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# SUPPLY CHAIN MANAGEMENT REVIEW

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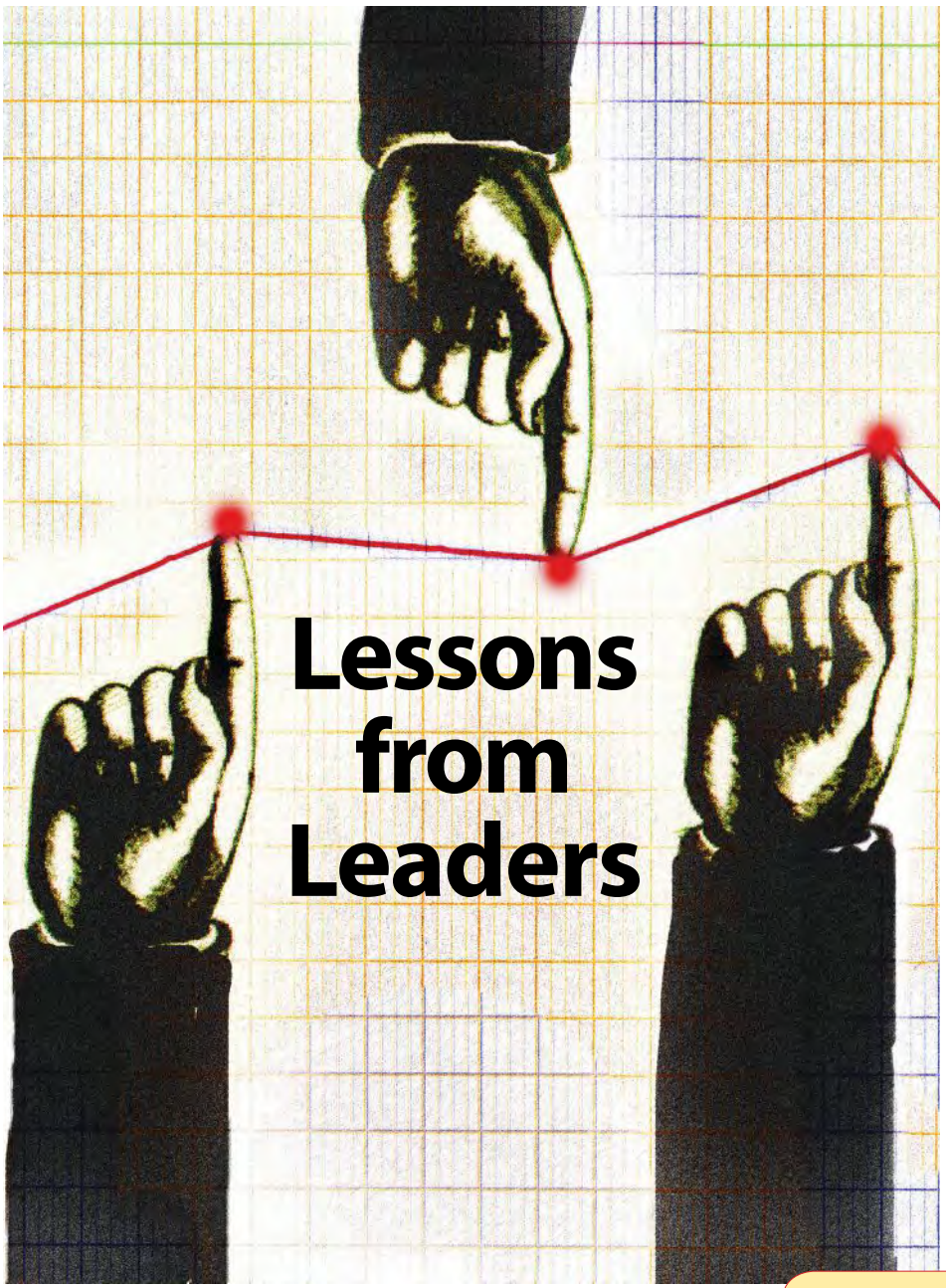

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# Lessons From Leaders, For Leaders

**Bob Trebilcock, Editorial Director**
btrebilcock@peerlessmedia.com

It's September, which means the kids are going back to school, and soon, you'll spend the evenings helping them with their lessons. September is also the month that we publish Gartner's annual look at the Top 25 supply chains. While the Top 25 is a celebration of great supply chains, the leaders also offer lessons for the rest of us who aspire to the top.

Gartner's 11th annual list is titled *The Art and Science of Supply Chain*. It reflects that supply chains are being asked to innovate in new and creative ways in order to support the underlying business priorities of their organizations (the art), and that more and more, the best supply chains are implementing analytics, sensor-based technologies, control towers, and sophisticated software programs to drive their performance (the science). Along with its usual analysis, Gartner introduces a new category this year—*supply chain masters*—as a way to honor perennial leaders like Apple and P&G and make room on the list for newcomers doing great things. The list always generates a conversation and I love to hear from readers. Send your comments to me at btrebilcock@peerlessmedia.com.

Of course, that's not all. This issue also includes a feature on the challenges and opportunities presented by Big Data, including how to harness the wealth of information already at your finger tips. Also we look at Diageo's ongoing supply chain transformation: The world's largest wine and spirits company is developing a differentiated supply chain that aims to out-innovate the competition.

And, you will see how an independent supply chain advocate can bring together all of the competing players in a supply chain and why non-manufacturing companies are leaving money on the table when they take procurement for granted. Lastly, we delve into four interconnected compass points to guide supply chain executives through modern supply chain management in the rapidly evolving and increasingly global world of e-commerce.

If you haven't already, I invite you to visit supplychainoutlook.com, the Website for *SCMR*'s first executive conference, which will be held November 2nd and 3rd in Chicago. In one and a half days, we'll give attendees an in-depth overview of the economic outlook for 2016 and beyond, along with the most important trends affecting supply chain management in the near future—everything from procurement to new technologies to the impact of corporate culture. It's news you can use right now in your planning. And, we'll have you home for dinner on Tuesday. We hope you'll join us for this inaugural event.

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Illustration by Gary Waters

## FEATURES



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Dr. Lapide has extensive experience in the industry as a practitioner, consultant, and software analyst. He is currently 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.



# Competitive Supply Chains: Strategic Alignment

A talk I give is titled "Supply Chain Excellence = Strategic Alignment." I start it saying that because I represent MIT, it needs equations and the title is the last one you'll see. It aptly states that to have an excellent supply chain, which I define as a competitive supply chain, it must be strategically aligned to the corporate competitive strategy. This column represents the second of a three-part series. The first column, *Competitive Supply Chains: Excellence* (*SCMR* July/August 2015), delved into this in detail. This article discusses a strategic alignment approach to design competitive supply chains, first introduced in *MIT's SC2020 Project: The Essence of Excellence*, published in the April 2006 issue of *SCMR*.

Four major characteristics of a competitive supply chain are the basis of the approach:

1. Supports, enhances, and is an integral part of a company's competitive strategy.
2. Leverages a (not necessarily unique) supply chain operating model to sustain competitiveness.
3. Executes well against a balanced set of operational performance objectives/metrics.
4. Focuses on a few "tailored" business practices that reinforce each other to support the operating model and best achieve operational objectives.

I've helped a few companies use this approach to begin to strategically design their supply chains. While developed for design, it can also be used to assess whether a supply chain is already competitive, needs redesign, or whether a competitive one is necessary (such as when competitiveness really needs to be enhanced by marketing and sales operations, and not by the supply chain).

The approach involves self-assessment, because excellence—like beauty—is in the eye of the beholder. To gauge the role an organization plays in competing, the beholder needs to be the company itself, including its executive team and functional departments, not the court of public opinion. As described below, the approach involves three steps: develop a supply chain strategy; develop an operating model and operational performance objectives; and define tailored practices. Let's look at each step.

## Step 1: Supply Chain Strategy

The first characteristic of a competitive supply chain is that it supports, enhances, and is an integral part of corporate competitive strategy. Thus the supply chain organization plays a leading role, and not just a supportive role. The first step in the approach involves understanding the corporate competitive strategy. If it is non-existent, then it needs to be developed in the context of strategic elements that can be directly influenced by the supply chain.

The left-hand column of the table in Exhibit 1 lists potential competitive strategy elements. They are expressed in terms like the highest, lowest, and fastest, to be the best among competitors, and provide market differentiation. (Note that revenue and market share aren't listed because supply chain operations do not directly influence them.) On the right-hand side are supply chain characteristics that directly align to enhance elements, also expressed in terms of highest, lowest, and most efficient/effective. For example, an element of Walmart's competitive strategy is "everyday low pricing." Thus it targets achieving the lowest costs in getting products on to store shelves.

The table is used to align characteristics to corresponding strategy elements. If a

company has done its corporate strategy well, the latter would be comprised of just a few differentiating elements that win business. These are then used to identify corresponding characteristics that need to be the focus of its supply chain.

### Step 2: Operating Model and Performance Objectives/Metrics

The second and third characteristics of a competitive supply chain are that it leverages a supply chain operating model to sustain competitiveness, and executes well against a balanced set of operational performance objectives/metrics. Thus, once characteristics are identified, the second step of the approach develops the operating model and performance objectives.

The operating model is the general design of the supply chain in terms of from where goods will be sourced, made, and delivered, and includes manufacturing postponement, offshoring, and outsourcing strategies. It needs to enable the characteristics from step one, yet does not have to be unique. Walmart for example runs a competitive retail supply chain with traditional goods flow: suppliers to regional warehouses to stores. However, many supply chains uniquely leverage e-commerce. For example, Dell got started by eliminating brick-and-mortar merchandizing and sold by phone and the Website. Cisco Systems ran a virtual supply chain in which most manufacturing and logistics functions were outsourced, with Cisco rarely handling physical goods.

**The second and third characteristics of a competitive supply chain are that it leverages a supply chain operating model to sustain competitiveness, and executes well against a balanced set of operational performance objectives/metrics.**

Developing a balanced set of performance objectives/metrics is contentious. Most demand-side management objectives will be resourced, asset-intensive, and costly while supply-side objectives will be opposed to them. Therefore, a balance among objectives needs to be negotiated, along with any increase in revenue to cover any needed additional supply chain costs.

The November 2008 Insights column, *The Operational Performance Triangles,* details a Triangular Framework used to balance objectives/metrics. It is predicated on the fact that a supply chain objective is one of three types: efficiency; asset utilization; or customer response. The position of a point in the triangle represents a balanced focus among competing objectives. In addition, focused objectives are targeted to be "best" among competing companies, while non-focused ones are just average, "peer" performing. A point close to an edge or corner is meant to depict that those types of objectives will be focused on in order to be competitive. So if a supply chain is focused on efficiency to maintain competitiveness, the point is close to that corner of the triangle; if it is more focused on customer response, it is close to that corner.

The triangle helps managers visually set performance objectives directly aligned with the competitive strategy. They discuss the tradeoffs among objectives, establish their focus, and then set metric targets. For

EXHIBIT 1

**Competitive Strategy Elements and Corresponding Enhancing Supply Chain Characteristics**

| Supply Chain Influenced Competitive Strategy Element | Supply Chain Characteristics Aligned to Enhance the Element |
|---|---|
| Lowest Prices | • Lowest Operating Costs |
| Highest Margin Products | • Highest Availability at Point-of-Sale<br>• Lowest Operating Costs |
| Highest Quality | • Highest Quality of Suppliers<br>• Strongest Process Quality Controls |
| Fastest Customer Response | • Shortest Order-to-Delivery Cycle<br>• Fastest Request-to-Promise Date |
| Most Innovative | • Most Efficient/Effective New Product Launch |
| Highest Return-on-Assets | • Highest Plant/DC Utilization<br>• Lowest Inventories |
| Broadest Product Line | • Most Efficient/Effective Inventory Management<br>• Shortest Manufacturing Changeover and Setups |
| Highest Customer Service Ratings | • Most Effective Customer Service Segmentation<br>• Highest Availability at Point of Sale |
| Most Effective Post-Sales Support | • Highest Availability of Service Parts |
| Most Environmentally Responsible | • Lowest Waste and Highest Recycling |

Source: Larry Lapide

example, if seven key performance objectives are identified, three of them might be focused/targeted to be best, while the remaining non-focused ones just require average performance.

### Step 3: Tailored Practices

The fourth characteristic of an excellent supply chain is that it focuses on a few tailored business practices that reinforce each other to support the operating model and best achieve operational objectives. Thus, once objectives/metrics are developed, the third step of the approach is to develop "tailored" practices aimed directly at achieving "best" operational performance objectives. To provide a surgical focus toward achieving performance objectives, only a few tailored practices should be developed. Michael Porter discusses Activity Systems that foster competitiveness in *What is Strategy*? an article in the November-December 1996 issue of the *Harvard Business Review*.

Practices should fit, be reinforcing, and be cross-optimized. They are fit and reinforcing if they make sense together by not competing against each other. For example, one should not be aimed at maximizing product availability while another is aimed at minimizing inventories. They should be cross-optimized to work together to enhance similar objectives, so that performance maximization follows a "1+1= 3, not 2" mantra.

Exhibit 2 graphically depicts a strategically aligned supply chain for an illustrative customer-focused company (sans an operating model). Note that performance objectives and tailored practices are aligned to directly enhance competitive strategy elements. (Six case-study designs were discussed in the April 2006 *SCMR* article that I referenced earlier.)

**Three important demand management (i.e., supply-demand matching) processes also need to be implemented: customer segmentation and service; sales and operations planning (S&OP); and order promising and fulfillment processes.**

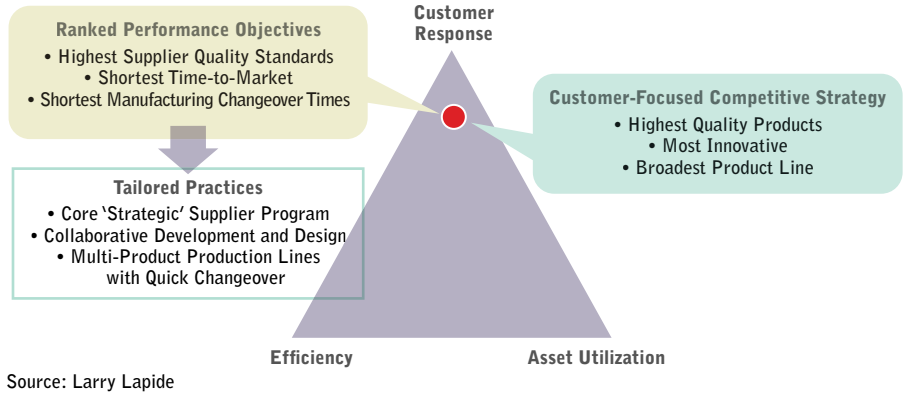
### Lessons Learned

I learned valuable lessons using this approach with companies. While defined straightforwardly, it is not linear, involving the frequent revisiting of prior steps. This happened, for example, when a company didn't have a defined corporate competitive strategy. The strength of the approach was that it provided a language for discussions during each step. Another issue was getting agreement on focused performance objectives, since most managers wanted to work in "best" performing operations. Lastly, when assessing a company's current position in the triangle, managers inflated the customer-response focus. However, companies like Walmart have minimal focus on customer-response because customers don't want to pay for frills. So it was important to recognize that focusing on customer-response assumes the company is spending lots of money on customer-facing versus back office operations. (Think Best Buy versus Walmart store experiences).

Managers that want to assess whether their supply chains are or need to be competitive should consider the approach. However, be pre-warned: Because a competitive supply chain strategy needs to be developed collaboratively among supply, demand, and financial managers, it will likely take many months to muster buy-in. After accomplishing this, the work isn't done. Three important demand management (i.e., supply-demand matching) processes also need to be implemented: customer segmentation and service; sales and operations planning (S&OP); and order promising and fulfillment processes. These are the topic of my next and last column in this three-part series on competitive supply chains.

EXHIBIT 2

**Aligned Supply Chain Design for an Illustrative Company with a Customer-Focused Competitive Strategy**




Source: Larry Lapide

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# Deconstruct to Reconstruct: Using the Past to Create the Future

By James B. Rice, Jr.

James B. Rice, Jr. is Deputy Director of the MIT Center for Transportation & Logistics. He can be reached at jrice@mit.edu.

Big Data, cloud computing, driverless vehicles, drones, 3D printing, The Internet of Things: It seems that never a day goes by without the arrival of another paradigm-shifting innovation.

Market and industry dynamics are constantly changing. The emergence of omni-channel retailing, wide fluctuations in energy prices that require supply chain designs to be revisited, and the impact of mega-size container ships on global operations are just a few examples of these changes.

While you likely find this endless stream of new capabilities and applications exciting, you might also be feeling somewhat overwhelmed. It's becoming increasingly difficult to identify how these developments translate into successful supply chain innovations (SCI) that can be leveraged to create competitive advantage.

Don't get discouraged: By deconstructing these shiny new objects, you will find that they are not as revolutionary as is widely assumed. And having disassembled them, you will have a clearer idea of how SCIs can be derived from innovative ideas.

## The Simple Truth

SCI's are often characterized as ground-breaking ideas that bring about dramatic and disruptive changes in the supply chain. The truth, however, is more mundane. The majority of SCIs are what is known as sustaining; they provide incremental improvement in cost, quality, or service.

Also, rarely does an SCI pop out of a laboratory or result from a light bulb idea. More often than not, this type of innovation evolves out of a series of many small modifications that in combination achieve meaningful change in performance (this is what supply chain professionals have always been doing, but we've called it different things like business process reengineering, Kaizen/continuous improvement, etc.).

Recognizing this truism will help reorient your efforts toward a productive and disciplined approach to innovation. Less thoughtful approaches often result in companies chasing technological silver bullets.

Also, practitioners often make the mistake of conflating process innovation, or SCI, with product innovation. Keep in mind that each one has distinct outcomes that derive from very different sets of processes.

Usually product innovation involves a stage-gate process for the assessment, selection, and development of new product ideas. SCI, on the other hand, focuses on changing or improving an existing process with a clear, predefined outcome, such as the creation of a specific product or service. An SCI could serve to create the same product, but using a different process that might have different economics and performance expectations.

Additionally, there is generally a burst of product innovation at the genesis of a new product, followed by diminishing and increasingly smaller innovations. The pace of development for an SCI takes the opposite direction. Early in the product lifecycle there is some process innovation that increases over time, and then peaks at the point where there is convergence on a "dominant design" for the product and process.

## Time to Choose

Having clarified the nature of an SCI, firms need to choose whether to pursue sustaining or disruptive supply chain innovation.

Why choose? Each one requires very different approaches and skill sets. Sustaining SC innovations come from process improvements infused with the inspiration of learning from others and

adapting methods from other environments to your own. Disruptive supply chain innovation entails changing the dominant design of your supply chain. Yes, changing the way things are done.

Disruptive innovations are hard to achieve if you are part of a big company that has established processes serving large customers that depend on you for reliable supply. Dell changed the dominant design when it started producing to order and selling direct. The previous dominant design was to produce to stock and sell through retailers and distributors. Zara challenged the dominant design when it designed a vertically integrated, near-market, fast fashion business that was capital-intensive and relied on high levels of automation. At the time, the dominant design for mass merchandise fashion products was a low capital, high-labor model, based on outsourcing as part of a long-cycle supply chain.

**Disruptive innovations are hard to achieve if you are part of a big company that has established processes serving large customers that depend on you for reliable supply.**

Transformations like these are rare, and almost always the disrupter is not a market leader, as Clay Christensen explains in his seminal work, *The Innovator's Dilemma*.

## Deconstruct to Reconstruct

Now that you have a clearer idea of what type of SCI you're chasing, and what it might entail, you may well have come to realize that nearly all SCIs are combinations or re-combinations of established ideas. The "new" aspect is the combination that is then applied and scaled.

To prove this is the case, try deconstructing some well-known innovations, including the ones mentioned at the beginning of this article. Such an exercise helps you to interpret innovations in the context of the supply chain. It also demystifies innovation, and dispels doubts you might have that harnessing complex, ground-breaking ideas is too much of a challenge for simple operations folks.

Below are some examples to get you started.

- Dell's make-to-order process is a reapplication of make-to-order manufacturing. More than a century ago, blacksmiths used the same process to custom-make horse shoes for each animal. Dell figured out how to do it on a massive scale.
- Zara's vertically integrated supply chain actually harks back to the vertically integrated production model that was popularized by the Ford River Rouge plant. Also, the retailer applied automated, large-scale production methods to the low-tech approach to manufacturing that had been previously dominant in the apparel industry.
- Amazon's massive online catalog and direct sales are a reincarnation of the venerable Sears & Roebuck's print catalog. Amazon's version has an electronic interface where orders are placed electronically instead of via mail.
- Kiva Systems' robotic warehousing system is genuinely impressive, but its component parts are familiar. These include pick-to-light packing stations supplied by small, QR code-guided AGVs (automated guided vehicles) that use servo motors and ball screws (for mobile shelf pick up), along with custom software that are combined in a devilishly clever way. But again, the basic technology has been around for decades.

Of course, there were many other important factors that contributed to each of these successes. However, the above summaries highlight that the kernel of innovation came from the reconstruction of existing methods and know-how, and not a laboratory.

Occasionally there is a product innovation that also serves as a SCI. A recent example is iBubble. Although this is a clever innovation, it is based on established concepts. Sealed Air used to make protective packing material by trapping air bubbles between two sheets of plastic. The bubbles cushion delicate product in transit. iBubble, Sealed Air's new innovation, is very similar, but the packaging is inflated just prior to use, making it less expensive to ship. Is this a new concept? Hardly. Shipping product in its component form for self-assembly by the end user is a well-established technique. In fact, iBubble is an ingenious application of postponement—delaying the final assembly of a product until as late as possible.

## Take the Right Road

In the words of Yogi Berra: "If you don't know where you're going, you might not get there."

When developing and applying SCIs, practitioners should focus on the process and not the product. Technologies don't change supply chains; technical invention is not SC innovation. Instead, concentrate on how innovative technologies can be applied and scaled to help change supply chains. Recognize the difference between sustaining and disruptive SCI. Choose your objective, stick to it, and secure the right resources and support to achieve it (e.g. process improvers for sustaining SCIs, process dreamers for disruptive ones).

This is the disciplined and productive path to successful supply chain innovation, an approach that will reward adopters given the accelerating pace of innovation.



BY PATRICK BURNSON

# Slavery is Still a Major Concern in the Supply Chain

***A new report highlights the hidden risks that workers may encounter when seeking employment and the steps that governments and businesses can take to prevent trafficking—including a demand for transparency in global supply chains.***

Patrick Burnson is executive editor at *Supply Chain Management Review.* He welcomes comments on his columns at pburnson@peerlessmedia.com.

This year's U.S. State Department of 2015 *Trafficking in Persons Report* places a special emphasis on slavery in the global marketplace, and raises a great many issues for today's multinational supply chain manager to consider.

When announcing the report's release, Secretary of State John Kerry cited a mainstream media report of a young Cambodian boy who crossed the border into Thailand. He was promised a construction job, but found himself held by armed men and pressed into service on the sea, shackled by his neck to a boat.

"If that isn't slavery and imprisonment, I don't know what is," Kerry said.

Yet, while the fight against human trafficking intensifies, millions of people continue to toil in compelled service, exploited for the enrichment of others in virtually every country in the world.

As the International Labour Organization (ILO) estimated in 2014, forced labor in the private economy reaps some $150 billion in illicit profits each year; most instances of what the T*rafficking in Persons Report* refers to as human trafficking are covered by ILO's definition of forced labor. These billions flood the formal marketplace, corrupt the global economy, and taint purchases made by unwitting consumers.

## Losing Track

Long and complex supply chains that cross multiple borders and rely on an array of subcontractors impede traceability and make it challenging to verify that the goods and services bought and sold every day are untouched by modern day slaves.

