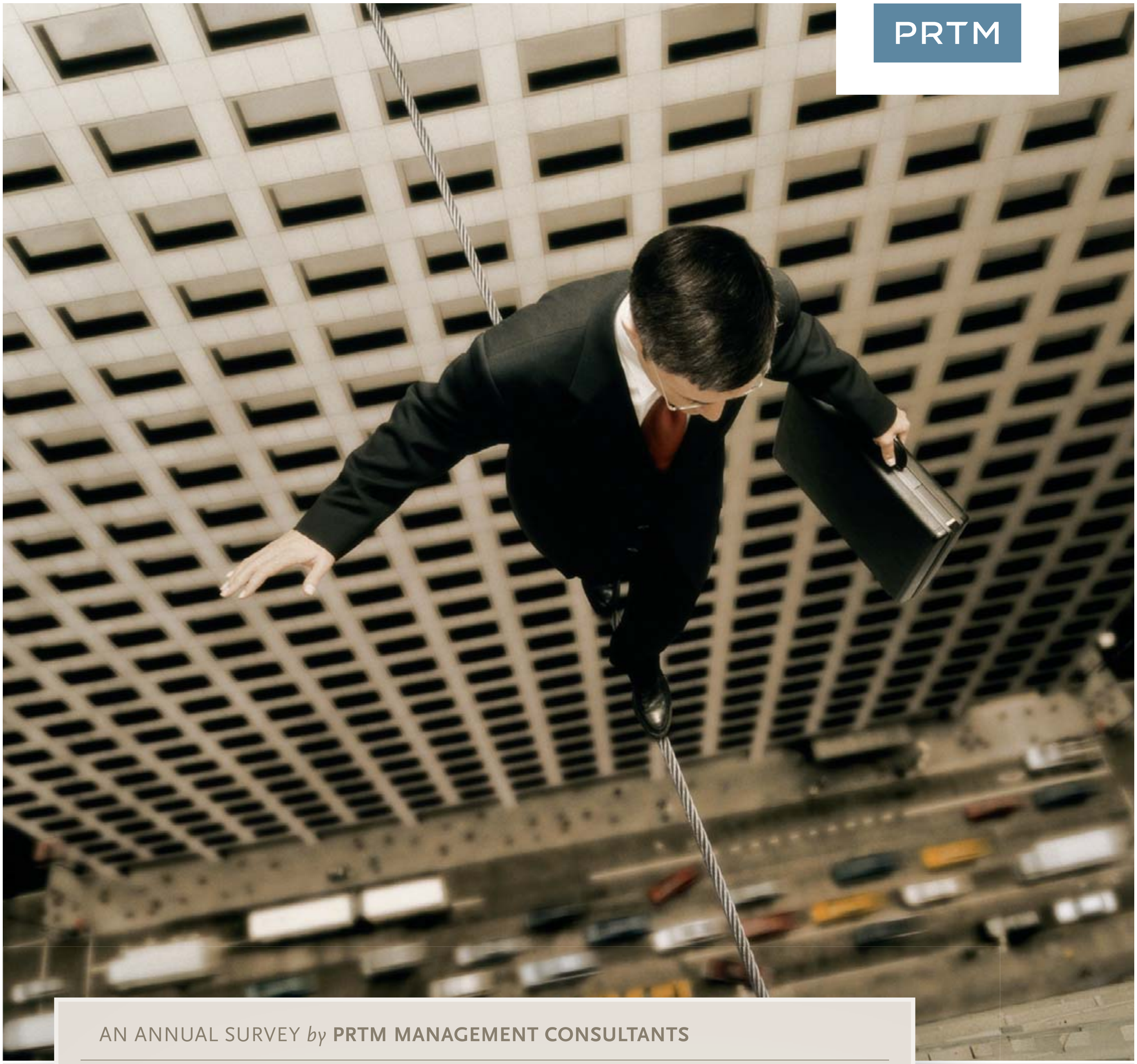


AN ANNUAL SURVEY *by* **PRTM MANAGEMENT CONSULTANTS**

2010–2012

Global Supply Chain Trends

Are Our Supply Chains Able to Support the Recovery? Lessons Learned from the Global Recession.

Where Innovation Operates℠

TABLE OF CONTENTS

Authors:

Dr. Reinhard Geissbauer (rgeissbauer@prtm.com)
Michael D'heur (mdheur@prtm.com)

ABOUT THE SURVEY

Study Background

The Global Supply Chain Trends 2010–2012 survey represents PRTM's largest-ever annual review of global supply chain trends. With participants from across Europe, the Americas, and Asia, the survey provides critical insight into management efforts to recover from the recent financial crisis and position supply chains as an enabler of revenue and margin growth.

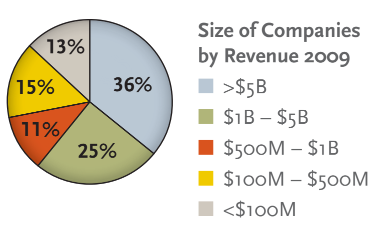
Consisting of a comprehensive online questionnaire, supplemented by a series of interviews with many survey participants, the study was designed to capture current trends as well as anticipated challenges and opportunities over the next three years.

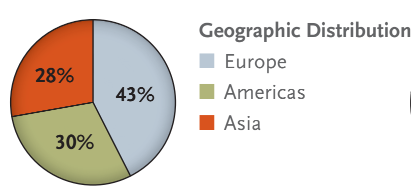
Survey Participants

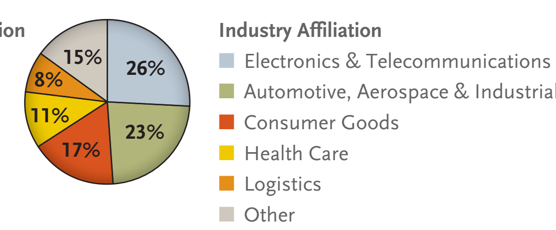
Nearly 350 manufacturing and service companies participated in this year's survey, with data collection completed in March of 2010. The survey population is composed of organizations from a diverse set of industries, including aerospace, industrial and automotive equipment, consumer goods, retail, electronics and semiconductors, telecommunications, and health care.

The survey's global nature is reflected in the response population. Nearly 40% of respondents are senior executives in supply chain management within their company, with 15% at the CXO-level. Three major geographic regions—the Americas, Europe, and Asia—are each well represented within the survey respondents. And, while nearly two-thirds of survey participants are companies with annual revenues greater than $1 billion, more than 10% have revenues less than $100 million.

Survey Participants







Executive Summary

The global economic crisis of 2008 and 2009 provided significant disruptions and high demand volatility in supply chains for companies across many industries. In a number of sectors, demand and supply almost came to a halt, forcing companies to enact short-term measures to tightly manage inventories, costs, and cash flow.

Compare this with early 2010. As the global economy continues to recover, most of the companies surveyed now believe there will be a significant upturn in demand from their customer base as well as a significant increase in company profitability over the next few years.

However, this widespread optimism may be premature. Our findings indicate that many companies lack the capabilities critical for meeting growing demand or for managing an increasingly complex and global supply chain. Driven by short-term exigencies, many companies did not strengthen critical capabilities during the recession. Only a small percentage truly improved supply chain flexibility and processes needed both to capture an increase in demand and to better manage high volatility.

The degree to which companies can capture benefit from an eventual upturn will depend largely on how they deal with five key supply chain challenges:

Trend 1: **Supply Chain Volatility and Uncertainty Have Permanently Increased**

Market transparency and greater price sensitivity have led to lower customer loyalty. Product commoditization reduces true differentiation in the consumer and business-to-business (B2B) environments.

Trend 2: **Securing Growth Requires Truly Global Customer and Supplier Networks**

Future market growth depends on international customers and customized products. Increased supply chain globalization and complexity need to be managed effectively.

Trend 3: **Market Dynamics Demand Regional, Cost-Optimized Supply Chain Configurations**

Customer requirements and competitors necessitate regionally tailored supply chains and product offerings. End-to-end supply chain cost optimization will be critical.

