

SUPPLYCHAIN

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Innovate, innovate, innovate

Anyone who's ever bought a house knows the realtor's motto: Location, location, location. It's the most important factor in determining the value of a property.

Based on the press releases that come across my desk these days, supply chain's motto is: Innovate, innovate, innovate. If you think I'm kidding, look at the street signs the next time you drive through just about any industrial park in any city. Inevitably, one of them is named Innovation Way. Who wouldn't want that address?

Innovation, it is said, is the secret sauce that keeps American companies ahead of global competitors. It's hard to argue that point when you consider the success of Google, Apple, and Amazon. Every company wants to be viewed as an innovator or, at the very least, as a valued partner that can enable its customers' innovations.

Innovation is a theme that runs through this issue of SCMR. Start with *The Five Key Components for Supply Chain Innovation*. Jennifer Blackhurst and her colleagues at Iowa State University talked to 36 companies that had worked together to launch innovative supply chain processes. The research team identified five common threads across those projects that led to successful and innovative collaborations.

Or take our profile on Supplier Relationship Management at Raytheon. One of the world's leading defense contractors, Raytheon built a company on innovations like the gas rectifier tube for radios and the microwave oven. Once revered as a vertically-integrated company, Raytheon realizes that in today's market, it will only succeed with the best ideas

and products its suppliers have to offer. For that reason, Raytheon is on a mission to become its suppliers' Customer Of Choice, with early access to the innovations bubbling up from its critical suppliers. That requires a whole different approach to supplier relations. Raytheon shared with us how it is using a Supplier Advisory Council to make that transition.

Retail is another industry that is ripe for supply chain innovation, according to Robert L. Cook, Brian J. Gibson, and Michael S. Garver. They look at how retailers as diverse as Amazon and Petco are building customer loyalty through a new twist on an old idea—the subscription-based sales model. But while Book-Of-The-Month and Columbia Record Club members were content to wait four to six weeks for their orders to arrive back in the day, today's subscription-based customers have high expectations. That's why efficient supply chains are key to making the subscription-based model work in an omni-channel world.

This issue also includes approaches to inventory optimization, contract management with third party logistics providers and contract manufacturers, and the Goldilocks approach to supply management—an innovative concept aimed at keeping your procurement department from running too hot or too cold.

I hope the issue inspires you and your colleagues to innovate, innovate, innovate.



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Companies as diverse as Amazon, CVS, and Petco are rolling out subscription-based programs to build customer loyalty. However, doing this successfully requires a supply chain that is up to the challenge.

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Having great performance from an outsourced supply chain is not possible without a strategic approach to contracts management, writes Mark Trowbridge. Similarly, true supply chain security requires a more sophisticated contracting methodology. There are five ways to start professionalizing your approach to outsourcing contracts.

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Procurement organizations could learn a lot from the story of *Goldilocks* and the bowl of porridge that was "just right." The authors argue that procurement organizations need to find a "just right" balance that challenges stakeholders and the supply base without just redistributing cost and risk.

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E-Commerce Innovation Needed by Retailers

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.

Last summer I wrote a column titled “Holiday e-Commerce: Innovation Required” (*SCMR* Jul/Aug 2014). In it, I delved into the causes of the substantial late deliveries that occurred during the 2013 holiday season. Many gifts were not delivered in time to be put under the Christmas trees of lots of families. My view was that the e-retailers and parcel carriers set customer expectations too high. They positioned legacy services as if orders could be submitted as late as possible the day before, yet still be delivered by Christmas Eve. The media laid most of the blame on the parcel carriers despite the fact that retailers were equally—if not more—complicit. The carriers had not tailored their delivery services to accommodate holiday nuances, and retailers were characteristically struggling to handle large volumes of e-orders.

I concluded that parcel carriers and e-retailers needed to jointly innovate new holiday delivery services, especially more realistic delivery schedules. They appeared to have done this as delivery performance vastly improved this past holiday season. Apparently the parcel carriers added costly capacity and convinced retailers to not overpromise delivery dates, as well as to provide forecasts that they would not exceed. While deliveries improved, brick-and-mortar retailers still struggled because they retro-fitted existing supply chains, rather than making the investments needed to succeed in e-commerce.

Short History of Mass-Market Retail

I started my career at a consulting firm with Sears, and Roebuck and Co. as a client. Sears was the Wal-Mart of its day as the highest grossing merchandizer. Sears was also an early version of a successful omni-channel retailer with two major sales channels: brick-and-mortar stores and mail order catalogs (the

precursor to e-commerce). Its legacy catalog business grew from the late 1880s by servicing the expanding Western frontiers. Sears separately managed two supply chains.

The first distributed goods to stores through warehouses, while the second supplied catalog items to order-fulfillment distribution centers (DCs)—with inventories not co-mingled. Store merchandizing was focused on the middle-class living in cities and suburbs, while catalog marketing was focused on less affluent outer-suburbs and rural areas. The businesses were operated separately ensuring that the faster growing stores business would not be adversely affected by the all-powerful legacy catalog business.

Wal-Mart toppled Sears by starting where it wasn't; opening stores in the outer-suburbs and the rural areas, the mainstay market of Sears catalog. Wal-Mart's supply chain involved building large stores and warehouses to supply them. Stores carried lots of items, but of limited brands and sizes to enable economies of scale.

E-tailer Amazon's success has similarly come from operating where today's mass merchandizers aren't. To succeed, Amazon had to innovate to be best at unit (or piece) pick, pack, and ship fulfillment. Products might come into DCs stored on pallets, but cartons need to be broken open so that individual items could be picked, packed, and shipped as a consolidated parcel shipment. This is not a competency brick-and-mortar retailers possessed.

Over time, Amazon innovated from just selling from its DCs to merchandizing products shipped directly from suppliers. Its sophisticated Distributed Order Management (DOM) competency sourced orders from its DCs, supplier DCs, and its private label contract hardware manufacturers. DOM is another competency traditional retailers did not possess.

Brick-and-Mortar Fulfillment Struggles

An article published in the *Wall Street Journal* during the holiday season last December called “Can Wal-Mart Clerks Keep Up With Amazon” discussed some of the problems retailers were having executing their omni-channel strategy based on an “attempt to use one set of inventory and assets to fill all orders.” The strategy retrofits legacy supply chains to support both e-orders as well as off-the-shelf sales. They fill e-orders from the same DCs that replenish stores as well as from shelves and backrooms. This saves them from building and operating specialized e-fulfillment DCs. However, these locations cannot be as efficient and effective as highly automated and densely packed DCs, such as those operated by Amazon.

The article discussed fulfillment problems retailers were having in stores such as having wrong box sizes to pack an order; associates roaming around an entire store to pick an order; associates interrupted while picking orders; and inaccurate in-store inventory counts.

Like many of us, I’ve experienced e-fulfillment problems first hand. In one case, my wife placed an electronic order from a big retailer and that same day decided to cancel it because she found it elsewhere at a lower cost. When she tried to cancel the electronic order, the retailer’s website stated it could only be cancelled the next day. The next morning the site told her it could not be canceled because it had already been shipped by a third-party supplier. The supplier said she needed to send the item back at her own expense to get her money back. Further research showed that the cancellation policy on the retailer’s website was only for items it stocked. We had to pay to ship the return, but vowed never to buy from the retailer again.

This past holiday season we also e-ordered an item from an exclusive retailer’s site for local store pickup by 5:00 p.m. We happened to be near the store around 3:00 p.m. so we stopped to see if it was ready for pickup. We were told the order was still being processed. We saw the item on the shelf and asked if they could cancel the electronic order and sell it to us. We were told they could not do this and we would have to wait until it was ready for pickup.

My anecdotal experience supports retailers’ struggles in two key areas: DOM when selling third-party items and in fulfilling e-orders for customer pickup.

E-Order Fulfillment is Critical

Brick-and-mortar retailers are at a crossroads. The omni-channel strategy of building on existing infrastructure (especially pick-from-store) is at best tempering, but not stopping the growth of e-tailers. Should the retailers invest in infrastructure to take market share back or continue to just slowdown the e-tailers’ growth? Whatever strategy a

retailer picks will require innovation. A critical aspect to consider is how to be most effective and efficient in fulfilling e-orders.

Retailers that are strongly committed to e-commerce might take a lesson from the Sears playbook. It kept its growing, capital-intensive store operations separate and virtually unhampered by the concerns of its less capital-intensive catalog operations. Catalog focused on effective and efficient unit-level pick, pack, and ship fulfillment, while retail focused on efficiently getting goods to store shelves. This strategy, however, involves heavy capital investment, either through building their own e-order fulfillment capabilities or buying a company (such as a catalog seller or e-tailer) that has those capabilities. Both have risk.

Retailers that are less committed to e-commerce will

Retailers need to work with suppliers and parcel carriers to determine what make sense for e-commerce.

need to figure out how to better retrofit their supply chains. How and where to do e-order fulfillment will be a critical concern as they will need to trade-off the concerns of legacy store operations with those needed for perfect e-order fulfillment.

Using the approach of picking e-orders from store shelves or backrooms has some benefit because goods are already in units (from un-palletizing and carton-breaking), so store and e-order inventories can be co-mingled for efficiency. However, store concerns about shopper support and replenishing shelves might hamper the effectiveness of e-order fulfillment. In addition, stores operations are optimized to result in the lowest landed cost of goods to shelves. Adding the cost of e-order fulfillment from a store or backroom to its landed cost might render uncompetitive prices.

Retailers might think about filling e-orders in regional DCs. This could leverage the efficiencies built into those DCs. However, there may be some contention between supporting stores operations versus e-order operations with co-mingled stock. In particular, store operations are most efficient when goods are handled in pallet and carton formats. E-order fulfillment will need a carton to be opened whenever needed, yet store operations will be reluctant to agree. Holding separate inventories might mitigate this issue.

Retailers need to work with suppliers and parcel carriers to determine what makes sense for e-commerce in terms of fulfillment from retailer locations, as well as DOM for e-orders shipped from suppliers. Retailers need to do something substantial—sooner rather than later—to defend their market shares. 



Why One-Size-Fits-All Supply Chains Frustrate Innovation

By Roberto Perez-Franco

Roberto Perez-Franco is a research associate at the MIT Center for Transportation & Logistics. He can be reached at roberto@mit.edu.

While it is true that supply chains are key for sustained innovation in a company, it is also true that all innovations are not the same. A given supply chain can work perfectly for developing and launching a given innovative product, and yet—if applied like a cookie-cutter—the very same supply chain can spell disaster for a different innovative endeavor.

To illustrate this pitfall, let's look at the fictionalized predicament of a company that we will call PixelArtist when it tried to expand into the wearable electronics market. As a first-rate innovator with a legendary supply chain, the success of PixelArtist's expansion seemed all but guaranteed. But the company stumbled when it tried to apply an established supply chain strategy to the new venture.

Course Correction

Back in the late 1980s, when cathode ray tubes (CRT) were the dominant technology, two Caltech dropouts founded PixelArtist, Silicon Valley's pioneer of liquid crystal displays (LCD) for computer monitors and televisions screens. After more than a decade of slow growth, the company's market share skyrocketed at the turn of the century as old CRTs were quickly replaced by LCDs. Most of the flat screen displays sold in North America and Europe today are designed, manufactured, or built around IP from PixelArtist.

Since then and to this date, PixelArtist is considered the leader in the innovation, design, and manufacture of high-performance displays for computer monitors and large format digital televisions. It is widely acknowledged, both by the company and by outside observers, that a key to PixelArtist's success has been its outstanding supply chain, which is considered a world-class model of excellence. As a result, supply chain management is seen as one of PixelArtist's core competencies.

PixelArtist's move into the arena of wearable electronics was driven by a sense of urgency. Six

years before, the company had decided it would not produce displays for smart phones and tablets; at the time, the market seemed to be of little importance. However, as mobile devices rose to prominence in the early 2010s, and began to erode the demand for computers and TVs, PixelArtist realized its mistake. By then, however, another company was the leader in displays for mobile devices. PixelArtist entered the market but was forced to play second fiddle to remain relevant.

Still reeling from its failure to recognize early on the strategic importance of the mobile device market, PixelArtist vowed publicly that it would be on top of "the next big thing," whatever that may be. As of 2013, wearable electronics seemed like a promising area when PixelArtist decided to launch a Wearables Business Unit (WBU), and give it a clear mission: to make PixelArtist the leader in wearable electronics. The Corporate Supply Chain (CSC) group was tasked with helping WBU achieve this goal. That, at least, was the plan.

Relationship Problems

Eighteen months later, it was increasingly clear to both parties that things were not working as expected between WBU and CSC. Their relationship was marred by friction and distrust.

The WBU team seemed hell-bent on going it alone to determine which suppliers to use for bringing new products to market. This caused much discomfort among the supply experts in the CSC group. It had used a careful supplier selection process to identify four outstanding vendors to serve as "preferred" suppliers. In CSC's view, these vendors could manufacture anything to meet the needs of PixelArtist's small business units at a low cost. By entering into large volume contracts with these suppliers, PixelArtist would be able to leverage its size. To CSC's chagrin, WBU ignored the benefits of this procurement strategy, and contracted with almost 50 small suppliers to manu-

facture an assortment of different products.

Adding insult to injury, the CSC team felt that WBU purposely excluded them from the decision-making loop until it was too late to change WBU's supplier selections. CSC's frustration was vented by one of its leaders. "We want to help, but if we only find out about a product they want to launch when it is already designed, there is not much we can do," the CSC executive said. "We should be included in the decision making process much earlier, when they are still developing the prototype. That way we can steer them into using components that our preferred suppliers can manufacture. But WBU won't give us a seat at the table even though we asked to be consulted."

Speed-to-Market is Key

That, of course, is CSC's view of the problem. To understand WBU's rationale, let's take a closer look at the nature of the wearables market, and try to understand WBU's strategic priorities to win in this market.

WBU competes in a market that is still in the early stages of development. Although some big companies are interested, corporate size carries little weight in this market: Here, big ideas and speed to market will decide who emerges as the leader. A sort of gold rush of technological experimentation is currently taking place. In this market, hundreds of small companies, most of them new, have set out to try new ideas and produce innovations that could go from prototype to blockbuster in the blink of an eye.

To become a leader in the wearables market, WBU has to be able to quickly access any promising intellectual property (IP) generated by these small players in the

ecosystem. Horror stories of PixelArtist's legal team taking more than a year to secure access to a given piece of IP are well known to WBU. So, instead of asking CSC to secure access to a new IP for use in one of the 'preferred' suppliers, WBU often decides to contract directly with a small supplier that already has a license for the desired IP, thus saving a significant amount of time. Fast access to IP is a strategic imperative for WBU.

Something similar happens when WBU acquires a smaller company in order to take over a product it has launched. If WBU decided to follow CSC's advice and move production of the newly acquired product to one of PixelArtist's preferred suppliers, a significant amount of time would be required for certification, training, and retooling. It is much faster for WBU to continue production with whatever supplier the acquired company was using, even if the cost per unit is a bit higher. Product time to market is also a strategic imperative for WBU.

An Ill-Fitting Strategy

It is plain to see why WBU preferred to disregard CSC's advice to move its production to the preferred supplier base: doing so would run counter to WBU's strategic imperatives of facilitating quick access to IP and product speed to market. The WBU team was right to complain that the CSC team did not understand their particular needs, and was trying to impose a supplier consolidation program that would not work for WBU.

CSC's strategy is the wrong fit for the wearables market venture. That, however, doesn't mean it is wrong in itself. Supply chain strategies are not right or wrong in a vacuum:

Their merits should be judged as a function of the needs they are expected to support. Clearly, the corporate supply strategy of using a few preferred suppliers makes a lot of sense for PixelArtist's core business because it allows the company to leverage its size to reduce costs, promote compliance, and increase customer service. The strategy, in other words, is aligned with the strategic imperatives of the core business.

But it would be a mistake to think that—because it works fine elsewhere—the same supply chain strategy should be applied across all business units, regardless of their particular innovation needs. The general lesson is that the wrong supply chain strategy can become an obstacle for the success of a business unit instead of an enabler of innovation. 





IBM Study Points to New Value Proposition

Working with research partner, The Economist Intelligence Unit, the IBM Institute for Business Value surveyed 1,023 global procurement executives from 41 countries in North America, Europe, and Asia.

Will this be the year procurement finally evolves from its “cost center” image to one that will gladden the hearts of corporate CFOs worldwide? Researchers at the IBM Institute for Business Value (IBV) think so. They present a compelling argument that change in perception is well underway.

In *The journey to value—transforming procurement to drive the enterprise agenda*, IBV reveals how it worked with The Economist Intelligence Unit (EIU) to obtain management feedback on the state of procurement. Most of the answers were not startling, but a new pattern is clearly emerging in the global marketplace.

When Doug Macdonald, Procurement Product Marketing Leader for IBM, wrote about IBV’s first CPO study in *SCMR* last year, he observed that the goal at that time was to understand the links between procurement and business performance.

In contrast, the most recent study has a new objective: to identify common attributes that separate procurement role models from the pack. Researchers found a trio of common denominators. First, leaders focus on improving enterprise success—not just procurement performance. Then they engage with stakeholders to understand and anticipate their needs and values. Finally, they embrace progressive procurement practices and tools to drive results.

Charting the Proper Course

IBV defined procurement role models as those select few organizations that, relative to their peers, were in the top 20 percent in revenue growth and in the top 15 percent in profit

improvement. This exclusive group – approximately 10 percent of the organizations they surveyed—is clearly adding significant value to the companies they serve. They provide rich insights for the rest of the procurement community.

According to researchers, role models think about procurement in broader terms than their peers; they are more likely to embrace priorities that serve more strategic enterprise objectives; they seek to extend procurement’s value through collaboration; and they adopt leading-edge, procurement-related technologies and solutions to further simplify the mundane—albeit vital—aspects of transaction support.

Conversely, underperforming procurement organizations chart a very different course.