This means consumers of goods and services may be connected to human trafficking more closely than they imagine—connected, however indirectly, to the man in the Amazon compelled to mine for gold and to the woman forced into prostitution in that same mining camp; linked to the construction worker in the Gulf who is unable to leave an exploitative situation and to the woman in Indonesia who accepts a job as a caregiver and is instead made to work in a brothel; tied to the child in West African cocoa fields who is compelled to work instead of going to school; and to the Native American teenager who runs away from home and ends up a victim of sex trafficking near the oil fields in North America.

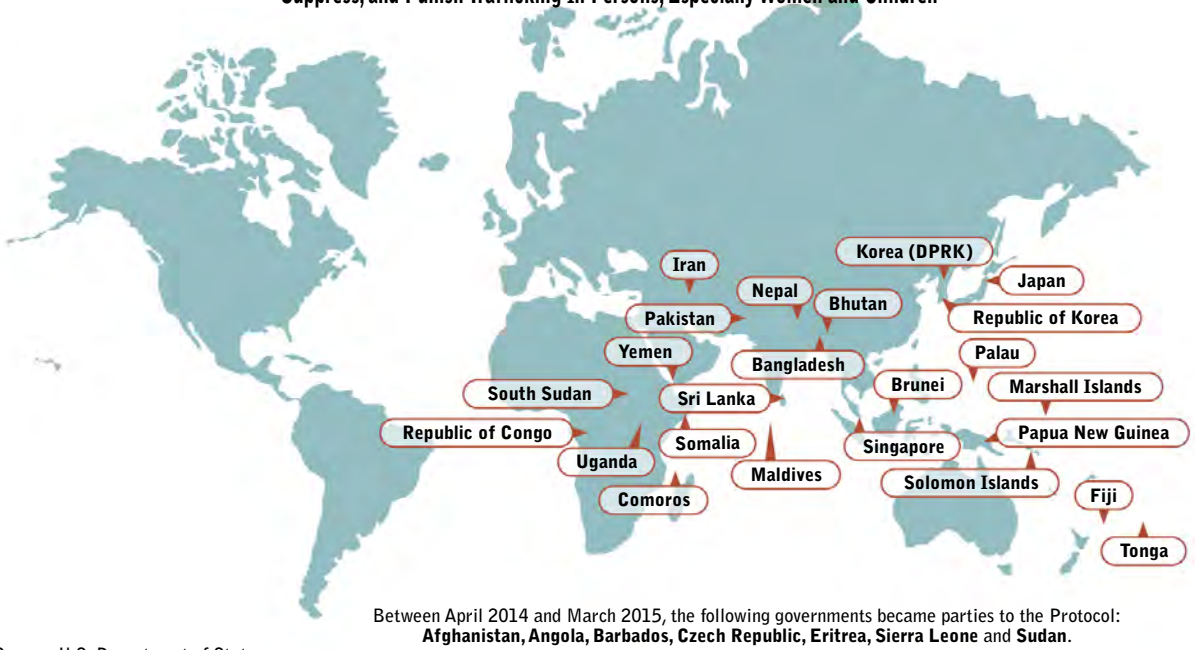
Governments, the private sector, and individuals can all make a difference when it comes to addressing human trafficking in supply chains. Each has the unique ability to leverage economic power to influence existing markets, and create new ones, where workers can enjoy decent work and human dignity, and are free from coercion and the exploitation associated with human trafficking.

## Thailand Takes the Heat

The U.S. Department of State maintained Thailand's Tier 3 ranking, the lowest category, in its TIP report. The ranking accurately reflects Thailand's lagging efforts to combat human trafficking and will incentivize the Thai government

EXHIBIT 1

**Countries in the 2015 TIP Report that are not States Parties to the Protocol to Prevent, Suppress, and Punish Trafficking In Persons, Especially Women and Children**




Between April 2014 and March 2015, the following governments became parties to the Protocol: **Afghanistan, Angola, Barbados, Czech Republic, Eritrea, Sierra Leone** and **Sudan**.

Source: U.S. Department of State

to make greater strides in the coming year, according to a global coalition of 25 human rights, environmental and labor groups, who sent an open letter to Kerry.

"The Thai government seems to be realizing it must address its significant labor trafficking problem or face economic consequences," says Abby McGill, campaigns director for the International Labor Rights Forum.

"Unfortunately, the changes it has made so far are largely cosmetic. We hope this decision will underscore the urgent need to reform immigration and labor laws so they uphold the human rights of migrant workers, one of the populations in Thailand most vulnerable to human trafficking."

But Thailand's problem is slightly different in that it is not a flag of convenience, but is having trouble getting vessels in its fleet to actually register. The Labor Rights Forum strongly supports regulation and strict oversight of fishing vessels as a way to avoid the worst abuses and bring criminals to justice.

There are an estimated 3 million to 4 million migrant workers in Thailand, many of whom labor in the most dangerous jobs in that nation's booming export economy. Several high-profile global media exposés last year brought significant international attention to the problem of human trafficking among migrant workers in Thailand's fishing industry in particular.

The European Union issued Thailand a yellow card for its failure to adequately monitor its fishing industry in April, which gave the Thai government six months to improve oversight, or face sanctions.

The letter also condemned Thailand's use of criminal defamation to prosecute journalists and human rights defenders who uncover cases of human trafficking, claiming such prosecutions inhibit the ability of victims to speak out and seek justice.

Earlier this past summer, Phuketwan journalists Alan Morison and Chutima Sidasathian, and migrant rights defender Andy Hall faced court proceedings in separate cases related to accusations of human trafficking, the former in the seafood sector and the latter at a pineapple canning facility.

"While there have recently been positive moves forward, Thailand has still not yet demonstrated enough political will, translated into effective implementation of actions, to change the systemic nature of its human trafficking," says Sein Htay, president of the Migrant Workers Rights Network.

"It's important that government, industry and civil society all work together to push the Thai government toward greater enforcement against the drivers of human trafficking, and accountability for the people guilty of supporting this egregious form of exploitation."

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**Lawrence Lapide**
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# 2015 Supply Chain Top 25: The Art and Science

**By Stan Aronow, Mike Burkett, Jim Romano, and Kimberly Nilles**

In May of this year, Gartner published its 11th annual Supply Chain Top 25, a ranking of the world's leading supply chains. As always, a primary goal of the Top 25 is to foster the celebration and sharing of best practices as a way to raise the bar of performance for everyone. Another objective of the Supply Chain Top 25 is to shine a light on the importance of the function and profession—within our community certainly, but also for corporate executives outside of supply chain and the investment community at large.

The ranking is focused on identifying supply chain leadership, which includes operational and innovation excellence, but also other behaviors such as corporate social responsibility and a desire to improve the broader practice of supply chain management. While the list changes from year to year, 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.

## What is the Definition of Excellence?

Gartner defines excellence as demonstrating leadership toward a demand-driven ideal. Our Demand Driven Value Network (DDVN) model has seven dimensions with interrelated areas of capability in supply, demand,

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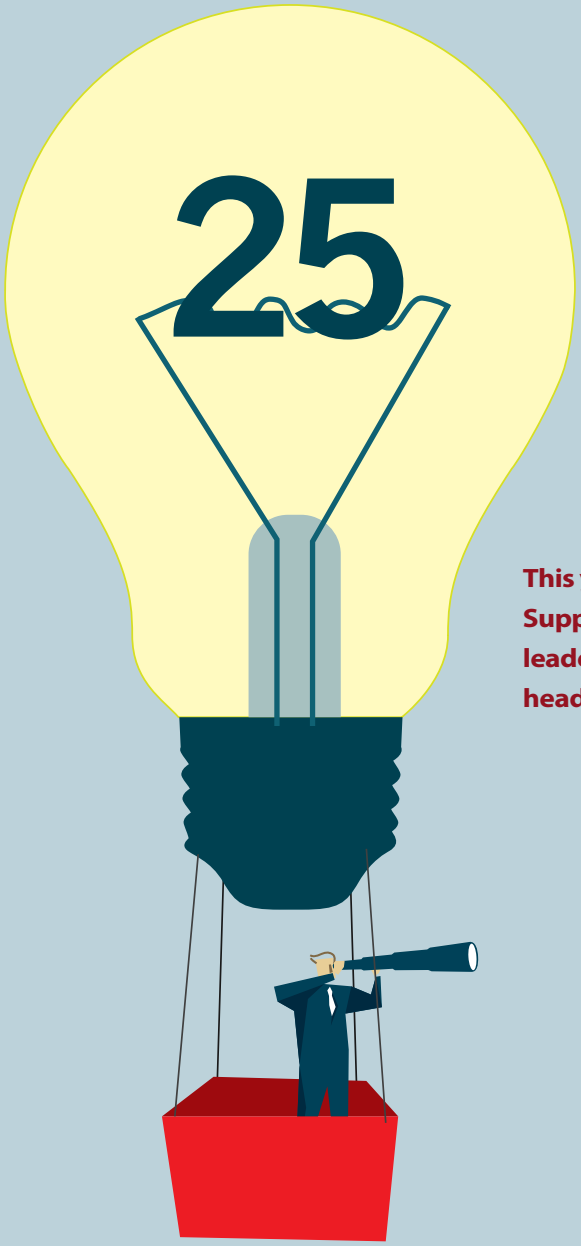



**This year, Gartner unveiled the 11th annual global Supply Chain Top 25, identifying global supply chain leaders and highlighting their best practices for heads of supply chain and strategy organizations.**

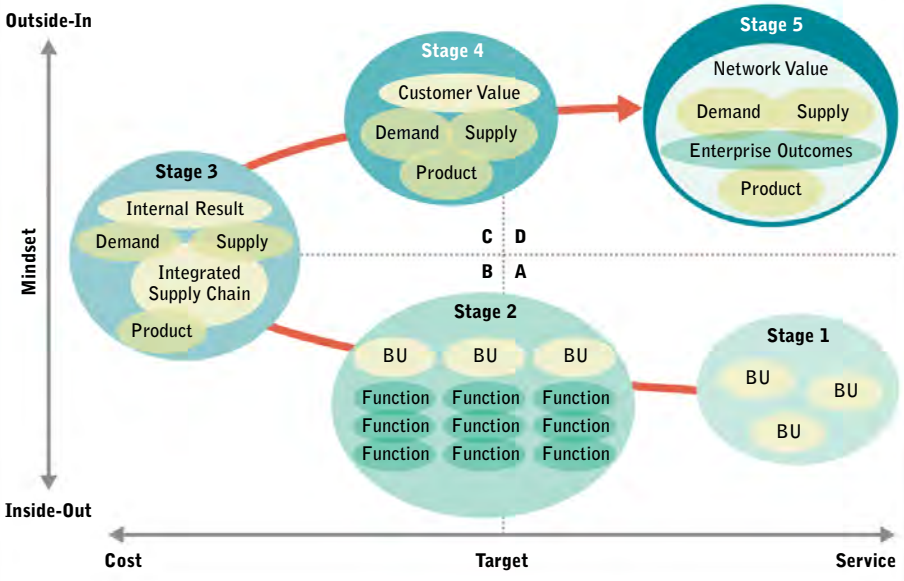
# of Supply Chain

and product lifecycle management, all enabled by robust strategy and governance. The maturity model follows five stages of progressive maturity along each dimension and tracks corporate supply chains through a journey from reactively operating in silos to eventually orchestrating for value across both internal and partner networks.

Leading companies have achieved a much higher degree of visibility, coordination, and reliable processes both within and across the plan, source, make, deliver, and return functions—but also in partnership with sales and marketing and product management organizations in lines of business. Their supply chains are designed starting with what brings value to customers and then back through the supply network. The ability to sense, translate, and shape demand, and pair up appropriate supply is also improved and both demand and supply are determined in close collaboration with customers and upstream suppliers.

EXHIBIT 1

**The DDVN Maturity Journey**




Source: Gartner (September 2015)

## Characteristics of Leaders

Each company in the Top 25 develops supply chain strategies and priorities tailored to its corporate and market context. While these are useful for others to learn from, in our research we also look for shared characteristics. 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 discussion phase to make the hard changes that are required throughout the organization.

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

• **Outside in focus.** Most companies think that they are demand driven and focused on the customer, but the two concepts are not identical. You can be focused on the customer from either an outside-in or inside-out mentality. Leaders start with the customer experience of their supply chain and work their way back through their supply chain designs for an appropriate, profitable response.

• **Embedded innovation.** Indicates a supply chain's close integration into product lifecycle management both internally and with up and downstream partners. There is also the ability to innovate supply chain practices. This means not only adopting and adapting others best practices, but also breaking the rules, defying conventional wisdom and writing new rules for the supply chain community, as a whole. These companies are not afraid to experiment, fail fast in some areas, and drive competitive advantage in others.

• **Extended supply chains.** More mature companies are managing multi-tier networks with strong visibility and agility to support rapid changes in demand or disruptions in supply.

• **Excellence addicts.** Leaders are never satisfied, even if their performance in an area would be considered world class by objective standards. Most often there is an underlying culture driving this behavior and strong governance mechanisms managed through centers of excellence.

Our methodology is outlined in it's entirety at the end of this article (in the sidebar *Our Methodology: How Gartner Selects The Top 25*), but at a summary level it operates as follows. Each year, approximately 300 companies are chosen to be evaluated. 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 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 that they believe are furthest along the journey toward the demand-driven ideal, as defined in Gartner research and on the voting Website.

## The Masters

This year we are introducing supply chain masters, a new category to highlight the accomplishments and capabilities of long-term leaders. At the same time, we want to create room for growth and visibility of even more newcomers. We are, therefore, recognizing those companies that have consistently had top five composite scores for at least seven of the last 10 years and placing them in a separate category from the overall Supply Chain Top 25 list. In this inaugural year for supply chain masters, we want to recognize two companies demonstrating sus-

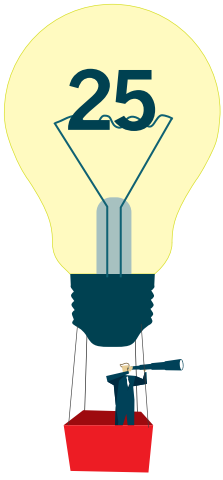
## The Gartner Supply Chain Top 25 for 2015

| Rank | Company | Peer Opinion[1] (200 voters, 25%) | Gartner Opinion[1] (35 voters, 25%) | 3-yr. Weighted ROA[2] (25%) | Inventory Turns[3] (15%) | 3-yr. Weighted Revenue Growth[4] (10%) | Composite Score[5] |
|---|---|---|---|---|---|---|---|
| 1 | Amazon | 3394 | 468 | 0.0% | 8.7 | 21.7% | 5.32 |
| 2 | McDonald's | 1626 | 283 | 14.6% | 157.3 | -0.2% | 5.23 |
| 3 | Unilever | 1996 | 619 | 11.3% | 6.7 | -0.2% | 5.15 |
| 4 | Intel | 1064 | 481 | 12.1% | 5.0 | 2.4% | 4.09 |
| 5 | Inditex | 1003 | 297 | 17.0% | 3.8 | 8.8% | 4.04 |
| 6 | Cisco Systems | 1147 | 500 | 8.4% | 12.6 | 1.5% | 4.01 |
| 7 | H&M | 809 | 89 | 26.6% | 3.7 | 12.8% | 4.01 |
| 8 | Samsung Electronics | 1568 | 330 | 10.5% | 17.7 | 0.5% | 3.91 |
| 9 | Colgate-Palmolive | 1034 | 318 | 17.8% | 5.0 | 0.6% | 3.91 |
| 10 | Nike | 1369 | 214 | 14.5% | 4.1 | 10.7% | 3.78 |
| 11 | The Coca Cola Co. | 1938 | 287 | 8.9% | 5.4 | -1.0% | 3.49 |
| 12 | Starbucks | 1215 | 174 | 13.0% | 6.8 | 11.6% | 3.48 |
| 13 | Walmart | 1794 | 259 | 8.4% | 7.8 | 2.5% | 3.39 |
| 14 | 3M | 1161 | 150 | 14.9% | 4.2 | 2.7% | 3.09 |
| 15 | PepsiCo | 890 | 330 | 8.9% | 8.3 | 0.3% | 3.04 |
| 16 | Seagate Technology | 176 | 114 | 19.9% | 10.8 | 3.9% | 2.99 |
| 17 | Nestlé | 1123 | 244 | 9.9% | 5.1 | 2.0% | 2.93 |
| 18 | Lenovo Group | 771 | 218 | 3.9% | 12.8 | 18.9% | 2.89 |
| 19 | Qualcomm | 218 | 50 | 15.5% | 8.8 | 17.8% | 2.85 |
| 20 | Kimberly-Clark | 819 | 243 | 10.5% | 5.9 | 0.8% | 2.76 |
| 21 | Johnson & Johnson | 1192 | 139 | 11.1% | 2.8 | 4.6% | 2.73 |
| 22 | L'Oréal | 749 | 118 | 12.5% | 2.9 | 2.9% | 2.41 |
| 23 | Cummins | 148 | 149 | 11.5% | 5.2 | 4.7% | 2.16 |
| 24 | Toyota Motor | 1322 | 23 | 3.6% | 10.6 | 13.4% | 2.16 |
| 25 | Home Depot | 268 | 44 | 14.1% | 4.6 | 5.6% | 2.11 |

**Notes:**
1 Gartner Opinion and Peer Opinion based on each panel's forced-rank ordering against the definition of "DDVN Orchestrator"
2 ROA: ((2014 net income / 2014 total assets)*50%) + ((2013 net income / 2013 total assets)*30%) + ((2012 net income / 2012 total assets)*20%)
3 Inventory Turns: 2014 cost of goods sold / 2014 quarterly average inventory
4 Revenue Growth: ((change in revenue 2014-2013) *50%) + ((change in revenue 2013-2012) *30%) + ((change in revenue 2012-2011) *20%)
5 Composite Score: (Peer Opinion*25%) + (Gartner Research Opinion*25%) + (ROA*25%) + (Inventory Turns*15%) + (Revenue Growth*10%)
2014 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.

tained leadership: Apple and P&G.

Apple dominated the top slots of our ranking since its first appearance at No. 2 in 2007. This was based on both its stellar financial performance and the high opinion of the supply chain peer and analyst community. Skeptics point to the fact that for the most part, Apple's products are mainly "designed in California" and "assembled in China," but the reality is that it takes skill and, in some cases, sheer will to orchestrate the design, development, and high-volume launch of highly integrated products across a network of hardware, software, manufacturing, and logistics suppliers. This high tech leader demonstrates the spirit of the Supply Chain Top 25 through the integration of innovation and operations excellence.




**Amazon claims the No. 1 spot on the ranking this year** and makes its fifth appearance in the top five. The e-commerce giant has also demonstrated its ability to successfully launch new supply chain services, such as same-day delivery, now available in 54 U.S. metro areas.

P&G, a perennial supply chain and product leader, has appeared on the top five of our ranking for nine out of the last 10 years. The consumer products giant has a long-standing history of innovative supply chain practices, starting with the Efficient Consumer Response (ECR) capability it built with Walmart in the early 1990s. That effort evolved into modern day collaborative planning forecasting and replenishment (CPFR) capability. Today's P&G is redefining customer-centricity in how it measures service by adopting differentiated performance metrics representative of the top customers in the channels it serves. The company has also blended its supply chain and product R&D organizations for a seamless approach to new product development and launch (NPDL).

We're excited to introduce this new masters category to the ranking, and will revisit it each year as companies enter and exit.

## The Top 5

Amazon claims the No. 1 spot on the ranking this year and makes its fifth appearance in the top five. The e-commerce giant has demonstrated its ability to successfully launch new supply chain services, such as same-day delivery, now available in 54 U.S. metro areas. In another out-of-the-box move, Amazon ran pilots with automakers Audi and Volvo to deliver packages directly to the trunks of customers' automobiles. Last year, Amazon released a series of instant ordering devices under the brand Amazon Dash, which enable consumers to push a button on a small, product-branded fob when they need to reorder common household items like laundry detergent, instant coffee cups, and diapers. Where will Amazon go next? Its competitors will be watching closely.

McDonald's, No. 2 on the ranking, is facing significant headwinds this year—new competition from specialty restaurants, innovative products from existing players, changing consumer tastes, and a tightening labor market with increasing wages. Internally, it has had challenges managing a menu that has grown more diverse over the last few years. With a new CEO at the helm, it is focused on returning the restaurant giant to growth. Supply chain, in partnership with outsource partners, is positioned to help the company make data-driven decisions. Supply chain operations have deepened involvement in the product life cycle to drive profitability and can help the business strike the delicate balance between reigniting growth and stoking complexity that detracts from profitability.

CP leader Unilever is No. 3 on the list. As part of the broader Sustainable Living Plan it launched in 2010 to double revenue and halve its environmental impact by 2020, the company announced earlier this year that it had achieved its goal of sending zero waste from all factories to the landfill, a year ahead of schedule. A big part of the company's success comes from its partnership with suppliers and it is now forging multi-company relationships between suppliers to foster deeper collaborative innovation on ingredient design and manufacturing processes. Unilever is also rolling out regional centers of excellence (COEs) for customer service and logistics. With collaboration in its corporate DNA, Unilever's supply chain team has also embraced a broader role in spreading best practices across the entire community.

Intel, at No. 4, is another company whose supply chain has risen quickly up our ranks over the years. Its supply chain vision includes delivering on five key

vectors that drive Intel's competitive advantage in the marketplace: technology leadership, manufacturing scale, agility, responsiveness, and social responsibility. Intel's supply chain has taken on an expanded partnership role as an enabler of growth in new product markets. In recent times, that has meant media tablets and solutions that leverage the "Internet of Things" (IoT). In 2014, Intel went from selling almost no media tablet chips to over 40 million of them. Beyond the ability to successfully supply and ramp new products, this is a story about building a new ecosystem of hardware and software suppliers and contract manufacturers to work with in China.

At No. 5 this year is Spanish clothing retailer Inditex. It is the owner of eight brands, including flagship Zara, which continues to grow through new store openings and expanded e-commerce offerings in all existing and new markets. Inditex is rolling out a reusable item-level RFID tracking system for all garments sold in its Zara stores. This system allows for more efficient inventory counts; quick, precision stock replenishment; enhanced security control; and, ultimately, better service for customers looking for specific products within physical stores and online. Its supply chain continues to prioritize social responsibility and was recently recognized by the Dutch Association of Investors for Sustainable Development.

## Movers and Shakers: No. 6 to No. 15

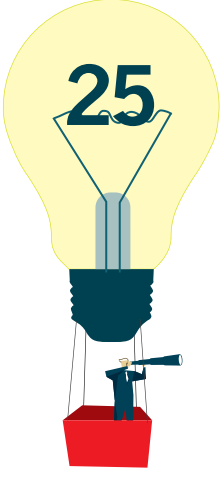
Leading off this group is Cisco at No. 6. The networking leader is well down the path of selling integrated solutions and supply chain's role in ensuring integrated hardware and software quality has evolved in line with this shift. Cisco's supply chain has also invested in improving customer intimacy. Each director and above is a customer champion aligned with specific end customers and sales teams. Cisco is using IoT as it has branded it, to both improve its supply chain operations and support the company in bringing these solutions to market.

Swedish retail chain H&M moved up to No. 7 on the ranking. It continues to grow and, in 2014, established brick-and-mortar stores in nine new markets, including China. H&M's supply chain is strong at managing the product life cycle with designers and suppliers. Its next challenge will be reinventing the ability to capture demand and fulfill across all channels, given its recent expansion into e-commerce. H&M has received multiple awards for sustainability and social responsibility. The company was recognized as the 2015 World's Most Ethical Company by the Ethisphere Institute, a global leader in defining and advancing the standards of ethical business practices.

