization uses real time data		
	23%	14%	13%
	Operational data and metrics are displayed in real-time where needed		
	40%	24%	17%
	KPI data is collected automatically		
	40%	24%	20%
	KPI data is delivered to decision makers as actionable intelligence		
	53%	36%	26%
	Operational metrics are linked with financial metrics		
	60%	50%	35%
Analytics systems to provide insights on the captured data			
33%	30%	13%	

Source: Aberdeen Group, February 2008

Supporting Technology

The following analysis reveals that it can no longer be said that the use of technology should be minimized in a Lean initiative or even a Lean enterprise. Best-in-Class enterprises are considerably more likely to have adopted Lean and are also much more likely to have adopted technology across the organization; starting at the very highest level enterprise systems with Business Intelligence (BI) to the very lowest level manufacturing systems such as Enterprise Asset Management (EAM) and simulation.

Table 8: Capabilities - Technology

	Best-in-Class	Average	Laggards
Technology	Simulation		
	33%	11%	7%
	Enterprise Asset Management (EAM)		
	42%	31%	18%
	Manufacturing Intelligence (MI)		
	20%	8%	7%
	Business Intelligence (BI)		
	47%	20%	17%
	Manufacturing Execution System (MES)		
	40%	19%	26%
	Advanced Planning and Scheduling (APS)		
	50%	40%	39%
Lean software applications			
13%	11%	4%	

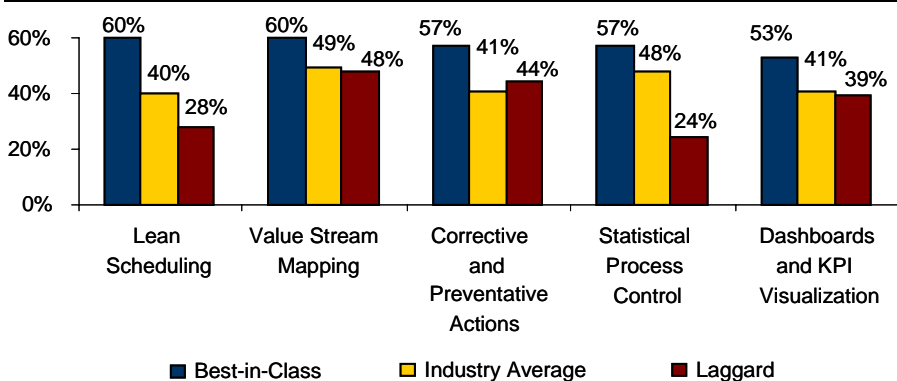
“We use lean tools to create awareness of current conditions on the factory floor in order to get an immediate response to solving any looming problems. We also value stream map all major product processes and utilize the value stream team to drive waste from the value stream. Lastly, we use Lean to foster a continuous improvement environment to make this a lasting culture change.”

~ Paul Andress,
Director of Manufacturing,
American Medical Systems

Source: Aberdeen Group, February 2008

The specific capabilities that enable Best-in-Class performance to span the multiple technology solutions being adopted include: Dashboards and KPI visualization that can be delivered from BI or MI, value stream mapping, and Lean scheduling that can be delivered by a Lean software application, and Corrective and Preventive Actions (CAPA) and Statistical Process Controls (SPC) that can often be delivered by a MES or EAM solution. There is clearly a relationship between the types of technology adopted, the specific capabilities that are used, and how these choices need to align in order to achieve Best-in-Class performance.

Figure 6: Supporting Technologies



Source: Aberdeen Group, February 2008

Aberdeen Insights — Implications of the Maturity Framework

The maturity of an enterprises' Lean initiative, to a large extent, determines what the next steps in the Lean journey should be. In general, Industry Average and Laggard manufacturers are closest to the Best-in-Class in regards to the process capabilities adopted, while furthest away in the organizational and technology capabilities adopted, leaving knowledge and performance management capabilities somewhere in the middle.

The Best-in-Class are more likely to ensure that the Lean processes in place are standardized across the enterprise. The Best-in-Class are also more likely to support operations with both a robust educational system and visibility into operational performance. With this accomplished, many Best-in-Class enterprises have already had these ongoing initiatives for several years and to move forward many of the Best-in-Class shift focus to both the organizational approach and technology solutions implemented.

In many cases, it has been shown that it takes five years or more to complete the transition to a Best-in-Class organization when starting at the Laggard level. This transition is accelerated when Lean expertise is maintained at all levels of the organization. To do this executives are championing initiatives, managers are maintaining accountability for performance, and grass-roots movements are sustaining energy at the base-level of operations. In supporting this organizational approach, technologies that span both business and manufacturing systems are implemented, with an eye towards adopting the specific Lean capabilities that are shown to spur Best-in-Class results.