Although they focus more on traditional procurement priorities and basic capabilities, they do not often stretch beyond these basics. These organizations concentrate more on spend savings, corporate profitability, and getting involved in purchasing decisions early—representing the table stakes of procurement—but do not place a high priority on more strategic priorities or innovative initiatives.

Predictably, these “table stakes” are also important priorities for procurement role models, but underperformers are stuck trying to perfect the basic mechanics of procurement. Role models, on the other hand, have mastered the basics and lead the charge into the more strategic aspects of the broader business.

Enterprise Success

Robert A. Rudzki, President of Greybeard Advisors LLC, the former SVP and CPO

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of Bayer Corp., and a prominent SCMR blogger, is impressed. But, he maintains that IBV should curb its enthusiasm.

“I am happy that the study has reinforced themes which leading practitioners and authors have previously identified and shared with the procurement profession,” he says, adding that upper management still needs to be brought on board.

Yet, IBV seems to tacitly agree, noting that procurement role models must elevate their Board Room profile. “It comes as no surprise that procurement role models have a seat at the corporate leadership table within the companies they serve,” observe IBV researchers. “They are more apt to adopt enterprise-level priorities that are more collaborative with internal and external stakeholders and blaze a path toward new and beneficial procurement solutions. Even more, they have a track record of delivering meaningful results to the company as measured by both profit improvement and revenue growth.”

Excelling at traditional procurement capabilities is important, researchers say, but the hope of most CPOs is to influence and improve the way the business operates. In this regard, priorities seem to matter, as procurement role models have a very different focus than underperforming peers. Fully 38 percent of respondents from top-performing organizations say that introducing innovation into the enterprise from suppliers and other sources is among their top three priorities. This compares to just half as many (20 percent) of procurement underperformers. Similarly, 42 percent of procurement role models say revenue growth and increased competitive advantage are among their top three priorities, while only 28 percent of laggards share this view

Nurturing Relationships

What notably differentiates the two groups is that procurement role models have a more holistic view of the enterprise—in part because of the close connections they form with its various constituents. These models meet more frequently with stakeholders in multiple are-

nas, and they value, and in some cases act on, the suggestions these interactions produce.

This helps them to deeply embrace the objectives of those they serve, which, in turn, makes it easier for them to deliver against shared enterprise objectives. Procurement role models also adopt the perspective of their key stakeholders.

Like most other departments in an enterprise, procurement tends to thrive when it is well-connected to the rest of the company. Compared to underperformers, which are likely to have a more “silo-oriented” outlook on the role, procurement’s winning models believe internal interactions add value to procurement. Indeed, 93 percent of procurement leaders hold this view, compared to only 72 percent of underperformers.

Similarly, procurement role models are more likely to value interactions beyond corporate boundaries, as evidenced by the 92 percent who say they value interactions with external stakeholders, compared to only 68 percent of underperformers.

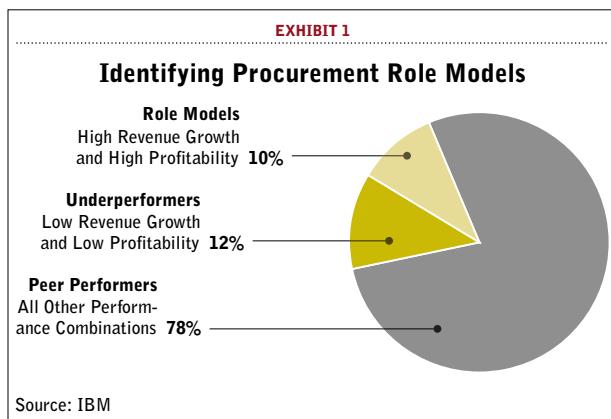
Role models also strive to understand the needs of the ultimate enterprise stakeholder: the end customer. While role models and underperformers are both likely to believe procurement is effectively hearing the voice of the end customer, 94 percent of role models are confident of this point, versus only 74 percent of their disappointing colleagues.

The driver of this perception among procurement role models likely relates to the frequency of strategic interactions senior procurement leaders have with key stakeholders. Fully 39 percent of procurement role models report having weekly strategic meetings with suppliers, and 62 percent have weekly or monthly strategic meetings with the line-of-business leaders to whom procurement reports.

“The relative importance procurement role models place on stakeholder interactions and frequent strategic engagement with key leaders, provides powerful and important links to the value procurement delivers to the enterprise,” conclude researchers. “Procurement role models also value innovation, which is why they embrace structures likely to bring innovation into the company.”

On a global basis, it is worth noting that thirty-three percent of procurement role models believe procurement should suggest new products, solutions and extensions to the company, compared to only 20 percent of those who fail to achieve stated goals. Similarly, 55 percent have successfully convinced their leaders to enter new markets or lines of business. In contrast, this is true for only 36 percent of underperforming procurement organizations.

Finally, no procurement organization succeeds on its’ own; partnerships are essential to achieving desired results, concludes the IBV survey. ☺☺



The Five Key Components for

Organizations are looking to their supply chain partners to create innovative processes and solutions that span the supply chain and lead to a real competitive advantage. But, what does it take to create meaningful innovation across supply chain partners? Our researchers identify the five components that are common to the most successful supply chain innovation partnerships.

By Jennifer Blackhurst, Pam Manhart, and Emily Kohnke

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In today's highly competitive global market, firms are constantly striving to improve their performance. However, in many instances, the low-hanging fruit has already been picked. That has led some to ask where they can look next to gain a competitive advantage. Many leading firms recognize that they can't do it alone: The biggest opportunities are the innovations they develop with supply chain partners. In the context of the supply chain, that includes not only new product development but also process improvements, which span across partners in the supply chain.

Indeed, several recent reports tout the need to innovate in a supply chain context. For example, Deloitte Research's 2005 report on mastering innovation stresses that the pressure to innovate is unrelenting, increasing, and will determine the future success of firms. The 2014 Deloitte MHI Industry Annual Report calls on supply chain executives to capitalize on innovation in order to improve supply chain performance (See *Innovations That Drive Supply Chains* in the May 2014 issue of SCMR).

While that all sounds well and good, the fact is that today's supply chains may not be prepared to support innovation by themselves; a firm working alone may not be able to generate the level of performance demanded by the competitive markets it now faces. Therefore, innovation spanning supply chain partners may well be the key to how firms gain a competitive advantage.

SUPPLY CHAIN



INNOVATION

If that is the case, what does innovation spanning supply chain partners mean for the individual firms involved? More importantly, do firms that launch successful innovations have anything in common with one another? Those are questions we sought to answer in the spring of 2013 when we launched our research into supply chain innovation. Our goal was to better understand how the innovation process works in a supply chain partnership, where each partner was housed within the same supply chain but were two distinct, stand-alone firms.

To answer our questions, our study focused on innovation that was created, fostered, and deployed across two interconnected supply chain firms or partners. We identified 18 paired supply chain partners (36 unique firms in total) who discussed the successes and challenges of over 100 innovation projects—some successful and some not—in order to determine how innovations succeed across supply chain partnerships. From those discussions, we identified five keys to innovation spanning supply chain partners as well as some key takeaways. (See side bar “Our Research” for a summary of the research methodology.)

5 Keys To Successful Innovation

The concept of innovation is continually touted as the future of developing a competitive advantage. KPMG’s 2014 Global Manufacturing Outlook Report, for instance, notes that the future of innovation is through partnerships and not the traditional in-house strategies and mechanisms previously utilized to encourage innovation. As the Deloitte MHI Industry Annual Report pointed out, in order to innovate in the supply chain, the partners involved need to include on their teams employees with the knowledge, skills, experience, and mindset to innovate.

Examples of innovation spanning supply chain partners can also be found in the popular press. Staples, for example, has highlighted its collaboration with Packsize International, a packaging producer, to create a smart system that allows them to “right size” the box for each order and eliminate wasted space, packing material, and shipping expenses. Similarly, Motorola has worked with E2open to develop systems to enable fast, accurate global collaboration leading to improved customer service, inventory management, and strategic decision making. Google recently announced that it is developing a model to offer same day delivery. Unlike the Amazon model of deploying distribution centers across the country, Google is contracting directly with local stores to provide same day

EXHIBIT 1

5 Keys to Successful Innovation Spanning Supply Chain Partners

Keys	Characteristics
<p>1</p> <p>Don't Settle for the Status Quo</p>	<ul style="list-style-type: none"> Cooperative Proactive Incremental Failure is an Option
<p>2</p> <p>Hit the Road in Order to Hit Your Metrics</p>	<ul style="list-style-type: none"> Face-to-Face Open Door Fresh Eyes Commitment
<p>3</p> <p>Send Prospectors Not Auditors</p>	<ul style="list-style-type: none"> Visionary Managers Mutual Benefit Leverage Existing Resources Big Picture
<p>4</p> <p>Show Me Yours and I'll Show You Mine</p>	<ul style="list-style-type: none"> Share Invest Strategic Alignment Co-Dependence
<p>5</p> <p>Who's Running the Show?</p>	<ul style="list-style-type: none"> Intentions Financial Risk Sharing Culture Champion

Source: Jennifer Blackhurst, Pam Manhart, and Emily Kohnke

delivery without the cost of inventory.

The firms in our study defined and focused their innovation efforts not only on new product development, but also on the development of new processes and new ways of adding value. In fact, firms in our study defined innovation as having three components:

- the innovation is new;
- the innovation focuses on continuous improvement;
- and the innovation adds direct or indirect value to the customer.

Based on our interviews with supply chain managers, we identified five critical drivers for innovation spanning supply chain partners.

Let’s take a look at each of these components.

1 **Don't Settle for the Status Quo.** Whether the impetus to innovate is driven internally or externally, one of the partners needs to push the innovation process forward and not settle for the status quo assumption that the way things are is the best way. Many of the firms in our study were driven to engage in innovation because a supply chain partner expressed the need to innovate and develop new solutions. The push to innovate can come from the customer side or

the supplier side. While customer demand is an obvious source of inspiration—or instigation—the customer doesn't always know what they might want or need in the future. In other words, to be successful, you need to be leading the innovation charge rather than catching up from behind.

An agricultural firm in our study related how one of its representatives watched a commodity being hand sorted during a visit to a customer's site. (Many agricultural products have high levels of variation that require hand sorting.) Hand sorting is a tedious task and a worker's attention often fades over time. As a result, the agricultural firm saw an opportunity to proactively create a new process. "If the customer is doing something one way right now, it could be that they've never thought of doing it another way," a firm representative told us. "If we can come up with a better way to do it ...it's typically a very easy sell." In this instance, the firm had recently developed an automated system to sort a different agricultural commodity

with less rigorous requirements. The firm knew that if it could apply that expertise to this application it could open a new market. Working with its robotics and imaging suppliers, the agricultural firm was able to develop equipment priced equivalent to 1.5 years of labor costs, which has been greeted with excitement in the market.

Other firms in the study talked about "staying ahead of the curve" and using proactive innovation to remain not only viable but also competitive. Rather than wait for the big "wow," they saw great benefit in incremental innovations that might deliver dramatic improvements when distributed to other partners in the supply network. While they recognized that some failure is inevitable, firms successful in supply chain spanning innovation also demonstrated a willingness to fail in order to figure out innovations that would work (or not work) to deliver incremental gains. This point resonates with the way supply chain managers in our study define innovation as an element of continuous improvement.

Our Research

In Spring 2013, we undertook a data collection process to gather information on innovation projects spanning supply chain partners. Our goal was to better understand how the innovation process works in a supply chain partnership where each partner was housed within the same supply chain but remained two distinct, stand alone firms. We identified 18 paired supply chain partners (36 unique firms in total) who discussed the successes and challenges of over 100 innovation projects—some successful and some not.

Each firm was interviewed through a semi-structured interview protocol designed to gather information on innovation success, innovation failures, how the innovation occurred, enablers of the innovation process, and outcomes of the innovation. Firms were interviewed independently, but each knew that their supply chain partner would also be interviewed as part of the study. Both partners agreed to discuss their relationship and the innovation process. Example titles of our respondents include Supply Chain Manager, Director, and Vice President from a variety of industries. Interviews were recorded, transcribed, and then analyzed for themes using qualitative analysis software (Nvivo version 10). The software allowed us to consolidate, track, and code all of the data in our study.

In addition to the interviews, we received documentation and other supplemental materials from the firms that participated in the study, including innovation proposals, reports in completed innovation projects, and documentation describing process improvement procedures. Through the analysis of our data, we were able to develop common themes and metrics for innovation spanning supply chain partners, as well as the frequency and use of the mechanisms and metrics identified.

2. Hit the Road in Order to Hit Your Metrics. While supply chains often span continents and time zones, we were struck by the level of importance firms placed on face-to-face interaction to truly understand the motivation to innovate, and explore how to best engage in the innovation process. In some cases, seeing the issue or benchmarking a process opened ideas and applications that had never been thought of by either supply chain partner. In fact, many of these interactions did not have a primary goal to be the inception point for innovation, they simply became that organically. There was also much emphasis placed on a face-to-face meeting simply to get to know the partner better and more precisely identify that partner's needs.

For instance, an industrial firm we interviewed recalled how it helped a supplier combine three operations into one more efficient operation after a face-to-face visit. The results included notable cost savings, which were shared across the partners, and reduced lead times. The industrial firm described how it often mocks up a process, and

then looks at how else it can be done. “It’s amazing to me how many times people will watch the original idea, put it through this mock process, and decide they can save time or money by changing things up,” a firm representative told us. “Those are things that weren’t done years ago, and yet those processes have made every product more innovative.”

In addition, a physical visit provides that “fresh eye” experience. Seeing a partner’s operation was found to remove unnecessary steps, consolidate parts,

An open door process helps to establish trust, which is a key theme running through all five of the keys to innovation spanning partnerships.



increase visibility, substitute materials, and create new products. This open door process helps to establish trust, which is a key theme running through all five of the keys to innovation spanning partnerships. Trust that the partner is reliable, has “skin in the game” and will protect the relationship. Firms in our study indicate there is no virtual way to engage as compared to physical face-to-face meetings.

3. Send Prospectors, Not Auditors. Too often firms use supply chain managers as auditors when they are dealing with supply chain partners. Rather, these managers should be scouting for innovation opportunities across the supply chain. That takes a different skill set.

Indeed, firms we interviewed discussed the need to be vigilant in looking for opportunities. When tasking managers with innovation, they should be constantly scanning for new opportunities, such as new ways to leverage existing resources and creative applications for prior innovations. These managers should be seekers of innovation who are adept at finding and exploiting opportunities. We refer to these types of managers as “innovation prospectors.”

A construction firm in our study was struggling to develop a solution to a particular issue: “The [equipment] had a [component] that wore out too quickly,” a

representative explained. “We switched to an [alternative] component that also broke too quickly. So, we went back to the [original component].” Interestingly, their supply chain partner had recently developed a cheaper, stronger, and longer wearing alternative that it wanted to test in the field. In fact, the supplier had sent its sales and engineering people to the construction firm looking for test applications. The construction firm had strong concerns about wasting further time pursuing a non-proven solution. However, because the supplier sent its senior people, a firm manager had faith that development and testing time together would be used efficiently. The application was a success and these partners introduced 20 new parts together.

Impactful innovation projects should be led by such prospectors as opposed to those who cannot identify hidden or obscure opportunities. Prospectors are also able to see synergies where partners can work together for the benefit of everyone involved. Firms in our study discussed how successful innovation requires an understanding of the “big picture,” or the ability to see how the innovation can benefit all partners and how the innovation process itself can lead to future innovation. Prospectors also understand and can articulate the resources needed from each party.

4. Show Me Yours and I’ll Show You Mine. Trust plays an extremely important role in supply chain spanning innovation. Firms in successful innovations discussed a willingness to share resources and rewards and to develop their partners’ capabilities. Some firms mentioned that trust was actually developed through the innovation process. In doing so, trust may not only be a prerequisite but an outcome of the innovation process which in turn will lead to stronger and more impactful innovations. Through the process of developing trust, firms understand their partner’s strategic goals and priorities.

To illustrate the importance of trust, we recall that an offshore utility built a new generator and partnered with a fuel provider to build a neighboring processing plant. This original partner went bankrupt and the offshore utility had to scramble to find alternatives. It partnered with a logistics firm. Although they combined their expertise, neither partner had the capabilities to support such volume in an extremely narrow time frame or the equipment to dedicate to a route

over 5,000 miles. Although the logistics partner was willing to invest in the capabilities, it had to bid the job at prospected future efficiencies in order to gain contract approval. Furthermore, the utility commission required delivery of 40 loads before it would sign a contract requiring previously unknown partners to begin building trust very quickly. The more details they understood, the more useful each partner was to each other and trust expanded. In the end, they shortened the route from six weeks to 10 days, reduced custom equipment turnover from 45 days to 35 days, and provided a half million dollars of savings annually.

Firms also recognized that when a key partner stumbles, they might also suffer the same fate. As such, both partners need to be invested and committed to the innovation process. Once they are vested in each other, there is an inherent need to protect the relationship and innovate beyond what could be achieved contractually.

5. *Who's Running the Show?*

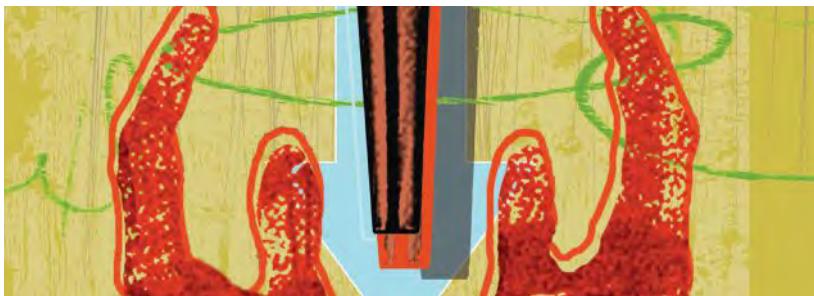
Finally, firms discussed the need for very clear intentions and goals in the innovation process. They not only establish who is doing what, but also what each firm is bringing to the relationship in terms of resources and capabilities. In one project example, a firm in a partnership was very clear regarding its own lack of skill in a certain area—which was exactly the skill that the partner was bringing to the relationship. It is important to note that not all innovation spanning supply chain partners involved pre-existing relationships. Some were fostered specifically for the opportunities identified. For that reason, it's important to consider complementary skill sets and an innovative culture as a criterion when choosing future suppliers.