Samsung Electronics was ranked No. 8 this year. This perennial leader is well respected in the peer community and continues to post strong inventory turns at 17.7, complemented by a three-year weighted-average ROA above 10 percent. Operational excellence at Samsung Electronics centers on two key factors driving flexibility and profitability. The first is visibility in end-to-end supply chain, which it defines as R&D, procurement, manufacturing, logistics, marketing, sales, and service. The second is the capability of its people, organization, process, and IT infrastructure.

Colgate-Palmolive maintained its No. 9 rank. Its supply chain team is testing the use and integration of leading-edge systems, utilizing the latest in-memory computing technology. This will allow it to gain end-to-end visibility and to take real-time actions in the planning and execution horizons. Colgate continues to fund the company's growth through close management of all investments in capital and capabilities. This growth has tapered due to slowing emerging markets and a strong dollar, but Colgate-Palmolive's three-year weighted average ROA continues to be a bright spot at 17.8 percent.

Perennial footwear and apparel leader, Nike, is ranked No. 10. Nike's supply chain has strong foundational capabilities in product life cycle and supply network management and is expanding the use of Lean techniques from the manufacturing environment to other supply chain functions. On the innovation front, it has unveiled products using a new ColorDry technology that dyes fabric with recycled CO2 and zero water versus




**Nike's supply chain has strong foundational capabilities** in product life cycle and supply network management and is expanding the use of Lean techniques from the manufacturing environment to other supply chain functions.

traditional water-intensive dyeing methods. This technology also saves energy and eliminates the need for added chemicals in the fabric dyeing process.

Coca Cola Co.'s supply chain (No. 11) is focused on a handful of key objectives this year. In the upstream supply network, it is about quality at the source, with leading metrics and process controls that support its safety culture. Within its manufacturing and distribution environments, it is automating to increase productivity faster than the top line. Customer-facing initiatives are aimed at improving on-time and in-full rates through improved forecast collaboration, value-based product and packaging portfolio management, and tailoring customer service models.

Starbucks (No. 12), the world's largest coffee retailer, runs a broad-spanning supply chain that includes new product development, customer service, and strategy. Talent development is a core focus within the organization, as reflected by its training and rotational programs. Starbucks is still the only retailer to offer no-strings-attached reimbursement for employees pursuing an online undergraduate degree. Sustainability is another priority for Starbucks, as evidenced by its recent verification that 99 percent of the coffee it buys is ethically sourced.

Supply chain pioneer Walmart (No. 13) has continued its push into e-commerce and has expanded investment in multichannel drive-thru pick-up centers and a "click-and-collect" grocery service offered at some of its stores. Walmart is also leveraging its expertise in supply network design and optimization

## Three Key Trends

Each year, our analysts research the supply chains of hundreds of companies. Through this work, we note the trends: What are the leaders focusing on, where are they investing time and effort, and what can be applied broadly? Three key trends stand out this year for leaders that are accelerating their capabilities and further separating them from the rest of the pack.

**1.) Bimodal supply chain strategies.** Chief supply chain officers (CSCOs) and their teams face an environment where business models must change quickly, where the expectation is that they will spend as much or more time growing and innovating as they will streamlining and promoting efficiency. Gartner has termed this reality "bimodal." Traditionally, supply chain executives have been successful because they were good at driving down costs. The leaders now realize they will be judged on cost containment as well as the ability to promote and support the top line.

In parts of the business with innovative products and solutions, these leaders help promote organic growth through timely supplier enablement, co-innovation and active participation in the phase gate release process to enable smooth new product launches. When growth comes from selling in new geographic markets, supply chain is a full partner with marketing, sales, finance, and R&D, and plans for the required enablers well in advance. Another pillar of growth that we've seen accelerate across most industries is the effective integration of mergers and acquisitions (M&As). The more mature supply chain organizations that we speak with have dedicated teams and established playbooks for assessing the current and required capabilities of new businesses and determining the best transition roadmap.

The other mode for these leading supply chain teams is the continued pursuit of improvement and efficiency in mature and declining businesses. High-performance work systems are used to identify and pare out non-value-added complexity in product portfolios and operational processes to remove waste and improve profitability. Many of the companies at the top of the Supply Chain Top 25 are running integrated supply chains that can drive the appropriate trade-offs across individual functions for lowest end-to-end supply chain cost.

Some leaders have strategies tailored to different business units, while others differentiate by major geography or individual markets. The common thread across them is a clear and cascading link between corporate and supply chain strategies, performance metric targets, business processes, technology, and talent.

**2.) Increased customer intimacy.** Another trend is a focus on customer experience as a measured priority in supply chain organizations. Some of the leading companies are tracking customer satisfaction measures, such as Net Promoter Score (NPS), as a first-tier metric for their organizations. Independent of the product being sold, leaders are focused on listening more closely to their customers and responding with innovative solutions. We see this happening not only in the CP/retail space, as expected, but also across the industrial manufacturing sectors.

This year, we heard from more companies extending visibility and insight beyond first-line customers and moving on to the end users of their products. Their supply chains are not just collecting data concerning the details of the sale, but also the patterns of usage and resulting sentiment of the end user. Consider that several leading PC and mobile device manufacturers are starting

in a drive to recapture the low-cost crown from its competition. The company is running multiple social responsibility programs focused on increasing sustainability at suppliers and in its own network, support for women-owned businesses, and the broader communities it serves.

Senior supply chain leadership at diverse industrial 3M (No. 14) recognizes that complexity limits the long-term growth potential of the company and is on a mission to optimize operations through Lean extended value streams. The engineering savvy company actively engages with customers to develop innovative solutions to its problems and works closely with key suppliers early in the ideation process for new products with a focus on joint cost reduction and accelerated cycle times.

Another perennial leader, PepsiCo landed at No. 15 this year. Its new demand signal repository tools are driving significant results based on the ability to do real-time promotion display management at the SKU level. PepsiCo's supply chain is also making significant automation investments in manufacturing and its distribution centers. The PepsiCo team has continued its focus on social responsibility and sustainability, with programs aimed at environmental quality, ethical sourcing, and community improvement, including its innovative PepsiCorp program.

## Rounding Out the List: No. 16 to No. 25

The supply chain team at storage company Seagate Technology (No. 16) has developed a global network of

to think about product quality from both the perspective of performance-to-specification and performance-to-expectations. Mining of online sentiment data allows for these types of connections to be drawn and fed back to design teams for future product releases.

Remote equipment monitoring is another popular mechanism for gathering end-user insights and for assisting with preventative maintenance. We see applications of this capability increasing at leading industrial machinery companies and high tech manufacturers, as well as in the consumer world of health monitoring products, home office equipment and others.

Ultimately, delighting customers with strong operational supply chain performance, when combined with improved solution performance, will lead to measurable improvements in customer satisfaction and contributions to the top line. This is yet another way that leading supply chain organizations are becoming partners in growth with the business.

**3.) Emerging digital business models.** While still a nascent concept, the view on how supply chain can leverage digital capabilities to support new business models and improve broader value chain performance became clearer this year. Manufacturing is the center of many digital capabilities, including predictive quality, energy management, and smart automation, all leveraging sensors and advanced analytics. Moreover, leading companies recognize that "the factory" is not just somewhere inside the four walls of the company or an outsource partner. Digital synchronization of manufacturing lines with upstream suppliers and other supply chain functions is where the business value starts to multiply. The automotive and chemical industries offer a leading vision of where digital manufacturing can go next in terms of these capabilities.

The logistics function is not far behind manufacturing in terms of automation using sensors, gateways, tracking systems, and business rules to predict and alert when there will be a variance to the current plan of record. For example, the rapid emergence of online ordering has forced retailers into the digital world of multichannel order management and fulfillment that requires increased visibility. Logistics control tower capabilities are not new, but when combined with more affordable sensors and computing power, they portend the democratization of deeper visibility that can reduce risk and improve both operating costs and customer-service levels for many companies.

The use of Big Data and advanced analytics to improve demand visibility is somewhat commonplace among the top consumer-facing supply chains, though some are taking it to a higher level. Some smartphone manufacturers are replenishing supply and offering additional services based on device activations. A handful of consumer goods companies are using hourly SKU-shelf-level visibility to surgically manage supply during critical promotional and seasonal events.

3D printing is yet another digital-based technology having transformative effects on select processes at leading companies. Many industrial and high tech companies are leveraging it to manage their equipment spares. Consumer-facing companies are using 3D printing to quickly prototype and manufacture high-mix, low-volume packages and containers for their products. Human organs, food, building materials—the list of potential applications is long and, as the variety of "printable" materials increases, more industries will add this form of instant agility to their toolkit of supply chain capabilities.

customer value centers to provide more efficient fulfillment and deliver customer-specific solutions. Seagate Technology has spent the last few years developing a cross-functional supply chain transformation office focused on landing new capabilities, developing talent, and rolling out metrics for improved visibility.

Nestlé (No. 17) runs one of the largest and most complex consumer foods supply chains in the world and was recognized by community-based organization, Oxfam, as a top-ranked company for responsible sourcing. Nestlé's supply chain culture centers on decentralized, locally-empowered teams. Major focus areas for these teams are driving capital efficiency, enabling e-commerce businesses as a growth driver, and upstream product traceability to ensure consumer trust.

Chinese technology company Lenovo's (No. 18) supply chain strategy cascades from its continuing corporate strategy to protect PC-based businesses and attack mobile, enterprise, computing ecosystem, and cloud services businesses. The supply chain team continues to drive new capabilities such as inventory and order support visibility, while ensuring the smooth integration of large mobile and enterprise computing businesses.

Chipmaker Qualcomm (No. 19) is leveraging investments in supply capacity optimization and inventory management as competition intensifies in the wireless telecommunications component market. The company continues to invest in new applications for its products including use of smartphone technologies for new consumer robotics applications such as the use of GPS and machine vision to guide delivery drones. The chipmaker is also making a push into the connected car market.

Kimberly-Clark (No. 20) continues on a multiyear journey to improve its supply chain organization and capabilities. It is extending Lean expertise out in partnership with customers to improve collaborative processes for joint value. The supply chain, in partnership with the business, has established a standard product portfolio governance process aimed at improving overall SKU health. This work, along with effective demand shaping capability, has enabled a relatively high forecast accuracy for the company.

Healthcare leader Johnson & Johnson (No. 21) has a legacy of decentralized decision making, but its supply chain has become more center-led over the years as a Center Of Excellence (COE) formed to drive cross-business unit improvements. One of these programs is focused on complexity management and data-driven governance of the company's diverse product portfolios. The COE team is also working to better understand the voice of the customer in the pharmaceutical business.

L'Oréal lands at No. 22 after a long hiatus from our list. Its supply chain team has a dedicated effort in partnership with the business to improve demand forecast accuracy. The cosmetics and beauty products company is leveraging optimization techniques in supply planning to improve customer service levels, while holding less inventory. L'Oréal is also using a collaborative supplier platform with its top strategic upstream partners to feed them weekly demand forecasts and pull through consumption requirements.

Engine and power equipment leader Cummins (No. 23) has a strong COE organization. This team has partnered with operations to evolve to end-to-end differentiated SCM and, eventually, the orchestration of the extended supply chain through collaborative governance. Cummins' analytics team is starting to move beyond basic descriptive reporting of operational performance to more predictive applications such as network, inventory, transportation, and warehouse optimization modeling.

Toyota rejoins the list at No. 24 after last appearing in 2009. Its eponymous production system as well as its pioneered leveraging of Lean principles has been emulated by the rest of industry and beyond. Its supply chain team is focused on building logistics control towers and mitigation plans to avoid the supply disruptions of the recent past. Toyota is also building a next-generation customer service platform where vehicle owners, dealers, and service agents can exchange information via the cloud.

Closing out this year's list at No. 25 is Home Depot, the world's largest hardware retailer. Home Depot's supply chain team is reaping the rewards of a multiyear improvement journey. It is introducing direct fulfillment centers that will be able to ship to 90 percent of U.S. households within 48 hours. E-commerce, while a small portion of its total business, spans a wide variety of products and one-third of the volume is "click and collect" at its brick-and-mortar stores. Upstream, Home Depot has set up a vendor source program tapping into vendor-managed inventory (VMI) stocks.

## The Bar Has Risen

In our engagement with supply chain leaders over the past year, it is evident that the bar of performance has risen considerably for the top of the group. As Gartner's supply chain research organization, we remain committed to providing a platform for informed and provocative debate about supply chain leadership. We look forward to leveraging this research to share the lessons, best practices, and characteristics of leaders to inspire and challenge the entire supply chain community to new levels of performance and contribution.

# Our Methodology: How Gartner Selects The Top 25

The way we determine the ranking is something we have been transparent about since the beginning. 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 $12 billion. We then pare the combined list down to the manufacturing, retail, and distribution sectors, eliminating certain industries that 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 an indication of cost management, 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.

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 weights are as follows: 50 percent for 2014, 30 percent for 2013, and 20 percent for 2012.

Looking forward, we are evaluating changes to the way the financial components will be calculated in future Supply Chain Top 25 evaluation cycles. In particular, we are exploring comparison of each companies' financial metric components to groups of companies with similar characteristics instead of the broader list of about 300 companies we evaluate, as is done today.

**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 231 applicants for the peer panel this year, with 200 completing the voting process. Participants came from the most senior levels of the supply chain organization across a broad range of industries. There were 35 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. 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.

**Polling procedure.** Peer panel polling was conducted in April 2015 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. This year, we also asked voters to factor the degree to which companies are running ethical and sustainable supply chains into how they rank their top choices.

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.

**Many companies don't yet get lasting value from the data so widely available to them. Harnessing large volumes of data—internal or external; analog or digital—requires identifying and prioritizing the opportunities that hold the most promise, developing analytic skills to convert data into actionable information, and forging tight, ongoing links between data experts and business functions. Here's how to think, in business terms, about how data can help drive supply chain results.**

## Harnessing Big Data:

# Building & Maintaining Capabilities that Deliver Results

**By Foster Finley, James Blaeser, and Art Djavairian**

"Water, water, every where, Nor any drop to drink," wrote Samuel Taylor Coleridge in his 1798 poem *The Rime of the Ancient Mariner.* In today's corporate environment, we might well exclaim: "Data, data, everywhere, but how in the world shall I put it to profitable use?"

With every online survey from shoppers, every GPS signal from a truck or train, every Tweet from the head of marketing, and every RFID-tagged package speeding off to the shrink-wrap station, companies have more data than they know what to do with. Supply chain operations in particular are hotbeds of data—inputs sought, captured, and reported to improve efficiencies, accelerate throughput, enhance customer service, contain costs, and make it easier to utilize assets and manage risks.

For many business leaders, the fashionable response has been to get excited about so-called "Big Data"—the term *du jour* that describes the expanding universe of available data outside of that traditionally circulating in a company's CRM, ERP, or MRP systems and stored in its

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own data centers. A brief scan of newspapers, business magazines, conference brochures, or a Google search demonstrates that there is no shortage of articles, books, speeches, and course content on the topic.

But that enthusiasm is overstated. To start, data per se is definitely not the centerpiece of the work day for most executives; their working hours revolve around performance worries such as increasing costs, pressured profit margins, delivery deadlines, and regulatory hurdles, to name a few. Our second point: More data does not equal better performance. The more data that businesses can access, the harder it gets to sort the wheat from the chaff. The soaring volumes of available data are noise and distraction without the resources, the skills, the discipline, and the processes to properly synthesize, interpret, and act on it.

To put it bluntly: Most companies don't yet extract value from the data so widely available to them. Harnessing large volumes of data—internal or external; analog or digital—requires identifying and prioritizing the opportunities that have the most promise, developing analytic skills to convert data into actionable information, and forging tight, ongoing links between data experts and business functions.

That said, it's evident that some farsighted businesses are quickly mastering those capabilities. (See sidebar *Big Data Brings Savings for Food Manufacturing Network.*) It is our belief at AlixPartners that over the next decade, expertise in data exploitation will likely divide companies into two groups: those that have developed the data-centered mindsets and capabilities to benefit from Big Data's potential and those that still struggle to do so. This is not a race to amass the most data, nor an exercise to control data; rather, it is

## Big Data Brings Savings for Food Manufacturing Network

A multi-billion dollar global manufacturer of food products was struggling to create sustainable cost competitiveness in a production and distribution footprint that stretched across North America. Previous efforts to cut costs had been thwarted by three big structural challenges.

First, the business was largely led by a manufacturing function whose plant strategy dictated that certain product categories should be produced in one location and distributed across the country. While this strategy maximized manufacturing KPIs, it often caused inefficiencies elsewhere in the network that were not well quantified or understood.

Second, customers were permitted to dictate plant sourcing assignments based on production costs and/or perceptions of quality. This practice undermined the manufacturer's ability to optimize the network by shifting production.

Third, to accommodate those less than optimal manufacturing and commercial practices, the company used a push distribution strategy that put inventory closer to customers—and often pushed up freight and storage costs as a consequence.

Each decision made sense in a vacuum, but in the aggregate, in such a large and complex business, the outcomes were clearly suboptimal. The supply chain organization was not properly informed and empowered to manage the North American network. Previous efforts to establish a network modeling capability that would allow the supply chain to dictate production and distribution strategies were incomplete and lacked actionable results.

Recognizing the problem, the food maker and its third-party experts worked together to create a dynamic network model that solves for the lowest total delivered network cost. This holistic view pinpoints the optimal role for each business function in order to create the best end result. The model manager evaluates the correct assignment of thousands of SKUs across scores of production lines in roughly a dozen plants. Product is delivered to thousands of customers across the region from those plants and from 40 or so frozen distribution centers.

However, that model calls for a huge amount of data and a team with the skill sets to manage it. At the outset of its total network cost initiative, the business had neither. Although it did have optimization software and a rudimentary modeling capability used largely for annual budgeting purposes, these were not fit for the network optimization work needed to solve a problem of this scale. The team needed a big boost in expertise to build and sustain a robust network modeling initiative.

To address this shortfall, the food maker hired a third-party specialist to define the model structure, set out the data requirements, and implement the solution. To make the solution sustainable, the company recruited and onboarded an expert supply chain modeler and drafted a team of functional experts from all facets of the business

to exploit internal and exogenous data for the benefit of the business. In short, the companies that create capabilities for capturing, processing, analyzing, and distributing data in order to make better decisions in real time will likely be able to outperform their competitors and respond more quickly to their customers' needs.

In our experience, there are three challenges that face supply chain organizations that want to exploit available data: Capturing data from both internal and external sources that is timely, accurate, and useful; developing capabilities that allow this data to be leveraged as a differentiator; and creating sustainable data analytics processes and proficiencies within the supply chain organization.

This article focuses on how supply chain leaders can address these three challenges.

**Companies have more data than they know what to do with.** Supply chain operations in particular are hotbeds of data.

## A Clear-eyed Look at Data's Role in the Supply Chain

First, let's put the data discussion in context. Big Data—all forms, types, and channels of data—*should* be of great interest to supply chain leaders. But in all of the fuss about Big Data, it's easy to forget to ask how effectively the data

to support the modeling process and to drive the eventual implementation of results.

With that team in place, the largest task involved collecting the required data. The model scope includes the production, distribution, and delivery notes, so the costs of making those connections are important. Key data elements include: production capabilities; capacity and costs by SKU by line; handling and storage capacity and costs at warehouses; multimodal transportation capacity and rates between plants, DCs, and customer locations; historical and forecasted demand by customer location by SKU; location details for all plants, DCs and customer ship-to destinations; and foreign exchange rates.

That list of data elements may seem straightforward, but it adds up to a massive amount of data to collect, cleanse, and manage. What's more complicated is creating the data that the model requires so that it's possible to consider fresh options such as new production capabilities, transportation lanes, and distribution center locations. The company tapped into external data—Big Data, in effect—so it could assemble those datasets, and the inputs were scrutinized closely to attain the accuracy needed to make sound decisions.

Once all of the data requirements had been satisfied, the team set about fine-tuning the network model so that it more closely replicated the constraints the business must manage in reality. This included unmanageable production and distribution fragmentation that often drove little in the way of savings opportunities. The team of functional experts reviewed the results in detail in order to create a staged implementation plan that attacked the largest actionable opportunities first; the longer-term plan would address the more complex initiatives to follow.

The model's results, and the consequent implementation plan, generated millions of dollars in savings opportunities—equivalent to almost 5 percent of total costs—by moving the business to a regional production and distribution strategy that capitalized on the network footprint spanning North America. Cost savings were mainly generated by reducing intercompany transportation and exploiting untapped production efficiencies in multiple plants.

The food maker also benefits from a significant boost in flexibility. Suboptimal decisions made today are generally less costly than in the past because the company has many more manufacturing options and can ship product shorter distances to customers. In total, the model trimmed millions of road miles from the company's network by moving production closer to the customer.

Perhaps most important: The network modeling initiative has established the supply chain organization as the clearinghouse for operational strategies that have significant impacts across the business. This will help ensure that the outcomes of tomorrow's decisions will be of benefit to the whole enterprise, not just to the business functions where those decisions were made.

is being converted into value. Research firm Gartner cites a lack of direction in data collection as the first barrier to analytics in many organizations. "Even when people know where to find data, they often don't know what to do with it once they have it," says Gartner analyst Lisa Kart. Their data strategy is not tied to the business problems they are trying to solve. The frequent outcome: Many sizeable investments in IT infrastructure—particularly in sophisticated analytical and reporting software—have delivered alarmingly little value.

**More data does not equal better performance. The soaring volumes** of available data are just noise and distraction without the resources, the skills, the discipline, and the processes to properly synthesize, interpret, and act on it.

Any discussion about data must be informed by compelling business criteria—not because Big Data is the newest "shiny object." Business leaders must make sure that the data tail never wags the dog.

These authors contend that any large, complex supply chain must be able to demonstrate sustainable data analytics capabilities if it is to yield truly differentiated results for the company as a whole. Without this competency, it cannot act as a central clearing house for strategic network decisions. Companies that have real analytics capabilities, such as holistic network modeling, can more easily spot tangible savings opportunities, so they're more likely to place the supply chain at the center of the enterprise.

So, when envisioning the development of such capabilities, the first step is to identify the key drivers of the business. Next, it is necessary to identify which data-supported insights are central to those priorities. Then—and only then—can attention start to turn to the data itself, beginning with an assessment of the relative worth and prospective application of the data in question, ensuring that it is geared toward discrete business objectives. This means thinking through several structured questions: What could we do better, faster, or cheaper with the data? Is the data currently adequate (that is, is it accurate, comprehensive, timely) enough to support our proposed application?

One excellent example is the growing sophistication and capabilities in last-mile delivery now being employed by some retailers. Where consumers once paid for an appliance, a mattress, or furniture and then began figuring out how and when to deliver it to the home, retailers now take on that responsibility. They access and incorporate home addresses, product weight and cube, delivery time preferences, and when delivery vehicles (internal fleets or independent contractors) will have capacity or build route density. Then, most importantly, the retailers communicate expected delivery times by text or e-mail—proactive moves that not only improve customer satisfaction but help minimize call center costs. More and more retailers are using these kinds of capabilities to drive incremental revenue associated with quicker deliveries or narrow delivery windows.

That's not the only approach: The initiative can start with a focus on current and emerging supply chain challenges, and then look at how data can be used to address and ideally resolve them. Of course, there's no guarantee that the needed data exists or could be obtained easily. But at least it has been defined by this exercise. Finding it then becomes the next obstacle to tackle. Regardless of the sequence, the following questions must be addressed before actively initiating next steps:

- Are we completely clear about the business need, use, and benefit for this insight?
- Are all stakeholders aligned with this effort?
- Do we have the resources we need to execute effectively and in a timely manner?
- Will we still be able to deploy the solution flexibly?

Based on commonly held perspectives on the above questions, the effort can be slotted into the appropriate priority.

