

Demand-Driven Inventory Management Strategies: Challenges & Opportunities for Distribution-Intensive Companies

Conducted by



May 2007

Industry Directions, Inc.
Julie Fraser & William Brandel, Principals
Project Lead Analysts
jfraser@industrydirections.com
Phone: 508.362.3480 or 800.635.2175
<http://www.industrydirections.com>

Table of Contents

Table of Contents	1
Executive Summary: Demand-driven Inventory Strategies	2
Response Demographics	3
Strategy and Challenges	4
Forecasting and Inventory Practices.....	7
Inventory Metrics and Performance	12
Supply Chain Application Use.....	14
Conclusions	17
About the Sponsors	19

Executive Summary: Demand-driven Inventory Strategies

Companies across a broad spectrum of manufacturing, distribution, and retail segments are striving to be more demand driven. The demand-driven strategy of allowing actual demand to pull inventory through the company and its supply chain seems simple. However for those using traditional supply chain management practices, other corporate strategies – along with some outside forces –make it a challenge to create a truly demand-driven supply and distribution network.

Strategies such as increasing the pace of innovation and appealing to broader ranges of consumers are making product lifecycles shorter and product mix higher. Global sourcing is making supply lead times longer. Expanding the company's sales reach complicates distribution and fulfillment. Outsourcing makes companies more dependent on their trading partners. New regulations, new competition, and new technologies also factor in to make a very complex equation.

All of this makes matching supply with demand a dynamic process that the study findings suggest few have yet mastered. New geographic and demographic groups selecting from a wide range of products makes traditional forecasting by category, product family, or channel less effective. Despite using forecasting software, most respondents' forecast accuracy is less than 80% over even a three-month horizon.

Clearly, statistical forecasting is not enough. Inventory management is the discipline that works to ensure that appropriate levels of stock are in place to address forecasted demand, forecast error and uncertainty in demand and supply. As market cycles accelerate, supply chains lengthen and go global, and products proliferate, companies must employ practices and systems that can keep pace.

In the face of an increasingly dynamic situation, most respondents to this study state that improving service levels is the primary driver to their inventory management strategy. Yet, most are still doing things in a relatively traditional fashion. They review processes and performance, inventory and service level targets infrequently. A majority have planning software, but not other applications that support dynamic, demand-driven response. Top performing companies in the study are more likely to use these practices and software.

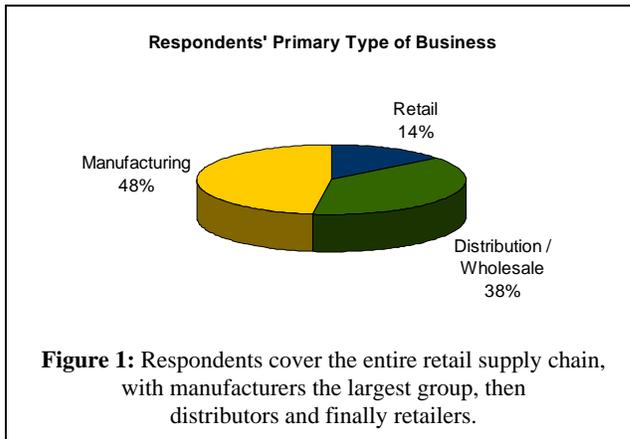
Distribution-intensive companies must change how they do business – and some will need a new approach to information systems to support these new practices. The transformation to demand-driven responsiveness and cost-effectiveness won't happen overnight. However, some companies are making great strides and gaining a competitive advantage over those stuck using more traditional practices.

Response Demographics

This report is based on data gathered in an on-line survey during February and March of 2007. Invitations were sent to manufacturers, distributors, and retailers in distribution-intensive segments.

The on-line survey gathered respondents' views on:

- Inventory management strategy and challenges
- Inventory and forecasting practices
- Inventory-related metrics and performance against them
- Information systems use and quality of data

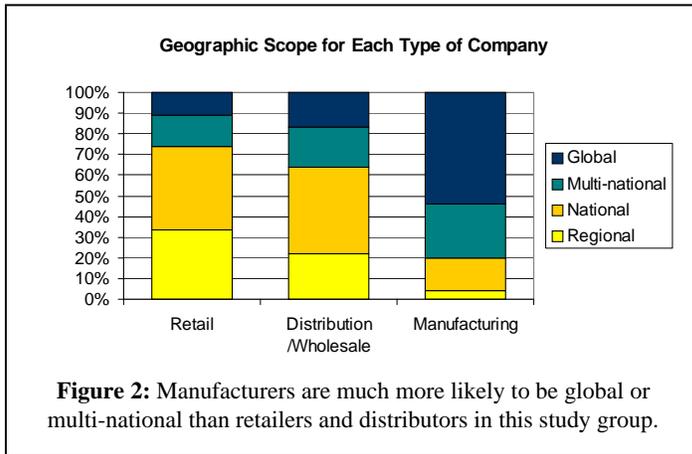


We received 190 valid responses to this on-line survey. Of that response base, 48% are manufacturers, 38% distributors or wholesalers and 14% retailers, as shown in Figure 1. These companies represent a wide range of distribution-intensive industries. The base has strong representation (over 4%) in electronics, food and beverage, chemicals, automotive, grocery, specialty retail, pharmacy and pharmaceuticals, other

consumer goods, and distributors who did not identify with one of those industries.

These respondents fall into every revenue bracket also. The largest portion, 39%, comprises companies under \$200M in annual revenues; 18% report \$200-500M in annual revenues, 15% are \$500M-\$1B companies, and 28% have over \$1B in annual revenues. Nearly 50% of the retailers in this study and 42% of distributors are under \$200M, while the largest portion of manufacturers consists of companies with revenues over \$1B (36%).

The manufacturing companies are dramatically more likely to be global (54%) or multi-national companies (26%), while over 40% of both retailers and wholesalers responding are national in scope. Figure 2 shows this preponderance of global or multi-national scope among the manufacturers response base.



While inventory management is critical for all of these companies, the complexity rises dramatically for those doing business beyond a regional or national scope. Any company doing business in more than one country must usually cope with many inventory locations plus an array of regulations that often affect products, packaging, and supply chain practices.

