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SUPPLYCHAIN MANAGEMENT REVIEW®

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MANAGING RISK

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SUPPLYCHAIN MANAGEMENT REVIEW

FEATURES

12 The 2013 Supply Chain Top 25: Learning from Leaders
The 2013 ranking of supply chain leaders from Gartner includes a broad mix of global companies—a few new to the list, but most having recorded multiple appearances. These leaders share certain characteristics that drive day-to-day performance while solidifying the foundation for future growth. Their standout performance is raising the supply chain leadership bar for companies everywhere.

22 The Socially Responsible Supply Chain: An Imperative for Global Corporations
Tragic fires in garment factories have highlighted the need for greater oversight when sourcing in low cost countries. This is especially true for companies with a commitment to social responsibility. Co-authors Andreas Wieland of the Kuhne Foundation Center for International Logistics Networks and Robert Handfield, a professor at North Carolina State University, detail essential steps for managing a socially responsible supply chain.

30 A Blueprint for Supply Chain Optimization
In a complex fulfillment environment, supply chain optimization studies are the foundation for some of the most successful companies' logistics and fulfillment operations. Supply chain expert Dale Pickett looks at the best practices behind successful supply chain optimization.

40 The Power of Supplier Collaboration and Rapid Supplier Qualification
As industries outsource more of their traditional sourcing opportunities, the time has come to leverage the capabilities and capacity of the supply base through collaboration, according to McKinsey partners JehanZeb Noor, Aurobind Satpathy, Jeff Shulman, and Chris Musso. This article covers the lessons learned and leading practices from those select few companies that get supplier collaboration right.

48 5 Lessons for Supply Chains from the Financial Crisis
For many supply chain executives, the Financial Crisis has been the toughest challenge of their career. However, the supply chain community found innovative ways to deal with the challenges. Co-authors Kai Hoberg, Associate Professor, Kuhne Logistics University, and McKinsey consultant Knut Alicke outline five action areas supply chain managers should be aware of before the next crisis hits.

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America's Favorite Sandwich Cracker Brand Celebrates 100th Anniversary with Supply Chain Excellence

Snyder's-Lance, Inc., headquartered in Charlotte, NC, manufactures and markets snack foods throughout the United States and internationally. Products are sold under the Snyder's of Hanover®, Lance®, Cape Cod®, Pretzel Crisps®, Krunchers!®, Tom's®, Archway®, Jays®, Stella D'oro®, Eatsmart®, O-Ke-Doke® and Padrinos® brand names along with a number of private label and third party brands. snyderslance.com

Transportation Insight, headquartered in Hickory, NC, is a global lead logistics provider. For more information, please contact 877-226-9950, transportationinsight.com

How many 100-year-old brands do you know that are still growing strong? Most businesses nearing the century mark have established themselves as industry icons and are just maintaining slow steady growth. Not the Lance brand, now part of Snyder's-Lance, Inc. The Lance brand was just hitting its stride at age 90 and then nearly tripled in size over the next decade. Celebrating the 100-year anniversary of the Lance brand in 2013, the company credits the logistics sector as a key factor in its strategic advancement.

Looking back to 2003, Lance was already a very successful brand. Based in Charlotte, North Carolina, the brand had earned a 60% market share in the Southeastern United States, with most of its revenue coming from strong organic growth. This momentum was supported by a superior customer service network – the foundation for Lance's future growth.

In order to grow long term, Lance needed to grow geographically, broaden its reach into new product streams and delivery channels, and execute on a robust plan for acquisitions and mergers. Realizing the complexity of integrating multiple supply chains and the importance of big data and high level analytics, Lance began its due diligence to find an outside lead logistics provider that could meet its needs in optimizing an ever-changing supply chain.

"In 2003, when Lance launched the initiative to grow beyond the Southeast and become a major national player, we realized we would need to develop or acquire the expertise to achieve network optimization solutions with velocity and accuracy," says Snyder's-Lance Director of Transportation Services Doug McCraven. "We hired Transportation Insight, another North Carolina-based company, as the best partner to deliver what we couldn't insource without a significant investment in higher level logistics, expertise and models."

Having grown through several acquisitions including the Tom's Foods and Archway Cookies brands, in July 2010 Lance merged with Snyder's of Hanover, widely known for its variety of pretzel snacks. The $1.8 billion powerhouse now features many nationally and internationally recognized snack food brands in its portfolio, including Snyder's of Hanover Pretzels, Cape Cod Kettle Chips, Snack Factory Pretzel Crisps and the 100-year-old Lance brand.

SUPPLY CHAIN OPTIMIZATION

Growth through acquisition presented challenges of integration on many levels: information systems, production lines, company culture and product branding to name a few. But one of the more demanding aspects associated with acquisitions was the analysis, integration, redesign and optimization of the snack food company's evolving supply chain—from pre-acquisition data studies to post-acquisition network enhancements.

"Each acquisition, as well as our merger with Snyder's, presented different challenges," says McCraven, a 38-year veteran of the company. "But supply chain visibility was always key to our success. For the last ten years, Transportation Insight has provided horsepower that drives our continuous supply chain optimization efforts."

The company needed a network built for speed, agility and scalability, and Transportation Insight accepted the challenge head-on. Because Snyder's-Lance was growing so fast, many of its entities were operating in silos with independent supply chains and technology platforms that performed similar, duplicate functions. Numerous labor-intensive processes, such as GL coding, freight charge quoting and shipment tracking existed across the enterprise, adding significant dollars and hours to the company's cost to serve its customers. It became clear to company leadership that process controls and reviews needed to be improved.

Acknowledging the importance and complexity of solving these challenges to achieve its growth strategy, the company collaborated with Transportation Insight to develop a logistics solution that would improve visibility and reduce freight as a percentage of revenue. By leveraging Transportation Insight's expertise and much larger supply chain network, all brands in the company's product portfolio improved visibility with the integration of transportation management system technology (Insight TMS®) and ERP applications, all the while maintaining total decision-making control.

As a result of its comprehensive logistics strategy, Snyder's-Lance maintains its aggressive growth plan by carefully managing logistics costs and successfully integrating disassociated supply chains. As Snyder's-Lance has grown, a culture of continuous improvement has propagated throughout its supply chain and across its workforce.

"Snyder's-Lance has managed to work its way through challenges and come out ahead of the competition to celebrate the 100th anniversary of one of its core brands," says Transportation Insight Chairman and Founder Paul Thompson."Through its last 10 years of rapid growth, the company has mastered transportation management and supply chain integration. We are proud to be a part of their success and are grateful to be a logistics partner for a market leader like Snyder's-Lance."

"Each acquisition, as well as our merger with Snyder's, presented different challenges," says McCraven, a 38-year veteran of the company. "But supply chain visibility was always key to our success. For the last ten years, Transportation Insight has provided horsepower that drives our continuous supply chain optimization efforts."

Employing a continuous improvement approach across its supply chain, Snyder's-Lance continues to make strides in communication and collaboration inside the enterprise while continuing to partner with Transportation Insight to harness the power of precise, actionable supply chain data. Supply chain excellence is the foundation for the future of the enterprise. Knowing this, Snyder's-Lance continues to build a best-in-class supply chain management operation that will enable the snack food icon to maintain its dominant position in the snack food industry for the next 100 years.

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Risk is everywhere, but it can be managed

There's an old saying: A butterfly flaps its wings in Japan and causes a tidal wave in California. Whoever came up with that probably wasn't planning to ship goods from Asia to Long Beach. But it's an apt metaphor for the risk that supply chain managers seek to mitigate in today's global supply chains.

In fact, risk management is becoming integral to the supply chain lexicon. Just look at the press Apple garnered this past July when China Labor Watch, a New York-based nonprofit, released a report alleging labor abuses by a new contract manufacturer—one that Apple had brought onboard after another long-time supplier was previously alleged to have committed labor abuses.

The concept of risk was driven home during a recent visit with Jim Rice and Chris Caplice at the Center for Transportation and Logistics at MIT. Both identified risk management as a chief concern of their corporate supporters and a prime dissertation subject for students.

Now, supply chain managers have always had to put out fires. Suppliers suddenly go out of business, fuel prices unexpectedly spike, or critical shipments are delayed. What's different today, said Rice and Caplice, is the exposure of global supply chains to disruptions from repeated events such as 9/11, hurricanes, earthquakes, tsunamis, and the financial crisis. It seems like supply chain butterflies are flapping their wings everywhere.

That could explain why risk management coincidentally emerged as an underlying theme of several articles and columns in this month's issue of *SCMR*.

Take the retail supply chain. Following the tragic factory fires in Bangladesh earlier this year, a number of prominent retailers ended up with tarnished reputations because they didn't know who was producing the garments on their shelves. Authors Andreas Wieland and Robert Handfield detail why a socially responsible supply chain is as essential to the bottom line as low cost goods.

Bob Trebilcock, Editorial Director
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Similarly, many leading companies were stuck with excessive amounts of inventory in 2008 when demand went off a cliff only to find themselves unable to meet a burgeoning book of orders when the economy picked up again in 2010. Authors Kai Hoberg and Knut Alicke outline key steps supply managers should take now to minimize supply risks before the next crisis.

While you're at it, be sure to read the columns by Larry Lapide, Patrick Burnson, and Becky Partida. Each writer has a unique and thoughtful take on the risk to supply chains today.

This issue, my first as the new editorial director of *SCMR*, also features our annual look at the Supply Chain Top 25 from Gartner. Once again, authors Debra Hofman, Stan Aronow, and Kimberly Nilles identify what separates the truly great from the merely good. One key differentiator: The Top 25 have "changed from supply chain being about 'blocking and tackling' to it being an enabler of company success." In other words, the Top 25 aren't just shipping orders or controlling costs, they are a key contributor to their companies' success.

I suspect the Top 25 have also thought about ways to manage the risk from flapping wings.

Bob Trebilcock

SUPPLYCHAIN MANAGEMENT REVIEW

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InSIGHTS

BY LARRY LAPIDE

Supply Network Compliance a Must

Is Your Supply Network Compliant? Outsource Only What You Know

Dr. Lapide is a lecturer at the University of Massachusetts' Boston Campus and is an MIT Research Affiliate. He received the inaugural *Lifetime Achievement in Business Forecasting & Planning Award* from the Institute of Business Forecasting & Planning. He welcomes comments on his columns at llapide@mit.edu.

In his 1905 book, *Reason in Common Sense*, philosopher George Santayana famously wrote that "those who cannot remember the past are condemned to repeat it." Presciently, he appeared to have been referring to today's European and U.S apparel companies, especially the retailers.

In March 1911, 146 workers died in an enormous fire at a New York City garment factory that still represents the deadliest workplace disaster in the city's history. Many of the victims were young women who toiled in "sweatshop" conditions to support their financially struggling families. The tragedy in 1911 sparked an outrage by the public and led to a series of labor and union laws that continue to protect Western garment workers today.

Were it not for these laws I would not be who I am today or possibly exist. One of the workers benefiting from the improved working conditions and safety measures was my mother, who was a seamstress and a member of the International Ladies' Garment Workers' Union (ILGWU). The regulations put in place after that deadly fire, and the procedures and policies implemented by apparel companies, kept my mother safe and alive. (Not cool, however, as she did literally work at a "sweatshop" that was extremely hot during the summer months. She apparently did not mind the heat, proclaiming that the job was important because it helped keep our family properly fed, clothed, and sheltered.)

Unfortunately, over 100 years after the NYC garment fire, the same can't be said for the impoverished women in Bangladesh's apparel industry, many of whom lost their lives in recent garment factory disasters. They were working in horrible conditions in order to give their families a better life. Within the past year, over one thousand workers died at a garment factory building collapse, and over one hundred died at two garment factory fires. Once again, the world is in an uproar over garment factory working conditions and safety.

The customers of these Bangladesh factories were primarily retailers outsourcing the manufacture of their private label products. To avoid tarnishing their brands, the retailers initially disavowed any complicity in causing these disasters. They are currently learning that when it comes to a branded company's global supply chain, it is only as compliant and safe as its weakest link—anywhere in the world and including multi-tiered suppliers of its suppliers. However, one also has to ask the question: Why has the apparel industry forgotten the lessons learned from the 1911 fire?

Outsource What You Know

There is no one answer to this question. Simplistically, perhaps as retailers (in contrast to manufacturers) they don't know much about plant operations and safety. However, while they appear able to plead ignorance, they still put their image at risk by having their own brand names put on products manufactured at problematic plants. Retailers are known for making decisions solely on price, so I question whether their private label outsourcing decisions would have considered manufacturing competency or plant safety.

A best practice is to never outsource what you know nothing about; otherwise, how can you assess a supplier's competency? I learned this lesson from various outsourcing

anecdotes, including those described below:

1. I heard a story about an apparel company that was going to move their contract manufacturing from China to Mexico. When it came time to implement, the company realized its employees no longer knew manufacturing. It had to ask the Chinese contract manufacturer to help make the move. I don't know how well that went. However, if I were that apparel company I wouldn't have bet my brand image on it. How motivated was the Chinese contractor (that was losing the business) to make the move successful? In addition, the plant operations installed in Mexico were most likely less (and certainly not more) competent. Invariably, apparel companies that continue to move production to chase lower wages degrade contract manufacturing competencies, and eventually tarnish their brand names if a disaster occurs.
2. During the first phase of the *MIT Supply Chain 2020 Project*, we extensively researched supply chain excellence. We assessed IBM's hardware supply chain to be excellent and identified a best practice as never outsourcing what it did not understand. The company had a launch "buffer" manufacturing plant where all new products were integrated before being shipped to customers. The purpose of the plant was to get the kinks out of new systems during their launch. IBM only outsourced the operations to a contract manufacturer once it was satisfied that the integration processes were fine-tuned and ready for prime time. When we talked to IBM's Logistics group, it had just completed the outsourcing of all of its European transportation activities to a 3PL. It stressed, however, that before being outsourced, the operations were consolidated by IBM itself, not the 3PL. In other words, IBM had to understand what they were outsourcing before doing so.
3. Another excellent supply chain we researched was The Limited Brands Victoria's Secret division. One of its best practices was the fact that it owned a global sourcing company and maintained partial ownership in some of its Far Eastern suppliers' plants. This gave the private label retailer the manufacturing knowledge needed to successfully manage its outsourced production operations.

Supply Network Compliance programs are needed to aid in selecting, monitoring, and "verifying" supplier performance.

Supply Network Compliance is Key

So why is it important to only outsource what you know? As U.S. President Ronald Reagan succinctly said: "Trust, but verify." How can you verify a supplier's competency if you don't know anything about what they do?

Supply Network Compliance programs are needed to aid in selecting, monitoring, and "verifying" supplier performance. The recent horror stories from Bangladesh point to the sad state of compliance programs in today's apparel industry. Retailers ought to have manufacturing experts on staff to develop programs that assess a supplier's manufacturing competency, including plant working conditions and safety. While I've focused this column largely on the apparel industry, compliance programs are needed by all brand product companies in order to leverage their image to garner higher operating margins.

At the 2006 CSCMP conference, I chaired a track during which a speaker from J&J talked about its external/contract manufacturing standards. I was impressed with how much detail went into developing them and the extent to which J&J was monitoring the operations of its suppliers via on-site audits. J&J was ensuring that the external manufacturing it relied upon met its own acceptable business practices in terms of: product quality standards; labor and employment policies; employee health and safety policies; and environmental protection regulations.

I was also astounded by the amount of work that this entailed. J&J was willing to spend whatever it took to maintain its highly-regarded global reputation as a top-notch manufacturer.

Supply chain managers should make sure their brand names are being protected from embarrassing upstream suppliers by implementing robust Supply Network Compliance programs such as J&J's. These programs need to include the multi-tiered suppliers of suppliers. Apparel companies need to avoid future factory disasters like those in Bangladesh and other developing countries. They need to first relearn the lessons from the 1911 garment factory disaster. Apparently their factories "are not my mother's factory." Indeed, they are less safe, and those companies need to be making them safer than the ones she worked in long ago. Otherwise, they'll continue to put their brand names at risk.

BY PATRICK BURNSON

Private Label Sourcing at a Crossroads

As retail comes to grips with the disruptive omni-channel changes in consumer behavior and a shifting competitive landscape, the pace of international expansion becomes more complex. Meanwhile, many supply markets face more volatility and regulation.

Patrick Burnson is executive editor at *Supply Chain Management Review.* He can be reached at pburnson@ peerlessmedia.com.

While supply chain managers are trying to maximize the profitable operation of their manufacturing and distribution networks, the pressure has been especially acute for this nation's retailers.

Optimization, one of the themes explored in this issue of *SCMR*, is more than just a buzz word with these shippers. For retailers, the concept includes "gross margin return on inventory invested" (GMROII) and balancing the cost of inventory at all points in the supply chain with availability to the customer.

According to research conducted by Deloitte Consulting LLP, rising costs dominate retailers' top challenges when it comes to sourcing private label goods. The study—*Private Label Sourcing: Strategies to Differentiate and Defend*—comes from Deloitte's survey of more than 260 respondents about their top private label sourcing pressures. It found three primary strategic responses to those challenges.

• First, analysts noticed re-shoring of production to domestic vendors. They saw this across all three categories surveyed: general merchandise; apparel; and grocery. Researchers believe some of this trend emanates from higher and more unpredictable costs for transportation.

• Another strategy is vendor consolidation, which validates what analysts have been hearing from retailers for some time.

• Third, the study showed that companies continue to diversify their source country footprint.

Shorter Product Lifecycles

Deloitte researchers also found that, among the 94 countries noted as sources of supply, China, Mexico, and Canada are the most prevalent. However, after more than a decade as the undisputed leader as a sourcing and manufacturing base, China's appreciating currency, economic growth, and rising labor costs have begun to erode its dominance in the supply market.

Survey respondents indicate that other

Southeast Asian countries—including India, Vietnam, Cambodia, and the Philippines—are becoming increasingly attractive as sourcing locations, particularly for apparel and softlines.

Michael Daher, principal and Retail Sourcing Practice leader at Deloitte, shared this observation with *SCMR*:

"A lot of retailers are looking to reduce their number of suppliers to get more buying power and a higher level of service with a few, strategic vendors. Retailers are also turning to more exclusive private label offerings to maintain loyalty, because nationally branded merchandise is easily sold by online competitors."

Daher adds that as consumers are faced with a proliferation of online options, product design and innovation are becoming increasingly important for Private Label.

"This demand for new innovations and customized product is leading to shorter product lifecycles and smaller, more frequent order quantities," he says.

As low-cost online competitors continue to expand across more categories, Private Label provides an opportunity for retailers to defend their market share by offering products that are exclusive to their banner. But it's not the "copy and paste" Private Label we grew up with—these are innovative private label brands that require more sophisticated sourcing capabilities.

Retailers' current response strategies do not appear to directly mitigate such pressures. Roughly seven in 10 survey respondents indicate that their organization's response strategy is currently focused on enhancing quality assurance programs (71 percent), engaging in advanced planning/scheduling with vendors (70 percent), and enhancing ethical sourcing capabilities (69 percent). This latter strategy is also explored this month.

In contrast, retailers are adopting new strategic responses that correspond more closely to the acute cost of reported pressures. Retailers' top three emerging strategies include: diversifying their country source of supply footprint (35 percent); re-shoring production to domestic vendors (33 percent); and consolidating vendors (28 percent).

It is also important to note that ethical sourcing remains a top priority among retailers: a total of 92 percent of respondents indicate their organizations are either currently enhancing their ethical sourcing capabilities to address sourcing pressures or plan to do so in the future.

Omni-Channel Changes

As retail comes to grips with the disruptive omni-channel changes in consumer behavior and the competitive landscape, the pace of international expansion becomes more complex, notes AlixPartners, a global research firm based in New York.

Ethical sourcing was a major part of the firm's recent *2013 Executive Survey on Supply Chain Sustainability*, which queried more than 150 "C-level" executives from a broad range of Private Label industries in the United States and Europe.

Sustainable supply chain opportunities are seen as having greater potential for financial return than are others, with freight consolidation and network optimization—both of them cited by 53 percent of executives surveyed—topping the list. Similarly, third-party logistics and trucking (49 percent each) are seen by executives as the segments in which the most-cost-competitive sustainable innovations can be found.

Recent studies find that global consumer behavior fueled by mobility and online shopping are driving the strategic importance of private label sourcing.

"Private Label companies that can implement cost-effective supply chain sustainability improvement strategies and market them to customers will have a competitive advantage," says Foster Finley, the firm's Managing Director.

But ethical sourcing must still contain ROI if it is to gain traction, the survey suggests.

"For companies willing to spend on sustainable technologies, nearly 60 percent require a cost payback within 18 months or less," says Finley. "Just 17 percent are willing to wait longer to see a return on their investment. That lack of return on investment is the largest obstacle to achieving greater supply chain sustainability, cited by 65 percent of executives we asked."

Lack of return on investment is followed by implementation costs, which was cited by 59 percent of respondents. For all of those reasons, active investment in sustainable supply chain projects remains a question mark for many company executives.

While retailers are looking to Private Label sourcing to drive more differentiation on the shelf and to defend market share, margin, and brand reputation, the jury seems to be out on how much sacrifice can be made.

"Twenty-nine percent do plan to actively invest in these types of projects, and 13 percent said they have a plan, although it will not be implemented in the next year. Nearly half—43 percent—are undecided," says Finley.

TALeNT STRATeGIES

Seeing is Believing: Harnessing the Power of Visualization

Dr. Edgar Blanco

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Translating floods of data on increasingly complex supply chain operations into actionable decisions is one of the most difficult challenges facing practitioners today. And one of the most promising solutions is new ways to visualize and analyze the data. Companies are developing sophisticated data displays that augment supply chain talent by making it easier for managers to analyze, interpret, and act on operational data.

But as with any new development, there are some important issues to resolve before visualization analytics reaches its full potential. Who should have access to what data, for example, and how can displays be designed to maximize the performance of users?

Some 22 supply chain professionals from 14 organizations gathered at the MIT Center for Transportation & Logistics for a roundtable meeting this June to discuss these issues.

The Many Positives

The wide range of applications described by participants gives an indication of just how far the technology has advanced. Organizations are using visualization analytics tools to map global supply chains, support delivery vehicles, project service levels at the customer shelf, and develop mobile applications, for instance. The sources of data are just as varied, and include ERP systems, point-of-sale, factory instrumentation, GPS tracking, and third-party providers.

How are these applications helping or hindering practitioners? Here are some interesting examples.

Streamlined decisions. Shaving 10 seconds off the time taken to make decisions can add up when the number of employees runs into the thousands. Several companies said that their visualization programs have sped up decision making because the data is presented in more succinct, meaningful ways to staff members. Group decision making can be enhanced too. Some enterprises are using visual interactive dashboards to help groups make better decisions and resolve issues around inventory management and new product introductions.

More clarity. A clever and well-designed chart, map, or image helps managers see patterns and spot anomalies, particularly when analyzing complex product flows. An equipment manufacturer created a four-layer map of a portion of its supply chain with suppliers on the bottom and customers at the top. The depiction showed product movements between stakeholders and countries, and highlighted how these spaghetti-like flows had become tangled. It was obvious that allowing customers to handle transportation for product deliveries was a root cause of the complexity. Untangling the issue gave the team a $120 million opportunity to streamline distribution. Even though managers had been discussing this situation for years, without this impactful visual representation the burning platform for change would not have been created.

Exception management is another area that benefits from the power of visualization. As one company pointed out, humans have a natural affinity for spotting anomalies and contrasts in patterns. Scatter plots of well-selected metrics leverage this talent by quickly highlighting outliers.

Neutralizing Babel. A picture is worth a thousand words—and is even more valuable when the words are widely misunderstood. The heavy use of jargon and/or language differences can make it difficult for supply chain managers to communicate with each other. This is a problem that is likely to worsen as operational teams become more dispersed across the globe. The language of a picture is universal, however. As one participant said: "You have solved 90 percent of the problem by seeing the information."

Stimulating healthy rivalries. Several participants noted that well-designed visualizations can motivate teams to perform better. In one company, staff members in distribution centers dreaded the

"red" designation on company-wide heat maps or performance dashboards. The teams that earned a low ranking tended to try harder or make an effort to find out why other DCs were outperforming them.

Data Downsides

The visualization picture is not all positive, however. So-called "shiny tool" or "executainment" problems refer to situations where users have become seduced by the technology and lost sight of its practical functionality. When some users are given the capacity to quickly create graphics, charts, and maps they can go too far and create clutter that hinders decision-making. There is also the question of access to visual information: Just because certain people can have access to view certain data does not mean that they should have access. A picture can convey a great deal of information, but in the wrong hands that intelligence can be misapplied. Also, visualization's role in improving decision-making can be less than clear. On the one hand, the clarity of a well-designed picture can support more objective decisions that are less swayed by politics or the influence of dominant team members. On the other hand, people sometimes read into a picture what they want to see. Again, these are factors worth considering when designing displays.

Tailored Pixels

Allowing for different user needs—and how to incorporate their feedback into display designs—was one of the topics of discussion at the roundtable.

There are tech-savvy users who want to delve into the technology and create displays for their workgroups, functions, or business units. Other individuals look for solutions that they can adapt to their information needs. A third group looks for ready-made solutions that need little or no customization. Mobile applications represent another class of user.