While there needs to be support in terms of clear project goals and leadership, there also needs to be an established culture supporting innovation in both partners. While one of the partners might have a stronger culture in this regard, both must be ready to participate in the innovation process. Firms discussed how successful projects have a champion within each partner firm and the champions being the “driving force” of the innovation.

In our study, an apparel firm's business model was to provide the same materials for a better price and service

than their much bigger competitors. Therefore, logistics partners were crucial to its success. One of the apparel firm's logistics providers realized that something wasn't working and suggested some alternative service models. The apparel firm told us “...we would have had no idea about these alternatives unless our trusted partner had stepped in and said: ‘Hey, here's a better way; implement that, and you guys will see an improvement.’” After the

Firms also recognized that when a key partner stumbles, they might also suffer the same fate. As such, both partners need to be invested and committed to the innovation process.



apparel firm let its logistics provider take the lead, it was able to remove a bottleneck and dramatically improve its processes. Working together, they improved the firm's internal logistics processes and reduced customer response times from three days to same day shipments.

Takeaways

As firms discussed how they innovate with supply chain partners, we noticed that leveraging lean and process improvement was mentioned by virtually every firm. This indicates to us that innovation is viewed as a way to drive continuous improvement. This ties into recent industry reports that discuss innovation in the supply chain, such as Gartner's Top 25 report for 2013 (See *Learning From Leaders*, in the September 2013 issue of *SCMR*).

Much of the literature surrounding innovation focuses on new product development. Certainly, we spoke with firms that identified capabilities in their partners that could be combined to create new products. Notwithstanding, there are massive opportunities in a supply chain context to develop new processes and find new ways to leverage existing capabilities. Although idea generation is foundational to innovation, many good ideas are abandoned when they encounter

implementation barriers.

An advantage we saw in firms using supply chain partners to generate process innovation was an opportunity for immediate and coordinated application of the innovation outcome. Likewise, in product development, supply chain partners inherently knew, or could quickly determine, what was feasible. Because the developers were the users, they had much greater success in executing ideas and spent less time pursuing dead ends.

Firms in our study discussed many performance improvements as a result of boundary spanning supply chain innovation. Incidentally, within each project, the outcomes were not always the same for both partners. They frequently had experienced different and even multiple performance gains in a variety of areas. Some of these performance outcomes include:

Growth. Firms were able to identify and track sales growth from innovation spanning supply chain partners. In one example, a firm attributed a four-fold increase in sales growth to an innovation undertaken with a partner. Firms also discussed increased profit margins by being able to offer a superior product with less cost. Finally, firms discussed leveraging the innovation into new markets. As one firm in our study elaborated: “With the transportation model that we have out there right now, we’re innovating at a very high rate, I can tell you that much. We’re growing at a much higher rate than everybody else. There have been dozens of companies that have been closing, but we’ve been doubling our business for years. So we’re innovating right now with everything that we have at our fingertips.”

Responsiveness. The ability to respond more effectively to customer needs was also an outcome of innovation spanning supply chain partners. Lead time reduction was discussed by many firms as the ability to deliver product faster, even as supply chains become more complex. One firm told us it was “able to cut the transit time down by at least by seven days, and we’re also lowering costs.”

Reliability. Quality and reliability were also a benefit of innovation, along with the ability to consistently deliver quality and value to the customer. Supply chain boundary spanning innovation also resulted in waste reduction and a consistency in processes that had not been seen before the innovation.

Utilization. Finally, firms leveraged innovation to become more efficient at inventory utilization



as well as other resource utilization. The more efficient and effective use of scarce and expensive resources is certainly a plus for firms. In the words of one innovation project manager: “We’re actually better able to handle the ups and downs of our production. Previously we didn’t have as many customers in each segment, so we had fewer eggs in each basket. But, now we have more eggs across more baskets, so it gives us more flexibility in handling those ups and downs of the market.”

Moving Forward

Interestingly, while a firm would not have to adopt the five key components all at once, firms in our study utilized at least three of the components in the innovations they deemed to be successful (as indicated by the positive performance outcomes discussed above), and many exhibited all five.

These projects had champions who were vigilant in seeking out new opportunities and leveraging partner capabilities to see the innovation through to completion. Leveraging partners allowed many projects to succeed because, while an individual firm might not have all the needed resources and expertise, the right partnership collectively had them all. The right collective mix of partners was a dynamic process, not a stable state.

Many firms in our study have become innovation-believers due to the incredible improvements to key performance metrics through their engagement in boundary-spanning supply chain innovation. This success would in turn lead to more innovation seeking. Firms understand the critical role of trust and culture fit that leads to three interesting outcomes: 1) The trust and culture alignment is strengthened through the partnership innovation process leading to future innovations and improvement; 2) firms see what is needed in terms of characteristics in a partner firm so that they can propagate the success of prior innovations to additional partners; and 3) by engaging supply chain partners as innovation partners, both sides reap rewards in a low cost, low risk, highly achievable manner.

Finally, the successful firms in our study did not just look for the obvious opportunities. Rather, they employed these five key components of supply chain spanning innovation to scan their environments alongside their partnerships and used what they gained to create opportunities to innovate and thrive. ☞

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How They Did it: Supplier Relationship at RAYTHEON

By Bob Trebilcock

Raytheon is on a mission to be the Customer of Choice and earn preferential treatment from its suppliers. To get there, the defense contractor is looking to a Supplier Advisory Council for advice, ideas, and innovation.

Raytheon at a Glance

Founded: 1922

Headquarters: Waltham, Mass.

Industry: Defense

Employees: 61,000 worldwide

Sales (2014): \$23 billion

Business Units: 4

In early May of 2014, senior executives from Raytheon's Integrated Defense Systems (IDS) business met with senior executives from 13 key Raytheon suppliers at a hotel near Boston's Logan Airport. The suppliers came from all over, including one who traveled from as far away as Norway, to launch Raytheon's first Supplier Advisory Council, or SAC. The meeting was the first step toward a pilot program designed to be a key building block in Raytheon's emerging Supplier Relationship Management (SRM) strategy. The ultimate goal, according to Michael Shaughnessy, vice president of Integrated Supply Chain for Raytheon Integrated Defense Systems, is to earn and provide preferential treatment as the Customer Of Choice—the customer who receives the best terms, manufacturing capacity as needed, and gets first dibs on innovations that can win in the marketplace. “In order to reach that level of earned preferential treatment, we have to build stronger bonds and greater trust into supplier relationships,” says Shaughnessy. Together, he adds, Raytheon and its suppliers can work collaboratively to develop winning technologies while taking costs out of the production and maintenance of products.

By all accounts, the first meeting started off slow. By the end of the day, however, there was a focus on next steps and a commitment to move forward. By the third meeting in September 2014, the suppliers were truly participatory. “We had momentum,” says Neil Perry, Raytheon Integrated Defense Systems' director of supply chain operations.

The changes in Raytheon's approach to supply management reflect the kinds of discussions that are going on at other industry leaders who are moving from transactional relationships based on cost and delivery times to more strategic relationships with their suppliers. This is the story of how Raytheon is implementing a Supplier Advisory Council in order to become the Customer Of Choice.

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Management



Strategic Procurement and Preferential Treatment

SACs are not new. Industry leaders like Harley Davidson and Square D, now part of Schneider Electric, have relied on them for years. Mark Lee, the chair of Raytheon's SAC and a vice president with Whitmor/Wirenetics, a Valencia, California-based manufacturer and distributor of wire and cable, spent six years on the advisory council at Rockwell Collins prior to joining Raytheon's SAC. "It was a great experience because it enabled suppliers like us to get in tune with where Rockwell Collins was going as a company," says Lee.

In the best SACs, there is bi-directional sharing: A supplier like Whitmore/Wirenetics can offer up best practices it has observed at other customers while gaining an understanding of how a larger company like Rockwell Collins or Raytheon operates in ways that

"In order to reach a level of earned preferential treatment, Raytheon has to build stronger bonds and greater trust into supplier relationships."

—Michael Shaughnessy, vice president of Integrated Supply Chain, Raytheon Integrated Defense Systems

might improve its business processes. More importantly, suppliers are able to align with their customers' goals.

In fact, the real point of a SAC may be that the whole is greater than the sum of its parts. "In today's fiercely competitive global marketplace, success requires suppliers willing and able to extend more value, resources, and energy to customers with whom they have strong relationships and greater trust," says Joe Sandor, a professor of purchasing and supply management at Michigan State University and one of the facilitators of Raytheon's SAC. "Your ability to influence suppliers in ways that confer competitive advantage is shaped by their perception of your willingness to help them meet their needs. The question is not why should one initiate a supplier relationship management program, but rather, how does one execute a robust SRM effort to earn preferential treatment."

A SAC is one tool in the SRM toolbox. Done well, Sandor adds, it is an effective vehicle to overcome internal obstacles and persuade both key suppliers and critical internal managers to pursue supply network collaboration (see sidebar).

The seeds for Raytheon's SAC were planted in 2012, when Michael Shaughnessy, a Raytheon veteran, became vice president of Integrated Supply Chain

for Raytheon's IDS business. There, he is responsible for Raytheon's partnerships with IDS suppliers and for providing a "single line of sight" for Mission Assurance through all phases of a program.

With \$23 billion in 2014 sales and 61,000 employees worldwide, Raytheon describes itself as "a technology and innovation leader specializing in defense, security, and civil markets throughout the world." Shaughnessy came to his new role at a time when the U.S. defense industry was experiencing a heightened focus on cost as well as competition from new players in a global market that includes competitors from Russia, France, China, and Israel to name a few. Great technology alone could not win the day; the purchase price and the cost of maintaining a piece of equipment over its lifetime were becoming as important as game-changing technology. By necessity, Raytheon was forced to rethink how it interacts with its supply base. Procurement

wanted to transition from tactical relationships, focused on price negotiations and placing purchase orders, to more strategic relationships that involved the participation of suppliers up front during the design of a new product, where there are real opportunities to take cost out of a process.

This kind of collaboration was a different way of thinking at

Raytheon. Not that long ago, the defense contractor was a vertically-integrated company that designed and built almost everything it produced. An estimated 80 cents of every dollar of sales was created in house; the other 20 cents came from Raytheon's suppliers in the form of raw materials and parts that Raytheon kitted and fashioned into products. Procurement focused on purchase orders. "If you looked at the number of people working in procurement and logistics, about 85 percent worked on transactions that represented 15 percent of the supply chain," Shaughnessy says.

In this new dynamic marketplace, that ratio has been turned upside down and supply drives the supply chain: Now, about 70 cents of each dollar of sales emanates from beyond the four walls. "Our suppliers are integrated into our processes," says Perry. "Instead of delivering commodities, like screws, they are delivering completed assemblies that we bring together in our plants." As such, he adds, there is little margin for error. "We have to understand the capabilities of the supply base to ensure that we are in compliance with regulations and quality standards. Reducing risk is an imperative."

The goal, say both Perry and Shaughnessy, is to collaborate strategically with a select group of key suppliers to deliver absolute affordability without giving up capability or

Supplier Advisory Councils Enable Better Buyer/Seller Relationships

By Joe Sandor

A substantial and growing body of evidence attests to a simple fact: Buyers are beginning to understand the value of enhanced relationships with their suppliers. Improved buyer/supplier relationships lead to cost reductions and cost prevention, improved quality and delivery performance, and greater innovation. Moreover, effective collaboration with suppliers delivers an absolute and sustainable competitive advantage.

By necessity, delivering sustainable competitive advantage requires integration and alignment of key stakeholders both within and external to the firm. Such integration and alignment earns preferential treatment between supply network members. At the same time, there are often hurdles inside and outside an organization that stand in the way of collaboration.

An effective Supplier Advisory Council (SAC) is a good vehicle to overcome those obstacles and persuade both key suppliers and critical internal managers to pursue supply network collaboration. Accordingly, an effective SAC like the one being developed at Raytheon ought to be a key feature of a firm's Supplier Relationship Management (SRM) activities. But, like most initiatives, SAC's can be poor, middling, or fabulous. Here's how to get the most out of a SAC.

- Get both senior management support and commitment to actively participate. This signals the importance of the SAC to the entire organization as well as potential SAC members.

- Have process discipline—as Dave Nelson, supply management icon, puts it, “honor the calendar.” Plan for routine involvement between the SAC and the buying firm at multiple levels.

- Consider launching the initial SAC meeting with a third party facilitator. But, don't let the facilitator dominate the agenda or prescribe objectives. Even if it's clumsy at first, allow the SAC to feel empowered with a sense of ownership versus simply following instructions.

- Develop and communicate a shared vision of the future state of SRM that articulates how the SAC can help set priorities for goals and guidelines by which these goals are measured. The SAC vision should not only be general and long-range but should also differentiate the joint enterprise from its competition.

- Use the SAC as trusted advisors, sounding boards and pilots. Leverage the knowledge created by routinely communicating results.

- View the SAC as change-agents. Determine SAC candidates on their knowledge and business acumen as well as importance to the buyer's firm.

- Give the SAC access to your C-suite. Improve the frequency and durability communications at all levels.

- Regularly meet on a rotating host basis.

- Give the SAC authority while defining scope.

- SAC supplier terms should be at least two years.

- Keep the number of participants manageable—somewhere in the teens.

- Engage key stakeholders in the selection of SAC members—this should not be a purchasing only activity.

- Launch SAC supported supplier-buyer teams to address specific problems and opportunities.

- Co-host important events like annual supplier appreciation days, innovation events, etc.

- Document progress and celebrate success.

Now, here are some things not to do:

- Don't launch a SAC without senior level participation over the long-term.

- Don't proceed without company-wide support; don't rush into an arbitrary start date with only lip-service support from internal stakeholders.

- Don't launch with purchasing people only. Keep membership at a high level and don't allow lower level folks to “substitute” for the boss.

- Don't be cheap—budget for expenses. Treat the SAC the same way you would treat important customers.

- Don't allow a facilitator to govern your SAC meetings.

- Don't allow individual SAC members to dominate the discussion at SAC meetings.

- Don't allow specific concerns or issues between SAC members and individual buyers to become agenda items unless such issues represent broader trends.

- Don't build expectations without being able to deliver solutions.

- Don't be the last person on the block to form a SAC—the best SAC members may be gone.

SAC success is a function of shared commitment and mutual respect that can be extraordinarily beneficial to the entire supply network when executed properly.

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technology. That, Raytheon believes, can only be accomplished with a closer relationship with its suppliers starting at the design stage of new products. “If you engage your suppliers early on in the design stage, you can make dramatic reductions in cost without compromising the quality of the products you deliver,” Shaughnessy says.

Supplier Relationship Management

Raytheon began its journey in Supplier Relationship Management with key goals. One was to automate as many mundane tactical processes as possible so that the procurement team could spend more time on strategic initiatives with those key suppliers that are essential to moving the company forward. “We have 10,000 plus suppliers,” says Shaughnessy. “You cannot have a strategic relationship with all of them, but you can identify your key suppliers and develop a partnership and shared vision that will allow you to win programs.”

In the best Supplier Advisory Councils, there is bi-directional sharing:

A supplier can offer up best practices it has observed at other customers while gaining an understanding of how a larger company operates in ways that might improve its business processes.

As part of this transition, Shaughnessy reached out in late 2012 to Dave Nelson to consult on the development of a supply management strategic business plan. The former head of supply management for TRW, Honda, John Deere, and Delphi and chairman emeritus of the Institute of Supply Management, Nelson is one of the world’s best recognized supply management thought leaders. “We have a continuous improvement mindset at Raytheon,” says Shaughnessy. “We needed to figure out how to take our relationship with a strong supplier base to the next level.”

One of Nelson’s recommendations in the business plan was for Raytheon to earn preferential treatment from suppliers. The concept is familiar to any frequent traveler who belongs to a hotel rewards program. “If you’ve been a loyal customer of a hotel, you get the best room at the lowest rate when you show up,” Shaughnessy says. “That’s what we want in our supply base. When we reach out, I want to know that we’re getting the best people on our team or capacity when we need it because of how we’ve worked with that partner. We’re developing those relationships in

the Raytheon supply chain now.”

Customer Of Choice sounds great, but it led to an important question: How would Raytheon measure whether it was making progress toward that goal? It couldn’t just be some soft benefit. Nelson recommended conducting a supplier perception survey with Michigan State, something that Sandor had conducted for companies such as Harley-Davidson, John Deere, Sara Lee, Electrolux, ConAgra, and the United States Air Force. Working with Sandor and Nelson, Raytheon IDS developed a list of roughly 300 suppliers that represented 75 percent of the business’ total spend.

After several months of tinkering and tailoring, the survey went out in March of 2013. The results were presented in two different briefings to a cross-functional group of Raytheon managers in April and May 2013. The verdict: Raytheon received very good scores in terms of overall trustworthiness, orientation toward quality, and technical content. Raytheon needed to work on understanding total network costs, concern for supplier profitability, willingness to share risk with suppliers, to provide an interface with senior management, and to provide one face to the supplier. And communication was an issue: Suppliers submitted bids and didn’t always know from Raytheon why they didn’t win a contract.

In one respect, the areas with low scores reflected the tactical nature of Raytheon’s approach to procurement, which was focused on issuing POs. If the company could raise those scores, it would reflect the transition to a more strategic approach to procurement that emphasized partnering and collaboration. The question for Raytheon was: How do we get there? “A partner is different than a supplier,” says Perry. “We wanted a process to get more involvement from the supply base.”