Trend 4: **Risk Management Involves the End-to-End Supply Chain**

Risk and opportunity management should span the entire supply chain—from demand planning to expansion of manufacturing capacity—and should include the supply chains of key partners.

Trend 5: **Existing Supply Chain Organizations Are Not Truly Integrated and Empowered**

The supply chain organization needs to be treated as a single integrated organization. In order to be effective, significant improvements require support across all supply chain functions.

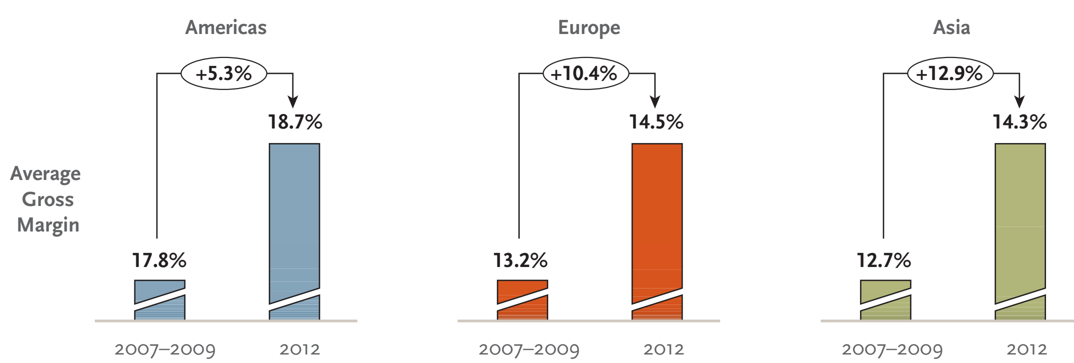
Too Soon for Optimism?

One objective of our survey was to ascertain what global supply chain leaders think about the revenue and margin potential of their companies and industry. Our findings indicate that companies on the whole are optimistic.

Survey respondents, on average, expect annual revenue growth of 8.3% between now and 2012. While 8% per annum may seem modest compared to the growth rates experienced prior to the global downturn, these results stand in stark contrast to the situation just a year ago, when many companies found their supply chains grinding to a halt because of vanishing demand. Survey participants are also confident that gross margins will rise. More than two-thirds expect average gross margins to surpass 10%. And more than one-third expect them to surpass 20%.

Notably, companies in the Americas are the least optimistic about their prospects, while Asian companies are the most bullish. Within Asia, Chinese participants have high expectations about their future, while Japanese companies are more concerned. European optimism is especially noteworthy, given the spreading debt crisis.

Gross Margin Expectation of Survey Participants by Region



Trend 1

Supply Chain Volatility and Uncertainty Have Permanently Increased

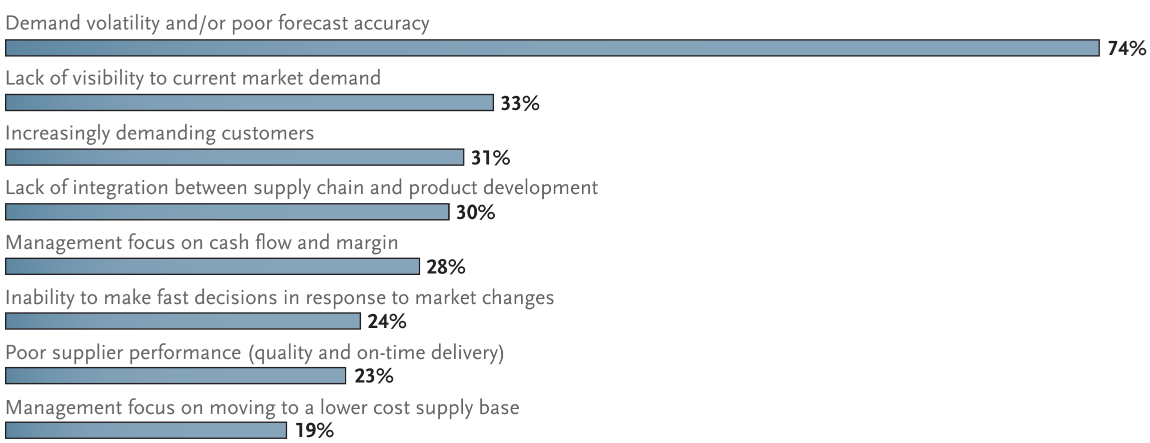
Market transparency and greater price sensitivity have led to lower customer loyalty. Product commoditization reduces true differentiation in the consumer and B2B environments.

Survey results clearly show that concerns about continued demand volatility hamper companies' ability to effectively manage supply chains in an upturn. In fact, three-fourths of respondents consider demand and supply volatility and poor forecast accuracy to be the biggest roadblocks they currently face. Volatility concerns were not assuaged during the recession, nor have most companies successfully implemented strategies for managing volatility in the years ahead. Recent shortages, such as those in electronic components and selected raw materials, indicate that many companies do not have the flexibility to meet an increasingly volatile demand. The rapid ramp up or ramp down of capacities seems to be a big challenge for many study participants.

Respondents also expressed concern that the current demand volatility is not just due to the recent crisis and, therefore, that it will create a bullwhip effect during the recovery. "Customer loyalty has significantly decreased in the past 12 months," says one industrial manufacturer participating in the study. "Many products are becoming more and more commoditized, with multiple competitors offering very similar features." With increased market transparency, many B2B and end customers simply shop for the lowest price, overlooking their loyalty to particular

Top Challenges to Supply Chain Flexibility

Percentage of participants (multiple answers possible)



CASE STUDY

Improving the Stability of Critical Component Supply

One of the world's largest providers of telecommunications products and services—the company generated more than $100 billion in 2009—has a brand that is well known to consumers. The company also generates significant revenue from selling services and equipment to large businesses and major telecommunications service providers. Each of these segments has distinct requirements for high levels of service. As such, the provider places priority on maintaining high service levels across all segments and focuses on the internal supply chain to support the seamless flow of network equipment.

Flawless network operations require near-instant delivery of critical equipment from suppliers—for example, routers installed within a network node or wireless equipment delivered to a mobile network cell. The global economic crisis wreaked havoc on the stability of the service provider's supply, as manufacturers of key equipment became reluctant to take risks associated with inventory investment and reduced their production schedules accordingly. Similarly, component suppliers to many of the company's key equipment providers were skeptical of the providers' forecast, and were therefore unwilling to invest in inventory. The result: an increased risk of network disruptions within key customers.

Regaining supplier confidence was critical. The company initiated a complete overhaul of its forecasting and planning processes, transitioning to weekly forecast updates and extending the forecast time horizon. In addition, the company began including critical equipment and component suppliers in the weekly planning cycle and identifying key Tier 2 suppliers to work with. "This level of collaboration was new to us," says one supply chain executive, "but we could see the benefit right away. Instead of second guessing each others' numbers, we could finish a meeting with a consistent set of data and share it downstream with confidence."

Management recognizes that getting to one forecast is virtually impossible given the company's enormous size and global scale. But enhancements to existing management information systems have made it far easier to collect data and aggregate information across the globe. The company has also made a major investment in employee training on standardized forecasting processes and tools. "The benefits are very clear," says the supply chain executive. "We can grow significantly, reduce inventory, and maintain excellent service—all in parallel."

products. A lack of robust forecasting and planning tools contributes to the problem, as companies and their suppliers frequently find themselves scrambling to meet unexpected changes in requirements, even when distance is not a major factor.

The best-performing companies have already taken steps to improve supply chain response time and visibility across all supply chain partners. Others plan to implement new strategies within the next two years. Companies are focusing primarily on deepening collaboration with key customers to reduce unanticipated changes in demand. Half of participants plan to implement joint "real-time" planning with their key customers by 2012, and nearly half plan to develop processes for improved demand sensing—that is, understanding the market rate of demand in real time, rather than having to wait for after-the-fact reporting.