Because these groups use visualization and analytics technology in different ways, their preferences heavily influence technology choices and visual design. For example, some require "push-only" interfaces while others prefer more complex, interactive "pull" visuals. Frontline managers and busy executives need clear presentations that can be absorbed quickly, whereas specialists in data-intensive operational roles require more detailed representations.

System developers and supply chain analysts interact with these groups in various ways to develop more effective visual displays. An enterprise in the healthcare business created a group of about 20 super-users who meet monthly to share ideas and tools. These individuals help to spread the word about the analytical capabilities of the visualization technology, and to provide new application ideas.

There are more general demands that also have to be taken into account. Participants warned against creating displays that are too cluttered and hence blunt the technology's ability to convey information succinctly. Displays also need to be tailored to accommodate constraints like color blindness.

Asking users to help design visual displays is fraught with risk. Often, they are unaware of the technical capabilities or tend to focus on the shortcomings of current technology. It's important for designers to observe users when developing analytics and visualization systems so they understand the demands of each specific supply chain function. Several organizations at the roundtable carry out formal time-and-motion studies to understand how visualization tools fit into different supply chain work environments. Some even track eye movements to gauge what information a person focuses on and how long they dwell on that part of the screen.

An overriding goal is to provide simple presentations that offer drill-down capabilities in accordance with the demands of a particular role. The participants described a number of approaches to rolling out visualization technology to users. A leading consumer goods company implemented a new tool in multiple offices across the globe simultaneously. In contrast, a healthcare organization adopted a targeted approach starting with senior management.

Training methods also vary. In creating a dashboard for operations staff, one company scoped the tool to limit the amount of training required. The organization wanted to minimize the amount of disruption caused by the tool's introduction, and purposely limited the degree of complexity so that the tool could be taught to users in two to three hours.

Future Challenges

The importance of visualization and analytics in helping supply chain practitioners to do their jobs will grow. Supply chains are increasingly complex, and the upcoming generation of managers is attuned to highly interactive games and the creative screens that come with devices such as iPads.

Research is needed into the best visual patterns for supply chain applications. Also, although the companies at the roundtable came from diverse industries, a problem they shared is how to present the technology in a meaningful way.

Another issue that stimulated much discussion is the skills and talents required by visualization development teams. Finding the right combination of experts to develop effective supply chain visualization solutions is difficult. This requires expertise in supply chain management, computer science skills, as well as input from graphic designers. Some of these individuals are not attracted to traditional IT or supply chain organizations, and have different approaches to the work involved.

The 2013 Supply Chain Learning from Leaders

By Debra Hofman, Stan Aronow, and Kimberly Nilles

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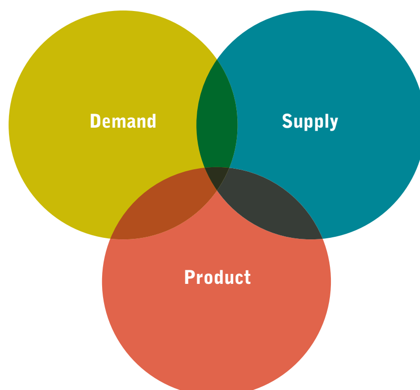
Gartner recently published its 9th annual Supply Chain Top 25, a ranking of the world's leading supply chains. Since the beginning, the ranking has looked to answer one important question: Of the world's largest companies with the most global reach, which are the furthest along on the journey to being demand driven? The ranking continues to draw intense interest from practitioners, academics, and publications around the world—a mark of the growing importance of the supply chain discipline.

Our focus in producing this ranking goes beyond excellence to identify leadership in the supply chain, highlighting best practices to help raise the bar for the supply chain profession as a whole. While there are always some exciting new names on the list, there are some common characteristics that separate the best from the rest. This article discusses the insights and trends we've seen this year from the leaders.

EXHIBIT 1

Demand-Driven Principles

A system of technologies and processes that senses and responds to real-time demand signals across a supply network of customers, suppliers, and employees



Source: Gartner (May 2013)

What is the Definition of Excellence?

What does it mean to be demand-driven? Exhibit 1 captures the organizational ideal of demand-driven principles as applied to the global supply chain. This model has three overlapping areas of responsibility:

- **Supply management**—Manufacturing, logistics, supply planning, and sourcing.
- **Demand management**—Marketing, sales, demand planning, and service.
- **Product management**—R&D, engineering, and product development.

Excellence is about the visibility, coordination, and reliable processes that link the three areas of supply, demand, and product together (See Exhibit 2). When that happens, the business can respond quickly and efficiently to opportunities arising from market or customer demand. Supply chains built to this design manage demand rather than just respond to it, take a networked rather than linear approach to global supply, and embed innovation in operations rather

Top 25:

The 2013 ranking of supply chain leaders from Gartner highlights the best of the best—large, global companies that are furthest along on the journey toward demand-driven supply chains. While the mix of companies is diverse, there are lessons to be learned from these supply chain leaders.

EXHIBIT 2

Operational Excellence and Innovation Excellence

Source: Gartner (May 2013)

than keep it isolated in the laboratory. The demand-driven model is inherently circular and self-renewing, unlike the push supply chains of our factory-centric industrial past.

Our methodology is provided in detail below. Here are the basics. Each year, approximately 300 companies are chosen to be ranked. Companies do not apply to be included; rather, we select the companies from publicly available lists using a defined set of criteria, including size and industry sector. Each company gets a composite score, and these scores are then force-ranked to come up with the final list. The composite score is made up of a combination of publicly available financials, as well an opinion component, providing a balance between objective and subjective perspectives. In completing their ballots, voters are asked to identify those companies they believe are furthest along the journey toward the demand-driven ideal, as defined in Gartner research and on the voting website.

Inside the Numbers

The Top 5 in the ranking this year include two exciting newcomers, Unilever at #4 and Intel at #5. (See table on page 15 for the complete rankings.) Each has moved steadily up the ranking for the past several years, and with good reason, embodying the essence of what the Top 25 is all about: they have each stepped up to the leadership podium. By sharing their supply chain practices and the lessons they've learned with the broader supply chain community, they have helped to raise the level of supply chain performance to new heights.

With a wide range of cutting-edge practices, Unilever is at the forefront of the supply chain maturity curve in many areas, from end-to-end segmentation to an impressive ability to design globally and implement locally across every function of its supply chain. More importantly, its supply chain innovations have been a critical component of the company's ability to retain profitable growth, even in the face of sluggish demand in some of its core markets. Chip giant Intel has made significant investments upstream and downstream to enable the broader computing ecosystem. At the same time, Intel has continued its commitment to sustainability and social responsibility in sourcing, having taken a lead role for several years now in the issue of conflict minerals.

Outstanding financials combined with phenomenally strong votes (Apple was ranked No. 1 again by the peer voters, capturing 75 percent of the highest possible points a company can get across the voting pool) allowed Apple to retain the top position again this year. At the same time, the company known for its focus on simplicity has expanded its product portfolio to a broader array of sizes and price points to address increasingly robust competition, driving the need for more complexity management in its supply chain.

In the middle of the Top 5 group and switching places this year are McDonald's and Amazon. While Amazon far outpaced McDonald's in the peer vote—Amazon ranked a very close second to Apple's position in the opinion of the supply chain community—the Top 25 ranking is about more than opinion. We incorporate financials into the methodology as a balancing factor, to reflect a company's ability to translate supply chain leadership into corporate performance. While Amazon's revenue growth has been meteoric, its three-year weighted ROA of 1.9 percent reflects a 2012 net income loss. Compare that to McDonald's three-year weighted ROA of 16 percent, revealing a robust 20 percent annual net profit margin. This difference, coupled with still healthy respect from the voting community, nudged McDonald's into the No. 2 slot.

Both have leading practices to share with the supply chain community. McDonald's stands out with strong new product launch capabilities and excellence in execution consistency. Building its digital portfolio of products and fast crossing lines into new markets, Amazon is a pacesetter across all industries in using its supply chain to set the standard for the customer experience.

Some of the world's top companies populate slots six

The Gartner Supply Chain Top 25 for 2012							
Rank	Company	Peer Opinion[1] (172 voters) (25%)	Gartner Opinion[1] (33 voters) (25%)	Three-Year Weighted ROA[2] (25%)	Inventory Turns[3] (15%)	Three-Year Weighted Revenue Growth[4] (10%)	Composite Score[5]
1	Apple	3,203	470	22.3%	82.7	52.5%	9.51
2	McDonald's	1,197	353	15.8%	147.5	5.9%	5.87
3	Amazon.com	3,115	475	1.9%	9.3	33.6%	5.86
4	Unilever	1,469	522	10.5%	6.5	9.0%	5.04
5	Intel	756	515	15.6%	4.2	11.4%	4.97
6	P&G	1,901	493	8.6%	5.8	3.6%	4.91
7	Cisco Systems	1,167	517	8.5%	11.2	7.8%	4.67
8	Samsung Electronics	1,264	298	11.6%	18.5	15.7%	4.35
9	The Coca-Cola Company	1,779	278	11.7%	5.5	14.0%	4.33
10	Colgate-Palmolive	794	324	18.9%	5.2	3.6%	4.27
11	Dell	1,409	342	6.2%	30.7	-0.6%	4.05
12	Inditex	745	221	18.0%	4.2	13.4%	3.85
13	Wal-Mart Stores	1,629	282	8.8%	8.1	4.9%	3.79
14	Nike	955	236	14.1%	4.2	10.6%	3.62
15	Starbucks	808	159	16.5%	4.8	11.5%	3.41
16	PepsiCo	810	314	8.6%	7.8	10.5%	3.41
17	H&M	399	41	28.2%	3.7	6.7%	3.22
18	Caterpillar	714	247	5.8%	2.8	23.4%	2.91
19	3M	999	105	13.3%	4.2	6.9%	2.87
20	Lenovo Group	397	211	2.5%	22.2	29.8%	2.75
21	Nestlé	679	112	13.3%	5.1	-0.6%	2.51
22	Ford Motor	552	231	5.7%	15.1	3.1%	2.51
23	Cummins	74	139	13.3%	5.3	13.5%	2.48
24	Qualcomm	122	45	12.7%	8.5	25.9%	2.37
25	Johnson & Johnson	730	144	9.6%	2.9	3.3%	2.35

Notes:

1. Gartner Opinion and Peer Opinion: Based on each panel's forced-rank ordering against the definition of "DDVN orchestrator"
2. ROA: ((2012 net income / 2012 total assets) * 50%) + ((2011 net income / 2011 total assets) * 30%) + ((2010 net income / 2010 total assets) * 20%)
3. Inventory Turns: 2012 cost of goods sold / 2012 quarterly average inventory
4. Revenue Growth: ((change in revenue 2012-2011) * 50%) + ((change in revenue 2011-2010) * 30%) + ((change in revenue 2010-2009) * 20%)
5. Composite Score: (Peer Opinion * 25%) + (Gartner Research Opinion * 25%) + (ROA * 25%) + (Inventory Turns * 15%) + (Revenue Growth * 10%)
   2012 data used where available. Where unavailable, latest available full-year data used. All raw data normalized to a 10-point scale prior to composite calculation.
   "Ranks" for tied composite scores are determined using next decimal point comparison.

Source: Gartner (May 2013)

through 15 in our ranking, with notable contributions to the discipline of supply chain management. Retaining its position as a supply chain innovator, P&G (#6) continues to define new standards of excellence in segmentation, the use of analytics, and leading sustainability efforts. Rising to #7 this year, Cisco leads the way with a supply chain team focused on revenue growth, enabling the company to break into new markets for its hardware, software, and services-based solutions.

Samsung (#8) and Dell (#11) have each taken collaborative efforts to new heights: Samsung in its emerging markets demand channels, and Dell in its supply networks and intra-enterprise ecosystems of partners. Walmart, another long-time powerhouse, rejoins the ranking this year at #13. Pushing the envelope in integrating supply chain with new product launches are Nike (#14) and Starbucks (#15). Coca Cola (#9) retains strong peer recognition in APAC and Europe, and is focused on reducing complexity while it invests in across the board capabilities of its supply chain talent base. Both Colgate-Palmolive (#10) and Inditex (#12) have modeled a continued emphasis on efficiency as evi-

denced by their cross-industry leading ROAs. Both also go beyond efficiency: Colgate with its supply chain talent management and advanced S&OP, and Inditex with its well known commercialization and demand sensing capabilities. These efforts are reflected in the steady rise of both companies since they first appeared in our ranking: Colgate has moved up 10 slots since it joined the ranking in 2009, and Inditex has moved up 11 slots since its first showing in 2010.

This year we welcomed three newcomers in the final section of the ranking. Chinese electronics leader Lenovo (#20), now focused on the integration of supply chain with new product design and release; Ford (#22), the first automotive OEM to join the ranking since 2009, returning to profitability and building a foundation for more strategic global demand/capacity alignment, scenario planning, and risk modeling; and semiconductor Qualcomm at #24, with rapid re-planning capabilities and deep collaborative partnerships with key suppliers.

In the ranking virtually since its inception are Pepsi at #16 this year, and healthcare/consumer products giant Johnson&Johnson at #25. Both continue to lead. J&J demonstrated increasing speed in executing on its compelling supply chain vision, and PepsiCo applied the out-of-the-box thinking embedded in its DNA to breakthrough improvements in its manufacturing technologies and logistics capabilities. Third-timer Nestle (#21) continues to expand into new markets with high points from its retail customers and an ongoing focus on supply development. Rising two slots to #19, 3M is now looking to balance its long-standing emphasis on product innovation with a focus on network complexity reduction and improvements on the efficiency side of the business in cost, cycle times, and inventories.

Returning to the ranking for the second time are three companies. First, Swedish retail giant H&M (#17) is balancing what has been a truly impressive ROA for five years running with a focus on improving transparency into its emerging market supply base, an important step given the latest challenges for the industry as a whole. Second, leading industrial Caterpillar (#18) is focused on manufacturing and supplier network scalability, and commercialization process velocity. And third, engine and power generation player Cummins (#23) continues to focus on optimizing across a highly decentralized structure to deliver global scale, with initiatives in customer collaboration, extended visibility, and segmented supply chain strategies.

Characteristics of Leaders

As we can see from the discussion above, every company develops supply chain strategies and priorities that are uniquely suited to its corporate and market context. While these are useful for others to learn from, in our research we also look for the characteristics they share in common. For many companies, these characteristics are easier to talk about than to actually implement. What differentiates the leaders is that they have moved beyond the words and presentation slides to make the hard changes that are needed throughout the organization.

We've talked about many of these in past articles, and they remain relevant:

- an outside-in focus, which requires a fundamental re-orientation not only in mindset, but in the way groups are measured and in the way networks and business processes are designed;
- embedded innovation, which ensures that supply chain considerations are taken into account early in the new product development and launch process, and that supply chain design takes into account that new products require different supply chain strategies than existing products;
- extended supply chains, in which leaders design and manage their supply chains as extended networks of trading partners, orchestrating activities across the network, aligning the goals of all the players, and ensuring profitable delivery of the final product to the customer; and
- excellence addicts, which points to the companies that have figured out how to use metrics effectively: how to focus on the metrics that matter, and even more importantly, how to interpret and then act on those metrics to achieve a desired outcome, namely to continually improve operational results.

The ability to measure and use metrics (See Exhibit 3) effectively warrants more attention. Leaders understand which metrics are critical to their ability to see and make

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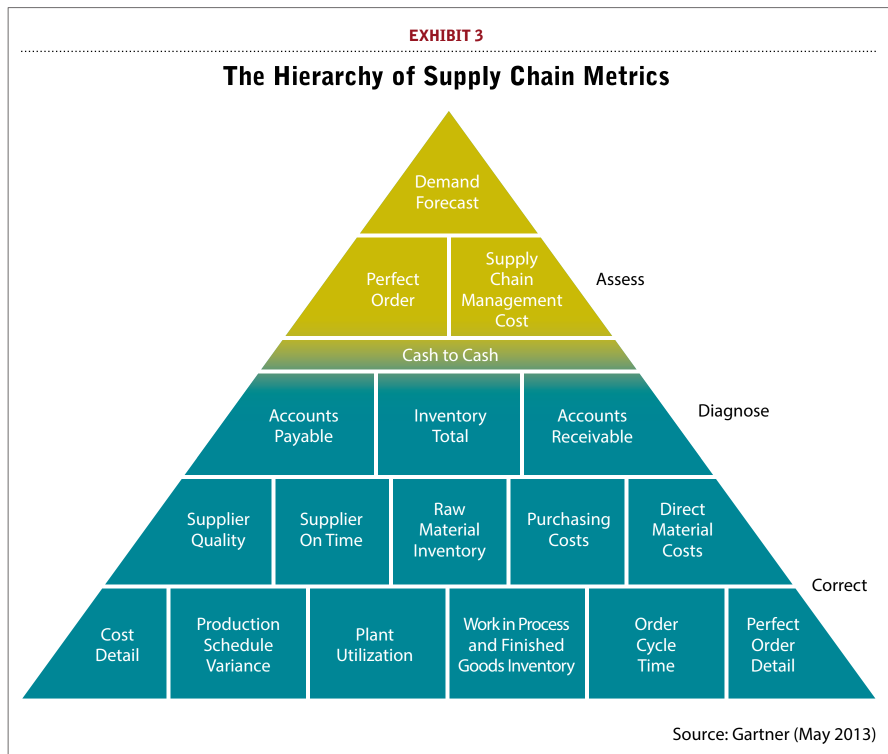

profitable tradeoffs across the end-to-end supply chain. More importantly, they use the metrics effectively: Rather than focusing on one metric at a time, they understand that it's the relationship between the metrics that makes the metrics actionable.

The best also understand that there are different portfolios of metrics (See Exhibit 4) for the different goals and levels, and that there must be tight alignment across these levels. At the first level, supply chain executives need only a small number of metrics for informational purposes and to assess the overall performance of their supply chains. In the second tier are the mid-level, cross-supply chain metrics that allow managers to analyze the performance of the end-to-end supply chain and make tradeoff decisions. The third level contains the detailed functional-specific metrics such as procurement, manufacturing, and logistics, allowing deeper root cause analysis and correction.

But what really differentiates the measurement leaders is this: They understand how to align all the levels. They know that the goal of the supply chain is not just to have the lowest transportation cost, or the highest manufacturing asset utilization, or the lowest procurement per unit cost. The goal of the supply chain is a profitable perfect order, balancing service with end-to-end cost. The activities of all its components must be aligned in that direction. This means that wise tradeoffs need to be made across the functions; it also means that the goal should not be "best-in-class" on every metric. This requires a fundamental and profound shift in mindset and behaviors throughout the organization. Rather than each function setting its own targets, the goals are set for the end-to-end supply chain and then cascaded down. So, for example, the question is not: What was our plant utilization last year and therefore what should it be this year? The question is: What is the right level of plant utilization that will allow us to achieve our end-to-end service and cost goals? Lastly, leaders understand that while the metrics are the same, the targets vary for each of the different supply chains they operate.

Trends

Each year, our analysts talk to and research the supply chains of hundreds of companies. Through these discussions, we note certain patterns in the trends on which the leaders are focusing their time and efforts. While many of these don't change dramatically from year to year, three warrant mention here.

A new frontier of performance. Many companies are working to build out the foundational components of an end-to-end supply chain across disparate businesses, focusing on improving core supply chain functions, and creating more common processes and systems across them. More advanced companies describe a wide range of initiatives that build on the foundation, including end-to-end supply chain segmentation, simplification, cost-to-serve analytics, multi-tier visibility, and supply network optimization. The leaders are taking it to the next level, stepping further out on the maturity curve of these innovations and deploying the capabilities that are still theory for most. In doing so, they are finding new and creative ways to use these capabilities, exploring synergies and opportunities they hadn't necessarily anticipated in advance. For example, leading companies like Unilever are finding synergies in the intersection between simplification, segmentation, and cost-to-serve: Having already focused on reduc-

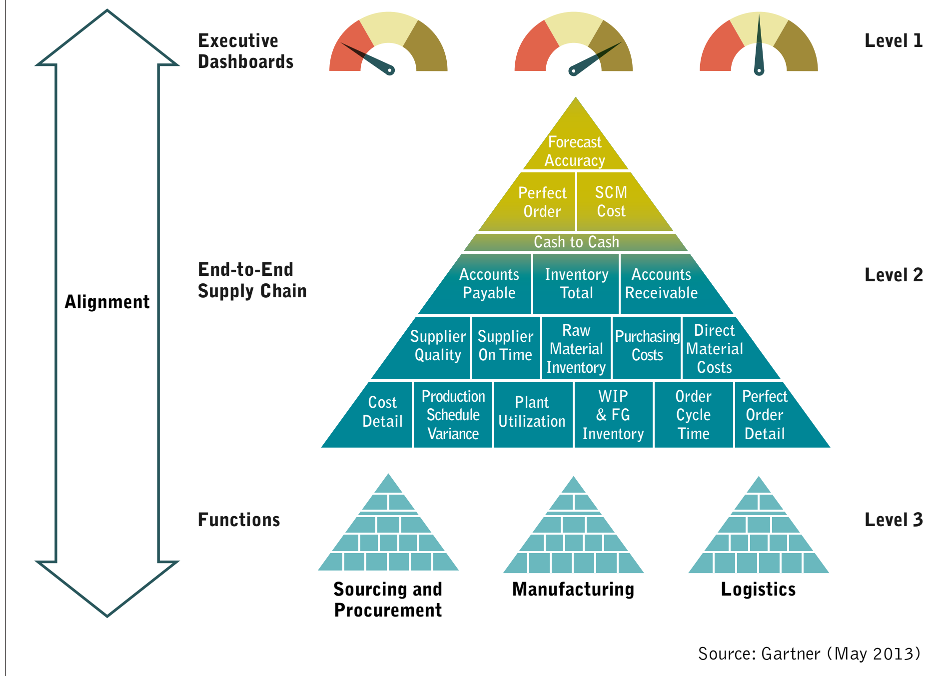

EXHIBIT 4

Three Levels of Aligned Metrics

Source: Gartner (May 2013)

ing complexity in everything from products to organizational structure, processes, and networks, they're now using cost-to-serve data by segment to optimize rather than simply cut the product/item portfolio, and to ensure profitable growth. Others like P&G, Lenovo, and Caterpillar are finding synergies between S&OP and new product launches to optimize the commercialization process, or between risk management and segmentation to refine resiliency strategies.

A new imperative for smarter growth. This past year, the growth in emerging markets that many companies were depending on to fuel their expansion, has slowed. Developed countries continue to exhibit anemic growth at best and retraction in some markets. Against this backdrop, we might have expected to see many companies retrench and slip back to focusing their supply chains solely and exclusively on delivering cost reductions and efficiency gains to corporate bottom lines. Instead, leaders are embracing a new imperative for growth, realizing they have to get smarter about how they expand. Whether it's through reducing commercialization time, flexing the supply chain on packaging or service dimensions, or providing the engine with which new acquisitions can be quickly and easily absorbed, the conversation at companies like Cisco, Intel, and Starbucks has changed from supply chain being about "blocking and tackling" to it being an enabler of company success.

Getting to the heart of talent. Many of the companies we talk to are investing significant time and effort in supply chain-specific talent management efforts, covering everything from expanded university relationships and supply chain certification programs to rotational programs, enhanced career progression planning and multi-channel learning options. The leaders are going beyond these talent initiatives to get at the fundamentals of motivation, looking to engage hearts, not just minds, and ignite passion for the work that goes beyond mere compliance. They are connecting the dots between the work people do every day and its contribution to the societies within which they live, recognizing that most people not only need to know how they fit into the larger corporate picture, but thrive within a larger aspirational goal. Whether you are a procurement professional helping to reduce conflict minerals, or a logistics manager looking to cut cost by taking trucks off the road and thereby reducing the global carbon footprint, it's about the contribution supply chain professionals make to improve the world.

Supply Chain Top 25 Methodology

The way we determine the ranking is something we have been transparent with since the beginning. It's one of the reasons this list works. We have also sought to keep it both consistent as well as responsive year after year, taking direct feedback from the supply chain community of professionals and incorporating suggested changes into the methodology where possible. As a result, the list reflects not only what Gartner analysts think about supply chain leadership, but what the community as a whole respects.

The Supply Chain Top 25 ranking comprises two main components: financial and opinion. Public financial data provides a view into how companies have performed in the past, while the opinion component offers

an eye to future potential and reflects future expected leadership, which is a crucial characteristic. These two components are combined into a total composite score.

We derive a master list of companies from a combination of the Fortune Global 500 and the Forbes Global 2000, with a revenue cutoff of $10 billion. We then pare the combined list down to the manufacturing, retail, and distribution sectors, thus eliminating certain industries, such as financial services and insurance, which do not have physical supply chains.

Financial component. ROA is weighted at 25 percent, inventory turns at 15 percent, and growth at 10 percent. Inventory offers some indication of cost, and ROA provides a general proxy for overall operational efficiency and productivity. Revenue growth, while clearly reflecting myriad market and organizational factors, offers some clues to innovation. Financial data is taken from each company's publicly available financial statements.

