Aberdeen Group

Winning with Global Manufacturing Networks

Benchmark Report

September 2005

Executive Summary

Globalization is revolutionizing the way manufacturers operate. Forward-thinking enterprises see this as an opportunity to seek new lower cost manufacturing capabilities, improve customer responsiveness, and enter new markets. Over time, their enterprise business models will evolve into ecosystem operating models that also manage extended supply chain business processes. Successful operating models will be supported by intelligent global manufacturing information frameworks.

Key Business Value Findings

Key priorities across manufacturing sectors include outsourcing to reduce costs, and programs that improve customer responsiveness. Best-in-class enterprises are optimizing performance through structured outsourcing programs, continuous improvement initiatives, and shared customer-focused metrics. These metrics are enabling the best-in-class to remain focused on performance as they transition from directing operations to managing relationships.

Implications and Analysis

Best-in-class enterprises are tightly managing business performance even as they transition to new ecosystem operating models. These emerging models will leverage existing systems and intelligent workflow into unified information frameworks that orchestrate "value adding" processes across global manufacturing networks. Better performing enterprises will deliver bottom-line results to their shareholders and partners through structured outsourcing programs and customer-focused continuous improvement initiatives.

Competitive Framework Key

The Aberdeen Competitive Framework defines enterprises as falling into one of the three following levels of practices and performance:

Laggards (30%) — practices that are significantly behind the average of the industry

Industry Norm (50%) — practices that represent the average or norm

Best in Class (20%) — practices that are the best currently being employed and significantly superior to the industry norm

Recommendations for Action

Based on the results of a recent survey, Aberdeen divided the enterprises in our respondent pool into three categories according to our Competitive Framework: *Industry Average; Best in Class* (those whose practices exceed those of the Industry Average), and *Laggards* (those whose practices are behind those of the industry average). Here are our recommendations for each group:

- ***Laggards:*** Build responsiveness by eliminating stovepipes, increasing flexibility, and closing the information gap between manufacturing and the rest of the enterprise.
- ***Industry Average:*** Put the customer first by creating business process teams, empowering them to incorporate trading partner business processes, and establishing common terminology and data standards to integrate partner processes and systems.
- ***Best-in-Class:*** Proactively manage the internal and external changes that are being driven by globalization by establishing joint metrics that promote and measure re-

sponsiveness across the enterprise and the manufacturing network. Optimize the overall network performance while returning value to each member, and unite multiple enterprise processes and systems onto a common information and real-time decision support network that supports all trading partner relationships.

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Chapter One:
Issues at Hand

Key Takeaways

- Ongoing cost-cutting efforts continue to fuel outsourcing, creating the need for improved information sharing and collaborative responses to customers.
- New product introduction and innovation are emerging as the top challenges for discrete and consumer-oriented manufacturers.
- Making well-informed and timely decisions is the top challenge for larger enterprises.

Best-in-class enterprises are cutting costs and building responsiveness into their supply chains by outsourcing non-strategic manufacturing functions. Whether seeking specialized manufacturing technologies, contracting final assembly processes to less expensive operators, or leveraging international distributor networks, manufacturers must create new governance structures, processes, and information systems to proactively manage corporate performance as their global manufacturing networks evolve.

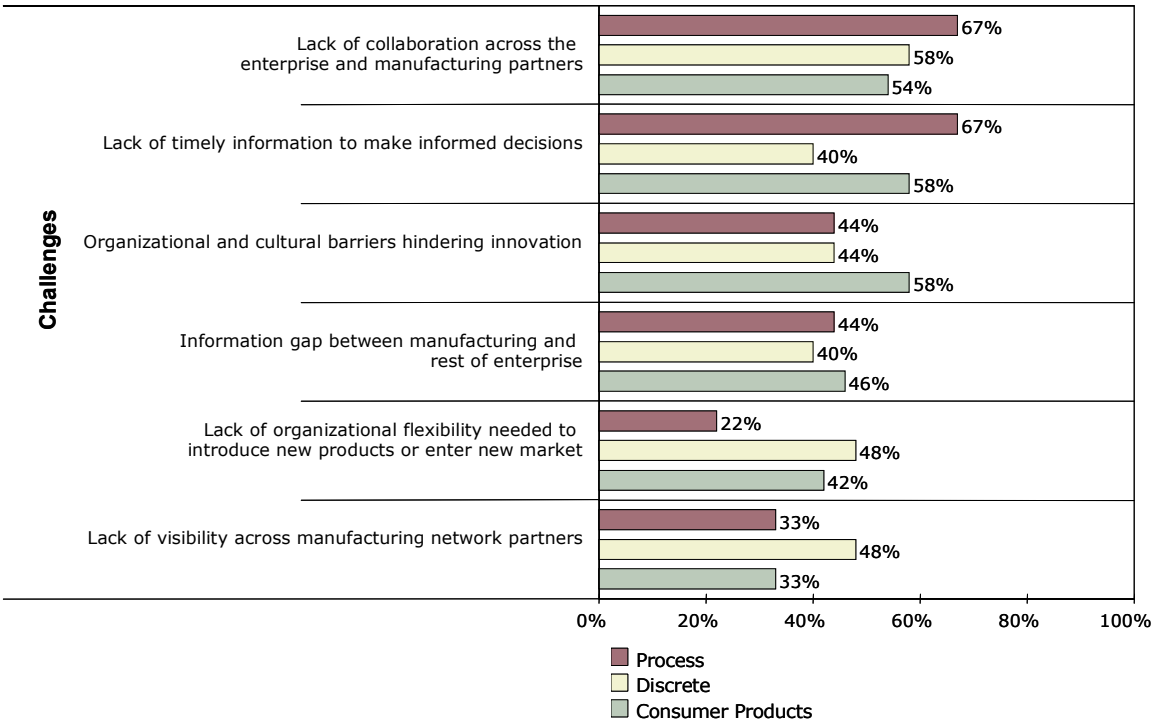
Universal Issues: Lack of Information and Collaboration

To better understand how manufacturers are responding to the pressures of globalization, Aberdeen surveyed representatives from more than 110 manufacturing enterprises across the process, discrete, and consumer products sectors (see Appendix A for breakdown). Regardless of sector, directors, executives, and managers cited the lack of timely information and collaboration as their top two challenges for achieving success with their global manufacturing networks (Figure 1).

Further analysis of the data shows some variations among the three major sectors; for instance, nearly half of the discrete manufacturers reported visibility into network partners as among their top three concerns, a reflection of the higher level of outsourced manufacturing. Conversely, fewer process and consumer products companies perceive network partner visibility as an important issue (33%), reflecting less outsourcing of production. Other sector variations include the following:

Process manufacturers report that their top challenges are the lack of collaboration and timely information. Together, these issues indicate less than desirable levels of communication and goal alignment across supply chain partners. How do *best-in-class* process manufacturer responses differ? These enterprises cited the lack of collaboration across the enterprise and manufacturing partners as among their top three challenges. *Laggards*, meanwhile, cite a lack of timely information as an issue. The best-in-class process manufacturers appear to be making significant progress.