## Embedding Analytics Capabilities in the Supply Chain

For most supply chain organizations, the topics of accessing, managing, manipulating, and converting data into actionable decisions fall along three interrelated lines: data management, data analytics, and organizational sustainment. We've seen that if these three aspects are not kept in balance with one another, the results will likely fall short of expectations. Let's look at each in turn below.

***Managing the data.*** Many business leaders prefer to "own" or be in exclusive control of the data with which their business is run. This is a natural tendency,


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and can be accommodated to the extent that it is practical. However, supply chains increasingly depend on data that originates outside the business and may be relevant for only a short time. For example, when a transportation brokerage business is looking for a driver to cover a load, a driver's proximity to the pick-up location at that moment in time is an essential but very temporary data point because it can change in a matter of minutes.

Among the more common external sources of data are these: location-based fuel prices such as on-highway retail diesel fuel; point-to-point distances; harmonized tariff codes; foreign exchange rates; visibility of ships, trucks, planes, or trains; point-of-sale demand data; and warehousing space/capacity.

It is impractical to think of managing such external data in the same ways that the information technology group has managed the company's ERP or CRM data, for example. Indeed, there can be significant op-ex benefits to not owning and archiving such massive volumes of bits and bytes (and analog data). For one, it doesn't require your organization to invest more and more in server farms to store it all. In a world in which cloud computing is increasingly prevalent, data can be acquired on-demand.

***Analyzing the data.*** In many respects, "analytics" is synonymous with Big Data. What good is a treasure trove of data if the company can't convert it into insights? Many companies are understaffed in terms of the analytics talent needed to build the right links between the data and the drivers of business value. That talent is unlikely to be abundant in the supply chain group; although more and more supply chain professionals are computer-facile and increasingly quantitatively oriented, they typically lack the discrete analytic skills to cope with the sheer volume of data, the multiple formats in which the data can exist, its volatility (the rate at which it is updated or superseded), the multiple source points, the heterogeneous units of measure, and the organizational transformations needed to create insight.

To further complicate matters, a technically proficient professional who lacks adequate business insights may struggle to conceptualize the underlying opportunities without extensive guidance. This is the critical skills gap between operational knowledge and analytical expertise that supply chain functions are attempting to bridge. That's where the training and experience of a company's analysts enter the equation.

It's not atypical to hear business leaders asking how their organizations can develop Big Data competencies internally. But that's not quite the right question. Practically, most supply chain organizations have a finite number of alternatives: They can hope that their existing staff become experts at dealing with Big Data; they can hire "data jockeys" from the outside; or they can outsource such activities to a third-party provider.

**Over the next decade, expertise in data exploitation will likely divide companies** into two groups: those that have developed the data-centered mindsets and capabilities to benefit from Big Data's potential and those that still struggle to do so.

Experience has shown that the best solution is a blend. Supply chain experts are indispensable because they know the dynamics of the business well, they're familiar with the whole supply chain, and they understand the customer requirements. They can then be paired with experts in data management, manipulation, and visualization in order to jointly develop informed perspectives, whether those technical types are on payroll or are with an external provider.

That was the approach taken by an aerospace manufacturer that had made predictive maintenance a critical priority. The company saw that there were huge profits to be made from better identifying parts failure, proactively addressing the equipment management, and driving the entire supply chain around these events. The choice was to bring in third-party expertise to help with all aspects of the effort and to ensure that internal maintenance professionals would shadow the outside team.

By correlating activity (relative duty intensity) with select operating performance parameters (for example, pressures, temperatures, and currency draw) or off-line measurements (such as spectro-chemical oil analysis, wear patterns, and clearances), the life-cycle and replacement schedule of critical componentry can be predicted based on application, with less risk of catastrophic failure. Now the aerospace manufacturer is reaping the rewards of the predictive maintenance efforts with fewer in-field failures, longer maintenance cycles for light-duty applications, greater accuracy in spares management, and more precise maintenance scheduling. The company is successfully managing the

long-term effort internally, and has developed differentiated capabilities that it is now applying to other systems such as manufacturing equipment, terrestrial vehicles, and mobile power generation equipment.

A quick word about that last point: There is sound logic behind using an experienced, sophisticated, resource-rich third party that may also bring extras such as data hosting capabilities and pre-existing dashboards or visualization techniques that could be used to jumpstart a particular initiative. A productive relationship with such a provider can save time, avoid the cost of internal development, and reduce the risks of failure.

On the other hand, reliance on external providers, no matter how capable, comes at a cost and may undermine plans to develop internal data analytics capabilities. Our stance is that the more mission-critical the data efforts are to the performance of the supply chain, the stronger should be the incentive to develop an in-house capability. Under those circumstances, the third-party approach may be the perfect stopgap solution.

But the bottom line is this: There is no single best solution or best mix; the right solution for one company could be entirely wrong for another.

***Sustaining a data organization.*** It's one thing to set up and staff a specific data analytics project, but how do supply chain leaders build a successful, ongoing organization that can handle such projects as a matter of course?

The short answer is that they must embed data-savvy talent in the organization—analytics talent in particular. To some extent, the talent will emerge organically; the long-time supply chain pros will develop analytics skills on the job or through working with colleagues. Also, there may well be data-smart junior hires already working within the organization. Alternatively, the talent may come via lateral moves by professionals from other fields who are already steeped in the applicable skills because the supply chain is one of the more promising fields in which to apply Big Data. Indeed, supply chain leaders might be surprised by the number and caliber of resources already on the payroll elsewhere in their companies such as finance or marketing, and very likely in IT.

The long answer is that the talent need not necessarily reside within the supply chain function; it may be in adjacent functions such as operations or procurement. Some businesses have pooled their analytics personnel together—sometimes in standalone teams, perhaps within IT or in a business analytics group. Pooling can be useful to develop a shared center of data competency. The downside, though, is that it can inhibit or prevent the assimilation of data-enabled thinking throughout all business functions—perhaps even inadvertently perpetuating the skills gap described earlier. AlixPartners has found that, independent of the supply chain organizational structure, the best operating results come from embedding data-savvy resources throughout the business rather than having a shared pool of such talent.

That is certainly not to imply that IT or business groups should not have their own data analytics resources; it's simply to caution against concentrating such resources all in one place. Having data-savvy professionals seeded throughout the supply chain helps the organization react much more quickly to developments or opportunities.

But it may still be a challenge to pair those analytic skills with operational insight and business familiarity in order to convert data into actionable insights. That raises the question of who should "own" the organization's data and analytics talent. There should indeed be a senior resource who is tasked with overseeing data competencies. The more heavily the business relies on data for its competitive differentiation, the more senior the resource needed to oversee and manage those competencies.

## The Big Data Imperative

Put simply: The data challenge for supply chain leaders is in capturing quality data, quickly doing something useful with it, honing this capability, and sustaining it over time. Today, businesses are generally ill-prepared to do this as it relates to (and sometimes clashes with) their strategies, organizational structures, available resources, and implementation plans.

What business leaders must do now is define how Big Data analytics can serve as a strategic differentiator. Then they must identify and assign data-savvy staff to their analytics initiatives and embed those staff in key functions such as the supply chain organization. It means evaluating the role of third-party providers to get started, accelerate the pace of delivery, or take risk out of the equation. And then it's about deploying all of those capabilities in concerted ways and in operational capacities to extract tangible results from the analytics.

At AlixPartners, we believe that over time, successful businesses will have to develop greater numeracy if they are to be able to turn torrents of data into well-informed decisions. We're not alone in this: Gartner predicts that by 2020, 50 percent of organizations will actively measure and assess returns on analytics initiatives, meaning that it will pay to know exactly what you are measuring. Indeed, such activities will soon be the way of life—nowhere more so than in supply chain operations. For supply chain leaders Big Data is an imperative indeed. Its complexities and challenges are many, but its rewards are very real.

# The Rise of the

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**In a complex supply chain, every player has its own agenda. It takes a Supply Chain Advocate with an independent, holistic view of the supply chain to find win-win solutions that reduce costs and improve efficiency.**

# Supply Chain Advocate

**By Paul Newbourne and Loraine Yalch**

In an ideal world, every trading partner in a supply chain pulls together to achieve the best balance between cost and service. Supply chains synchronized in this way are efficient, agile, and able to respond quickly to shifts in the market.

In the real world, such a high level of collaboration is difficult to achieve. Rather than perform together like a well-tuned orchestra, multiple trading partners often play their own tunes. They are more likely to pull in different tactical and strategic directions, impairing end-to-end visibility and coordination. The resulting lack of alignment and supply chain visibility creates costly inefficiencies and slows responses to the market.

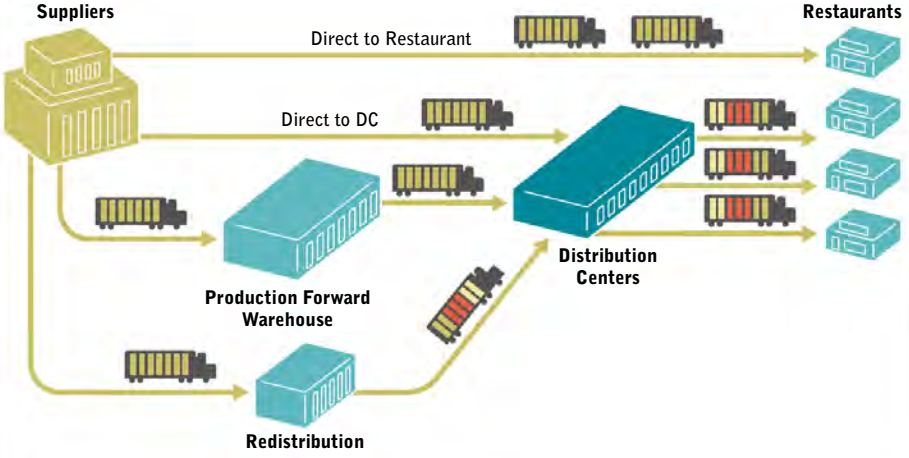
Bringing these entities into line requires changes in behavior that comply with the supply chain's overarching performance objectives. To get buy in, these changes must be orchestrated in a way that benefits each party in the value chain—otherwise there is little incentive to participate in the change management exercise.

This orchestration role is best carried out by an independent, lead player in the supply chain, such as a logistics service provider or a manufacturer that has a 360-degree view of the supply chain and is a tireless advocate of alignment. The entity, which we call the Supply Chain Advocate, might represent the primary shipper if it happens to be a 4PL, but delivers benefits to participants across the supply chain by identifying and fixing misalignments.

The role of the Supply Chain Advocate is becoming more important in many industries as companies adapt to an increasingly uncertain business environment. As the consulting firm McKinsey noted in an article in the July 2014 issue of *SCMR*, companies as varied as Skype, Coca Cola, Procter & Gamble, and Apple are increasingly focused on tightly orchestrating activities "across a value chain that spans functions from market insight and product development to delivery and customer service and includes many well-managed external partners and suppliers."

EXHIBIT 1

**Restaurants: Inbound Channels**




Source: Armada

Nowhere is this more evident than in the foodservice industry, where structural disjoints and new operational challenges are reshaping supply chains. Our firm, Pittsburgh-based Armada, provides fourth-party logistics services in the foodservice industry for the parent companies of restaurant chains (referred to here as restaurant brands to distinguish them from physical restaurant locations). What follows is a look at how the role of the Supply Chain Advocate has evolved in our industry. However, we believe the Supply Chain Advocate experiences detailed below translate to other industries and organizations.

## Many Ingredients

The demands on foodservice supply chains are steadily increasing as restaurant brands adapt and modify their offerings and operations to meet the growing needs of their customers. Foodservice companies sell food that is prepared and served in venues outside of the home. Probably the most familiar venues are restaurants, the focus of this article. Every restaurant is supported by a complex, global supply chain (see Exhibit 1).

Manufacturers source the raw materials from suppliers around the world. The finished goods are delivered to restaurants through a number of domestic and international channels. Products can move directly from the manufacturer to the restaurant, or via forward warehouses and last-mile distributors. In some cases redistributors feed low-volume items to last-mile distributors. Carriers, mainly over-the-road, transport product. Fourth-party supply chain solution providers, like Armada, offer logistics services in much the same way that these players do in other industries.

While Cost of Goods (COGs) is approximately 30 percent of restaurant sales, logistics costs typically make up 10 percent to 12 percent of COGs, making it one of the top five categories of spend in the foodservice supply chain. Controlling these costs is imperative.

The foodservice supply chain broadly follows the familiar plan-source-make-deliver operations model, but with some notable differences. One of the most important is that the make-deliver cycle happens inside the four walls of a restaurant. For example, a manufacturer might supply chicken breasts that are converted by a restaurant into menu items that are bought by end consumers. In that example, each restaurant is a mini-factory, which means that the supply chain of a major brand might include more than 3,000 factories.

Another feature of this supply chain is that restaurant brands do not usually manage distribution assets; third-party companies are contracted to provide warehousing and last-mile services. Some third parties, notably last-mile distributors, also take ownership of the goods in their possession. Certain links in the supply chain are less visible than others. For example, the forward warehouse node is often invisible to both the restaurant brand and the last-mile distributor.

This fragmented structure, and the foodservice supply chain's many product handoffs, often leads to a silo mentality that impedes the end-to-end flow of information. In general, there is less transparency and visibility in foodservice operations than in the broader retail industry.

Additionally, foodservice companies face uncertainties that increase supply chain risk. Food prices change in line with commodity price fluctuations. Consumer demand is sensitive to economic cycles and the influence of promotional campaigns. Moreover, the level of volatility has increased over recent years, and is compounded by the impact of social media platforms on consumer buying decisions.

In response to these challenges, foodservice companies must find ways to raise the supply chain efficiency bar, becoming more agile and collaborative—something that will sound familiar to supply chain managers in almost any industry with a multitude of trading partners. To achieve these goals, it is necessary to identify and eliminate supply chain misalignments that hamper performance. Enter the Supply Chain Advocate.

## Solutions by Consensus

As mentioned, the Supply Chain Advocate has a holistic view of the supply chain. From this vantage point the Advocate can review the entire logistics network, and gain a deep understanding of the product flows. Armed with this knowledge, the Advocate is uniquely positioned to identify changes in behavior that can improve network efficiency—that includes working with trading partners to address misalignments such as loading delays that lead to disruptions and avoidable costs.

This is accomplished by pinpointing the root causes of these disjoints, and developing effective solutions that benefit all of the participants. An important part of the Supply Chain Advocate's task is to persuade the parties involved to change their behavior in such a way that they willingly lend their support to the effort.

It's not an easy job. Practices can become so entrenched that trading partners find it easier to ignore conflicts of interest, or simply build the inefficiencies into the cost of doing business. Waiting for the other party to change is another mode of behavior that supports the status quo. Further, when the parties lack a holistic view of the supply chain—a problem that is endemic in the foodservice business—they do not appreciate the end-to-end consequences of their laissez-faire approach to misalignments.

What follows are three examples of situations we have experienced, and how advocacy played a central role in facilitating positive change.

***Loading Delays.*** Trucks were experiencing significant loading delays at the facility of a manufacturer of refrigerated food. The last-mile food distributor that received the product required drop trailers at the facility and ran the carrier's reefer units almost dry before unloading them. The extra cost associated with these workarounds was embedded in the carrier's line haul rate. In other words, the restaurant brand—that ultimately bore the total landed cost expense—was picking up the tab through inflated transportation costs for inefficiencies created by the manufacturer and distributor.

Armada had just taken over inbound freight management and initiated a lane rebidding exercise. As we evaluated the results, we identified a high-volume lane where the incumbent carrier's freight rate was significantly higher than other peer carriers who had submitted rates on the lane. As part of our role as the Supply Chain Advocate we engaged the incumbent to understand why there was such a difference in rates and learned that the carrier had been forced to factor into its rates excessive loading time at the manufacturer and poor refrigerated trailer utilization at the destination.

We learned that this situation had persisted largely through inertia; no one wanted to deal with the underlying causes of the delays. When Armada approached both the manufacturer and distributor with possible solutions, they were initially dismissive of any need to change. So we had a fact-based conversation about how our common customer—a national restaurant brand—would be less than happy with the current situation. As part of this discussion, we laid out a case for the cost savings that could be achieved if the parties changed their behavior. They agreed to collaborate on fixing the problem.

The trading partners developed better ways to schedule trucks in and out of the manufacturer's facilities. The distributor agreed to unload within the

**The Supply Chain Advocate has a holistic view** of the supply chain. From this vantage point he can review the entire logistics network.

free standard time or turn trailers around in 24 hours. These efforts achieved a reduction of about 15 percent in the cost of the line haul rate on a significant volume of business (>1500 loads a year).

***Hours-of-Service Offsets.*** Another opportunity to act as a Supply Chain Advocate presented itself when new hours-of-service rules for truck drivers went into effect in July 2013. Industry analysts projected that these would reduce productivity in the carrier community by anywhere from 3 percent to 8 percent.

As our clients' Supply Chain Advocate, we wanted to evaluate ways to offset this decline and minimize the negative impact on the efficiency of restaurant brands' supply chains. If action was not taken, carriers would be forced to either absorb the productivity loss in their margin, or increase their freight rates. The former was not deemed as a likely outcome and the latter would create additional cost inflation. There was an opportunity to give back at least a portion of the lost productivity to help offset any inflationary impact by changing legacy behavior.

**Actively bringing everyone to the table helped to ensure** that every trading partner benefited. Carriers gained from the improved productivity.

We analyzed the likely loss in productivity and estimated how such a loss might translate into a cost impact for the carriers and ultimately how that would cascade down into freight rates. Our analysis helped to clarify the counter measures that would be the most effective. The measure chosen pursued a reduction in the current free time provision; the time allocated for loading and unloading trucks without incurring penalties for delays. Our estimate of the net benefit of such a change was considerable. This might seem like a relatively simple solution, but at the time few other shippers or receivers were willing to take such a step.

Reducing the free time provision incentivized shippers and receivers to streamline cargo operations. Under the existing two-hour provision, these parties tended to take the full two hours or longer to complete loading/unloading. The new, one-hour standard enabled trucking companies to essentially count on an additional two hours of operational time per trip. As a result, driver productivity would be improved, or the carrier could secure revenue compensation in the form of detention charges when held beyond the new free time standard. Improvements in the utilization of capital investments in tractor/trailers was another expected benefit.

We developed a business case for the free time reduction, and made our recommendation to our restaurant brand clients that the adjusted provision be adopted and incorporated into their policy documents. This change was agreed to and adopted by the brands, and subsequently deployed by Armada. Next, we used the analysis and business case to educate shippers and receivers about the importance of their role in helping to offset the impact of the new regulations and the benefit it would bring to the brands. This effort clearly explained the implications for productivity levels and rate inflation.

After the change was implemented, there was a net reduction in average loading and unloading times despite many concerns about detention expenses running rampant. For example, in 2014 dwell times improved by two minutes on the pick-up side and by one minute on the delivery side. These gains translated into significant cost avoidance in a network that moved around 400,000 loads annually.

Actively bringing everyone to the table helped to ensure that every trading partner benefited. Carriers gained from the improved productivity. Also, there was less pressure to increase rates in response to the regulatory change. Benchmarking carried out in late 2014 found that the tender acceptance rates were higher than those of many other shippers. Carriers consistently reported that this was, in large part, because of our advocacy in driving network productivity. This type of goodwill translates into competitive advantage, greater access to capacity, and lower freight costs.

The free-time provision change also benefited shippers and receivers. Their facilities were perceived as preferred by carriers, and tighter operations enabled them to improve both dock scheduling and labor efficiency.

***Product Integrity.*** Much of the product that flows through the foodservice supply chain is perishable, and vulnerable to rough handling and variations in temperature.

As part of our ongoing interaction with our clients

and their stakeholders, we learned that a last-mile distributor started receiving excessive complaints from restaurants that certain deliveries of cheese were exhibiting mold and other signs of spoilage. The distributor could not understand why these issues were being reported, as they had not identified any issues at receipt from the manufacturer. Temperature readings on outer cases on the pallets were found to be within specifications.

The distributor figured it was an in-transit issue and performed a more detailed temperature check on the next inbound shipment. This revealed that many cases stacked in the pallet interiors were warmer than allowed by the specifications. The distributor rejected the load and notified the manufacturer that they would have no choice but to reject future shipments if the problem was not resolved. The manufacturer, in turn, attempted to file a claim against the carrier for temperature abuse.

As our client's Supply Chain Advocate, we quickly engaged in determining the root cause of the issue while the out-of-spec product sat in the trailer in the distributor's yard waiting on disposition. It was counter-intuitive that cases interior to the pallet would be warmer than those on the exterior—this could not result from temperature abuse in transit, where the opposite would be

## Mutual Benefits

Armada's role as a Supply Chain Advocate has established a track record of creating win-win situations through collaboration and avoiding counter-productive finger pointing. Here is an example of our approach in action.

Distributors in a network were accustomed to changing the delivery date on loads, typically within 24 hours of the original scheduled pick up date. This usually happened when they were running low on inventory. The carriers assigned to the loads could not make the last-minute adjustments in their networks to pick up the cargo on the revised dates (usually sooner than originally planned), and would reject the loads. Alternative carriers had to be found on short notice, usually from the spot market, which incurred premium freight expenses.

In another common practice, distributors would frequently order for Friday pick up and Monday delivery, but the transit times were a day or less. This created a situation where carriers had to "dwell" their drivers and equipment over the weekend. As capacity tightened, more and more carriers opted to decline these loads. Again, the end result was resorting to the relatively expensive spot market.

Armada identified these trends and approached the distributor community about cutting premium freight costs by reducing both the number of order date changes (especially short lead time changes) and the number of loads with extended transits. Using historical data to show where the issues were arising as well as opportunities for fixing the problem, we collaborated with the stakeholders to change the behaviors that were creating these unnecessary expenditures.

The distributors did two things. First, if they needed product earlier, they placed an additional order that allowed the existing pick up schedule to stay intact at the contracted rate rather than change the delivery date on short notice. The additional truck could be ordered upon receipt allowing for a firm commitment to the carrier at the time of the rate quote, resulting in a more favorable spot market rate.

Second, distributors evaluated their safety stock and replenishment protocols, and made appropriate adjustments to allow them to better withstand short-term volume spikes without having to place short lead time orders. Both actions succeeded in reducing the number of order date changes and short lead time orders, which translated into lower premium freight costs.

In regard to the extended transit situation, two paths were followed in parallel. First, distributors looked at their order patterns, and where practical, instituted changes so that 1) the delivery date was closer to the pickup date relative to the lane transit time and 2) their facilities could receive product on the weekend to free up trucks sooner rather than waiting until Monday.

At the same time, we approached the shippers involved and asked that where practical, they open for at least a half shift on Saturday or Sunday so that orders could be pushed into the weekend, thereby shortening the weekend dwell time for the carrier.

These actions resulted in a number of savings. Premium freight costs were reduced, which more than offset the incremental working capital costs incurred when the level of safety stock was increased. Similarly, savings in layover costs more than compensated for weekend opening expenses. In addition, there was a reduction in the number of extended transit loads and an increase in carrier efficiency.

expected. We obtained equipment readings from the carrier to validate that the reefer unit had been running properly while in transit. This information, and the fact that we were seen as a neutral party working on the issue, persuaded the manufacturer to take further steps.

A representative from the manufacturer traveled to the last-mile distributor to inspect the next shipment. The manufacturer confirmed that the situation was as reported by the distributor, and agreed that this could not be occurring in transit. Upon further review of conditions at the plant, they realized that the inner cases of product were warm at the time of loading. The full story then emerged: Cheese product coming off of the production line was immediately palletized prior to storage in the cooler. The tightly packed pallet configuration limited air circulation and prevented the cases from cooling to within specifications. This excessive heat was enough to cause the degradation of the product that the restaurants were reporting.