The weighting within the financials has remained consistent since 2010. Prior to 2010, inventory was weighted higher than it is today, at 25 percent. We had considered dropping it all together. As much as inventory is a time-honored supply chain metric—one of the few "real" supply chain metrics on a company's balance sheet—there have always been issues, not the least of which is that higher turns don't always point to the better supply chain. At the same time, it's a metric that is widely known and understood, both inside and outside the supply chain community. Despite the issues, it's not entirely invalid as an indicator, particularly if combined with other metrics. Therefore, we left it in, but reduced its weighting.

What differentiates the leaders is that they have moved beyond the words and presentation slides to make the hard changes that are needed throughout the organization.

Since 2009, we've used a three-year weighted average for the ROA and revenue growth metrics (rather than the one-year numbers we had previously used), and a one-year quarterly average for inventory (rather than the end-of-year number we had previously used). The yearly weightings are as follows: 50 percent for 2012, 30 percent for 2011, and 20 percent for 2010.

The shift to three-year averages was put in place to accomplish two goals. The first was to smooth the spikes and valleys in annual metrics, which often aren't truly reflective of supply chain health, that result from events such as acquisitions or divestitures. It also accomplishes a second, equally important goal: to better capture the lag between when a supply chain initiative is put in place (a network redesign or a new demand planning and forecasting system, for example) and when the impact can be expected to show up in financial statement metrics, such as ROA and growth.

Inventory, on the other hand, is a metric that is much closer to supply chain activity; we expect it to reflect initiatives within the same year. The reason we moved to a quarterly average was to gain a better picture of actual inventory holdings throughout the year, rather than the snapshot, end-of-year view provided on the balance sheet in a company's annual report.

Opinion component. The opinion component of the ranking is designed to provide a forward-looking view that reflects the progress companies are making as they move toward the idealized demand-driven blueprint. It's made up of two components, each of which is equally weighted: a Gartner analyst expert panel and a peer panel.

The goal of the peer panel is to draw on the extensive knowledge of the professionals that, as customers and/or suppliers, interact and have direct experience with the companies being ranked. Any supply chain professional working for a manufacturer or retailer is eligible to be on the panel, and only one panelist per company is accepted. Excluded from the panel are consultants, technology vendors, and people who don't work in supply chain roles (such as public relations, marketing, or finance).

We accepted 224 applicants for the peer panel this year, with 172 completing the voting process. Participants came from the most senior levels of the supply chain organization across a broad range of industries. There were 33 Gartner panelists across industry and functional specialties, each of whom drew on his or her primary field research and continuous work with companies.

Organizations must surpass a base threshold of votes from both panels to be included in the ranking.

...The goal of the supply chain is not just to have the lowest transportation cost, or the highest manufacturing asset utilization, or the lowest procurement per unit cost... It is a profitable perfect order, balancing service with end-to-end cost, and the activities of all its components must be aligned in that direction.

Therefore, a company that had a composite score fall within the Supply Chain Top 25 solely based on the financial metrics would not be included in the ranking.

The regional breakdown of voters continued to be a particular emphasis for us, and we made significant progress this year. In the past, North American voters made up 80 percent of the total, despite many efforts to get a more even regional distribution. We've been making steady and constant improvements since then to increase the percentage of voters from Europe and Asia/Pacific. This year, the improvement was even more robust, providing a more balanced global view of supply chain leadership. For the first time, we had equal representation from Europe and North America, with 38 percent from North America, 38 percent from Europe, and 24 percent from Asia/Pacific. We expect this trend to continue towards fully balanced regional representation.

Polling procedure. Peer panel polling was conducted in April 2013 via a Web-based, structured voting process identical to previous years. Panelists are taken through a four page system to get to their final selection of leaders that come closest to the demand-driven ideal, which is provided in the instructions on the voting website for the convenience of the voters.

Here's a breakdown of the voting system:

- the first page provides instructions and a description of the demand-driven ideal;
- the second page asks for demographic information;
- the third page provides panelists with a complete list of the companies to be considered. We ask them to choose 30 to 50 that, in their opinion, most closely fit the demand-driven ideal; and
- after the subset of leaders is chosen, the form refreshes, bringing just the chosen companies to a list. Panelists are then asked to force-rank the companies from No. 1 to No. 25, with No. 1 being the company most closely fitting the ideal.

Individual votes are tallied across the entire panel, with 25 points earned for a No. 1 ranking, 24 points for a No. 2 ranking and so on. The Gartner analyst panel and the peer panel use the exact same polling procedure.

By definition, each person's expertise is deep in some areas and limited in others. Despite that, panelists aren't expected to conduct external research to place their votes. The polling system is designed to accommodate differences in knowledge, relying on what author James Surowiecki calls the "wisdom of crowds" to provide the mechanism that taps into each person's core kernel of knowledge and aggregates it into a larger whole.

Composite score. All of this information—the three financials and two opinion votes—is normalized onto a 10-point scale and then aggregated, using the aforementioned weighting, into a total composite score. The composite scores are then sorted in descending order to arrive at the final Supply Chain Top 25 ranking.

Conclusion

In its nine years to date, the Supply Chain Top 25 has served as a spark for the global discussion and debate that we believe is essential to help constantly push the envelope of innovation for all of us in the supply chain profession. We look forward to continuing the journey.

The Socially Responsible Supply Chain:

By Andreas Wieland and Robert Handfield

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On April 24, 2013, the deadliest garment factory incident in history occurred when the Rana Plaza manufacturing plant collapsed in Savar, Bangladesh, near the capital city of Dhaka, killing more than 1,120 people. This incident occurred just five months after another fire at a garment plant in Dhaka killed more than 100 people. That facility was operated by Tazreen Fashions Ltd. and produced sweater jackets for C&A, shorts for Walmart, and lingerie for Sears.

Had these incidents not occurred (See Table 1), these enterprises would be considered textbook cases for highly efficient global supply chains. In today's market, supply chains compete against supply chains, global brands concentrate on their core competency (marketing activities) and suppliers in Bangladesh offer high flexibility and cheap labor costs. This has allowed global brands to create extremely responsive supply chains and bring lower priced apparel to store shelves. Further, the time to design and delivery of new garments to the market has been reduced from more than one year to just a few weeks.

More efficient processes, cheaper products, and happier consumers appear to be a winning combination. Yet something is wrong with this picture. As these cases demonstrate, best practice supply chain thinking seems to have overlooked the social aspects of running a global supply chain. Disasters such as these put companies at risk of damaging their reputations and tarnishing their brands. The recent incidents, for instance, led to rallies and protests against Walmart, Gap, Loblaws, and other retailers that are purchasing from these sources.

What measures can retailers take to address the issue of unsafe working conditions and other social concerns in their supply chain?

There are no simple answers to this question. However, the loss of life in apparel factories in Bangladesh has highlighted the need

Recent press reports about unsafe work conditions and the loss of life in apparel factories in Bangladesh have highlighted the need for greater oversight over sourcing in low cost countries. That is especially so for companies with a commitment to corporate social responsibility, or CSR. However, many Western enterprises are unsure how to manage a socially responsible supply chain and provide an umbrella for their brands in regions where regulatory standards are lax and monitoring suppliers is difficult.

An Imperative for Global Corporations

TABLE 1

Selected Disasters in the Global Fashion Industry

Year	Company	Place	Cause	Casualties
1911	Triangle Shirtwaist Company	New York City, U.S.	fire	146
2012	Ali Enterprises	Karachi, Pakistan	fire	289
2012	Tazreen Fashions	Dhaka, Bangladesh	fire	112
2013	Rana Plaza	Savar, Bangladesh	collapse	1,129

for greater oversight over sourcing in low cost countries. That is especially so for companies with a commitment to corporate social responsibility, or CSR.

The most obvious way to create social responsibility might be to simply avoid sourcing markets with low social standards. For example, garment manufacturer Trigema promises "100% Made in Germany." Its goods are manufactured in a high-tech country with high labor costs and social standards that are much higher than in many countries traditionally used by apparel retailers as sourcing markets. Trigema's strategy seems to pay out: Its owner is praised in Germany as the classic example of a socially responsible entrepreneur.

However, cutting off imports could hinder the improvement of living standards in developing countries. Some studies have shown that wages and working conditions in sweatshops are superior to the workers' prior employment wages. Moreover, as any buying agent with experience in developing countries knows, the unsafe working conditions and problems with capacity and subcontracting present in Bangladesh also prevail in other parts of Asia, including Myanmar, Pakistan, China, Indonesia, or India. Sanjiv Pandita, executive director of the Asia Monitor Resource Center, has called it "the ugliest race to the bottom, because the financial crisis in the United States and Europe means that people are scared of buying expensive things."

A New Approach to Supply Chain Thinking

Clearly, a more balanced approach to supply chain thinking is required. This is an approach that considers not only labor cost, but a concept known as CSR, which encompasses "the economic, legal, ethical, and discretionary expectations that society has of organizations at a given point in time." Supply chain executives often shy away from this definition of CSR, feeling it is too "squishy" and difficult to measure—putting it squarely in the realm of being unimportant in their minds. But as we've seen, executives can no longer afford to relegate CSR to the realm of happy smiling faces and pictures of green forests on their corporate website. Instead, a socially responsible supply chain strategy needs to be established by any organization doing business in these areas of the world. This requires new targets and a different view on governance.

Integrating CSR into a supply chain strategy is not easy. Because of the singular emphasis on cost efficiency and supply assurance as the basis for supply chain strategy, other targets focusing on social aspects have often been ignored. This is made even more challenging by the apparent fact that most customers shop based on price and are unwilling to pay more for products produced in a socially responsible manner. Using this rubric, sourcing from regions with the lowest possible labor costs—often amounting to less than 50 dollars a month for workers—has been the most important criterion for Western retailers when selecting suppliers. Social responsibility not only competes with cost efficiency, but also with other targets such as customer requirements and flexibility. Introducing CSR into this decision-making framework is going to require a new mindset and a commitment to change.

Still, social responsibility must become a fundamental part of a company's vision, rather than just a concept or an aspiration. This has a number of implications.

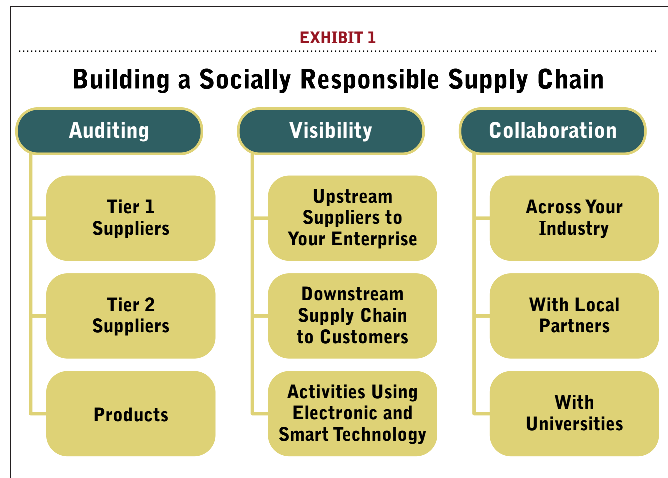
- First, social responsibility has to become a daily practice and reflect the company's values, voices, standards, and functional strategies.
- Second, it must be communicated externally, with defined targets to measure current progress.
- Third, CSR can be integrated into incentive systems, including bonuses, salary, and stock options.
- Fourth, as part of the "plan" element of the SCOR framework, companies can seek to make social responsibility a core part of supply chain strategy. This enables them to drive social responsibility as an integrated business strategy across multiple tiers in the supply chain.

Three core principles are essential for successfully managing the extended global supply chain and ensuring socially responsible business practices, according to executives that have dealt with these issues: 1) a foundation of reliable and unbiased supplier/product audits; 2) visibility into supply chain events supported by mobile technology; and 3) collaboration with the community, companies in the same industry, and local universities to drive education and change in the ecosystem. We

discuss them in detail below.

1. Audit Suppliers Across Multiple Tiers

A program to audit suppliers and products across multiple tiers of the supply chain is an important first step. That process begins with a supplier code of conduct, which provides a baseline for evaluating a supplier's basic labor and human rights policies. It should cover the majority of the eight core International Labor Organization conditions. Based on a supplier code of conduct policy, audits should target tier one suppliers to ensure compliance with the code shown here; using a scorecard can help to quantify supplier performance on social impacts. Metrics about safety standards, discrimination, labor conditions, child labor, and wages can be made a part of every assessment of every supplier, as well as every business case; countermeasures to react to unacceptable values of these metrics can also be implemented.



A supplier assessment should, of course, not be a unique event. Rather, suppliers should be evaluated on a regular basis and be required to report values for the metrics on a daily, monthly, or yearly basis–depending on their relevance to the supply chain. Standards like SA8000 and ISO 26000 can help to find a common understanding between buyers and suppliers regarding acceptable behavior and policy, and suppliers should be required to adopt these standards. These may vary considerably from what are considered "industry standards" in the context of that industry, but if suppliers are unwilling to do so they should simply not be selected as business partners.

Suppliers can also be supported to qualify at some point in the future, for example, by providing a handbook to enable suppliers to improve their human resource policies and guidelines. It has to be made clear to suppliers that they can only benefit if they comply with the rules set by the company. Those suppliers who are willing to comply would then benefit from increased order volumes; it should be made clear to these suppliers that additional orders were placed only because they complied with the rules. That is, auditing of tier one suppliers can be ensured by contractual mechanisms with incentives to comply with aligned values. However, contracts should not be misused to shift the blame on suppliers.

Include Tier Two Suppliers in the Audit Process

What happens if tier one suppliers decide to subcontract their work to other factories that are not on retailers' radars? Our discussions with executives in the apparel industry reveal that tier one suppliers are often unlikely to audit their subcontract suppliers unless forced to do so by the buyer as part of the original agreement. Assessments of the April 2013 catastrophe in Bangladesh suggest that some Western retailers did not even know that their suppliers had subcontracted to the collapsed factory. In contrast, retailers are often the final node in a nebulous and complicated network of relationships.

An appropriate framework for taking on social responsibility implies that the entire global supply chain, from end-to-end, is beholden to a single global code of conduct. This standard also applies to business ethics, and is increasingly being adopted as a "one standard" view of the world by many global FMCG and retail companies. By definition, adopting this standard directly implies that buying companies must go beyond direct relationships with tier one suppliers and establish governance mechanisms to ensure auditing of tier two, tier three, and even tier four suppliers further upstream in the supply chain. This is challenging, as the sphere of influence for many conventional outsourcing contracts with tier one suppliers often do not extend beyond their walls.

The most obvious mechanism is to require tier one suppliers to audit their suppliers and to provide data about the auditing process. However, hopes that auditing of the supplier's suppliers' suppliers will be fulfilled in a forthright manner are wishful thinking, especially in countries where such standards are viewed with skepticism. Another strategy is to avoid any subcontracting. We discovered that it is typical in the apparel industry for buyers to place massive orders on short notice with suppliers without ever having visited that facility. The buyers have no idea of their suppliers' capacity limitations. In such circumstances, subcontracting is often the only viable option left to a major supplier that wishes to keep a customer happy.

To address this, better capacity management metrics are needed to understand supplier volume capacity

The most obvious way to create social responsibility might be to simply avoid sourcing markets with low social standards. However, cutting off imports could hinder the improvement of living standards in developing countries.

thresholds and seasonal limitations that may exist. Buyers can also help suppliers manage their capacity fluctuations through collaborative planning and leveling production schedules. Suppliers should provide a monthly forecast of their capacity limitations to buyers to assist in planning. This may eliminate the need to subcontract altogether.

Audit your Products

Auditing suppliers is an important step. However, our research suggests that an entire organization may not be the appropriate unit of analysis for audits. Rather, product-level analyses are also important—depending on the materials, subcontractors, and fabrics used. Rather than auditing specific facilities, value streams for product lines can be audited that may cross multiple supplier facilities. For that reason, the conventional approach to audit suppliers by drafting a company supplier standard and then auditing for compliance using that document is rejected by Ramon Arratia, sustainability director at Interface, the world's largest designer and maker of carpet tile and a winner of the International Green Awards 2012. "Positive and usually well-intentioned, the impact is inherently limited by the narrow scope of the dialogue and the teacher–student nature of the relationship," Arratia says. He would argue that questions like: "Does your organization have a social responsibility policy in place?" are too bureaucratic: "This takes lots of time from both parts and adds little transformative value to the real impacts of the products," he says. Instead, the ideal question for suppliers would be: "Send me the social/environmental product declaration of your product and your plan to radically improve it." Consequently, companies need to move from corporate social responsibility to product social responsibility and this includes the supply chain of the product.

2. Create a Visible Supply Chain

We all know that visibility is important when it comes to tracking the progress of orders and the location of shipments. Supply chain visibility, within the enterprise and extended to suppliers and consumers, is also central to social responsibility.

One reason is that plants in areas like Bangladesh are typically not under the direct control of Western retailers. As a result, ensuring compliance through audits will not work if that is the only mechanism to ensure social responsibility. Another important facet is to enable direct visibility into your suppliers, particularly for those categories of supply that cannot be directly controlled. After the recent disasters in Bangladesh, several of the affected retailers confessed that they had no idea whether their products were produced in the affected plants. Based on this logic, they claimed that they could not possibly be held responsible. Given the existence of technologies that drive greater visibility into the supply chain, this is a condition that should no longer be used as an excuse.

Labor condition violations are most likely to happen in market regions that have poor infrastructure and are limited in their ability to invest in appropriate technology and systems that enable visibility. However, as part of the investment in their supply chains, retailers can help suppliers establish IT systems that render supply chain processes more transparent.

Although a conventional IT network may not be in place in emerging regions, mobile technologies are already prevalent in these markets. Those familiar devices can be coupled with software that is able to cope with "big data" combined with multiple data feed devices. Together, they can create tracking capability of products from raw materials to the final consumers. The development of these technologies is already underway, even as executives complain of the complexity of apparel supply chains. It is true that more parties are involved (including logistics services providers and subcontracting manufacturers in highly fragmented markets) and with more retail channels to be served (often at the same time). So an important step may be to drive more direct supply chain structures through integrated global network design. This might even lead to make rather than buy decisions. The good news: Companies will benefit from more visibility, as this helps to control processes and to avoid reputational risks related to social problems.

Make the Supply Chain Visible to Consumers

It is a widespread opinion that supply chains should be aligned to the needs of the final consumers. Yet, this rule

is often ignored: Even if they know their supply chains well, many apparel companies avoid disclosing the origin of their products to consumers—too often this is to avoid being associated with the poor social conditions found in these regions. This makes it difficult for consumers to make responsible buying decisions if the country of origin is not plainly stated. Fortunately, socially advanced companies are eager to reveal what they are doing. Not so fortunately, some firms are reporting compliance to social standards for marketing purposes only. And it should also be noted that there are many companies that have implemented social standards on a strategic level quite well, but do not care to establish transparency when it comes to actual compliance levels to these standards. This makes it even more difficult for consumers to distinguish between companies that are transparent (but have a poor record), versus those that appear to be socially responsible, but veil their actual performance through lack of transparency. Such companies, however, are the exception and not the rule.

This can be eliminated if companies make a decision to be as transparent as possible, and do so in a proactive manner before an incident happens. This may entail using product codes associated with specific supplier locations. This can also help raise awareness of the issue, and provide an incentive to suppliers that know that consumers will react negatively if the product is associated with a supplier that has a poor record.

Reactive reporting is not sufficient, but can be observed when companies rush to announce that their products were not made in the plant that just burned down or collapsed. What they do not tell is that they continue to source products from plants with equally poor conditions. Such announcements do not necessarily have any real value for final consumers. More helpful are labels. For instance, the well-known Fairtrade Mark, which is available on thousands of products worldwide, can help consumers to recognize that social standards were met. However, the nearly infinite number of labels can reduce visibility.

Use Smart Technologies to Encourage Visibility

Some companies have decided to disclose the locations of the supply chains of their products to consumers. However, there is little space for this information on traditional labels, especially if they are sewn on garments like t-shirts and if they need to be washable. They may then bear the logo of the certifying organization or highly condensed information about the social standards (e.g., using "traffic lights"), which might not easily be understood by consumers.

As the Bangladesh fires demonstrate, best practice supply chain thinking seems to have overlooked the social aspects of running a global supply chain. Disasters such as these put companies at risk of damaging their reputations and tarnishing their brands.

It is certainly impossible to put all important information about the product's supply chain on such a label. (You could print the supplier network onto the t-shirt, at the risk of detracting from aesthetic appeal.) Companies could provide supply chain information on their website, but this requires customers to know about the service on the website. Online services like Rank a Brand make it easy for consumers to compare information about sustainability credentials of global companies.

An interesting solution was adopted by the Swiss clothing manufacturer Switcher. Each garment bears its individual Respect Code, a number sewn near the washing instructions into each product along with the Respect Code web address. This code can be used by the customer to find online information about the product's supply chain, including social and ecological information of each plant. Using the code, consumers will learn that production of a certain jacket took place in Portugal, that the plant is ISO 14001 certified, and that the CO2 footprint is 7.6 kilograms. Consumers can also see when the plant was last audited.

A German service called barcoo is based on a smart phone application (www.barcoo.com/). Using this app and a smart phone camera, consumers are able to scan the bar codes of products already in a shop. The app will then download available product information and users are able to contribute own ratings.

3. Collaborate Across the Industry

Very few companies can successfully manage a socially responsible supply chain in low cost regions on their own. For that reason, collaboration is an important final

component. This can take a variety of forms, including collaboration with industry players, trading partners, and universities.

One way to collaborate with other companies from the same industry is to commit to joint standards. One such standard relates to fair trade. For example, the Fair Wear Foundation, a European non-profit organization aims at improving labor conditions and provides rules to be applied by its member companies. The foundation ensures that improvements are made by these companies. Members benefit from more than just a Fair Wear logo on their products, as the foundation aims at "sharing expertise, social dialogue, and strengthening industrial relations." As we all know, the majority of all garments do not come from so-called "fair" companies, but rather from "traditional" producers. But even here, companies can collaborate with each other and labor organizations to develop joint standards. The Rana Plaza collapse led to a huge move, especially for European retailers. Since this incident, a large number of international garment companies have signed the Accord on Fire and Building Safety in Bangladesh, although some experts have warned that such agreements are just a drop in the ocean. Nevertheless, the signatories "agree to establish a fire and building safety program in Bangladesh for a period of five years." An important component of this initiative is the mandate to pay for safety measures of their suppliers. Major European retailers, but only a very small number of U.S. retailers, have signed this agreement. Gap and Walmart, for example, have decided to adopt their own global standards instead and several other agreements already existed before the disaster.

Collaborate with Local Partners

The apparel industry can learn from best practices of other industries. One interesting example is Symrise, the world's fourth largest supplier of flavorings, fragrances, and other ingredients, and the winner of the 2012 German Sustainability Award in the "Germany's Most Sustainable Initiatives" category.

Symrise closely collaborates with more than 1,000 vanilla farmers in Madagascar. All processes along the supply chain take place locally, including cultivation, harvest, fermentation, and beans extraction. Most importantly, Symrise partners with NGOs, development organizations, and farmers' associations to ensure that projects will be supported related to enhancing environmental protection, reducing income diversification, as well as improving nutrition, health, and education. For instance, Symrise covers a portion of the salaries of teachers and tuition fees at several primary schools. As Symrise CEO Heinz-Jürgen Bertram remarks: "For us, sustainability and business success go hand in hand. This kind of approach can only succeed if one thinks and plans for the long term. That is why our commitment in Madagascar will continue to grow."

Not only does this approach ensure social responsibility, it is also a best practice example for supply chain management, as added value is created beyond corporate boundaries: Symrise has direct access to best quality raw materials. Apparel companies should also adopt a community-based approach, involving collaboration with NGOs, local industrial or labor organizations, and local partners. This will lead to an increase in social standards, improved supplier relationships, and will raise the playing field for the entire community, not just a single facility.

Collaborate with Universities

As a rule, supply chain managers are not experts in CSR. For the most part, the subject is not one of the topics taught in supply chain management courses. Instead, these courses are regularly concerned with fast fashion case examples and outsourcing. Such knowledge has certainly improved economic success, but now it is time to improve social success as well.

One solution: Companies should collaborate with universities to discuss social problems occurring in their supply chains and to develop solutions with the students. Students will benefit from real-life problems at the intersection of SCM and CSR, while companies will benefit from up-to date knowledge from both areas. For instance, the Supply Chain Resource Cooperative

For More Information

International Labor Organization: www.ilo.org/global/lang--en/index.htm

Portal for Responsible Supply Chain Management: www.csr-supplychain.org

Business Social Compliance Initiative: www.bsci-eu.com/index.php?id=2038

Bureau Veritas Group: www.bureauveritas.com/wps/wcm/connect/bv_com/Group/Footer/Home

Fair Labor Association: www.fairlabor.org/

SGS: www.us.sgs.com/

Fair Factories Clearinghouse: www.fairfactories.org

Intertek: www.intertek.com

BSR: www.bsr.org

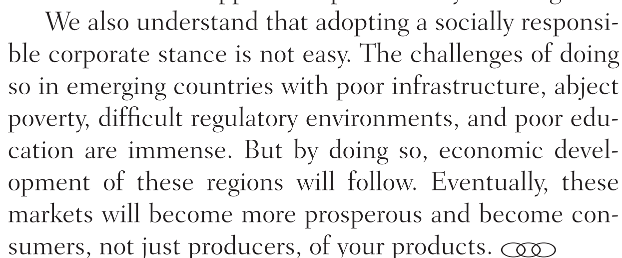
Chartered Institute of Purchasing & Supply: www.cips.org

(http://scm.ncsu.edu) at North Carolina State University offers an MBA class where students evaluate companies' self-reported information and create a scale to measure the extent to which companies are adopting auditing, visibility, and collaboration within their global supply base. This is just one example of the types of programs being developed by academia to address these issues.