Figure 1: Challenges by Industry Sector



Source: Aberdeen*Group*, June 2005

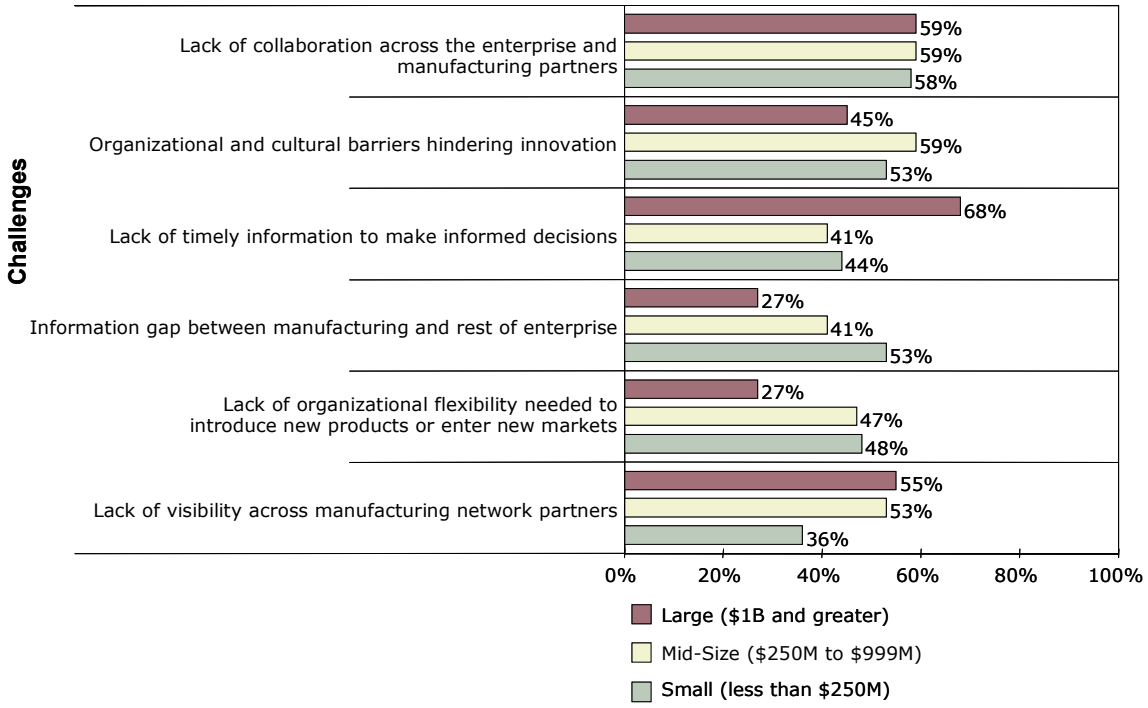
Discrete manufacturers ranked lack of visibility across manufacturing network partners as more of a challenge than the other two sectors did. Because this sector relies more on outsourcing, discrete manufacturers often have longer supply chains, providing insight into why they report a higher level of difficulty bringing new products to market. *Best-in-class* responses varied slightly in that discrete manufacturers are looking more closely at improving visibility as the first step toward achieving flexibility.

Consumer product companies are on the "front lines" with the dynamic end-user markets. More of them focused on rapid response, with the lack of timely information for decision making and breaking down the organizational and cultural barriers that hinder innovation cited as the top challenges**.** *Best-in-class* consumer goods companies cited the information gap between manufacturing and the rest of the enterprise as their top challenge by a 2-to-1 margin over visibility, indicating what could be a specific lack of insight into production or inflexibility in manufacturing.

The Manufacturing 'Information Gap' is Alive and Well

Challenges that companies face regarding globalization also vary by company size (Figure 2). While larger enterprises (annual revenues of more than $1 billion) overwhelmingly cite the inability to make well-informed and timely decisions among their top three challenges, smaller companies more specifically point to the information gap between manufacturing and the rest of the enterprise.

Figure 2: Challenges by Company Size



Source: Aberdeen*Group*, June 2005

Best in Class Tackle the Visibility Issue

As enterprises extend business processes outside their four walls to include contract manufacturers and service producers, enterprise systems often lose the ability to provide direct visibility into (newly acquired) partner operations. Executives that previously controlled manufacturing and supply chain operations are often frustrated with the lack of information partners provide. However, multiple proprietary systems make it difficult to directly access partner operational systems, and it's unreasonable to expect an enterprise to assume responsibility for developing and maintaining multiple integration links for multiple partners.

Best-in-class enterprises are setting standards for data definitions, business procedures, and communications protocols so each plant, supplier, distributor, and other network participant can "plug into" a network-wide information system. For example, the order-to-delivery process should generate a target order prototype, including event milestones with tolerances and business rules against which transaction data can be collected (according to published protocols and data standards) and analyzed. Monitoring these events will drive proactive communications as real-time information platforms are adopted to support global manufacturing networks.

Best in Class Tackle Goal Alignment

Best-in-class enterprises are making moves to better align goals within their own organizations and with partners through initiatives such as:

- ***Identifying VIP (very important) customers and suppliers*** by segmenting them according to revenue opportunity and strategic importance;
- ***Integrating partner functions and information into internal processes*** — for example, collaborative forecasting, VMI (vendor-managed inventory), and automated parts replenishment (Kanban);
- ***Implementing scalable technology*** — so that electronic communication becomes the norm, regardless of level of sophistication; for example, simple web portal access, EDI, and enterprise-to-enterprise integration;
- ***Creating information transparency*** through a common data model that includes relevant customer data and support of cross-enterprise business processes; and
- ***Identifying benefits*** for all partners and establishing shared metrics that ensure end-customer satisfaction and a value proposition for each partner.

Chapter Two:
Key Business Value Findings

Key Takeaways

- Managing outsourced partner networks is the number one strategic action for discrete manufacturers; responsiveness is the top priority for process manufacturers.
- Best-in-class enterprises are optimizing partner performance through structured programs, continuous improvement initiatives, and shared metrics programs.
- Business process metrics enable best-in-class firms to remain focused on performance during the transition from directing operations to managing relationships.

As manufacturers reach beyond the four walls of their enterprises to incorporate the outsourcing of production and services into supply chain processes, their governance and ecosystem operating models must keep pace. An enterprise's ability to direct and control vertical business units must be augmented with capabilities to collaboratively deliver results through contracted manufacturer and service provider relationships. Best-in-class companies are well on their way to orchestrating "value adding" processes across their partner ecosystems, enabling rapid and profitable response to customers and emerging market opportunities. New management skills and network-wide information systems are required to:

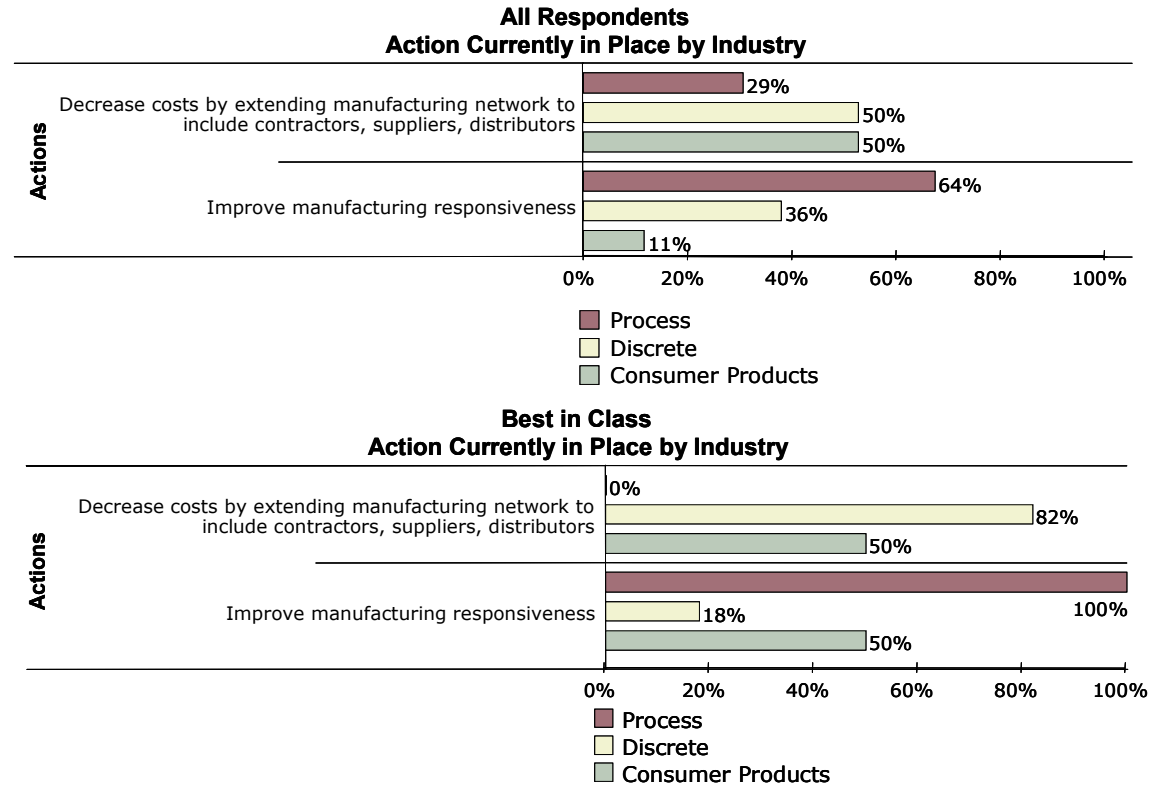
- Improve customer responsiveness;
- Leverage network partner capabilities; and
- Increase enterprise business performance.

Strategic Actions: Process vs. Discrete Manufacturers

To better understand how manufacturers are managing the transition from vertical business units to ecosystem business models, we asked them what strategies they were deploying. The top strategic actions in place among best-in-class enterprises are programs to decrease costs by building out the manufacturing network (primarily outsourcing) and improvement programs for manufacturing responsiveness (primarily the ability to tailor products rapidly).

More detailed results (Figure 3) show that fewer process manufacturers have outsourcing programs in place than the other two sectors (less than 30% vs. 50%), and they're much more focused on improving responsiveness than either discrete or consumer products companies are. Looking at what sets the best-in-class performers apart from the rest, it's interesting to note that a higher majority of discrete manufacturers (82%) have programs in place to decrease costs through outsourcing, while all process manufacturers have programs to improve manufacturing responsiveness. Best-in-class consumer products companies were evenly focused on initiatives to reduce costs through outsourcing and improving manufacturing flexibility, reflecting the characteristics that are shared with the other two industries.

Figure 3: Strategic Actions in Place by Industry Sector (All vs. Best in Class)



Source: Aberdeen*Group*, June 2005

Best in Class Standardize Manufacturing Partner Programs

Best-in-class enterprises are outsourcing non-strategic processes to offshore manufacturers and building high-performing manufacturing networks. We interviewed leading manufacturers that have established successful contract manufacturing programs. A synopsis of their best practices for identifying and managing partners follows:

Select a due diligence team that can assess the corporation, its capabilities, and the likelihood of a long-term, successful relationship. The team should do the following:

- Minimize risk by ensuring company stability. Visit the facility, study the balance sheets, and get to know the management team and department managers.
- Audit the business practices and standard operating procedures relative to your corporate standards. Talk to appropriate regulatory agencies to ensure there are no outstanding violations or warnings.
- Gain consensus from department heads at both companies ─ including supply chain, manufacturing, and R&D ─ on shared metrics and cross-enterprise processes.
- Ensure that potential partner manufacturing practices, regulatory procedures, information systems, and financial processes meet enterprise standards.

Define policies and procedures. The more standard terms, the easier it will be to successfully manage multiple relationships and the higher the likelihood of having a predictable and reliable supplier base.

- Define a standard agreement, understand all terms and conditions, and insist on standard terms across partners. (Avoid situations in which you *think* you understand terms and make invalid assumptions. They can be costly for the company.) Setting the standards for doing business will not only make it easier for your company to manage multiple relationships, it should also help ensure that each partner clearly understands the risks and rewards of this relationship.
- Define standardized processes for planning and forecasting. Many leading manufacturers share production and forecast information, which should help suppliers maintain less inventory. Procurement may be done by either department; if you have market clout and can secure favorable pricing, then you may want to retain this function internally. On the other hand, if the contractor is closer to the supply source, it may be the more logical choice.
- Do some scenario planning. Discuss how processes should work and try to anticipate likely events that could impact the flow of product or information (e.g., port closure, labor strike, network outage) and work out in advance how business would continue.

Create a framework for working together. Ensure that key players from both companies remain involved in managing the relationship over time.

- Build solid working relationships between the manufacturer and the supplier's departments. Supply chain managers will need to synchronize the flow of materials. Planning should be in a position to share forecasts and longer range plans at least quarterly. And, to ensure a smooth information flow, good IT communications (business, people, technology) are critical to success.
- As new products are introduced, ensure that the R&D and marketing teams are working jointly to ensure the new product can be manufactured to market specifications and that the supplier has the ability to either ramp up or wind down, depending on market acceptance.
- Appoint a team of executives that represents both companies that actively participate in quarterly review meetings, is empowered to make changes, and can communicate regularly.

Establish a joint measurement program. Recognize that you may not be a contractor's biggest or most profitable customer, but you should strive to be the most efficient.

- Work with each partner to establish joint metrics, beginning with basics such as schedule attainment, quality, and throughput.
- As the relationship matures, consider implementing continuous improvement programs by working jointly to establish metrics. Also, integrate assessment into quarterly reviews.