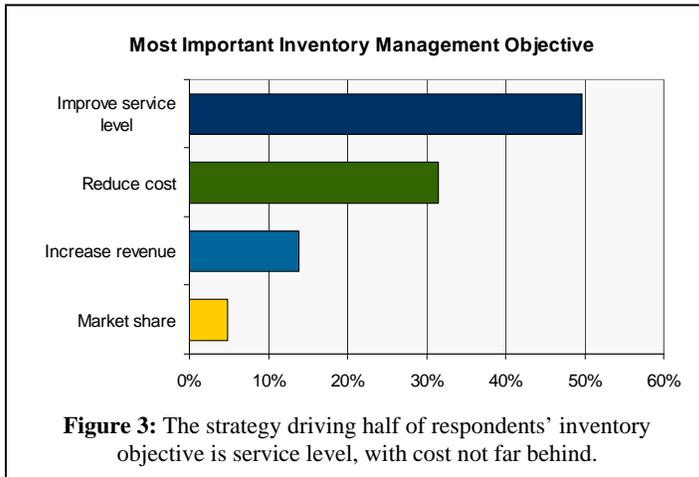
The challenges of good performance to inventory and supply chain goals may further favor retailers over manufacturers and distributors based on their position as closest to the demand. Becoming demand driven requires, above all else, a good grasp of final consumer or customer behavior.

Strategy and Challenges

Inventory serves many purposes in a company, and managing it well is essential to market success – as well as meeting company financial and business goals. Policies and practices in every area should support the company’s business strategy, whether it is low-cost leadership, customer service leadership, or innovation in offerings.

Many companies historically pushed inventory through their company and distribution network. However, today companies prefer a demand-driven environment where demand pulls inventory through the system. In 2000, Industry Directions published a report *Becoming Demand Driven* that laid out an array of practices in six major areas that form a foundation for demand-driven business. One of those areas is collaborative fulfillment responsiveness, which is focused on visibility and control throughout a supply chain to coordinate activity to actual demand. Back then, we discovered that companies were not well integrated internally and that was preventing them from moving beyond relatively basic collaboration with trading partners. This study is focused on inventory practices that support fulfillment responsiveness in a demand-driven environment.

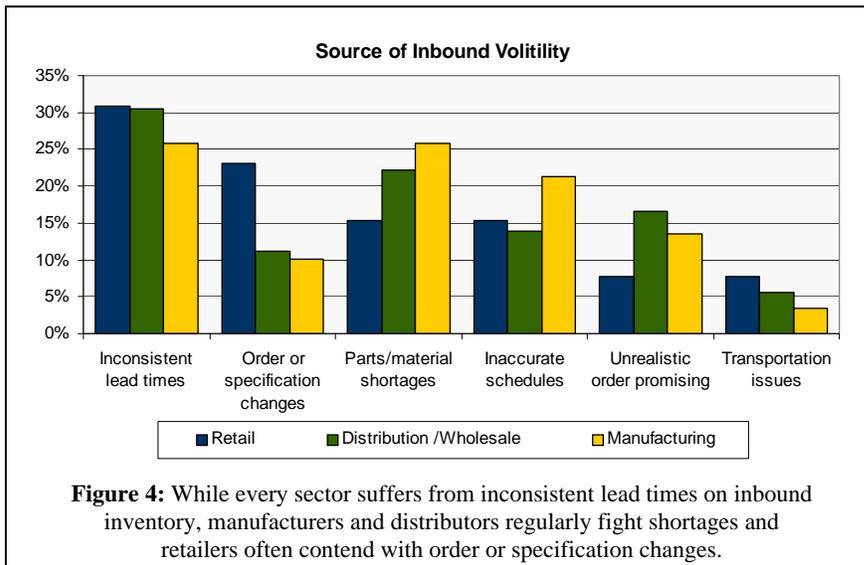
Since then, the concept of becoming demand driven has grown into a widely accepted strategy for many companies. The prevalence of demand-driven goals is reflected here. About half of the respondents to this survey state that customer



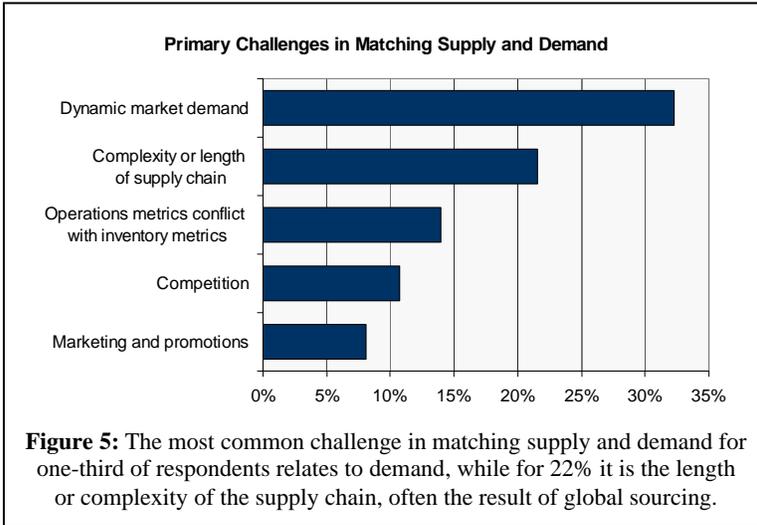
service is the strategy that most influences the primary objective of inventory management. As shown in Figure 3, cost reduction is also a very common objective. Revenues and market share are strategies that involve far more than inventory or even supply chain capabilities. While these are no doubt important overall company goals, they are not usually the primary driver for inventory strategy.

Outbound: Becoming demand driven and improving service levels has become particularly challenging as demand has become less predictable over the past few years. Nearly every distribution-intensive business is feeling this trend, as consumers and other customers have tended to shift away from clear patterns in their purchases. Inherently variable demand is the top challenge but after that, a company's position in the supply chain is likely to dictate which issues cause the most volatility in their outbound inventory.

- Closest to the customer, retailers suffer most from fulfillment execution problems. Fulfillment execution is a problem for fully 35% of retailers, but only 18% of distributors and 11% of manufacturers.
- Furthest from the customer, manufacturers fight order changes and poor production planning. Order changes rippling through the supply chain were identified by nearly 20% of manufacturers as the primary cause of outbound inventory volatility. This sinks to 13% of distributors and only 8% of retailers.



Inbound: The causes of inbound inventory volatility coming from suppliers look somewhat different, as shown in Figure 4. As companies increase their geographic reach and look to global sourcing, variable

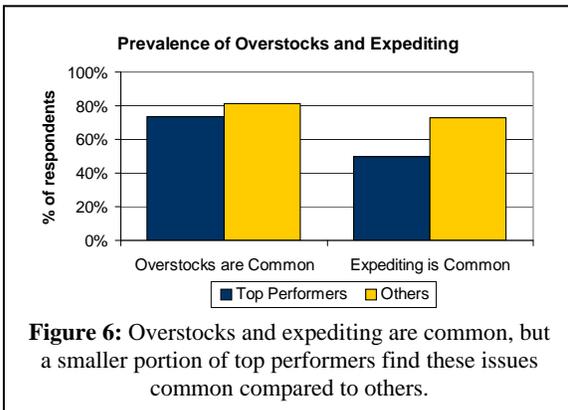


lead times are a common issue across all sectors. Retailers suffer on the inbound side for order and specification changes more than others, while shortages are manufacturers' number one issue for inbound materials. Shortages and unrealistic order promising are major issues for distributors getting materials.