The pallet configuration was changed to provide better ventilation while the product was in storage at the manufacturer's site, ensuring proper and complete cooling before shipment. The cases were then re-stacked for shipment.

Resolving the problem yielded a number of benefits. The absence of clear proof that the carrier was at fault would have led to many disputed and unresolved claims. The cost of unpaid shipments would probably have been absorbed by the manufacturer that would have attempted to recover these expenses directly or indirectly from the restaurant brand. And last but not least, the dispute created ongoing servicing/stocking problems at restaurants that went away when the solution was implemented.

## Key Success Factors

As these examples show, a diligent Supply Chain Advocate can have a significant impact on supply chain efficiency by bringing trading partners together to solve problems and realign the parties involved.

There is no standard template for the Advocate's role, but there are certain elements that in our experience are critical to success.

A good starting point is an overarching policy document on how the restaurant brand (or the primary shipper in other industries) wants to operate its supply chain. The document can be developed by the Advocate, starting with the brand's quality requirements—which can be modified to include supply chain management best practices. Each stakeholder is expected to comply with the document's guidelines and requirements to ensure that their mutual client realizes the full benefit of an efficient supply chain.

With this framework as a guide, the Advocate uses its comprehensive knowledge of the end-to-end supply chain to develop solutions through collaboration and education. Misalignment issues are identified, problems are clarified by analyzing the causes and effects, necessary changes are implemented, and outcomes are measured.

Providing scorecards is an effective way to highlight how stakeholder behaviors affect network efficiency. There should be regular meetings to review the progress of efficiency-building programs. And, a successful Advocate takes every opportunity to celebrate wins and position the stakeholders involved as heroes.

Another approach to ensuring that trading partners are part of the solution is to create a steering group that represents all of the stakeholders and is chaired by the Advocate. This is a powerful mechanism for promoting collaboration. The group functions as a sounding board for policy recommendations made by the Advocate, which oversees the implementation of agreed measures and reports back on results.

**A diligent Supply Chain Advocate can have** a significant impact on supply chain efficiency by bringing trading partners together to solve problems and realign the parties involved.

## New Emphasis on Advocacy

To some extent, advocating for positive change on behalf of its shipper client has always been part of the logistics solution provider's role. However, as supply chains are exposed to more risk and unpredictability, we believe that this type of advocacy must become more systematic.

Fulfilling the role of the Supply Chain Advocate requires certain skills as well as a collaborative approach to troubleshooting supply chain problems. Logistics service providers that take on this responsibility create value for multiple trading partners, and help companies to become more agile by aligning supply chains along common performance goals.

# Missed Opportunities *in* SUPPLY MANAGEMENT

**While manufacturing companies have discovered the value supply management can add to their organizations, too many service-based companies see procurement as a back office, support function. The result is missed opportunities to reduce costs and improve service.**

**By Jill Bossi and Tobias Schoenherr**

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Over the last few decades, manufacturers have caught on to the value proposition that a disciplined supply management program brings to an organization. The best manufacturers leverage supply management to deliver benefits such as lower priced goods and services while gaining early access to innovative new products and technologies that will improve their products and increase shareholder value.

In those companies, supply management—a term we use interchangeably with the terms sourcing, purchasing, and procurement—is no longer focused just on getting the right product at the right price at the right time; instead, these manufacturers nurture their supply base to become their suppliers' customer of choice and an indispensable business partner, one who can help them deliver a sustainable competitive advantage.

The story is quite different when it comes to non-manufacturing and service-based companies, or NMSBCs. While they do not produce a product for which costs can be directly tracked and correlated, NMSBCs can track the impact of supply management in their operating margins and net profits if they so choose. Yet, most NMSBCs have not yet fully realized the same supply management potential within their organizations as their manufacturing counterparts.

Of course, there are exceptions: We have seen companies step up to the plate and push for all the savings and capabilities that they can wring from their suppliers when they are in financial trouble. However, once the trouble has passed, they often revert back to their old ways, contributing to the perception that supply management adds little lasting value.

Across the board, supply managers in NMSBCs are oftentimes undervalued with little internal support.

The result, we believe, is that significant amounts of money are left on the table.

While that may sound like a harsh assessment, that was the consensus of the supply management professionals who participated in a forum we moderated on LinkedIn that created a stimulating debate.

**In some industries, such as commercial aviation and defense, key suppliers** are integral to the survival of manufacturing companies; in those industries, no one questions the value of supply management.

A number of participants were frustrated by this state of affairs. Those joining in the discussion expressed a range of sentiments, some of which we have summarized below and later in the article:

- Many non-manufacturing and service-based companies do not understand the strategic value of supply management, leaving significant opportunities unrealized.
- Supply management can contribute so much more to a company than only savings, but many within a company do not realize this, or what supply management can do for them.

Still others called on those in the profession to educate their colleagues and managers on the value of supply management. "In order to improve the perception of supply management, we must become marketers of our strengths and educate others within our firm," expressed one participant.

Inputs like those led to the development of this article (see author's note at the conclusion of the article: *About Our Research*). Relying on insights from supply management executives, our objective is to explore the missed opportunities for supply management in NMSBCs, identify the reasons why these perceptions persist and, more importantly, suggest remedies for increasing the strategic importance of supply management in non-manufacturing and service-based companies.

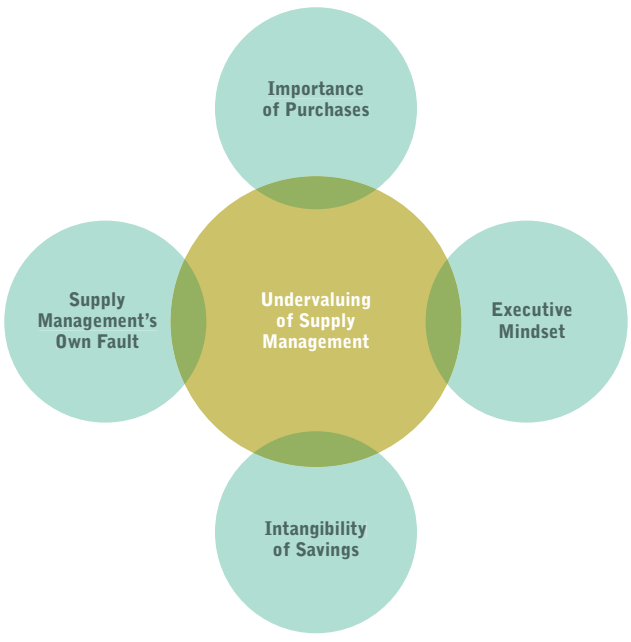
## Why is Supply Management Undervalued?

The role and importance of supply management has been constantly changing. Over the past 150 years, the profession has evolved from a back office support function to a valuable and contributing function within companies.

That is certainly the case in manufacturing, where sourced raw materials, parts, components, and technologies are essential to making existing product lines and to the continued development of new products. In some industries, such as commercial aviation and defense, key suppliers are integral to the survival of manufacturing companies; in those industries, no one questions the value of supply management. It's no surprise then that executive supply management positions at manufacturing companies, such as chief purchasing officers (CPOs), report directly to the CEO or president of the company and have a seat at the executive table. Similarly, most proactive supply management approaches—such as supplier relationship management—have been spearheaded by manufacturing companies.

EXHIBIT 1

**The Undervaluing of Supply Management in NMSBCs**




Source: Jill Bossi and Tobias Schoenherr

The landscape is very different at most NMSBCs, where supply management is simply not understood by the C Suite. At these firms, the profession has to "sell" its services internally to demonstrate its value unlike other disciplines, such as finance, human resources, or marketing. In addition, there are often corresponding C-Level executive positions in the company that further reinforce the importance of those functions. These disciplines do not have to prove their value in order to be appreciated.

While purchasing managers at NMSBCs truly know the value that supply management can produce, they have been unable to motivate their colleagues or executive management with the same passion.

Their frustration is exacerbated by the fact that in most companies, you can't go out and hire someone without involving human resources; set a budget and spend money without involving finance; or launch a sales campaign without involving marketing. Yet an individual can often go out and buy something without involving supply management. As one procurement executive put it: "Supply managers are like bass players in a rock and roll band—you don't really notice them until they're not there."

We contend that there is a missed opportunity associated with undervaluing supply management. It seriously hampers these organizations' abilities to reduce costs and realize greater profit, performance, and levels of productivity. This is illustrated by the oftentimes staggering data pertaining to efficiencies not realized through a more focused and strategic supply management approach; for example, reports from both the Aberdeen Group and the Government Accountability Office (GAO) have estimated that billions of dollars are potentially left on the table by not embracing supply management.

Based on the responses from participants in the online forum, we have identified four reasons supply management is undervalued at NMSBCs (Exhibit 1). They are:

- the importance of purchases;
- executive mindset;
- intangibility of savings; and
- supply management's inability to make its case.

Let's explore each of these in detail and then look at remedies.

## Importance of Purchases

*LinkedIn Forum Sentiment: Purchasing in NMSBCs is often seen as tactical, and not considered as a growth leader. The most challenging aspect in indirect procurement is the need to penetrate the functional areas and prove that your methods can bring success. Unless indirect procurement is irrevocably linked to revenue and business performance, it will continue to be undervalued. It is all about culture change driven by results.*

One reason why supply management is undervalued in NMSBCs is that the consequences for making the wrong purchase have little noticeable impact on the overall operations of the business. After all, most purchases consist of indirect items such as office products, maintenance supplies, or customized software services that facilitate the delivery of services. They're tactical; not strategic. Suppliers of indirect items and services are often viewed as interchangeable—they aren't critical to the survival of the business, as is the case for many suppliers to manufacturers. In addition, because NMSBCs typically work on a net margin/net profit basis, they may not calculate their cost of goods sold as is common in manufacturing companies with a bill-of-materials structure.

**Cost avoidance—or, the money not spent—is more difficult** to conceptualize than new revenue, or money earned.

Of course, the picture is quite different when NMSBCs source services that are delivered directly to their customers under their own brand and may affect revenues, such as a call center staffed by a third party, or utilize critical third-party technology hardware and/or software in the delivery of their products to their customer base. In those situations, supply management is more critical.

By undervaluing the importance of indirect spend, however, NMSBCs are missing a significant untapped opportunity to decrease costs and increase shareholder value through better fiscal management.

Parallels to this undervaluing were seen in the manufacturing sector until about two decades ago. Specifically, as supply management rose in importance over the last two decades, attention was first paid to the strategic aspects of supply management, such as developing alliances with suppliers and involving suppliers in new product development. Because these initiatives mostly involved direct materials, indirect materials were an afterthought.

Fast forward, and today we find that many manufacturing companies are now pursuing the untapped potential represented by this indirect spend, especially as organizations have maxed out the savings opportunities on the direct side.

Accenture, for example, estimates that savings of 8 percent to 12 percent can be realized through a more strategic approach to indirect purchases. This should be a signal to NMSBCs to pay close attention to the importance of this category.

## Executive Mindset

*LinkedIn Forum Sentiment: In the past, buyers had little interest or influence in any other business result other than price and extracting it, in any way or manner possible, from the "facing" sales representatives. Thus a deep rooted, ambivalent opinion of "buying folks" was and unfortunately still is often firmly implanted in the minds of rising executive leaders.*

The unrecognized value of supply management also has roots in the mindsets of executive leaders, who may lack an awareness of the importance of supply management: For example, 41 percent of the respondents in a recent survey by the procurement solutions firm Iasta noted this as one of the biggest obstacles to advancing their sourcing capabilities.

That procurement is not on the executive team's radar is partly explained by the fact that many chief

executive officers came up through the ranks from sales, finance, or marketing functions, which drive top line growth. That may slant their view toward sales and revenue. On the other hand, very few CPOs make the move to the chief executive office. Some exceptions include Tom Stallkamp, who was president at Chrysler in the early 2000s; Willie Deese, who is president of Merck's manufacturing division; and Apple CEO Tim Cook, who had supply management reporting into his organization when he was COO. We note that each of these individuals heads a manufacturing company.

For executives who lack a background in supply management, making a purchase may seem like a rather simple task compared to developing a marketing strategy or spearheading the roll out of a new product. Because everyone is a CPO in their personal lives, where we purchase everything from groceries and clothes to complex products like insurance, cars, and homes, there is a perception in the office that "anyone can buy stuff." In addition, procurement takes place after the fact: Purchasing decisions often aren't made until more strategic activities like design, engineering, and marketing have had their say. That creates the perception that supply management is a support function for the departments that increase sales and generate profits, while adding little intrinsic value itself. True or not, this mindset is a pivotal factor preventing supply management from becoming more strategic within the organization.

## Intangibility of Savings

*LinkedIn Forum Sentiment: The problem is that savings "get lost" almost immediately, because they are used for something else without being earmarked as such. You could also call it "funny money." We have therefore moved away from calling the various forms of cost reductions as savings, and now use the term value creation to describe the benefits generated by all our efforts.*

At NMSBCs, revenue is king. The impact of a great new service or product on sales is easy to grasp and easy to communicate. That's not the case with supply management, where the savings are often measured in terms of cost avoidance. That leads to what we call the intangibility of savings: Cost avoidance—or, the money not spent—is more difficult to conceptualize than new revenue, or money earned. The lack of a consistent and accepted methodology to measure and report savings from a financial perspective within organizations is another contributing factor to the intangibility of savings.

**The lack of a consistent and accepted methodology to measure and report savings** from a financial perspective within organizations is another contributing factor to the intangibility of savings.

As a result, critics may question the savings claimed by supply management. Were they really the result of effective supply managers, or an indication that due diligence was not applied in the past, and that these savings could have been realized if someone had their eyes on the ball? The financial implications of cost savings related to the supply management function cannot be understated.

It is important to note that the discipline of reporting sales revenue, cost of goods sold, and even payroll expenses are well established cost reports within any organization. It is a more complex leap for the C-level executive to understand how a dollar not spent is more valuable than a new dollar in sales. Therefore, how savings are calculated and communicated is of utmost importance and should be undertaken as a joint effort between supply management and finance. We also suggest that supply managers look for other advocates within the corporate structure to raise awareness of the fiscal impacts that more effective procurement can have to an organization's bottom line.

## Supply Management's Own Fault

*LinkedIn Forum Sentiment: Unfortunately too many procurement leaders focus on savings, which many people don't care about because it doesn't affect them. If that is the only drum procurement can beat, it is just an obstacle*

*to be avoided and irrelevant to the CEO.*

We don't want to blame the victim, but the question needs to be asked: Is the perception problem supply management's own fault? The short answer is: Perhaps.

Looking at supply management's evolution in manufacturing companies, we see that part of the reorientation from purchasing to strategic procurement was enabled by the discipline moving beyond beating up suppliers to save a nickel to employing total cost of ownership models and leveraging of supplier capabilities, as well as by increasing the focus on risk, sustainability, and social responsibility in the supply chain. These strategic approaches transformed supply management in manufacturing from being "folks who buy stuff" into valuable partners who contribute to the company's competitive position.

This transformation has not yet occurred in NMSBCs. The challenges are clearly greater because it is more difficult to illustrate supply management's value in the non-manufacturing and services sectors for the reasons we have already detailed. Moreover, the perception of supply management has further suffered in the last two decades as U.S. manufacturers outsourced operations to offshore partners. As manufacturing moved, so did much of the transactional activities related to procurement that used to be done internally. What was left behind was perceived as low-value work.

Finally, efforts are underway in many companies to transfer more and more purchasing responsibilities to the end users of the goods within the organization. This type of center-led activity enhances efficiency and effectiveness because supply management provides the infrastructure for internal users to conduct their own purchases; however, it also contributes to the misperception that "anyone can buy stuff," and that supply management is not a strategic function. In fact, supply management may even be perceived as a nuisance that creates obstacles an internal user has to overcome in order to buy something. Supply management may have contributed to this perception by presenting itself as a clerical function and by failing to market its services to others within the company at the right strategic level.

## Realizing The Value Of Supply Management

Given all of those perceptions, we believe that a paradigm shift is required before NMSBCs can realize the value of supply management. Below we suggest some strategies and action steps that can increase the relevance of supply management, and help NMSBCs accomplish this shift.

***Focus on the "Big Picture."*** It's important to demonstrate the impact of supply management on all aspects of business performance (finance, risk, stakeholder relations/perceptions). Consider for instance the recent economic crisis and the role of supply management to keep strategic suppliers afloat—great buyer-supplier relationship management helped partners to manage the crisis better together and continue business.

***Make Numbers Your Allies.*** Supply managers must demonstrate the importance of supply management data for visibility and risk mitigation (also for indirect items and procured services). One way to do that is to bring finance into the partnership of reporting and to validate the numbers.

***Become More Proactive and More Involved With Other Functions.*** Fifty-five percent of the respondents to the Iasta survey noted that establishing stakeholder engagement is one of the most important skills procurement teams need to meet their objectives. Supply management needs to penetrate other functional areas and demonstrate that its methods can bring success; obtain buy-in from other functions; focus on low-hanging fruit to gain momentum; and emphasize that supply management has the ability to anticipate and reduce risk for indirect spend and NMSBCs.

***Become Marketers of Your Capabilities.*** If supply managers no longer want to be viewed as "back room" staff, they have to market their contributions and value propositions to the organization. They can increase the visibility of supply management by soliciting feedback and ideas from other functions and promoting the

**Engage in a dialog with internal users to identify how supply management can make their jobs easier**

by, say, generating savings that they can transfer to their pet projects.

value-add that supply management can provide to those functions.

***Get A Seat at the Small Table.*** At manufacturing companies, supply chain management is gaining a seat at the big table in the executive suite. While a seat at the big table is desirable, supply management should also take small steps to obtain seats at smaller tables, such as cross-functional teams with operations and marketing. That kind of involvement provides an opportunity to demonstrate the true value supply management can bring to other constituents within the firm.

***Convince Executive Leadership.*** As with most change management initiatives, change comes from the top: Executive leadership has to be convinced of supply management's value. This can be achieved by highlighting the success of companies where supply management has been directly endorsed by their CEOs, or where CEOs rose from the supply management function, such as at Chrysler, Merck, and Apple.

***Change How Savings are Perceived.*** Don't simply disclose how savings are calculated, but consider obtaining input from other functions on how savings should be calculated and reported so that an objective measure can be developed. Then, let the numbers speak for themselves by re-labeling savings into "cost efficiencies" or—even better—"value creation," which describes the benefits generated by supply management.

***Expand Your Focus Beyond Savings.*** Because savings in an NMSBC may have little impact on other constituents within the firm, supply management needs to move the conversation beyond savings by focusing on the value-added contributions and direct benefits it can provide to internal users. These might include responsiveness, better quality, or the faster delivery of products and services. While you're at it, engage in a dialog with internal users to identify how supply management can make their jobs easier by, say, generating savings that they can transfer to their pet projects. Last, but not least, establish supply management as a center of expertise for others in the company. Then: Advertise your wins.

## Seizing Opportunity

Supply management has only recently obtained true strategic importance in manufacturing companies. It may very well take more time to make the same gains in NMSBCs. This article is meant to help supply management functions speed up that process, and to motivate supply managers in NMSBCs to be more proactive to elevate the status of their function within their firms.

Change will most likely be difficult to accomplish because the status quo is often ingrained. But we encourage supply management professionals in NMSBCs to embark on this journey. The suggested strategies above can help pave the way. In doing so, we stress the importance of persistence and celebrating small wins, but not resting on your laurels.

Ultimately the value of the supply management discipline is part of the overall value your organization provides to the final customer. The more supply management can tie its value proposition to the ultimate customer or the ultimate stakeholder, the more success you will achieve.

***About Our Research***

*Last year, Jill Bossi posted a comment in a LinkedIn group for purchasing and supply management executives that called attention to the fact that supply management still remains an undervalued function in many non-manufacturing companies. Bossi asked group members to share their thoughts and insights on the topic. Specifically, she asked participants to provide reasons for why this may be the case, as well as for remedies on how to overcome the undervalued status of supply management in non-manufacturing and service-based companies. The forum discussion received tremendous interest within a very short period of time, generating a multitude of insightful comments by the participants. The passion exhibited in the posts inspired us to share the major insights derived in this article.*

# *How They Did it:*

# Diageo NA's Supply Chain

**By Bob Trebilcock**

*Bob Trebilcock is Editorial Director of Supply Chain Management Review*

In November of 2014, Diageo North America introduced Regal Apple, a new flavored Canadian whisky with the premium taste of Crown Royal that is infused with natural apple flavors. While any new product is a roll of the dice, this one hit the jackpot. By the end of June 2015, it was the top selling innovation in the US for the year, driving a 12 percent growth in Crown Royal sales.

More importantly, it was one of more than 250 product innovations—Diageo NA's term for new products, brand changes, and renovations of existing products—

**Over the last six years, a global leader in beverage alcohol has transformed its supply chain to be more agile, responsive, and attuned to growth. The result is a supply chain geared to out-innovate the competition.**

# Innovation

managed in fiscal 2015. Across all of Diageo's regions innovations accounted for over £500 million in sales for the year. Rolling out new SKUs at an average pace of approximately three to four per week, Diageo NA's innovations were as varied as Guinness Blonde American Lager, a single grain scotch called Haig Club developed with soccer star David Beckham and Simon Fuller of American Idol fame, and the Orphan Barrel Whiskey Distilling Co., which locates and bottles forgotten barrels of premium aged whiskey.

Getting all of these new products onto retail shelves is made possible by an ongoing supply chain transformation journey fine-tuned for agility, responsiveness, and growth. Diageo's efforts have been recognized by Gartner, which named it to the consumer products Top 10 list for 2015. Supply chain and the supply base are involved in the innovation process from the start, not after the fact. "We want our supply chain to be a competitive advantage," says Paul Gallagher, president of North American Supply at Diageo. "By involving Supply

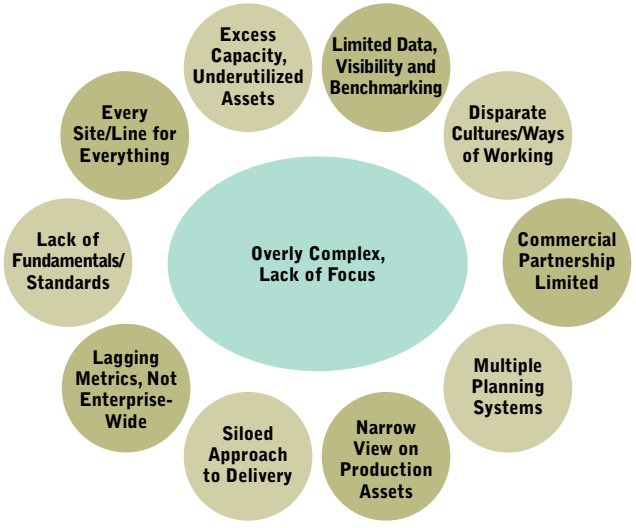
early in the innovation process, we enable Diageo to have first mover advantage."

That's no small feat, when you consider that delivering 250 new product innovations involves the planning and sourcing for up to 5,000 components. In a promotion-driven industry where timing is everything, some products have gone from concept to shelf in as little as 8 weeks. To that end, Diageo NA has developed a rigorous and repeatable six step process (see sidebar) that turns innovation into a best practice. The result is a company, and supply chain, ready to out-innovate the competition.

EXHIBIT 1

**End-to-end Transformation**

**Formed Through Decades of Mergers and Acquisitions**




Source: Diageo

## Supply Chain Transformation

With fiscal year 2015 net sales of £10.81 billion and a presence in 180 markets, Diageo is a global leader in beverage alcohol. Its portfolio includes Johnnie Walker, Crown Royal, J&B, Windsor and Buchanan's whiskies; Smirnoff, Cîroc and Ketel One vodkas; Baileys, Captain Morgan, Tanqueray, and Guinness; and Beaulieu Vineyard and Sterling Vineyards wines. Diageo NA, its largest and most profitable region, delivered 32 percent of Diageo's total sales and around 45 percent of its global operating profit for the year ending June 30, 2015. The North American business produces approximately 50 million cases annually while managing over 4,000 SKUs.