Trend 2

Securing Growth Requires Truly Global Customer and Supplier Networks

Future market growth depends on international customers and customized products. Increased supply chain globalization and complexity need to be managed effectively.

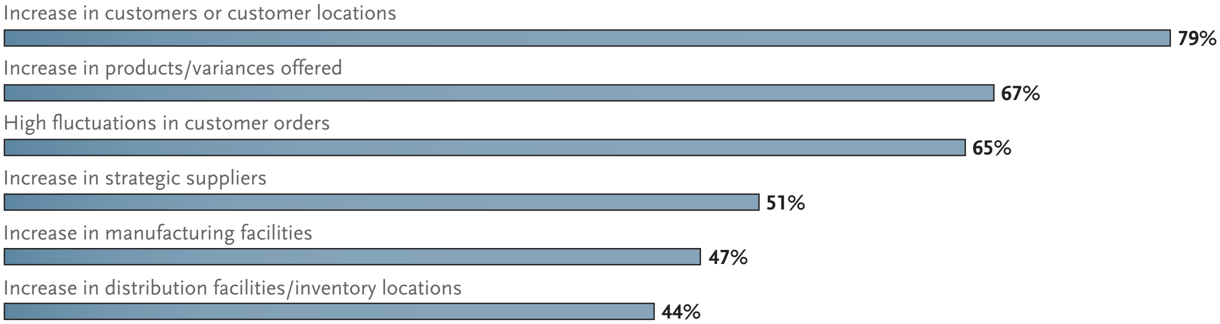
The years before the financial crisis witnessed an uptick in globalization and access to new consumer groups in emerging markets. Our findings suggest these trends will continue. Most survey participants expect that future business growth will come primarily from new international customers and products that are customized to meet their needs. As a result, more than 85% of companies expect the complexity of their supply chains to grow significantly by 2012.

Specifically, more than three-fourths of respondents expect an increase in the number of international customer locations, and more than two-thirds expect a higher number of products or variants will be required to fulfill customer expectations and counter shrinking revenues. Perspectives vary slightly across different geographical regions, but the main, consistent drivers of complexity are new customer locations, products and variants, and high fluctuation in customer orders.

The data concerning where complexity will decline is also noteworthy. Nearly 30% of respondents expect the number of manufacturing facilities to decline until 2012, which reflects the expectation that their companies will increase outsourcing to external partners. Similarly, a nearly 30% decline in the number of strategic suppliers indicates that many companies expect to further consolidate their supplier bases. In general, companies in North America and Europe will consolidate their manufacturing and distribution footprint, while companies in Asia will further expand their entire supply chain network.

Drivers of Supply Chain Complexity

Percentage of participating companies expecting an increase (multiple answers possible)



CASE STUDY

Procter & Gamble (P&G)—End-to-End Supply Chain Management

P&G's Feminine Care division reached 2009 revenues of more than $1 billion and sustained an after-tax margin of 10%. For many years, the division saw revenue growth that ranged above 20%.

All this changed in the summer of 2008, when company management became increasingly concerned about the market risk foretold by massive sales drops and aggressive de-stocking at retailers and distributors. "We didn't panic," says Budapest Plant Manager Stefan Brünner, who oversees the factory that manufactures the products sold in Europe, the Middle East, and Africa. "Rather, we decided we needed to understand the range of scenarios we were looking at, and then develop a strategy to accommodate what we felt was most likely to happen."

After evaluating numerous scenarios, P&G management concluded that a slow recovery was most likely. "Obviously we weren't happy about the drop in business," notes Brünner, "but we saw this as an opportunity to focus on improving some supply chain fundamentals and emerge from the recession in a stronger position."

Assuring its workforce that no permanent employees would be laid off, the company launched an aggressive recovery program. The objective—and the ultimate key to success—was the deployment of a fully optimized end-to-end process from supplier to customer across multiple organizational boundaries. While senior management initiated this transformational change, it was carried out by the entire supply chain organization, which had been honed over many years. A truly cross-functional approach helped integrate key stakeholders across the supply chain: supply network management, brand planning, site planning, warehouse and distribution management, customer service logistics, operations management, product launch management, and work system management.

A customer/market perspective drove all of the supply chain improvements. The development of rapid product changeover capability in conjunction with the ability to start up new products without requiring a learning curve has greatly improved manufacturing responsiveness. Close collaboration with key suppliers to perform a complete value-stream analysis and optimization has helped reduce lead times for critical materials. In addition, a new supplier portal has shared planning and delivery information, linking supplier delivery transactions to the ERP system. The portal includes electronic quality releases and a self-billing function.

These changes brought impressive results: greater manufacturing responsiveness, more than a 20% increase in manufacturing productivity, an 18% reduction of regional inventory while keeping customer service levels high, a decline in material lead times by as much as 50%, faster launches of new products, and a drop in the total delivered cost of more than 12%. Thanks to its extremely flexible and responsive operating model, P&G's supply chain has become adept at coping with demand fluctuations and managing complexity in today's fast-changing market environment.

Top companies are managing their growing international customer and supplier base without overloading their supply chains with additional complexity. Regionally configured supply chains will be the key to success. These supply chains serve regional customers according to their requirements, while bundling supply chain partners, manufacturing facilities, and distribution centers as much as is economically possible. As a result, they serve international customers with a cost-effective network while maintaining maximum flexibility.

Trend 3

Market Dynamics Demand Regional, Cost-Optimized Supply Chain Configurations

Customer requirements and competitors necessitate regionally tailored supply chains and product offerings. End-to-end supply chain cost optimization will be critical.

Survey respondents seem confident that they will be able to deliver substantial gross margin improvements over the next two years. As was the case during the downturn, gains will not come from price increases, but from further reductions of end-to-end supply chain costs.

Globalizing supply chain operations and outsourcing specific functions are viewed as critical for controlling costs, as was the case in our previous surveys. Outsourcing is on the rise for a number of functions because it allows companies to take advantage of lower costs in emerging markets and increase the flexibility of their own supply chain. The functions that will see the greatest increase in outsourcing are product development, strategic and operational sourcing, supply chain planning, and shared services.

CASE STUDY

Commoditization and Cost Pressures in Consumer Notebook Market Drive Supply Chain Transformation

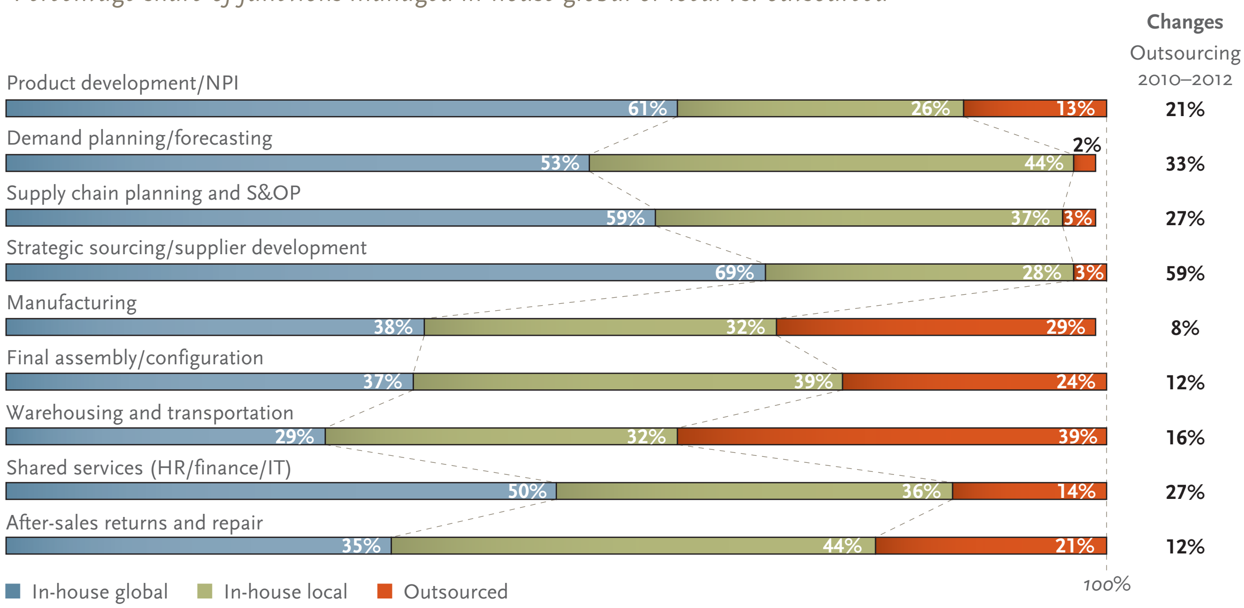
During the recent financial crisis, a Chinese multi-billion dollar original design manufacturer of notebooks struggled to compete in a market experiencing significant price erosion. Products that previously sold at retail prices of approximately $2,000 dropped as low as $300. Realizing that the market had changed significantly—to the point that it was no longer an advantage to be first to market with products priced at a premium—the company's executives took quick action in revamping their go-to-market strategy and supporting supply chain network.