Chapter Three: Required Actions

Whether a company is trying to move its performance in operations from Laggard to Industry Average, or Industry Average to Best-in-Class, the following actions will help spur the necessary performance improvements:

Laggard Steps to Success

- Best-in-Class manufacturers are 40% more likely to leverage external domain experts for Lean initiatives and of the Best-in-Class currently leveraging consultants, 93% leverage consultants with industry specific experience implementing Lean. Before embarking down the Lean path, even if it is a second or third attempt, enlist an experienced partner for the journey.
- Standardizing processes, such as Lean methodologies and KPI measurements, is a key building block for extending Lean across the enterprise. It is also the area where Laggards are closest to the Best-in-Class in adoption rates. Laggard enterprises should attempt to close the gap by first starting with standardizing processes.
- Best-in-Class manufacturers are extending the scope of Lean initiatives. This translates into staying the course and remaining Lean for five years or more, extending Lean to all manufacturing facilities, to all levels of the organization, and to multiple functional groups within the enterprise.

Industry Average Steps to Success

- Focus on education as a key to success in Lean initiatives. Best-in-Class manufacturers are 61% more likely to be sharing collaborative best practices across the organization. Furthermore, the Best-in-Class are leveraging Lean centers for excellence and an educational structure that is self-supporting.
- Performance management is the final capability that differentiates Best-in-Class performance. The Best-in-Class are more likely to provide role-based real-time KPIs, link operational KPIs with financials, and leverage manufacturing analytics to provide actionable intelligence.

Best-in-Class Steps to Success

- The first step on the final leg of the journey should include changing the organizational approach. The Best-in-Class are more likely to maintain Lean expertise at all levels of the organization, executives should be championing initiatives, managers should be maintaining accountability for performance, and grass-roots movements should be sustaining energy at the base-level of operations.

Fast Facts

Best-in-Class enterprises are:

- ✓ **40%** more likely to leverage external domain experts for Lean initiatives
- ✓ **61%** more likely to be sharing collaborative best practices across the organization
- ✓ **121%** more likely than Laggard manufacturers to have expertise in Lean at the executive level
- ✓ **206%** more likely than Laggard manufacturers to be extending Lean to the supply chain
- ✓ **168%** more likely than Laggard manufacturers to be using BI to support Lean
- ✓ **233%** more likely than Laggard manufacturers to be using EAM in support of Lean

- Technology is the final differentiator of Best-in-Class performance. The Best-in-Class are integrating multiple technology solutions to extend the functionality of traditional enterprise applications supporting Lean. These technologies includes: simulation, EAM, MES, MI, BI, APS, and Lean software solutions.

Aberdeen Insights — Summary

The number one pressure driving enterprises to focus on business process improvement and Lean is the need to reduce overall operating costs. In response to this pressure, there are two strategic actions that differentiating the Best-in-Class approach: to share best practices collaboratively across the enterprise and to implement and sustain Lean with an industry specific approach.

To support the success of these strategic actions, there are a number of business capabilities and technology enablers that additionally differentiate the Best-in-Class. Best-in-Class organizations are more likely to have extended Lean across the organization. This means that these organizations are more likely to have been on Lean for more than five years, more likely to have extended Lean to all levels, all facilities, and multiple functional groups across the organization.

Additionally, the Best-in-Class are more likely to standardize Lean processes across the organization, provide a formal educational system supporting Lean, maintain executive support of Lean initiatives, demand managerial accountability of performance, sustain operational energy with a grass-roots approach, provide role-based actionable intelligence to decision makers, and support all of these initiatives with both business and manufacturing level technology solutions.

Without a doubt, business process improvement is about sustaining the Lean journey over many years. The pay-offs are high, with significant improvements to both tangible operational metrics and intangible customer satisfaction measures as the prize. However, to win this prize, a holistic approach extending to all facets of the Lean enterprise must be adopted.

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Appendix A: Research Methodology

Between January 2008 and February 2008, Aberdeen examined the use, the experiences, and the intentions of more than 320 enterprises across different industry verticals regarding their Lean manufacturing process.

Aberdeen supplemented this online survey effort with interviews with select survey respondents, gathering additional information on Lean strategies, experiences, and results.

