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The Supply Chain Innovator's Technology Footprint 2007

*A Benchmark Report on Companies' Technology Investment Plans for
Gaining Immediate and Strategic Payback*

April 2007

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Executive Summary

Supply chain organizations are under continued pressure in 2007 to meet demands for improved customer fulfillment, lower cost of goods sold, and increased global business processes. Aberdeen's benchmark research of 210 enterprises in early 2007 finds that supply chain executives are embracing new approaches and priorities for their supply chain technology roadmap.

For many years, supply chain improvement was synonymous with cutting costs. While cost control is still a strong desire, 72% of companies have other higher-ranking motivations, such as having the ability to better meet customers' unique fulfillment requirements.

Key Takeaways

- ❑ Innovators are 1.5X times more likely than all others to indicate globalization as their top driver for supply chain improvements
- ❑ Inventory Management is the top priority for companies in 2007; in 2006 inventory management was tied with S&OP/demand management as the top priority
- ❑ Supply Chain Visibility is the #2 priority for companies in 2007 (very close behind inventory management)
- ❑ SOA and RFID in warehouse are not high priorities for 2007
- ❑ Supply Chain Visibility and Transportation Management are the top areas of intention to adopt on-demand applications
- ❑ Top areas companies are embarking on short-term ROI projects in 2007 include inventory optimization (42%), transportation management/fleet management (39%), and supply chain visibility (38%)

Spending Plans

Five times as many study participants plan to spend more on new supply chain technology in 2007 than plan to spend less. 43% of the overall respondents (and 79% of large enterprises) indicate that they plan to spend \$500,000 USD or more.

Recommendations for Action

Although this report cannot provide a set prescription for what a company's technology footprint should look like, the benchmark data can act as a directional guide and reality check. The report provides detailed insights into:

- How to develop innovation: Should your company use in-house, ERP, or best of breed technology?
- The key technologies to consider adopting based on whether your organization is a supply chain striver, best practice seeker, or innovator.
- The technology investment areas that companies are targeting to provide ROI in less than six months.

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Chapter One: Issue at Hand

Key Takeaways

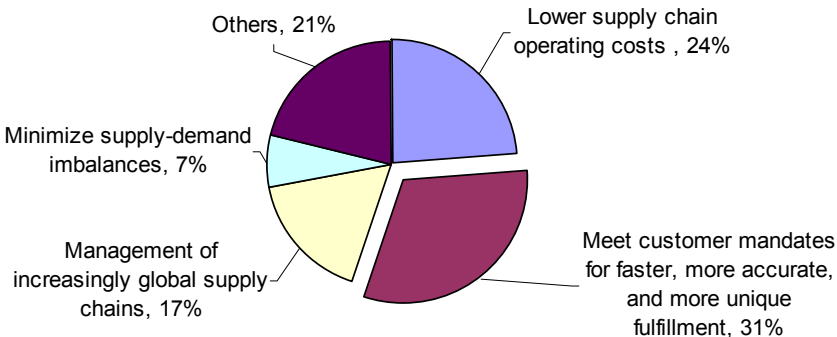
- While lowering supply chain operating costs is still important, 72% of companies have a different primary motivation for improving supply chain processes.
- Compared to 2006, the number of companies that indicate their top motivation is to better manage increasingly global supply chains have doubled.
- Five times as many companies plan to spend more on new supply chain technology in 2006 than plan to spend less.

Supply chain organizations are under continued pressure in 2007 to meet demands for greater customer intimacy, lower cost of goods sold, and increased global business processes. To succeed, these organizations are revamping and reprioritizing their supply chain technology footprints. This process includes focusing on areas that provide short-term ROI for their supply chain technology investment dollars, as well as meeting their long-term strategic goals.

Aberdeen's benchmark research of 210 enterprises in early 2007 finds that supply chain executives are embracing new approaches and priorities for their supply chain technology roadmap. This report documents the top supply chain technology roadmap plans so that readers can evaluate their existing footprints and create updated roadmaps.

For many years, supply chain improvement was synonymous with cutting costs. While cost control is still a strong desire, 72% of companies have other higher-ranking motivations, such as having the ability to better meet customers' unique fulfillment requirements (Figure 1).

Figure 1: Top Motivation for Improving Supply Chain Processes



Source: AberdeenGroup, April 2007



Compared to 2006, the number of companies that report their top motivation for improvement is to better manage increasingly global supply chains has doubled. ([Supply Chain Innovator's Technology Footprint 2006](#))

Depending on the maturity of their supply chain, companies have different goals and priorities in terms of technology capabilities. Respondents fell into three categories:

- **Strivers:** Companies striving to reach industry average with their supply chain technology roadmap.
- **Best Practice Seekers:** Companies looking to adopt industry best practices and supporting supply chain technology.
- **Innovators:** Companies looking to create new supply chain management innovations.

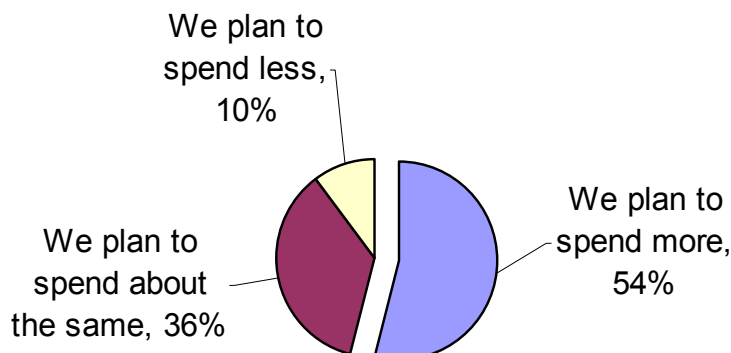
Strivers continue to be much more likely to focus on reducing costs with their supply chain initiatives. By comparison, innovators are focused on delighting customers with tailored fulfillment capabilities and streamlining fulfillment across multiple channels (e.g., direct, indirect, e-commerce).

In addition, innovators are 1.5X times more likely than others to be focused on improving technology to manage increasingly global supply chain chains. Previous Aberdeen global supply chain research found that large enterprises report their global supply chains are only half as automated as their domestic supply chains. Current results show that global supply chain technology is the next area innovators are seeking to gain a business advantage.

Supply Chain Technology Investment Plans

One important trend associated with supply chain technology spending plans is that five times as many study participants plan to spend more on new supply chain technology in 2007 than plan to spend less (Figure 2).

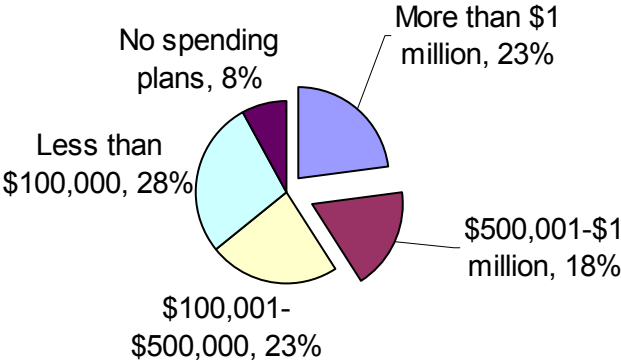
Figure 2: 2007 Supply Chain Technology Spending Plans Trend Over 2006



Source: [AberdeenGroup](#), April 2007

41% of the overall respondents (and 77% of large enterprises) who knew about their supply chain technology investment plans indicate that they plan to spend US\$500,000 or more (Figure 3).

Figure 3: Spending Plans for 2007



Source: AberdeenGroup, April 2007

Other key spending intentions include:

- Fully 51% of mid-size companies (between \$50 million and \$999 million in revenue) plan to spend more in 2007 than they did in 2006.
- A sizeable 66% of large enterprises (over \$1 billion in revenue) plan to spend more in 2007 than they did in 2006.
- Process manufacturers are somewhat more likely than discrete manufacturers to plan for a spending increase in 2007.