The company moved its finished goods inventories out of sales channels to in-transit inventory on sea, which significantly stabilized its supply chain. With this shift, a month's shortage of manufacturing labor in China can now be bridged without affecting customer delivery since enough inventory exists in-transit. Air freight is used to manage real-time adjustments in demand. This new fulfillment strategy has made the supply chain so flexible that it can accommodate even natural disasters without compromising the stability of supply.

The new fulfillment strategy has already made an impact. The company reduced its air shipments from 70% in 2009 to 30% in 2010, resulting in significant cost savings and a more stabilized supply chain. The strategy also led to increased inventory levels and reduced customer response time, but executives were willing to make these tradeoffs to remain competitive in an increasingly commoditized market. The company's fulfillment strategy is expected to remain in place for as long as the consumer notebook market stays as price sensitive as it currently is.

In-House vs. Outsourced Supply Chain Functions until 2012

Percentage share of functions managed in-house global or local vs. outsourced



Manufacturing and assembly has long been a major focus of outsourcing efforts. Currently, about one-third of respondents' manufacturing capacity is managed by external partners; one-third is managed by the companies in international facilities; and one-third of manufacturing capacity remains within companies' home country or headquarters. These numbers suggest outsourcing activities in manufacturing and assembly have reached a plateau where companies have found the right balance between internal and external production.

The majority of respondents report that, while they have achieved substantial material and labor cost reductions through outsourcing, most have yet to see significant reductions in process or management costs. A vice president of supply chain for a leading industrial electronics company explains:

"Unit costs are easy to measure. When we move to a 'less expensive' supplier, we can see the improvement right away. But a lot of costs are hidden—costs associated with things like quality, site visits, and the loss of flexibility. We often spend more expediting parts from a 'less expensive' supplier than we save on the material cost."

Leading companies understand the impact of these hidden costs and are taking aggressive steps to identify and manage them. Many are embracing new concepts like Total Supply Chain Cost Engineering, an integrated approach to calculating and managing total cost across all supply chain functions and interfaces. In addition, leading companies are building regional supply chains to meet the cost and quality requirements of their local customers and to outperform the networks their competitors have established in the region. Rigorous cost optimization across the end-to-end supply chain—from order management, sourcing, and manufacturing to logistics and transportation—are critical for success.

Trend 4

Risk Management Involves the End-to-end Supply Chain

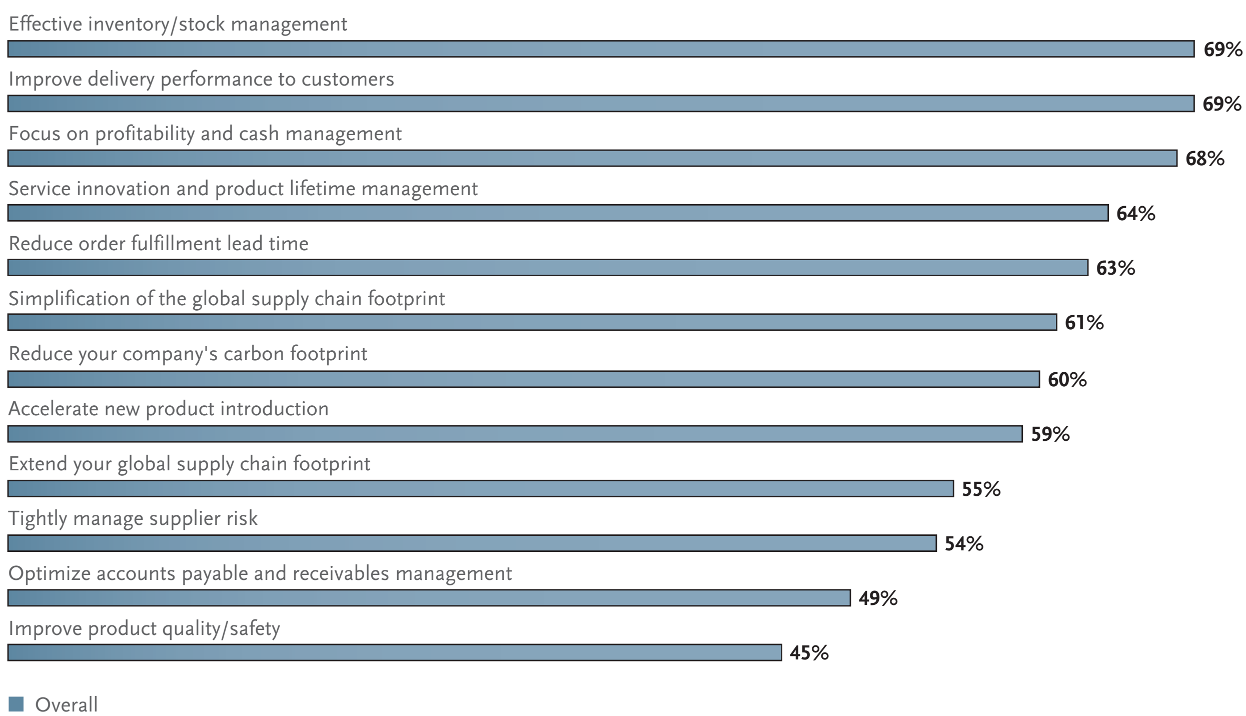
Risk and opportunity management should span the entire supply chain—from demand planning to expansion of manufacturing capacity—and should include the supply chains of key partners.

During the global financial crisis, many companies operated with the fear that suppliers would be forced into default, cutting off critical sources of components and increasing the cost of introducing alternative suppliers. Taking steps to enhance their risk management methods, many companies began monitoring their suppliers' financial status and mitigating default risks while they aggressively managed their own working capital.

Today, risk has become a management challenge across the entire supply chain. According to survey participants, new demands from their customers have played a key role in this development. Dealing with cost pressures of their own, many customers have increased their efforts in asset management and have started shifting supply chain risks upstream to their suppliers. So while more than half of survey participants say supplier risk management remains

Top Supply Chain Risk Management Strategies

Percentage of participants that plan to pay significant attention to the following risk mitigation strategies by 2012 (multiple answers possible)



CASE STUDY

BMW—A Blueprint for Supplier Partnership

BMW Motorrad, a global manufacturer of motorcycles selling approximately 100,000 units annually, has developed a comprehensive approach to managing its supplier portfolio. Consisting of eight modules, this portfolio encompasses the entire life cycle of partnership collaboration and risk management.

BMW designed its supplier selection strategy to optimize the supplier portfolio, beginning with the identification of potential candidates. The company conducts performance, and technology audits on a regular basis to assess the innovation potential and strategic fit of a partner. It also thoroughly evaluates technical capabilities, performance, and risks for supply interruptions of selected suppliers. Road maps guide sustainable performance improvement, and a centrally managed database aggregates information for consistent supplier information management. If critical performance problems come to light and no feasible solution is found, a phase-out module organizes the substitution of the faulty supplier with a new candidate. This selection strategy substantially mitigates the risk of supplier default.