Balance: All of this inbound and outbound volatility naturally makes matching supply and demand more difficult. For many respondents, demand is inherently variable and supply lead times are also inconsistent. About one-third of companies list dynamic market demand as the primary challenge in matching supply with demand, as shown in Figure 5. The complexity and length of the supply chain is the primary challenge for 22%, or over one out of five respondents.

Global sourcing impact: Global sourcing and low-cost country sourcing are common practices. The most significant result on inventory policy for fully 40% of respondents is increased order lead times. Multiple sources, order or specification changes, and poor fulfillment execution can also contribute to long lead times for inbound inventory.

Two glaring indicators of the struggle to evolve to a demand-driven inventory management posture are how common expediting and overstocks are among respondents, at 73% and 83% respectively. Further, expediting is common and increasing for 40% of respondents. Meanwhile, more than half (52%) say that overstocks are common, but they report that the situation is decreasing.



Costly Problems: Demand-driven inventory management – where items are pulled along the supply and distribution chain by demand rather than pushed through – logically results in fewer overstock situations. Overstocks and expediting are two of several areas where top performers fare better than others, as shown in Figure 6.

Among top performers (those who report exceeding goals on over half of the metrics in this study), 53% report expediting as common and 73% report overstocks as common. Still a majority, but there is a group having better success in preventing these costly situations.

Forecasting and Inventory Practices

Forecasting: While demand-driven inventory management raises the bar for forecasting, most companies struggle mightily with it. Less than 40% of respondents have forecast accuracy above 80% even in a 3-month window as

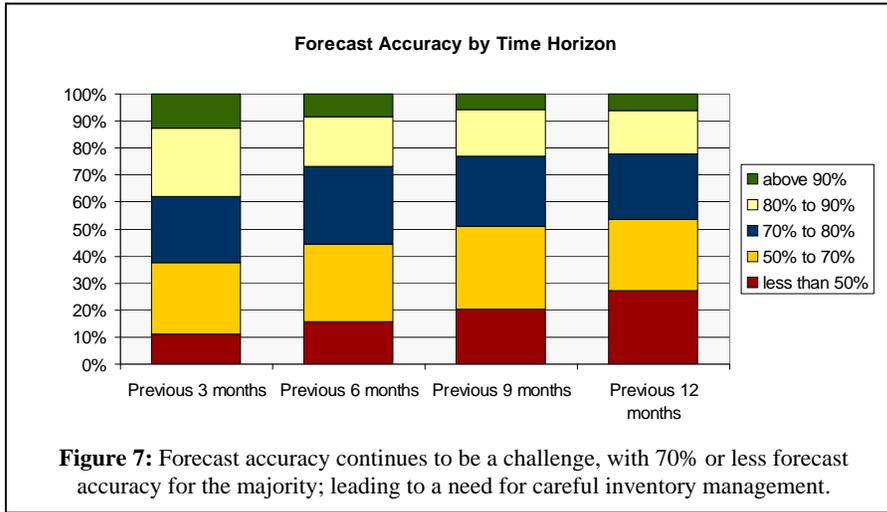


Figure 7: Forecast accuracy continues to be a challenge, with 70% or less forecast accuracy for the majority; leading to a need for careful inventory management.

shown in Figure 7. Clearly, forecasts in shorter time horizons tend to be more accurate.

Inherent demand variability tends to diminish forecast accuracy – along with factors such as new products, new channels customers or

markets, new competitors, and events such as weather and marketing promotions. The dynamic nature of demand for these respondents suggests the need for timely and detailed forecasting and inventory practices.

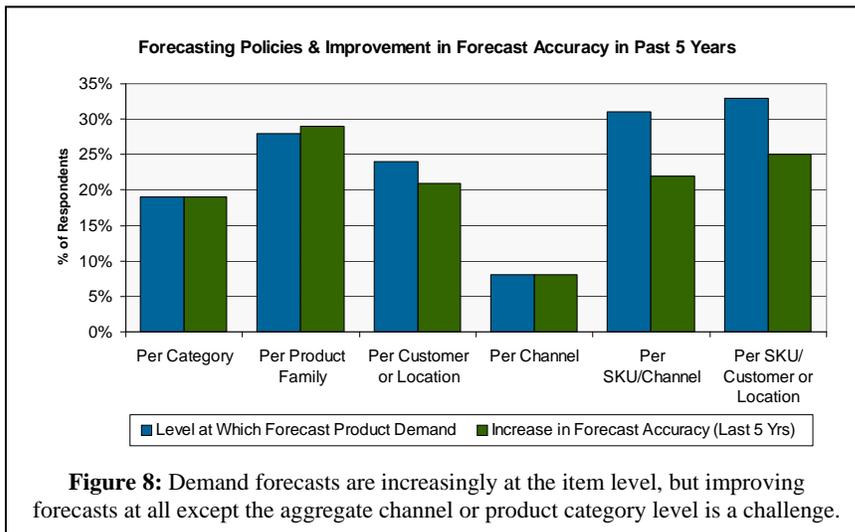


Figure 8: Demand forecasts are increasingly at the item level, but improving forecasts at all except the aggregate channel or product category level is a challenge.

Item-level: This demand planning challenge for the majority of respondents may be due in part to the fact that while an increasing number of companies forecast at the item level, a majority of respondents still do not, as shown in

Figure 8. While forecasting by stock-keeping unit (SKU) per channel or SKU per customer or location level is the most widely cited level for forecasting, only one-third or less of respondents are doing that today.

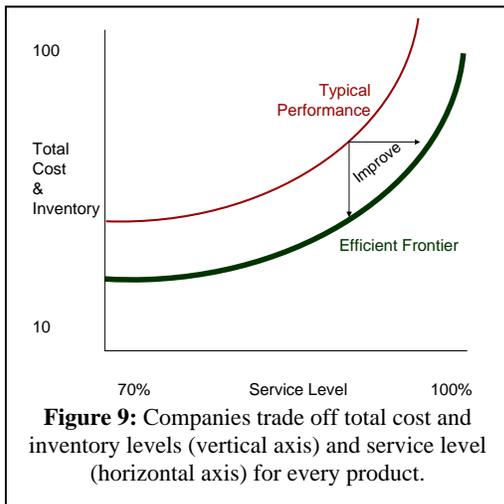
Yet, respondents forecasting at an item level are clearly making good strides in improving forecast accuracy. Forecasting to the SKU/channel or SKU/customer or location level provides much greater granularity to separate out and clearly identify specific demand patterns for each individual item for a channel, customer, or location. Some call this “demand profiling.”