Chapter Two: Technology Innovation Plans

Key Takeaways

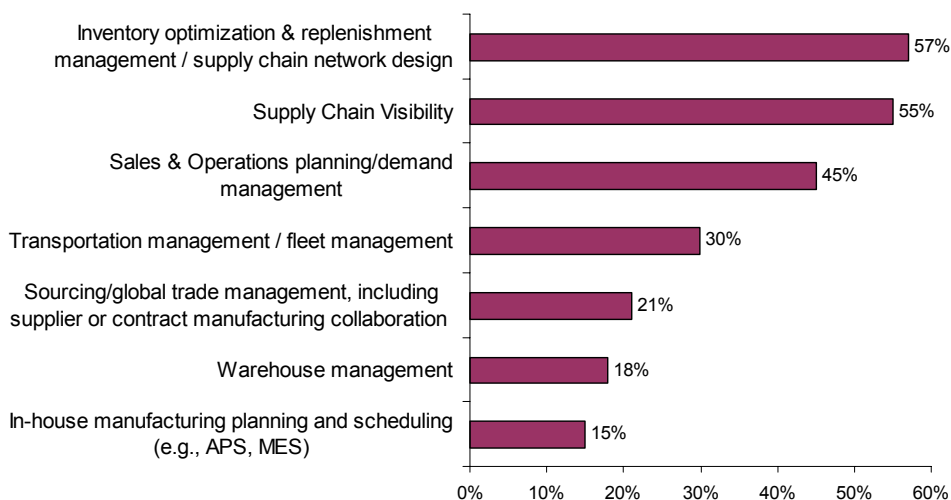
- Inventory optimization/replenishment management is the top application investment area in 2007.
- When compared with their peers, innovators are more likely to prioritize price optimization and short-term forecasting.
- 67% of respondents who prioritized warehouse management indicated they are interested in an updated warehouse management system.

Application Investment Priorities

In this study, participants were asked to list the top three application investment areas used to meet their primary supply chain objective (e.g., lower cost or meet customer mandates). Companies ranked inventory management at the top of the list (Figure 4). By comparison, 2006 results showed demand management tied with inventory management for the #1 position. Inventory optimization was at the top for mid-size companies with 62%; however, supply chain visibility was a slightly higher priority (67%) for large companies in comparison to inventory optimization (62%).

Inventory management technology has been a neglected area for some time. Thus, it is surprising to see such a large percentage of respondents list the technology as their top priority, especially since this is the second year companies have done so. Companies that have not yet refreshed or expanded their use of inventory management technology should put it on their to-do list this year.

Figure 4: Top Application Investment Areas



Source: AberdeenGroup, April 2007



Supply Chain Functionality Priorities

Table 1 lists the primary and secondary technology priorities for the overall respondents.

Table 1: Technology Footprint Priorities of Companies Overall

Application Area	Priority #1	Priority #2
Inventory Optimization	Inventory optimization	Strategic network design to optimize facility locations and size
Supply Chain Visibility	Order status visibility	Inventory visibility across multiple sites
Sales and Operations Planning	Creating a profit optimized supply-demand balanced S&OP plan to improve corporate performance	Business intelligence tools to improve ad-hoc reporting capabilities for S&OP
Demand Management	Demand management that supports specific product-level, customer, and channel forecasts	Forecast collaboration with customers or suppliers
Transportation Management	Shipment Optimization	Online transportation information for the enterprise (e.g., costs, service options, status)
Supplier and Global Trade Management	Supplier enablement (e.g., electronic integration with suppliers via EDI, XML, supplier portal)	Supplier/contract manufacturer collaboration (e.g., forecast sharing, demand-supply synchronization)
Warehouse Management	Updated Warehouse Management System	Flexibility to support changing value-added processes and unique warehouse workflows by product, customer, and channel
Internal Manufacturing Planning and Scheduling	Constraint-based manufacturing planning and scheduling	Demand-supply synchronization, supporting rapid re-planning in response to real-time information

Source: [AberdeenGroup](#), April 2007



When compared with their peers, innovators are more likely to prioritize:

- **Pricing optimization solutions** to incorporate price elasticity and other factors into the demand management process.
- **Forecasting systems** that calculate short-term demand by store and by item using point of sale data
- **Strategic network design** tools to optimize facility locations and size
- **Preferential trade agreement optimization** (e.g., NAFTA, CAFTA, EU) to create a tax-efficient supply chain
- **Master scheduling** across a combination of in-house and outsourced manufacturing
- **Multi-tier replenishment planning** (e.g., when to have supplier drop ship to a customer, when to bypass central DC)
- **International transportation management** (e.g. ocean, air)
- **Supply chain risk management**

Enterprises looking to keep up with or surpass supply chain leaders in their industry should investigate these “innovator” areas to determine whether they should be emphasized more in their own corporate supply chain roadmap.

The New Supply Chain Footprint

Survey participants were asked to identify their top three functionality enhancement priorities for each of their key application improvement areas. (Respondents that did not prioritize an application area are not included in that area's results). Readers can benchmark their technology roadmaps against these results to identify additional areas of opportunity. These areas are ordered in the priorities chosen by the respondents.

Inventory Management Priorities

Aberdeen's research on inventory management processes and technologies shows that these areas are being actively re-evaluated by companies today. Nearly 66% of respondents to Aberdeen's September 2006 inventory management study indicated they have made or been asked to provide recommendations in the past six months to management on how to improve their inventory management technology. The study found that the visionary companies are leveraging their inventory as a competitive weapon and have moved to network-based inventory management versus doing it at a facility or company level.

Multi-tier inventory optimization continues to be the area companies are most focused on today in terms of inventory improvement priorities (Figure 5). The area innovators are breaking away from the rest of respondents is in multi-tier replenishment planning – innovators are 3X times more likely to be prioritizing multi-tier replenishment planning.

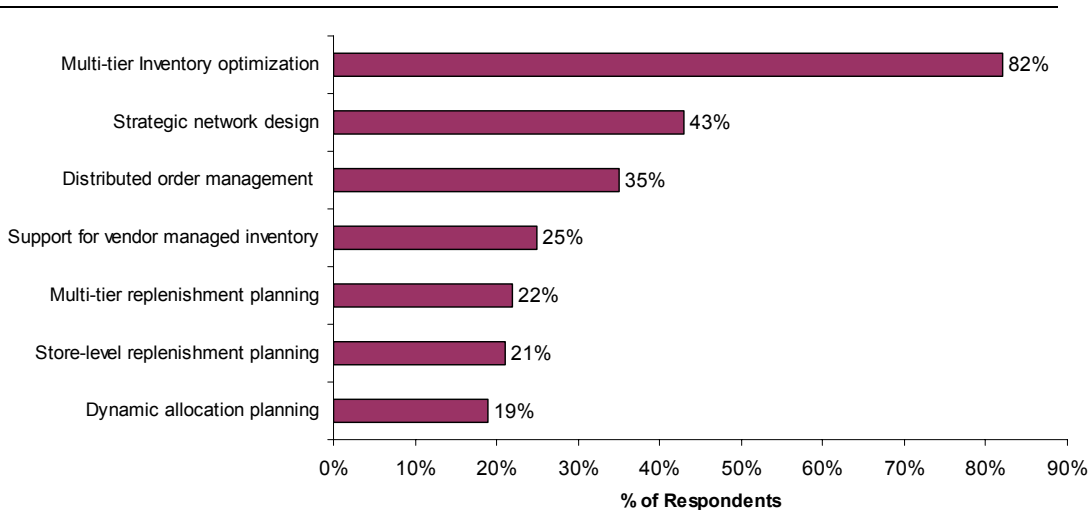
Enterprise Example

Airbus UK faced issues with consignment stocking and visibility/control, while suppliers faced issues with long-term contracts and usage data to maintain consistent inventory levels without fire drills. In addition, the 3PLs and distributors in the supply chain faced a high cost of business due to inefficient systems.