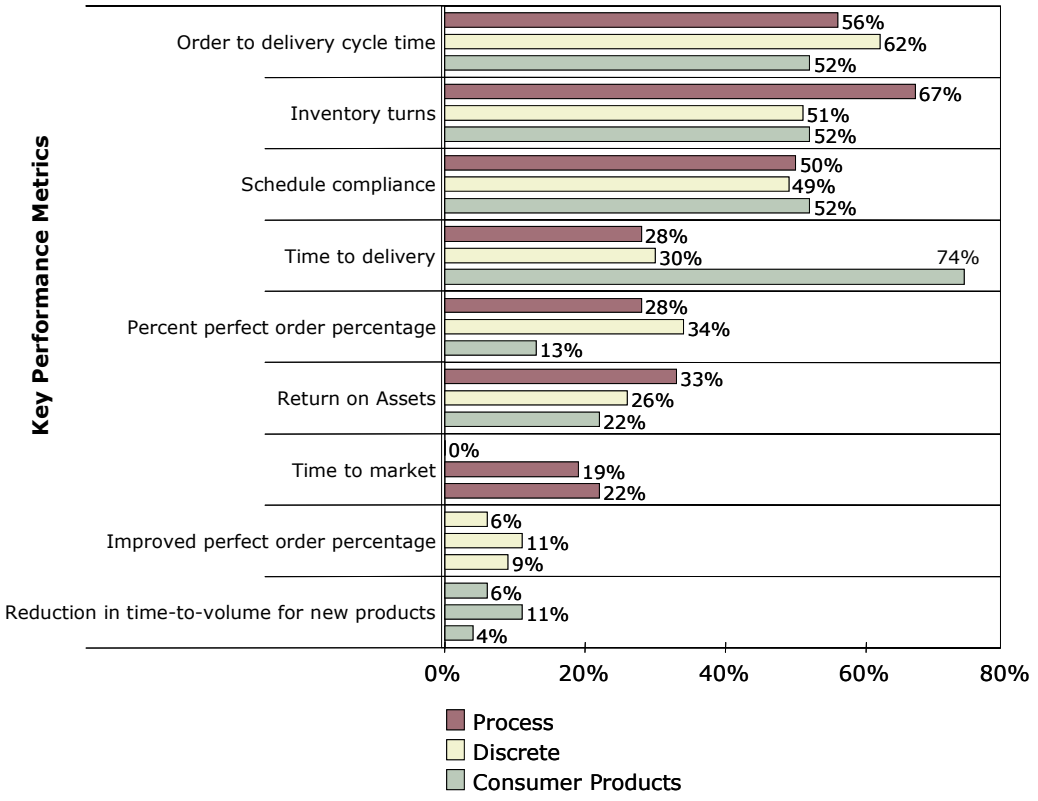
A well-managed manufacturing partner program should help decrease operating costs and reduce the upfront investment costs that often accompany a new product line. However, there are factors other than price to consider when reaching out to new partners. For

instance, contract manufacturers may have access to specialized technology (e.g., high-tech production processes or high-volume packaging) or provide access to new markets (such as localized labeling and distribution channels). If your company is competing for the services of a target partner, professionalism, the desire to build "win-win" relationships, and a general ease of being able to do business with should provide a competitive advantage. However, be prepared to walk away from relationships that don't add value to end customers and the enterprise.

Keeping the Eye on the Ball: The Role of Metrics

As manufacturers become more adept at managing horizontal supply chain processes, performance programs should be designed to help drive results through periods of change. Measuring customer-focused business processes such as time-to-delivery should help keep all global network participants focused on achieving overarching goals.

Figure 4: Metrics Used by Industry Sector



Source: Aberdeen*Group*, June 2005

Time-to-delivery (Figure 5) is the most prevalent metric consumer products companies use. Its counterpart, order-to-delivery, is the most highly valued measure by both discrete and process manufacturers. How do *best-in-class* enterprise metrics vary? Overwhelmingly, better performing companies focus on improving responsiveness, speed, and customer satisfaction. This is reflected in the preponderance of continuous improvement

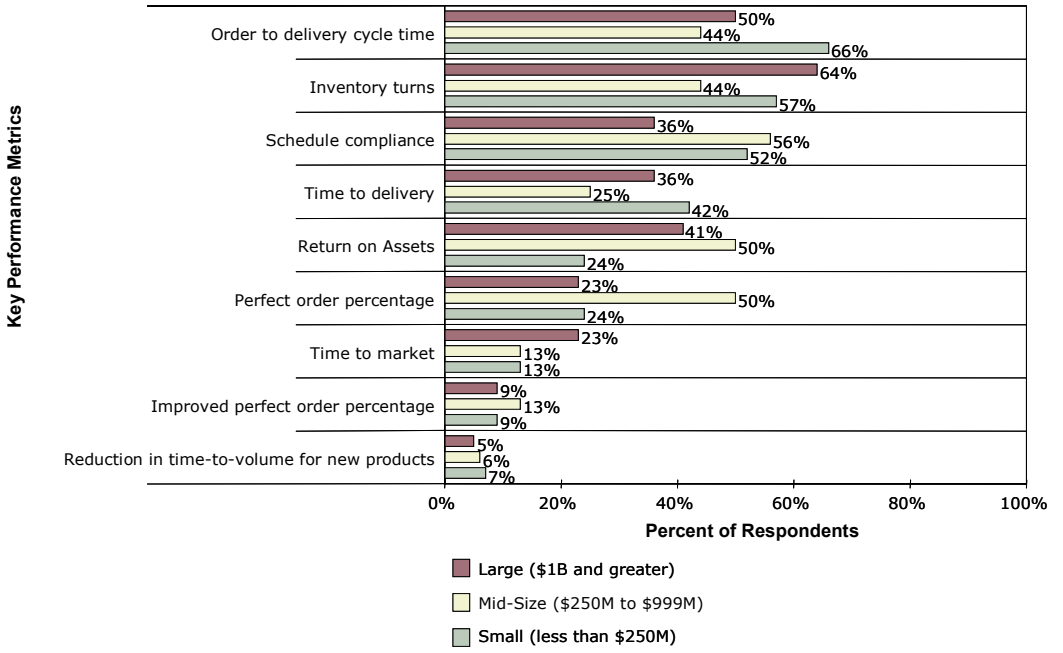
programs committed to reducing cycle times, increasing inventory turns, and complying with committed schedule. All of the best-in-class process manufacturers ranked order-to-delivery as the most predominant metric, while order-to-delivery was cited as the top metric by all consumer product companies. Discrete manufacturers cited order-to-delivery as their top metric, with schedule compliance and inventory turns tied for second. While the terminology varies by sector, it's clear that the leaders are dedicated to measuring customer-focused business processes.

Figure 5 also highlights a lack of interest in time-to-market and time-to-volume for new products across all sectors. Aberdeen contends that manufacturers should give these measures, and the entire product lifecycle, further consideration. The ability to bring a new product to market rapidly can be a point of differentiation; inversely, the inability to respond quickly to a competitive threat is a major disadvantage.

Metrics by Company Size

The metrics companies use also vary by company size (Figure 6). It's interesting to note that some small and mid-size firms appear to be more advanced in their measurement of business-process-related activities than their larger counterparts are. For instance, more than twice as many mid-size manufacturers measure perfect order percentage than their larger or smaller counterparts. While this is a valid metric, many larger enterprises use similar measures in a broader or different context. Also, more small companies measure order-to-delivery than do mid-size and large manufacturers; this is a direct and easy-to-understand metric for small companies to communicate and manage.