BMW's supplier risk management approach is part of a comprehensive supplier management strategy, which—from an IT perspective—is fully integrated and managed through predetermined key performance indicators. All key suppliers are evaluated for performance and default risks on a regular basis and corrective action is taken. Recent measures reached from strengthening the operations of failing suppliers to a structured phase out and ramp up of alternative suppliers.

Thanks to the transparency of its suppliers' performance, and implemented corrective actions, BMW Motorrad ensured an uninterrupted supply of its production plant to date and, at the same time, significantly improved the quality of delivered components by suppliers.

important, even more respondents—between 65% and 75%—list end-to-end supply chain practices like advanced inventory management or improved delivery to customers at the top of their agenda.

In addition, effective working capital management remains a top priority for the companies surveyed. Examples include shifting inventories towards suppliers via vendor-managed inventories, and reducing the manufacturing asset base through sale and leaseback programs or through outsourcing to external partners.

Leading companies are taking an end-to-end approach in managing risk at each node of the supply chain. To keep the supply chain as lean as possible, they are taking a more active role in demand planning, which ensures that they order only the amount of materials needed to fill firm orders. Firms are also limiting the complexity of products that receive late-stage customization. Leading companies mitigate inventory-related risks by shifting the responsibility for holding inventory to their suppliers and, furthermore, by making sure finished product is shipped immediately to customers after production.

Trend 5

Existing Supply Chain Organizations Are Not Truly Integrated and Empowered

The supply chain organization needs to be treated as a single integrated organization. In order to be effective, significant improvements require support across all supply chain functions.

Companies that wish to secure future revenue and margins must be able to address many different supply chain challenges—demand volatility, increasing complexity and globalization, greater cost pressures, and more extensive supply chain risks. Yet little can be achieved without a supply chain organization that is truly integrated across all functions and empowered to take bold action.

Our survey results make this clear. A substantial number of survey participants say that problems with the supply chain organization prevented their companies from capturing the benefits of the economic recovery. Approximately 30% mention the lack of integration between supply chain functions like product development and manufacturing. Integrated supply chain management across all key functions still seems to be a myth, with many procurement and manufacturing vice presidents making siloed optimization decisions.

In addition, nearly one-fourth of survey respondents point to their organizations' inability to make quick decisions in response to sudden changes in demand or comparable challenges. While almost all companies have installed a corporate supply chain department, many firms have not yet empowered their supply chain managers so they can actually execute end-to-end improvement initiatives.

Leading companies understand that breakthrough improvements are not possible unless the decisions made are optimal for all supply chain functions. For this reason, they have already taken steps to integrate and empower their supply chain organization. Managing all functions of the supply chain as a single resource under one joint responsibility, these firms are making sure the organization has a strong end-to-end optimization focus and are integrating supply chain partners up- and downstream. No less important, they are putting increased emphasis on finding and training top talent with end-to-end supply chain knowledge.

There is reason to believe that building global and integrated supply chain management is becoming an important priority. According to our survey, in 2010 approximately 50% of the companies will manage supply chain planning and S&OP on a globally integrated level, in contrast with 60% of companies projected for 2012.

CASE STUDY

El-Ajou Group—Winning the War for Supply Chain Talent

The El-Ajou Group, a leading provider of office automation and medical equipment, has grown rapidly over the last 50 years to become one of Saudi Arabia's top 100 companies. Employees have been the key to the company's success: Logistics and supply chain experts orchestrate material and component flow to ensure consistent supply to customers, and manage inventories even in uncertain economic conditions.

However, this success has recently come under threat as a result of the global war for supply chain talent, which is particularly severe in the Middle East. Supply chain professionals who are familiar with the needs of the region are in short supply, so El-Ajou has recruited a significant portion of staff from other regions, such as Europe and North America. The company has leveraged its international staff greatly, bringing best practice knowledge to the operations and distribution network: among others, warehouse management systems, ERP interfaces with logistics systems, and tracking and tracing technologies.

Current economic conditions and the resulting cost cutting and budget restrictions hamper El-Ajou's possibilities to attract and retain professionals from outside Saudi Arabia. As a short-term solution, the company has been relying on third-party logistics providers—but at prohibitive cost levels and without the specialized experience and knowledge required to sustain a competitive advantage. To ensure success, El-Ajou is renewing its emphasis on talent management by developing internal capabilities with dedicated training programs, supply chain internships, and best practice experience sharing across the entire company.

Top Challenges Facing Supply Chain Organizations

Priorities for Supply Chain Success: The COO Agenda 2010–2012

Our survey clearly indicates that companies worldwide are optimistic that an upturn has begun with a surge in demand and increasing revenues and profits. This widespread optimism may be premature in light of the supply chain challenges companies face. Many challenges cited by survey participants existed even before the crisis. But companies have failed to do their homework during the downturn and surging demand now increases supply chain deficiencies in scope, scale, and speed.

Only a small number of global supply chain leaders have taken steps to address these challenges and have improved their supply chain flexibility and processes during the past months. In line with previous surveys, many companies have very high expectations for their own ability to develop more mature supply chain management processes. Yet, for many supply chain managers, critical goals such as effective key supplier management and a further globalization of the supply chain have not been on the agenda.

In order to capture the benefits of the upturn, senior executives need to do a reality check of their global supply chain capabilities. Real-time supply chain planning, increasing supply chain flexibility, better cost management, end-to-end supply chain risk management, and a truly empowered supply chain organization all must become priorities in the supply chain leader's agenda.

The Global Leader COO Agenda 2010–2012

1	Improve customer access and accuracy of supply chain planning	■ Improved point of sale presence/partnering concepts ■ End-to-end supply cooperation/optimization ■ Real-time demand and supply planning ■ Supply chain response time reduction
2	Increase upstream and downstream supply chain flexibility	■ Global network design adjustments ■ Improved supply chain upward and downward flexibility ■ Product and process complexity management ■ Late-stage customization
3	Focus on Total Supply Chain Cost Engineering	■ Outsourcing of non-core functions ■ Regionally configured, optimized supply chains ■ Total Supply Chain Cost and process optimization ■ Low-cost country utilization
4	Implement end-to-end supply chain risk management	■ Demand and supply risk optimization ■ Supplier risk management ■ Working capital and asset optimization ■ Optimization of key partner's supply chain risks
5	Integrate and empower supply chain organization	■ Integrated supply chain organization across all functions ■ Empowered decision making with clarity on global versus local responsibilities and functional decisions ■ Ability to deploy the right skill sets and expertise

Priority 1: **Improve Customer Access and Accuracy of Supply Chain Planning**

Supply chain executives have long expressed concerns about demand volatility and lack of upfront visibility to market and customer demand. Decreasing customer loyalty and continued market swings make demand planning difficult and pose significant management challenges.

To cope with continued demand volatility, companies must improve joint planning and relationship building with their key customers. Real-time demand and supply planning is the tool of choice for dealing with the many intricacies of the new volatile customer environment. While point of sale presence is utilized primarily by consumer product manufacturers, it is vital for any company that wants to capture early indicators of significant demand shifts. Currently, only 37% of survey participants have started doing demand forecast updates on a daily or weekly basis. Up-to-date forecasts and intelligent tools for demand sensing allow companies to plan ahead for fluctuations in demand and cascade this planning down the entire end-to-end supply chain.

New customer partnering concepts are also required to better manage product development, manufacturing, transportation, and inventories. As more and more products become commoditized, the need for close and long-term partnerships to strengthen customer loyalty grows increasingly important.

Priority 2: **Increase Upstream and Downstream Supply Chain Flexibility**

In the coming years, business success will increasingly depend on a highly diversified product portfolio and a global customer and supplier base. Companies will need to increase their supply chain flexibility to deal with complexity and continued cost pressures.