To cope with these issues, Airbus implemented a Collaborative Inventory Replenishment Management system to help manufacturers and suppliers gain optimal profitability from their supply chains and collaboratively increase their overall control and visibility. The company was able to reduce inventory shortages and overall inventory handling costs.

“The team’s success has enabled the Filton plant to become the aerospace industry benchmark with regards to parts supply and stock holding,” reports the operations manager, for Airbus Filton.

Figure 5: Inventory Management Technology Priorities



Source: [AberdeenGroup](#), April 2007

Notable Technology Innovations: Multi-echelon inventory management tools that use stochastic (probabilistic) methods to account for demand and supply variability usage based multi-tier replenishment planning solutions

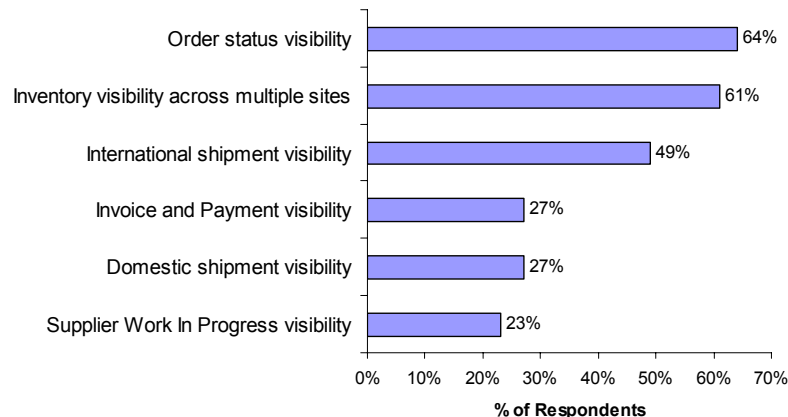
Value that these innovations deliver: Reduction in inventory, higher customer service levels, lower out of stocks



Supply Chain Visibility

Figure 6 shows the areas companies are focused with respect to supply chain visibility.

Figure 6: Supply Chain Visibility Areas of Focus



Source: AberdeenGroup, April 2007

Notable Technology Innovations: Transformation from status tracking to exception-based process management platforms with alerting, escalation policies, resolution advice or workflow, performance trending, and root cause analysis.

Value that these innovations deliver: Inventory and lead-time reductions, improved on-time deliveries, improved cross-company, and cross-department synchronization

Demand Management Priorities

Aberdeen research found that demand collaboration and customer level forecasting are the top priorities for companies within demand management (Figure 7). Customer level forecasting allows companies to align their forecasting process to the customer service level and lead-time reduction requirements. Forecasting is effective in environments that have a combination of build to order/build to stock business models, seasonal or cyclical environment, VMI environments, and promotion-driven environments.

Innovators are 1.5X times more likely to prioritize the following areas as compared to others:

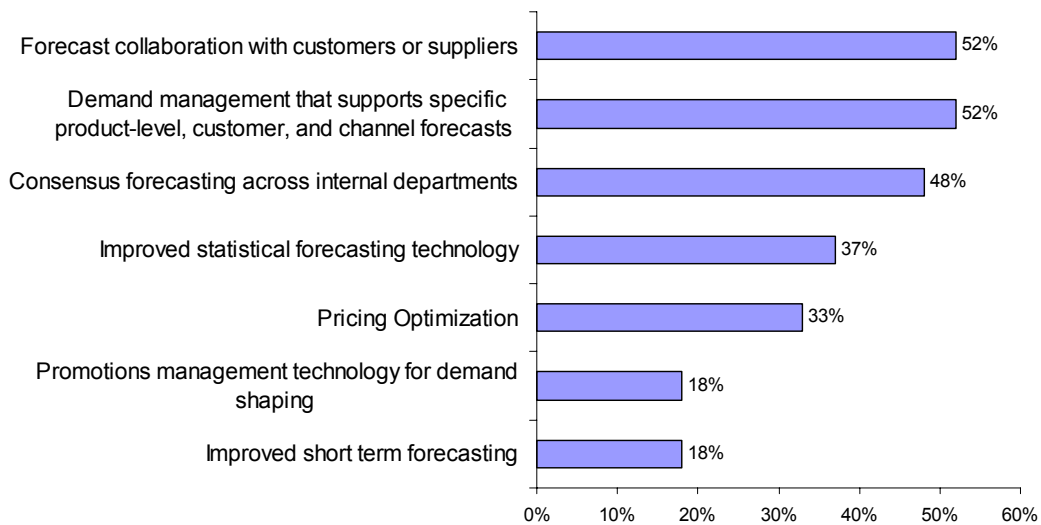
- Improved short term forecasting
- Promotions management technology for demand shaping
- Pricing Optimization

Best Practice seekers are more likely to be focused on the following areas:

- Improved statistical forecasting technology
- Consensus forecasting across internal departments (e.g. sales, marketing, supply chain)



Figure 7: Demand Management Technology Priorities



Source: [AberdeenGroup](#), April 2007

Notable Technology Innovations: Demand signal repositories (in consumer industries), demand shaping tools via promotion and pricing optimization tools, short-term forecasting innovations, product life-cycle forecasting, and attribute-based forecasting

Value that these innovations deliver: Improved forecast accuracy and improved customer service levels, reduced stock-outs, and improved revenue

Sales and Operations Planning Priorities

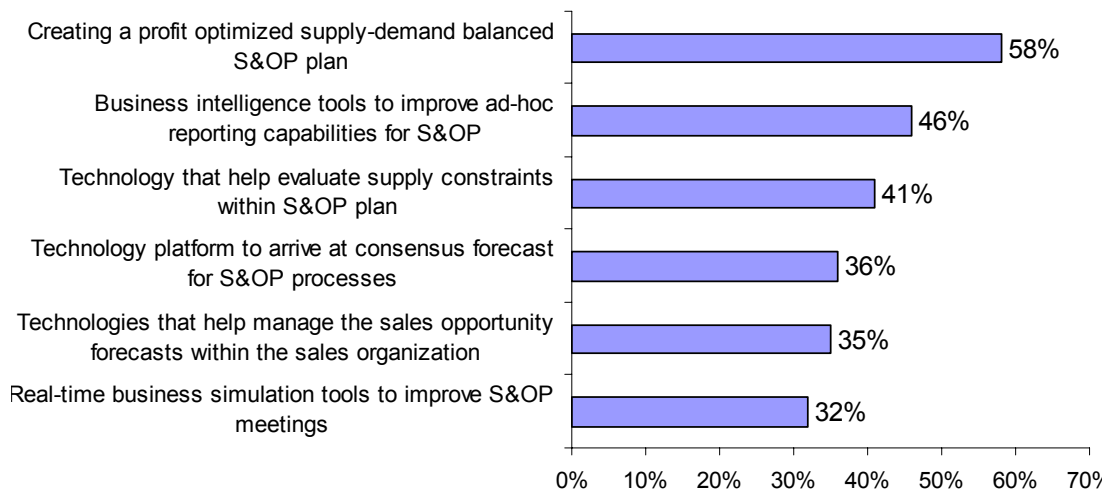
Aberdeen research shows that traditional sales and operations planning (S&OP) processes and supporting technologies are no longer sufficient in today's high-pressured business environment. S&OP has evolved to become Integrated Business Planning. This method is a truly cross-functional, multi-dimensional process that includes all elements of demand, supply, and financial analysis in relation to the business goals and strategy.