Nelson and Sandor suggested a Supplier Advisory Council. A decision was made to launch a SAC as a pilot program in the Integrated Systems business. Raytheon put the wheels in motion at its annual Industry Day event in Washington in April 2014. With about 300 suppliers in attendance, representing a mix of large and small businesses, publicly-held, privately-held, and minority-owned businesses, Shaughnessy introduced the SAC concept and asked for volunteers.

“Frankly, we were overwhelmed by the response,” Perry recalls. “We deliberated with Sandor and concluded that if we wanted to send a message that things are different at Raytheon, we couldn’t just pick our favorites. We needed a healthy cross-representation of suppliers.”

Thirteen were chosen and a first meeting date was set for May, with a goal of establishing guidelines for the SAC.

The First Meeting

Mark Lee of Whitmor/Wirenetics was seated next to Shaughnessy at the industry day event when the SAC was introduced. Having just rotated off the Rockwell Collins' SAC after six years, Lee was interested in joining Raytheon's initiative. "As a supplier, you want to work with customers who want to get better together," he says. "Raytheon is realizing that they are going to get a lot more out of suppliers when both parties are listening."

At their best, he adds, SACs not only align supply chains, they align top management of both companies with procurement and engineering. "As a supplier, we often find that there is a gap between what leadership wants to do and what procurement and engineering are doing," Lee says. "The SAC provides an opportunity for suppliers to discuss issues that management may not be aware of without fear of retaliation. In fact, if it's not candid, it won't work."

Similarly, he adds, suppliers have to realize that a SAC meeting is not a sales presentation. "You don't talk about what your company does or try to get a price increase," Lee says. "You're not there to negotiate; you're there to discuss best practices."

Following the Industry Day event, Raytheon responded back to every company that volunteered. The goals for that first meeting were important but modest: Elect a chair of the advisory council—Given his past experience, Mark Lee was elected to lead the group and set up the ground rules for engagement of the SAC, such as two year term limits for SAC members. The meeting was loosely scripted at best. That was intentional, according to Raytheon. "We took it very slow because we wanted our suppliers to drive the train," says Perry. "Raytheon did not want to dictate to our suppliers how this should be organized."

After a slow start, things got rolling. Since that first meeting, there have been three official meetings, including one that took place in February 2015, and a meeting at a supplier conference. At the end of one meeting last September, Shaughnessy asked the members whether the process was working, given that suppliers had to give up at least a day of their time, and several days in the case of international suppliers. The response was unanimous that it was worth doing. In fact, each meeting has had nearly perfect attendance.

Now that the groundwork has been laid, the SAC is beginning to look at process. At the second meeting, for instance, suppliers were briefed on a new Raytheon supplier excellence program. Based on supplier input, Raytheon developed 15 key performance measures beyond quality and delivery for a proposed supplier scorecard that

was then presented to the council. "That was the moment when they transitioned to being fully effective," Perry says. "They spoke up and told us the things they liked, the things they didn't like, and suggested improvements." At the most

"A partner is different than a supplier. We wanted a process to get more involvement from the supply base."

—Neil Perry, director of supply chain operations, Raytheon Integrated Defense Systems

recent meeting in February, Raytheon brought in its director of engineering to discuss innovation. "We are looking at how to get our suppliers involved early so that they want to innovate and share with us," says Perry.

"My opinion is that they're on track," says Lee. "Two years from now, Raytheon is going to be better at this, the supply chain will be aligned, and there will be a better understanding of how to be successful together."

Next Steps

By all accounts, Raytheon's SAC is still in the early stages of maturation. The defense contractors' other three business units are observing to see how it works and whether it is applicable to them. Several steps have been outlined to measure the success of the initiative, and a strategy team has been formed to see how best to do it across Raytheon.

For one, the company intends to conduct another supplier survey in 2015 to see if scores have improved from the first survey. For another, Raytheon is launching its first supplier excellence awards at the corporate level this spring. "We have done this at the business unit level, but now we'll do it at the corporate level," Shaughnessy says. "We'll have senior management participate, which will send a message about how important our suppliers are to our future." What's more, Shaughnessy will look at the success of the supplier scorecard, which was developed with input from the SAC. "Those suppliers that are scoring well are going to get more business from Raytheon," says Shaughnessy.

At the end of the day, however, the real measure will be how well the company is able to take cost out of its product at the design stage, continue to develop game-changing technologies that are affordable today and over the life time maintenance of its products, and win with its suppliers. "We truly believe we will be a better supply chain at Raytheon," says Shaughnessy. ☺☺

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Demystifying INVENTORY

By Sean P. Willems

Inventory optimization is often intimidating and frustrating. Once the most common barriers are removed, however, optimized inventory across the supply chain is easier to achieve than it looks.

Sean P. Willems, Ph.D., is Associate Professor of Operations and Technology Management at the Boston University School of Management. He can be reached at willems@bu.edu. For more information, visit <http://management.bu.edu>.

The pressure to optimize inventory is only increasing. In industrial business-to-business supply chains, customer service level agreements are growing more stringent, with significant financial penalties for noncompliance. Meanwhile, brick-and-mortar retailers must successfully manage inventories across their network of distribution centers and stores to compete against Internet retailers.

I often find that inventory optimization intimidates and frustrates people working in supply chain. They are intimidated because they believe the problem is too difficult to solve. They are frustrated because solving it poorly has a material impact on their lives and operations—not to mention their careers. This is both unfortunate and unnecessary.

This article seeks to demystify inventory optimization so that you can optimize your company's inventory immediately. It begins by representing the inventory optimization journey for any company as a progression through three efficient frontiers; companies begin at an ad hoc frontier and then move to a single stage frontier before finishing at a supply chain frontier. As I'll demonstrate, the expected results of simply moving from the ad hoc frontier to the single stage frontier are substantial. And, I'll explain the five impediments to overcome when moving from the ad hoc frontier to the single stage frontier.

The Efficient Frontier for Customer Service Level and Inventory

Let me begin by telling a story about the efficient frontier. The efficient frontier captures the tradeoff between customer service level and inventory. Achieving a higher service level incurs a higher inventory cost. This cost is nonlinear to reflect the reality that each incremental point of service requires more inventory in the network. In most

OPTIMIZATION

classic textbooks, the snapshot of the company's existing inventory-service performance represents a single point on the graph measuring inventory and service. The "optimal" efficient frontier is shown as a curved line that does not touch the current inventory-service performance point.

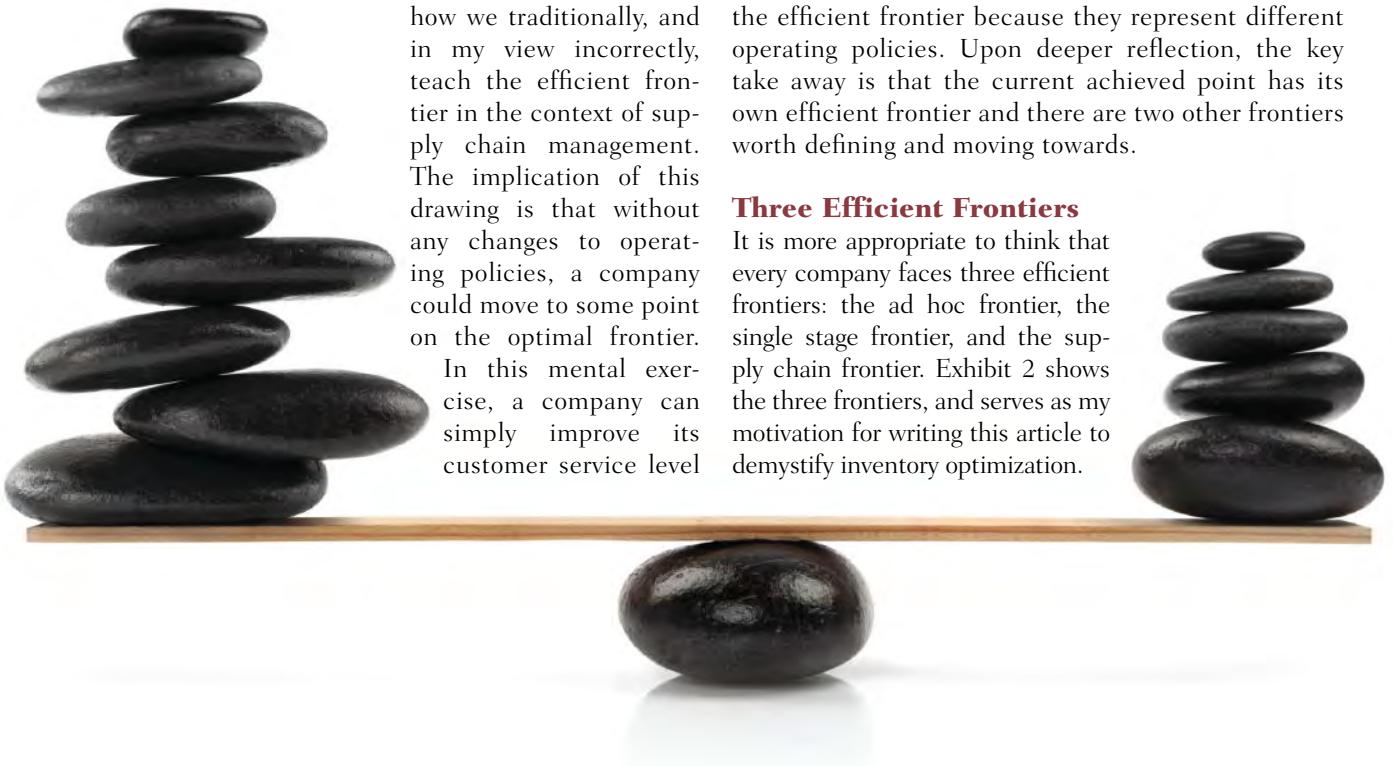
Exhibit 1, on the following page, illustrates how we traditionally, and in my view incorrectly, teach the efficient frontier in the context of supply chain management. The implication of this drawing is that without any changes to operating policies, a company could move to some point on the optimal frontier. In this mental exercise, a company can simply improve its customer service level

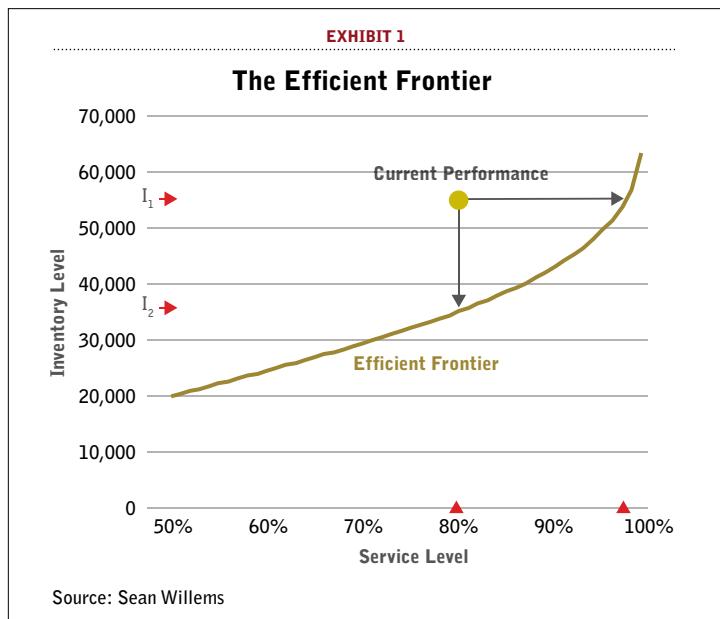
without changing its inventory level or it can maintain its current customer service level and lower its inventory level.

As a thought exercise, the picture and story associated with Exhibit 1 sounds good. Reality, however, is far more nuanced. If moving to the efficient frontier was so simple, everyone would just do it. In the real world, we can't just move from the current point to the efficient frontier because they represent different operating policies. Upon deeper reflection, the key take away is that the current achieved point has its own efficient frontier and there are two other frontiers worth defining and moving towards.

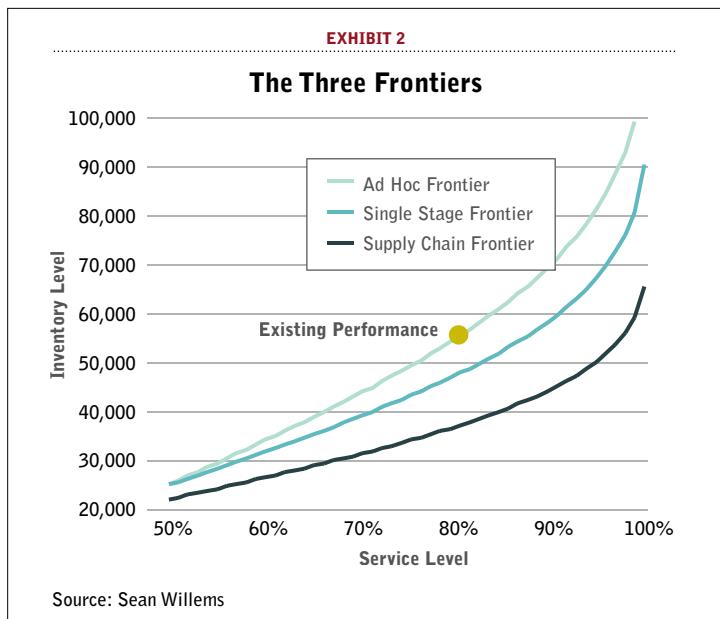
Three Efficient Frontiers

It is more appropriate to think that every company faces three efficient frontiers: the ad hoc frontier, the single stage frontier, and the supply chain frontier. Exhibit 2 shows the three frontiers, and serves as my motivation for writing this article to demystify inventory optimization.





Conventional wisdom incorrectly shows current performance (with inventory level I1 achieving an 80% service level) deviating from the efficient frontier, thereby implying one can easily reduce inventory to I2 while maintaining the same service level, or leave inventory unchanged and achieve 98% service. In reality, moving from existing performance to the efficient frontier is difficult, if not impossible.



Every supply chain has three efficient frontiers. Existing performance lies on its own ad hoc efficient frontier. By replacing ad hoc inventory targets with single stage scientific calculations the single stage frontier can be achieved. Optimizing across the supply chain achieves the supply chain frontier.

In Exhibit 2, the existing performance still exists as a point on the graph since the company operates today at a specific service level given its inventory investment. That point itself lies on an efficient frontier I call the ad hoc frontier to reflect the reality that the rules to set inventory in the supply chain are likely not rigorously determined. That is, current practices use inventory to meet service level objectives, but these practices are likely informal and not grounded in analytics.

However, without any changes to its operating policies, the same company could move to another point along the ad hoc frontier. For example, using existing policies but lowering inventory levels by 10 percent across the board would result in a lower achieved customer service level.

An entirely new frontier is reached if the company employs single stage inventory calculations for every SKU at every location. Each SKU can be managed as it was under the existing operating policy, but the safety stock target will be scientifically calculated. I call this new frontier the single stage frontier. From an operations perspective, making the change from the ad hoc frontier to the single stage frontier is quite straightforward. All it requires is a willingness to adopt a scientifically derived target. It is worth noting that there is still room for improvement beyond the single stage frontier.

That's because in moving to the single stage frontier, all we have done is replace the existing safety stock target with a smarter calculation.

The third efficient frontier is the supply chain frontier. In this setting, we now optimize safety stock targets across the supply chain. This requires a new level of communication and management, coupled with a multi-echelon inventory optimization engine, to facilitate the determination and use of the new targets. Whether you move from the ad hoc frontier to the single stage or supply chain efficient frontier is really a cost/benefit decision that is company specific. The focus of this article is to explain why companies have not already moved from the first frontier to the second, and how we can convince them to make that change.



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Progressing to Scientifically-based Inventory Calculations

The three efficient frontiers each represent a step in the journey to optimize inventory. The first step is admittedly the most primitive, but, in reality, it is still the most pervasive. More than half of the companies I encounter for the first time in consultations employ rules of thumb to set targets in an ad hoc fashion. The company’s SKUs are partitioned into categories and each category maintains a weeks of supply target. In most cases, the weeks of supply target is a forward weeks of supply target, which means the target safety stock level for every SKU is equal to the sum of the forecasted demands for a future number of weeks.

Academic literature and leading inventory textbooks, such as *Inventory Management and Production Planning and Scheduling*, agree that an ad hoc weeks of supply target based on future average demand is a suboptimal way to set safety stock targets. Furthermore, basic single stage inventory equations exist that apply to most every SKU at a location.

Don’t worry: There won’t be a math quiz at the end of this article. However, for the case of normally distributed demand and normally distributed replenishment times, the basic single stage inventory equation

to determine the safety stock for a SKU at a location is well understood to be:

$$\text{Safety Stock Required} = z \sqrt{\mu_L \sigma_D^2 + \mu_D \sigma_L^2}$$

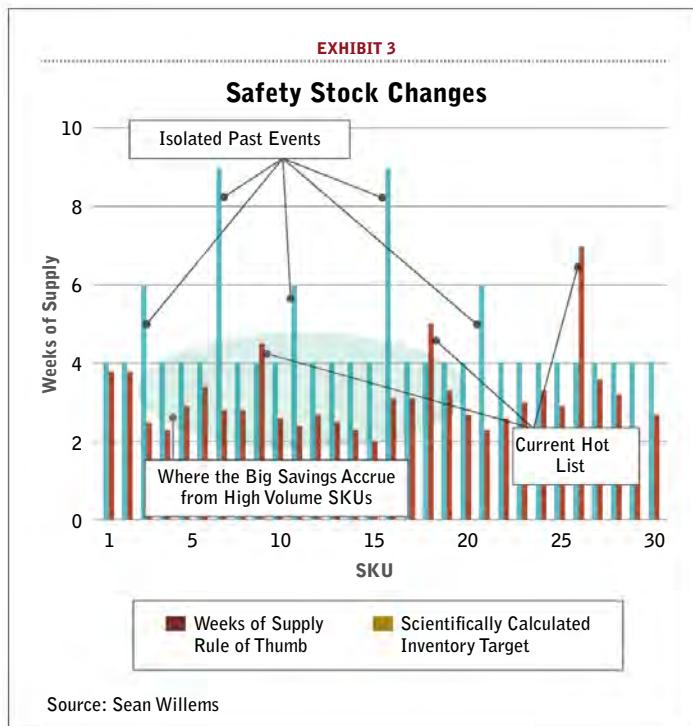
In this example, z is a constant determined by the desired service level for the SKU, μ_L is the average replenishment leadtime, σ_L is the standard deviation of the replenishment leadtime, μ_D is the average demand and σ_D is the standard deviation of demand. Again, this is not the only single stage safety stock equation, and any good inventory textbook has many variants. However, it is the most commonly encountered in practice and it exists in many commercial inventory planning systems.