Figure 5: Metrics Used by Company Size



Source: Aberdeen*Group*, June 2005

Pressures, Actions, Capabilities, Enablers (PACE)

Aberdeen used the framework in Table 1 to place survey respondents into one of three categories – Laggard, Industry Average, or Best in Class ─ based on the characteristics of their enterprises in these five key categories:

1. ***Process:*** the coordination of materials, manufacturing orders, and customer demand among factories, contractors, distributors, and service providers;
2. ***Organization:*** the degree of focus in developing customer-focused business process teams;
3. ***Knowledge:*** level of insight into global manufacturing network processes, including supply, demand, and manufacturing and partner data;
4. ***Technology:*** level of integration among trading partners for master production planning and execution of activities; and
5. ***Performance management:*** the focus, maturity, and level of coordination of key supply chain metrics.

In each category, survey results confirm that the firms exhibiting best-in-class characteristics also enjoy year-over-year revenue growth.

Table 1: Global Manufacturing Network Competitive Framework

	Laggards	Industry Average	Best in Class
Process	Little coordination of inbound materials, manufacturing orders, and customer demand information among plants, contractors, distributors, and service providers	Some coordination of inbound materials, manufacturing orders, and customer demand information among plants, contractors, distributors, and service providers	Continual coordination of inbound materials, manufacturing orders, and customer demand among plants, contractors, co-packers, distributors, and service providers
Organizational Structure	Traditional organizational structure with department supervisors, managers, etc.	Traditional organization with some team formation to tackle quality, throughput, and other specific issues	Organization structured into business process or customer-focused teams
Knowledge	Manufacturing and supply chain employees have insight into their own functional data but little visibility into inbound supply, market demand, or manufacturing and partner data	Manufacturing and supply chain employees have insight across their own operations; some visibility into supply, market demand, and manufacturing and partner data	Manufacturing and supply chain employees have insight across their own operations, incoming supply, market demand, and manufacturing and partner data

Technology	Spreadsheet planning; no electronic links to plants, contractors, service providers, customers	Master production planning feeds to plant; some electronic links to factories, contractors, service providers, customers	Master production planning considers plant schedules, contractor and service provider availability, customer orders
Performance Measurement	Manufacturing metrics not coordinated with supply chain, customer, contractor, distributors, service providers, or supplier metrics	Some coordination of manufacturing metrics with supply chain, customers, contractors, distributors, service providers, supplier metrics	Metrics established centrally and coordinated across manufacturing, supply chain, customers, contractors, distributors, service providers, co-packers, and suppliers

Source: Aberdeen*Group*, June 2005

Chapter Three:
Implications & Analysis

Key Takeaways

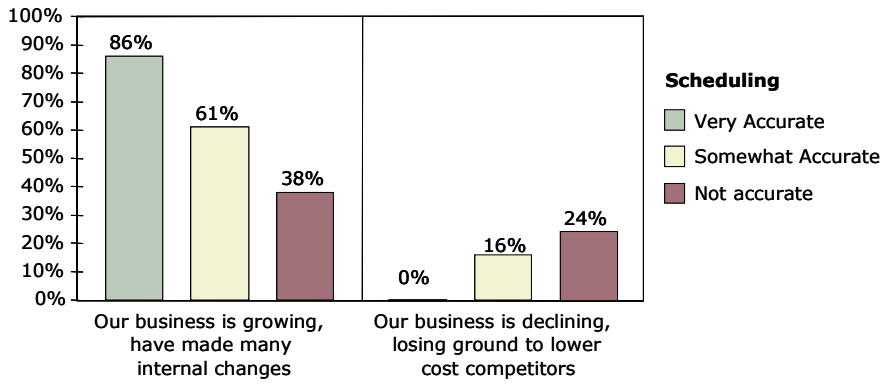
- Best-in-class manufacturers are keeping their fingers on the pulse of their ecosystems by consistently monitoring demand and frequently assigning and reassigning resources to provide considered and rapid response.
- Outsourcing will soon extend beyond discrete industry sectors into process and consumer products industries as partnerships come to fruition and manufacturing capabilities are approved and replicated into developing countries.
- Best-in-class enterprises are driving business process metrics programs to help standardize and streamline transitions to global manufacturing networks.

Best-in-class manufacturers are developing ecosystem business models that establish governance and organizational requirements to manage enterprise operations and partner relationships. These new operating models will be supported by intelligent global manufacturing information frameworks that monitor events and transactions, enable analysis and response, and can conditionally reassign priorities, enabling coordinated responses to specific customers, opportunities, or to overcome unanticipated and undesirable situations.

Proactive Response is a Leading Success Indicator

Best-in-class enterprises recognize the importance of continuously monitoring and responding proactively to demand. Figure 6 shows that 86% of growing companies (all companies deemed best-in-class in this survey are also growing) attribute at least part of their success to their ability to accurately and frequently schedule on behalf of ecosystem partners. Inversely, of companies experiencing declining business, not one reported having accurate scheduling capabilities.

Figure 6: Scheduling Accuracy Compared with Business Growth/Decline



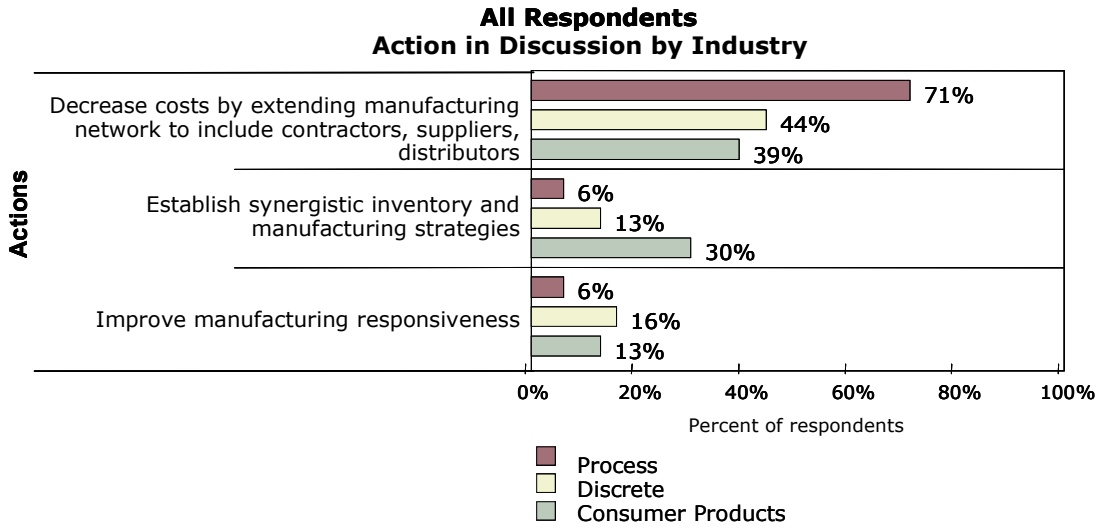
Source: Aberdeen*Group*, June 2005

Accurate scheduling requires a thorough understanding of resources and constraints across the network, supported by the ability and availability of participating partners to execute as required. As specific opportunities arise, manufacturers should be able to evaluate each opportunity relative to other business, along with already-scheduled production commitments. For instance, they might ask, "If we accept this order, what other orders will be negatively impacted?" Or, "If we need to break down and set-up a special process, what will the total cost of this order be to the company? Is it still profitable?" Only manufacturers that can generate realistic schedules will maintain favorable customer-service ratings. Inversely, companies that developed accurate network-wide scheduling competency were able not only to satisfy existing customers, but they were better positioned and more confident about pursuing new business opportunities on behalf of their ecosystem partners.