The results from our 2007 innovator's survey (Figure 8) finds that the top two areas of technology priorities for companies within S&OP include:

- a) Creation of a profit-optimized S&OP plan
- b) Improving ad-hoc reporting through usage of BI tools



Figure 8: S&OP Technology Priorities



Source: [AberdeenGroup](#), April 2007

Notable Technology Innovations: Web-service based composite application support for S&OP processes, enterprise Excel support (light-weight S&OP overlay applications), and sales planning applications (to bridge CRM systems and supply chain planning systems)

Value these innovations deliver: Improved gross margins and improved order fill rates

Seagate Implements Executive S&OP Process Using Technology Innovation

Seagate designs and manufactures rigid hard disk drives for use in enterprise servers, mainframes and workstations, desktop applications, mobile computing, consumer electronics applications, etc. Seagate has a dynamic business environment resulting in the need for flexible supply chain applications. They implemented an integrated business planning solution that connects excel from a desktop environment to a formal DBMS. The solution handles the executive S&OP process from managing the consensus forecasting process and executive buy-in through plan acceptance to finally releasing the plan to manufacturing for enabling material planning.

Key Benefits:

- ✓ Executive visibility – allows management to look at various plans and create scenarios around it. Management can model both demand upside and downside scenarios. In the past management had to rely on analysts as well as extended timeframes to perform a fraction of these scenarios.
- ✓ 40% improvement in planner productivity – instead of working with multiple spreadsheets/templates the planners were able to consolidate their input into one interface
- ✓ Data integrity and cleansing – instead of critical data being stored in excel and in the memories of analysts, the data was moved into an Oracle database.

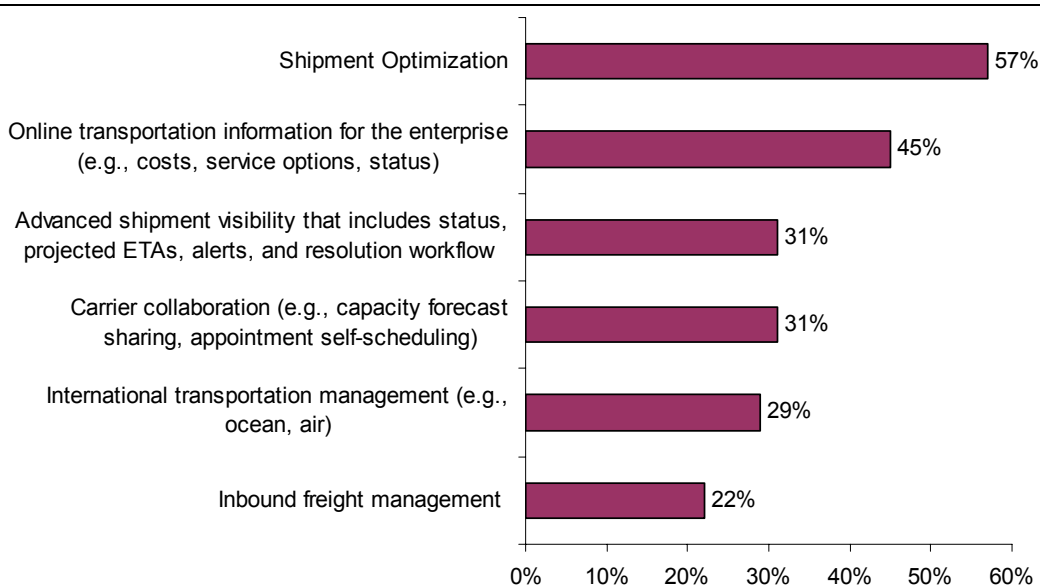


- ✓ Management and planner commitment – the existing climate of skepticism was turned around based on the initial success and realized value from this initiative. This laid the foundation for future process change initiatives using established methods such as 6-Sigma.

Transportation Management Priorities

Transportation management is moving out of the shadows and into a strategic role in driving supply chain excellence. In recognition of this, more companies are actively re-evaluating their transportation management processes, organizational structure, and technology. Figure 9 shows the priorities for companies with respect to transportation management.

Figure 9: Transportation Management Technology Priorities



Source: AberdeenGroup, April 2007

Innovators are 1.5X times more likely than others to be focused on improving their transportation technology in the following areas:

- International transportation management (e.g., ocean, air)
- Advanced shipment visibility that includes status, projected ETAs, alerts, and resolution workflow

Notable Technology Innovations: Inbound shipment management and international transportation management, with continued momentum from on-demand TMS offerings.

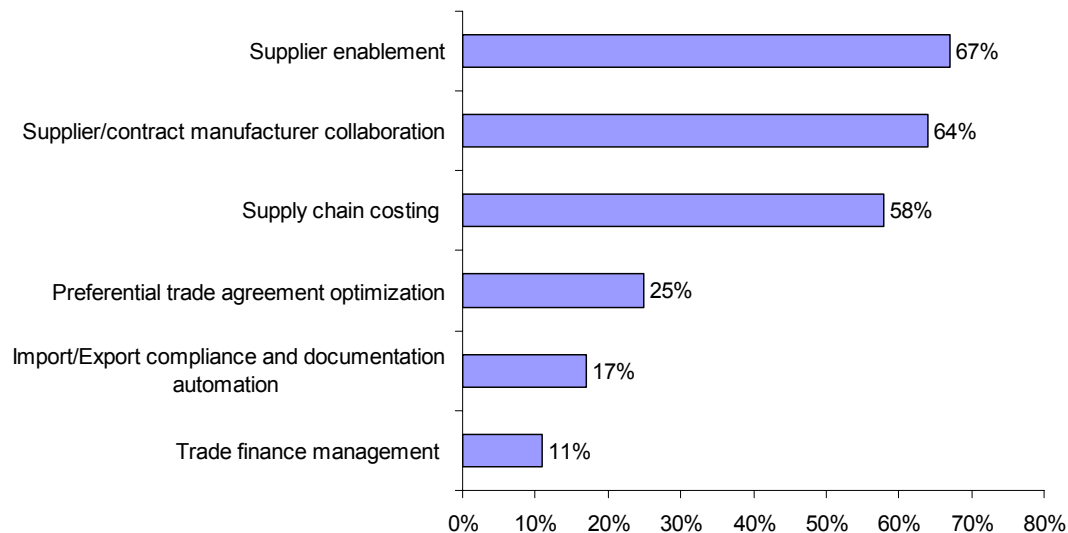
Value that these innovations deliver: Reduced lead times, lead time variability, and improved shipment consolidation, resulting in transportation and inventory savings.



Supplier and Global Trade Management Priorities

Figure 10 shows the top priorities for companies with respect to supplier and global trade management.

Figure 10: Supplier and Global Trade Technology Priorities



Source: AberdeenGroup, April 2007

Notable Technology Innovations: B2B process management platforms for supplier and customer collaboration. These global trade platforms support multi-country import, export management, and preferential trade agreement optimization.

Value that these innovations deliver: Increased agility and responsiveness, tighter lead times and inventory requirements, and lower total landed costs.