Diageo NA's operating environment will sound familiar to any CPG manufacturer or distributor. SKUs are proliferating; there is more segmentation of products to target ever more specific consumer groups; personalization, such as the ability to custom-engrave a consumer's name onto a bottle of Johnnie Walker Blue, is a competitive advantage; speed to market and the pressure to claim first mover advantage are essential to success; and finding the right balance between inventory and working capital is a constant struggle. All of this happens in an industry that is highly regulated at the state and federal level.

And then there is the constant drumbeat to innovate. Consumers, especially consumers of high-end wines and spirits, are looking for more than a beverage; they're looking for the experience that comes from the discovery of something new. "Some consumers are looking for good quality but accessible spirits," says Gallagher. "For others, the value is in the exclusivity of a product." For that reason, the Diageo NA supply chain has to deliver on high-volume products that can run for days on the same bottling line. At the same time, it must also be able to produce unique, exclusive products like the Cîroc Ten ultra-premium brand extension of Cîroc vodka, which was presented to award nominees at the Grammys last March as

part of Diageo's awards partnership. "Our supply chain needs the competencies to deliver effectively on all of them," Gallagher says.

**Technology updates, internal process and operations improvements,** and cost containments have come together with a culture shift that is enabling Diageo NA to deliver an aggressive innovation agenda, especially in the whiskey category.

To that end, supply chain at Diageo NA has been evolving into a demand driven value network that propels top and bottom line growth. Technology updates, internal process and operations improvements, and cost containments have come together with a culture shift that is enabling Diageo NA to deliver an aggressive innovation agenda, especially in the whiskey category.

It hasn't always been so. Roll back the calendar to 2009, and the organization looked very different (see Exhibit 1). Brands acquired over the years brought with them their own supply chains and networks of facilities. Seven siloed planning and ordering systems led to a lack of visibility. Manufacturing and logistics assets were under-utilized. More importantly, there was a one-size-fits-all mentality in production: Every line was geared to do everything, from a lengthy run of Smirnoff to a small batch run of a new product. Changeovers were frequent, disruptive, and inefficient. Something had to change if Diageo NA was going to grow in the innovation space. "There was an inflection point where we realized that running Captain Morgan for three days on end wasn't going to suffice," says Rob Moore, senior vice president of supply for Diageo North America. "Innovation was a way of life, and we needed to become flexible and agile to deal with the complexity that innovation brings."

The goal of the transformation project launched in response was to create a world-class supply chain that was not just the best in the beverage alcohol industry, but in the CPG industry. While Gallagher, Moore, and their teams undertook a number of initiatives, several speak directly to innovation. These include a change in the cultural mindset around supply chain management; a Design to Value approach to innovation; differentiated supply chains to manage existing products with predictable demand and to deliver on new products with volatile demand; and a differentiated approach to S&OP.

## Change the Culture

Most supply chain professionals are tacticians. They focus on how to take costs out of the supply chain as they get their product from Point A to Point B—and then cut some more. Diageo NA turned that idea on its head: Sometimes, they realized, the push for the lowest possible cost can slow the innovation process and create bottlenecks to getting a new product on the shelf as expeditiously as possible.

In this new model, members of the supply chain team are business leaders first, supply chain experts second. More importantly, supply chain, marketing, sales, R&D, and other functional areas no longer work independently of one another. They work together, aligned with the company's goals. Gallagher describes these as the 3 Es:

1. Enhance margins rather than merely reduce costs.
2. Enable growth through speed to market or speed to decision making that makes things happen in a cohesive manner.

3. Engage people so that they are aligned and realize the difference they make to the organization.

"There is no longer a supply chain silo, a marketing silo, and a sales silo," he says. "We work as one business with one objective, which is to enhance margin and enable growth." Monthly S&OP meetings are the bridge between functional areas and the key tool to keeping everyone on the same page (more on that later in the article).

Of course, cost ultimately matters, especially for existing products. But if it's a choice between driving growth and saving a nickel during the innovation process, Diageo NA will go with margin and growth.

EXHIBIT 2

**Transformed Network: Fit For Today**

- Total Network Strategy
- Optimized Footprint: Improved Utilization and Return on Assets
- Dedicated Lines for Efficient, Responsive and Flexible/Agile
- Faster Route to Market
- Metrics Collectively Owned-Improved Performance on All
- Closer Supply/Demand Alignment

Source: Diageo

## Design to Value

Diageo NA's Design to Value approach to innovation illustrates this cultural shift. In a traditional new product design, R&D creates the specifications for a new product and then turns those over to supply chain to make it happen. Procurement tries to get the lowest price for the materials and components in the spec.

In Design to Value, Diageo NA brings its suppliers and commercial development team around the table to take a concept developed in the innovation center through manufacturing and logistics and onto the retail shelf as expeditiously as possible. "No one has a monopoly on good ideas and not all ideas need to come from within our organization," Gallagher says.

# Six Steps To Innovation: How Diageo's Supply Chain Brings New Products to Market

Hitting the shelves in time for the 2014 holiday season, Crown Royal Regal Apple was one of Diageo NA's most successful new product launches. In fact, demand for the apple-flavored Canadian whisky caught the company by surprise. "We knew we wanted a fall launch and we got that," says Rob Moore, senior vice president of supply chain for North America. "What we got wrong was the forecast. We thought we would do 190,000 cases in the first 90 days and we ended up doing 315,000 cases."

The launch was the culmination of a six-step innovation process Diageo deploys for new products or extensions of existing brands. What follows is a look at how the six steps are put into practice, compiled with Steve Harris, senior vice president for technical operations and one of the executives on the team that brought Crown Royal Regal Apple to store shelves.


**Step 1: The Opportunity.** The first step for any innovation is to identify a new opportunity. Most new concepts originate in the marketing department, where the innovation team is tasked with creating a new product pipeline with a three-year horizon. During this step, the innovation team will conduct research, including consumer surveys, to come up with ideas such as an apple-flavored whisky. The team then creates a proposal describing why the concept is in line with Diageo's strategy for that base brand. Once the concept is approved, it moves into the innovation center for development. Although early in the process, supply chain is brought into the loop.

**Step 2: Developing the Concept.** In the case of whisky, the development team works with Diageo's skilled distillers and blenders to set about creating a new liquid. Once a concept is ready for further development, the branding team begins to work on a name, a bottle,

**Of course, cost ultimately matters, especially for existing products.** But if it's a choice between driving growth and saving a nickel during the innovation process, Diageo NA will go with margin and growth.

At this stage, business growth and speed to market trump cost. "If we looked solely at costs during innovation, we would be searching for the lowest cost bottle or packaging," Gallagher says. "But if we have to wait for delivery from China rather than pay a little more to get it quickly from a local supplier, we will go with speed." For that reason, Diageo NA is not just asking its suppliers for unique ideas; it is also asking them to look at their contribution through a lens of agility and speed.

What's more, Diageo NA works to get people with decision-making authority at the Design to Value table. That way, everyone from the supply base to marketing knows their part. "The mindset has to be: How do we make this happen, rather than list all the reasons it can't be done," Gallagher says.

## Create a Differentiated Supply Chain

A shift in culture was accompanied by a shift in the approach to production. "Our production lines were becoming all things to all SKUs," says Moore. "We were running 750 milliliter bottles of Captain Morgan on the same line as we were running a variant of Godiva Chocolate liquor that sells 3,000 cases on Valentine's Day. We had a lot of changeovers that didn't make sense."

What was needed? A differentiated supply chain. Diageo NA invested an estimated $250 million in its

packaging, and a label. Meanwhile, the North American whisky blenders are engaged to begin creating different blends—in this case, different blends of Crown Royal—for the innovation center to experiment with flavor. At this stage, the cost of the ingredients takes a back seat to coming up with "a gold standard liquid" ready for commercial development.

**Step 3: Commercial Development.** Commercial development is all about scaling up a new product for production. During this step, supply chain rolls up its sleeves and begins the Design to Value process. Suppliers are invited to join the design table, along with representatives from other functional teams, to develop a commercially viable product that delivers the best margin at the price point targeted for the market. During this step, all of the processes and materials that go into production are put under the microscope: That's because it's easier to design value into a product up front than to take cost out later. The commercialization leader coordinates that activity and passes along project plans, timelines, and regular updates to the supply chain planning and procurement team.

Simultaneously, the Innovation S&OP gets underway. This team runs different what-if scenarios to tweak the forecast volumes.

**Step 4: Test Market.** The test market step is typically reserved for products that are brand new to the market. Sometimes, as in this instance, the consumer research and testing done during the first three steps is sufficient.

**Step 5: Product Launch.** Once an innovation has passed through the first four steps, it is ready to launch. The supply chain team brings in the materials needed to get the lines rolling—in this case, to get the product bottled, packaged, and on the shelves for the holiday season. After a quality hold, trucks begin to roll and product is shipped.

**Step 6: Post Launch Review.** The final step in the innovation process is a post launch review. This is done for select products—not every new product warrants a post launch review—and can happen at any time up to six months after the product launch. "Some products are straight forward," says Harris. "With others, there's an opportunity to learn something that might help us improve the next launch."

plants and IT infrastructure to create a network of assets that could support innovation. These include a new $115 million distillery in Kentucky that will be operational in late 2016 and standardizing on SAP's APO for production planning and SmartOps for inventory planning by SKU.

The result, Moore says, is a North American footprint realigned to meet the needs of the business, or "a supply chain that is fit for a purpose." (See Exhibit 2.) In this model, highly-automated lines are devoted to high volume brands with predictable forecasts, like Smirnoff, that can run the same product for days. Innovation lines, meanwhile, are designed to make a few thousand cases of one product before changing over to make something else.

At the George Dickel distillery in Tullahoma, Tenn. for instance, associates hand-bottle small batches of aged whiskies on a semi-automated line for the Orphan Barrel program. "Many of these are one-time bottlings," says Gallagher. "The people working in the distillery will stop what they're doing to bottle as orders come in." The same facility also fills orders for the George Dickel barrel program, which ships a limited number of cases from a hand-selected barrel along with the actual numbered barrel on a pallet to retailers. "Tullahoma is designed to react quickly because we don't make to stock and we don't have a lot of forecast accuracy," Gallagher says.

EXHIBIT 3

**Transformed Network: Fit the Future**


Source: Diageo

## Innovation S&OP

In Diageo NA's new supply chain, S&OP acts as "the key instrument to drive the business forward and keep us aligned to the goals we want to achieve," according to Gallagher. Just as it differentiated its supply chain, about 18 months ago, it launched a differentiated approach to S&OP.

Products with a long history, like Smirnoff or Crown Royal, are handled in a conventional monthly S&OP meeting. "The forecast accuracy is in the high 90s, the interaction with suppliers is primarily through EDI, and most shipments are full truckloads," Gallagher says. "That's a pretty lean supply chain."

Innovation is a different animal. Demand is volatile—a new product can take the market by surprise, requiring everyone to step up their game in a hurry, or disappoint to the downside, leading to a quick change in production plans. The Innovation S&OP is designed to respond to that volatility.

A typical meeting is

**In Diageo NA's new supply chain, S&OP acts as** "the key instrument to drive the business forward and keep us aligned to the goals we want to achieve," according to Gallagher.

divided into thirds, according to Moore.

One part is devoted to SKUs that are about to launch: Any changes in assumptions are communicated across the supply chain to make sure that suppliers and Diageo have the right amount of capacity for the upcoming launch.

**The approach delivered on a number of key metrics across its supply chain operations:** Overall equipment effectiveness has improved by 48 percent, lost time to accidents improved by 98 percent, and quality, as measured by parts per million defects, improved by 99.7 percent.

A second part deals with products in the first 90 days of a launch. The S&OP teams stays close to sales, depletion rates, and consumption trends to determine whether to increase or decrease procurement and production or distribution plans. The third part of the meeting reviews innovations that have been in the market for up to one year to determine whether they can move from the innovation to the regular supply chain.

## Pulling it All Together

How then do the pieces fit together? Roughly six years into the supply chain transformation, Diageo NA believes its transformed network is fit for the future. (See Exhibit 3.) So does Gartner, which placed Diageo at No. 9 on the Top 10 consumer products supply chains, and No. 27 overall. The analyst firm noted that Diageo's segmented approach to supply chain management "delivers cost savings and supports innovation and growth."

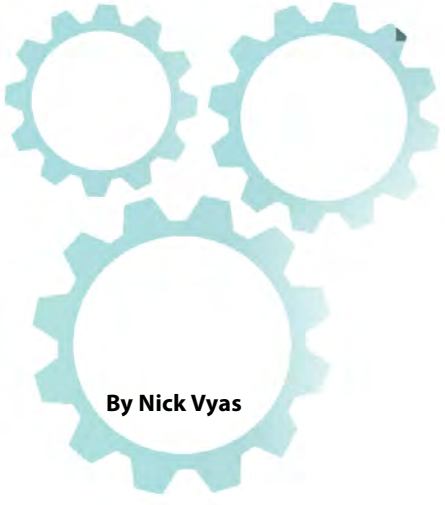
The approach delivered on a number of key metrics across its supply chain operations: Overall equipment effectiveness has improved by 48 percent, lost time to accidents improved by 98 percent, and quality, as measured by parts per million defects, improved by 99.7 percent. And—to prove that cost still matters—the cost per case improved by up to 50 percent in some manufacturing locations. As Gallagher and Moore point out, supply chain is driving innovation, satisfying the need for mass scale to custom made, and prepared for future growth and continued expansion.

The innovation numbers are even more striking: Fiscal 2015 was the biggest innovation year yet for Diageo NA, which leads all other suppliers in dollar share of innovation with 70 percent of the top 100 new products that have been in the market one year or less, according to Nielsen. It similarly leads its competitors in the North American market. "We believe the differentiated process model we're putting in place is the future of supply chain," says Gallagher. "In the future, getting insights from our consumer base and bringing them to the table as quickly as possible will no longer be managing change. It will be the norm."

### Diageo at a Glance

- Global leader in beverage alcohol
- Presence in some 180 markets worldwide
- Diageo North America produces approximately 50 million cases each year
- Laid end-to-end, those bottles would circle the globe 4 times
- 1,500 people employed in Diageo NA supply organization—encompassing distilling, maturing, bottling, procurement planning, logistics, customer service, and distribution

# Four Compass *for* Global Supply



**The rapidly evolving and increasingly global world of e-commerce poses challenges for business survival. Navigate the unprecedented challenges—and find opportunities for innovation within them—using these four interconnected compass points of a modern global supply chain.**

**By Nick Vyas**

The points on a compass have kept travelers headed in the right direction for hundreds, if not thousands of years, even as they sailed off into uncharted waters or ventured into new territories. Managers of global supply chains are in a similar boat as their ancient counterparts. Their world's are changing rapidly as their companies enter new, emerging markets and they confront a host of new cultures and broader trends.

For example, technological advancement has raised consumer expectations for the rapid and convenient delivery of products, while a rising generation of middle class consumers has increased the demand that those products be ethically and sustainably sourced. Supply chain executives can work to maneuver through these challenges when they consider the following trends:

- emerging markets;
- mega cities;
- millennial consumers; and
- e-commerce.

Think of them as four interconnected points on the supply chain compass—modern global supply chain managers who take them into consideration when designing their processes and networks will stay headed in the right direction. Let's take a look at each in turn.

## Emerging Markets

Emerging markets are defined as countries that have started to grow, but have yet to reach a mature stage of development and demonstrate significant potential economic

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# Points
# Chain Management

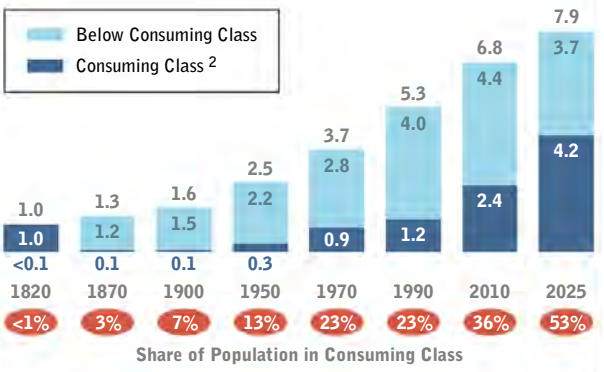
or political instability. Emerging economies are becoming larger participants in the global commodities markets, with rising levels of production, consumption, and investment. These economies have significantly raised their share of both import and export commodity flows over the past decade.

The distribution of the consuming and below-consuming classes reveals a marked change from 1820 to 2025 (see Exhibit 1). In the history of supply chain management, markets in the United States and Europe were dominant. However, in the past decade this was drastically altered and a new set of emerging markets in a range of developing countries are not only rivaling but also displacing the U.S. and Europe as leaders in commerce.

The emerging world's share of the global value of metals, minerals, and oil and gas exports increased from 49 percent in 2002 to 62 percent in 2012. These countries now produce more than two-thirds of oil and gas exports (more than half of which come from the Middle East), and nearly 60 percent of mining exports (half of which originate in Latin America). Exploration and production is also moving to emerging regions. Almost half of the world's known reserves of minerals and oil and gas are in countries that are not members of either OPEC or the OECD. This fact undoubtedly understates the true potential for resource production in the emerging world, where relatively little exploration has taken place so far.

Most exploration has historically taken place in regions like the U.S., South Africa, and Australia where there is a strong mining heritage, and because of a lack of sufficiently sophisticated exploration techniques to explore more hostile regions. A boom in demand, coupled with deteriorating grades and escalating costs, forced mining companies to look at other regions. As mining technology improved, it became easier to explore in frontier economies and discover more high-quality reserves.

EXHIBIT 1




[1] Historical values for 1820 through 1990 estimated by Homi Kharas; 2010 and 2025 estimates by McKinsey Global Institute.

[2] Defined as people with daily disposable income above $10 at PPP. Population below consuming class defined as individuals with disposable income below $10 at PPP.

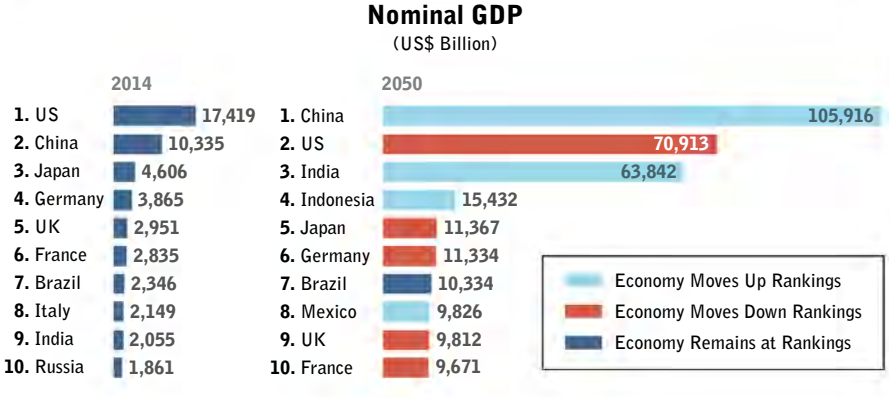
* Numbers may not sum due to rounding.

Source: Homi Kharas; Angus Maddison; McKinsey Global Institute Cityscope 2.0

The changing resource landscape has a number of significant implications for the network of global commodity flows. First, the growth of consumption in emerging markets—especially in India and China—is likely to have an impact across all the major commodity sectors. China and India together are expected to account for 60 percent of the total increase in primary energy growth worldwide, and China alone was responsible for 30 percent of the growth of emerging-market commodity imports between 2002 and 2011. China and India will continue rapidly growing as the U.S. likely slides down rankings heading toward 2050 (see Exhibit 2).

Resource prices are likely to remain high, at least in the medium term, due to surging demand at a time of constrained supply. We are also likely to observe continued volatility in commodity prices observed since roughly the turn of the century, but we expect even more fluctuation ahead. Over the past 13 years, the average annual volatility of resource prices has been almost three times

EXHIBIT 2




Source: The Economist Intelligence Unit

as high as in the 1990s. As production shifts to riskier geographies, it is likely that volatility will continue and even become exacerbated. In fact, resource-driven countries accounted for 19 of the 35 "fragile country situations" identified by the World Bank Group in 2013. The trend toward greater integration of the global economy, especially in terms of goods traded through global supply chains, has left individual countries more exposed to fluctuations in production in distant regions of the world.

Finally, the shift in energy production to new—and many emerging—regions could reshape the flows of other energy-intensive goods and associated services. For example, industries such as petrochemicals and fertilizers are receiving investment in the United States to take advantage of low-cost natural gas enabled by the shale gas revolution. The growth of such industries could have a profound effect on the global economy.

As the traditional leading markets begin to decline, new markets gain traction even beyond traditional energy and mineral commodity sectors, leading toward technological advancement in supply chain and retail. Again, this is particularly true in Asian nations such as China, India, and Singapore. The emerging markets have boomed as a result of innovations that have provided quick and direct access to a global population of consumers. Take, for example, China's Alibaba, the world's largest e-commerce company that now handles more orders, products, and consumers than U.S.-based Amazon. Forbes recently noted that the products and services linked to Alibaba "lie at the core of an extraordinary transformation of China today from a low-cost, export-driven economy to one that is driven by consumers" and, added that "Alibaba has succeeded in making China—a country with countless internal barriers to trade—seem like one market where goods can be purchased, delivered, and paid for with a confidence unimaginable little more than a decade ago." India, too, is making powerful strides in creating its own consumer culture, as its rising middle class draws major brands such as Gap and Starbucks into its supply chain. Simultaneously, domestic retail companies, such as Snapdeal, are embracing the same disruptive technologies that are shaping omni-channel retail and providing consumers with quick and convenient methods of purchase.

**EXHIBIT 3**

**In How Many of the Future Megacities are You Doing Business?**

| | | | |
|---|---|---|---|
| Tokyo | Houston | Seoul | Hangzhou |
| New York | Dallas | Boston | Taipei |
| Shanghai | Nagoya | Atlanta | Bangkok |
| Los Angeles | Shenzhen | Milan | Dongguan |
| Beijing | Istanbul | Buenos Aires | Frankfurt |
| London | Amsterdam | Foshan | Madrid |
| Paris | Mexico City | Miami | Shenyang |
| Osaka | Chongqing | Brussels | San Diego |
| Sao Paolo | Singapore | Rio de Janeiro | Doha |
| Moscow | Hong Kong | Nanjing | Munich |
| Chicago | Philadelphia | Melbourne | Kuwait City |
| Rhein-Ruhr | Wuhan | Riyadh | Minneapolis |
| Tianjin | San Francisco | Phoenix | Suzhou |
| Washington DC | Sydney | Seattle | Xi'an |
| Guangzhou | Toronto | Chengdu | |

Source: Nick Vyas

In these emerging markets, ultimately commerce has the power to cause greater growth and change in the countries' global economic positioning than even government institutions and policies. Growth of consumption in these emerging markets is also likely to have an impact across all the major commodity sectors. Resource prices are likely to remain high; and the shift in energy production to new and emerging regions could reshape the flows of other energy-intensive goods and associated services in the long term.

## Mega Cities

Mega cities are defined as having very large populations with residence rates of over 10 million people. The U.S. has 15 emerging mega cities, but most are spread throughout the world and can help us better understand where and why emerging markets are cropping up.