Outsourcing Will Expand Beyond Discrete Sectors

While outsourcing has had a major impact on domestic manufacturing over the past few years, the impact has been felt primarily in the discrete industry sectors. Equipment and workforce skills tend to be easier to relocate than the more asset- and less labor-intensive processes found in process and much of consumer goods manufacturing. However, this will change as other companies begin to outsource; 71% of process and 39% of consumer companies are planning or discussing outsourcing strategies (Figure 7). The FDA, OSHA, and other regulatory agencies are exerting increasing pressure on manufacturers to address additional safety, efficacy, quality, and security concerns during the selection of partners and facilities.

Figure 7: Actions in Discussion by Industry — All vs. Best-in-Class



Source: Aberdeen*Group*, June 2005

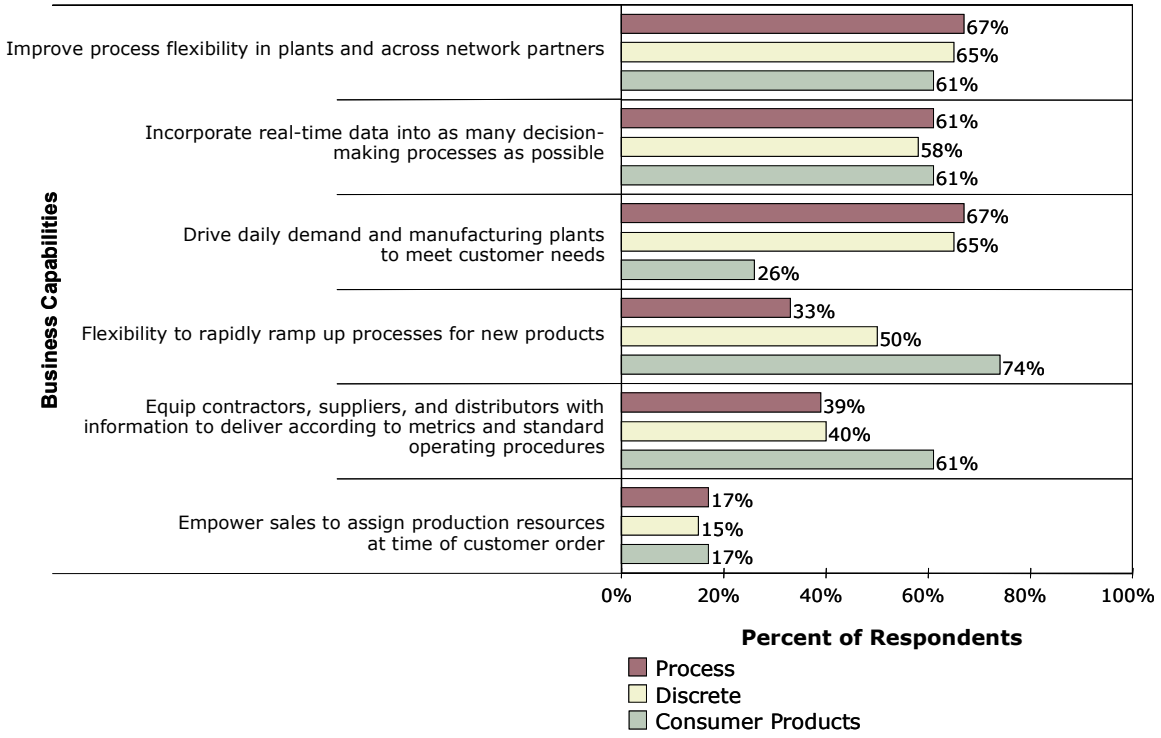
Best-in-class companies across all three sectors are selecting strategic partners and building win/win relationships that can benefit all parties. By developing mutual success goals and continuing to look toward the future, leading manufacturers are empowering their

partners to improve the quality of their services by sharing forecasts, production plans, and new product information with global partners.

Consumer-Oriented Enterprises Ramping Up For New Products

Consumer products manufacturers are taking the lead in getting ready for new product rollouts (Figure 8). These enterprises are ramping up processes at twice the rate of their process counterparts and 50% faster than discrete manufacturers. In addition, consumer-oriented enterprises are equipping their trading partners more aggressively with information, standard operating procedures, and metrics.

Figure 8: Big-Impact Business Capabilities by Industry Sector

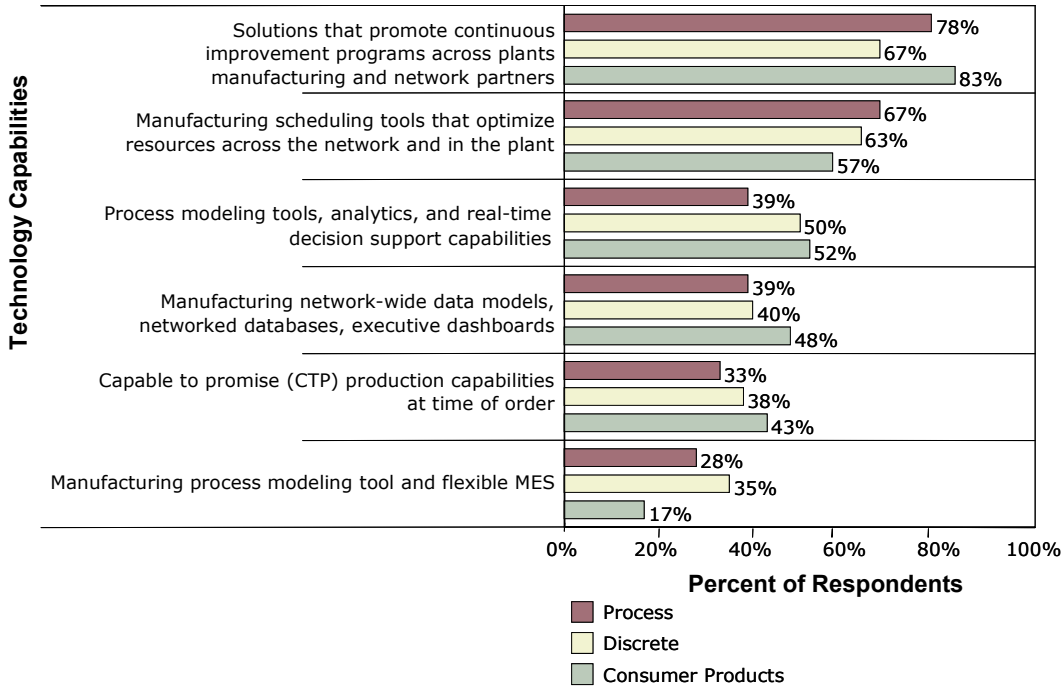


Source: Aberdeen*Group*, June 2005

Technology Solutions Playing a More Strategic Role

The role technology plays in the daily life of the manufacturing executive is evolving from providing direct operational support within the enterprise to synchronizing business processes across organizations and providing real-time intelligence as needed. Access to global information and the ability to respond in real-time are creating unprecedented opportunities for today's executive to "change the game." The use of technology solutions to promote continuous improvement (Figure 9) is the most sought-after technology capability across industry sectors. This highlights the widespread deployment of continuous improvement programs based on Lean strategies, Six Sigma, and similar efforts, many still managed primarily with Excel solutions.