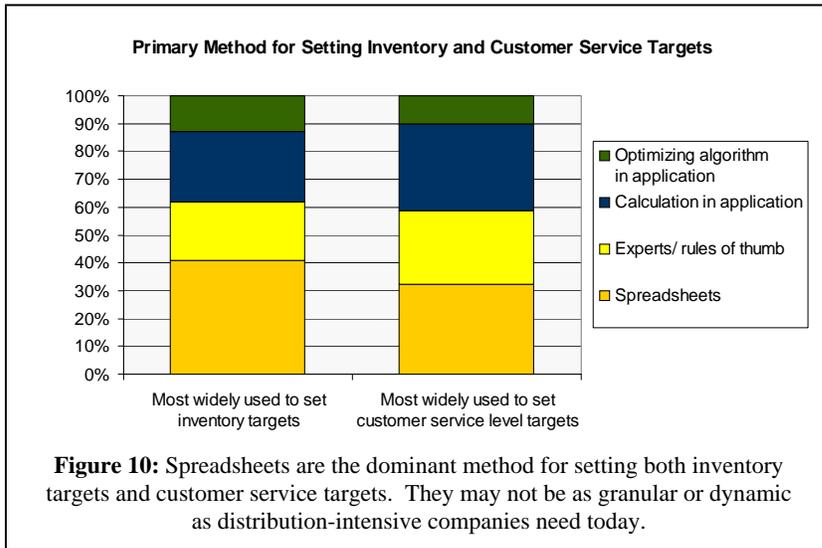
While respondents indicated improvements in forecast accuracy at the product family level, given the inherent variability in demand, improving forecasts generally only goes so far. Safety stock or buffer inventories are designed to allow good customer service, even in the face of inaccurate forecasts. The challenge is setting inventory targets to minimize cost while achieving desired customer service levels.

Inventory & Service: Effectively coordinating demand planning and inventory targets is at the crux of inventory management. Most companies – particularly larger ones over \$500M – have separate organizations for demand planning and inventory management. Distributors are the exception, as over 50% of them have these two functions in one organization. Two-thirds of manufacturers have separate organizations. However, the key to coordination is not necessarily organizational, but functional, featuring a process for setting targets and effective information flow that supports adjusted inventory levels as demand fluctuates.

While higher inventory levels allow higher customer service (as shown in the conceptual graph in Figure 9), this must be accomplished in as cost-efficient a manner as possible. The best a company can do with its current inventory and

customer service targets is often called the efficient frontier. The difference between a company at typical performance and one approaching their efficient frontier is in how well they execute to both service and inventory targets. Each item will have its own curve for this tradeoff, and changing targets appropriately can actually move the frontier. Mixing service targets for each SKU to maximize business objectives is known as “Mix Optimization.”





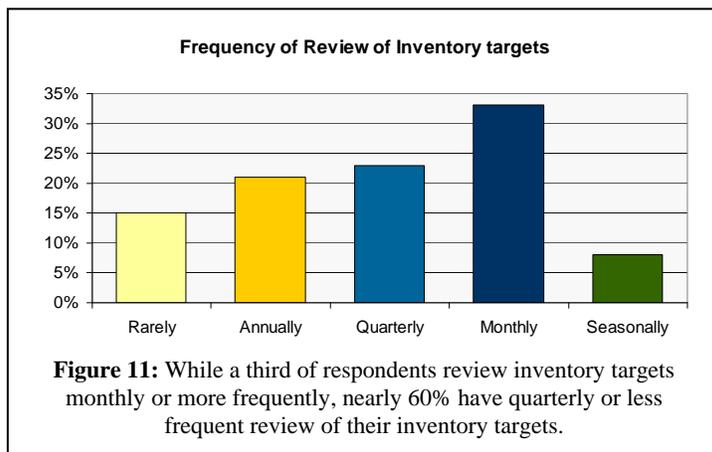
Methods: Still, the most common method for setting targets for both inventory and customer service levels are manual: experts with rules of thumb or using spreadsheets. For both targets, about 60% of respondents use one of these two methods, as shown in Figure 10.

While many companies have developed excellent calculations in

spreadsheets for managing targets, there are inherent limitations to spreadsheets and the classic deterministic inventory theory commonly used. One is that they become far more challenging to manage at a more detailed SKU-level and another is that they are single-user systems that limit truly dynamic collaboration.

Most respondents believe that application-based solutions are more effective than spreadsheets or rules of thumb. Inventory optimization software is growing in popularity, and many products provide mechanisms to optimize both inventory and service parameters on the efficient frontier and make tradeoffs for each SKU.

- Inventory optimization software that uses algorithms to account for uncertainty are recognized by over 30% of respondents as the most effective, with another 27% feeling that an application that includes an inventory target calculation would be the most effective mechanism.
- For customer service levels, 30% believe an application with a calculation would be most effective and 23% believe an optimizing algorithm for the customer service level would be best. Still, fully 20% believe that an

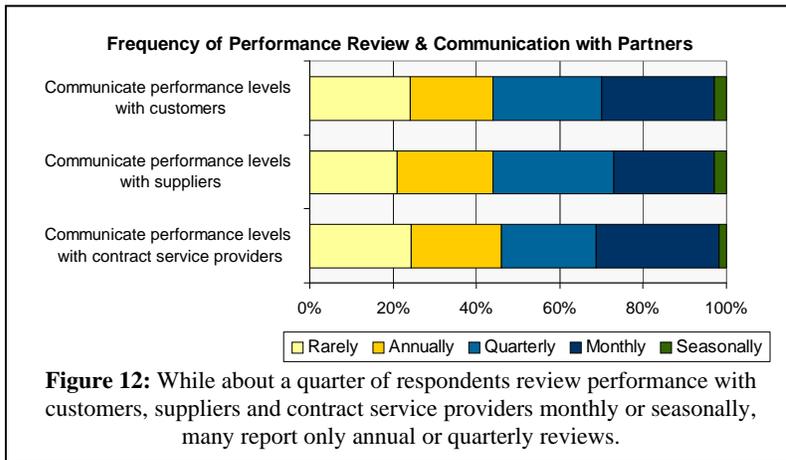


expert using rules of thumb is the most effective way to set customer service levels, and another 27% selected spreadsheets. Some companies may be very effective with these mechanisms.