Over the next three years, there will be a significant

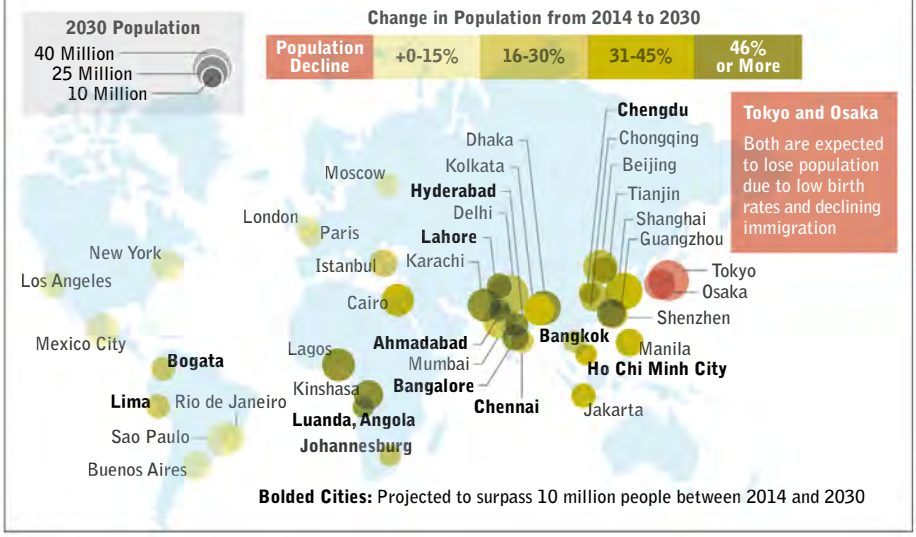

**In these emerging markets, ultimately commerce has the power** to cause greater growth and change in the countries' global economic positioning than even government institutions and policies.

rise in the number of mega cities worldwide. There are currently 28 urban areas globally with at least 10 million people; by 2030, the 12 cities listed below are expected to enter the ranks of the planet's mega cities.

- Bogota
- Lahore
- Lima
- Luanda
- Johannesburg
- Ahmadabad
- Hyderabad
- Bangalore
- Chennai
- Bangkok
- Chengdu
- Ho Chi Minh City

EXHIBIT 4

**Cities with a Projected 2030 Population of More Than 10 Million**




**Bolded Cities:** Projected to surpass 10 million people between 2014 and 2030

Notably, these cities are not in the declining markets of the U.S. and Europe, but are spread throughout Asian and South American emerging markets. Exhibit 4 shows a map of the distribution of these 12 important future mega cities.

Mega cities have begun to dominate local and global markets, as residents in emerging economies move toward a centralized location that allows retailers faster access to consumers—a phenomenon that cuts down on travel time between supply chain components and allows retailers to beat previous records in delivery of product. It is of note that the rising middle class is crucial to the appearance and growth of mega cities, especially in emerging markets.

The middle class is the engine of consumer spending in emerging markets. The proportion of middle class houses (defined as those with a disposable income over U.S. $10,000) ranges from a high of 99.5 percent in the United Arab Emirates to a low of 4.8 percent in Kenya. In terms of income, the middle class in those same 20 countries earns from around U.S. $3,000-$6,000 per household in Nigeria to U.S. $74,000–$150,000 in the United Arab Emirates.

The middle class households in emerging markets are twice as likely to report that spending on education for household members is one of their top five financial priorities (30 percent vs. 16 percent). Emerging middle classes in Indonesia, Mexico, and Colombia are especially likely to prioritize education (38 percent to 44 percent.

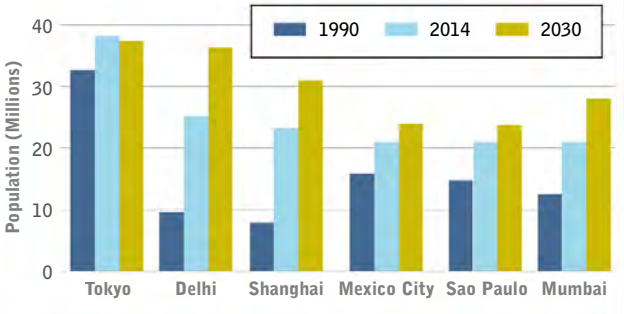
The increased education and wealth of residents in mega cities is also an influential factor in retail. Greater wealth leads to a greater desire to build a centralized culture not based in Western values, but rather celebrating an emerging nation's own traditions and future. The development of a vibrant and active culture in a centralized location draws the younger generation toward cities that offer a vast array of quickly accessible products and experiences.

India's mega cities of Delhi and Mumbai are strong examples of this. Despite the fact that 70 percent of the country's population still lives in rural locales, India's mega cities are encountering massive population expansion, with current populations at approximately 21-25 million inhabitants. Exhibit 5 shows how Indian mega cities' current and projected populations compare to those of other nations. The population of these cities

EXHIBIT 5

**Soaring Skylines**

India's megacities have grown into the world's largest and will continue




Source: United Nations

is increasingly young, and the millennial generation is a powerful force in shaping Delhi and Mumbai's economics and culture.

This is an emerging global middle class with considerable spending power. For instance, some estimates expect to see 240 million middle class households arise in India and urban China over next the 15 years. Consider the position of the middle class in the mega cities of the following emerging markets.

**ASEAN.** The middle class income group in the Association of Southeast Asian Nations (ASEAN) region will exceed 100 million people by 2020, according to an estimate from The Boston Consulting Group and McKinsey & Company. They further predict that the political and economic organization of 10 Southeast Asian countries—Indonesia, Malaysia, the Philippines, Singapore, Thailand, Brunei, Myanmar, Cambodia, Laos, and Vietnam—have a combined population of more than 600 million people.

**Africa**. McKinsey & Company forecasts that 128 million African households will earn U.S. $5,000 a year or more by 2020, enabling them to spend half their income on non-food items. Furthermore, Africa's middle class families—those earning U.S. $20,000 or more—outnumber India's. Findings such as these echo ICEF Monitor's analysis of the situation in Nigeria, an emerging market where the combination of a rapidly growing population and burgeoning middle class has given rise to a huge demand for quality education.

**Greater China.** A bigger proportion of young and mid-level population dominates China's age distribution. Although the standard deviation at China's end is higher, the median income in China is projected to be U.S. $8,366.75.

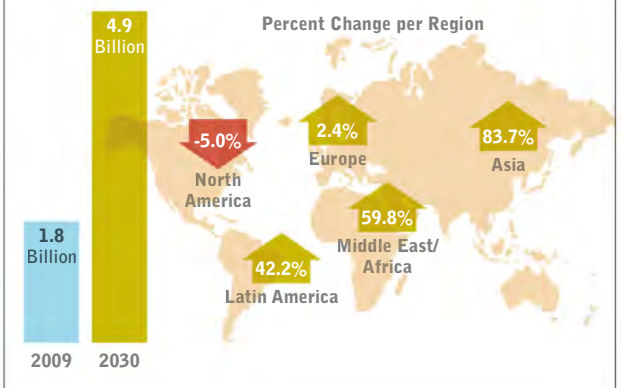
## Millennial Consumers

The "millennial generation" is a demographic cohort that emerged into young adulthood at the start of the new millennium. Compared to their predecessors, they are more likely to live within these emerging market mega cities and belong to an expanding middle class with access to global markets through technology, more disposable income, and greater levels of education.

As a result of their educations and technological proficiency, millennial consumers are much more likely to witness their economic or social situations in a global context—not only local or national. Thus they are driven toward a desire for quick, convenient, and accessible retail experiences as well as a preference for retailers who participate in sustainable supply chains and corporate social responsibility. They are even willing to pay more to retailers that meet the latter criterion.

EXHIBIT 6

**World's Middle Class Growth**



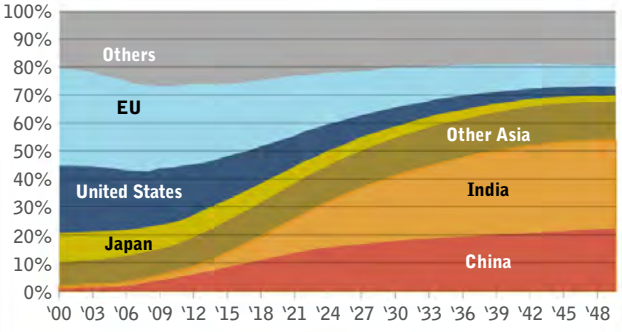

Source: OECD

The millennial middle class has become the engine of consumer spending in emerging markets. Exhibit 6 shows a Forecast of the World's Middle Class growth is from 1.8 billion to 4.9 billion from 2009 to 2030.

If we break down the millennial middle class by geography, it becomes clear that most of this generation will be concentrated in the emerging markets. The middle class income group in the ASEAN region will exceed 100 million people by 2020. In Africa, meanwhile, forecasters predict the average middle class family will earn U.S. $20,000 or more by 2020. Across greater China and India, over 240 million middle class households will arise over next 15 years. The effects on consumption and supply chain will be felt locally and globally, through this population's use of expendable income as well as its cultural philosophies surrounding consumption. (Exhibit 7 is a prediction of shares

EXHIBIT 7

**Shares of Global Middle Class Consumption, 2000-2050**




Source: Titan (2014)

of global middle class consumptions from 2000-2050.)

Beyond millennials' personal goals of travel and retail consumption, there continues to be a widespread belief that businesses and retailers should positively affect a range of societal issues, such as resource scarcity, climate change, and income inequality. This heavily affects how retailers—and the emerging e-commerce market—will function in the future.

## E-Commerce

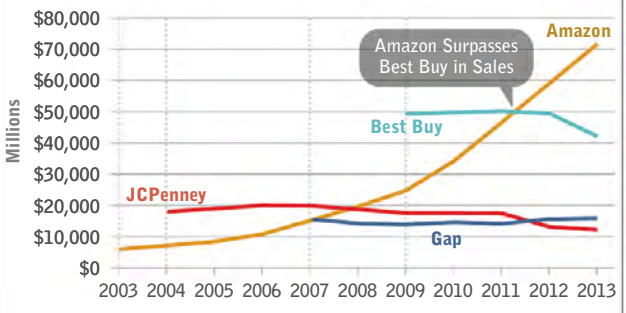
Disruptive technologies change how retail works by allowing 24-hour access to retailers, a wider range of retail stock options, and the convenience of swift purchasing and delivery. This technology has severely decreased consumers' tendency toward brick-and-mortar retail and drastically increased rates of e-commerce and omni-channel shopping. For example, Amazon surpassed BestBuy in sales consistently over the past 5 years as consumers took to ordering hardware and software as well as entertainment products from their computers for home delivery. As the majority of the population becomes comfortable with smart phone technology in their daily lives, and stores begin taking advantage of smart phone purchasing apps and omni-channel platforms, mobile e-commerce is quickly becoming another impactful trend to follow. (See Exhibit 8.)

E-commerce and omni-channel retail meet the consumer demands of millennials across the globe, and they are rapidly evolving to increase convenience. Technologies such as drone delivery (currently in development at such mega e-retailers as Amazon and Google) will ultimately increase speed of delivery, especially in mega cities with proximity to ports and warehouses where goods are stored. E-retailers and omni-channel retail sites not only provide this type of extreme convenience but also the transparency linked to millennial consumers' demands. After all, the Websites and apps can provide extensive consumer reports or information on CSR programs that cannot be delivered as easily at brick-and-mortar stores.

EXHIBIT 8

**Total Retail Sales: Amazon vs. Top Retailers**

(Global)




Source: Company Filings, Internet Retailers, BI Intelligence Estimates

## Navigating Through Supply Chain Evolutions

What then should a supply chain manager make of these trends? And, how do they use them as compass points for navigation? We believe the layering of each of these factors can assist organizations in traveling the rapidly shifting waters of the supply chain. None of the four compass points of modern supply chain management are fully distinct; rather, they point to an increasingly global world that demands an increasingly technology-driven global supply chain.

Yet, worldwide demands for sustainability and ethical sourcing come with the accompanying demand that organizations not sacrifice the globe or the well being of its inhabitants in favor of convenience. Organizations will need to balance these demands in order to stay relevant with their stakeholders.

***Editor's note:*** *This is the first of two articles by Nick Vyas that will look at trends affecting global supply chain management. In the second article, Vyas will examine how these trends will affect supply chain networks and processes.*


**E-commerce and omni-channel retail** meet the consumer demands of millennials across the globe, and they are rapidly evolving to increase convenience.

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# The Evolution of Supply Chain Collaboration Software

**Are you on the same page, in real-time, with your trading partners? That's the promise of today's supply chain collaboration software.**

**By Bridget McCrea, Contributing Editor**

A fly on the wall of virtually every business meeting and in any corner of the corporate world right now would be hard pressed not to hear the word "collaboration" mentioned at least once. Defined as the action of working with someone to produce or create something, collaboration has floated to the top of supply chain managers' minds in recent years thanks to an increased focus on how "working together" produces better results than trying to get tasks accomplished with fragmented, siloed systems.

Across the supply chain, collaborative software helps bring formerly disparate and disconnected entities onto the same page. With the emergence of cloud computing making this goal even easier, vendors are developing solutions that help optimize logistics and procurement, enable the exchange of data, and encourage collaboration among business partners. With the economy becoming more and more global every day, these innovations support a world where manufacturers, distributors, suppliers, and retailers can all literally be on the same page, in real-time, and at

any moment in time.

Ellen Malfliet, marketing and communications manager at PearlChain in Antwerp, Belgium, says new innovations within the collaborative supply chain space, and shippers' willingness to test out and adopt these systems, is driven in part by changing customer demands. "Everyone within the value chain is focused on the customer right now," says Malfliet. Take automobile manufacturing, for example, where raw materials suppliers, manufacturers, distributors, and dealers must all work together in a collaborative environment in order to turn out a viable end product.

"Across the automobile supply chain, everyone wants to ensure that they are taking the correct steps to fulfill their customers' needs, and that they are doing this in such an order/sequence that they can achieve operational excellence internally," Malfliet explains. "In the end, the successful customer experience translates into success for all parties across the supply chain—not just those that are actually facing the customer. Everyone wins."

But what happens when companies don't communicate well with all of the other players within the value chain? Those firms are left to rely on forecasts and historical views that don't always paint a forward-looking picture. "When you use forecasts, you're forced to determine upcoming demand based on prior demand, or maybe even the weather—depending on the product or service that you're creating," says Malfliet. "The good news is that when you have the necessary data from other factions further up the chain—who already know the real demand, and who share it with you—that's where collaboration comes into play."

In this article, we explore the evolution of supply chain collaboration software, show how it's being used in the corporate world, and discuss the inroads that vendors are making in their mission to come up with streamlined, collaborative platforms that help companies interact effectively across their end-to-end supply chains.

## 15 Years in the Making

David Miller, chief security officer at Detroit-based Covisint, remembers the exact point when GM, Ford, and Daimler Chrysler decided that they'd had enough of trying to manage three very similar supply chains. The year was 2000, and the three large auto manufacturers were duplicating their efforts across their supplier networks, but lacked any ability to collaborate among OEMs for

**Good supply chain collaboration is about building** communication links and connections among the trading network's various parties.

functions like inventory management. Miller, who worked for GM at the time, recalls that the Big Three were using anywhere from three to five different inventory management systems, RFP systems, bidding systems, and purchasing processes.

"Every one of those systems was being duplicated numerous times," says Miller. Fifteen years ago, the three automakers came together to create Covisint—a platform that formed a single place in the cloud where suppliers would interact with their customers regardless of whether they were working with GM, Ford, or Daimler Chrysler. "We gave them a single portal to work from, even though all of the applications were separate," recalls Miller. Concurrently, the auto makers built out a standard EDI messaging platform that enabled easy information exchange.

Fast forward to 2015 and Miller is seeing more and more applications moving into the cloud and enabling solid supply chain collaboration and other activities. He points to consumer-focused financial applications like Mint, which allow users to aggregate account information from various entities on a single platform, as potential models for even more robust supply chain collaboration.

"I may have three credit cards from three different companies, and while they aren't sharing information among each other, Mint aggregates the data for me," says Miller. "The same approach can be used to track critical information like inventory quality, failure rates, and parts per million (PPM) defect rates on a single dashboard. This will help companies more quickly pick up on and address problems, make engineering changes, and take other measures."

## Data is the New Oil

Calling data "the oil of the 21st Century," Malfliet says supply chain collaboration works optimally when it's managed in real-time and when all interested parties are on the same page. At the heart of each of those relationships is a data-sharing process made easier by technology, software, the cloud, and even the Internet of Things (IoT). "These tools allow every individual part to be tracked online, including materials that are in transit, those stored

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in the warehouse, and those that the customer is using," says Malfliet. "At the same time, every product or service is becoming more and more defined, all with an eye towards creating the right customer experience." As this trend continues to evolve, she says it just "makes more sense to create flexible networks that can support the trend, and that can scale and grow accordingly."

Gary Barraco, senior director of supply chain solutions with Amber Road in East Rutherford, N.J., says good supply chain collaboration is about building communication links and connections among the trading network's various parties. Retailers who rely heavily on

## Top 20 Supply Chain Management Software Suppliers

| No. | Supplier | 2014 Revenue | Web site | SCP | WMS | MES/ MRP | TMS |
|---|---|---|---|---|---|---|---|
| 1 | SAP | $2,563 billion | sap.com | x | x | x | x |
| 2 | Oracle | $1,451 billion | oracle.com | x | x | x | x |
| 3 | JDA Software | $438 million | jda.com | x | x | x | x |
| 4 | Manhattan Associates | $188 million | manh.com | x | x | | x |
| 5 | Epicor | $163 million | epicor.com | x | x | | x |
| 6 | IBM | $148 million | ibm.com | x | | | |
| 7 | Descartes Systems Group | $140 million | descartes.com | | | | x |
| 8 | Infor | $104 million | infor.com | x | x | x | x |
| 9 | HighJump Software | $92 million | highjump.com | | x | | x |
| 10 | GT Nexus | $90 million | gtnexus.com | x | | | x |
| 11 | Kewill Systems | $81 million | kewill.com | | | | x |
| 12 | PTC | $72 million | ptc.com | x | | | |
| 13 | E2open | $66 million | e2open.com | x | x | | x |
| 14 | Unit4 | $65 million | unit4.com | | x | x | |
| 15 | Quintiq | $53 million | quintiq.com | x | | x | x |
| 16 | IBS | $52 million | ibsus.com | x | x | x | x |
| 16 | IFS | $52 million | ifsworld.com/en | x | x | x | x |
| 17 | Inspur Genersoft | $51 million | en.inspur.com | x | | | |
| 18 | Kinaxis | $50 million | kinaxis.com | x | | x | |
| 18 | TOTVS | $50 million | totvs.com | x | x | | x |

Source: Gartner

The market for supply chain management software, maintenance and services continued its growth in 2014, generating $9.924 billion in 2014, including applications for procurement software. That represented a nearly 10% increase over 2013 revenues, according to Chad Eschinger, vice president, supply chain, with Gartner. Looking forward, Gartner is predicting a compound annual growth rate (CAGR) for SCM software including procurement of 10% for the next 5 years, reaching $16.3 billion in 2019. What attributes to that growth? "The industry is in a replacement cycle, but we're also seeing supply chain capabilities spreading into places like retail stores," says Eschinger. "The goal is improved collaboration across a broader platform, which can drive much higher levels of efficiency."

*—Josh Bond, contributing editor*


10
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a network of suppliers to provide the goods and services that their end users want and need tend to reap the biggest rewards from solid collaboration. "Retailers require that collaborative and open conversation and visibility into their suppliers' activities," says Barraco, "in order to achieve goals like shorter cycle times, perfect orders, and minimal inventory stockouts."

Suppliers also gain from the collaboration, says Barraco, particularly when their retailer-customers use their online portals to provide earlier-than-normal visibility into upcoming plans and forecasts. Pointing to one large shoe manufacturer as an example, Barraco says nine years ago the company was e-mailing and faxing purchase orders on a one-by-one basis before implementing its collaborative platform. The process took three staff members and about three weeks (including order acknowledgement and confirmation) in advance of the firm's busy season. "Now it takes one person three days to issue and confirm all of the POs," says Barraco. "That's a pretty significant savings of time and human resources, all due to the company's use of collaborative supply chain software."

## Creating a Free-flow System

"One of the biggest problems that exists in the supply chain today is the fact that most tools and processes are built up around optimizing rigid hierarchies," states Rob Cheng, head of growth at Elementum in Mountainview, Calif. "They are pre-defined, pre-planned taxonomies of how the world works." Such rigidity just doesn't work very well in today's fast-paced business world, says Cheng, where everything is moving too quickly for those hierarchies to keep up.

"When we look at the problems that our customers are having in this area," says Cheng, "a lot of them revolve around these issues and the fact that no one in the world—no matter how smart he or she is—can predict in advance what's to come."

The good news is that through solid information sharing and participation from the various players within the supply chain, foresight can begin to come into focus.

"The key is to create a system where information can flow more freely to the people who need it, and then allow everyone on the front lines to essentially 'self-subscribe' to the information stream," says Cheng. "Only then will they be able to follow the relevant information (routes, ports, transportation options, carriers, shipments, supplies, and so forth), and enable teams to be more self-organizing and act more real-time on information that's relevant to their jobs."

**To companies looking to get the most out of their supply chain platforms, Malfliet cautions** that the only way to effectively manage collaboration across the supply chain is by employing an end-to-end strategy.

## What's to Come?

All of the experts interviewed for this article expect technology-based supply chain collaboration to continue to evolve and grow over the coming years. At the same time, automation will continue to gain in popularity, says Malfliet, as the use of drones in the warehouse for picking is projected to increase, and as the need to reduce the amount of physical labor and free people up to do more important tasks continues. Using software, for example, companies can now more easily match up the best supplier for every customer and/or order, based on overarching agreements established with both parties. "That frees up time for planners and operational employees," says Malfliet, "and allows companies to more closely examine the strategic value of these workers."

To companies looking to get the most out of their supply chain platforms, Malfliet cautions that the only way to effectively manage collaboration across the supply chain is by employing an end-to-end strategy. All of the players in the value chain need to be connected to one another, she says, and with no exceptions. And remember that the bigger the supply chain is, the more benefit you will get out of solid collaboration enabled by today's advanced software programs.

Finally, everyone has to have access to the same data and it has to be in real time. "Sure everyone has their own little piece or 'corner' of the overall scenario to manage," Malfliet says, "but in the end each has to have a global overview to be able to contribute and collaborate effectively.

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# Top 20 Supply Chain Management Software Suppliers

**The market for conventional solutions continues to rise, even as innovative variations help the industry chart a new course.**

**By Josh Bond, Editor at Large**

The market for supply chain management (SCM) software, maintenance and services continued its growth in 2014, generating $9.924 billion in 2014, a nearly 10 percent increase over 2013 revenues, according to the research firm Gartner (gartner.com). That total includes applications for supply chain execution (SCE), supply chain planning (SCP) and, for the second year in a row, procurement software. Since 2009's 2 percent decline, the market has posted double-digit growth in three of the past four years, according to Gartner.

SCM applications outpaced most software markets, "because supply chain remains a key source of competitive advantage in driving business growth objectives," according to Chad Eschinger, Gartner's vice president of supply chain.

Looking forward, Gartner is predicting a compound annual growth rate (CAGR) for supply chain management (SCM) software of 10 percent for the next five years, reaching $16.3 billion in 2019.

"The industry is in a replacement cycle, but we're also seeing supply chain capabilities spreading into places like retail stores," Eschinger says. "The goal is improved collaboration across a broader platform, which can drive much higher levels of efficiency."

Despite supply chain software's rapid growth across a variety of applications, Eschinger says plentiful opportunities still exist. "Many existing systems have high levels of customization or are outdated legacy systems," he says. "For many organizations, swapping and reconciling information internally is a challenge. There are few single systems of record, and if you don't have your own house in order you're really at a disadvantage."