Time for a Change

For many years, companies have avoided the hard work of creating socially responsible supply chains. "It can't be helped," "we can't change the world," and "we have no control over subcontracted suppliers," are just a few of the excuses used to shrug off the responsibility of sourcing from companies with fair and sustainable working conditions.

In light of the recent spate of incidents, these excuses are no longer palatable. Nor are they passing muster with consumers. We believe it is time that organizations look inwards and begin to become serious about socially responsible supply chain management. By focusing on increasing audits to ILO labor standards, establishing policies on subcontracting, creating greater visibility into high risk areas, raising consumer awareness, and partnering with local communities, companies can indeed begin to make a difference in helping to make the world they source in a better place for the people who work so hard to create the apparel we put on every morning.



We also understand that adopting a socially responsible corporate stance is not easy. The challenges of doing so in emerging countries with poor infrastructure, abject poverty, difficult regulatory environments, and poor education are immense. But by doing so, economic development of these regions will follow. Eventually, these markets will become more prosperous and become consumers, not just producers, of your products.

Appendix A: Discussion of Evaluation for Code of Conduct Compliance

Every code of conduct should cover the 8 core items shown in the ILO goals below.

1. No. 138, Minimum Age Convention (1973)
   a. Every member country that has ratified this "undertakes to pursue a national policy designed to ensure the effective abolition of child labor and to raise progressively the minimum age for admission to employment or work to a level consistent with the fullest physical and mental development of young persons."
   a.b. Education for children below the age of 15 is compulsory.
   a.c. This age limit should be at least 15 years except as specified in (d).
   a.d. Ensure that a minimum age is specified—age limit is 14 (in countries where the education and economy are insufficiently developed).
2. No. 182, Worst Forms of Child Labor Conventions (1999)
   a. Immediate action to secure the prohibition and elimination of the worst forms of child labor.
   a.b. Applies to all persons under the age of 18.
   a.c. Any work that affects the morality, safety or health of children shall be eliminated.
3. No. 29, Forced Labor Convention (1930)
   a. Forced or compulsory labor will be stopped.
   a.b. Forced labor is anything that is exacted from a person under the pretence of penalty because the person has not offered themselves voluntarily.
4. No. 105, Abolition of Forced Labor Convention (1957)
   a. Do not use forced labor as a means of political coercion , method of mobilizing labor for purposes of economic development , means of discipline, punishment for participation in strikes.
   a.b. As a means of racial discrimination.
5. No. 87, Freedom of Association and Protection of the Right to Organize Convention (1948)
   a. Workers should be able to establish and join organizations of their own choice without prior authorization.
   a.b. Workers should be allowed to set their own rules for the organization without interference from the outside.
6. No. 98, Right to Organize and Collective Bargaining Convention (1949)
   a. Workers should not be prevented from joining unions—employment should not be conditional to agreement not to join a union.
   a.b. Workers should not be dismissed because of taking part in union work after work hours or during work hours with the permission of the employer.
7. No. 100, Equal Remuneration Convention (1951)
   a. Men and women workers need to be given equal remuneration for work of equal value.
   a.b. Remuneration here includes basic pay and additional emoluments.
8. No. 111, Discrimination (Employment and Occupation) Convention (1958)
   a. No distinction should be made in employment, access to training or promotion in terms of sex, race, religion, political opinion, national extraction, or social origin.
   a.b. Exclusion from a job must be because of inherent requirements of the job and nothing else.

Appendix B: Selected Supplier Monitoring Organizations

www.csr-supplychain.org/about

www.bsci-eu.com/index.php?id=2038

www.bureauveritas.com/wps/wcm/connect/bv_com/Group/Footer/Home/

www.fairlabor.org/

www.us.sgs.com/

fairfactories.org/our-community/our-members.html

/www.intertek.com

www.bsr.org/membership/working-groups/index.cfm

www.cips.org

A Blueprint for Supply Chain

In today's demand driven, omni-channel world, it is easy to underestimate the complexity of global supply chains. Yet the growth of global markets, increasing customer expectations, rising costs, and more intense and diverse competitive pressures are driving the development of new supply chain strategies and intricate network designs. That increasing complexity is exactly why supply chain networks need to be frequently re-evaluated.

In fact, a world class supply chain network is essential for product to consistently flow from the point of manufacture to the end user, regardless of the industry served. A well-designed supply chain network can significantly improve margins, support expansion into new markets, enhance the customer experience, and reduce operating costs. That applies to companies in all stages of maturity: Growth-oriented companies, companies in transition, and companies with stable business operations can all benefit from distribution networks that are optimized to meet ever present challenges and opportunities.

While there are more tools available than in the past to perform a network analysis, there remain a number of important steps that must be taken. In this article, we present a blueprint for successful supply chain optimization.

By Dale Pickett

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It Starts With a Network

A world class, transformational supply chain begins with a network that employs an all encompassing view of the various business areas that manage delivery of products to customers. The result is significant capital, operational, and tax savings while achieving optimal customer satisfaction.

There are three critical elements to a world class supply chain network.

1. *Strategy Before Network.* With complex and competing business goals—such as minimizing capital, improving operating margins, lowering the carbon footprint, and enhancing the customer experience—a clear and concise supply chain strategy must be fully aligned with your business strategy. Surprisingly, many companies begin reducing network costs before they define how the network can be fully leveraged to support the business strategy. Uncertainty in product mix and volumes, expanding markets, margin goals, dynamic customer service strategies,

As customer service requirements become more complex, supply chain optimization studies are the foundation for some of the most successful companies' logistics and fulfillment operations. We look at the best practices behind supply chain optimization.

Optimization

value-added opportunities, and product returns and obsolescence are just some of the considerations that are often given minimal consideration or overlooked entirely.

2. *Focus on Total Profit Optimization.* An increasing number of companies are asking the question: "How can my supply chain be used to maximize profits?" This is a different objective than traditional network optimization projects, which define the objective as reducing costs and maintaining customer service levels. Currently, a combination of operating scenarios are required that drive alternative network models. Then sensitivity analysis is performed to evaluate impacts on how a company is working to improve the parameters it uses to drive shareholder value. Some examples include: EBIDTA, capital employed, working capital, operating expenses, tax effectiveness, margins, and cash-to-cash conversion.

3. *Project Versus Ongoing Process.* World class supply chain networks evolve as sourcing adapts to market changes, product line performance varies, and companies integrate. A world class network incorporates an ongoing process that focuses on the flexibility of the supply chain and ensures that objectives are met consistently and over a range of market conditions while enhancing the key drivers of shareholder value.

Frequency and Types of Analyses

When an organization decides to evaluate its network, the internal leadership team must first address the type of effort that should be performed. Strategic reviews of a distribution network design often follow:

- a major business expansion, such as an acquisition;
- a change in business strategy, such as targeting new market opportunities; or
- the passage of time—a full review is typically needed every four to six years.

There are various methods of planning when it comes to guiding and positioning an organization. Planning needs to cover predictable and unpredictable circumstances. Without sound plans, a firm risks insufficiently anticipating problems and failing to implement solutions within the required lead time. With plans, a company becomes active and not passive. A good framework for planning is illustrated below.

Strategic Planning

Strategic planning is the process of deciding on the firm's objectives. The goal of strategic planning is to define the overall approach to stocking points, transportation, inventory management, customer service, and information systems as well as the way they relate to provide the maximum return on investment. It addresses such issues as organizational structures, realignment of capacities, network planning, and impact on the environment.

TABLE 1

Bases for Model Alternatives

Type of Planning	Reason	Focus
Strategic	Determine overall objectives and resource requirements	Policy making
Tactical	Translate the strategic objective of the distribution system into an action plan	6 mo.-18 mo.
Operational	Ensure that specific tasks are implemented into the day-to-day operations	5 yrs.
Contingency	Respond to emergencies	Backup

Strategic planning is also a proactive tool designed to guard against predictable changes in requirements in which timing can be anticipated. This type of planning is directed at forecasting needs far enough in advance to efficiently allocate resources across the supply chain.

Granted, forecasting with a long planning horizon is a risky business, and distribution plans based on such forecasts often prove unworkable. Nevertheless, the forecast is a supply chain's best available information concerning the future.

Tactical Planning

The tactical planning timeframe is one year to two years. Its primary purpose is to plan policies and programs, as well as to set targets to accomplish the company's long-term strategic objectives. Tactical planning must anticipate the distribution center workload to prevent overloading the primary resource—the workforce—during peak demand.

In addition, the tactical plan defines how to develop the resources needed to achieve the goals in the strategic plan. For example, if a firm decides in its strategic plan that it requires a new warehouse location to enhance customer satisfaction, then the tactical plan allocates resources for the facility.

Tactical planning first attempts to provide timing for each step. Second, it considers major issues, such as identifying specific skills required to accomplish the plan and the time needed for each step. Third, specific capital requirements are identified for each step.

A fourth component is often the need for outside resources. In warehousing, this could mean anything from engaging a consultant to hiring a construction company. Other types of tactical planning include inventory policies, freight rate negotiation, cost reduction, productivity improvements, and information system enhancements and additions.

Operational Planning

Operational planning implements tactical policies, plans, and programs within the framework of the distribution system to devise the daily routine. An operational plan is where the rubber meets the road. Ironically, it is where the planning process is most likely to fail because the majority of the daily activities are routine. It becomes easy to lose sight of the planned goals.

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A well-designed supply chain network can significantly improve margins, support expansion into new markets, enhance the customer experience, and reduce operating costs.

The time horizon for operational planning can vary from daily to weekly to monthly. The major components of operational planning are managing resources—such as labor and capital assets—and measuring performance to aid operating efficiency and anticipate future operating issues. It can involve tasks such as: distribution center workload scheduling; vehicle scheduling; freight consolidation planning; implementing productivity improvements and cost reductions; and operations expense budgeting.

Contingency Planning

One of the most overlooked yet meaningful tools for sound distribution management is contingency planning. This is a defensive tool used to guard against failure resulting from unpredictable changes in distribution operations.

Typically, contingency planning asks "what if" questions. For example: "What if a major supplier is on strike" or "what if we had a recall" or "what if my primary supplier location is destroyed due to a major weather event?" The prepared manager will look to contingency planning to counter the potentially devastating impacts of the many emergency situations that may directly involve distribution.

Contingency planning is the opposite of crisis management ("putting out fires"), which entails developing a plan *after* something has occurred. The idea behind contingency planning is to significantly reduce the lead time required to implement a plan of action. You do not wait for a fire to start before installing sprinklers in the warehouse.

Events that can adversely affect a distribution system include:

- *energy shortages,*
- *strikes,*
- *natural disasters,*
- *product recalls, and*
- *acts of violence.*

Defining the Project Scope

Most business units within an organization are impacted by a network optimization. Therefore, senior leadership must understand and support which direction the project will take in order for it to be successful. This is where a clear definition of project scope becomes critical.

Prior to the project, the leadership team agrees to an overall business direction for the following categories.

1. *Sales* – What direction is the company taking to increase sales? (Global expansion, acquisition, e-commerce, same store sales, etc.) Is marketing willing to reduce inventory to see the impact to customer service levels?

2. *Timeline* – What is the desired recommendation date? This is tricky since it can result in a push to meet a date versus providing the best overall recommendations.

3. *Marketing* – Are there changes in the business that will create a metamorphosis of product distribution, such as Internet daily promotions vs. bi-weekly store level promotions? Is marketing willing to reduce inventory if there is an impact to customer service levels?

4. *Production* – Does production understand the impact of optimal manufacturing batches to inventory to locations?

5. *Finance* – How critical is cash flow and the impacts to major investment?

6. *IT* – Are there systems in place to give the necessary information for the analysis to be conducted properly? If not, agree to understanding the recommended approach from the support teams.

7. *Sacred Cows* – Identify facilities, batch size, quality hold, product shortages, or other constraints that will not change in the foreseeable future.

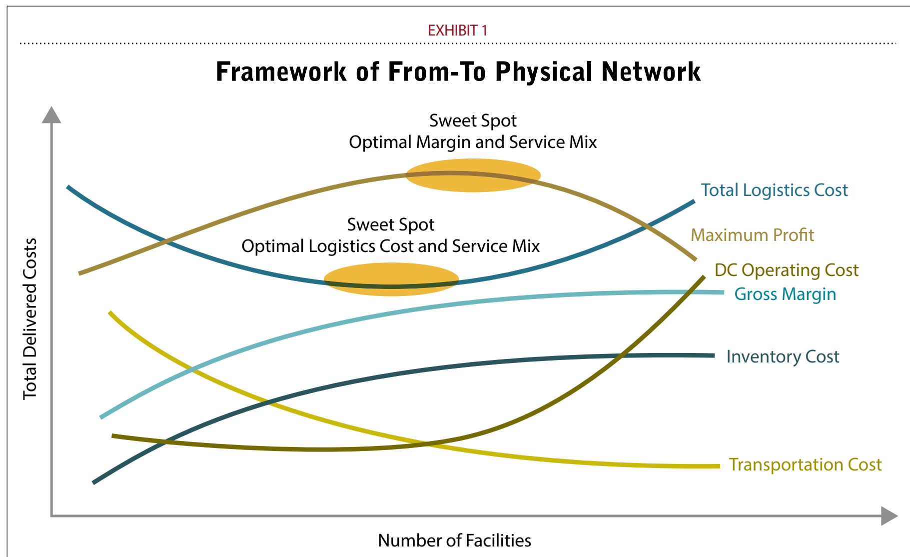
8. *Sensitivity Metrics* – This is a great time for the leadership team to identify metrics that should be considered for sensitivity analysis. This can include but not be limited to fuel costs, service time, planning horizon, and capital investment.

9. *Internal vs. External* – Who should perform this analysis? Senior leadership must decide if it makes sense to perform the project in-house or to use an outside resource.

The distribution network planner must balance these conflicting needs to find the lowest cost distribution network and inventory management technique that satisfies both the customer and company objectives.

Exhibit 1 depicts the complexity that an end-to-end supply chain analysis should incorporate. Network planning and optimization that is founded on fact-based, quantitative analysis should be coupled with a review of processes, technology, and people that:

1. *Ensures alignment* with the overall business environment and growth strategy to minimize costs and



achieve desired service levels.

2. *Utilizes the best analytical too*l for the individual project objectives.

3. *Analyzes alternative processes* to maximize return-on investment while delivering improved operational metrics for customer service, inventory control, and transportation performance.

4. *Models the design* with the intent to be refreshed as inventory policies change; transportation routes, cost, and service levels change; new products are launched; or suppliers change.

Key Network Components

All distribution networks have these key components: stocking points, transportation, inventory management, customer service, and ERP/MIS systems. Where and how these are located and managed will be determined from a network optimization.

Stocking points can be distribution centers, consolidation points, terminals, ports, return centers, or other points that receive goods from production plants or suppliers or are ship-to-demand points. Their job is to receive, store, pick, and ship product. Any point through which produced material flows to reach the customer is a stocking point.

Transportation includes movement from plant to warehouse, warehouse to warehouse, and warehouse to customer.

Inventory management is the purchasing and control of products based on a market forecast. Inventories are typically a buffer between vendors, production, and the customer to permit the system to accommodate unexpected variations in demand or production. Inventory management generally consists of forecasting requirements, procuring orders, and managing what is on hand.

Customer service is responsible for handling the key interactions between the company and its customers in order to assure customer satisfaction. It involves handling customer inquiries and order changes and managing other situations that occur in the customer/supplier relationship. Customer service may also include the ordering process. In addition, it is responsible for monitoring the goals management establishes for each product or market segment, (e.g., order fill rate, delivery time).

Management information systems (MIS) or Enterprise Resource Planning systems (ERP) are communication and/or control systems that support distribution. Their tasks range from taking incoming orders to managing fleet operations. In short, MIS/ERP systems process data to support the functions of the business. The types of systems most distribution operations make use of are:

- *forecasting,*
- *budgeting,*
- *inventory management,*
- *order processing and invoicing,*
- *customer relationship,*
- *omni-channel communications,*
- *warehouse management, and*
- *transportation management.*

Launching a Strategic Network Analysis

Once the leadership team understands the components of its network, has defined the scope of a project, and elects to do a network evaluation, the team responsible for the execution of the plan should begin the primary data collection for the modeling effort. It is not necessary to have everything prior to solicitations, but generally most reputable consultants will need the following information.

a. Growth by organizational tier–formularized
b. Sourcing locations and flow by SKU
c. Outbound Flow by SKU to customer
d. Trans-shipment movements between facilities
e. DC cost metrics
f. Outbound distribution\fulfillment costs (fixed vs. variable)
g. Facility characteristics (size, staff, lease/own,

drawings, equipment within, capacities

h. Fleet characteristics(Internal vs. external)
i. Published costs metrics (case/cube/lb)
j. General Ledger accounts for the businesses units involved
k. SKU listing
l. Inventory by SKU location
m. Expected start date and requested completion no later than date (three or four required alternatives)

Many times, this becomes a very challenging step. An organization must understand that evaluations require significant resources that recognize a sense of urgency but also a need to ensure that the information collected is accurate. There are costs and impacts to the accuracy of the network analysis if the beginning information is in poor condition.

Establishing and Communicating "What We Do"

When kicking off a network analysis, team members often forget that one of the most important tasks is communication. Without communication, a plunge into the retrieval of information and direction to perform a network analysis will surely experience gaps and intensive rework.

The second task is to re-establish the scope of the project, taking into account any changes that have occurred to that scope. A third is to establish an executive strategies workshop. This should be a formal meeting in which the business leaders agree to the primary drivers and direction of the company.

Next, the team must document the existing network. It is critical to collect information from all sites being considered because the study could result in recommendations for closing, moving, or expanding them. Visiting those sites can be insightful. The following information needs to be collected for each site:

- *space utilization,*
- *layout and equipment,*
- *warehouse operating procedures,*
- *staffing levels,*
- *receiving and shipping volumes,*
- *building characteristics,*
- *access to location,*
- *annual operating cost,*
- *inventory, and*
- *performance reporting.*

In addition to facility information, the following information should be collected for the transportation system:

- *freight classes and discounts,*
- *transportation operating procedures,*
- *delivery requirements, and*
- *replenishment weight/cube.*

At the end of the data collection, a project team meeting is held to summarize the data collected and assess each site. This assessment will give the team insight into the operation and costs of the existing network. In addition, it will reveal information unknown to management that will be useful in developing alternatives.

Ideally, this meeting provides a "sanity check" to ensure that the information captured is representative of what will be modeled. Then the project team can provide a recommended aggregated plan to be reviewed by the entire team. This process of identifying assumptions will aid in information gathering and uncover any holes. Once everything is presented, the team can move forward with the analysis.

From the executive strategy session, an understanding of marketing strategies and sales forecasts should be applied to project the future state of the business. After all parties have conducted a view, this establishes the two baseline states for modeling purposes: current and projected.

Modeling the Status Quo

The steps just taken provide the information the team requires to determine the network operating requirements, the status quo. This involves examining the baseline cost and the service and performance characteristics of the current network. Key elements to be identified include:

- current facility locations, capacity, throughput, cost, performance, flexibility, effectiveness, and efficiency;
- inbound transportation costs from plants and suppliers;
- outbound transportation costs to customers and intra-company facilities;
- current inventory levels, in-stock percentages, and inventory carrying costs;
- delivery time to customers;
- current supply points for vendors and production facilities; and
- distribution of customer demand.

This information is developed into a model baseline from which alternative scenarios can be compared. Without the baseline, it is difficult to evaluate the costs and benefits of each alternative versus the status quo.

It is important to analyze and validate baseline information against information available from alternate and independent sources within the company. It is not uncommon for databases or database inquiries to yield incomplete results that would potentially skew the analysis.

Cost information should be compared against source documents, as well as the general ledger or profit-and-loss statements. Volume information from production or distribution should be compared with volume

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information from purchasing or sales. Graphical representations of network flows are useful to identify erroneous information that could be in the data. Stakeholders who would be affected by any changes in the distribution network will also want to review the baseline information to make sure that it represents the world as they know it.

EXHIBIT 2

Bases for Model Alternatives

Factor	Explanation
Supplier and Market	How quickly suppliers reach your sites (delivery days); volume, certainty and variability of supply lead times; international border issues.
Market	How quickly your sites can reach markets (delivery days or hours); volume, certainty, and variability of supply.
Transportation	Highway access, parcel hub locations, water and rail access, weather,restrictions, congestion, and road limitations; transportation penalties, premiums, or benefits.
Government and Utilities	Taxes, incentive programs, planning and zoning, energy cost.
Labor	Unions, right-to-work laws, wages, skills available, holiday observances.
Real Estate	Availability, cost per square foot; site restrictions; proximity to markets.
Inventory	Effect of inventory placement (minimum levels, optimal (incorporation of carrying costs and handling, regional consolidation centers).
Final Mile	White glove, multi-stop.

Developing Alternatives

Once the data has been collected and validated, the next step is to develop alternatives and operating methods. The inputs used to determine alternatives are site visits, future requirements, database analyses, and customer service surveys. The methods used for creation of the alternatives will vary. The main factors influencing site location are listed in Exhibit 2.

Modeling the Annual Operating Cost

The real value in network planning is the knowledge gained from understanding the workings of a company's distribution system and applying imagination to the model in ways that will really benefit the distribution network. Facility alternatives can be close in cost, but range widely in other factors, such as service level capabilities. That makes it critical to have other criteria by which to judge the modeled costs, such as:

1. Central administrative costs and order-processing costs.
2. Cycle and safety stock carrying costs.
3. Customer order-size effects.
4. Inter-warehouse transfer cost.
5. Negotiated reduction in warehousing and delivery costs.

There are several different approaches to network modeling (see sidebar on page 39). Regardless of which modeling method is used, the overall approach should closely resemble the following steps:

• ***Validate the existing network.*** Run a computer model to simulate the existing cost. Compare this cost with actual cost.

• ***Run alternative networks.*** Once the model is validated, run alternative networks for present volumes and forecasted volumes.

• ***Summarize runs and rank.*** Create a table to summarize costs by alternative. The table should list individual distribution center costs.

• ***Summarize all annual costs and service factors.*** Create a table that shows, by alternative, all cost and service factors.

• ***Perform a sensitivity analysis.*** This is based on the idea of setting up runs that fluctuate some components of the data. One might be a cost that is uncertain or has potential to change. By modifying this one parameter, the effect on the run can be determined.

• ***Determine all investment costs associated with each alternative.*** Look, for instance, at the costs of new warehouse equipment required to save space, expansion, and construction costs, or at any building modifications such as adding dock doors.

Determining Cost: The Economic Analysis

An economic analysis compares the benefits of a recommended network plan with the implementation cost. To perform this analysis, determine all the investments and savings associated with each alternative.

Cost considerations include:

a) Personnel relocation
b) Stock relocation (movement cost, model should have shown quantity)
c) Computer relocation
d) Taxes
e) Equipment relocation
f) Building components
g) Inventory considerations
h) Operating costs
i) Severance

j) Existing contracts
k) Sale of existing facilities
l) MHE or automation considerations
m) Change in management

The result of this evaluation should be the ROI of each alternative compared to the initial baseline of the status quo. Once you have the economic analysis, perform a sensitivity analysis that fluctuates various costs and savings to see which alternatives are the most stable.

It is also a best practice to perform a qualitative analysis that looks at risk of factors such as customer service, ease of implementation, cultural considerations, profitability, and cash impact. These should be rated and presented as a topic for discussion.

Finally, once a conclusion has been reached, draw up a time-phased implementation schedule that lists the major steps involved in transferring the distribution network from the existing system to the future system.

Success is Not Simple: It is a Process

The output of a supply chain optimization project is a new plan for the network. A good supply chain network plan relies on a defined set of requirements. It should not be composed simply of ideas, thoughts, or possibilities. Possible requirements should be defined, analyzed, evaluated, and validated. They should result in the development of a specific set of strategic requirements. Normally, the planning horizon for such a plan is stated in years, with a five year plan being the most typical.

An effective network plan is also action-oriented and time-phased. Where possible, the plan should set forth very specific actions needed to meet requirements, rather than simply state the alternative actions available. Future sales volumes, inventory levels, transportation costs, and warehousing costs all come into play.

To get company leadership's support for the plan, a detailed written document and maps should accompany the recommended action to describe and illustrate how the network will be implemented and how it will operate. The result should illustrate which strategy is best for the company because it maximizes profits to stakeholders.

If the plan answers the questions senior leadership team requested at the outset, and your company is prepared for this to become a process and not a project, you may be on your way to optimization success. And, the next time you admire a company's seamless, cost-effective and customer responsive supply chain, think of the detailed network analysis behind it.

Network Modeling

There are three categories of network models.

A Centroid analysis calculates the weighted center of customer demand by using map coordinates and customer volume. It was one of the first methods used to determine new site locations, but it is inadequate when compared with today's modeling techniques. Centroid analysis can be done on paper and assumes things like transportation costs are proportional to distance. It ignores capacity constraints, service requirements, and differences in transportation and facility processing costs.