Figure 9: Technology Capabilities Having the Biggest Impact Today



Source: Aberdeen*Group*, June 2005

A Case in Point: Dow Corning

Dow Corning is a leading provider of silicon-based products, as well as technologies and services, to more than 25,000 customers worldwide. Over the past several years, the company has proactively invested heavily in Six Sigma quality programs. Manufacturing has leveraged these disciplines, methodologies, and data-driven approach to eliminate 99.97% of its products' defects.

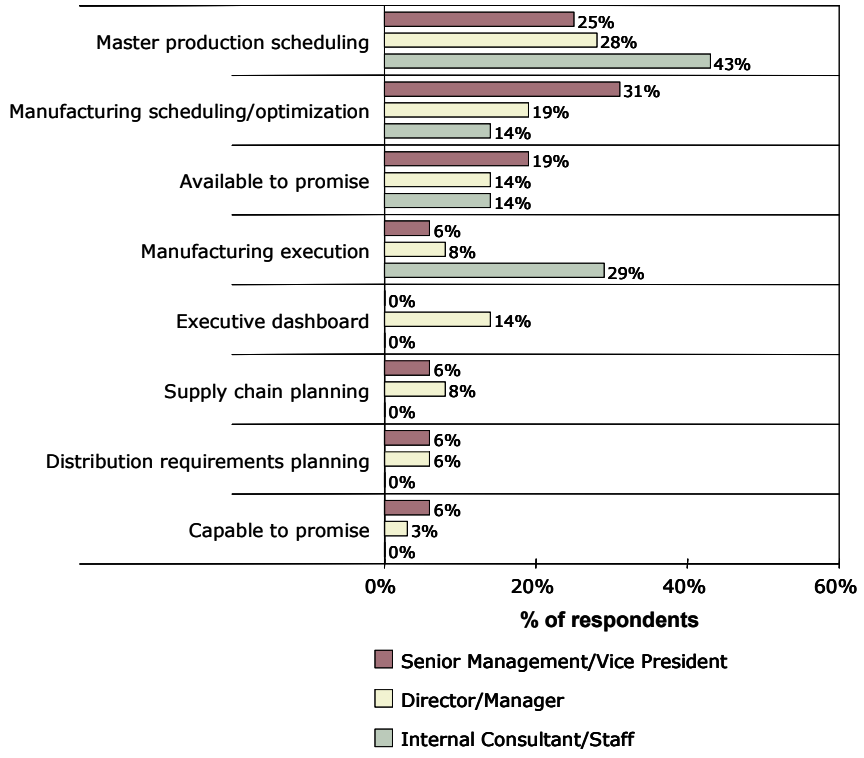
Despite major gains in improving product quality, Dow had accumulated dozens of manufacturing applications and systems throughout manufacturing. Until recently, employees were still collecting data from ERP, LIMS (laboratory information management systems), quality, and other systems into spreadsheets that they used for decision making. In an effort to improve visibility into manufacturing operations, better direct manufacturing employee workflow, and ensure the accurate and secure flow of data, Dow implemented a manufacturing information framework supported by a uniquely configured instruction delivery system that provides each employee with a real-time view of manufacturing procedures and operations.

Today, Dow's manufacturing information framework has combined the information and functionality from different applications and systems into a single workflow. Each worker is presented the next step in a continuous process, along with the information and instructions needed to complete it.

The Role of Technology – Looking Forward

Over time, intelligent global manufacturing frameworks will provide the information support needed for the ecosystem operating models under construction today. While leading global manufacturers are implementing technology infrastructures, survey participants are taking a more pragmatic approach (Figure 10). Master production scheduling (MPS) solutions were cited as playing an important role over the next 18 months. MPS determines what a company/network will produce in specific configurations, quantities, and dates, taking into account the forecast, production plan, and other considerations such as backlog, management goals, and availability of material and capacity.

Figure 10: Use of Technology Solutions in Next 18 Months, by Job Title



Source: Aberdeen*Group*, June 2005

Pressures, Actions, Capabilities, Enablers (PACE)

There's a clear relationship among the pressures companies identify, the actions they take, and their subsequent competitive performance. All participants should examine their prioritized PACE selections and determine whether they can glean valuable perspectives by comparing their PACE selections with those of best-in-class companies. The PACE priorities outlined in Table 2 show the prioritized actions, capabilities, and enablers companies must embrace in response to pressures to move from Industry Average to Best-in-Class categories.

Table 2: PACE (Pressures, Actions, Capabilities, Enablers)

Priority	Pressures	Actions	Capabilities	Enablers
1	Improve or maintain gross margins	Decrease costs by extending manufacturing networks to include contractors, suppliers, co-packers	Equip contractors, suppliers and co-packers with information to manufacture according to metrics and standard operating procedures	Solutions that promote continuous improvement programs across plants and manufacturing and network partners
2	Less predictable demand	Improve manufacturing responsiveness	Improve process flexibility in plants and across network partners	Process modeling tools, analytics, and real-time decision support capabilities
3	Major retailer mandates for next-day delivery	Establish inventory and manufacturing strategies to serve local markets by leveraging partners' resources	Drive daily demand and manufacturing plans to meet customer needs	Manufacturing scheduling tools that optimize resources across the network and in the plant
4	Market pressure to continually introduce new products	Rapid product and packaging innovation strategy	Flexibility to rapidly ramp up processes for new products	Manufacturing process modeling tool and flexible MES (manufacturing execution systems)
5	Special orders or requests by customers	Improve focus on customer processes	Empower sales to assign production resources at time of customer order	CTP (capable to promise) production capabilities at time of order
6	Improve manufacturing performance	Establish KPIs and cascade metrics across manufacturing network	Incorporate real-time data into as many decision-making processes as possible	Manufacturing network-wide data models, networked databases, executive dashboards

Source: AberdeenGroup, June 2005

Chapter Four: Recommendations for Action

Key Takeaways

- Laggard manufacturers should build responsiveness into their organizations by increasing manufacturing flexibility, eliminating stovepipes, and closing the information gap between manufacturing and enterprise systems.
- Industry Average manufacturers should put the customer first by creating enterprise customer business teams, extending them horizontally to incorporate trading partner processes, and establishing common terminology and data standards to integrate partner systems.
- Best-in-Class manufacturers should establish a few key metrics that optimize the network while returning value to each member, unite multiple enterprise improvement programs under a single umbrella, and develop a global information platform that enables online access to all authorized parties.

Globalizaton will continue to alter the landscape of all domestic manufacturers, regardless of sector or size. While ecosystem operating models are developing for the future, it will take several years for most companies to develop the information frameworks that will be required to support them. In the meantime, whether a company is trying to move gradually from laggard to industry average, or from industry average to best in class, the following actions will help spur necessary performance improvements.

Laggard Steps to Success

1. *Improve manufacturing flexibility.*

   If you still rely on a forecast and operate manufacturing in a make-to-stock environment, start looking for opportunities to adopt Lean techniques as you transition at least some product lines to an assemble-to-order process. Become more sensitive to customer demand by maintaining specialized and slower-moving products in a "semi-finished" state, and delay the final finishing or assembly process until the customer order arrives.