Frequency: Figure 11 shows that one-third of respondents review their inventory targets on a

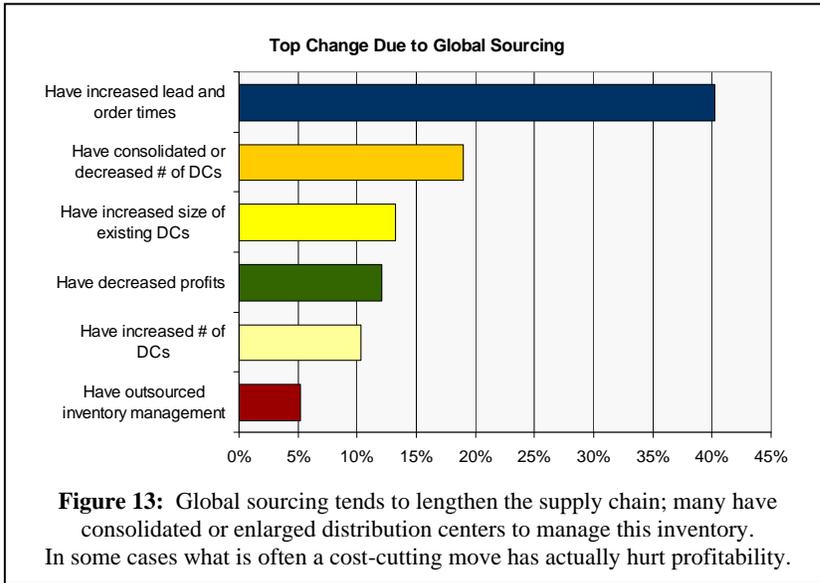
monthly basis or more frequently. The other two-thirds are most likely to conduct quarterly or annual reviews of inventory targets, and 15% rarely review inventory targets. For products with relatively stable demand at various locations, infrequent review may be adequate. However, we suspect that for many respondents, business processes and information systems simply are not set up for more frequent reviews. Despite the major objective of increasing customer service, when current inventory targets are not delivering desired service levels, many companies do not have a process to detect and change that situation in less than several months. It is little wonder that a majority of respondents suffer from overstocks and expediting, and the supply chain noise and bullwhip effect that result.

Supplier Management: While a variety of mechanisms for coping with supply-side volatility were included in the survey, less than half of the respondents said they are using methods such as consignment, vendor managed inventory (VMI), visibility portals, or metrics-based incentives or penalties with their suppliers. The only mechanism that most do use is frequent process reviews (77%). Most who do use these mechanisms find them effective, with the exception of key performance indicator-based (KPI) incentives or penalties. Consignment inventory from suppliers has the highest proportion of success.



Monthly supplier performance reviews are not as ubiquitous as one might imagine. About one third of companies communicate performance levels to contract service providers monthly or more frequently, while about a quarter reviews performance with suppliers on a monthly basis, as Figure 12 shows.

The partners with more direct financial impact – customers and contract service providers – are more likely to undergo frequent performance reviews. Service providers are often under service level agreements (SLAs) or other contractual terms that define payment based on performance to certain expectations. Still, about a quarter only rarely review and communicate performance even in these cases. Materials suppliers can be just as critical for ongoing communication, based on some of the issues respondents identified with inbound volatility shown in Figure 4. Four of five respondents do conduct at least annual reviews with suppliers.

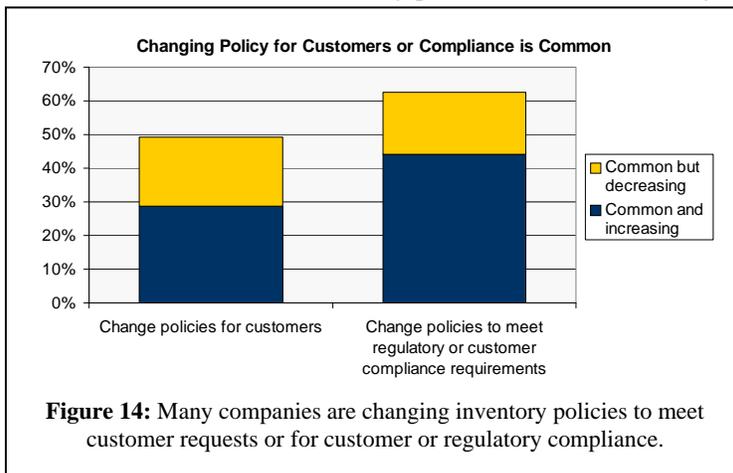


Global Sourcing: We asked respondents about the most significant impact of global sourcing and it's apparent that this strategy requires some supply chain redesign. Not surprisingly, as shown in Figure 13, the most common response is longer lead times. Global sourcing has also led nearly 20% of respondents (and 23% of manufacturers) to decrease the number of

DCs or warehouses they operate – and another 13% to increase the size of their existing DCs, with nearly 30% of retailers reporting larger DCs. Despite the cost saving goal, global sourcing has even hurt margins for some respondents.

We did not test for it in this study, but Industry Directions conducts annual studies on the impact of high energy costs on supply chain strategies. Clearly longer supply lines raise these issues. When companies focus exclusively on low-cost country sourcing, benefits from the low per unit cost of materials may be offset by the challenges of logistics, regulatory compliance, and quality requirements. The longer lead times may also hurt competitiveness in some fast-moving markets.

Despite the critical implications of global sourcing, over 40% of respondents rarely review their supply network. The same is true of reviewing distribution networks and their inventory processes: over 40% rarely examine these. As much as



business is changing, there is obvious risk in continuing with poor inventory processes or network designs. While 20% of high performing companies (who exceed goal on half or more of the metrics in this study) review and redesign their inventory processes only rarely, 44% of others only rarely review inventory processes.

Policy Changes: The need to change inventory policy to meet regulatory or customer requests is common for 63% of respondents. As Figure 14 shows, this is increasingly common for most of those. Compliance issues can make inventory management more complex and dynamic – particularly for companies with many customers or selling and sourcing from many countries. Each customer and each country or region may have specific requirements, which can result in many combinations of special inventory factors even for a single item. The opportunity is to use this required review to improve practices and increase performance and profit at the same time.

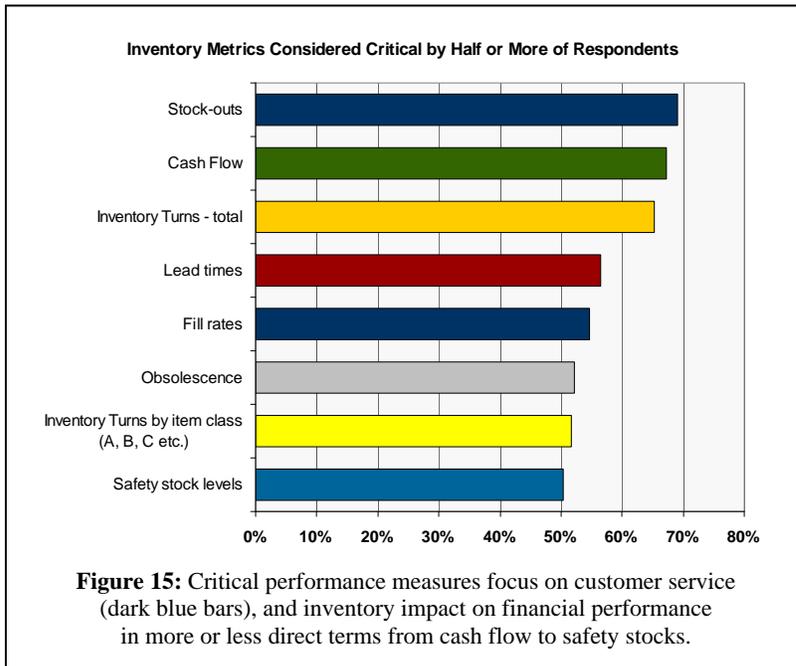
Inventory Metrics and Performance

There is general agreement that performance metrics can help drive effective inventory management. Inventory and the resulting supply chain performance are measured from many different angles in most companies. Some of the metrics reflect the fundamental tradeoff between low inventory costs and high customer service levels. Others are financial or inventory metrics that directly impact the company’s costs and cash flow. Many metrics are tightly interrelated, so gains on one boost another.