Warehouse Management Priorities

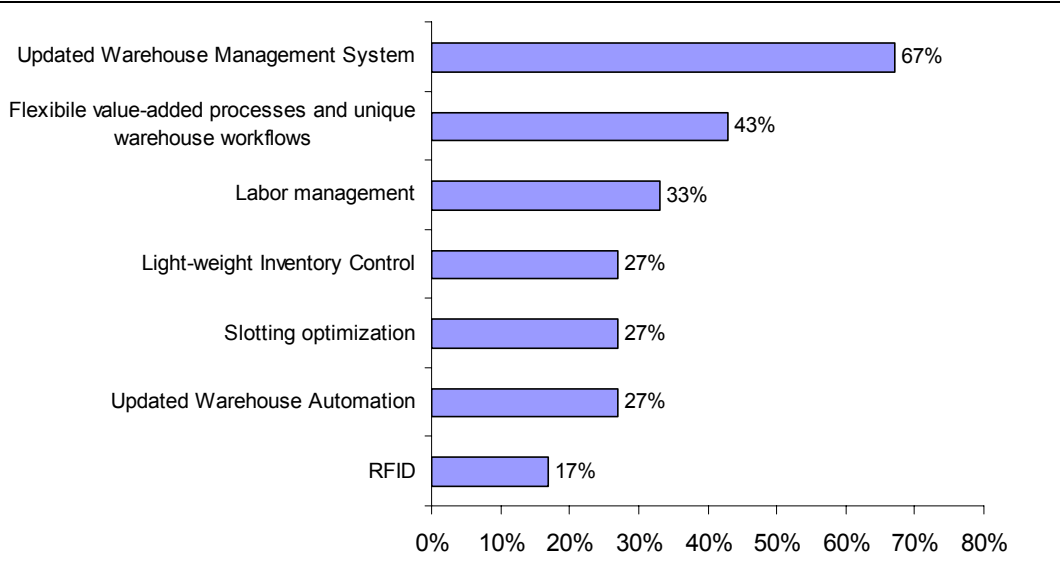
Companies are actively looking for updated warehouse management systems (Figure 11). There is also an active interest in obtaining solutions that can offer flexible value-added processes and unique warehouse workflows (43% of respondents). In fact, an overwhelming 83% of innovators are prioritizing flexible workflows as compared to only 33% of Best Practice seekers and 30% of Strivers.

Other areas innovators are more likely to focus on as compared to others:

- Slotting optimization
- Lightweight inventory control; this technology can provide multi-site visibility across storerooms, satellite facilities, and partner inventories.

In 2006, 57% of innovators responded that RFID is a key innovation technology for their supply chain roadmap. **However, in 2007, only 17% of respondents say that RFID is a key technology innovation for their supply chain roadmap.**

Figure 11: Warehouse Management Technology Priorities



Source: [AberdeenGroup](#), April 2007

When evaluating warehouse management systems, seek out solutions that easily support different execution workflows based on customer or order attributes. Your solution should be capable of managing changing value-added processes and unique warehouse workflows by product, customer, and channel – without causing your warehouse staff to resort to workarounds and “off line” activity.

Notable Technology Innovations: Extended warehouse management solutions that create tightly integrated workflow between inbound and outbound shipments, yard and dock management, and internal warehouse activities.

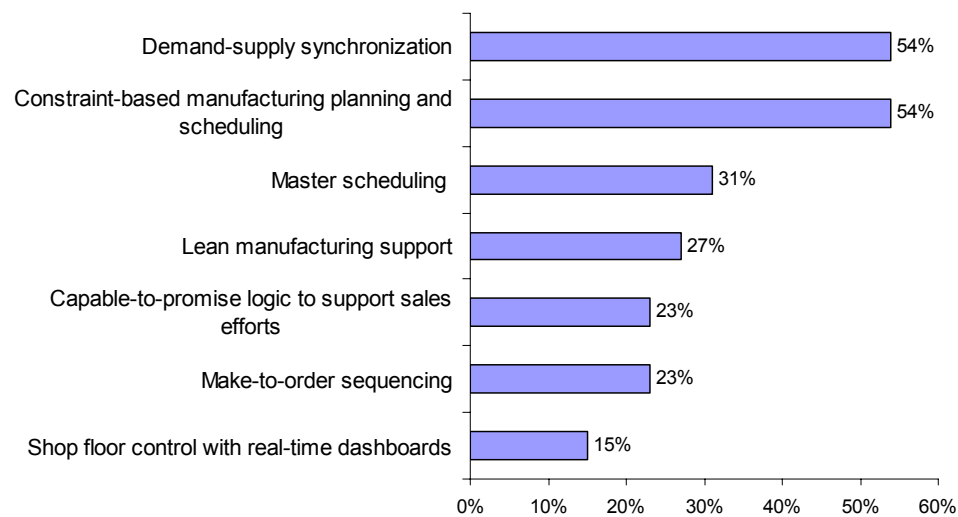
Value that these innovations deliver: Reduced logistics costs and improved warehouse throughput.

Manufacturing Management Priorities

Previous Aberdeen benchmark research has shown that manufacturing leaders apply more technology to their operations than their peers. Constraint-based manufacturing planning, scheduling, and demand-supply synchronization remain at the top of the priority list in 2007 (Figure 12).



Figure 12: Manufacturing Planning & Scheduling Technology Priorities



Source: AberdeenGroup, April 2007

Innovators do show some priority differences, however:

- Innovators in discrete industries are 1.5X more likely to be focusing on make-to-order sequencing
- Innovators are 2X more likely to be focusing on master scheduling across a combination of in-house and outsourced manufacturing
- Innovators are 2X more likely to be focusing on capable-to-promise logic to support sales efforts

Best Practice seekers are 2X more likely to focus on Lean manufacturing support than innovators. This may be due to the fact that Lean is more the norm in the minds of the innovators because they may have already incorporated Lean principles and supporting software.

Notable Technology Innovations: Attribute-based planning, closed loop workflows between the manufacturing shop-floor to upstream planning, and composite applications for manufacturing intelligence with shop floor to top floor visibility.

Value that these innovations deliver: Reduced lead-times and reduced finished goods inventory

Chapter Three: Supply Chain Technology Roadmap Plans

Key Takeaways

- 41% of respondents are planning short-term (6 months) ROI projects in 2007
- Innovators are 2.5X more likely to want to leverage on-demand for sourcing/global trade management
- The top 2 areas for adopting on-demand (SaaS) solutions are Supply Chain Visibility and Transportation Management/Fleet Management.

Company Philosophy for Supply Chain Infrastructure

Aberdeen asked the participants to indicate their supply chain infrastructure technology priorities. The summary results are identified in Table 2. Revamping of infrastructure using Service Oriented Architecture is the last priority for companies, whereas upgrading their existing supply chain applications is the primary focus for the overall companies. Innovators are more focused on deploying a platform for collaborating with customers and suppliers instead of keeping their applications current.

Table 2: Company Philosophy for Supply Chain Infrastructure

	% of Respondents
Focusing on upgrading current packaged supply chain applications from our ERP or SCM vendors	38%
Focusing on deploying a platform for collaborating with customers	35%
Focusing on deploying a platform for collaborating with suppliers	34%
Looking to use new packaged applications from our ERP vendor to extend our current capabilities	29%
Revamping the infrastructure using Master Data Management technologies	28%
Looking to use new packaged applications from a best of breed vendor to extend our current capabilities	24%
Looking to use on-demand (hosted or software as a service) applications to extend our current capabilities	20%
Revamping the infrastructure using Service Oriented Architecture	17%