In this environment, companies should review their supply chain footprint on a region-by-region basis and adjust all functions to meet local customer or market requirements. They should determine whether each supply chain function is core to the business or if it can be provided by external partners. In addition, companies should define appropriate service levels and performance parameters.

Appropriate handling of product and process complexity is also essential. Tools to increase flexibility, such as late-stage customization concepts or moving push/pull boundaries in the supply chain, are useful strategies in this regard.

Priority 3: **Focus on Total Supply Chain Cost Engineering**

The need to consistently reduce costs will continue to be an important driver of supply chain strategies. Outsourcing of non-core functions and moving supply chain functions to low-cost countries will remain at the top of the agenda for supply chain executives.

Today, leading companies are going a step further. Using a total landed cost approach, they are analyzing cost drivers across all functions and implementing improvement opportunities across the entire global supply chain. Companies are using this approach, known as Total Supply Chain Cost Engineering, to optimize and reengineer key processes or to reconfigure supply chains to fit the requirements of specific customer groups or regions. The goal is to find a significantly lower cost optimum for the entire global supply chain network.

Priority 4: **Implement End-To-End Supply Chain Risk Management**

While the economic crisis forced companies to adopt advanced methods of supplier risk management and working capital optimization, many companies still focus on just a few areas of supply chain risk. Leading companies are expanding their risk management practices to cover the entire supply chain.

To mitigate end-to-end supply chain risk, top companies have developed an integrated approach that includes the customer perspective. Partnering with key customers involves more frequent or even real-time demand forecasting, or newer practices like demand sensing and scenario modeling. The goal is for all supply chain partners to share the risks for demand fluctuations, inventory, and other cost drivers equally. This end-to-end perspective is critical for success.

Leading companies are taking an end-to-end approach to managing risk at each node of their own —as well as their key partners'—supply chain. Key to joint supply chain management are integrated S&OP processes, which are based on a joint database and involve immediate notification to all partners if key parameters—like delivery dates of components—change. End-to-end supply chain visibility and immediate corrective actions are essential for reducing risk and financial exposure across the supply chain network.

Priority 5: **Integrate and Truly Empower the Supply Chain Organization**

To meet the challenges of demand volatility, increasing complexity, cost pressures, and risk, the supply chain organization needs to be closely integrated with various internal functions, supply chain partners, and customers. Only an integrated supply chain can be responsive to fast-changing customer needs or the failure of a key supplier.

But the most sophisticated supply chain strategies will accomplish little without an empowered supply chain organization. A lack of clarity on roles and responsibilities between global versus local supply chain functions can seriously compromise the effectiveness of global supply chain operations. Effective supply chain managers have the power to make decisions that influence multiple functions, from procurement to logistics. Even if a single function does not benefit from a supply chain improvement activity, supply chain managers need to be empowered to execute these decisions if they improve the overall supply chain performance.

The main challenge for many companies is not to redefine their organization models, but to transition and manage the organizational change. To make a truly empowered supply chain organization work, companies first must determine what their target models should look like and persuade senior management to make the required changes. To make an integrated supply chain work, it is essential to train and acquire top talent with end-to-end supply chain knowledge.

APPENDIX

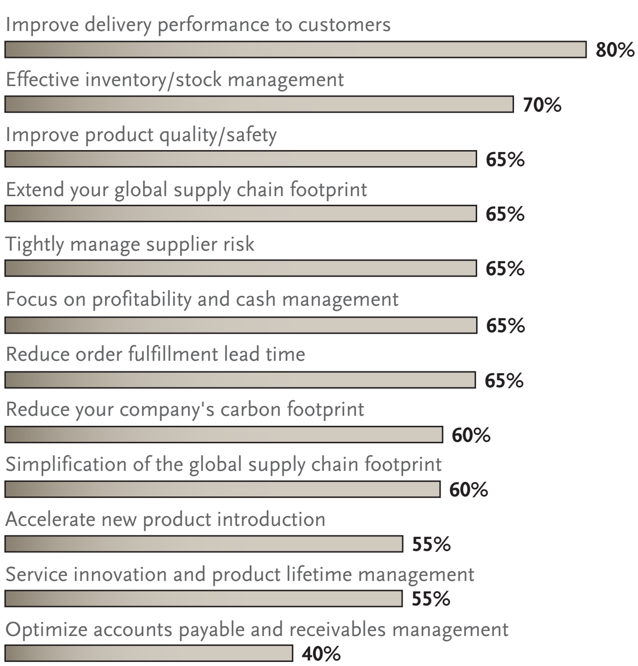
Selected Industry Viewpoints

Aerospace and Defense (A&D): Improving delivery performance to capitalize on opportunities ahead

After the turbulence of the last two years, A&D firms are cautiously optimistic about what lies ahead. As globalization accelerates, more than half of respondents expect margins above 10% by 2012. To capitalize on this potential, firms are improving delivery performance, reducing costs to free up cash, and redesigning their supply chain footprint to leverage the advantages of globalization.

Key A&D Supply Chain Goals for 2010

Percentage of A&D firms that expect importance to increase by 2012 (multiple answers possible)



Volatility. Sixty percent of A&D companies cite demand volatility and poor forecast accuracy as their greatest challenge. These industry sectors have been hit by spectacular project overruns and erratic customers whose budgets have been shaken by the prevailing economics. In the Americas and in Europe, firms have been reacting to this challenge by reviewing the size and shape of their supply chains so that lower revenues will not cripple the bottom line.

Cost management. The last few years have seen A&D customers tighten their belts. This has led to the emergence of new alignments and relationships in the industry. Supply chains are being reshaped with a focus on how the elements in the value chain interrelate. In addition to reducing the number of strategic suppliers, A&D customers are outsourcing key operations like manufacturing and warehousing to lower-cost locations. While the need for cost savings drives these activities, protection of intellectual property is a major factor in choosing outsourcing partners.

Inventory management. The optimization of inventories is another major focus area because of the importance of freeing up capital and reducing costs. Availability-based contracting is fast becoming an industry mainstay. As the risk is shifted from customer to supplier, companies need to exercise very tight inventory control and accurate forecasting. Failure on either count will inevitably result in smaller margins.

Complexity. While outsourcing will result in a net reduction in the number of manufacturing and warehousing locations over the next few years, the number of customers and product variants is likely to rise as companies expand into new markets and target a wider and more diverse customer base. The sum total of these strategies is likely to be greater complexity, which needs to be optimized if companies are to continue getting a positive return on their investments.

Participants indicate that delivery assurance is their most pressing concern, given the challenges of demand volatility, product proliferation, and production cost pressures. A&D firms are using modularity, a technique that is frequently seen in fast-moving, high-tech industries such as telecommunications, as an approach to increase this flexibility. This approach is now being adopted particularly in the defense sector, traditionally an area that has seen bespoke solutions for fixed sets of requirements.

Automotive: A rosier outlook, provided the supply chain recovers from the crisis

The global automotive industry was devastated by the global recession, as sales plummeted worldwide. Clearly, without government intervention, many manufacturers and suppliers would not have survived. In these dire circumstances, automotive companies were forced to take more drastic steps than companies in other industries to secure their supply chain. Nearly 70% of automotive companies surveyed say they considered investing in ailing strategic suppliers and nearly one of every three actually provided short-term financial assistance. Approximately 70% say they will tightly manage supplier risks as a strategic priority.

Today's outlook is far rosier, as automotive companies expect increasing customer demand for a generation of cars that provide higher fuel efficiency, in-car entertainment, and other features. Automotive industry participants in the study expect 9% annual revenue growth over the next three years and expect gross margins to climb above 10%. Companies based in Europe and the Americas are especially optimistic.

Demand volatility and poor forecast accuracy. The automotive industry leads in several operational areas needed to address demand volatility. Product development and supply chain functions are well integrated, with early involvement of supply chain staff in product design reported by 92% of automotive respondents. By contrast, only 67% of respondents from other industries make this claim. The automotive industry is also setting standards in modularity and component standardization; nearly 90% of automotive companies put focus on these approaches for increasing flexibility, as compared with nearly 60% in other industries.