Top Metrics: Given that the #1 objective of inventory management for these respondents is customer service, it’s consistent that the metric most commonly considered critical is stock-outs, as shown in Figure 15. Cash flow and inventory

turns, the next two most commonly critical metrics, are basic financial issues. Lead times can certainly help ensure that inventory turns rapidly. While fill rates are said to be critical for over half of respondents, a surprising quarter of respondents (11% of retailers) do not track fill rates.

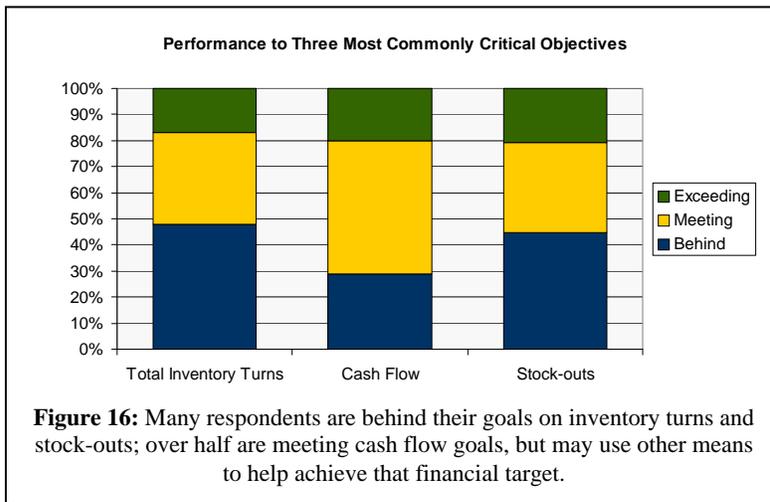
Other critical metrics with a relatively direct financial impact are obsolescence, inventory turns by item class and safety stock



levels. Clearly the top two objectives driving inventory management policies and practices – customer service and reducing costs – are reflected in these metrics. Respondents reported on 16 metrics in total, and all are in use by at least half of the respondents. In fact, the only two metrics used by less than two-thirds of respondents are interest paid on inventory and discounts, tracked by 53% and 56% of respondents respectively.

Similar to forecasting, about a third of the respondents are tracking customer service levels by SKU-customer or SKU-location. However, in the case of service levels, 40% track service performance only to the customer or location level. While many customer agreements may call for a certain level of performance overall, many leading companies are finding that setting higher service levels for certain items to the same customer or location can improve both customer satisfaction and company profitability.

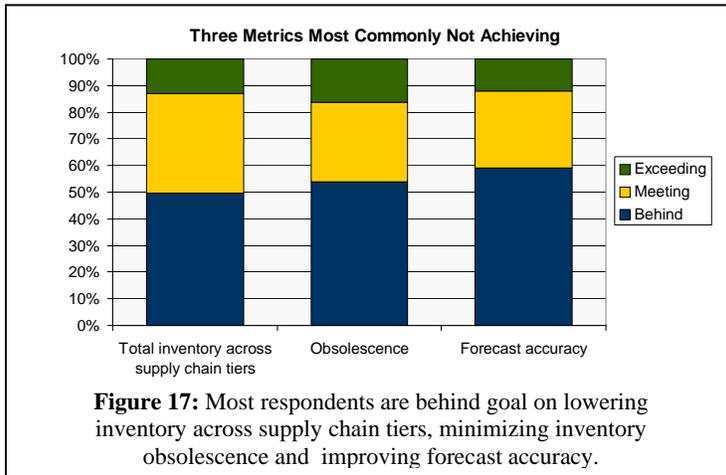
Performance to Goal: Meeting performance targets for these metrics can be challenging, however. As Figure 16 shows, 48% are behind their goals on inventory turns and 45% are behind their goals for stock-outs. A majority of



respondents meet or exceed their goals for cash flow – but many other factors can enter into a company’s cash flow performance beyond inventory and supply chain practices. Better collections, slower payment terms to suppliers, and other financial policies can have as much impact on cash flow as inventory.

In contrast, inventory turns and stock-outs are challenging metrics to improve against, in part due to core corporate strategy decisions. For example, when product proliferation is at a high rate; some items simply won’t move as fast or be high-volume. Others will move much more rapidly in particular locations than expected, resulting in stock-outs.

Stock-outs are indicative of volatile demand, but they also suggest the wrong mix of inventory. Inventory targets are not set high enough for some items and are overstocked for others. In retail supply chains, stocking out has severe implications for loss of revenue to every player in the supply chain. Companies may also be setting their stock-out targets so high they are unrealistic or unprofitable. Perhaps



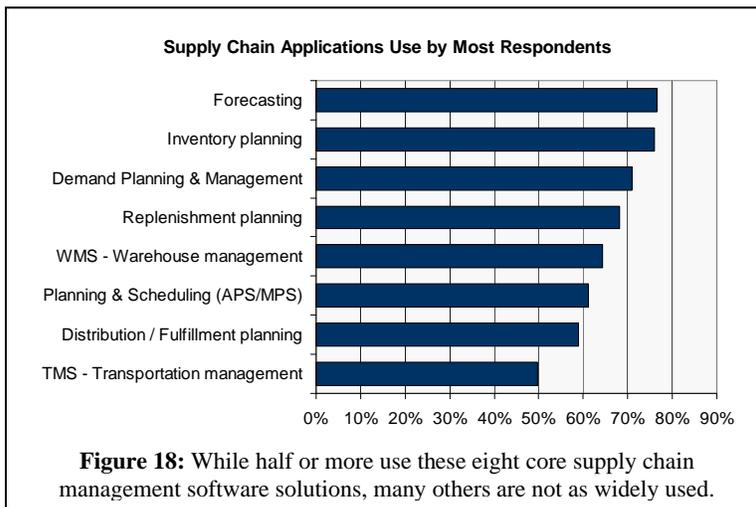
companies are setting their goals realistically and recognizing that if the number one objective is customer service, some inventory will be required. But they are most likely missing the business process of trading-off between inventory and service levels (known as Sales, Inventory, and Operations Planning or SIOP). And while the top performers are the only ones commonly exceeding goals

on a broad range of metrics, many are at least meeting performance targets.