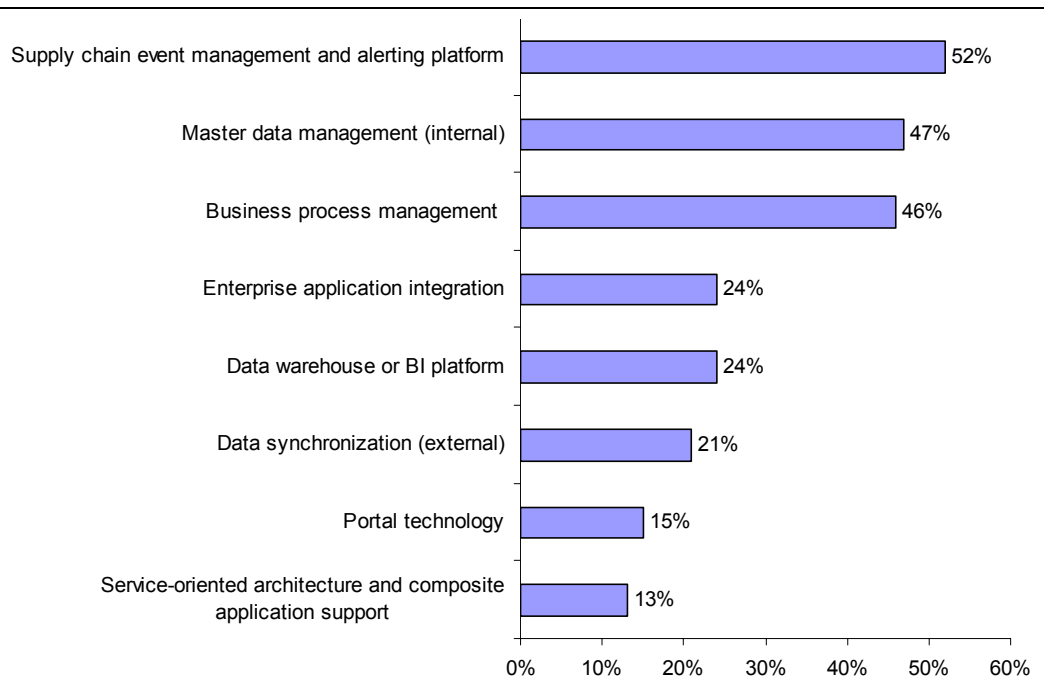
Source: AberdeenGroup, April 2007



Supply Chain Enterprise Infrastructure Areas

Figure 13 shows the enterprise infrastructure areas that companies believe are most important for their SCM technology roadmap. Even though SOA is an important enabler for several infrastructure areas like Supply Chain Event Management, Master Data Management, and Business Process Management, it does not rank highly in the priorities of corporate users. Instead, companies are focused on leveraging the following capabilities in their supply chain technology roadmaps: Supply chain event management and alerting platforms, Master Data Management (internal), and Business Process Management.

Figure 13: Supply Chain Infrastructure Technology Priorities



Source: [AberdeenGroup](#), April 2007

Supply chain event management platforms allow companies to manage information across distributed systems and multiple tiers at every stage of the supply chain process from order creation to fulfillment. These platforms can detect, evaluate, and alert companies about problems in real time. Next-generation SCEM solutions will not only be able to monitor order status, manufacturing status, in-transit status, and inventory and asset positions, but will also be able to trigger financing and settlement activities based on supply chain events. Innovators are prioritizing supply chain event management and platform alerts much more than others.

Master Data Management (Internal): Supply chain data often resides in a non-uniform environment across disparate ERP systems, best of breed systems, legacy systems, spreadsheets, etc. This sea of disparate data sources with a myriad of data models and data naming conventions (e.g., HK vs. Hong Kong) can lead to incorrect, out of date, or non-normalized data, resulting in poor decision-making. Uniform master data provides companies with an enormous competitive edge. Leading companies are leveraging master



data management solutions to standardize their supply chain data and provide a much easier process for keeping data updated.

Business Process Management: Most supply chain software is not designed to handle the rapid business process change and distributed enterprise model that businesses are currently operating on. The cost and difficulty of modifying these applications to support newer business processes is also very high. The specific goal of Business Process Management tools is to resolve these drawbacks and enable increased flexibility and reduced costs.

Roadmap for Short-term ROI Projects

43% of respondents are planning technology projects they believe will have a 6-month ROI timeframe. The top three areas short-term ROI projects are being planned include:

- Inventory Optimization (42%)
- Transportation Management/Fleet Management (39%)
- Supply Chain Visibility (38%)

51% of innovators indicate they are planning short-term ROI projects. The top four areas where they are planning these projects are:

- Transportation Management/Fleet Management (59%)
- Supply Chain Visibility (55%)
- Global Sourcing and Procurement (45%)
- Inventory Optimization (41%)

The low hanging fruit on inventory management has been picked by many innovators, causing transportation management to be at the top of short term ROI projects. Innovators are now focusing on redesigning their network and working with their supply chain partners on more extensive inventory transformation initiatives, which tend to be longer term ROI projects. Transportation, especially when using on-demand solutions, tend to be short term ROI initiatives that innovators focus on. Companies can get up and running with TMS in three months and derive ROI in about half a year.

Ace Hardware, a \$13 billion North American retailer, implemented an on-demand solution to enhance supplier collaboration and improve inventory turns by decreasing lead times and lead time variability. Moreover, because Ace Hardware wanted to hook up hundreds of suppliers, trying to do this with internal resources – and then maintain it – would have been a tremendous undertaking.

Under the new process, suppliers commit to a consistent, short order-ship cycle, carriers commit to timely and accurate pick-up and delivery, and Ace Hardware's distribution centers commit to specific day-of-week delivery and unload schedules. The process is monitored and managed via the transportation management system, which coordinates and directs activities by providing detailed online visibility of orders and shipment status to all parties involved.



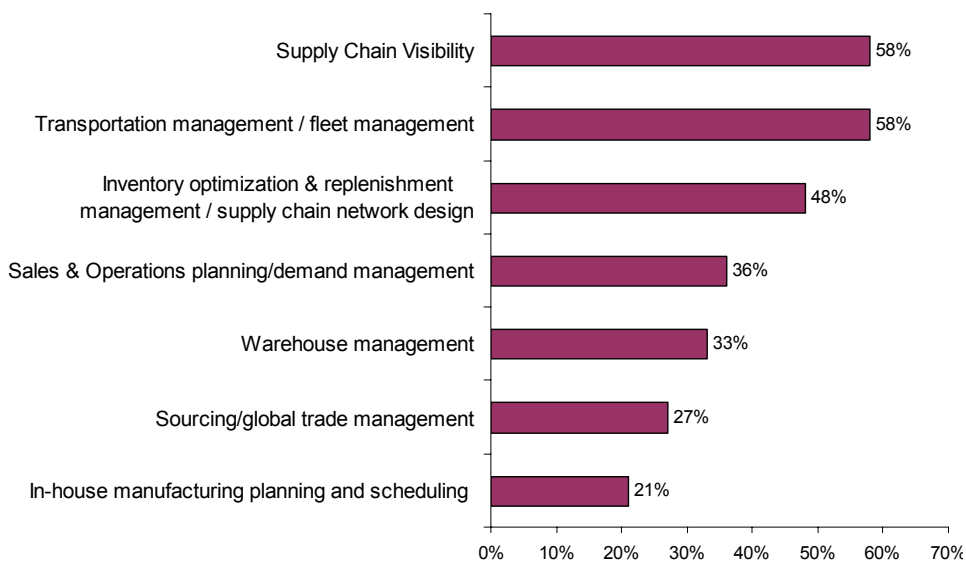
Benefits Achieved

- **Fast implementation with 700 suppliers on-boarded:** The project fully kicked off in early 2006 and was operational in April. By November 2006, an exceedingly 700 vendors were connected to the system.
- **Improved transportation execution.** The retailer is now actively connected to about 200 of its carriers on the network, including its own private fleets. Ace Hardware has saved millions of dollars in transportation costs because of an improved shipment consolidation and carrier selection process.
- **Performance improvement:** With some suppliers, Ace Hardware has achieved as much as a **24% reduction in inventory** due to a dramatic reduction in lead time variability.

On-Demand Usage

A recent Aberdeen study found that nearly two-thirds of current on-demand supply chain users report that they have been able to implement in less than three months and achieve ROI in under a year. (To learn more, read [The On-Demand Tipping Point in Supply Chain Report](#).) Figure 14 shows where companies in 2007 would consider/are using on-demand applications.