Complexity. The industry continues to keep a tight rein on manufacturing, with only 8% outsourced compared with 27% in other industries. More than 80% of automotive respondents expect the number of their own manufacturing facilities to increase over the next three years. This will require an adjustment of existing capacities and further increase supply chain complexity. The focus on modularity, new electric technologies, and product development integration may be of little help to the industry if the issue of global overcapacity is not addressed.

Consumer Goods and Retail: Preparing for the increasing power of buyers in the marketplace

The recession witnessed an enormous decline in consumer expenditures, wreaking havoc for many consumer goods and retail companies. Although people have started returning to the stores, consumer goods and retail companies expect consumer activity to remain low. As the competition over revenues intensifies in this buyer's market, winning companies in these sectors will be the ones that reduce costs while offering products and services that meet the needs of increasingly demanding customers.

Top Priorities of Consumer Goods and Retail Companies

(multiple answers possible)

Volatility. Nearly 70% of consumer goods and retail companies cite demand volatility and poor forecast accuracy as a major challenge. Therefore, the diligent layout of global footprints will be a key factor for success in 2012.

Complexity. For consumer goods and retail companies, increased complexity is simply part of doing business. Complexity comes in various forms. To grow their customer base, companies have already begun expanding the number of customer locations; three-fourths of survey participants expect to continue these expansion efforts for the next few years. To attract customers and build customer loyalty, 60% of companies plan to expand their product portfolios with new products and product variances. Companies say, however, that customization above and beyond regulatory requirements is very challenging.

To prevent added supply chain and product portfolio complexity from eating into profits, firms are focusing on improving a variety of operational dimensions. Nearly 80% of respondents say their companies are making inventory management a priority; a similar percentage are focusing on service innovation and product life cycle management. More than three-fourths of companies are planning to improve delivery performance as a way to differentiate themselves from competitors.

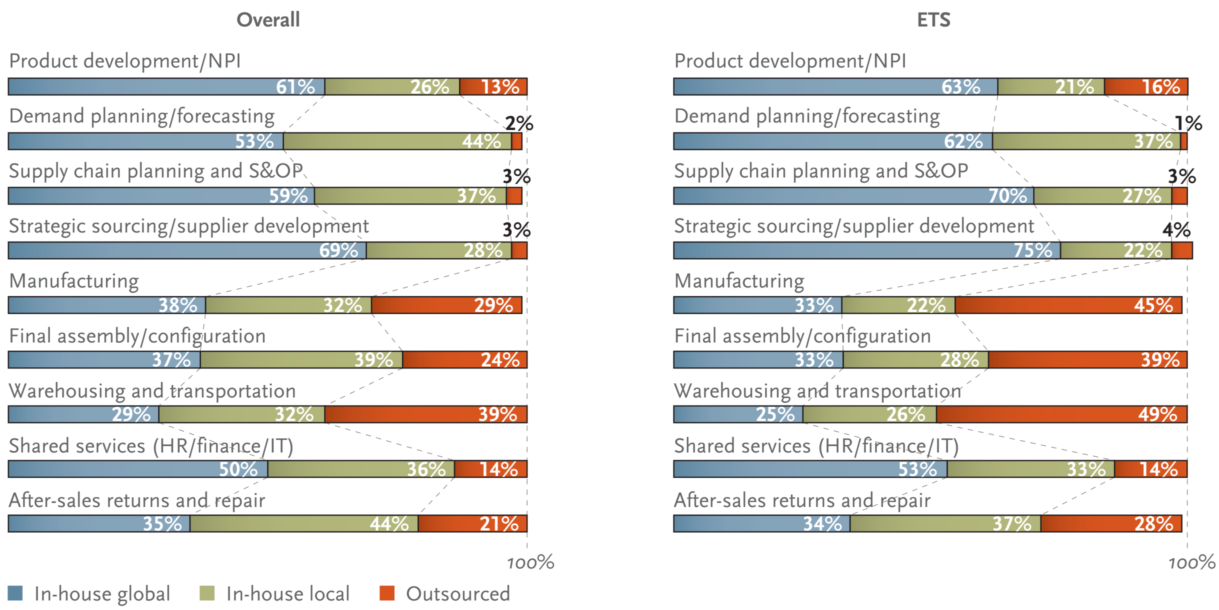
Electronics, Telecommunications, and Services (ETS): Growing revenues and margins in a volatile market

Survey participants from the ETS industries are generally optimistic about growing revenue and margins over the next few years. Nearly half expect gross margins to stabilize above the 20% mark by 2012, but companies in the Americas are much more conservative about margin growth than their European or Asian counterparts.

Demand volatility and poor forecast accuracy. The great majority of ETS respondents—nearly 90%—say demand volatility and poor forecast accuracy is the greatest supply chain challenge. Compared with other industries, electronics has historically invested the most in design and deployment of highly flexible global supply chains. Yet only 6% of demand forecasting is done on a daily or real-time basis. To improve responsiveness, ETS companies plan to reduce production

In-House vs. Outsourced in 2012

Percent shares of functions managed in-house global or local vs. outsourced



cycle time, standardize components and modules, and improve warehouse/logistics configurations. Most participants also say they will place more emphasis on advanced practices such as joint planning with customers and demand sensing.

Cost management. ETS respondents note that pressure to reduce material and production costs has not diminished and, in fact, remains the primary driver of supply chain footprint design. To compensate for the reduced flexibility caused by a larger physical footprint, nearly three-fourths of ETS companies focus on integrating the supply chain early in the product development process. Historically a leader in outsourcing, ETS companies expect to outsource even more in the areas of manufacturing, warehousing/transportation, and after-sales service and repair. On the other hand, they plan to keep planning/forecasting, S&OP, and supplier development as part of core internal operations.

Risk management. ETS companies consider managing risk across the end-to-end supply chain to be increasingly important, especially in consumer goods and retail environments. Survey respondents cite increased pressure to take over risks as their customers tighten their asset management policies.

As their focus moves from helping suppliers at risk to complete business continuity planning, ETS firms will focus on improving delivery performance to customers, effective inventory management, and profitability/cash management.

Industrial: Managing fluctuating demand in a buyer's market

Over the last few years, industrial companies have experienced a more turbulent market than any other industry in our survey. Overcapacity and over production in the face of soft demand have led to an inventory glut. To maintain financial liquidity, industrial companies have dramatically reduced their on-hand inventory as well as their available capacity. In this buyer's market, where demand is high, the ability to deliver industrial projects and products within the customer requested lead time will now become the key differentiator.

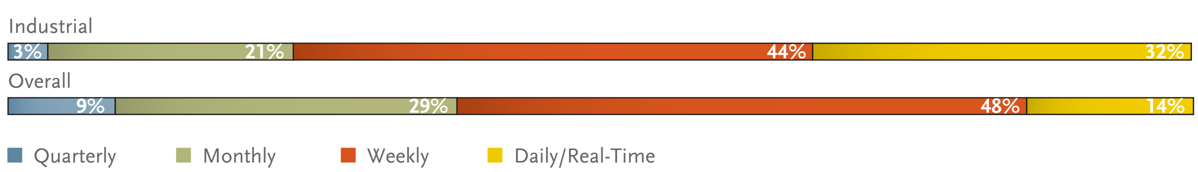
Demand volatility. More than 80% of respondents expect demand volatility to peak in 2010. Compared with other sectors, industrial companies are closer linked to their customer base and have a longer perspective of the order book, which provides better visibility of demand.

Demand forecasting. Firms still need to make dramatic improvements in demand forecasting. One-third of the industrial participants update their demand forecast only every quarter with their key customers and another 45% of companies re-plan on a monthly basis. As a result, downswings in demand have gone unnoticed for months, causing unnecessary inventory build ups, while recent demand upswings now cannot be filled due to reduced capacities. Leading companies are, therefore, increasing the frequency of demand forecasts with key customers and have established effective demand sensing algorithms in order to improve supply chain flexibility as well as reaction times.