For all of the 16 metrics listed in the survey except three, at least 50% of respondents are meeting or exceeding targets. These three are total inventory across supply chain tiers, obsolescence, and forecast accuracy, as shown in Figure 17. Total inventory across supply chain tiers is an extremely challenging metric for any company to even track, so meeting goals is a challenge. In this response base, 20% do not track forecast accuracy or obsolescence. Still, another 50% do and are still behind goals. In contrast, 60% of top performers are exceeding their goals for forecast accuracy, so the opportunity is there to improve the foundational view of demand.

Supply Chain Application Use

Companies are striving to be demand driven and are measuring many of the right things to gauge progress toward that goal. However, many are not using all of the



information technology at their disposal to overcome their challenges. Less than half of the applications we asked about are used by the majority of respondents.

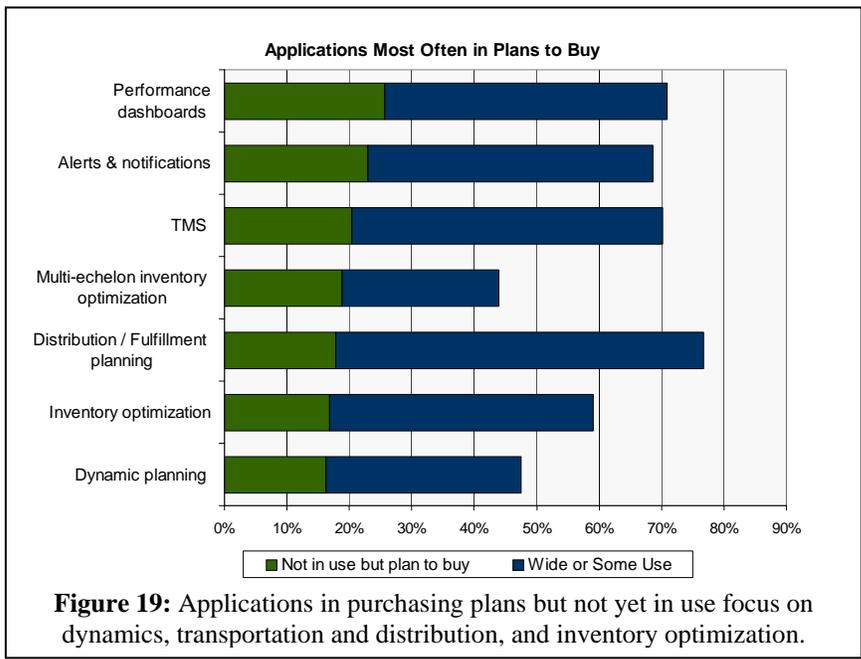
The applications that are used by 50% or more are shown in Figure 18. Over three-quarters use forecasting and inventory planning applications. Software to plan demand,

replenishment, production, distribution and transportation planning are common along with warehouse management. However, based on their inability to meet performance goals, it appears some are not using these to full advantage.

One clear factor is that less than half of the respondents use some applications that could really boost demand-driven capabilities in an inherently volatile environment. Fortunately, many of these are in respondents' purchasing plans, as shown in Figure 19. At the top of the list are applications that improve dynamic response, fulfillment, and set inventory targets with algorithms that account for uncertainty.

- **Respond:** Dashboards, alerts, and notifications help companies see performance and problems accurately and quickly; dynamic planning allows a studied yet rapid response when the situation is not as expected.
- **Fulfill:** Transportation and distribution planning can both lower costs and improve customer service levels; no matter how good earlier plans are, fulfillment rests on that final movement through to the point of demand.
- **Cover for Uncertainty:** Most inventory planning software today goes far beyond min/max or replenishment point stocking levels. Inventory optimization is specifically defined in this survey as including what are called stochastic algorithms, which are designed to account for uncertainty. These products can set inventory levels at each location for each SKU to meet service levels in the face of volatility and events.

Most of these applications in respondents' buying plans require other systems to be



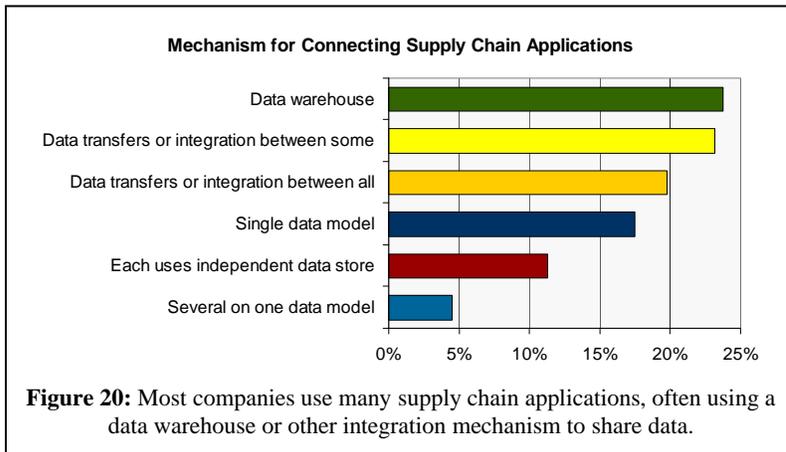
in place as a foundation and framework for leveraging these new applications. The group not already using core planning systems will be at an even greater disadvantage if their competitors enhance responsiveness and fulfillment capabilities.

Those who can also optimize inventory

levels will make up for the challenge of meeting or exceeding goals on forecast accuracy. Top performers are more than two and a half times as likely as others to use an optimizing algorithm in an application to set both inventory and customer service targets. As a result, half or more also exceed in the other two metrics shown in Figure 17 that are so challenging to meet or exceed: obsolescence and total inventory across supply chain tiers. Multi-echelon inventory optimization products tackle that, with algorithms that look at the inventory issue from a broad supply chain perspective, including optimizing the inventory mix at each level and accounting for uncertainty.

Other supply chain applications in the survey that are neither widely in use nor in respondents buying plans are trading partner visibility and collaboration, direct store delivery (DSD), supply chain network design, and international trade management (ITMS) or import/export software.

To make all of these applications work together for total supply chain success, companies need mechanisms for integration and data sharing. Figure 20 shows that respondents use a variety of mechanisms. Data warehouse and data transfers



through integration are most prevalent.

Until recently, even buying all applications from a single vendor often did not provide a single data model behind all of the various functions or applications. Using a single data model for all applications clearly saves on the cost and

expense of setting up and maintaining a data warehouse or integration interfaces. Further, applications running on one data model can have instant updates based on events and changes. In a demand-driven environment having a change ripple through all functions quickly can allow true pull-based responsiveness to events.