Optimization models come in a wide variety of complexity and sophistication, with prices to match. They are typically linear or mixed-integer programs that are capable of determining an "optimal" distribution network based upon the data, assumptions, and parameters provided. Changes to any of the assumptions, parameters, or data will cause the model to yield a different result. Therefore, they are very dependent on the quality of the data and parameters and the experience of the individual performing the modeling analysis. An optimization-modeling program is more sophisticated than a Centroid analysis, but it is limited to evaluating a static range of variables. If a network can be described by summarized data, or by looking individually at one or more slices in time, then an optimization model is very effective.

Simulation models, like optimization models, come in a variety of sizes and shapes. Unlike the optimization model, which starts with a set of data and gives a single answer, a simulation model will start with a single answer—a network alternative or scenario—and examine the impact on the scenario of a variety of kinds of data sets, over time. Simulation models are very useful for determining the impact of supply or demand variability, network constraints, and bottlenecks on the efficient operation of the network. Like optimization models, they are very dependent on the quality of the inputs and the skills of the modeler. However, they are able to better represent the volatility a company faces in the real world.

To determine the model that is right for your optimization project, a planner needs to determine how important it is to include complex variables, or if assumptions and averages can provide sufficient grounds for decision making.

The Power of Supplier *Collaboration*

As industries outsource more and exhaust their traditional sourcing opportunities, the time has come to increase and leverage the capabilities and the capacity of the supply base. Benefits range from better product or service features, to quicker time to market, to deeper access to new markets, and to extraction of resources from remote locations. For companies with a Plan B for a disruption of supply, this is an effective response in a time of crisis.

It is indeed an ill wind that blows nobody any good. Fruit company Chiquita found that out to its benefit in 1998, when Hurricane Mitch ripped through Honduras, where much of the well-known banana brand's produce came from. The company actually increased its revenue by 4 percent while its competitor's revenue dropped by exactly that amount.

The hurricane destroyed about $900 million worth of crops—including four-fifths of the nation's banana crop. More than 70 percent of Honduras' transportation infrastructure was washed away. Chiquita's fruit was affected of course, but its rival, Dole, was hurt much worse; Dole lost 70 percent of its banana supply. What was Chiquita's smart move? It was much more nimble, qualifying and signing up alternative suppliers in areas unaffected by the storm and activating deliveries from them. By being far more responsive than Dole, Chiquita

By JehanZeb Noor, Aurobind Satpathy, Jeff Shulman, and Chris Musso

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Rapid Supplier *Qualification*

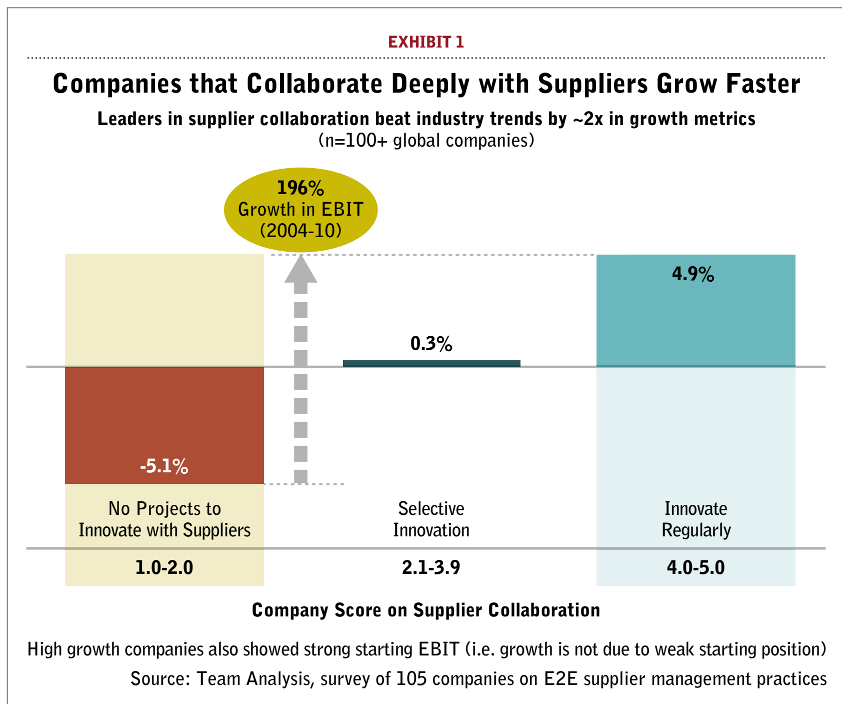
was able to outperform its more powerful competitor.

Chiquita's fundamental master stroke was to approach relations with its suppliers in a collaborative way. On top of that, it had built supplier qualification processes that enabled it to bring the new suppliers online in very short order.

This article will look at current best practices in *collaboration* (across value drivers beyond disruption risk management)—a field that is undervalued and generally underleveraged. It will also shine a spotlight on one "must have" capability that can help to maximize the value of collaboration: rapid supplier qualification. If there are managers in your organization who think that collaboration is not applicable to their value chain, or that they have finished the collaboration journey, we urge that they take a second look.

A Fresh Look at *True* Collaboration With the Supply Base that Goes Beyond Lip Service

Most people learn the value of cooperation in the home, the schoolyard, or on the sports field. Most companies recognize the need to promote cooperative and collaborative working in their organizations, too. Many have made strenuous efforts to break down internal barriers and foster closer working relationships, both inside and outside their four walls. As more and more of the value of products and services moves out (e.g., up from 10 percent



to 25 percent in pharmaceuticals in five years) into the extended supply chain, however, companies are finding it much harder to extend their collaborative processes across corporate boundaries. We define supplier collaboration as the joint development of capabilities by both the customer and supplier for the purposes of reduced cost, process improvements, and innovation in products or services.

In 2012, McKinsey surveyed more than 100 large global companies on supplier collaboration practices. The survey distinguished traditional sourcing tools (such as clean-sheet cost models, RFP-based negotiations, etc.) from strategic investments and long-term projects with suppliers for co-development.

The results were fascinating. Although over a third of the respondents said they collaborated with suppliers, fewer than 10 percent could demonstrate systematic efforts on supplier collaboration. More importantly, among those who *did* collaborate, the EBIT growth rate was double that of their peers. (See Exhibit 1)

Do suppliers benefit from such relationships, too? Yes, they can. Their business is more stable, they become more cost competitive, and they improve their core capabilities. The suppliers can then deploy these capabilities to win more business externally. In a 2010 survey of the auto industry, we found the suppliers that gave Toyota and BMW the highest cost reductions also rated the two OEMs as their best customers. That is the mutual benefit of long-term collaboration.

Several companies have tried supplier collaboration with only limited success. Others believe they have run out of room in their collaborations. We believe that most companies can get more from supplier collaboration if they start again from first principles—that is, if they rethink the nature of their strategic supplier relationships. Further, we believe that many companies impair their collaboration efforts because they don't have strong systems for qualifying new suppliers.

Our experience shows there are three keys to developing profitable supplier collaboration.

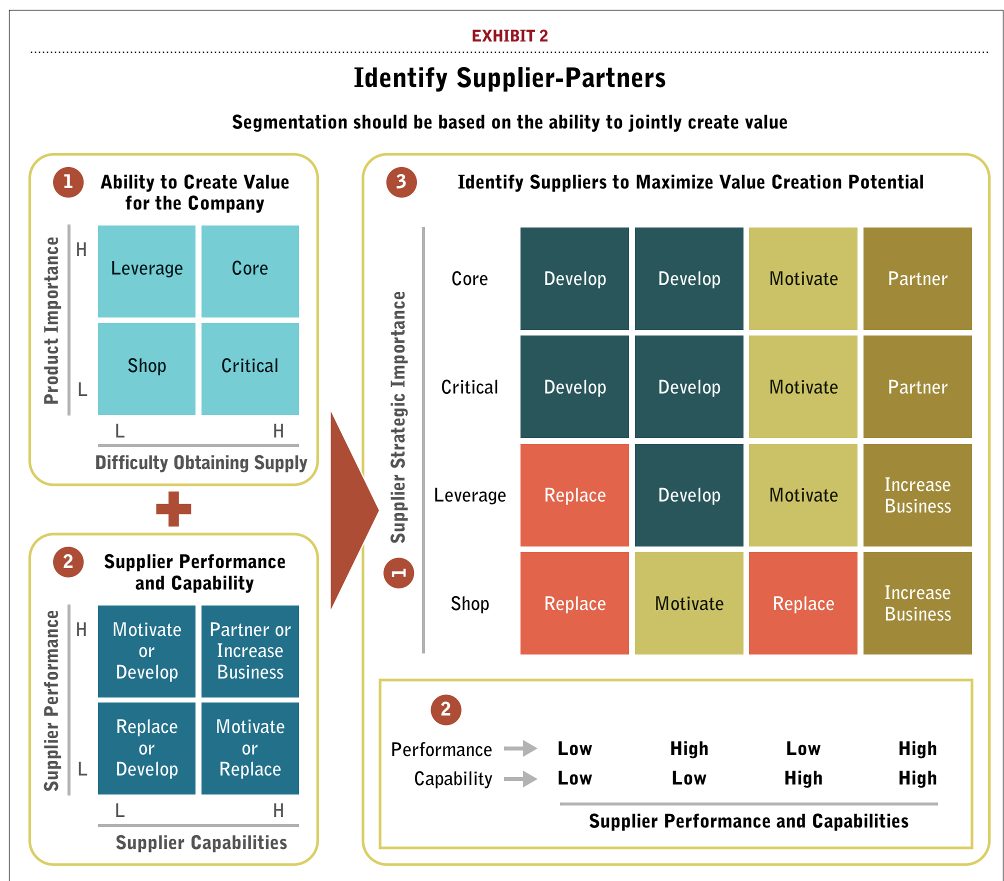
1. Build the foundation of internal collaboration first

Before embarking on a new program that demands a significant amount of time and resources, it's important to know if the company has the internal capabilities and strategy alignment to make the external collaboration a success. Under-investing in these internal activities is one of the top reasons that supplier collaborations fail.

So how do you assess or determine whether your organization has the capabilities to make this kind of collaboration a success? First, consider the skills required for the particular type of collaboration desired (described in more detail in the next section). For example, do your buyers have a solid foundation in clean-sheet modeling and sourcing strategy development? Does your team have access to internal expertise in lean, supply-chain management, and product development on what would become the future supplier collaboration team? Do you put you're A-players on the collaboration team? Only after you've addressed these needs would your organization be ready for supplier collaboration.

As an example, take a procurement function that is comprised primarily of tactical buyers who spend much of their day fulfilling orders. They may not have the expertise to identify joint cost-reduction opportunities or to work with suppliers to improve the product development processes. Organizations in this position are better served by investing in traditional sourcing and leadership capabilities first. Until this happens, suppliers have little incentive to try anything more ambitious.

One pharmaceutical company went through a three year journey to strengthen strategic sourcing fundamentals, establishing a contract manufacturing organization, and finally establishing full-time supplier collaboration teams. The collaboration teams have sourcing, supply chain, quality, and R&D members (full time), with each team aligned to a specific "technology" or "dosage form." The company has become the industry benchmark.



Companies that have the fundamentals in place need to focus on more advanced, collaboration specific skills, such as value sharing mechanisms and joint developmental agreements. Value sharing models need to be simple, and properly incentivize performance for both the customer and the supplier. Common incentives for suppliers range from extending contract length, to splitting cost savings 50/50, negotiating a pre-determined benefit to the buyer (5 percent cost reduction per year, for example) with the rest going to the supplier, or to joint investment in capital projects for further capacity. Joint developmental agreements (JDAs), recommended in cases where IP (intellectual property) might be created, must clearly define the scope of the work, confidentiality obligations, intellectual property rights, exclusivity terms, and release criteria, to name a few.

Building momentum with small wins is important and a recipe for long-term success. Ultimately though, supplier collaboration teams should work on large and ambitious projects if they expect to see maximum impact—having an aspirational vision over a two to three year horizon is critical. To do so, the collaborating companies must align on which suppliers, products, or service lines they intend to invest in, and it's important to do this with the input and alignment of relevant cross-functional leaders internally such as manufacturing, R&D, engineering, and product line leadership.

Together, those internal teams need to answer the following questions:

- Which business units, product, or service lines should be prioritized based on factors that include potential profitability, urgency, risk, and cross-functional leadership support?
- Which suppliers are providing critical components or services?
- Is the spending for prioritized products or service lines growing?
- Is it specific to a particular geography?
- Is the opportunity to reduce cost, improve performance, or conduct product innovation big enough to justify the resources required?
- Will this help to gain a competitive advantage? What would be the advantage?

As you answer these questions, the next step is to segment the suppliers in a more granular way.

A large North American industrial equipment manufacturer wanted to unlock the potential of supplier collaboration. To determine which suppliers to invest in, it took a three-point approach. First, the manufacturer ranked its suppliers' strategic value, by mapping the

Getting Smart About Supplier Qualification

Most companies lack clear, structured processes for qualifying new suppliers. Often, the qualification process is driven by the function or business unit that identifies the need for an alternative source of supply, and different functions, business units, or teams may conduct their qualifications or contribute the necessary resources in sub-optimal ways. This situation manifests itself in two common issues.

First, the qualification process can take too long, because those responsible for conducting tests on potential substitute materials are not clear about what tests are required, when those tests need to be conducted, or which materials are the most urgent. It is not unusual for the qualification process to take between six and nine months, even for a relatively straightforward "like-for-like" substitution, by contrast with best practice of two to four months.

Second, qualifications can cost too much, because unclear success criteria mean that companies conduct superfluous tests, or discover late in the process that important tests have been missed or critical specifications have not been checked. Tests are also often duplicated when a qualification effort for one product category or business unit repeats tests that have already been conducted for another.

Recognizing such difficulties, leading companies are pushing for more rigorous and systematic qualification processes. We have observed that their approaches typically rely on three basic elements.

1) Establish a standardized process for qualifications. This element includes defined activities, success criteria and timelines, with defined roles and responsibilities for all process stakeholders, including external suppliers. The process encompasses the end-to-end qualification process, from supplier and material selection, through lab, plant and fitness-for-purpose testing, to final sign-off by customers and regulators.

At each stage, the process specifies the actions required by different functions, including R&D, purchasing, manufacturing, and technical services, and allocates responsibility for completion of those activities to a specific individual within each function. By establishing who needs to do what, and when, and by giving a single process leader overall responsibility for management of the qualification from end to end, these companies reduce rework and redundant or missed activities, and minimize the downtime between process steps that typically cause so much delay. Because material qualifications can differ in their complexity—from straightforward like-for-like substitutions to the evaluation of totally new technology—these companies segment their processes accordingly, allowing more time for lab tests and trial production runs, for example, where uncertainty about a substitute material is greater.

2) Define a robust prioritization mechanism. This is based on the direct financial value of the potential substitution and its impact on other strategic factors, such as reduced supplier concentration risk or improved environmental performance in manufacturing. Prioritizing qualifications in this way ensures that highly valuable or strategically critical material substitutions are not delayed by less important ones. It also resolves disputes about access to limited resources such as material test labs.

One advanced materials company developed a prioritization scheme for its own qualification processes. In emergencies such as natural disasters or industrial accidents that resulted in immediate risk of disruption to more than a quarter of the available supply of a material, the company would immediately divert all available resources to facilitate a rapid qualification of alternatives. If there were concerns about the financial viability of a supplier, potentially putting future supply at risk, qualification of alternatives was given fast-track status, with attention paid to eliminating bottlenecks that might delay the process.

Where there was no risk of supply disruption, but there was an identified opportunity to realize savings or broaden an overly concentrated supply base, qualifications were allocated to one of two "standard" priority levels, according to the size of the potential savings and the importance of the material in question. Finally, qualifications with the smallest savings potential, less than $100,000 per year, were given "at will" status and conducted only when excess capacity was available.

3) Support the qualification process with appropriate cross-functional resources and clarity of roles. This element might include dedicated lab and plant testing capacity and a central database to facilitate the sharing of test data and other relevant information between different business units or product teams. They also make changes to staff incentives, for example, by tying the incentives of qualification teams to the savings they achieve. They change the management of their qualification processes too, by establishing a qualification center of excellence (COE) within the procurement or quality function if there is sufficient scale to support multiple qualifications. One basic materials player defined scale as having 50 or more supplier qualifications annually across the organization and established a dedicated COE staffed by one or two specialists. The COE helps qualification teams design and customize process maps to support the needs of particular parts of the business, to ensure the smooth running of those processes, and to disseminate best practice across the organization. The COE staff also work with suppliers and customers to identify ways to streamline communication and interaction during qualification efforts.

The overall impact can be 50 percent to 100 percent of both lead time and cost of qualifications in future state.

We believe that most companies can get more from supplier collaboration if they revisit first principles—that is, if they rethink the nature and depth of their strategic supplier relationships.

importance of the products they supplied versus the ability to obtain them. Second, it reviewed each supplier's performance versus expected or best in class capabilities. This helped the company to define what the supplier could bring to a developmental program. Finally, the manufacturer evaluated these results to determine which suppliers to partner with to increase collaboration (see Exhibit 2). A side benefit of this exercise was a clear understanding of the relative value (or lack thereof) of their different suppliers, leading to insights on which ones needed to be replaced, motivated, or rewarded.

In this formative phase, you must clearly outline the goals of the program as well as the roles, responsibilities, and time commitment of the teams. Business and functional leaders will need to provide support from the outset, and cross-functional leadership teams must be committed to the program for the long haul.

2. Design the program to meet a specific business imperative

We have identified three types of supplier collaboration programs. Each meets different business objectives and requires varying levels of expertise to execute.

- **Collaboration for cost reduction.** This type of program focuses on cutting costs for both sides beyond traditional sourcing levers and sharing value. Typically, this type of program is also a first step in the collaboration journey. Suppliers are treated as partners, not as cost centers, necessitating the development of long-term, trusting relationships. Some examples of how interactions change: negotiations are based on full transparency into costs, with healthy margins and growth guaranteed; specifications are jointly optimized to eliminate unnecessary features; and demand transparency is created based on production patterns to optimize inventories. This kind of cost-based program requires mature procurement competencies, but is also the least complex compared to other collaboration options. A company with no or minimal experience in supplier collaboration programs may choose to begin here and work its way up.

- **Collaboration for value beyond cost.** This could be the right program for companies that want to improve safety or the quality of products, develop additional sources of supply for a new or capacity-constrained component, or work with a supplier on financial health improvements. In other words, joint risk management with the supply base is the typical area of focus when companies start going beyond cost. While these changes can and will reduce costs, the work is focused on value beyond purchase price, and requires a greater degree of cross-functional expertise to execute. (See sidebar 1.)

When companies are collaborating for value beyond cost, it makes sense to rethink processes for qualifying new suppliers. Fast, effective qualification of new material suppliers can be essential in a crisis—if a supplier suffers from a natural disaster or is otherwise unable to meet requirements due to quality issues—and it can help guard against the risk of supplier concentration. But a disciplined process for qualification is also extremely useful in the everyday operation of many companies, allowing them to take advantage of new material technologies or lower cost sources of supply as they emerge. (See sidebar 2)

- **Collaboration for innovation.** This is the practice of working with suppliers to improve the pace and quality of product or process innovation. It creates value in areas like design, speed-to-market, and consumer insights. In the case of a chemical company, supplier innovation led to rapid development of a new material for the CPG value chain (See Exhibit 3) This form of collaboration requires the most time, money, and trust; it also carries the most risk because of the experimental nature of developmental work and the need for more two-way trust than ever before. The two partners may have to negotiate sophisticated agreements on IP rights, licensing agreements, and warranties. Supplier qualification capabilities can also be critical for supplier innovation. The payoff, however, can be significant in the form of a better, more timely and competitive product.

In the case of a leading freight railroad, a new program was started to de-specify head-hardened rail steel (a type of treatment designed to improve wear) with an existing supplier and design a new rail steel specification. The end result was tens of millions of dollars in value creation per year through better total cost of ownership (TCO). In order to embark upon the project, the railroad company needed advanced skills on supplier qualification to prove to the incumbent that alternatives can be brought in quickly.

Further, we believe that many companies impair their collaboration efforts because they don't have strong fundamentals, such as rapidly qualifying new suppliers.

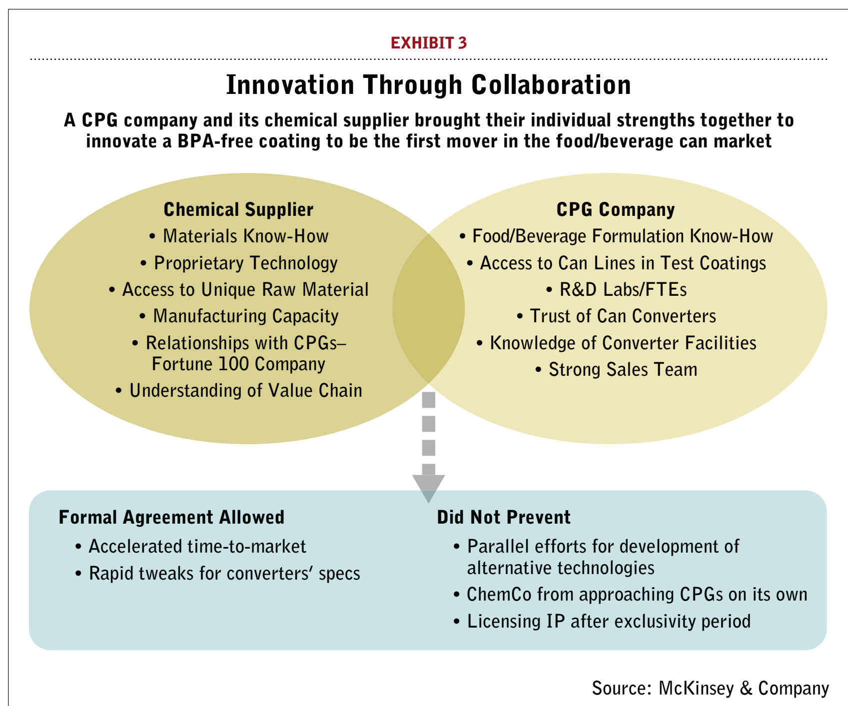
3. Build transparency and trust

Transparency and trust are essential for sustained success. A survey of 35 strategic suppliers to a large, global medical device company dealing with both quality and growth issues found that the majority of the suppliers did not trust that their innovative solutions or ideas were consistently and seriously considered by the customer. They considered this to be a primary reason for poor collaboration. The survey signaled to the company that it needed to restart its relationships on the basis of transparency (for instance, more clear, two-way feedback and follow-up on ideas from suppliers), with the expectation that greater trust would follow from better follow-up.

On the contrary, successfully creating transparency and trust, however, can deliver remarkable value. One company in the financial services sector used this approach to address persistent poor performance in its network of collection service providers. It did this by first changing the way it interacted with the vendors, simplifying lines of communication and establishing regular weekly calls with them to problem-solve the most critical issues. Then it introduced a transparent and dynamic performance management system, tracking results and error rates, and discussing them with each vendor in monthly reviews. The company supported these efforts with changes in its own organization through the creation of dedicated teams for vendor performance improvement and collaboration.

Finally, the company modified its working processes in ways that addressed key pain points and allowed both it and its vendors to benefit. For example, it gave strategic vendors power of attorney to sign documents on its behalf, reducing frustrating delays as documents were sent back and forth, and showing a base level of trust in the strategic partners. It also changed the way work was allocated, so higher-performing vendors got more work and percent fees (and of course vice versa), and it collaborated with its vendors to identify and eliminate unprofitable lines of work (e.g., closing high risk files early). The result of this effort was a startling shift in vendor performance. The cash recovered through collections rose by nearly 80 percent, while the company found that it needed a third fewer staff to manage its vendors, and saved even more in filing fees and expenses. Even more importantly, the relationship between the company's line teams and vendors was transformed, with free, open communication and a constant exchange of ideas. The strategic vendors were able to grow their business by 10 percent to 30 percent within a year.

Creating successful partnerships like this one is com-



Collaboration carrots

A leading freight railroad had outsourced the repair of its railcars to a sole supplier. Despite high rates of idle time and waste, the supplier continued to win the annual contract. The railroad company wanted to partner with a competitive supplier that would also work with it to reduce the operational and capital costs, the benefits of which would eventually be shared with a changing split over time. The railroad approached multiple companies, including the incumbent, with the carrot being a long-term contract in exchange for competitive pricing as well as a collaboration program to improve the supplier's operations.

The result was a significantly more competitive bid price from the incumbent, and identification of 15 percent additional savings through joint lean initiatives focused on operational efficiency and capital cost reduction. The supplier kept one-third of the savings and applied the same capabilities to the rest of its customer base, seeing a 10 percent uplift in its earnings before interest and taxes inside of 12 months. For its part, the railroad, once it had mastered the basics of supplier collaboration, began working with suppliers to innovate in scheduling and dispatch process—a more complex lever, and a trend setting move in the industry.