Exhibit 3 demonstrates what happens when a company changes setting its safety stock targets from a forward weeks of supply rule of thumb to a scientific single stage inventory calculation.

The results in Exhibit 3 mirror the results of dozens of projects I have worked on. There are two bar graphs for every SKU, and the SKUs are rank ordered by volume with the highest volume SKU to the left and the lowest volume SKU to the right. The blue bar is the SKUs weeks of supply target. The vast majority of SKUs have a four-week weeks of supply target. Three SKUs have six weeks of supply and two SKUs have nine weeks of supply. Because the SKUs are rank ordered by volume, the SKUs to the left have much higher volumes but because the safety stock targets are translated into time by dividing by average weekly demand all the targets are normalized to the rules of thumb coverage amounts.

The red bar is the scientifically calculated safety stock target; the calculated value (in units) is divided by the average weekly demand to translate it into a forward weeks of supply that can be plotted against the rule of thumb. The scientifically calculated target is driven by variability (and not just the average), so its value is specific to every SKU.

There are several results in Exhibit 3 that hold in general. First, for the majority of SKUs, the scientifically-derived safety stock target is below the forward coverage rule of thumb. This means the existing policy holds too much inventory of these SKUs. This makes intuitive sense; if this were not the case the company’s hot list would be far too large to handle. In effect, if a company maintains a forward coverage rule we



Typical results achieved when changing from a weeks of supply target (depicted in blue) to a scientifically-based single stage safety stock calculation (depicted in red).

can be certain that in aggregate it is holding too much inventory; it is setting the targets with a very coarse filter so it has to set the targets high to not incur problems on a large scale. Second, the SKUs that had their weeks of supply target adjusted higher in the past no longer need such high targets; whatever event happened in the past is no longer valid and variability has settled back down to a point where the high targets simply create a significant excess in supply for that SKU. This excess inventory situation still exists because companies have asymmetric penalties for having too little and too much stock. Having too little stock causes a planner to get fired or reassigned. Having too much stock earns a reprimand to go back and lower the stock often without SKU-specific guidance on how to accomplish that goal. Third, there are three SKUs (SKU9, SKU18, SKU26) where the scientifically calculated target exceeds the rule of thumb. These are the SKUs that are currently on the company's hot list.

When I perform this analysis at a company, I like to combine these second and third results to have



Having *too little* stock
causes a planner to get fired or
reassigned. Having *too much*
stock earns a reprimand to
go back and lower the stock
often without SKU-specific
guidance on how to
accomplish that goal.



some theatrical fun with the team. I walk in and tell them I can guess the SKUs on the company's current hot list. I begin by talking about the SKUs in the second category. I say: "SKU7 must be causing you problems" and they will respond: "Yes, last year that SKU had a supplier problem and we ran short on it for two months." They will tell a similar story about something that happened to SKU16 in the distant past. Then I will turn the screws a bit and say "and SKU9 and SKU18 are on your hot list." If the report is based on the most recent data, this will cause the inventory analyst to blanch while everyone else will just be blank faced.

The inventory analyst blanches because she knows those are two of the three SKUs on this week's hot list. The rest of the team is blank faced because they have not yet seen the report that tells them this.

When done live, this whole exercise is a poignant way to bring the power of inventory optimization to life. In truth, there is no magic in what I am doing. In this example, I know the problematic SKUs are SKU9, SKU18, and SKU26 because those are the SKUs with the highest variability and that variability exceeds the simplistic weeks of supply target that is not equipped to deal with changes in variability. I also know the past problematic SKUs are SKU3, SKU7, SKU11, SKU16, and SKU21 because those are the SKUs that had their weeks of supply targets elevated beyond the norm of four weeks of supply.

As a fourth, and final point, the majority of savings from right sizing safety stock targets (i.e., going from the ad hoc to the single stage solution) accrues from right sizing the higher and medium volume SKUs. Usually the highest volume SKUs are pretty dialed in; there is an inventory analyst monitoring those SKUs all the time. And the lowest volume SKUs often experience significant reductions on a percentage basis but the volumes are too low to matter on a volume basis. It is the higher to medium volume SKUs that move the needle of corporate performance.

Removing the Five Barriers to Using Scientific Inventory Calculations

The above explanation may seem technical and complex. However, moving from ad hoc rules of thumb to scientific single stage inventory calculations is far easier than you may think. Before that can happen, however, there are five impediments that

have to be removed to achieve the results in Exhibit 3 at your company. Each impediment is documented and followed by its successful resolution.

First, the intuition for how to correctly solve the problem is completely wrong. Second, corporate metrics reinforce the wrong behavior. Third, people lack faith in the results from a "simple" scientific inventory formula. Fourth, they don't realize how much money they are leaving on the table by staying with rules of thumb targets. Fifth, they don't realize the ease with which they can change to scientifically calculated targets. Let's take them one at a time.

1. The intuition for how to correctly determine inventory targets is wrong. If you ask someone to intuitively describe what a proper inventory target should be for a particular item, they inevitably talk about the future, such as what demand will be like in

the future. But that is completely wrong. As is well documented in the inventory literature, inventory on hand is a result of supply decisions and materialized demand from the past, not the future.

2. Corporate metrics reinforce the wrong behavior. Standard corporate metrics, like weeks of supply, are forward looking. That is, the weeks of supply is calculated by determining how many weeks into the future existing inventory on hand can satisfy. This corporate metric, which has some value, reinforces the incorrect intuition to focus on forward-looking parameters when setting inventory targets. So while we have definitively shown that forward weeks of coverage is a bad metric to use for inventory planning purposes, its value as a corporate metric reinforces its incorrect usages for safety stock target setting.

3. People lack faith in the results from a “simple” scientific inventory formula. In supply chain classes we teach students that simple models apply. There are many reasons to like simple models. First, they are understandable. Second, they can be populated with data. Third, the results clearly follow from the inputs. But people can lack faith in simple inventory models. Perhaps they were burned in the past by a different scientific formula (that was likely much more complicated and not generally understood and accepted as correct). Perhaps they don't believe the operating decision for their business can be easily reduced to a formula. Whatever the reason, there is often resistance to using formulas in practice.

While the above reasons are not valid, there are two concerns with simple models that are reasonable to have but thankfully can be overcome. First, reality can differ from the assumptions in a simple model. Second, even if the reality matches the model assumptions the data inputs can be poor. With forethought, these concerns can be dealt with. If reality differs from the model, find another model; literally every potential setting involving a single SKU at a single location has been reduced to a scientific inventory equation. If the data is not perfect, take the time to run a pilot with a subset of the data you can confidently estimate. This will show the benefit and the fact that the result is robust to small changes in data.

4. They don't realize how much money they are leaving on the table by not changing. Moving from ad hoc forward weeks of supply targets to a scientific inventory equation can reduce total safety stock cost by 10 percent to 30 percent (depending on how bad the original targets were). That is significant reduction that can easily comprise 10 percent of the company's total inventory investment.

5. They don't realize the ease with which they can change to scientifically calculated targets. The process to replace rules of thumb with a scientific inventory calculation is quite straightforward. The new target

Simple models apply. There are many reasons to like simple models.

First, they are understandable.

Second, they can be populated with data. Third, the results clearly follow

from the inputs. But people can lack faith in simple inventory models.



simply replaces the ad hoc target so, from a business-process perspective, no changes are required. Because the changes are happening at the location level, the data requirements are also not onerous. This is not an information technology project. A team that wants to rapidly improve inventory levels can do this on their own.

A Journey in Three Steps

Every company undergoes a three-step journey to optimize inventory levels across the end-to-end supply chain. In my experience, the hardest step is moving from ad hoc unscientific weeks of supply targets to more formal scientifically derived inventory targets. The step from scientific calculation to true supply chain optimized inventory targets is a much easier threshold to cross.

This article has outline the benefits that can be achieved from a typical implementation, and the challenges to overcome. This is not a hard journey and it can pay significant dividends. If you have not already progressed to the single stage frontier, it is time to get there. ☺☺

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Subscription-based Supply Chains: More than a Niche

Companies as diverse as Amazon, CVS, and Petco are rolling out subscription based programs to build customer loyalty. Doing this successfully calls for a supply chain that is up to the challenge.

By Robert L. Cook, Brian J. Gibson, and Michael S. Garver

The last seven years have been disruptive for traditional retailers and manufacturers of branded products. A convergence of factors has made it challenging to expand sales and maintain strong margins. Most notably, the Internet has shifted the balance of power to consumers with home delivery convenience, readily available product evaluations, access to a wider array of sellers, and price transparency.

The resulting challenges to the seller are clear. Savvy, service-focused consumers may be less loyal to specific retailers or brands. Year-over-year sales growth can no longer be presumed. In short, it has become difficult to maintain a strong following of “sticky” consumers—those who follow through on intended purchases, buy a product repeatedly, and recommend it to others.

Internet-enabled supply chains provide an innovative opportunity to boost stickiness, enhance fulfillment performance, and drive higher profits. Highly regarded companies are establishing subscription-based supply chains (SSC) to create consumer-friendly auto-replenishment processes that simplify purchase decisions and product access for time-starved shoppers. The Internet-based SSC strategy presents an opportunity to attract consumers to convenient prepaid, fixed-duration purchase agreements. However, success can only be achieved when supply chain professionals create efficient SSC fulfillment processes that provide consistent, hassle-free product delivery to customers’ front doors.

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Online Play

SSC Genesis

The concept of subscription-based commerce is not new. Subscriptions have long been used by companies like National Geographic Society, Schwan's, and Terminix to drive repeat sales. It is a widely used business-to-business strategy for auto-replenishment and vendor managed inventory of consumable and MRO goods.

The Internet greatly expands the SSC opportunity to a wide array of products and companies (Exhibit

1). User-friendly websites provide standardized platforms for customers to easily establish subscriptions, modify order quantity and timing, and automate payments. Sellers can readily generate multi-product orders with volume-based discounts and communicate the order release and ship date information to subscription customers. This responsive, two-way engagement facilitates customer confidence, loyalty, and retention.

The SSC strategy gained initial traction among specialty online retailers. Drugstore.com was an early proponent, launching a SSC service that enabled customers to set up automatic shipments of frequently ordered products in 30- to 90-day increments. Diapers.com established a flexible auto-ship program for diapers, food, and cleaning products. Wine.com created a variety of three-month to 12-month gift memberships for automatic delivery of premium wines.

The SSC concept has since captured the attention of major retailers. Petco created a Repeat Delivery



EXHIBIT 1

Subscription Supply Chain Examples

Company	Consumer Products	Subscription Relationship	Consumer Benefits
Amazon.com	Food and Household Goods	<ul style="list-style-type: none"> • 1-6 Month Interval • Billed Upon Shipment • Set Monthly Delivery 	<ul style="list-style-type: none"> • Free Delivery • 5% To 15% Discount • Cancel at Any Time
Artinabox.net	Original Artwork	<ul style="list-style-type: none"> • 3-12 Month Commitment • \$150 Minimum Prepay • Monthly Delivery 	<ul style="list-style-type: none"> • \$10 Delivery • Unique Products • Support Local Artists
Coffeecs.org	Premium Organic Coffee	<ul style="list-style-type: none"> • 1, 3 or 12 Months • Pre-Pay for Season • \$18-\$20 per Pound 	<ul style="list-style-type: none"> • Free Delivery • Direct From Growers • Support Local Farmers
CVS.com	Vitamins, OTC Medicines, and Personal Care Products	<ul style="list-style-type: none"> • User-Defined Frequency • Billed Upon Shipment • Ability to Skip Orders 	<ul style="list-style-type: none"> • Free Delivery • 20% Discount • Interactive Vitamin Guide
Lovewithfood.com	Organic Snack Foods	<ul style="list-style-type: none"> • 1, 6 or 12 Months • Billed Prior to Shipment • \$10-\$25 per Box 	<ul style="list-style-type: none"> • Free Delivery • Surprise Snacks • Support Food Banks
Manpacks.com	Men's Basics—Underwear, Socks, Toiletries	<ul style="list-style-type: none"> • Quarterly Delivery • Pay when Selected • Modify, Rush, Delay Orders 	<ul style="list-style-type: none"> • Free Delivery • 10% Rollover Credit • No Cost Returns
Petco.com	Pet Food and Products	<ul style="list-style-type: none"> • User Defined Schedule • Billed Upon Shipment • Able to Add One-Time Items 	<ul style="list-style-type: none"> • Free Delivery (\$49 Minimum) • Up to 15% Discount • Guaranteed Low Price
PGeStore.com	Razors	<ul style="list-style-type: none"> • 1-12 Months • Billed Upon Shipment • Set Monthly Delivery 	<ul style="list-style-type: none"> • Free Delivery • Discounted Prices
Target.com	Household Goods	<ul style="list-style-type: none"> • 1-6 Month Duration • Billed Upon Shipment • Product Prices May Vary 	<ul style="list-style-type: none"> • Free Delivery • 5% Discount • Free or Store Returns
Wine.com	Beverages	<ul style="list-style-type: none"> • 3, 6 or 12 Months • \$29 to \$69 per Month 	<ul style="list-style-type: none"> • Free Delivery • Re-Order Discounts • Exclusive Newsletter

Source: Robert L. Cook, Brian J. Gibson, and Michael S. Garver

supplies on customer-defined schedules. More recently, Amazon.com launched its Subscribe and Save program in 2011, while Target initiated its Subscriptions program in 2013 to deliver “everyday essentials on the schedule you set.” SSC programs offer the convenience of steady home delivery of desired products with the added bonus of quantity discounts and free delivery. Retailers expect that the combination of benefits will boost customer participation and retention.

Forward-thinking consumer product companies are now testing the SSC waters. *Growth Strategies: Unlocking the Power of the Consumer*, a 2013 study by the Grocery Manufacturers Association and PwC US, indicates that the number of CPG companies selling products directly to consumers is rising rapidly.

For example, General Mills recently launched a direct-to-consumer snack line called Nibblr. The subscription service delivers a box of four snacks via the US Postal Service on a weekly-, semi-weekly-, or monthly-basis to customers’ homes at a cost of \$5.99 per box.

Participation by major retailers and manufacturers shows that the SSC strategy has transcended the concept stage. It is no longer a novelty play for specialty merchants to attract new customers. With likes of Amazon, CVS, and Target successfully offering thousands of SKUs via auto-replenishment, it won’t be long before competitors take notice and action.

SSC Growth Drivers

Increased engagement in the SSC strategy is driven by three opportunities—customer retention, widespread applicability, and profitability. Supply chain professionals play a critical role in converting each into a reality.

First and foremost, the SSC strategy provides an ideal mechanism to engen-

der customer retention. A recent Corporate Executive Board study found that to make consumers sticky, sellers must avoid the complexity created by too much choice, information, and engagement. Instead, sellers should keep things clean and straightforward. That is, build consumers’ trust, drive decision simplicity, and help them confidently complete the purchase process. SSC providers have made great strides in facilitating customer ease of use and trust in the programs. The Website interfaces are simple, the programs are well-defined, and the benefits are appealing. Collectively, the easy “set it and forget it” one-time order creation, combined with discount opportunities and free home delivery, promote customer stickiness.

Also promoting the growth of SSCs is the changing nature of consumer activity. With annual e-commerce

sales approaching \$300 billion and accounting for a growing proportion of total U.S. retail sales, there are more shoppers online purchasing a wider array of products. This creates a fertile environment for auto-replenishment programs. Fortunately, the SSC strategy supports a wide range of customer value propositions and product types (Exhibit 2).

As a company's SSC product portfolio expands, fulfillment dexterity becomes an essential capability. Greater product variety may create inventory location challenges and shipping compatibility issue. Serving a range of customer segments may necessitate multiple delivery methods and service levels. Robust fulfillment processes, supported by enabling distributed order management and delivery optimization technologies, are needed.

Finally, the profit potential of a vibrant SSC program is the ultimate growth engine. The ability to move online shoppers from transactional, one-off engagements to ongoing SSC relationships has clear economic value for organizations. For instance, the Grocery Manufacturers Association/PwC study determined that loyal customers generate the majority of sales, are willing to pay premium prices for brands they believe in, and are far more profitable than average customers. Hence, growing the size and scope of a SSC program should be a priority for profit-minded organizations.

Loyal customers buying a wider range of products in a recurring transaction will drive fulfillment efficiencies, compared to immediate transaction (fulfill on demand) customers. The advanced knowledge of demand provides a longer inventory planning horizon that can be used to minimize costly split shipments from multiple facilities. Multiple products in the order allows for better cube utilization of shipping boxes and fewer deliveries. And, having a ship by date versus a delivery date creates opportunities for transportation savings.