## The View From the Top

Overall, the market for SCM solutions like warehouse management systems (WMS) and transportation management systems (TMS)—excluding procurement revenues—is at $6.74 billion, a 9.5 percent increase from 2013 and a 47 percent increase since 2010. Under the SCM

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umbrella, the market for supply chain planning systems rose 8.7 percent to $3.66 billion. The supply chain execution market topped $3.08 billion, a 10.5 percent increase.

The top five market leaders (see page S66) are the same for the third year in a row, but they have collectively added $905 million in SCM revenues over that period, for 23 percent growth. SAP ($2.563 billion) alone grew 20 percent—the third highest rate of the list—and continues to pull away from the comfortable second-place finisher, Oracle ($1.451 billion). JDA is also likely to enjoy third place for the foreseeable future, but things start to get interesting from there. Less than $100 million separates fourth and 11th places, a cohort that grew by 9 percent in the last year.

## Notable Trends

Procurement continues to become more integrated with the broader supply chain process, Eschinger says. Increasingly, end users are bringing automation to their procurement practices to make that link. "In my view, there's an emerging concept of 'the procurement network,'" he says. "Think about integrated business planning, not only to share sales and operations plans (S&OP) internally, but also, in collaborative commerce, to share that plan upstream and downstream in the supply chain so everyone is on the same chapter."

Ultimately, the industry is working toward enhanced visibility into each item's total landed cost from supplier to consumer. "These capabilities are in their early stages," Eschinger says, "but that view into total cost to serve will be incredibly valuable to an organization. Right now, they might know at the organizational level whether a division made money, but few can say whether a specific SKU or order was profitable."

Continued interest in inventory optimization software was evident, growing 10 percent in 2014. Similarly, S&OP solutions posted the third-straight year of gains above 20 percent. Eschinger says the software markets for transportation grew 12 percent, while order management (18 percent) and global trade (16 percent) also posted double-digit gains.

Meanwhile, cloud-based software grew more than 17 percent over the past year, with strong interest in cloud solutions in the WMS space. "What's notable is that it confirms the recognition that the WMS market is not one homogeneous marketplace," says Dwight Klappich, research vice president with Gartner. "A lot of the focus on the dialog, to be frank, has been at the high end of the marketplace, but the vast potential market is made up of less sophisticated organizations that need basic and easy-to-use controls."

Klappich highlighted several trends in the WMS and TMS space.

***Cloud gains ground.*** In the supply chain execution space, including transportation and global trade, warehousing has traditionally lagged other applications. Solutions inside the four walls were considered mature and primarily on-premise, with no compelling reason to upgrade. "We're past that now, and we're seeing a lot more interest in cloud-based solutions," Klappich says.

The two fundamental styles of cloud solutions are public, or multi-tenant, and a dedicated cloud. "Multi-tenant options are gaining some traction, but it's generally not the preference," he says. "Customers want the flexibility and scalability of cloud infrastructure along with the performance guarantees of a dedicated instance, especially at the higher end of marketplace."

***The omni-channel imperative.*** Growth at the top end of the WMS market—the Tier 1 level—has largely centered on omni-channel commerce capabilities. "One retail CIO told me WMS systems were once seen as bottom up projects, where you need to make the case to

## Acquisitions Continue to Drive the Market

Eschinger says the industry can expect a new wave of acquisitions to continue to drive market disruption in 2015. A few notable developments in 2014 included:

- Accellos and HighJump Software merged, each a leading global provider of supply chain management software and trading partner network technology.
- Dassault Systèmes, a product lifecycle management supplier, acquired Quintiq, a leading provider of on-premise and cloud-based supply chain and operations planning, and optimization software.
- Descartes Systems Group, a leader in on-demand, software-as-a-service solutions, acquired Customs Info, a leading U.S.-based provider of trade data content for global trade management systems and automation.
- Kewill, a leading provider of supply chain execution software, acquired the IBM Sterling TMS, a SaaS-based multimodal transportation management system.
- Manhattan Associates, a supply chain commerce solutions provider, acquired the assets of Global Bay Technologies, adding in-store sales and client capabilities to its omni-channel inventory and order management solutions.
- Netsuite, a leading provider of enterprise-class cloud ERP suites, acquired the WMS product side of eBizNET.
- Siemens acquired MES specialist Camstar Systems.

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senior management," Klappich says. "They would run it up the flagpole every year until things got so bad that they finally approved the project. But omni-channel is so fundamental to business today that it now comes from the top down. They're not going to argue or postpone these strategic decisions anymore, because you can't be a retailer if you don't do omni-channel."

Retailers are not alone. The concept of omni-channel is bleeding into other industries, including manufacturing and the distribution of high-end designer products. "A manufacturer might have commercial products that move in traditional full truckloads," Klappich says, "but they have 60,000 other SKUs that move in much lower volumes."

In the past, a bath design shop in California that needed a specific $5,000 bathtub would place an order that would trigger the manufacturer to produce and ship another unit. Meanwhile, a distributor in Massachusetts may have that same tub in stock and is wondering what to do with it. Manufacturers are looking for functionality that will allow them to combine omni-channel commerce with a wholesale distribution model.

***Distributed order management.*** Distributed order management (DOM) is an emerging capability coming from WMS providers. For the past several years, brick-and-mortar retailers have focused on establishing themselves as players in the e-commerce space. Now, the focus is on how to most profitably fill an order from a network of DCs, retail store locations or drop shipments from a manufacturing partner or supplier. DOM solutions, which sit in between an order management system at the enterprise level and the WMS, fill that need. A DOM solution figures out the most profitable way to fill and ship an order based on customer expectations or some other parameter.

"Companies realize that they can no longer ship an order for more than it's worth," Klappich says. "The more they virtualize inventory across their network, whether it's in one or more warehouses, at stores or at a supplier, the more they need strong analytic capabilities to manage that process. That has created a brand new environment that is driving a lot of investment."


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# Is Your Supply Chain Ready for the Omni-channel Revolution?

***Omni-channel retail sales are expected to grow exponentially between now and 2025. Winning in this arena will require a supply chain that increases product availability with flexible delivery options at a lower cost.***

**By Raj Kumar and Michael Hu**

Omni-channel retail sales are expected to become a $1.8 trillion dollar market by 2016, and then quickly grow to $7 trillion by 2025. Winning in this arena will require a seamless delivery of goods that meets increasing consumer expectations for assortment, convenience and price, and a supply chain that increases product availability with flexible delivery options at a lower cost. As developed regions scramble to integrate in-store and online channels and developing regions work through financial and logistical infrastructure, supply chain innovation will be critical to omni-channel growth. A.T. Kearney has identified six global trends that will shape a successful supply chain in the new omni-channel revolution.

## 1. Blurring of Value Chains

The traditional value chain is starting to blur under omni-channel as companies attempt to get closer to consumers. Retailers are taking on traditional manufacturer roles such as product design, development, and product sourcing. Manufacturers, on the other hand, are shifting downstream and taking on retailer roles, such as managing the shopping experience (either in stores or on the Web), offering "merchantainment" and product informational services, and even brokering actual order fulfillment. As value chains continue to blur, manufacturers and retailers will need to manage channel conflict over the segmentation of products and SKUs and collaborate on shared assets and inbound logistics optimization. For manufacturers it may mean direct to consumer fulfillment or network integration with retail stores or even pop-up store operations. For retailers it may mean adopting a manufacturer mindset and capabilities in private label, developing a segmented supply chain for private label, and more sophisticated inventory deployment.

## 2. Rise of the Marketplace

While the concept of the marketplace has been around for decades in vehicles like the "classified ads" in the Sunday newspaper, only recently has their digital counterpart become a critical retailing channel. Amazon's marketplace saw 25 percent CAGR while eBay and FlipKart are becoming endless aisle options for consumers in emerging markets. There is an explosion of emerging marketplaces from new players and global retailers offering logical places for retailers to expand internationally. Going forward, every omni-channel retailer must have a coherent marketplace strategy and corresponding supply chain capabilities—in particular, that includes decisions about where and when to hold inventory versus cross-dock orders versus shipping vendor direct to balance assortment, lead time service, and cost. Marketplaces can be a significant compliment to standard e-commerce sales used by many U.S. and European retailers to expand in emerging markets; however, marketplaces can be risky if they negatively affect the quality of product, customer presentation, accuracy, and service.

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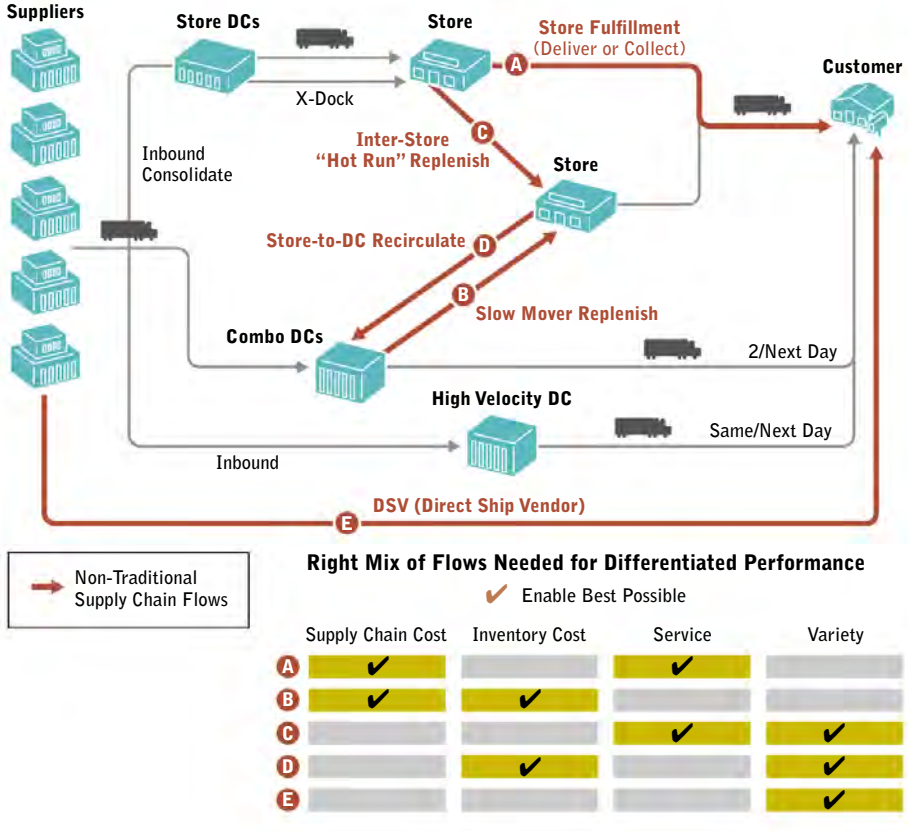
Michael Hu is a principal with A.T. Kearney. He is based in Chicago and can be reached at michael.hu@atkearney.com.

EXHIBIT 1

**Activating a Nimble, Multi-echelon Network with Dynamic Flows Will be Key for Competitive Performance**




Source: AT Kearney

## 3. Strategic Bet in Same Day

Scalable, affordable same day delivery continues to be the nirvana aspiration for retailers. While demand for same day is still emerging in the U.S. with less than 2 percent of orders, the UK shows a penetration of 8 percent to 10 percent of deliveries. According to BI Intelligence from A.T. Kearney, U.S. same day delivery forecast is expected to grow 154 percent by 2018 and retailers in China are starting pilot programs that should accelerate same day growth. We see four emerging same day models – (i) retailer managed (e.g. JD.com or Amazon); (ii) 3PL owned and managed (e.g. SF Express, DHL, Cainiao); (iii) 3PL crowd sourced (e.g. shutl, deliv) and (iv) marketplace crowd sourced (e.g. Google Express). As retailers pursue same day delivery strategies, they must consider the pros and cons of each of the above models and assess the underlying should-cost economics. Strong candidates for same day delivery are grocery, mobile devices, specialty products, and high margin products. Retailers should pilot and experiment with same day models as they determine the best approach: whether the service is intended to drive sales; is a competitive requirement; or is part of a marketing play.

## 4. Flexible Network Assets and Flows

In the future, retailers will need to transform their channel specific, inflexible supply chain into flexible omni-channel flows to push the performance frontier in terms of cost, turns, and service tradeoffs. As shown in Exhbit 1, DCs will need the capability to pick, pack, and ship any order (eaches and cases), regardless of their destination (home, stores, other DCs). The entire network will be multi-tiered. These reconfigured fulfillment assets will be powered by one-view inventory and smart replenishment and channel decision systems to enable flexible, dynamic flows. Trucks making milk runs from DCs to stores will be able to reroute their order drop-off points. Slow moving SKUs will be picked up from stores and returned to the regional DCs and other stores for improved turns. Demand shaping logic will allow shoppers to choose between higher-priced fast delivery or free-shipping slower delivery options.

## 5. Ambidextrous Role of Stores

Stores are still preferred across all stages of the shopping cycle. Two thirds of consumers who purchase online use a store right before or after the transaction. The 2014 A.T. Kearney *Omni-channel Shopping Preferences Study* found that 53 percent use both stores and online in their shopping journey. Even e-commerce pureplays see the need for stores. However, stores roles will change in the future as they operate both as nodes for customer engagement and as nodes

for close-to-demand fulfillment.

From a customer engagement perspective, stores will evolve from their traditional point-of-purchase role to providing a digitally enhanced shopping experience. Imagine a physical shelf complemented with digital displays that enable endless aisle show-rooming with mobile technologies to provide frictionless payments and checkout. Orders can be subsequently delivered next day from a nearby regional DC. From a fulfillment perspective, stores will have the necessary picking technologies, channel agnostic inventory, and order management capabilities to fulfill same day and next day online orders. Getting the right balance between consumer engagement and fulfillment will be critical if retailers are to turn stores into a source of strategic differentiation instead of an underutilized asset.

### 6. Digital Disruption Tipping Point

Digital technologies such as Artificial Intelligence, 3D printing, robotics, crowdsourcing, and the Internet of Things (IoT) are advancing at an exponential rate. Each has the potential to disrupt supply chain paradigms. The convergence of these disruptors creates an even more unpredictable myriad of scenarios. Consider the following scenario where a consumer's smart sensor enabled refrigerator informs her iWatch to place a fresh grocery replenishment order, at which time a Watson like app communicates with the Google Shopping marketplace and builds a basket by picking from store shelf inventory across two local stores. The orders are then crowdsourced by Google for same day delivery. Under this scenario, the traditional retailer has a very minor role in the shopping and engagement eco-system, effectively relegated to holding inventory. Supply chains need to recognize that these rapidly evolving digital platforms could dramatically change their role in the future.

Peter Drucker once warned: "The greatest danger in times of turbulence is not the turbulence itself, but to act with yesterday's logic." As companies consider these six omni-channel trends, they need to assess the risks of using yesterday's logic and the opportunities afforded from using tomorrow's logic. Supply chains can start their future proofing today by leveraging their external partners for innovation and collaboration; developing and piloting more flexible, adaptable supply chain approaches; and embedding a mindset of continuous improvement within their organization.

# The Benefits of Modernizing Procure-to-pay

***Organizations recognize the role technology can play in improving the entire procure-to-pay process.***

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In any organization, procurement and accounts payable activities are closely linked through the procure-to-pay process. Efficiency in both types of activities can result in clear benefits to the entire process, from the procurement function to the accounts payable area. Organizations with a high-performing procure-to-pay process have examined this interaction and determined ways to improve it.

One way that organizations are driving improvement is through modernization, namely the adoption of technology that can improve the efficiency of these activities. From a procurement standpoint, APQC's research indicates that organizations that do not take steps to automate transactional activities simply cannot match the efficiency and effectiveness of those that do. Recent research on how organizations manage the procure-to-pay process for indirect purchases reveals that many desire to modernize the process but are slowly making progress on adopting technology to support that modernization.

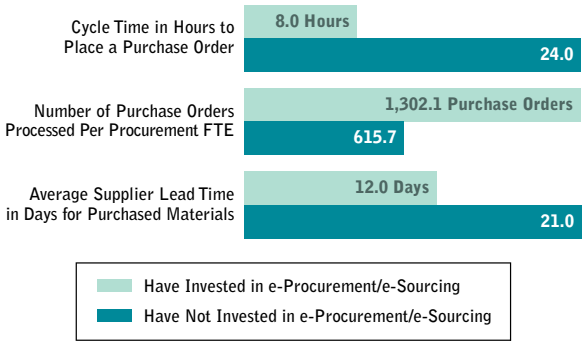
## Automation in Procurement

In the procurement function, one way in which organizations modernize activities is through the adoption of automated tasks such as e-procurement or e-sourcing. APQC's Open Standards Benchmarking in procurement indicates that automation has been adopted by a majority of responding organizations: 82 percent use e-procurement; 6 percent plan to adopt it within the

EXHIBIT 1

**Use of e-Procurement/e-Sourcing and Procurement Performance**

(Median)




Source: APQC

next two years; and 12 percent have no plans to engage in e-procurement.

The primary influence of automation is the efficiency of procurement staff. Automated purchase order processing allows procurement staff to accomplish more in a shorter amount of time. This in turn can reduce staffing costs associated with purchase order processing and submitting inquiries to suppliers. It can also allow the organization to shift procurement employees from more basic tasks to more value-added activities within the procurement function.

In Exhibit 1, APQC's benchmarking data shows how organizations that automate the procure-to-pay process achieve faster cycle times and more efficient order processing. At the median, organizations that have invested in e-procurement systems have a much shorter purchase order processing time—eight hours versus 24 hours for organizations that have not adopted e-procurement. The systems adopted by these organizations can quickly route information to the correct individuals, which reduces the amount of time needed to place a purchase order by multiple business days.

In addition, the number of purchase orders processed per procurement full-time equivalent employee (FTE) is significantly higher among organizations using e-procurement systems. As shown in Exhibit 1, organizations investing in e-procurement process more than twice as many purchase orders at the median as organizations that have not invested in these systems.

Along with shorter purchase order cycle times and more purchase orders processed per FTE, organizations with an automated procure-to-pay process have shorter supplier lead times. As also shown in Exhibit 1, there is a nine day difference between the two groups of organizations at the median in the average supplier lead time for purchased materials. The increased data visibility created by e-procurement systems between organizations and their suppliers is a key contributor to this difference.

Another interesting result from APQC's data involves how organizations using e-procurement or e-sourcing distribute the FTEs within their procurement functions. As shown in Exhibit 2, these organizations allocate fewer FTEs to the more tactical process of ordering materials or services than their counterparts that have not adopted e-procurement. Conversely, this group allocates about twice the number of FTEs to developing sourcing strategies than their counterparts. They also allocate a larger number of their FTEs to selecting suppliers and contracting.

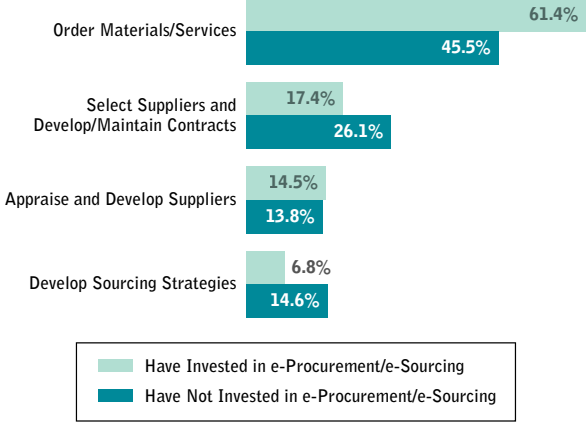
These results indicate that organizations that have initiated e-procurement or e-sourcing are more focused on strategic tasks within the procurement function than organizations without this technology. It may be that the efficiency created by the technology has enabled these organizations to focus employee efforts on strategic activities. It is also possible that these organizations' focus on strategy was a driver behind their adoption of technology to modernize the procure-to-pay process.

## Modernization of Indirect Purchasing

Procurement is not the only function within the enterprise interested in the strategic benefits associated with modernizing the procure-to-pay process. APQC recently conducted a survey of procurement and finance professionals to learn about organizations' plans for modernizing the purchasing and accounts payable aspects of the procure-to-pay process for indirect purchases. The results indicate that nearly 85 percent of the survey respondents (both in

EXHIBIT 2

**Use of e-Procurement/e-Sourcing and Allocation of Procurement FTEs**




Source: APQC

the procurement and accounts payable functions) believe their procure-to-pay process would benefit from modernization efforts.

As part of this research, APQC interviewed select organizations to get a more detailed picture of what modernization efforts look like. One of the organizations was Woodward Inc., which integrates technologies into fuel, combustion, fluid, actuation, and electronic control systems for aerospace and energy markets. Woodward was recently motivated to make improvements to its procure-to-pay process following a benchmarking effort to identify efficiency gaps. It is planning a shift from paper-based invoice management to automated invoice processing. With this new approach, Woodward will send paper invoices to a third party for scanning or to a dedicated e-mail address so that the organization can extract digital data. Purchase order items will be sent to the organization's ERP system for automated three-way matching. For all other items there will be an automated approval workflow. Moreover, if a purchase order item fails to match automatically via the ERP system, several e-mail workflows will facilitate communications to reconcile the issue. At the back end, Woodward will have a single archive that will be highly searchable.

Woodward is also working to implement an e-procurement system using a software-as-a-service (SaaS) solution. The goal is to have its 22 sites worldwide using standardized processes and systems, with the ultimate aim being stronger control and compliance and a better audit trail. It also wants to improve the experience for its internal customers. For example, it will have a hosted catalog that will provide the capability to move toward negotiated pricing. If a vendor resists the notion of the e-catalog, then that supplier can join a supplier network set up by the SaaS vendor, which has Woodward's chart of accounts so it can manage direct communications with the company's ERP system.

## Modernization Across Areas

APQC's research indicates that many organizations recognize the need to modernize and streamline their procure-to-pay process. In many organizations this has taken the form of adopting e-procurement or e-sourcing technology. However, technology adoption has not been consistent across all areas involved in procure-to-pay. According to APQC's Open Standards Benchmarking in accounts payable, organizations manually key a median of 60 percent of their invoices into their financial system. Top-performing organizations have pushed that percentage down to 43 percent, but this still leaves quite a bit of room for improvement.

To reap the most benefits from modernizing and streamlining the procure-to-pay process, organizations should evaluate how activities are performed both within the procurement function and the accounts payable group. By identifying areas in which modernization can help to streamline activities, organizations take a step toward the following goals:

- enhancing service to internal customers, reducing cost;
- enhancing staff productivity;
- bolstering policy enforcement and controls;
- increasing their ability to identify and reduce maverick spending; and
- enhancing collaboration with vendors.

**Many organizations recognize the need to modernize and streamline their procure-to-pay process. In many organizations this has taken the form of adopting e-procurement or e-sourcing technology.**

The technologies that support a modernized procure-to-pay process can lead to multiple benefits. For example, e-catalogs accessible via online portals make it easy for employees to order supplies from approved vendors and at pre-negotiated prices. Analytics software can help organizations easily analyze patterns of spending, which in turn can inform pricing negotiations. Cloud-based technology—such as the e-procurement system being adopted by Woodward, with its embedded collaboration, workflows, and analytics—can reduce the processing burden on both procurement and accounts payable employees.

As with any technology, organizations may have concerns that adoption will not result in promised cost savings or that there will be change management issues. For cloud technology in particular, organizations may be concerned about the potential for IT security risk. Organizations can address these concerns by using a pilot approach to roll out the new technology. By testing the technology's use for a specific task or area, organizations can lay out mitigation plans for their concerns and then expand adoption over time.

### About APQC

*APQC is a member-based nonprofit and one of the leading proponents of benchmarking and best practice business research. Working with more than 500 organizations worldwide in all industries, APQC focuses on providing organizations with the information they need to work smarter, faster, and with confidence. Every day we uncover the processes and practices that push organizations from good to great. Visit www.apqc.org to learn how you can make best practices your practices.*

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