In the oil and gas sector, many operators are expanding to emerging regions in Africa, South America, and Far East Asia. Supplier availability and capability becomes a critical constraint. In addition, local content requirements for materials and services can hamper "time to oil." A select set of oil and gas majors and suppliers have started investing in supplier development, and some are outperforming. The best supplier developers have increased local content from about 25 percent to close to half of their total third- party spend, increasing the speed and cost efficiency of exploration.

plicated, with a number of requirements. Some are preconditions that must be in place before the collaboration kicks off; others follow through the collaboration itself.

Preconditions: Write Them Down

• Spell out the parties' different commitments, including, at a minimum, capital expenditure and personnel investment (on both the leadership and working levels)

• Align to standard contract terms on the length of the agreement, renewal terms, and volume and price ranges (as covered earlier under value sharing mechanisms).

• Specify the product or service range covered and the scope of the development effort. Options and agreements on the use of alternative suppliers and use of the capabilities developed by the supplier with any other customers must be explicit, though not necessarily discouraged.

• A value-sharing model must detail the targets of cooperation, defining the benefits and agreeing on how to share those benefits. Too many times the customer proposes a model that does not offer enough value or the right value over the right timeframe to its suppliers, stalling the program before it even begins.

As an example, lithography equipment manufacturers for the semiconductor industry deal with extremely short product lifecycles, new technologies, and wildly fluctuating demand patterns. To motivate suppliers to partner with them, a leading lithography system manufacturer offered high margins (as a volatility buffer), equipment financing, and purchase guarantees with narrowing windows from systems to components. This value-sharing mechanism sustained the supply chain through the cycle, jointly reduced costs, dealt with wild swings in demand, and stabilized throughput and delivery. Both the customer and suppliers benefited. In the end, some of the tightly knit suppliers became equity partners as well (similar to the Keiretsu concept of interdependency from Toyota).

Ongoing Work Through Collaboration

These are matters that need to be co-developed and refreshed throughout the collaboration. For instance, supply chain management and operations teams must work out how to deal with exceptions to the agreement, such as through a joint review board. Similarly, for the collaboration to grow and sustain, there needs to be a mechanism to generate, evaluate, and prioritize new ideas vs. investment criteria. If there is a foundation of trust and transparency, the collaboration will continue to grow.

The expression "win-win" is often overused. But highly effective collaborations between suppliers and purchasers are just that. The best collaborations result in competitive advantage for all players, and drive innovation and growth, typically at a pace of times that of competitors.

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5 Lessons for

For many supply chain executives, the Financial Crisis has been one of the toughest challenges in their careers. Firms across industries were required to deal with huge demand-supply mismatches caused by collapsing demand. However, the supply chain community found innovative ways to deal with the challenges of these tough times. Here are five action areas supply chain managers should be aware of—before the next crisis.

By Kai Hoberg and Knut Alicke

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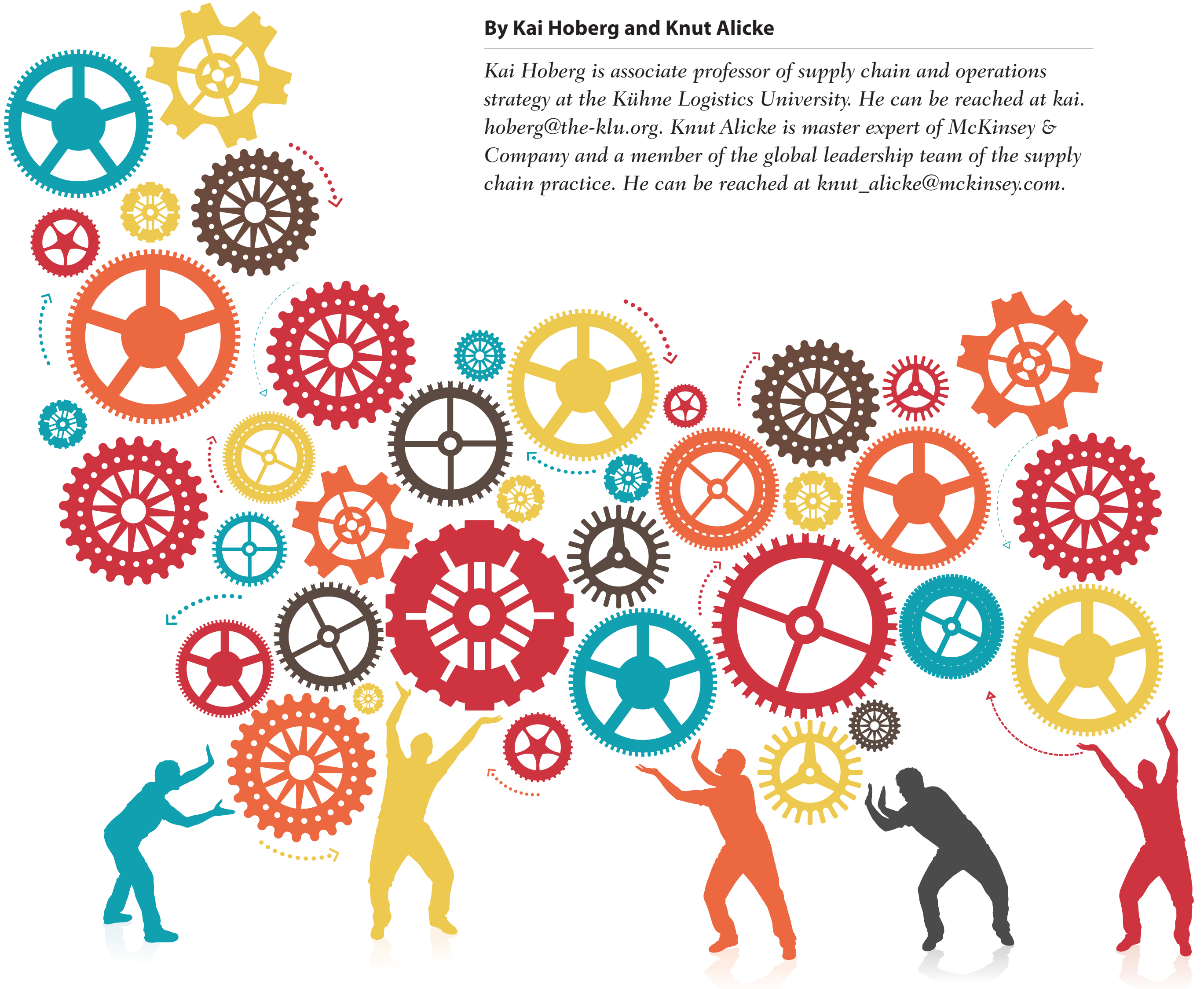


Supply Chains *from the* Financial Crisis

Firms have always been challenged to adapt their supply chains to their success in the market. During boom periods, firms are eager to avoid costly backlogs, to align manufacturing capacities with growing demand, and to ensure raw materials from new suppliers. Meanwhile, supply chains are accelerated, costly air freight is accepted, and large batches are produced because goods will be sold at some stage. In contrast, during difficult times, firms must address shrinking customer orders, face increasing competition, and see decreasing margins. Accordingly, priorities for supply chains differ significantly. Firms must focus on cutting costs, reducing capacities, consolidating suppliers, and freeing up cash by taking out inventory.

Difficult times frequently relate to an individual firm's situation: These could include poor top management decisions, cost pressures from a new competitor, or demand being hit by poor customer service. However, difficult times are also frequently caused by changing economic climates.

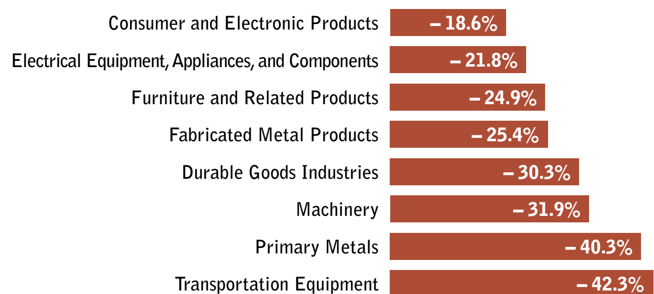
During the Financial Crisis that started five years ago, an unforeseen contraction in demand across numerous industries challenged supply chains globally beyond anything observed in the past. As the economy continued to drift downward, a significant turning point occurred on September 15, 2008, when Lehman Brothers, the fourth largest U.S. investment bank at that time, declared bankruptcy. The collapse of Lehman Brothers sent a shockwave through the financial world and triggered an unprecedented decline in the global economy.

In particular, the manufacturing sector suffered severe consequences as a result of the recession: Industries such as machinery, metals, and transportation equipment observed drops in customer orders by up to 42 percent within a single year (see Exhibit 1). Many companies struggled to survive and entire supply chains were threatened with collapse. Those firms that survived the Financial Crisis reacted swiftly and decisively. Often, they leveraged innovative approaches to safeguard their internal and external supply chains amid the challenging business climate.

Today, many firms continue to deal with individual challenges. Similarly, the economic situation in many parts of the world has become unstable. For those reasons, innovative approaches for managing supply chains in a downturn could become as important now as they

EXHIBIT 1

Change in Annual Orders in Selected U.S. Manufacturing Sectors, 2008-2009



Source: U.S. Census Bureau

were just five years ago. Based on a series of interviews with executives from numerous firms affected in the Financial Crisis, we identified five action areas supply chain executives should be familiar with.

Supply Chain Actions in Difficult Times

Management actions in difficult times are well known and are typically in line with classic turnaround approaches. These actions include engaging in significant cost reduction (including overhead costs), introducing zero-based budgets, establishing war rooms, and redefining footprints and networks. However, it is also crucial to understand the trade-offs between myopic and sustainable actions. In addition, it is key to plan for the inevitable and prepare the supply chain to deal with tough times.

For example, when a mid-sized third tier automotive supplier in Southern Germany was confronted with significant demand reductions, the company reacted quickly. The supplier closed one production site, shifted production volumes to low-cost countries, and furloughed employees to adjust to the decrease in volume. Unfortunately, the specific knowledge that was required to establish new production lines was not transferred. Moreover, the company went through a lean manufacturing program, setting inventory holding cost at a high level of 40 percent, which was excessive for its low to medium value-dense products. Although all of the crisis measures were appropriate, applying the measures in parallel placed the company under severe pressure, causing the firm to deplete its cash stores near to the point of bankruptcy.

In a supply chain context, the five action areas that are illustrated in Exhibit 2 are essential to cope with any type of crisis situation—individual as well as economic. First, supply chain managers should gain a clear understanding of potential demand scenarios, as demand should be the basis of all supply chain planning. Second, firms should safeguard their supplies to avoid any critical bottlenecks as suppliers go out of business. Third, firms must accelerate all efforts to create flexible and breathing supply chains that can cope with all types of variability. Fourth, managers should carefully reduce inventories to free up cash that is essential for turnaround actions. Finally, firms should also consider the light at the end of the tunnel and should begin to position themselves for the inevitable upswing.

Based on our experience, all five action areas must be considered in parallel, which will cause exceptional challenges for supply chain managers while also dealing with all types of operational glitches. Accordingly, we believe that firms should begin to prepare as early as possible for difficult times ahead. In the end, they will not only benefit in the crisis but actions are also beneficial to the business from a long-term perspective.

Understanding True Demand

One key lesson from the Financial Crisis was that numerous firms underestimated the severity of the declines in demand, which reached 90 percent in some firms. Because forecasting demand is the starting point of all planning (i.e., capacity planning, supply planning, and production planning), it is crucial to understand true demand. Indeed, any significant over- or under-reaction could trigger a disaster. Accordingly, successful companies have pursued three key actions to improve their understanding of demand: (i) identifying reliable demand information, (ii) communicating with customers, and (iii) developing demand scenarios.

Identify reliable demand information. For most firms, the visibility of true customer demand was close to zero at the beginning of the crisis. Many found it challenging to *identify reliable demand information*. In addition to high levels of economic uncertainty, opportunistic competitor actions to fill capacities induced additional uncertainty. Even long-standing orders were subject to cancellation as a result of collapsing customer demand. For example, a Scandinavian heavy equipment manufacturer lost nearly all previously booked orders

EXHIBIT 2

Action Areas for Supply Chain Management During Periods of Economic Crisis

	Action Area	Key Actions
1	Understanding True Demand	• Identify reliable information • Communicate with customers • Develop demand scenarios
2	Monitoring and Safeguarding Supply	• Identify supplier criticality • Monitor supplier health and lead times • Ensure the survival of critical suppliers
3	Creating Flexible, Breathing Supply Chains	• Understand the effects of demand fluctuations • Convert fixed costs into variable costs • Define smart contracts
4	Aligning Inventories to Free Up Cash	• Avoid surplus-inventory intake • Align inventory policies • Streamline service offerings
5	Preparing for Upswing	• Retain and develop talent • Prepare long-term projects • Provide upside capacity

from Russia because of limited credit availability of these customers. For this reason, successful firms establish a process to monitor the probability of order cancellations that is similar to the processes for monitoring the probability for winning orders. Frequently, companies began to realize that leveraging information from the over-opportunistic sales force did not provide any transparency, as sales personnel were still handcuffed to their budget thinking. When challenged to explain their sales forecasts, personnel often expressed concerns that capacity could be reduced too sharply and that longer lead times would alienate customers. Successful firms rapidly moved away from initial budgets and targets by implementing a new zero-based budgeting process.

We believe that firms should begin to prepare as early as possible for difficult times ahead. In the end, they will not only benefit in the crisis but actions are also beneficial to the business from a long-term perspective.

Communicate frequently with customers. Numerous companies also established *more frequent communication with customers* and placed more emphasis on short-term forecasts. When the symptoms of recession began to emerge, one automotive supplier reduced the firm's forecast horizon, and sales personnel increased chatter with customers. However, communication through established channels between sales and procurement departments often did not provide sufficient visibility, as the information flow was slow within the customer organization. Procurement departments themselves frequently had no visibility regarding procurement volumes in the upcoming weeks and months. Accordingly, increased direct communication began to occur among planning departments while contract details were coordinated between sales and procurement departments. Some companies also began to further integrate planning systems and established EDI to obtain real-time updates on planned volumes.

Another example of effective communication is a vertically integrated chemical company based in Germany that produces goods for all stages of the chemical value chain. By sharing demand information on all types of fine and base chemicals internally, managers established a reasonable picture of the market demand for different products several months in advance.

Prepare multiple demand scenarios. Because of limited visibility, a single forecast for a product line was often difficult to obtain. Therefore, successful companies began to *prepare multiple demand scenarios* and to plan their actions within these scenarios. Such scenarios included consideration of the following questions:

- Is the worst case that demand decreases by more than 80 percent?
- What is the outcome if all of our customers in France close their plants for three months?
- What are the aggregated inventories of all European customers, and would these customers need to divest all of their stocks?
- How long can we employ our workers given the current order book and the lack of new demand?

Top companies have endeavored to answer these types of questions and have typically aggregated them into a few scenarios. Several companies have even developed more advanced economic models to analyze the effects of early indicators on the world economy and to develop scenarios and action steps accordingly.

Monitoring and Safeguarding Supply

The suddenness and severity of the recession forced many firms to the brink of bankruptcy. While sales and demand reached all-time lows, sourcing departments faced an entirely new challenge—the risk of losing suppliers and entire supply chains due to bankruptcy.

Accordingly, successful firms exerted significant efforts to safeguard their supply. Typically, they implemented an advanced supplier risk management system that included three actions: (i) identifying supplier criticality; (ii) monitoring supplier health and lead times; and (iii) ensuring the survival of critical suppliers.

Identify supplier criticality. Although most firms have established a regular risk assessment and management process, these processes typically focus on physical supply chain disruptions such as natural disasters or strikes. The risk of losing suppliers next door is often neglected. Therefore, *supplier criticality needed to be reevaluated* based on the risk of supplier insolvency. Which critical parts and how much volume do we obtain from a supplier? Which alternative suppliers are certified? What volumes can these alternative suppliers provide?

Numerous firms underestimated the severity of the declines in demand, which reached 90 percent in some firms.

Who owns the tools and forms?

Often, second-tier suppliers and subcontractors also contributed to the problem, particularly in the automotive industry. For this reason, firms that had prepared supply chain mapping scenarios could now more easily identify the potential effects of supplier defaults.

Monitor supplier health and lead times. Once supplier criticality was identified, firms were required to *monitor supplier health and lead times*. To monitor supplier health, successful firms leveraged all types of internal and external sources, such as buyers' information on the speed at which suppliers were committing to orders or requesting earlier payments, information from plant visits regarding utilization, and newspaper/industry discussions on sell-and-lease-back deals or the loss of key people to understand the "real" situation of the supplier. Additionally, many firms carefully reviewed the quarterly financial statements of their suppliers. In any scenario, the monitoring of suppliers must be carefully coordinated, including the identification of lead persons who collect all information.

In addition to supplier health, successful firms also carefully reviewed supplier lead times. Low order intake often had an inverse effect on lead times because suppliers reduced their capacities to stretch their order books over longer periods. Therefore, firms needed to proactively align with suppliers with respect to new delivery schedules.

Ensure the survival of critical suppliers. Communicating frequently with suppliers and being a "good" customer is often beneficial for firms during more comfortable financial times. Paying invoices on time rather than stretching payment terms can ensure a preferred customer rating that allows additional favors in the future. Nevertheless, several companies have been forced to *ensure the survival of critical suppliers*. In instances where no alternative suppliers for critical goods were (yet) available, firms supported suppliers by pooling spending or taking inventory ownership from suppliers to ease their financial burdens. Particularly in small oligopoly supply markets, firms have tended to prefer supporting a struggling supplier rather than coping with an even more concentrated supply base in the future. In extreme cases, firms also attempted to actively reshape their supply base according to their strategic objectives. For example, one automotive OEM defined its preferred supplier landscape for a certain category and actively reallocated sourcing spending to the preferred suppliers, thereby destabilizing out-of-favor suppliers and rendering them easy acquisition targets.

Creating Flexible, Breathing Supply Chains

When demand plunged in the Financial Crisis, numerous firms grappled with overcapacity and struggled to right-size their operations in the short term. These challenges were often inevitable because network design and footprint decisions had been carefully planned and implemented over the course of several years for a very specific demand scenario. For the future, we suggest managers proactively address demand uncertainty and create supply chains that are flexible to a wider range of demand. We use the term breathing supply chains for setups that can efficiently provide output at different quantities. Breathing supply chains are also a means to deal with fluctuations in more regular operations. We find that successful companies pursued three key actions to implement them: (i) understanding the effects of demand fluctuations; (ii) converting fixed costs into variable costs; and (iii) defining smart contracts.

Understand effects of demand fluctuation. One key task in defining supply chains is to match capacity with demand. Accordingly, it is crucial to obtain a fair *understanding of the effects of demand fluctuations.* Firms must identify which actions should be selected based on the prepared demand scenarios and must embed the breathing supply chain thinking into their supply chain strategies by asking questions such as: How do we provide the most flexibility regarding any changes in demand?

For each demand scenario, a firm must identify preferable actions that holistically consider the effects of selling, closing, or idling manufacturing assets as well as any potential insourcing or outsourcing effects. On a more operational basis, situations are frequently complicated by increased MRP complexity in low-demand situations as a result of coupled production, minimum batch sizes, and order quantities.

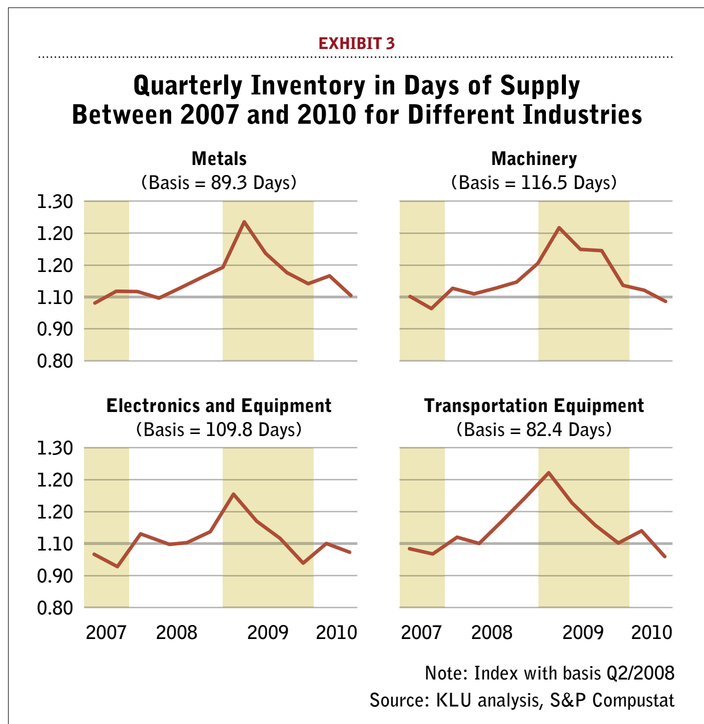
Convert fixed costs into variable costs. Ultimately, it is crucial to c*onvert fixed costs into variable costs* to compensate for lower production levels by diminishing marginal costs. Firms have often closed or idled

assets with lower productivity while carefully considering the incremental costs of moving production to other plants. One alternative for reducing fixed costs involves increasing the utilization of "fixed" assets and labor by insourcing. Whereas outsourcing has become a common practice for addressing bottlenecks and reducing costs in normal economic conditions, many firms have focused on insourcing during the Financial Crisis. For example, for firms in the machinery sector, insourcing standard manufacturing processes, such as milling, welding, or assembly operations, appears to be rather simple. Through insourcing, firms were able to increase worker and asset utilization even when internal productivity was lower. However, firms must minimize insourcing costs by cross-training workers, maintaining the required tools, and developing smart contracts that avoid penalties.

Define smart contracts. The *definition of smart contracts* with suppliers plays a crucial role in creating breathing supply chains. Many firms closed long-term contracts with suppliers to benefit from discounts. However, once locked in, volume or price reductions often depend entirely on the good will of suppliers. Successful companies have considered fluctuations in demand when defining their contracts. For example, one Dutch chemical company had an annual contract with a provider of tank capacity beginning on January 1. The firm received a volume discount based on the tank capacity signed for the year. However, company officials realized that the firm would need to pay for unused tanks or would fail to receive volume discounts if capacity requirements deviated from the plan in mid-year. Therefore, the firm opted for a smart contract design. Rather than renting all tank capacity on January 1, the firm now begins its annual rents on a rolling basis throughout the year (e.g., certain capacity on January 1, certain capacity on February 1). Rather than receiving a volume discount on the capacity signed at the same time, the discount is now based on the capacity rented at a given time. The firm can easily discontinue the rent for the tank with the next expiring contract to adjust capacity while continuing to receive high-volume discounts for the remaining tanks rented. The example highlights the importance of considering your options before any crisis arises to ensure flexibility in tough times.

EXHIBIT 3

Quarterly Inventory in Days of Supply Between 2007 and 2010 for Different Industries



Note: Index with basis Q2/2008
Source: KLU analysis, S&P Compustat

Aligning Inventories to Free up Cash

Reducing inventories while meeting service-level requirements has always been a key challenge for supply chain managers. However, the limited availability of credit during the Financial Crisis triggered a sky-rocketing interest in optimizing inventories, as firms were required to free up significant amounts of cash on short notice. The situation became even more challenging as a result of unfavorable inventory dynamics. A significant reduction in sales slowed the outflow of goods to customers; customers were consuming their usual inventories at a lower rate and additionally reduced their safety stock levels to a lower level, thus triggering a multiplier effect. Accordingly, supplier production plummeted, and firms could only gradually consume their raw material stocks. As a result, many firms observed the characteristic inventory hump (see Exhibit 3). Inventories hit the roof across industries in 2009 and increased by up to 70 percent within six months until the trajectory reversed.

Our interviews with successful inventory managers highlight three practices that enabled managers to avoid or at least to balance the inventory hump: (i) avoiding surplus inventory intake; (ii) aligning inventory policies; and (iii) managing service offerings.

Avoid surplus inventory intake. Although inventory managers have few options to increase the sales that trigger the outflow of goods, it is essential to *halt the inflow of surplus goods* that will require a long time to turn. We found that successful firms reacted firmly to the decrease in demand and implemented a moratorium on material orders to avoid any intake of surplus goods. Similar to a travel ban, firms reviewed all material orders against their demand scenarios and scrutinized their supplier

Address demand uncertainty and create supply chains that are flexible to a wider range of demand. We use the term breathing supply chains for setups that can efficiently provide output at different quantities.

contracts for cancellation opportunities. Even if contracts did not allow for order cancellations, firms often successfully negotiated with suppliers to extend volume commitments over longer periods of time. Several companies also managed to sell raw materials to other manufacturers that in turn benefited from favorable prices.

Align inventory policies. The significant change in demand required numerous firms to review and *align their inventory policies*. Frequently, order quantities were reviewed and reduced. For example, one leading European automotive supplier changed the typical order size for a certain category from full truckload to half truckload in an effort to minimize cycle inventory. Likewise, firms reduced their batch quantities in accordance with the new demand reality, which required more frequent changeovers. However, surplus personnel were available at virtually no incremental cost. Further, an increasing number of firms implemented analytical safety stock targets to avoid or reduce safety stocks and aligned their processes based on the management of slow moving items.