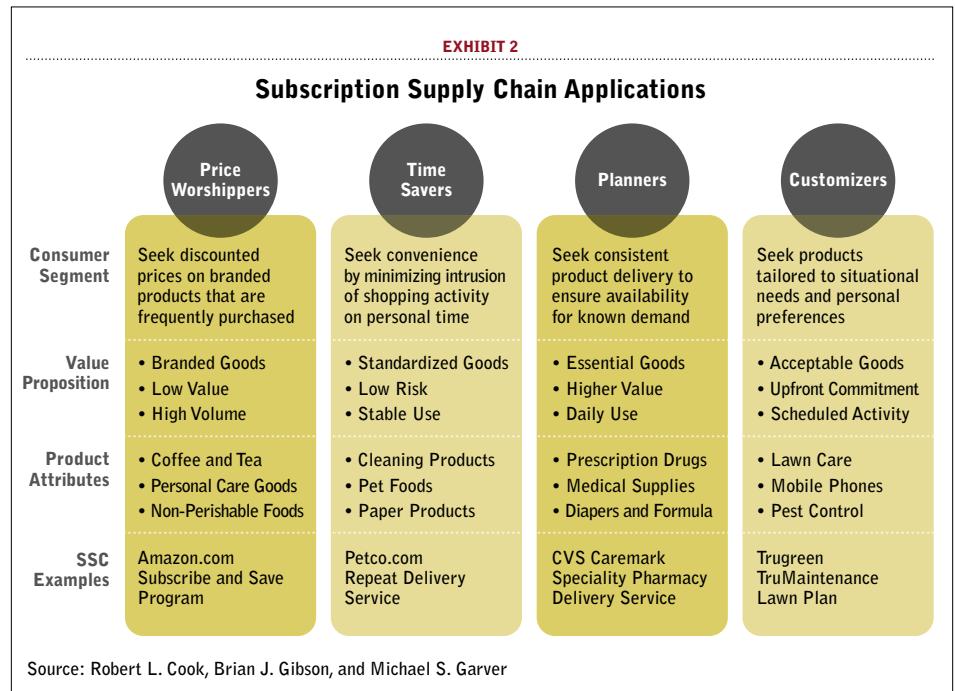
Leading organizations like Amazon.com view the SSC demand information as an opportunity to further drive fulfillment saving. In turn, customer prices can be reduced. "With Subscribe and Save," notes Dave Clark, Amazon's Senior

Vice President Worldwide Operations and Customer Service, "you know what inventory is needed, what items are going to be in the shipment, and when the shipment is going out. Basically, you're getting a head start to make sure you have everything aligned to create the ideal shipment profile for the customer at a very low cost. Subscribe and Save allows you to take advantage of the full capability of the supply chain because you have a much longer time window to react."

SSC Fulfillment Excellence Required

Supply chain management plays a vital role in bringing the SSC strategy to life for intrepid retailers and manufacturers. Their ability to build customer loyalty, boost sales, and drive profitability is driven by highly integrated fulfillment processes that generate service excellence. Consistent on-time delivery performance significantly enhances trust and retention, according to a 2014 survey by Grant Thornton LLP. Supply chain interactions designed from the buyer's perspective streamlines decision making. And, as Chain Store Age reports, timely inventory visibility creates "endless aisle" access to a retailer's chain-wide stock, facilitating the purchase process.

Though these capabilities are relevant to all online purchases, the stakes are particularly high for auto-replenishment orders. A failure to deliver the desired customer experience of convenience, accuracy, and timeliness can lead to SSC program withdrawal. This is particularly damaging as the company loses a stream of future orders. Hence, supe-



rior fulfillment processes must facilitate SSC consumer stickiness and future purchases.

Excellence in SSC fulfillment is a priority for Petco Animal Supplies, notes Mark Hilborn, SVP of Supply Chain. “If there is an SKU that a customer needs but it isn’t available in the closest DC, we commit to filling that order from another location. Petco is really focused on building a relationship with our customers. Creating a consistent experience speaks to our brand louder than fulfillment efficiency or anything else does.”

The SSC fulfillment process begins with pre-fulfillment engagement of the customer. Days before an auto-replenishment order is assigned to a distribution center for fulfillment, an e-mail reminder is sent to the customer. Most companies give the customer an opportunity to modify order quantities, add one-time items to the order, postpone the delivery date, or skip that period’s order. This pre-fulfillment interaction can generate additional revenues, support order consolidation, or alleviate costly returns.

Once the order is confirmed and its ship by date is in range, it drops into the queue at the fulfillment center that provides the best combination of delivery cost and service for the customer. At this point, SSC orders are typically indistinguishable from one-time customer orders. Fulfillment personnel and managers have no special visibility into SSC orders and they are not given any special priority by the order management system.

SSC order completion commitments focus on a fulfillment date or a ship by date that customers designate when

confirming their orders. They receive notification of an expected delivery date or a window of delivery dates. Free standard delivery via parcel carriers is commonly provided, though some companies require a minimum order quantity.

Managing customer expectations under these non-guaranteed delivery date scenarios can present a challenge. When a retailer quotes a three-day to five-day delivery window and SSC orders regularly arrive in three days, it becomes the commitment in the customer’s mind. If the following order arrives in five days, then the customer feels that the order is late even though the delivery promise was kept, Hilborn notes.

SSC Outcomes

A customer-friendly SSC program backed by an excellent fulfillment network with capacity for growth can appreciably improve the competitive positioning of manufacturers and retailers. Effective deployment of the SSC strategy promotes customer value and satisfaction, enhances the company’s competitive positioning, and will drive future supply chain efficiencies.

Customer Value and Satisfaction. The SSC strategy provides tremendous appeal to savvy, convenience motivated customers who know what they need—but don’t want to allocate their limited time to the shopping process. They are willing to make a time-definite commit because subscription programs offer:

- *Transaction convenience.* SSCs provide regularly

The Lifecycle of an Amazon SSC Order

Amazon’s Subscribe & Save program simplifies consumer purchases with a streamlined one-time effort to choose products, quantity, and delivery frequency. The customer can automate up to six months’ worth of purchases with free standard shipping on more than 89,000 products across 24 departments ranging from automotive supplies to groceries to industrial and scientific products. To encourage volume purchases and a single consolidated delivery, the customer will save 15 percent on the entire order if subscriptions are created for five or more products on the monthly delivery date.

Subscription orders are confirmed by the customer approximately 10 days in advance of the scheduled processing date. The confirmed orders are fulfilled from the center that can provide the optimal performance and cost based on inventory availability, transportation cost, and delivery deadline. Fulfillment center selection is

determined by Amazon’s supply chain information system.

Orders are processed at the optimal fulfillment center as part of the daily workflow and shipped via ground transportation with enough lead time to meet each customer’s deliver-by date. Subscription items are consolidated into a single shipment to streamline the delivery process, reduce the number of boxes received, and optimize shipping costs.

The customer’s credit card is charged for in-stock subscription items on the day they are processed and shipped. The amount charged reflects the price of the item on the day the order is processed less the Subscribe & Save discount, plus applicable sales tax.

Subscribe & Save customers are eligible for product returns. However, many commonly purchased subscription items (grocery products food and some health and personal care items) are not returnable, according to Amazon’s Returns & Refunds policy.

consumed products at scheduled intervals without the need for a recurring shopping effort. This reduces stress, cost, and effort for time-strapped consumers.

- *Service reliability.* SSC programs can achieve high levels of on time, in full service for customers because their product assortments and quantity requirements are known in advance. Consistent service quality ensures that customers receive diapers, prescriptions, and other essential SSC items when needed.

- *Competitive prices.* SSC programs offer competitive prices because the retailers and manufacturers have an extended time window to decrease transaction, operational, and returns costs. Part of these cost savings are passed on to subscribers.

Company Competitive Positioning. The SSC strategy reduces the risk of customer showrooming and rapid switching activities, allowing a company the time to build long-term relationships and enhance brand commitment. This translates into a desirable set of outcomes for retailers and manufacturers:

- *Decreased operational risk.* SSC programs promote stable and predictable demand. In addition, consumer payment may precede product procurement or order fulfillment. This reduces forecast errors and optimizes the cash conversion cycle.

- *Increased insulation from competition.* The SSC strategy makes an organization less vulnerable to competitors' short-run sales promotions or price reductions. Long-term contractual relationship with SSC customers inhibits impulsive supplier switching.

- *Strengthened customer loyalty.* By performing as promised over time, the SSC strategy continuously enhances the company's competitive position. Customers will find it increasingly difficult (and impractical) to switch supply chains and forfeit the benefits.

Supply Chain Efficiencies

As the number of SSC customers and volume of transactions expands, manufacturers and retailers expect to achieve greater productivity from this auto-replenishment strategy. They are investing in SSCs now in anticipation of the following future outcomes:

- *Increased asset utilization.* Stable and repetitive demand patterns will enable planners to accurately determine inventory, facility, and equipment requirements. This will reduce the need for capital investment in "just-in-case" resources and capacity.

- *Decreased operating costs.* SSCs will greatly decrease the total number of customer transactions, replacing them with larger, known frequency orders. Order consolidation will drive down the costs of order-

ing and payment processing. Known frequency will allow fulfillment of SSC orders during non-peak times and delivery via low cost options.

- *Decreased market adjustment costs.* With procurement driven by known SSC demand, inventory levels will be reduced. This will minimize the need to reposition product, markdown slow velocity inventory, or write-offs of obsolete goods.

Collectively, these outcomes provide the customer, company, and supply chain with tangible benefits that will encourage continued development of the SSC strategy. "You have the ability to leverage the supply chain into lower costs," notes Clark. "You can preposition the inventory closer to the customer in advance of the shipment and consolidate it into a single box for delivery. Then, you pass the savings onto the customer through a discount and provide a better experience. It is a win for everybody in this type of program."

A Growing Niche

Subscription-based supply chains provide a valuable opportunity to profitably serve a growing segment of convenience-conscious online shoppers. An expanding variety of retailers and manufacturers are employing the SSC strategy for products ranging from prescription drugs to pet food. Thus, SSCs are not limited to high value, small package goods. Leading organizations like Amazon, Procter & Gamble, and Petco demonstrate that SSCs can also be used for low cost, high cube consumer products.

By collaboratively planning demand with end-consumers and securing long-term purchase commitments, SSC companies are strengthening customer loyalty and optimizing fulfillment. Consumers receive significant value through transaction convenience, delivery reliability, competitive pricing, and occasional opportunities for product/service customization. The win-win opportunity bodes well for future growth of the SSC strategy.

Looking forward, there are significant opportunities to generate supply chain benefits from the SSC strategy. As the strategy gains traction, more consumers will commit to specific product consumption rates and target delivery dates. The increased SSC volume will result in lower demand variability, allowing the organization to better plan its inventory needs, replenish facilities based on known demand, and use SSC orders to balance fulfillment center workloads. This will drive much needed supply chain efficiencies that can be used to share the savings with customer and promote profitability of online orders. ☺☺

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Put it in Writing: Sharpening Contracts Reduce Risk and Boost Supply Chain

Having great performance from an outsourced supply chain is really not possible without a strategic approach to contracts management. Similarly, true supply chain security requires a more sophisticated contracting methodology. There are five ways to start professionalizing your approach to outsourcing contracts.

By Mark Trowbridge

Gone are the days of managing supply chain performance without having strong written agreements in place. Handshakes and good intentions and long-term trusted relationships may have sufficed in earlier times, but in today's frenetic, volatile, global business environment, they leave businesses exposed to significant risks.

The challenges are exacerbated by elevated levels of outsourcing. True, outsourcing as a business practice is not new, but the extent to which it has evolved, and the range of business practices now involved, are what create cause for concern. It is not uncommon for companies to contract with third parties for some or

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Management to Performance



all of their supply chain services, ranging from inventory management and packaging to transportation and logistics management. That's particularly true when supporting an international customer base.

Indeed, numerous studies have identified outsourcing as a hallmark of successful companies. PwC's Global Supply Chain Survey 2013, incorporating responses from 500 supply chain leaders in North America, Europe, and Asia, reported on the top-performing companies as follows: "The leaders typically outsource about 60 percent of their warehousing and logistics activities and nearly 50 percent of their manufacturing and assembly activities."

Supply chain risk is often not thoroughly incorporated into an organization's enterprise-wide risk management strategy.



The fundamental issue, of course, is that outsourcing puts control of a company's supply chain firmly in the hands of other companies, which simultaneously serve their other customers—substantially raising the risks of supply chain problems sooner or later. It is easier to know and control what occurs within our own company's walls. But it is much more challenging to know what is occurring in operations performed by suppliers and other contractors.

But surely, you might ask, most organizations today have well-honed risk management disciplines, sufficient to address such concerns? Yes and no. Enterprise risk management certainly is recognized as a best practice. But that does not mean it is practiced well. The finance chief of Marsh put it this way: "Unfortunately, in many companies, the CFO is handling financial risk, the CEO is handling strategic risk, and the COO is handling operational risk, but no one is looking at all of those risks as one."

I find that to be abundantly true as it applies to

supply chain operations. Supply chain risk is often not thoroughly incorporated into an organization's enterprise-wide risk management strategy. But things are changing: Recent events, such as the 2011 earthquake and tsunami in Japan that disrupted technology component production and the widespread 2014-2015 automotive airbag recall, are getting more and more supply chain groups to refocus on the need for comprehensive protections.

A key way in which leading players are doing this is by taking a much more strategic approach to how they structure and manage their supplier relationships. They are looking anew at the content of each contract with each outsourcing provider. Top procurement groups are partnering with their companies' legal and risk management teams to provide better contractual protections across all elements of supply chain operations.

This article will describe five elements that can help to strengthen supply chain contracts, enabling companies to control risk while optimizing the performance of their suppliers. Remember that before implementing any of these strategies, it is important to review them with your organization's legal counsel. Let's look at each in turn.

Element 1: Consolidate Suppliers but Retain Redundancy. A strategic sourcing principle that is used regularly by procurement groups is that consolidation of the number of suppliers will yield better cost leveraging. While that is often true, there are watch-outs. Over-consolidation (for example, to a single source) is very likely to result in less stability than can be achieved by contracting with a small number of qualified providers. Great care should be taken to evaluate alternative sources and to apply "what if" scenarios to the selected supplier relationships. Experienced supply chain professionals have usually seen the results of over-consolidation. But the cost reductions of awarding all business to a single low-cost supplier can sometimes be too tempting to less experienced managers (and their counterparts in finance) who have never lived through the failure of a sole-sourced provider. The watch-out is obvious. As Winston Churchill is quoted as saying: "Those who fail to learn from history are condemned to repeat it."

One method of diversifying a supplier base is to award contracts to a primary and a secondary provider (also known as "dual sourcing"). This is especially pertinent to multi-national supplier relationships, where stability and redundancy can be improved by awarding, say,

75 percent of the business to a low-cost supplier in a low-cost country but maintaining 25 percent of the volume with a geographically close supplier (domestic or near-shore). In the event of supply chain disruption or delay, the second contracted supplier can generally fill most of the void until full volume shipments can be restored.

Element 2: Keep Tabs on Subcontracted Work.

Contracts with production, logistics, and warehousing providers should contain language that controls the provider's subcontracting of service elements to their own suppliers. Failure to have "first right of refusal" on subcontracted supplier relationships can leave companies exposed to great liability and risk. The contract with a prime provider should include requirements for certain clauses that flow down to any allowed subcontractors, including but not limited to, those titled Ownership of Property, Risk of Loss or Damage, Limitation of Liability, Indemnification, Licensing, and Insurance. Requiring the prime contractor to carry insurance, for example, leaves an organization without protec-

Things are changing: recent events, such as the widespread 2014-2015 automotive airbag recall, are getting more and more supply chain groups to refocus on the need for comprehensive protections.



tion if the provider has subcontracted its responsibilities to a third party.

Element 3: When Disaster Strikes, Make Sure Your Company is Legally Protected Too. Most well-written contracts include a *force majeure* clause, providing the parties with options if an event occurs beyond

A man in a dark suit and tie is shown from the chest up. He is holding a glowing, wireframe globe with a network of white lines and nodes overlaid on it. The background is dark with a blue and white geometric pattern.

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Force Majeure Language that Protects the Customer As Well

Supplier contracts should contain force majeure language that protects you and not just your supplier. A good force majeure clause provides the company with flexibility when a portion of its contracted supply chain breaks down. Below is an example of language that we have seen successfully incorporated into supply contracts.

“No failure, delay, or default in performance of any obligation of a Party to this Agreement will constitute an event of default or breach of the Agreement to the extent that such failure to perform, delay, or default arises out of a cause, existing or future, that is beyond the control and without negligence of the Party otherwise chargeable with failure, delay or default including, but not limited to: action or inaction of governmental, civil or military authority; fire; strike; lockout or other labor dispute; flood; war; riot; theft; earthquake and other natural disaster. The affected Party will take action to

minimize the consequences of any such cause. A Party desiring to rely upon any of the foregoing as an excuse for failure, default or delay in performance will, when the cause arises, give to the other Party prompt notice in writing of the facts which constitute such cause; and, when the cause ceases to exist, give prompt notice thereof to the other Party.

During the duration of any failure by a Party to perform, the other Party may seek alternative sources of products or services to fulfill its own operational requirements.

If Supplier postpones or extends any performance date under this Agreement pursuant to this Section for longer than 30 calendar days, Customer, by written notice given during the postponement or extension, may terminate Supplier’s right to render further performance after the effective date of termination without liability for that termination.”

their reasonable control that impairs performance. A *force majeure* event is typically defined as something that is: (i) unforeseeable to a contract party; (ii) outside the reasonable control of the party; and (iii) not immediately recoverable by the party.

Force majeure events occur all the time, and are often impossible to predict. Consider the following events in the last decade alone: The 2010 eruption of an Icelandic volcano shut down nearly every airport in Western Europe for two days; an earthquake and flood in 2011 disrupted manufacturing in key areas of Japan for months; Hurricane Katrina closed every shipping port in the Gulf Coast region of the United States in 2005; and a dockworker union strike brought to a standstill the largest shipping ports on the West Coast of the United States for eight days this year. Just last summer, the United States and several European nations announced trade embargoes against Russia due to geopolitical concerns about the Ukraine, and Russia retaliated with trade restrictions on its counterparts. Now here’s the rub: The typical *force majeure* clause protects the supplier, not the customer, during uncontrollable events. It provides a time period during and after the *force majeure* event when the supplier can resume its business operations without being concerned about losing business. Usually, a *force majeure* clause restricts the customer from finding another source of supply until after a cure period has ended.