Responding enterprises included the following:

- *Job title / function:* The research sample included respondents with the following job titles: Manager (34%); Senior Management (21%); Director (19%); Consultant (14%); Staff (10%) and other (2%).
- *Industry:* The research sample included respondents from Discrete Manufacturing (54%), Process Manufacturing (29%), and Service Industries (17%).
- *Geography:* The majority of respondents (70%) were from North America. Remaining respondents were from the Europe (18%), Asia-Pacific region (7%), South America (3%) Middle East, Africa (2%).
- *Company size:* Thirty-two percent (32%) of respondents were from large enterprises (annual revenues above US \$1 billion); 34% were from midsize enterprises (annual revenues between \$50 million and \$1 billion); and 34% of respondents were from small businesses (annual revenues of \$50 million or less).
- *Headcount:* Forty-four percent (44%) of respondents were from large enterprises (headcount greater than 1,000 employees); 31% were from midsize enterprises (headcount between 100 and 999 employees); and 25% of respondents were from small businesses (headcount between 1 and 99 employees).

Solution providers recognized as sponsors were solicited after the fact and had no substantive influence on the direction of this report. Their sponsorship has made it possible for Aberdeen Group to make these findings available to readers at no charge.

Study Focus

Responding manufacturing executives completed an online survey that included questions designed to determine the following:

- √ The pressures driving their focus on Lean manufacturing
- √ The structure and effectiveness of existing technology implementations
- √ Top technology enablers adopted to facilitate Lean principles
- √ The benefits, if any, that have been derived from technology adoption and integration

The study is aimed to identify emerging best practices for applying Lean principles across the industry, and to provide a framework by which readers could assess their own capabilities

Table 9: The PACE Framework Key

Overview
<p>Aberdeen applies a methodology to benchmark research that evaluates the business pressures, actions, capabilities, and enablers (PACE) that indicate corporate behavior in specific business processes. These terms are defined as follows:</p> <p>Pressures — external forces that impact an organization’s market position, competitiveness, or business operations (e.g., economic, political and regulatory, technology, changing customer preferences, competitive)</p> <p>Actions — the strategic approaches that an organization takes in response to industry pressures (e.g., align the corporate business model to leverage industry opportunities, such as product / service strategy, target markets, financial strategy, go-to-market, and sales strategy)</p> <p>Capabilities — the business process competencies required to execute corporate strategy (e.g., skilled people, brand, market positioning, viable products / services, ecosystem partners, financing)</p> <p>Enablers — the key functionality of technology solutions required to support the organization’s enabling business practices (e.g., development platform, applications, network connectivity, user interface, training and support, partner interfaces, data cleansing, and management)</p>

Source: Aberdeen Group, February 2008

Table 10: The Competitive Framework Key

Overview	
<p>The Aberdeen Competitive Framework defines enterprises as falling into one of the following three levels of practices and performance:</p> <p>Best-in-Class (20%) — Practices that are the best currently being employed and are significantly superior to the Industry Average, and result in the top industry performance.</p> <p>Industry Average (50%) — Practices that represent the average or norm, and result in average industry performance.</p> <p>Laggards (30%) — Practices that are significantly behind the average of the industry, and result in below average performance.</p>	<p>In the following categories:</p> <p>Process — What is the scope of process standardization? What is the efficiency and effectiveness of this process?</p> <p>Organization — How is your company currently organized to manage and optimize this particular process?</p> <p>Knowledge — What visibility do you have into key data and intelligence required to manage this process?</p> <p>Technology — What level of automation have you used to support this process? How is this automation integrated and aligned?</p> <p>Performance — What do you measure? How frequently? What’s your actual performance?</p>

Source: Aberdeen Group, February 2008

Table 11: The PACE and Competitive Framework Relationship

PACE and the Competitive Framework – How They Interact
<p>Aberdeen research indicates that companies that identify the most impactful pressures and take the most transformational and effective actions are most likely to achieve superior performance. The level of competitive performance that a company achieves is strongly determined by the PACE choices that they make and how well they execute those decisions.</p>

Source: Aberdeen Group, February 2008

Appendix B: Related Aberdeen Research

Related Aberdeen research, that forms a companion or reference to this report include:

- [Manufacturing Operations Management](#); January 2008
- [Demand Driven Manufacturing](#); November 2007
- [Transforming the Lean Enterprise](#), September 2007
- [The Cost of Quality Benchmarking Enterprise Quality Management](#); July 2007
- [Manufacturing IQ: Taking Manufacturing Intelligence to the Enterprise](#); July 2007
- [Benchmarking Enterprise Asset Management](#); June 2007
- [Lean Scheduling and Execution](#); May 2007

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