2. *Eliminate organizational stovepipes.*

   Extend manufacturing beyond the four walls. Begin by reaching out to customer service and sales to ensure they have the information they need to make informed decisions on behalf of the customer. Get to know suppliers by scheduling information-sharing meetings and ensuring their processes are up to corporate standards.

3. *Close the information gap between manufacturing and the rest of the enterprise.*

   Automate and integrate factory floor systems into a factory-wide database. Establish integration links to directly download VIP customer orders into production scheduling; automatically send material requests to purchasing; and ensure that finance receives inventory transaction regularly.

Industry Average Steps to Success

1. *Put the customer first: Establish customer-focused business teams.*

   Appoint and empower cross-functional customer business teams to become enterprise champions on behalf of major customers. Empower the teams to act by enabling customer relationships. (For example, VIP sales teams often meet with customers to review product requirements and anticipated demand.) Also, provide necessary tools and technology (for example, major retailers promote CPFR collaborative planning and forecasting, enabling manufacturers to manage leaner supply chain and manufacturing operations), and the authority to successfully shepherd orders through the order-to-delivery and other processes (such as ensuring that customized or tailored products meet customer requirements).

2. *Extend teams horizontally to include trading partner processes.*

   As manufacturing processes extend to include suppliers, contractors, and service providers, empower customer-focused business teams to work directly or indirectly with enterprise trading partners on behalf of VIP teams.

3. *Establish common terminology and data standards to connect trading partner systems.*

   Leverage and expand ERP database footprints to include more data elements and standardized integration links, thus encouraging partners to replace fax and phone communications with EDI, simple web access, or direct integration.

Best in Class Next Steps

1. *Establish a few key metrics to optimize the global manufacturing network.*

   Set clear success metrics focused on high-value processes and customers. Optimize network performance, share risk and reward, and return value to each network partner.

2. *Bring enterprise improvement programs together under a single umbrella.*

   Automate and integrate continuous improvement programs across the enterprise, either by working from the factory up or leveraging the balanced scorecard approach to cascade metrics across business process teams and departments.

3. *Develop a global manufacturing network information platform.*

   Define an information platform that will support the enterprise's transition from a vertically integrated business to one that operates horizontally and in unison with your partners. The platform should capitalize on existing information systems and unify key data from disparate partner systems.

Author Profile

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Jane Biddle leads manufacturing research efforts for Aberdeen. Jane's career in manufacturing began in the 1980s as a consultant implementing and supporting MRP systems for Hewlett-Packard, and then as manager for the MRP/ERP product and process industries CIM solutions for Digital Equipment Corp. In the mid-1990s, she established Benchmarking Partners' manufacturing advisory services, and was later recruited by SAP to build the U.S. Industry Centers of Expertise (ICOEs) and Global Solution Maps. More recently, Jane held positions as chief commercial officer and VP Marketing for technology firms in the international trade and logistics sectors. Jane received her MBA and BS in Computer Science from Rivier College in Nashua, N.H. Certified by APICS (CPIM), she remains actively involved with APICS.

Appendix A:
Research Methodology

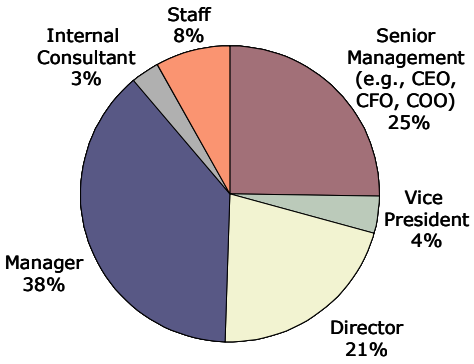
In May and June 2005, Aberdeen*Group* and *Industry Week* examined the manufacturers' management procedures, experiences, and intentions of more than 110 enterprises across the process sector (chemical, food & beverage, mining/oil/gas, pharmaceutical); discrete sector (aerospace & defense, automotive, computer equipment, construction, high tech, industrial equipment, insurance, medical devices); and consumer products (consumer durables, consumer electronics, consumer packaging, distribution, finance, publishing, retail, telecom).

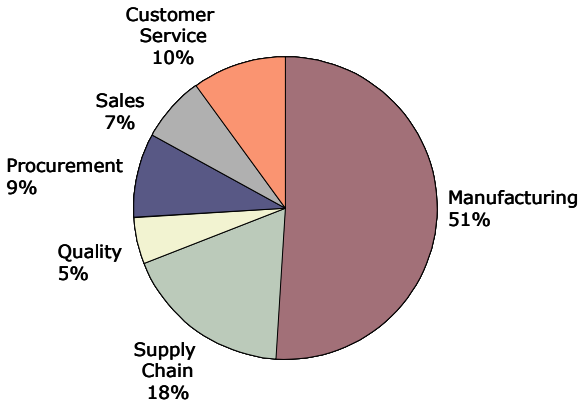
The survey and follow-up interviews were designed to determine the following:

- How leading companies are leveraging their global manufacturing resources to respond profitably to major customers and local markets.
- The strategies, processes, and technologies that enable manufacturers to harness the power of their plants, factories, contract manufacturers, contract suppliers, distributors, and service providers to preempt the competition.
- Current and planned use of automation to aid these activities.

This research included respondents with the following:

- ***Department/function:*** manufacturing (51%), supply chain (18%), customer service (10%), procurement (9%), sales (7%).
- ***Job title:*** manager (38%), senior manager (25%), director (21%), etc.





- ***Geography:*** About 75% of the organizations represented manufacturers within the United States, 50% have plants in Asia Pacific, 38% in Europe, 33% in North America (except the U.S.) and 22% in South America.
- ***Company size:*** About 21% of respondents were from large enterprises (annual revenues more than $1 billion); 16% were from mid-size enterprises (annual revenues between $19 million and $1 billion); and 44% were from small businesses (annual revenues of $50 million or less).

Solution providers recognized as sponsors had no substantive influence on the direction of the *Winning with Global Manufacturing Networks Benchmarking Report*. Their sponsorship has made it possible for Aberdeen*Group* and *Manufacturing Automation* to make these findings available to readers at no charge.

Table 3: PACE Framework

PACE Key
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: • *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) • *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) • *Capabilities* — the business process competencies required to execute corporate strategy (e.g., skilled people, brand, market positioning, viable products/services, ecosystem partners, financing) • *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)

Source: Aberdeen*Group*, June 2005

Table 4: Relationship between PACE and Competitive Framework

PACE and Competitive Framework — How They Interact
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.

Source: Aberdeen*Group*, June 2005

Appendix B:
Related Aberdeen Research & Tools

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

- *Best Practices in Lean: The Momentum Builds* (June 2005)
- *Mid-Size Manufacturer Order-to-Delivery Report* (March 2005)
- *Process Manufacturing Excellence: Strategies for the Plant Floor and Beyond* (March 2005)
- *Lean Strategies Benchmark Report: Manufacturing Excellence Moves to the Value Chain* (June 2004)

Information on these and any other Aberdeen publications can be found at www.Aberdeen.com.

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