Manufacturing flexibility. That is only one piece of the equation. To better manage demand volatility, industrial companies are increasing their own production flexibility. Fully 93% of the industrial companies in our survey noted that they are focusing on reduction of production cycle times. In addition, 77% are moving to a make-to-order strategy and 73% are improving production-line configuration. Industrial companies are also closely monitoring supplier lead times and capacities.

Frequency of Demand Forecast with Key Customers

Percent share of forecast regenerated



Health Care: Addressing the challenges of a globalized supply chain

Of all the industries included in our survey, health care (i.e., pharmaceutical and health care services companies) express the greatest optimism regarding growth prospects. Nearly 60% of health care participants expect gross margins to stabilize over and above the 20% mark. This growth depends on continued globalization of the supply chain—and tackling the attendant challenges.

Demand volatility and poor forecast accuracy. Historically, health care companies on the whole have been used to fairly steady demand, so it is especially noteworthy that two-thirds of respondents cite demand volatility and poor forecast accuracy as their greatest operational challenge—nearly twice the percentage that cite integration between product development and supply chain (38%). A larger, more complex supply chain footprint will add to the challenge. Approximately 84% of participants plan to increase the number of product variants, while 81% expect to greatly increase the number of customers and customer locations.

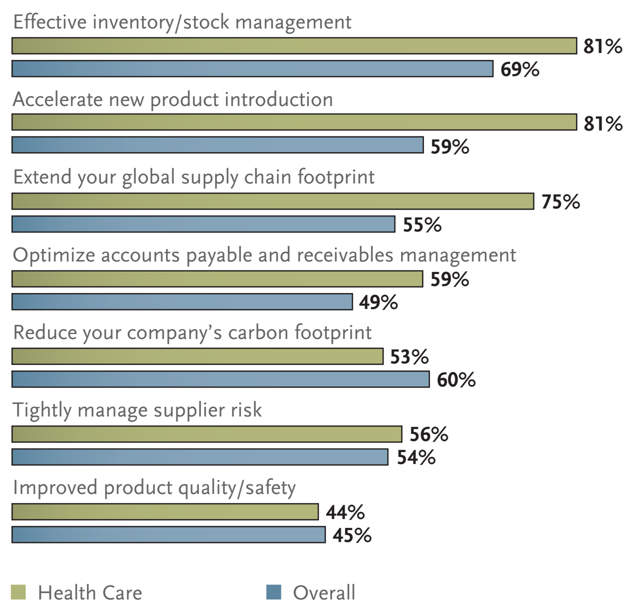
Despite the need to be more flexible, approximately 70% of health care companies still plan on a monthly basis. Only 6% have already achieved the capability for daily planning and execution. To improve supply chain responsiveness, health care companies plan to put significantly more effort into developing advanced practices like joint planning with customers over the next few years. They will also focus on reducing production cycle times, standardizing components and modules, and improving warehouse and logistics.

Cost management. The health care sector is continuously challenged with cost pressures along the end-to-end supply chain. While companies have always focused on keeping production and transportation costs low, they have lagged behind other industries in terms of outsourcing other supply chain functions. Health care companies expect a further increase in outsourced functions, specifically contract manufacturing, after sales/customer care, and R&D. In health care, as well as in other industries, there is a clear trend to keep planning/forecasting, S&OP, and supplier development as part of the core operations.

Risk management. With continued focus on supply continuity and with major changes anticipated in

Top 10 Strategies

Percentage of participants that expect importance to increase by 2012 (multiple answers possible)



public health care funding policies, end-to-end risk management and continuity planning will be critical for ensuring top supply chain performance in the health care industry. Approximately 81% of health care companies say their strategic priority is to accelerate new product introduction, while three-fourths cite the need to extend their global supply chain footprint.

Logistics Service Providers: Ensuring flexibility in a buyer's market

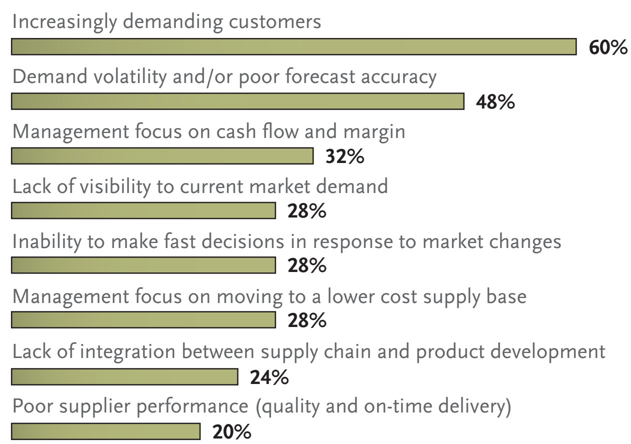
The downturn has been a period of much competition and consolidation for logistics service providers, as they have come to terms with a great decline in demand. As the economy improves, demand will likely grow, but it will also be more unpredictable; the customer base will also grow more diverse and less loyal. To grow revenues in this environment, logistics providers need to ensure their supply chains are more flexible than ever before.

Demand volatility and poor forecast accuracy. Demanding customers are the greatest challenge logistics providers face, followed by demand volatility and poor forecast accuracy. Sixty percent of companies see real-time planning and execution as the best strategy, while 56% of companies want to engage with key customers on joint planning activities.

Complexity. As logistics services customers produce a broader variety of products to meet the needs of their customers, logistics companies understand they will have to make important operational changes to accommodate this increased complexity. More than three-fourths say they will focus on making logistics and warehouse configurations more flexible, while more

Top Eight Challenges to Logistic Service Providers

(multiple answers possible)



than half say they will focus on improving production cycle times. A large number of respondents also stress the importance of joint planning and business continuity planning with strategic suppliers.

Organizational model. To succeed in this challenging environment, many logistic service provider companies have increased their efforts for recruiting and retention of talent. A number of survey participants, in fact, say this is the most important item on their agenda. Talent will be the cornerstone for top supply chain performance in this buyer's market.

Acknowledgments

Special thanks are in order to the nearly 350 participants who provided data for this survey. Without your contributions, this report would not be possible.

We would also like to thank the following individuals for their contribution in preparing this year's report.

Jim Takach, Newport Beach

Rick Hoole, Boston

Rodger Howell, Chicago

James So, Tokyo

Atsutoshi Banno, Tokyo

Craig Kerr, Shanghai

Maheswar Singh, Bengaluru

Nitin Soundale, Bengaluru

Anil Khurana, Dubai

Thomas Pellegrin, Dubai

Joseph Roussel, Paris

Johanna Guillon, Paris

Gordon Colborn, London

Len Pannett, London

David Young, Stockholm

Eric Pohlmann, Frankfurt

Shoshanah Cohen, Mountain View

Julia Heskel, Waltham

ABOUT PRTM MANAGEMENT CONSULTANTS

Since 1976, PRTM has created a competitive advantage for its clients by changing the way companies operate. PRTM's management consultants work with senior executives to develop and implement innovative operational strategies that deliver breakthrough results. The firm is a leader in operational strategy, supply chain, product development, and customer value management. PRTM has 19 offices worldwide and serves major industry and global public sectors.

Beijing
+86 10.6808.0296

Bengaluru
+91 80.4010.0900

Boston
+1 781.434.1200

Chicago
+1 847.430.9000

Dallas
+1 972.980.8200

Detroit
+1 248.327.2500

Dubai
+971 4.434.5977

Frankfurt
+49 69.219.940

Glasgow
+44 141.616.2616

London
+44 207.010.8585

Munich
+49 89.516.175.5

New York
+1 212.915.2600

Orange County
+1 949.752.0100

Oxford
+44 1235.555500

Paris
+33 0.1.56.68.30.30

Shanghai
+86 21.3860.7888

Silicon Valley
+1 650.967.2900

Tokyo
+81 3.5326.9090

Washington, DC
+1 202.756.1700

www.prtm.com

Where Innovation Operates℠

PRTM

50799