Figure 14: On-Demand Application Areas for Supply Chain



Source: AberdeenGroup, April 2007



Innovators are different from Best Practice Seekers in the following ways:

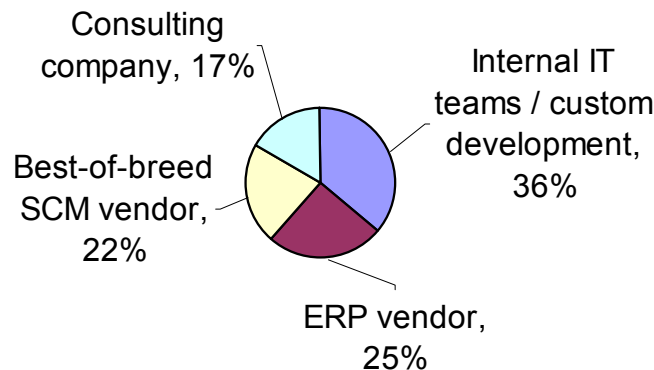
- 1.5X more likely to want to leverage on-demand for supply chain visibility and inventory optimization
- 2.5X more likely to want to leverage on-demand for sourcing/global trade management
- 3X more likely to want to leverage on-demand for in-house manufacturing planning and scheduling

How to Develop Innovation: In-House, ERP, or Best of Breed?

As Figure 15 shows, companies are nearly split in how they choose to develop supply chain innovations between a partnership with a best-of-breed supply chain vendor, their ERP vendor, internal technology development, or a consulting company.

Innovators are almost 40% less likely than others to be developing their innovations through internal technology development as compared to all others.

Figure 15: How Companies Plan to Create New Supply Chain Innovations



Source: [AberdeenGroup](#), April 2007

For most companies, innovation can be achieved with commercial technology by one of four methods:

1. Employing existing packaged or on-demand software in ways that are groundbreaking for your industry
2. Creating new ways to leverage the data and decision-making smarts of commercial supply chain technology for other parts of the organization
3. Using commercial software but collapsing the gap between planning and execution cycles
4. Using a composite application approach to create new workflows across multiple commercial applications



Be wary, however, of force-fitting an existing application into a new process via customizations.

- “We underestimated the effort that it took for getting this order management system live,” says the director of a marketing organization within a large automotive and aerospace OEM. “We kept making customizations to it because it did not support our functionality out of the box. Now we have a huge application that even though our dealers love is not maintainable as well as upgradeable.”
- “We are now doing a re-implementation with our software partner with standard out-of-the-box functionality,” he continues. “Our software partner’s technology is also now SOA-enabled which will make it more flexible and allow future upgrades to be done more easily.”

Where Do Enterprises Want Vendors to Innovate?

Enterprises are very interested in vendors to innovate as the following quotes indicate:

- ✓ Director of Supply Chain of a large Consumer Packaged Company says “Customer collaboration to manage inventory deployment from our suppliers across our locations and through our customers’ DC to stores. Need automate replenishment planning based upon pull environment.”
- ✓ The Manager of Business Process Management of a large automotive company says “Showing the interconnection between the total supply chain and how increasing lead times, forecast error, etc will all have an impact on safety stock levels and what that impact could be. It is all about finding corrective action to an approaching problem.”
- ✓ The Manager of Supply Chain of a mid-size medical device manufacturer says “Data management. Very few vendors provide the ability to measure lead times, order multiples, and safety stocks against actuals.”
- ✓ The Manager of a large Germany based multi-national chemicals company would like to see their ERP’s Transportation Management system support domestic and foreign trade including document generation and NAFTA management.



Chapter Four: Recommendations for Action

Key Takeaways

- **All companies** should prioritize multi-tier inventory management and supply chain visibility.
- **Strivers** should prioritize business intelligence, internal demand management collaboration, supplier enablement, and transportation management with strong information sharing capabilities.
- **Best practice seekers** should prioritize external demand management collaboration, supplier/contract manufacturer collaboration, demand-supply synchronization with the manufacturing shop floor, inbound and international transportation management, and warehouse process flexibility and labor management.
- **Innovators** should prioritize profit-optimized supply/demand-balanced S&OP, short-term forecasting, true multi-echelon inventory optimization, and preferential trade agreement optimization.

Designing a supply chain technology footprint is an intensely personal decision for each company. Corporate strategies for competitiveness, existing technology investments, business pressures, customer demands – as well as internal skill sets, IT resources, and politics – must all be factored into a technology adoption strategy.

Although this report cannot provide a set prescription for what your technology footprint should look like, the benchmark data can act as a directional guide and reality check. Based on this study's benchmark results, the following trends and priorities are key technology considerations for Overall Respondents, Strivers, Best Practice Seekers, and Innovators. For further insight into many of these areas, see Appendix B for related Aberdeen reports.

Overall Trends

These are areas that are receiving high levels of attention from companies at all maturity levels.

1. *Multi-tier inventory management*

Too many companies rely on overly simplistic and static inventory management methods. This is no longer viable in today's environment of higher-velocity supply chains, shorter product life cycles, more stringent customer service requirements, and longer supply chains. Ensure that your inventory management technology and policies support more dynamic inventory policy and target setting (e.g., multiple times a year). Further, optimize your inventory across multiple locations versus managing policies at a facility level, and take advantage of inventory risk pooling and mix optimization to lower safety stock requirements by 10-30%. Reexamine your approach to setting inventory targets to see if you can get more mileage out of your current ERP or APS solutions. Companies seeking a competitive advantage should look at how the new breed of multi-echelon optimization tools can help. These tools are



typically not a replacement for existing ERP or APS tools. Rather, they are a bolt-on that helps these solutions work better by providing them with improved safety stock and economic order size parameters. These solutions are routinely helping companies to eliminate 20%-30% of their inventory while maintaining or improving service levels. Be aware that some tools are better suited to upstream inventory optimization, while other tools are tuned more for finished goods management.

2. *Supply chain visibility*

Visibility is paramount in being able to actively manage the supply chain and create information-related value for the rest of the organization to better streamline their activities. No matter what your company's maturity level, figure out some way to improve visibility, whether it's using technology via a logistics service provider, a cargo portal, an on-demand system, or an offering from your ERP or supply chain software provider. Many transportation management systems have built out extended capabilities in this area as well, supporting self-serve status information for multiple departments.

Technology Priorities for Strivers

Companies striving to reach industry average should consider these key technology investment areas:

1. *Business intelligence tools to improve ad-hoc reporting capabilities for S&OP*

Focus on the layer of executive reporting first to improve your S&OP process. There are light-weight BI tools that can run on spreadsheets as well as full-fledged OLAP tools in the market that help create reporting/analytics. Improved S&OP reporting can highlight cross-functional performance metrics and help the executive team understand how to steer the business to maximize corporate performance.

2. *Internal demand management collaboration*

Stop relying on forecasts derived from aggregate warehouse shipment history. In particular, look to deploy technology that will support specific customer and channel forecasts and enable consensus forecasting across departments.

3. *Supplier enablement (e.g., electronic integration with suppliers via EDI, XML, supplier portal)*

Electronic connectivity is the first step toward process collaboration. Many laggards still have electronic connectivity with only their top suppliers. There are now several lower-cost options available to integrate with a wider spectrum of suppliers via portals and web forms, Internet EDI, XML, and web services.

4. *Online transportation information for the enterprise (e.g., costs, service options, shipment status)*

Transportation management systems have been transformed from departmental solutions to information hubs for an enterprise and its trading partners. This enables companies to not only remove transportation costs through better shipment coordination and consolidation but also improve warehouse productivity, lower inventory



levels, reduce customer lead times, and so on. On-demand transportation management systems, which come with pre-connected communities of carriers and built-in role-based information access, can be a fast way to gain these benefits.