Often, that cure period is 30 days long—meaning that the customer is frozen for 30 days from finding another source for products or supply chain services.

I saw the impact of one-sided *force majeure* terms at a major utility that distributes electricity throughout the southern United States. The company’s contract language essentially provided key suppliers with an escape hatch. While reviewing the utility’s supplier contracts concerning emergency right-of-way clearance—that is, the trimming of fallen trees—one of my colleagues discovered that the company’s own *force majeure* clause excused the energy company’s contractors from having to perform “during times of inclement weather.” And yet the clearing of fallen debris in stormy conditions was exactly the kind of work that the contractors were being hired to do. After bringing this contract snafu to the attention of the utility’s general counsel, its procurement team executed many amendments, putting proper language in place to ensure the performance of the tree-removal contractors during emergencies. That language was much appreciated by the utility’s management team when Hurricane Katrina hit their region the same year.

The key, then, is for your contracts to contain *force majeure* language that protects you. A good *force majeure* clause provides the company with flexibility when a portion of its contracted supply chain breaks down. The contract language should enable the compa-

ny to retain the services of alternative suppliers without penalty. And if a contracted supplier's performance is delayed beyond a reasonable time frame, it should permit the relationship with that supplier to be terminated without penalty. (See above sidebar: "Force Majeure Language That Protects the Customer As Well.")

The clause can also contain language that prioritizes servicing the company ahead of the supplier's other customers. It is believed that one of the world's largest consumer electronic company's contracts with key subcomponent manufacturers contained "first right of resumption" language that allowed the company's production to resume before many of the other technology companies that were affected by the earthquake and tsunami that hit Japan.

Element 4: Keep Track of Your Suppliers' Financial Stability. Imagine the disruption to the supply chain if a third-party logistics provider's warehouse is impounded because the provider suddenly declares bankruptcy. Or if a parts supplier's debt problems mean it cannot maintain the volume shipments you thought you'd con-

tracted for. Unfortunately, those kinds of challenges are all too real. *Logistics Quarterly* recently reported on the impact of the global recession on logistics companies: "As the year ended, hundreds of firms were declaring bankruptcy and thousands of jobs were being lost throughout the industry."

Contracts with key suppliers should enable businesses to verify the financial stability of their suppliers. A helpful clause is one like this: "Promptly upon request by Company, Supplier shall provide to Company a copy of Supplier's audited financial statements which cover Supplier's most recent accounting period." Concern by a supplier can usually be allayed when the customer indicates a willingness to sign a non-disclosure agreement (NDA) protecting the confidentiality of the supplier's financial data. But if, during initial contract negotiations, the supplier refuses to include such a clause, the matter should be escalated to executive management as a significant risk issue.

Automated financial tracking tools can also be used to keep track of material changes in a supplier's financial stability. They were of enormous value some years ago, when my colleagues and I were

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working with one of the largest global tire manufacturers to reduce costs and improve its supply chain operations. As we became familiar with the company's supplier base, we learned that much of its unique production equipment had been custom built by a privately owned specialty firm. Hence, the tire producer was very dependent on this firm for repair parts and technical support.

Given the impact that the failure of the specialty firm could have, I began using a financial tracking service to monitor its financial status. Sure enough, two months later, I received an e-mail alert saying, "There has been a material financial change with XYZ Company." Upon learning this, the president of the tire manufacturer promptly contacted the equipment supplier's management team and discovered that the supplier was beginning insolvency proceedings. The tire maker's president quickly conferred with the leaders of two other global tire manufacturers and together, the companies bought a significant equity share of the specialty firm, making it solvent again.

Element 5: Formalize Incentives for Supplier Performance. By placing key supplier relationships under a negotiated long-term contract, a company can also link performance to the fees paid. Rather than deal-

ing with suppliers on a transactional basis or a rate-only contract, having a strong master agreement allows compensation to be tied to long-term performance elements.

Pay-for-performance can be structured in two ways: (i) positive incentives whereby the supplier is rewarded more highly for better performance; and (ii) liquidated damages for substandard performance. Which is best? It's a carrot and stick thing. The fact is, linking contractual compensation to performance does make a significant difference in supplier performance. This is especially valuable when agreed upon key performance indicator (KPI) metrics can be accurately tracked.

It's important to point out that pay-for-performance need not be monetary only. There are plenty of other ways exist to galvanize better supplier performance. As a case in point, consider a global consumer goods company that we know well. The company includes important KPIs in its supplier agreements, and it rewards supplier performance by categorizing its contracted providers in three different groupings, with escalating commercial advantage from one category to the next. As part of the company's overall supplier relationship management program, a supplier's ability to perform at higher levels qualifies it for longer contracts and reduced competition/bidding for additional work/volume (See Exhibit 1).

EXHIBIT 1

Contract Terms That Sweeten the Pot for Suppliers

Classification	Classification Attributes
Supplier Class Gold Performers	<ul style="list-style-type: none"> • Average Contract Length = 5 to 8 Years • Additional Work/Volume Awarded Through Cost Benchmarking and Collaborative Negotiations • Sustained 98%+ Level Performance on Key Contract Metrics • 9+ Point Average Quarterly SRM Report Card Scores
Supplier Class Silver Performers	<ul style="list-style-type: none"> • Average Contract Length = 3 to 5 Years • Additional Work/Volume Awarded Through Competitive Bidding But in Consideration of Overall Contract Relationship • Sustained 95%+ Level Performance on Key Contract Metrics • 8+ Point Average Semi-Annual SRM Report Card Scores
Supplier Class Bronze Performers	<ul style="list-style-type: none"> • Average Contract Length = 1 to 3 Years • Additional Work/Volume Only Awarded Through Competitive Bidding • Continued 90%+ Level Performance on Key Contract Metrics • 7.5+ Point Average Semi-Annual SRM Report Card Scores

Put it in Writing

Many companies are sitting on supply chain time bombs: incomplete, inadequate, or outdated contracts with suppliers that leave them seriously exposed to performance, financial, and even legal problems. Those risks are growing in a world in which outsourcing of supply chain operations is increasingly the norm.

At a minimum, supply chain leaders must revisit key contracts that govern their companies' relationships with their suppliers. They have to engage their legal counsel in understanding the scope of the work expected of their suppliers and the consequences if the suppliers fail to perform—even if that failure is not of their doing.

Having great performance from an outsourced supply chain is not possible without a strategic approach to contracts management. Similarly, supply chain security also requires a sophisticated contracting methodology. Gone are the days of managing supply chain performance without strong written agreements being in place. As media giant Samuel Goldwyn is reputed to have said: "A verbal contract isn't worth the paper it's written on." ☹☹

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Not Too Much—Not Too Little: Procurement Strategy

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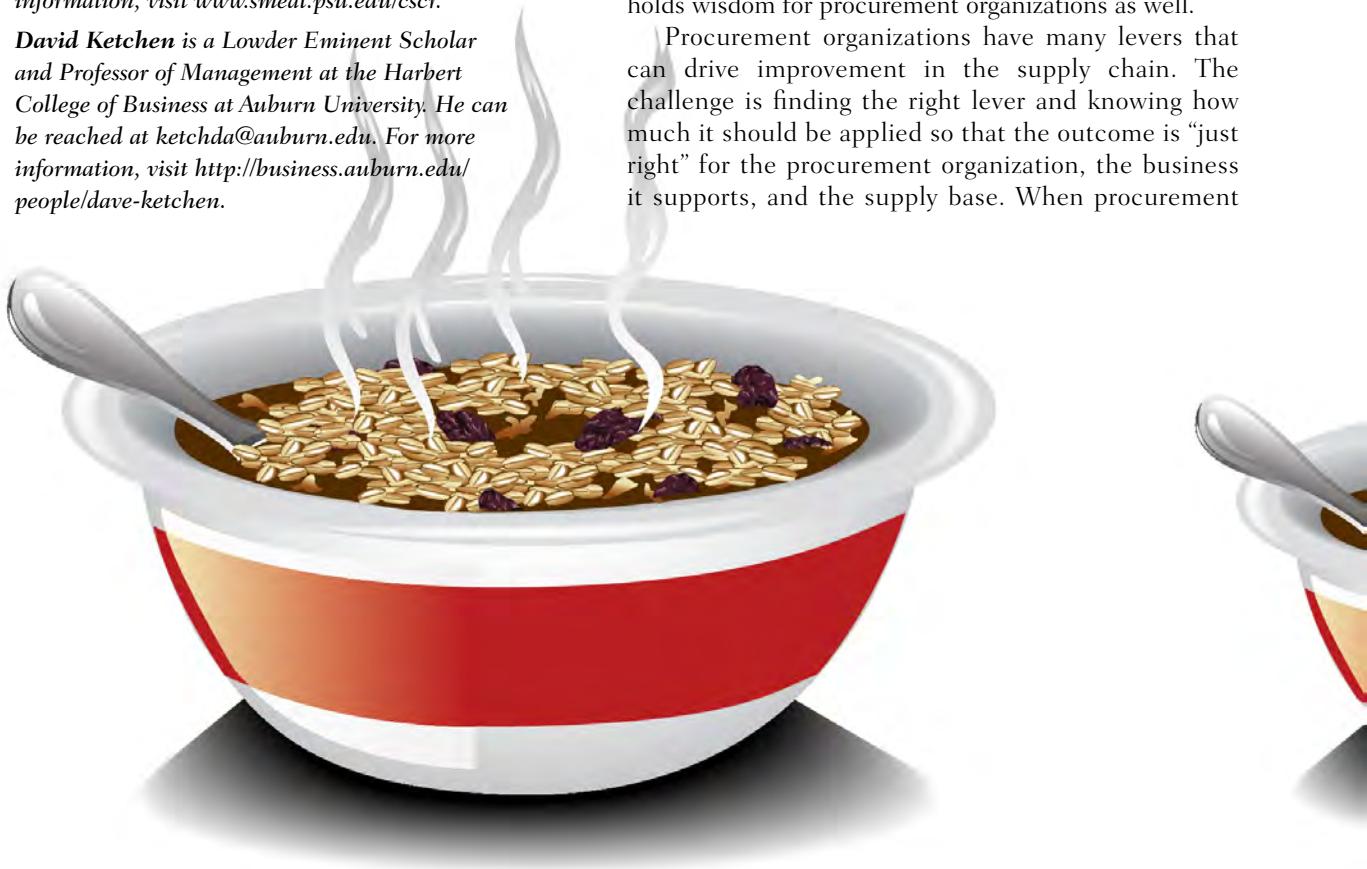
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By David Fields, Christopher Craighead, and David Ketchen

Most of us know the story of *Goldilocks and the Three Bears*: Hungry from a long walk, a girl stumbles across a vacant cabin in the woods and helps herself to some porridge that is out cooling. The first bowl is too hot, the second is too cold, but the third is just right. Parents have long used this story to teach lessons about decision making to their children, and based on our work, we believe it holds wisdom for procurement organizations as well.

Procurement organizations have many levers that can drive improvement in the supply chain. The challenge is finding the right lever and knowing how much it should be applied so that the outcome is “just right” for the procurement organization, the business it supports, and the supply base. When procurement



Fostering a “Goldilocks”

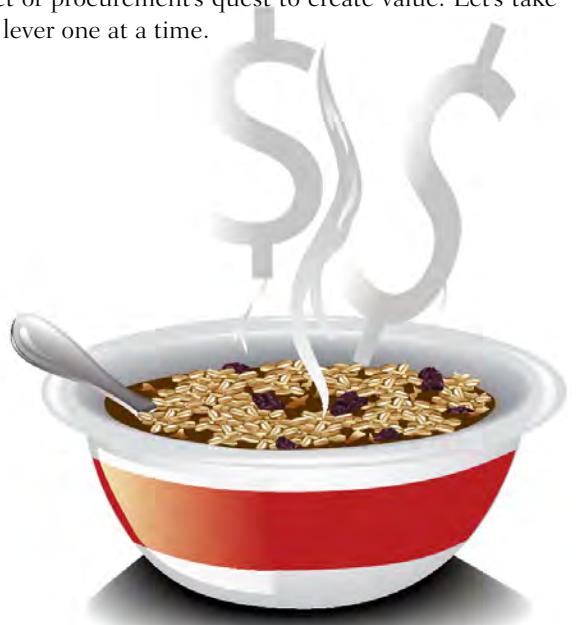
If managed just right, procurement can yield a long-term competitive advantage. Although it is tempting to exploit procurement’s competitive “levers” to the fullest, executives instead need to know how much to push these levers as well as when to back off. This is the essence of the Goldilocks Procurement Strategy, whereby companies can enhance their competitiveness and lower supply-side risks.

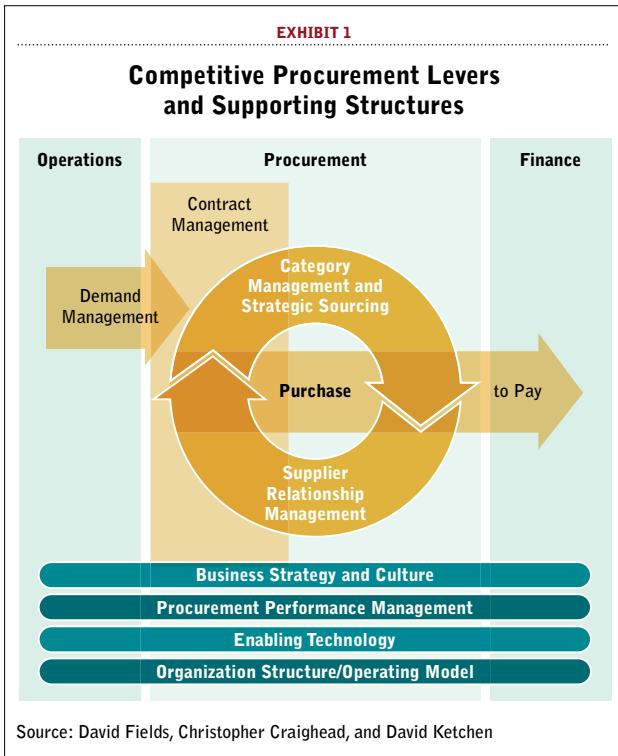
struggles to find this “just right” amount for each situation, it can ultimately have negative consequences on supply chain stability, trade compliance, company financials, and internal business engagement. Procurement organizations need a balance in which they are challenging stakeholders and the supply base enough while not simply redistributing cost and risk.

This balance is not meant to be a “middle of the road” solution to make everyone happy or to reduce procurement’s influence, but rather it should be a thoughtful approach to initiatives that are sustainable for the long term. This concept of looking for this “just right” position for each of procurement’s key levers is what we call the Goldilocks Procurement Strategy, or GPS for short.

Competitive Procurement Levers and the Goldilocks Procurement Strategy

The GPS is a delicate balancing act, given procurement’s wide range of improvement levers and top executives’ expectations that the function provide more strategic value than ever before. Exhibit 1 provides a common view of the processes that are part of procurement, along with the supporting structures underneath that end up defining and supporting how procurement operates. Each of the competitive levers shown in Exhibit 1—category management and strategic sourcing, purchase to pay, demand management, supplier relationship management, and contract management—is centered on an aspect of procurement’s quest to create value. Let’s take each lever one at a time.





Category management and strategic sourcing are highly interrelated processes that are particularly significant for procurement organizations in terms of resources, effort, and perceived value. As such, they are rife with examples where a GPS has not been achieved. Category management involves defining a sourcing strategy for a category, along with the planning, governance, and performance management for that category, typically leveraged as a key component of finite strategic sourcing initiatives. Typically, category management will also use a broad array of procurement levers outside of strategic sourcing, including standardization efforts and internal process improvement.

The purchase to pay (P2P) process covers all of the steps from requisition for goods or services through purchase order, receipt, and finally payment/settlement for those goods or services. Procurement organizations often manage the P2P process by setting up and enforcing defined buying channels (e.g., e-catalogs), payment channels (e.g., p-card), and purchasing policies that dictate who, how, when, and what can be purchased and paid for. By managing the P2P process, and thus spend, procurement has a strong lever to drive operational efficiencies, enforce policies, ensure compliance with category and sourcing strategies, and directly affect suppliers based upon payment terms and policies.

Demand management is the practice of orchestrating the flow of goods and services to optimize cost, mitigate risk, or improve customer service. The focus of demand management is not to negotiate with suppliers but rather to mold internal requisitions for goods and services in such a way as to drive improved outcomes. Demand management practices are often enacted through policies and controls established in the P2P process. A significant change in management risk is frequently associated with changing internal demand, as procurement can easily become known as an administrative, restrictive or bureaucratic group rather than as a valuable business partner if it hastily enacts policies that limit the goods and services that internal stakeholders still feel they “need” to purchase.

Supplier relationship management (SRM) focuses on implementing a sustainable model for supplier integration that provides innovation, operational and quality discipline, and greater long-term value for the business from the extended supply chain. SRM is an area where a wide range of maturity levels exist based upon the company’s culture and charter for procurement. While some organizations have fully embraced SRM as a key component of procurement, many still view supplier relationships as more about driving costs down and getting operational metrics to align with agreed upon service-level agreements (SLAs).

Contract management refers to the establishment, maintenance, monitoring, and enforcement of formal agreements with the supply base. When leveraged appropriately, contract management helps drive spend compliance, enables greater category management and sourcing value, and mitigates risk by monitoring service-level agreements for areas like on-time delivery and quality standards. Many procurement professionals have diverging definitions of contract management; the maturity of this lever varies widely across different organizations.

Each of the procurement levers is prone to the “too much/too little” scenarios, but each also can adhere to the GPS and thus create value for the company, its suppliers, and internal stakeholders (see Exhibit 2).