Still, sometimes the best-suited application for a particular environment is offered as a best-of-breed solution. If the system has sound real-time integration capabilities built in and is designed for appropriate and rapid data transfers in and out of its data structure, they may still be the best choice. More advanced and newer applications are often available only as best-of-breed for some number of years after their introduction, and can provide excellent advantages if designed and implemented effectively.

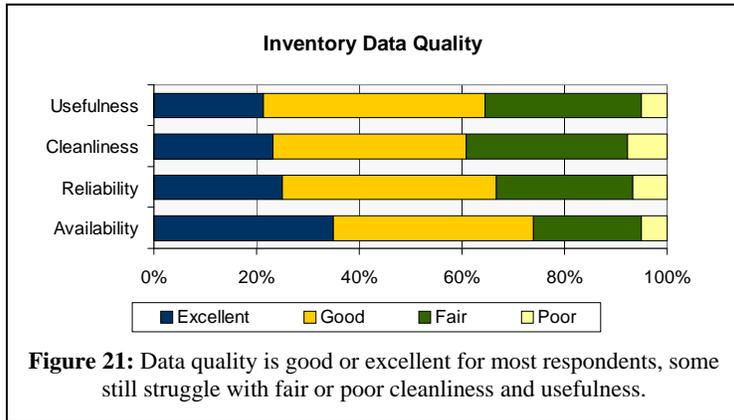


Figure 21: Data quality is good or excellent for most respondents, some still struggle with fair or poor cleanliness and usefulness.

One of the challenges that companies have historically had is data quality. This appears to be much less of a problem than it once was. As shown in Figure 21 most respondents feel their data quality is good or excellent in every respect.

The opportunity lies in using the data available in more relevant ways. Some companies will need new software or need to use their current software in new ways. Companies only forecasting at an aggregate family or category level today can move to item-level forecasts. Replenishment can move from simple min/max to real pull-based calculations of need. Those setting inventory and customer service targets infrequently can move to increasingly frequent reviews, in some cases to weekly. Trading partner performance reviews can also become a regular monthly routine. These are the changes that enable a transformation to a more truly demand-driven posture.

Conclusions

As companies strive to become more demand driven and their environment becomes less predictable, inventory management’s importance grows. Based on their strategies and what they measure, the companies in this response base are truly concerned about customer service as well as cost in their supply chain.

However, adopting the right practices in combination with the most effective use of information technology to support those applications may not have made the transition yet. Many companies are still forecasting at a category, product family, customer, location or channel level – and part of what causes stubborn problems such as stock-outs and expediting is the difference in demand for each SKU at a customer, location, or channel. Most forecasting and demand planning products are capable of that today – so companies must step up and change the business process to leverage SKU-level data.

As companies depend on their trading partners more heavily, monthly or more frequent reviews of performance are also likely to be important. Less than half do that today. This is another process that software applications can support.

Collaboration software, portals and applications that can better leverage partner data not only help review performance, but improve it.

Most companies are still using spreadsheets and rules of thumb to set inventory and customer service levels. Today a range of applications are available – some that can optimize both inventory mix and individual service targets to meet or even improve the efficient frontier where the tradeoff between the two occurs. Manual methods or limited software tools may also be preventing most respondents from reviewing inventory targets more frequently than annually or quarterly, despite turbulent market dynamics.

Many distribution-intensive industries are moving through a transformation of sorts. Supply chains are increasingly global and in many cases demand is inherently unpredictable – making planning far more challenging. Inventory management is more critical than ever – but practices from the 1970s do not apply for most retailers, distributors, and distribution-intensive manufacturers today.

Certain respondents to this study highlight the great opportunity available. These top performers show that companies in all segments can meet or beat their supply chain and inventory goals. A larger portion of top performing companies are using the best practice processes and appropriate software to support those processes. Companies must be disciplined and ready to undergo relatively major change – if not wholesale transformation – in their supply chain and inventory operations to truly become demand driven.

About the Sponsors

HighJump Software, a 3M Company

Forward-thinking companies entrust HighJump Software to power their supply chains. HighJump Software simplifies the art and business of creating, selling and moving products across global networks.

Building upon 3M's history of innovation, HighJump Software helps more than 1,300 clients worldwide drive growth and manage change.



Logility

With more than 1,100 customers worldwide, Logility is a leading provider of collaborative, best-of-breed supply chain solutions that help small, medium, large and Fortune 1000 companies realize substantial bottom-line results in record time. Logility Voyager Solutions is a complete supply chain management solution that features performance monitoring capabilities in a single Internet-based framework and provides supply chain visibility; demand, inventory and replenishment planning; supply and global sourcing optimization; manufacturing planning and scheduling; transportation planning and management; and warehouse management. For more information about Logility, call 1-800-762-5207 or visit <http://www.logility.com>.



Manhattan Associates, Inc.

Manhattan Associates is a leading supply chain solutions provider. The company's supply chain planning, supply chain execution, business intelligence and business process platform capabilities enable its more than 1200 customers worldwide to enhance profitability, performance and competitive advantage. For more information, please visit www.manh.com.



ToolsGroup

ToolsGroup offers the world's best inventory optimization software for demand-driven supply chains, from assembly of finished goods all the way to the end consumer or retail shelf. Our customers can accurately set safety stocks and other inventory targets, achieving "near perfect" customer service levels while cutting inventory by up to 40%.

With more than 100 customers spanning 29 countries, ToolsGroup has the largest installed base of any inventory optimization software vendor. ToolsGroup solutions are [Powered by SAP NetWeaver](#) and "bolt on" to nearly all ERP and Supply Chain suites.





About Industry Directions

Industry Directions is an industry analyst firm that conducts research on the business processes and enabling technologies used in manufacturing value networks in specific vertical industries. These industries include every type of manufacturing, from pure process industries such as oil and gas to batch process such as food and pharmaceuticals to discrete such as automotive, electronics and aerospace, to mixed mode industries such as consumer durables. Areas of focus include supply chain, business-to-business, production, lean & other improvement initiatives, enterprise management, product lifecycle management and performance management. To learn more, visit: www.industrydirections.com.

Copyright & Legal Disclaimer:

This publication is copyrighted by Industry Directions Inc and protected by United States copyright laws and international treaties. This study was underwritten by sponsors HighJump Software, a 3M company; Logility; Manhattan Associates; and ToolsGroup. This document may not be reproduced or posted on another web site beyond the sponsors' or their authorized representatives without prior written consent of Industry Directions Inc. Unauthorized reproduction of this publication or any portion of it by other parties may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent necessary to protect the rights of the publisher.

Opinions reflect judgment of Industry Directions at the time of publication and are subject to change without notice. Information contained in this document is current as of publication date. Information cited is not warranted by Industry Directions but has been obtained through a valid research methodology.