Technology Priorities for Best Practice Seekers

Companies looking to adopt industry best practices and supporting supply chain technology should consider these key investment areas:

1. *External demand management collaboration*

Expand your demand management processes to include forecast collaboration with key customers or suppliers. As more companies strive for this, be aware that you may face squabbles with your trading partners over *whose* forecast collaboration technology or process to use – yours or theirs.

2. *Supplier/contract manufacturer collaboration (e.g., forecast sharing, demand-supply synchronization, inventory management)*

Electronic sharing of information with suppliers and contract manufacturers is critical to driving down lead times and increasing responsiveness to demand shifts. For discrete manufacturers, examine whether a technology platform that enables your suppliers to manage your inventory between min/max levels is appropriate. Moving away from purchase orders with component suppliers is an emerging best practice across industries.

3. *Demand-supply synchronization, supporting rapid re-planning in response to real-time information*

Link your S&OP process to the manufacturing planning and scheduling process so that you can improve rapid demand-supply synchronization and increase the success rates of new product introductions. Short-term levers can be pulled within manufacturing like overtime, substitutions, reassignment of inventory, etc., to better serve customer requirements. Likewise, more companies are seeking to take short-term demand signals (e.g., POS data) and create tighter replenishment processes to reduce out of stocks; some companies are also using this data to reallocate or redirect inventory coming from overseas locations. Advanced promotion and pricing management technology can also help to shape demand.

4. *Inbound and international transportation management*

Best Practice Seeker companies are much more likely than their peers to be managing a greater percentage of inbound shipments and to be applying new technology for managing international transportation. Transportation management systems are now available with supplier portals and multi-mode transportation capabilities to address these requirements.



5. *Updated warehouse management system*

There is an emerging upgrade cycle for warehouse management systems (WMSs). Many companies had systems first implemented in the 1990s. These silo-oriented, often highly customized systems are not sufficient for today's dynamic business demands. Many companies are looking to replace these legacy applications with solutions that better support different execution workflow based on customer or order attributes, integrated labor management, and dock/yard management capabilities. Companies at all maturity levels should look at how these extended warehouse solutions can improve throughput in their operations.

Technology Priorities for Innovators

Companies looking to create new supply chain management innovations should consider these key investment areas:

1. *Creating a profit optimized supply-demand balanced S&OP plan to improve corporate performance*

Current S&OP plans for most organizations are not based on considerations of financial metrics – they are based on pure matching of supply and demand. However, there are commercial solutions available that allow modeling of financial considerations within S&OP. Also, look for applications that will support dynamic, profit-optimized sales, and operations planning. Today's solutions have better what-if capabilities to support more dynamic analysis in S&OP meetings. Shrinking the plan-act-analyze cycle is a hallmark of supply chain innovators.

2) *Short term forecasting*

Consider technology that helps reduce retail stock outs by increasing the accuracy of your short-term forecasts using point of sale data. Demand signal repositories and short-term forecasting technology can complement existing demand management technology deployments.

3) *True multi-echelon inventory optimization*

Consider expanding your existing inventory optimization initiatives to the operational side where you can perform multi-tier inventory and replenishment planning in addition to the strategic side where you can improve network design. Carefully expand the tiers across which you are doing inventory optimization to make it truly multi-echelon, being cautious to not overcomplicate. True multi-echelon inventory optimization technology uses stochastic (probabilistic) techniques to account for both demand and supply variability.

4) *Warehouse process flexibility and labor management*

Determine whether your existing warehouse management system provides the flexibility that you need to delight your customers with tailored fulfillment services. Seek solutions that easily support different execution workflow based on customer or or-



der attributes. Another key productivity enhancing opportunity is to adopt labor management technology.

5) *Preferential trade agreement optimization*

Innovators are twice as likely as their peers to prioritize preferential trade agreement optimization. Trade agreement planning tools can help you minimize total landed cost by leveraging the best mix of tariff and tax opportunities and preferences from a global perspective. Additionally, look at implementing a portal for suppliers to enter classification numbers, countries of origin, and create and manage certificates. Leaders are also moving to a global database of trade content to support more profitable business decisions in areas such as product design, sourcing, manufacturing, and distribution.

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Hitachi Consulting

2001 Bryan Street

Suite 3600

Dallas, TX 75201

877.664.0010

www.hitachiconsulting.com

Sologlobe Inc

Sologlobe Inc

1751 Richardson

Suite 6.519

Montreal, QC, Canada, H3K 1G6

info@sologlobe.com or
Pierre.joanisse@sologlobe.com

www.sologlobe.com



Appendix A: Research Methodology

Between February, March and April 2007, **AberdeenGroup** and Global Logistics and Supply Chain Strategies magazine examined the supply chain technology priorities and investment intentions of 210 enterprises. Responding supply chain executives completed an online survey that included questions designed to determine the following:

- Enterprise perceptions on which application and infrastructure enhancements are most critical for their success
- Enterprise budget plans for supply chain technology
- Key areas where they were exploring on-demand solutions
- Key areas where they believed where short-term ROI projects

Aberdeen supplemented this online survey effort with telephone interviews with select companies, gathering additional information on supply chain technology plans.

The study aimed to identify the priorities for next-generation supply chain technology and provide comparison roadmaps by which readers could assess their own technology plans.

The break out of respondents was as follows:

- **Innovators:** Some 23% of respondents reported that their organization's supply chain technology roadmap aims to create brand new supply chain management innovations.
- **Best Practice Seekers:** Some 59% of respondents said they are looking to adopt industry best practices and supporting SCM technology.
- **Strivers:** Some 18% of respondents reported they are striving to reach industry average capabilities.

Other demographics of respondents include:

- **Job title/function:** The research sample included respondents with the following job titles: supply chain, logistics or procurement executive or manager (58%); business process management (5%); IT manager (7%); Marketing (9%); Sales (6%), Finance (10%), others (10%).
- **Industry:** The research sample included respondents from aerospace, automotive and industrial manufacturing (18%), consumer industries (22%), high technology and medical devices (14%), retail, wholesale and distribution (11%), logistics service providers (16%), and process industries (12%). Additional industries accounted for 7% of respondents.
- **Geography:** 77% of study respondents were from North America, 7% from Europe, 11% from Asia/Pacific, and 5% from other regions.



- **Company size:** About 37% of respondents were from large enterprises (annual revenues of US\$1 billion or greater); 33% were from midsize enterprises (annual revenues between \$50 million and \$999 million); and 30% of respondents were from small businesses (annual revenues of less than \$50 million).

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Appendix B: **Related Aberdeen Research & Tools**

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

- [The On-Demand Tipping Point in Supply Chain Report](#) (March 2006)
- [The Lean Benchmark Report: Closing the Reality Gap](#) (March 2006)
- [Global Supply Chain Benchmark Report](#) (June 2006)
- [Technology Strategies for Integrated Business Planning](#) (July 2006)
- [Technology Strategies for Inventory Management](#) (September 2006)
- [The Transportation Management Benchmark Report](#) (September 2006)
- [The Supply Chain Visibility Roadmap](#) (November 2006)
- [The Extended Warehouse Benchmark](#) (December 2006)
- [Demand Management in Consumer Industries](#) (December 2006)
- [Globalization: The Turning Point for Packaged Supply Chain Software in Automotive, Aerospace and Defense Industries](#) (January 2007)

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AberdeenGroup, Inc.
260 Franklin Street, Suite 1700
Boston, Massachusetts
02110-3112
USA

Telephone: 617 723 7890
Fax: 617 723 7897
www.aberdeen.com

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