Streamline service offerings. Finally, successful firms streamlined their service offerings to customers based on their value-add. One well-known trade-off in inventory management relates to the service level that is offered to customers: higher service-level targets require greater safety stock inventory. During the crisis, successful firms reduced their service levels to move from a full-service to a cost-efficient setup. In one case, a supplier to the furniture industry reduced service levels from 98 percent to 90 percent unless products were in heavy competition, provided significant value-add, or customers were willing to pay a premium for higher service level.

Furthermore, firms aligned their Make To Stock/Make To Order (MTS/MTO) mix to eliminate inventories, particularly for SKUs that were sold to a single customer only. However, this approach required careful communication with customers, as they were required to plan and order these now-MTO items further in advance. After the crisis many companies relaxed their strict standards on the service offering while successful firms introduced new processes to carefully evaluate which items to really serve from stock.

Preparing for the Up-Swing

As the Financial Crisis began to ease in 2009, numerous managers were caught by surprise by the sudden economic upturn. For example, the demand plan of one transportation equipment company suggested a slow return to pre-crisis demand levels over the course of six years. Nevertheless, in less than two years, demand bumped back to the previous dizzying heights. Likewise, many firms were still in the right-sizing mode and realized the challenges of moving from full reverse to full steam ahead as production capacities had been reduced and talent had been released. However, far-sighted firms were prepared for the upturn and managed to gain significant market share by meeting customer demand while competitors struggled. We have identified three practices that enabled firms to successfully meet the increased demand at the end of the crisis: (i) retaining and developing talent; (ii) preparing long-term projects; and (iii) providing upside capacity.

Retain and develop talent. Although the length of the crisis was unclear to most managers, many successful firms realized the utmost importance of *retaining and developing talent* throughout the recession. Because manufacturing processes in many countries have become more complex in recent decades, the importance of expertise has similarly skyrocketed. Although firms had to lay off workers while adjusting their capacity, talent retention was crucial for the eventual upturn. Many firms reduced employee work hours to ensure that the given order book provided sufficient cover to retain key personnel. Another successful example is Germany's chemical and automotive industry, in which many firms leveraged government-supported part-time work to avoid layoffs (1.47 million employees were operating under part-time government support in May 2009 compared to 0.05 million in May 2008). The ability to retain talent enabled the firms to rebound as the economy began to recover.

Prepare long-term initiatives. Many firms

realized that the downturn could also be viewed as an opportunity to *prepare long-term initiatives* as long as no significant investments were involved. In the boom years before the financial crisis, many firms did not have the resources necessary to carefully review their supply chains, as skilled experts were struggling to maintain pace with business expansion. However, the sudden downturn halted further expansions and provided firms with breathing space to focus on long-term initiatives. For example, one consumer packaged goods manufacturer reevaluated its manufacturing footprint using the newly available project management capacities that were implemented as investments became available at the end of the downturn.

Provide upside capacity. When planning for business in the Financial Crisis, many firms did not consider the need to *provide upside capacity.* Although suppliers were frequently required to retain some capacity on standby to prepare for sudden demand increases, many firms did not sufficiently prepare for this scenario and were surprised by labor and asset shortages. One example of upside capacity is provided by a chemical company that needed to employ temporary workers during the upturn. By paying a temporary employment agency a small standby fee for the preferred provision of personnel, the firm was able to select the temporary workers first when the economy began to recover. Accordingly, the firm was able to take on the temporary workers who had previously been working in the firm, thus minimizing the ramp-up time. Other examples include firms that were able to secure capacity early at key suppliers because they sensed the upcoming increase in demand rather quickly.

Being Agile

Many firms suffered seriously or closed their business during the Financial Crisis: They did not reduce capacity as rapidly as demand plummeted; they lost critical suppliers and thus could not fill customer demand; they nearly went bankrupt because of high inventory levels and a lack of cash; they did not have the talent or the capacity to fill soaring demand and therefore lost market share.

Were these outcomes purely the result of misfortune? In some cases, misfortune was perhaps to blame; however, we believe that the Financial Crisis harshly revealed the weak points in many firms' supply chains. Based on our experience, we highlighted five key areas that many firms did not sufficiently address. These five key areas are not necessarily crisis-related. In fact, successful companies do not require significant changes because these firms already address these topics. However, firms that do not consistently consider these key areas are much more vulnerable in downturns. What does this finding mean for the next crisis—economic or on an individual firm level?

First, firms must always be carefully scanning for major changes in its specific market conditions or in the overall economic climate. Managers must ensure demand transparency, establish early warning mechanisms using internal and external data, and reconcile with other functions as well as suppliers and customers. To accomplish these goals, managers must establish the relevant processes.

In addition, firms must constantly challenge and test their abilities to adapt to major changes in demand and supply. One valuable tool is an agility assessment of the supply chain to determine whether a firm is truly prepared for an inevitable downturn. Numerous firms have already embedded semi-annual or annual agility assessments into their routine risk management processes. In this context, alternative demand scenarios are outlined, and supply chain adaptations and contingency plans may be developed.

Overall, we believe that firms should continuously improve their agility, which is a means of ensuring success in any economic situation. Fewer stockpiles are accumulated when state-of-the-art inventory management policies are implemented, capacity can be adjusted quickly when contracts with suppliers are designed intelligently, and supplier bankruptcies can be handled easily when alternative sources are constantly identified. For firms that have not yet become sufficiently adaptable in this regard, now is the proper time to begin working on the measures recommended here—in other words, before the next crisis.

End Notes

1. Peels, R., Udenio, M., Fransoo, J. C., Wolfs, M. & Hendrikx, T. (2009): Responding to the *Lehman Wave: Sales Forecasting and Supply Management during the Credit Crisis*, as *BETA Working Paper Series*, nr. 297, December 5th 2009, p. 1-20
2. Dooley, K. J., Yan, T., Mohan, S. & Gopalakrishnan, M. (2010): Inventory Management and the Bullwhip Effect during the 2007-2009 Recession: Evidence from the Manufacturing Sector, *Journal of Supply Chain Management,* January 2010, Vol. 46 Issue 1, p. 12-18
3. Hoberg, K. Udenio, M., Fransoo, J. C. (2013): *How Did You Survive the Crash? An Empirical Analysis of Inventory Management Capabilities in the Financial Crisis.* Working Paper.

Achieving Excellence to Perform in Good Times or Bad

Despite economic uncertainty and volatility, leading industrial manufacturing firms have posted significant gains in their operating margins. What is the secret to their success? These leaders have made peak performance not just a goal, but a top priority—and a centerpiece of their corporate cultures.

By Violetka Dirlea, Harris Ng, and Peter Chiang

Violetka Dirlea is a partner with A.T. Kearney and is based in Southfield, Michigan. Harris Ng is a principal with A.T. Kearney and is also based in Southfield. Peter Chiang is a consultant with A.T. Kearney and is based in New York City. They can be reached at violetka.dirlea@atkearney.com, harris.ng@atkearney.com, and peter.chiang@atkearney.com.

A MAJOR MARKET change can have profound and long-lasting effects on asset-heavy industries such as industrial manufacturing. Because manufacturing capacity represents a massive investment that is difficult to relocate or sell off, flexibility and the ability to act quickly to market changes are difficult to cultivate. That makes them enormously important for a competitive advantage.

Despite the economic volatility of the past decade, leading manufacturers have found consistent success. They enjoy better inventory turns, greater operating margins, and higher overall shareholder returns than their rivals. When downturns hit, they are able to find the volumes and revenues to support their major assets; when the economy rebounds, they are positioned to take advantage of the opportunity. These leaders think and act for both short- and long-term gain.

Five Factors for Success

How do these companies manage to consistently stand out? We recently examined the performance of some leading industrial manufacturers and found five major factors that drive their success, as shown in Exhibit 1 and detailed below. While individual companies may place varying degrees of emphasis on each, this combination of characteristics keeps them ahead of their peers.

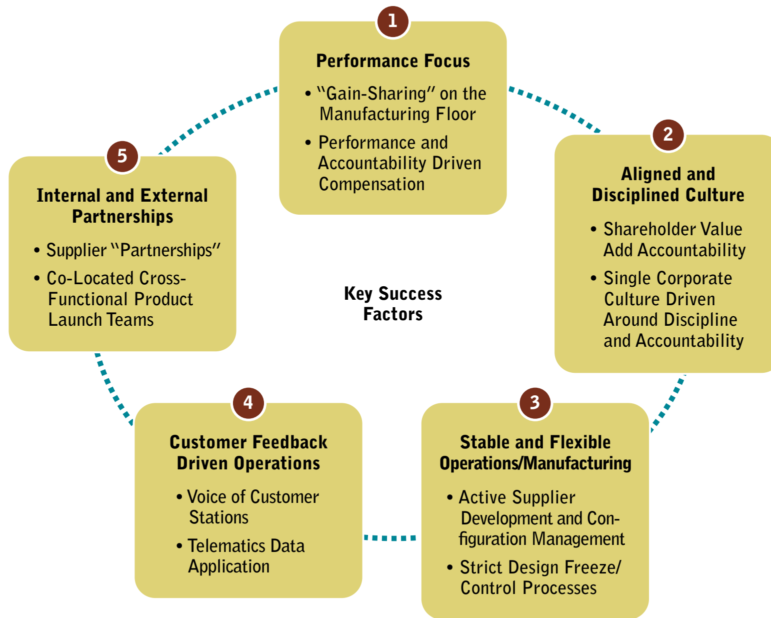
1. A companywide focus on performance. Leading manufacturers get the most out of their employees by accurately evaluating their performance and rewarding those who perform best. They create cultures of strong performance, led from the top down by CEOs who encourage well thought out, relevant, and easy to understand targets for all levels of the organization. These leaders also seek a commitment to closely track those targets and reward top performers.

Gain sharing is one common practice in which those who outperform standards and achieve predefined quality targets receive incentive pay for the improvements they make.

2. Alignment around a disciplined culture. Leading manufacturers embrace consistent corporate cultures that align all parts of the enterprise. At one company, the successful implementation of an aligned corporate culture started at the top, with the CEO making a concerted push for change. Next, a dedicated unit embraced the culture and promoted it to all units and geographies. Lastly, the culture was put into detailed requirements and applied to all segments of the organization.

Another company centered the corporate culture to focus on shareholder value add performance. Executives were singularly focused on shareholder value and all underlying performance metrics were tied directly to that top-level metric. As a result, all decisions and actions were motivated by and focused on improving the underlying shareholder value add and all the areas that affect this important metric.

3. Build stable and flexible operations. In a tumultuous business environment, stability and flexibility are vital for managing short-term ups and



downs, and creating long-lasting success. Leading manufacturers seek to stabilize internal factors such as processes and programs, including strict design control and the use of simulation techniques to reduce iterations and changes. Leaders also seek the flexibility to address those areas that are heavily dependent on external complications, such as suppliers, seasonality, and demand fluctuation. One leader tapped into its vendor base to manage inventory and address demand shifts. It had high expectations for these suppliers, which needed to have co-located staff, warehouses near its manufacturing facilities, and pre-sequenced "day-of" parts handling to provide further flexibility.

One heavy equipment manufacturer strikes a dynamic balance between stable and flexible manufacturing. The first practice seeks stability via those processes that can be directly controlled, such as product configurations and engineering changes. Then, flexible manufacturing allows for ready adjustments to external factors, such as seasonality and demand fluctuation. Because its production lines are configured to produce multiple products, the heavy equipment manufacturer can better adapt to changing market conditions than most.

4. Collect and use customer feedback. What do customers want? Addressing this question throughout their operations is a key practice for leading manufacturers. Some use customer service metrics for their operations planning, while others involve their customers in the manufacturing and quality processes, using direct customer feedback to help line workers understand what customers want. This helps employees develop a sense of ownership, accountability to customers, and empowerment, while customers feel like they have a valued personal relationship with the company. One example of a leading practice for customer feedback is a capital goods manufacturer that implemented voice of customer stations directly on production lines. The stations visually showed customer defects and complaints, as well as positive feedback.

5. Forge strong internal and external partnerships. Strong supplier partnerships and effective internal collaboration can generate significant advantages for manufacturers. Partnerships can help maximize the value of supplier relationships by giving more responsibility to and rewarding the top-performing suppliers. One leading manufacturer used a partnership approach to reduce its supply base by more than 30 percent. It offered its top suppliers greater scale and flexibility, but also held them more accountable for better performance. Overall costs fell, performance improved, and the simplified supplier base reduced overall component complexity.

Internal teams are also vital. Connecting cross-functional product launch teams—including product development engineering, manufacturing, purchasing, services (such as finance and HR), and co-locating suppliers—can ensure better collaboration and reduce the amount of design changes. A leading engine producer uses such teams to eliminate "surprises" and minimize design changes to as little as 0.5 per month during product launches.

Working Together

The five success factors are interrelated—for leading companies, performance, culture, flexibility and stability, a customer focus, and partnerships all work together to create short-term success with a long-term advantage. As volatility becomes the watchword, companies must adopt these types of practices or risk falling behind competitors.

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EUROPEAN LOGISTICS 2013

BIG Challenges, BIGGER Expectations

While the first half of 2013 showed some signs of cautious optimism, the Euro crisis is still hampering the European logistics and transportation landscape. However, measures are currently underway to stabilize the region—including plans for a closer partnership with the U.S.

By Dagmar Trepins, European Correspondent

Today, the U.S. and the European Union (EU) together represent nearly 50 percent of the global economy—although they only represent 11.8 percent of the global population.

President Obama announced in his State of the Union speech earlier this year that talks on a comprehensive Transatlantic Trade and Investment Partnership (TTIP) with the EU will be in sharp focus as the year's political agenda rolls on. TTIP, the biggest bilateral trade agreement ever negotiated, is aimed at cutting tariffs and eliminating trade barriers between the world's two largest economies. The first round of TTIP negotiations took place in July and the second round will follow in October 2013—the goal is to reach an agreement within a few years.

Expectations are high on both sides. The agreement would give U.S. companies greater access to the world's largest economy, increasing the $458 billion in goods and private services the U.S. exported in 2012 to the EU, its largest export market. According

to a study by the London based Centre for Economic Policy Research, TTIP could bring a potential economic upswing of around 95 billion euros ($127 billion) for the U.S. economy and around 119 billion euros ($159 billion) for the EU.

Even if ports, carriers, and third-party logistics providers (3PLs) share the policymakers' hopes for the future, the current situation is more mixed.

Company results for the first half of 2013 show a blend of highs and lows for many of the major actors in the EU logistics and shipping sector. However, the EU Commission, trade associations, and companies are not waiting for future policies, but say that they've already been taking initiatives to boost business on both sides of the Atlantic. These measures range from policy decisions through investments and new business strategies.

EU Commission proposes "Blue Belt"

To increase trade volumes for EU and non-EU goods within Europe, Siim Kallas, vice president of the EU Commission, just started the "Blue Belt" initiative to ease customs formalities for short sea shipping. "Blue Belt" refers to the blue in the EU flag and is meant to tie the EU states more closely together—it will also make shipping to, from, and within the EU more efficient by eliminating red tape in customs.

Today, EU and non-EU goods are not separated and every piece of cargo must undergo time and cost intensive customs procedures. With the implementation of "Blue Belt," only non-EU goods on board ships calling at both EU and non-EU ports will have to go through European customs clearance. This will provide cost and time advantages that benefit U.S. companies operating in various EU and non-EU states, as well as the Europeans. It is expected that the Blue Belt measures, that are based on the following two proposals, will be put in place by 2015:

Easing customs formalities for intra-EU shipping: Shipping companies, using a regular route within the EU and transporting mainly EU goods, can already benefit from lighter customs procedures under the Regular Shipping Services procedures. New proposals, submitted by the Commission in June 2013, will upgrade this Regular Shipping Services to make the procedures shorter and more flexible. The consultation period for Member States will be shortened to 15, from 45 days, and companies will be able to apply in advance for an authorization for Member States where they may want to do business.

Easing customs formalities for ships that call in non-EU ports: Almost 90 percent of ships carry both EU and

TTIP to be a driving force in EU/U.S. relations

Prof. Thomas Wimmer, chairman of the executive board of BVL, Germany's 10,000-member logistics association, is convinced that the pending Transatlantic Trade and Investment Partnership (TTIP) will be a driving force for the logistics industry. But he also sees a need to strengthen the infrastructure and create a framework for high-performance logistics on both sides of the Atlantic.

***Supply Chain Management Review (SCMR)*: How do you think the Transatlantic Trade and Investment Partnership (TTIP) could boost trade between the U.S. and Europe? What are your expectations concerning the logistics industry?**

Thomas Wimmer: The TTIP is designed to reduce trade barriers, simplify approval and certification, and standardization processes. When implemented, this is naturally expected to generate major stimuli both in Germany and in the US. The agreement opens up new markets for both sides and could also pave the way for the definition of more technical and technological standards, creating new opportunities for the development of even more efficient value added supply chains.

Provided that agreement is reached on uniform conditions for data protection and the transmission of data, this could also greatly increase transparency in supply chains. This would, in turn, positively affect efficiency and flexibility. Certainty of action in this area is also important for the future development of cloud computing. Whether and to what extent these opportunities will be grasped, however, depends on how intelligently the treaty is formulated.

***SCMR*: What are the biggest challenges that face Europe's logistics industry and what is your outlook for the rest of 2013?**

Wimmer: The biggest challenges for logistics, and not only in Europe, include increasing complexity, the pressure of costs, ever-increasing customer expectations, and the lack of skilled employees and qualified personnel for the future. In today's world, logistics takes place in global networks, and the global division of labor between more or less stable players means we have to cope with a high level of volatility. This is particularly evident if we look back at the last five years.

According to the findings of the latest BVL study *Trends and Strategies in Logistics and Supply Chain Management*, these trends will continue to shape logistics in the coming years. An area of further concern is infrastructure. Future success depends on an efficient infrastructure in Europe that ensures mobility not only for people and goods, but also for information and services.

One example for the urgent need for action in this area is the manufacturing industry. Over the last 10 years, growing specialization, geographic relocation of production processes, and changes in consumer behavior have resulted in an over 30 percent increase in freight transport volumes throughout the EU. In order to create the framework for high-performance logistics, it is also important—particularly in the EU—that uniform conditions are put in place with regard to qualification and personnel as well as in the area of national regulations.

—Dagmar Trepins, European Correspondent

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non-EU goods and stop frequently at EU and non-EU ports. For these ships, the Commission is proposing to significantly improve customs procedures by putting in place a system that can distinguish between EU goods on board that should be swiftly discharged and the non-EU goods on board that must go through the appropriate customs procedures.

For this purpose, the Commission will, before the end of the year, propose to create a harmonized electronic cargo declaration. This new "eManifest" will allow the shipping company to provide in all manifests—intra-EU and extra-EU—information on the status of goods to customs officials.

duisport/Frank Reinhold

Wilhelmshaven-Duisport shuttle train arrives at the DIT Duisburg

European expansion in the U.S. market

Despite the Euro crisis and the current weakness in the European economy, business for European logistics providers during the first half of the year 2013 was not as bad as expected. The leading players continued to expand their networks and services.

The Swiss-based Kuehne + Nagel Group reported positive half-year results in 2013. Compared to the previous year's second quarter, the Kuehne + Nagel Group achieved an 8.1 percent increase in earnings before tax. During the first six months of 2013, turnover increased 3.3 percent to 10,394 million Swiss francs and gross profit by 2.6 percent to 3,112 million Swiss francs.

In April, the logistics provider expanded its operations in the Southeastern U.S. and opened a new office in Mobile, Ala., to offer logistics solutions for aerospace companies as well as the oil and gas and marine sectors.

Deutsche Post DHL is also sticking to its successful path. During the second quarter of 2013, revenues produced by the group totaled 13.6 billion Euros between April and June. The slight 0.6 percent dip compared with the same period last year was solely the result of negative exchange rates and other inorganic effects, according to the mail and logistics company.

During the second quarter, consolidated net profit climbed from 196 million euros in 2012 to 422 million euros in 2013 due in part to one time effects. Supporting its performance in the Americas, DHL inaugurated its expanded $105 million Americas hub at the Cincinnati/Northern Kentucky (CVG) Airport to meet the growing international shipping demand of large multinational corporations as well as small business customers.

In the meantime, stable revenues and lower profits have been reported by the German rail and logistics group Deutsche Bahn (DB). While revenues for the first six months remained fairly stable at 19.37 billion euros (-0.6 percent), earnings before interest and taxes fell notably by 22.9 percent.

The number of shipments carried by the DB Schenker Logistics business unit in the European land transport sector decreased by 1 percent. The volume of airfreight shipments fell by 2 percent and ocean freight shipments dropped by 1.6 percent. Contract logistics business developed positively, as revenues rose 6.9 percent in the first half of 2013.

The French SNCF Group revenue totaled 16 billion euros in the first half of 2013, on par with the first half of 2012 at constant scope of consolidation and exchange rates, and reached 1.29 billion euros. SNCF Geodis, the freight transport and logistics business, dropped 2.9 percent in the French and European markets hit by the recession.

EU air cargo ups and downs

Europe's air cargo market remained under pressure during the first half of this year, although there were some signs of improvement.

According to the recent outlook report by the International Air Transport Association (IATA), European airlines are expected to report profits of $1.6 billion in 2013, double the previous projection. Consolidation on the North Atlantic market and within Europe is helping to improve financial performance. Based on the airfreight statistics in June, volumes carried out by European airlines improved by 2.6 percent over a year ago.

However, given that the Eurozone economy remains in recession, the improvement in airfreight volumes will

rest on a fragile ground, IATA says. Europe's carriers are also worried that the Single European Sky (SES) initiative is not moving fast enough. This initiative of the EU Commission provides a legislative framework to meet future safety, capacity, and efficiency needs at a European rather than at a national level.

The idea is to organize air traffic control according to traffic flows instead of national borders. The SES 2+ package was introduced by the Commission in June to increase the economic, financial, and environmental performance of the system. However, it provoked resistance and strikes in European member countries.

"A lot of states are still not willing to give up national competences and national air traffic control," says Dr. Christoph Franz, chairman and CEO of the Lufthansa Group. "Every intra-EU flight is 50km longer than necessary, which results in $6.53 billion in additional costs every year. And don't forget the avoidable CO2 emissions, which add up to 50 million metric tons every year. So the arguments about why we need SES now are extremely convincing."

This year is shaping up to be another challenging year for Europe's leading air cargo carriers. For the first half of 2013, Lufthansa Cargo experienced a 3.5 percent decline in freight and mail traffic to 839,000 metric tons.

"There are clear signs of the weak performance of the global economy in the level of demand," says Lufthansa Cargo CEO and chairman of the executive board Karl Ulrich Garnadt in respect of the half-year figures. At the same time, he announced that there would be further investment in the quality of the freighter network. For example, new routes to the U.S., South America, and China are planned for the winter schedule.

Air France-KLM also reported a decline in cargo business for the first half of 2013. The group reduced capacity by 4.2 percent, but traffic fell sharply (-6.3 percent), resulting in a 1.4 point fall in the load factor to 63 percent.

Commenting on the business globally, Alexandre de Juniac, Air France-KLM chairman and CEO, says that the group's strategic business plan "Transform 2015," which is aimed at reducing unit costs by 10 percent, restoring profitability and strengthening the balance sheet, is fully on track. Nevertheless, revenues remain below target and the turnaround is taking longer than expected.

Ports set up LNG infrastructure

More stringent International Maritime Organization (IMO) regulations to reduce sulfur dioxide emissions of ships are also going ahead. Beginning January 1, 2015, in the special areas (SECA), which are the Baltic Sea, the North Sea, and the English Channel, the sulfur content of fuel will be lowered to 0.1 percent.

Ports and shipping companies in Europe are responding. There are several

While TTIP will open doors, providers can't take eyes off emerging markets

Since turning the global freight management company's sites on trade between Europe and the U.S., Geodis Wilson's executive vice president Kim Pedersen says he's bullish on TTIP. However, he also sees a need to respond to a situation in which future growth will be coming from the emerging countries.

***Supply Chain Management Review (SCMR)*: The first round of Transatlantic Trade and Investment Partnership (TTIP) negotiations has taken place. How do you think it could boost trade between the U.S. and Europe?**

Kim Pedersen: The first round mainly covered areas such as energy, raw materials, agricultural goods, and also intellectual property rights, and it was all about identifying the potential benefits for both economical areas. Of course any additional dynamic here would subsequently show its benefits for the transportation sector as well, but it's too early to comment. The second round of negotiations, scheduled for October, might reveal more details. For sure we can say that we are following the debate with interest, as the trade from and to the U.S. in one of our focus areas.

***SCMR*: How have problems in the Eurozone affected your business in Europe and what is your outlook for 2013 and beyond?**

Pedersen: Triggered by the economical stagnation in a number of Euro-countries, we have been experiencing a slowdown in the regional transport market for more or less four years, with a few positive interruptions in between. However, I would like to avoid labeling this as a crisis. What we are experiencing is a "new normal," as I would describe it. We won't come back to a situation similar to before 2008 when everybody was expecting endless growth in the transport flows.

When we talk to our clients, they indicate that the development in the foreseeable future will most likely remain flat in Europe. However, there is still plenty of growth out there, it's just moving to other regions such as Russia, China, India, Brazil, as well as Mexico and Indonesia. These are the markets that on-boarded much of the volumes we have previously handled in Europe. So, it's an obligation as a global transport company to adapt to this situation—or even to take part in designing it, which we certainly do with our international development strategy.

***SCMR*: How has your business developed in the U.S. market?**

Pedersen: We have ambitious development targets in this key market, and the signs are all positive. Just recently, our industrial projects unit in Houston signed a new 45 million euro logistics contract with a major oil and gas player, and also in other segments such as automotive and fashion we are making quick progress, for instance with our store opening logistics service.

—Dagmar Trepins, European Correspondent

European port initiatives supported by EU funds to provide an appropriate infrastructure for liquefied natural gas (LNG) and onshore power supply. In July 2013, Rotterdam and Gothenburg announced that they received 35 million euros from the European Union to set up LNG bunkering facilities by 2015.

"A major benefit of this collaboration is that we can work together and send a very clear signal to the market that LNG will be available at the largest port in Europe and the largest port in the Nordic region," says Lars Gustafsson, president of Swedegas. Starting July 1, the port of Rotterdam now officially offers LNG bunkering for inland shipping vessels in the Seinehaven in Rotterdam Botlek.

The location of the first LNG bunkering terminal in the port will be announced later this year. Port of Antwerp also moved forward to facilitate and encourage the use of LNG as a shipping fuel and has teamed up with ship classification bureau Det Norske Veritas (DNV) to ensure the safe and efficient bunkering of LNG by seagoing ships and barges in its port by 2015.

BLG/bremenports

Offshore terminal for wind energy components in Bremerhaven.

Hamburg Süd takes steps for sustainability

Leading European carriers like Hamburg Süd are going to be well prepared for LNG and onshore power supply. According to Dr. Ottmar Gast, Chairman of the Executive Board of Hamburg Süd, LNG-powered containerships are on the drawing board, but a full-fledged launch is still a number of years away.

Infrastructure issues as well as technical challenges still remain. Two LNG-powered container ships are on order to be built in the U.S., but these are designed to be operated in domestic trade with a limited number of port calls.

Concerning shore-based power, Hamburg Süd, along with other ocean carriers, is in the middle of planning for the implementation of the new California Air Resource Board rules, which require ships to be supplied with shore power while in California ports. A team of experts is working on how to comply best with these new requirements, which will come into force on January 1, 2014. Hamburg Süd operates four liner services to and from California, with more than 30 monthly ship calls.

The carrier has been in the forefront of environmental protection initiatives and has won numerous awards from both the Port of Los Angeles and Port of Long Beach for actively managing the reduction in ships' emissions. Looking ahead to the economic outlook for 2014, Dr. Gast says that U.S. seaborne exports in our major trade lanes have slowed, particularly to Brazil.

"However, we are responding by optimizing our network and shifting capacity to areas where demand is still strong," says Dr. Gast. "For 2014 we see the U.S. Gulf as an area of opportunity where U.S. chemical manufacturers have invested in major production facilities to take advantage of lower U.S. energy costs."

Prospects for North European trade

According to the *Global Port Tracker* for Northern Europe that was released by Hackett Associates and the Institute of Shipping and Logistics (ISL) in August, the prospects for trade in this region, that includes the North Range ports of Rotterdam, Antwerp, Hamburg, Bremen/Bremerhaven, Zeebrugge, and Le Havre, are not looking as optimistic in 2013 as had been predicted.

While Europe's overall import volume is estimated to increase by 3.9 percent in 2013, Northern Europe's import volume is expected to fall 8.9 percent to 12.2 million twenty-foot equivalent units (TEU). The forecast for exports projects a 4.1 percent growth for Europe as a whole, with Northern Europe decreasing by 2.3 percent to 10.59 million TEU. Ben Hackett of Hackett Associates points out that the slowdown in China's growth has as strong an impact on export trade as the recession, which he believes will continue.

With regard to the near future, Hackett cautions: "Don't expect the Northern European economies to recover quickly from their economic doldrums."

Booming Baltic region

In terms of intra-European traffic, an increase of 7.8 percent to 9.7 million TEU in 2015 has been forecast by the Dutch consultancy Dynamar, with the highest growth being predicted for the Baltic region. Although year-over-year growth rates throughout European ports that handle intra-Northern European services was relatively modest, Baltic ports reported a growth volume of more than 9 percent for the same period.

Referring to the *Baltic Container*

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Yearbook 2013, published by Baltic Press, container turnover in the Baltic Sea ports increased in 2012 to almost 9.5 million TEU in total. About three million TEU, one third, was handled in the three largest Russian Baltic ports St. Petersburg, Kalingrad, and Ust-Luga, followed by the three main Polish ports Gdansk, Gdynia, and Szczecin-Swinoujscie with almost 1.7 million TEU in total.

While the world economy slumped and sea freight rates collapsed, shipping lines reacted with a number of cost-saving measures to improve their profitability. This apparently has also made room for them to test the market by offering direct calls with larger vessels on the Baltic, taking full advantage of utilizing larger tonnage.

Furthermore, Baltic countries such as Poland have been less affected by the worldwide economic slump. They have the market potential to make the calls cost effective. Therefore, an increasing number of international carriers such as Maersk and CMA CGM are now offering direct ocean vessel calls to the Baltic Sea ports, thus contributing to the growing Baltic trade volumes.

Port of Rotterdam completes Maasvlakte 2

During the first half of 2013, the Port of Rotterdam successfully completed construction of the port extension project Maasvlakte 2, which increased the port's size by 20 percent. This new port area is accessible by road, rail, and water, and is planned to include industrial parks as well as modern terminals. Despite the scope of the project, it will cost 150 million euros less than initially planned.

Various infrastructure projects are also on schedule at the port. The APM Terminals and RWG container terminals now in construction are planned to be operational by the end of next year.

Through all of this news, Rotterdam has doubled its container capacity by opening the new port area and is now eager to fill it up. Throughout the first half of 2013, the number of containers handled by the port increased slightly, up 1 percent, while the tonnage decreased by 2 percent due to the still sluggish economy in Europe.

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Feeder transport went down by 6 percent, as feeder connections between the Baltic States and Rotterdam have in part been shifted to ports in Northern Germany. Overcapacity in container shipping is another reason for the decline, say port officials, because ship owners cut costs by making more direct port calls than in the past.

Liquid bulk drives Port of Antwerp's growth

During the first six months of this year, the port of Antwerp handled 95,662,759 metric tons of freight, an increase of 2.0 percent compared to the same period in 2012. While container volumes fell slightly by 1.7 percent in terms of TEU, and 3.7 percent by tons, liquid bulk showed strong growth, up 33 percent, mainly driven by an increase in petroleum derivatives.

The Antwerp oil and chemical sector has benefited in recent years from a steady stream of investments in storage capacity for oil products, chemicals, and gases. During the past ten years, the volume of oceangoing cargo for tank storage companies rose 151 percent, and the number of tank storage terminals increased 40 percent to a total of 15.

U.S. companies such as Ineos Oxide, FRX Polymers, Ferro, Praxair, and ExxonMobil are investing steadily in their Antwerp sites. "In combination with the investments recently announced, these half-year figures lead us to be cautiously optimistic," said Port Authority CEO Eddy Bruyninckx.

Port of Amsterdam corporatized

On April 1, 2013, the Port of Amsterdam became a public enterprise. The Dutch port will move forward as a limited liability company of which the City of Amsterdam is the main shareholder.

Port of Amsterdam is the fourth largest port in Western Europe and a main hub for transhipments and handling energy products. The North Sea Canal Area tranships almost 100 million tons of goods annually, of which 77 million tons are handled in the port.

One of the first initiatives to boost business under the new corporate structure was the port's participation in an economic mission to Texas in July initiated by the Dutch Prime Minister as well as the Infrastructure and Environment Minister along with their Flemish counterparts.

More than 90 Dutch and Flemish companies made the trip that was designed to focus on port development in the energy and petrochemical sectors in the U.S. and discover new opportunities for the ports of Amsterdam, Rotterdam, and Antwerp. The main goal was to profile the Netherlands and Flanders delta area as an integrated economic region and to establish contacts between Dutch, Flemish, and Texas-based companies.

Port of Hamburg strengthens market position

The Port of Hamburg, the No. 3 ranked European port (volume), achieved above average growth and improved its market position in the first half of 2013. Total throughput in the first six months of 2013 reached 68.1 million tons, up 3.5 percent.

According to port officials, results were positive for imports and exports of general and bulk cargo. Container han-

dling predominates in Hamburg, and so far it has added up to 46.5 million tons in 4.5 million TEU in the first half of 2013, representing a 2.1 percent increase compared to the same period in 2012.

While on the average, the large seaports in the Northern European Range reported downturns of 0.4 percent in total throughput and 1.2 percent in container handling, the Port of Hamburg can look back to above average growth. Hamburg's seaborne cargo throughput also profits from Baltic container services. A total of 1.1 million TEU were transported during the first six months of the year in container traffic between the Port of Hamburg and the Baltic region, representing an increase of 8 percent.

"Hamburg is further extending its position as Germany's largest universal port, and we are delighted that both general and bulk cargo handling contributed to the excellent throughput result," says Axel Mattern, CEO of Port of Hamburg Marketing. "With a volume of 180, 000 TEU the U.S. container trade is holding its position as number four in our ranking list of international trade partners in the first half of 2013," adds Mattern.

New marketing for JadeWeserPort

When the new German deep-water container port JadeWeserPort (JWP) opened in 2012, it led to great expectations for growing container turnover and fast economic revival for the northwestern part of Germany—but that quickly gave way to disillusion. Only two shipping lines are currently servicing JWP, and sales in the freight village "JadeWeserPort Logistics Zone" are slow.

Due to the financial crisis and the impact it has had on container traffic, the port recently announced changes in its marketing concept. While JWP was initially positioned mainly as a transhipment port, the focus will now rest on generating cargo turnover. The newly established marketing company called Container Terminal Wilhelmshaven JadeWeserPort-Marketing, headed by Andreas Bullwinkel, is looking for new target groups.

Among them are manufacturers, importers, exporters, shipping lines for deep sea, short sea, and feeder services, as well as 3PLs and freight forwarders. Additional emphasis is put on developing new and attractive freight haulage concepts with railway operators as well as on attracting customers from the hinterland—Northwestern Germany and the northern part of the Netherlands. The new marketing activities will be carried out in close cooperation with the international container terminal operator Eurogate.

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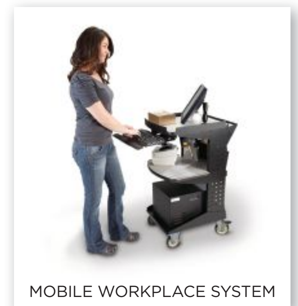

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Fresh wind for Bremen Ports

After years of successful performance, the Bremen Ports were also hit by the downturn of the world economy. During the first six months of 2013, ocean freight throughput dropped to 39.8 million metric tons—a decline of 9.1 percent year-on-year. Container traffic, which is largely concentrated at the terminal in Bremerhaven, also slipped down 8.9 percent during the same period.

The planned project to deepen parts of the Weser riverbed will be delayed while the European Court of Justice reviews it. The German environmental protection association BUND had launched a lawsuit against the project.

However, Bremen Ports are looking ahead and are investing further in the infrastructure to become a key port for the offshore wind industry. One of Bremen Port's big "green" port and logistics projects is the Offshore Terminal ABC-Halbinsel in Bremerhaven operated by BLG Logistics Group/WindEnergy Logistics. This terminal provides an area of 100,000 square meters to handle and store large wind energy components measuring up to 1,000 meters. The 900-meter long quay and a dock with a depth of 10.5 meters allow even high-capacity installation vessels to tie up. With the new Offshore Terminal Bremerhaven (OTB) in the south of the city, another offshore terminal is planned to go into operation by 2016. Up to 160 wind turbines can be pre-assembled, stored, and transhipped at the 25-hectare (63-acre) terminal yearly.

Good connections through the Port of Duisburg

Duisport, located in Germany's industrial heart of North Rhine Westphalia, is Europe's largest inland port with a total volume of 63.3 million metric tons handled in 2012. Part of its expansion strategy, the new intermodal transport terminal, logport III that was built by the Duisport Group in Duisburg-Hohenbudberg, will be starting operations in 2013. Furthermore, this past July, the Port of Duisburg and Port of Antwerp announced that they would be developing the Duisburg-Antwerp axis as one of the most important logistic corridors in Europe.

Port officials say they plan to improve the quality of service by reducing transit time in general and provide the Port of Antwerp with better connections through Duisburg as a central hub in the Western European railway system. To solve the bottleneck for freight trains on the route between Rotterdam and Duisburg, the German federal government, North Rhine-Westphalia, and Deutsche Bahn recently signed a financial agreement for the construction of a third rail line between Emmerich and Oberhausen, an important milestone in the extension of the Betuweroute in Germany.

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The duisport Group also successfully tested a new train route to Wilhelmshaven.

The "Wilhelmshaven-Duisport-Shuttle" now connects the DIT-Duisburg Intermodal Terminal on the logport site in Rheinhausen with the Eurogate Container Terminal Wilhelmshaven in the JadeWeserPort.

Located in Germany, Dagmar Trepins is a European Correspondent for SCMR

Online Links

European Commission: Transatlantic Trade and Investment Partnership (TTIP)
ec.europa.eu/trade/policy/in-focus/ttip

European Commission: Blue Belt
ec.europa.eu/transport/modes/maritime/news/bluebelt_en.htm

Global Port Tracker
www.globalporttracker.com

Dynamar B.V.
www.dynamar.com/

Baltic Container Yearbook 2013
baltictransportjournal.com

Port of Rotterdam
www.portofrotterdam.com

Port of Antwerp
www.portofantwerp.com

Port of Amsterdam
www.portofamsterdam.com

Port of Hamburg
www.portofhamburg.com

JadeWeserPort
www.jadeweserport.de

bremenports
/www.bremenports.de

BLG LOGISTICS GROUP
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IMO International Maritime Association
www.imo.org

Hamburg Süd Group
www.hamburgsud.com

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Lufthansa Cargo
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The Importance of a Thorough, Well-Managed Risk Strategy

Supply chain risk management is necessary, but it requires efficiency too

By Becky Partida,
Research Specialist,
Supply Chain Management,
APQC

EVENTS IN RECENT YEARS have made supply chain management professionals think differently about risks to supply chain stability and resiliency. Natural disasters, extreme weather, and human-driven factors such as political instability all have the potential to significantly affect the operations of organizations and their suppliers. In April 2013, APQC conducted a survey of supply chain and finance professionals to gain insight into how they view and address three specific causes of supply chain disruption:

- high-impact natural disasters (such as tsunamis and earthquakes);
- extreme weather events; and
- political turmoil in vitally important world regions.

Survey respondents represented 196 organizations from more than 22 industries. Eighty-three percent of survey respondents had experienced at least one unexpected supply chain disruption in the last 24 months. Of those who had experienced a disruption, 78 percent indicated that the disruption had been significant enough to have drawn the sustained attention or intervention of the top executives at their organizations.

With the potential for disruption comes the need for organizations to examine their supply chains for weak points and make appropriate changes. APQC looked at steps organizations are taking to help mitigate risk. APQC found that many organizations conduct infrequent assessments of disruption risk for their supply chains, and that there are also many organizations that conduct infrequent or no risk assessments of suppliers that are strategic to the business.

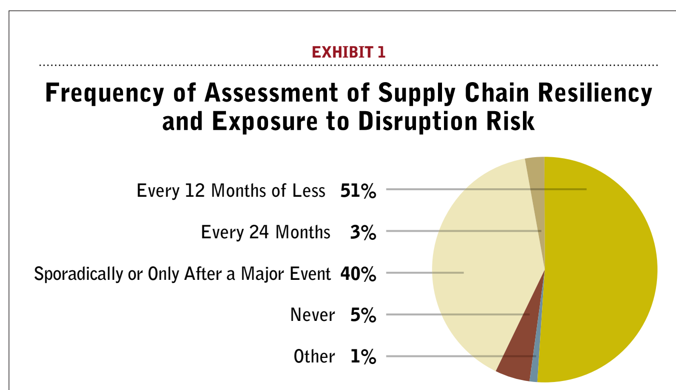
APQC also aimed to determine how the frequency of risk mitigation activities could affect the overall cost of assessing supply chain disruption risk. The survey results indicate that for organizations that conduct formal risk assessments of strategic or preferred suppliers, there is room for improvement on the amount that they spend to assess supply chain risk.

Assessment of Resiliency and Suppliers

An initial step to addressing and mitigating supply chain risk is to conduct regular assessments of the supply chain's resiliency and exposure to potential disruption risk. On its survey, APQC asked respondents to indicate how often their organizations conduct such assessments. About

EXHIBIT 1

Frequency of Assessment of Supply Chain Resiliency and Exposure to Disruption Risk



half of the respondents indicated that their organizations conduct these assessments every 12 months or less, but the second largest group of respondents indicated that their organizations conduct these assessments sporadically or only after a major disruption incident (see Exhibit 1).

These results indicate that while many organizations regularly (and often frequently) review their supply chains' ability to withstand a potential disruption as well as factors that could lead to a disruption, there is almost an equal amount of organizations that do not conduct these types of analyses regularly or wait until a disruption occurs before they even consider how risk can affect their supply chains. Interestingly, the organizations for 5 percent of the respondents to APQC's survey never conduct assessments of their supply chains at all.

APQC also looked at the frequency with which organizations conduct formal risk assessments of individual suppliers. Survey respondents were asked to indicate the frequency for three types of suppliers:

- strategic or critical suppliers;
- preferred or important suppliers; and
- all other suppliers.

Exhibit 2 presents the frequency of assessments for strategic and preferred suppliers. Not surprisingly, the largest group of respondents indicated that they assess their strategic suppliers every 12 months or less. However, the organizations for 9 percent of the respondents never conduct formal risk assessments of their strategic suppliers. With much potential supply chain risk associated with key suppliers and their suppliers, these organizations leave themselves open to a major supply chain disruption that could be avoided through an advance assessment of risk.

The survey responses were more varied with regard to preferred suppliers, with the largest group of respondents indicating that their organizations conduct assessments once a year. The second largest group of respondents conducts sporadic formal assessments of this group of suppliers. Eleven percent of the organizations never conduct formal assessments of preferred or important suppliers, which again leaves open the possibility of a supply chain disruption that could be avoided or reduced through risk detection and mitigation.

APQC aimed to determine whether the frequency of formal risk evaluation for strategic or preferred suppliers could have a significant effect on the overall cost of assessing supply chain disruption risk. Respondents to APQC's survey were asked to provide a range for their total cost to conduct these assessments. In APQC's survey, this cost was defined as including any labor, IT, outsourced services, and travel costs associated with determining supplier risk or risks to the supply chain overall. Exhibit 3 provides the frequency with which organizations conduct formal assessments of strategic and preferred suppliers, as well as these organizations' total cost to assess supply chain risk.

The results are somewhat surprising. Among organizations that regularly evaluate strategic or preferred suppliers, there are similar costs to assessing supply chain disruption risk regardless of the supplier type and frequency of evaluation. The largest group of organizations conducting assessments every six, 12, and 24 months spend $50,000 to $250,000 annually to assess supply chain risk. This is especially interesting given that organizations conducting more frequent supplier risk assessments (every six or 12 months) also indicated on APQC's survey that they conduct more in-depth assessments that review suppliers' compliance with local labor laws, safety procedures, financial health, and process quality. For both groups of suppliers, most organizations conducting assessments sporadically spent less to assess supply chain risk: $1 to $50,000 annually.

Several factors could contribute to the similar costs among organizations conducting regular assessments of these two groups of suppliers. Those conducting assessments most frequently (every six months) may spend the same amount to assess supply chain risk as organizations

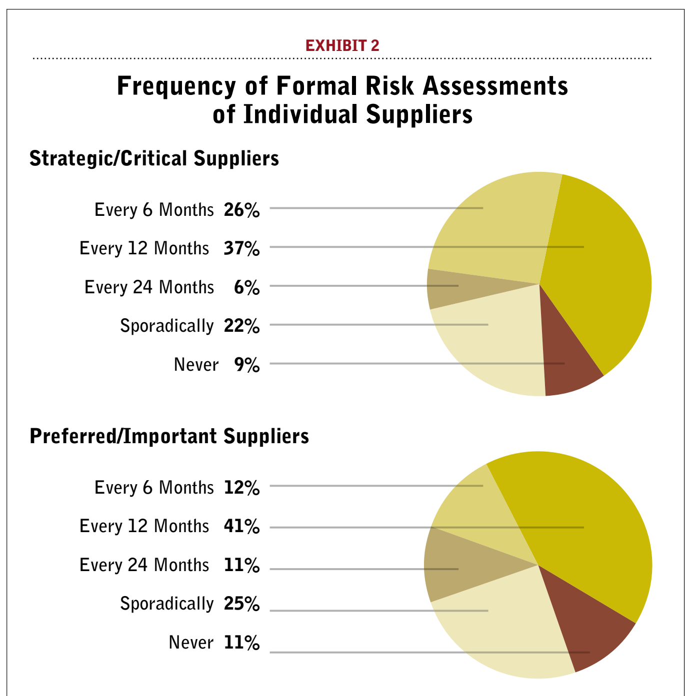


EXHIBIT 3

Frequency of Formal Supplier Risk Evaluation and Annual Cost of Assessing Supply Chain Risk

Strategic Suppliers

	Nothing	$1-$50,000	$50,000-$250,000	$250,000-$1 Million
Every 6 Months	12%	31%	43%	14%
Every 12 Months	11%	34%	47%	8%
Every 24 Months	20%	20%	50%	10%
Sporadically	22%	59%	19%	0%

Preferred/Important Suppliers

	Nothing	$1-$50,000	$50,000-$250,000	$250,000-$1 Million
Every 6 Months	11%	21%	47%	21%
Every 12 Months	10%	37%	46%	7%
Every 24 Months	11%	17%	61%	11%
Sporadically	20%	56%	22%	2%

conducting supplier assessments every two years because they have less sophisticated technologies associated with their formal assessments. These organizations may also have suppliers located closer to their operations, which could result in lower travel expenses. Finally, it may be that because these organizations conduct their assessments more frequently, they have found ways to streamline their processes so that assessments cost less. Regardless of the reason, the survey results indicate that there is room for organizations conducting less frequent supplier assessments to improve so that they can reduce the cost spent on supply chain risk evaluation.

Balance the Need for Assessment with Efficiency

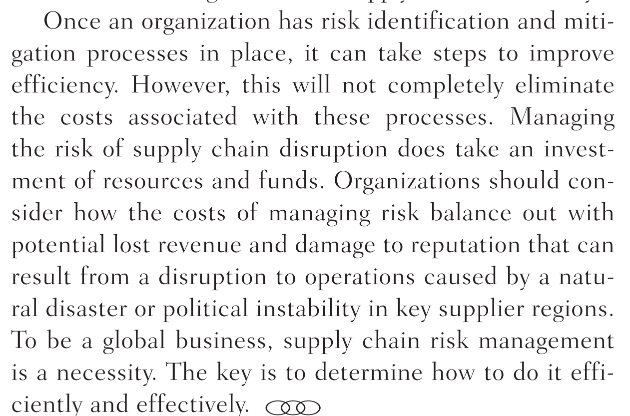
APQC's recent survey on supply chain disruption risk indicates that the leaders of many organizations are concerned about how supply chain disruptions can impact their businesses, but that there is room for organizations to improve their strategies and processes for mitigating risk. Nearly half of the organizations participating in APQC's survey conduct risk evaluations for their supply chains on an infrequent basis, if at all.

Although many of the responding organizations have processes in place to conduct formal risk assessments of suppliers that are strategic to the business, over 30 percent conduct assessments sporadically (or never). Among organizations that conduct regular, formal assessments of strategic and preferred suppliers, there is room to improve the amount that they spend on assessing individual supplier risk.

Creating and maintaining an effective supply chain disruption risk detection and mitigation strategy requires an investment. However, there are steps that organizations can take to ensure that the amount of time and expense invested in risk assessments can provide the largest return. APQC recommends that organizations secure appropriate resources for risk identification and mitigation efforts. If needed, organizations should seek outside assistance to complete tasks that cannot be taken on by internal staff.

APQC also stresses the importance of identifying all of the potential risks and assessing the impact of the risks on business continuity. This involves not only a close examination of the organization's weak points, but also sources of potential disruption for key suppliers and, if possible, the suppliers' suppliers. Gaining insight into multiple tiers of the supply chain involves establishing close relationships with key suppliers that are built on the promise of mutual benefit. If a supplier knows that by collaborating with a customer it is ensuring continued or increased business as well as gaining an opportunity to improve its own risk strategy, it may be more willing to share in the risk planning process.

APQC also stresses the importance of having a recovery plan in place for when a disruption does occur. This allows the organization to take immediate action, and can lead the organization to quickly find alternative sources of materials or make other changes within its supply chain if necessary.



Once an organization has risk identification and mitigation processes in place, it can take steps to improve efficiency. However, this will not completely eliminate the costs associated with these processes. Managing the risk of supply chain disruption does take an investment of resources and funds. Organizations should consider how the costs of managing risk balance out with potential lost revenue and damage to reputation that can result from a disruption to operations caused by a natural disaster or political instability in key supplier regions. To be a global business, supply chain risk management is a necessity. The key is to determine how to do it efficiently and effectively.

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