Implications of “Too Much” or “Too Little”

Whether companies apply the above procurement levers “too much” or “too little,” there is often a common outcome in the long term: increased supply chain risk and an erosion of competitive value. While it can seem particularly counterintuitive that applying “too much” to the supply base can actually reduce value, it is necessary to

EXHIBIT 2

Competitive Levers and the Goldilocks Procurement Strategy

	Common "Too Little" Approach	Common "Too Much" Approach	Goldilocks Procurement Strategy	
			"Just Right" Approach	Value to the Business and Suppliers
Category Management and Strategic Sourcing	Lack of formalized category management function or strategic sourcing process with specific improvement goals and associated initiatives to support the business strategy	Category management and sourcing focuses too heavily on annual cost savings that is enabled almost exclusively on suppliers as the source of cost reduction	Category management and sourcing fosters collaboration with suppliers, procurement, and the business to drive joint value	Category management and sourcing improves overall business value (performance and innovation) for both the buying and supplying firm while reducing supply risk
Procure to Pay (P2P)	Lack of clear strategy, policies, controls, and technology to facilitate the procure-to-pay process	Procure-to-pay process is too rigorous, complex, and/or cumbersome, thus driving circumvention of the process	Procure-to-pay process is driven by a well-defined buying/payment channel strategy and has meaningful controls that do not overburden the end users	A procure-to-pay process that improves end users' experiences will drive focused improvement on cycle time and create value
Demand Management	Lack of active demand management, such as specification management/standardization goals with the business	Standardization and cost-cutting initiatives that are too bureaucratic or restrictive and thus derive only minimal business value	Procurement works jointly across business and supply base to facilitate design standardization/ specification management	Increased spend compliance and better engagement with various stakeholders drive value for business and suppliers
Supplier Relationship Management (SRM)	SRM program that is nonexistent or doesn't segment suppliers clearly	SRM program is too focused on segmentation based upon spend and focuses excessively on too few suppliers as value creators with an ill-defined governance structure and process to support the SRM framework	Clear, consistent process and scorecards for SRM that drive innovation and collaboration and encapsulates supplier stability/health	Drives improved collaboration between stakeholders and suppliers and balances cost savings and supplier stability
Contract Management	Contract terms are not being adhered to, and there is no system in place to store/store/manage/enforce	Managing the supplier to every detail within the contract and not being flexible or adaptive to relationship with supplier due to contract terms	Managing the contract in the long term rather than the short term to promote partnership and supplier health to support a stakeholder's strategic goals	Supports the development of a partnership-based relationship and reduced risk of supplier failure

Source: David Fields, Christopher Craighead, and David Ketchen

look at how the competitive lever affects and incentivizes suppliers in the long term. Often what drives down cost in the near term may increase suppliers' financial stability risk, reduce incentives for suppliers to drive innovation, and create an incentive for suppliers to reduce process costs or component material quality in a way that erodes value. Applying procurement levers "too little" with suppliers can reduce pricing competitiveness, and applying the levers "too little" internally can reduce procurement's spend under management and adherence to policies and negotiated agreements.

Doing Too Much or Too Little

When procurement organizations do not use a GPS, the reasons are commonly related to the supporting structures (see Exhibit 1) that define and govern how procurement operates both strategically and on a day-to-day basis. Again, let's look at them one at a time.

Business strategy and culture. Overarching business strategy and company culture are often the

most significant barriers as a procurement organization moves toward a GPS. Problems arise, for example, when strategy and culture focus on near-term gain or quarterly earnings, or when there is an inward focus, limiting the ability to be open and strategic in supplier relationships.

Frequently, company culture creates a "me too" view of leading practices wherein a company will mimic activities that they see their rivals and the leaders of other industries using. This is especially risky if adopted without regard to supply market intelligence and long-term supply risk.

Inertia within the organization can also limit procurement adoption of a GPS, particularly as it relates to innovations coming from suppliers that may dampen near-term cost savings. When the rest of the business views the procurement organization only as a professional negotiation group, it creates an environment of inertia, where it is a struggle to make serious and sustainable changes to how the function does business

EXHIBIT 3

Disguised Examples of the Goldilocks Procurement Strategy in Action

	Company	Goldilocks Procurement Strategy Example
Category Management and Strategic Sourcing	US-Based Industrial Products Company	The organization kicked off a strategic sourcing initiative for heavy rental equipment by first understanding its spend and the supply and demand drivers for the category. Procurement led the strategic sourcing initiative and identified an alternate supplier that had similar capabilities but offered over 30% in cost savings. Additionally, the incumbent came to the negotiating table with some cost savings as well as a major process improvement that allowed the organization to track their current rental equipment inventory and better manage redundancy. The organization decided to contract with both the incumbent and a new supplier based on their geographic footprint. This initiative was a win-win as the organization realized significant cost savings while implementing process improvements that helped them better manage spend and inventory in this category.
Procure to Pay (P2P)	US-Based Utility Company	The company transformed its P2P process by first defining a new integrated buy and pay channel strategy, defining the supporting process, and then building the technology and operating model around it. The new process focused on enabling operations to take an active role in requisitioning but required usage of appropriate buy channels. The company enacted new policies around approvals and spend compliance, as well as when tactical buyers should be used, but rolled it all out alongside training and a support team to answer questions.
Demand Management	Major Insurance Company	For one of the highest-spend indirect categories, the company implemented a demand management advisory board with representatives across procurement, technology, and end-user groups. The team has created significant transparency around requirements in the category and, where there is redundancy based upon what is being purchased versus the requirements, the board agrees on how to best address redundant demand across business units. In addition, the team has implemented reporting and regular audits that create visibility to low- and no-usage areas, spend outliers, and any spend in the category that is no longer required.
Supplier Relationship Management (SRM)	Global Integrated Oil and Gas Company	The company uses a strategic supplier management process to build integrated supplier relationships. This includes collaborating with suppliers to reduce supply chain costs and drive value. The company has standard agreements in place to share value gains made jointly as part of this program between both the company and its suppliers, which encourages collaboration and open discussion on how suppliers can help drive further value. As a result, the company sees significant value from its SRM program, sometimes outpacing the gains typically seen by competitively bidding for goods and services.
Contract Management	Semiconductor Manufacturer	The company has implemented a contract management process, operating model, and supporting technology for procurement as well as other commercial and internal contracts. The process focuses on a streamlined and rapid workflow that allows reuse of contract language/standard clauses along with automation around contract alerts. This helps procurement focus on sourcing contracts at the right time and understand the various commitments that have been made to suppliers.

Source: David Fields, Christopher Craighead, and David Ketchen

with suppliers and internal stakeholders. Likewise, if the rest of the organization looks backward at procurement performance and sees only the year-over-year cost savings they expect, they will frequently just want that to carry forward: “Why take further risk on a new idea when what we are doing is working so well?”

Procurement performance management.

As indicated in Ardent Partners’ CPO Rising 2014 Survey, sponsored by EY, the top business pressure facing the procurement organization today is to find more savings—this is frequently the core metric on which the CFO, COO, and CEO measure procurement. However, when there is a singular focus on cost reduction, procurement is incited to apply a “too much” strategy for strategic sourcing and demand management while offering “too little” attention to SRM, category management, and contract management.

Enabling technology. Much of the historical technology spending in procurement has been on sys-

tems and tools that enable strategic sourcing (e.g., eSourcing, reverse auction tools) or that enable automated P2P processes. Much less common are tools and enablers focused on risk visibility, integrated supplier relationship management, and truly strategic contract management.

Without a technology capability and the associated transparency that comes with it, procurement organizations frequently continue to do business the same way over time rather than adopting a GPS, which offers supply risk visibility and integrated tools to more strategically manage the supply base.

Organization structure/operating model.

Many procurement organizations have struggled through the years to implement the right operating model that achieves integration with the business while still providing a measure of external perspective. Procurement is oftentimes largely managed as an administrative or cost-focused group rather than as a key strategic partner to sustainable and risk-mitigated

operations, especially because varied reporting structures may highlight only limited areas.

In many companies, this is still a delicate topic, and it manifests itself through a lack of stakeholder engagement. The CPO Rising 2014 Survey identified that 27 percent of respondents describe their level of collaboration with the business to be either purely reactive or siloed. In addition, a lack of engagement with CFOs, budget holders, and line-of-business executives continues to be a challenge. This leads to isolated decisions that could potentially move risk and cost further down into the supply base.

Moving Toward A Goldilocks Procurement Strategy

While we have painted a fairly bleak picture above, the good news is that many of the barriers to achieving a GPS can be overcome with the right organizational commitment to change (see Exhibit 3 for examples).

While some of the broader cultural, strategic, and performance management issues take time to evolve within a company, procurement managers should take the first steps to move to a GPS and to adapt their organization's thinking.

Step 1: Map out what a Goldilocks Procurement Strategy means for your organization

Look at how your procurement organization works today and honestly assess whether it is doing "too much" or "too little," or whether it's "just right." This is, of course, a balancing act among risk, cost, and innovation for a particular category or supplier segment as well as across the company.

After completing this analysis, Exhibit 2 can also be used to assess the right practices to apply across the major procurement levers. After your organization has determined what is "just right," the appropriate business case for change can be developed.

Step 2: Engage internal stakeholders and executive leadership to broaden procurement's value proposition

Even if top executives still view procurement as a cost-focused function comprised of professional negotiators, procurement staffers should share their goal of being a Goldilocks organization internally. The procurement organization should suggest the adoption of metrics that incorporate not just cost but also risk mitigation, innovation, and the top-line value that comes from the supply base.

Step 3: Start the culture change in procurement and let the rest of the organization follow

When suppliers are viewed as a separate or even competing organization, this creates an "us versus them" mentality that incentivizes a cost only focus. Organizations must start thinking differently about suppliers, and procurement is ideally positioned to lead the way. This means changing how suppliers are referred to, viewed, and discussed. Eliminating the view that "it is their problem to manage" will start to improve the internal mentality and begin the culture change.

Step 4: Create a technology roadmap, but start with small wins using existing data

Once you know where you are going and have started some of the internal change management, technology should be looked at not as a hurdle but a series of steps to achieve the end goal. While it may seem at first that your organization does not have the technology, data, or time to get risk visibility, there is significant data available publicly and from suppliers. By working more openly with suppliers, this data can be leveraged. Procurement organizations that start small and leverage what they have to create some initial tools can begin breaking free of inertia.

Step 5: Engage suppliers

By sharing your goal of becoming a Goldilocks organization with suppliers, they will be active supporters and can help jump-start your journey. Of course, if your company has treated them harshly in the past, you cannot expect them to immediately embrace your ideas. Over time, though, involving suppliers will initiate a new level of trust and strategic integration and is likely to foster ideas and innovations.

Start The Journey To Competitive Advantage Via GPS

Using a Goldilocks Procurement Strategy requires procurement organizations to think, act, and measure differently. However, the long-term benefits of finding the "just right" approach with both internal stakeholders and the supply base can have enormous rewards for both procurement and the company.

This involves driving ongoing value and not just cost savings that become tougher to achieve and increase supply chain risk. Just as the other type of GPS guides travelers, the Goldilocks Procurement Strategy should guide a company's journey toward long-term competitive advantage. 

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Supplier Power: The New Competitive Differentiator

For leading companies, supply management is not just a way to cut costs—it's a strategic capability.

By Mike Hales, Jules Goffre, John Piatek, and Yves Thill



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For the leading companies identified in A.T. Kearney's 2014 Assessment of Excellence in Procurement (AEP), supply management is not just a way to cut costs—it's a strategic capability that

can also drive sustainable earnings performance and competitive advantage through supplier-driven innovation and risk management (see sidebar).

The success formula covers three pillars: category excellence, high-performing teams, and supplier excellence. The first pillar, category excellence, can double the level of cost reductions through an analytics powered sourcing process combined with long-term category strategies.

The second pillar, team excellence, gives procurement a seat at the C-level table, allowing procurement to focus more on strategic activities such as sourcing and supplier relationship management (SRM), and better measure its impact on the organization, including cost reductions and value beyond cost.

Supplier excellence, the third pillar, is where the AEP leaders truly shine. These companies are going beyond cost reduction and creating competitive advantage by tapping into supplier-driven innovation and risk management skills.

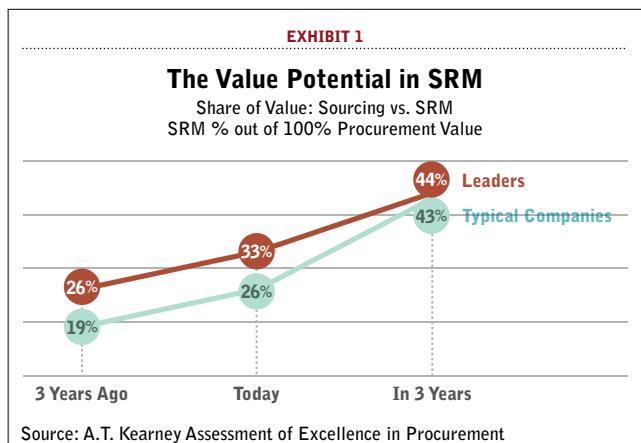
For most firms today, supplier excellence remains the least-developed pillar of procurement, but all CPOs recognize the need to build out this capability in the next three years.

For now, the leaders have a jump start. They have established the foundation for a sustainable competitive advantage by taking four key steps.

1. Target a Competitive Advantage Through Innovation and Risk Management. The AEP's leaders are twice as likely to have expanded their business goals to become more strategic over the past three years, going beyond unit-price reduction and supply continuity to include total cost of ownership (TCO), innovation, new market growth, enhanced risk management, and optimized use of capital. The leaders also get twice the impact from supplier-driven innovation and risk management—one in five leaders reported breakthrough results from innovation and TCO reductions.

All participants expect the share of value from SRM to double from three years ago to three years from now—increasing from 19 percent to 43 percent of all value generated by procurement. Where the leaders stand out is that they have been getting significantly higher contribution from SRM over the past three years (see Exhibit 1).

For nearly all participants in the AEP survey, open innovation has grown far more important—



from not being a target three years ago, to being less important than cost reduction today, to most expecting it to be equally or more important than cost reduction in three years.

A minority of participants had an open innovation effort in place with suppliers three years ago; today, half the leaders have this in place, double the rate of the typical company. The laggards expect to close this gap over the next three years. Similarly, risk management capabilities will change in the next three years. Most participants did not have a risk management strategy in place three years ago and the leaders were primarily taking ad hoc approaches. Today, most leaders have explicitly defined risk supplier strategies, and within three years nearly everyone expects to have this capability.

2. Build a Structured, Procurement-led SRM Capability. Over the past three years, all CPOs have made significant progress in establishing a consistent, repeatable, commonly understood SRM process and vocabulary across procurement, their company, and with key suppliers. That progress is expected to continue.

For most companies today, the scope of SRM with key suppliers extends from contracting to the coordination of overall communications and driving value beyond the contract. Leaders stand out by defining an SRM capability that includes a set of foundational processes applicable to all suppliers (performance management, portfolio management) as well as a set of strategic processes focused on select suppliers (segmentation, supplier interaction models)—all supported by a defined governance and operating model.

The leaders are 50 percent more likely to have their procurement teams lead SRM and 50 percent more likely to include teaming with business unit and functional leaders in the process. While most respondents say they see category managers and senior procurement executives as the key resources for running SRM, the leaders are twice as likely to have dedicated SRM staff. The vast majority of CPOs believe that SRM requires greater skill than sourcing, especially in terms of EQ and leadership. The work seems to be paying off: Forty-two percent of leaders are highly satisfied with their SRM capability compared to 8 percent for the typical company.

3. Segment the Supply Base to Enable Strategic Collaboration. Leading CPOs are already far more likely to have built a supply base in which 80 percent of spend is covered by 20 percent of suppliers. But beyond that, the leaders are also 50 percent more likely to use a wide array of criteria to segment their supply base—well beyond merely determining which companies represent the largest amount of spend.

From our experience, the best practice is to segment suppliers based on potential and performance across three clusters—critical, problematic, and ordinary—covering nine segments, with 99 percent of suppliers being in the ordinary cluster.

Going through this segmentation exercise allows leaders to focus on the 1 percent of suppliers where collaboration can either build a competitive advantage or preclude extraordinary risk. A consistent, repeatable process for collaboration covers four steps: selecting partners, developing joint opportunities, initiating joint implementation, and capturing value while building a relationship.

Leaders are four times as likely to do both internal analyses to define hypotheses before engaging the supplier, and to develop and manage joint process plans with key suppliers.

4. Push Progress Across All Pillars in Parallel. The leading companies are not waiting for a crisis to figure out how to harness the power of their supply base. They understand that the value of supplier collaboration is too much to ignore, and also that it requires time to mature. Many leaders push success in all three pillars at the same time. The benefits of this approach include leveraging the interdependencies across the pillars, “self-funding” (from the fast gains made by sourcing and collaboration), and the relative certainty of high-impact value from cost reductions and competitive advantage.

Time to Invest

The leading companies are investing today in generating strategic returns from their best supply relationships. By tapping into the expertise of their best and most important suppliers, they are building a crucial, long-term competitive advantage. The time is now for companies to invest in the people and SRM capabilities needed to build a competitive advantage by leveraging the power of their suppliers. ☞☞

About the Study

A.T. Kearney's 2014 Assessment of Excellence in Procurement study is the eighth in the series since 1992. The objective of this latest study is threefold:

- evaluate how procurement has progressed since 2011;
- determine how ready procurement is for the future;
- and identify lessons learned from leading procurement organizations.

The study includes input from procurement and supply chain executives at more than 185 global companies across multiple industry sectors.

The study identified a select group of companies as overall AEP leaders due to their overall strong performance in the use of procurement practices across category, team, and supplier management excellence, together with high financial impact as measured by return on supply management assets, or ROSMAM. Additionally, those scoring in the top 20 percent for supplier management excellence were designated supplier relationship management (SRM) leaders.

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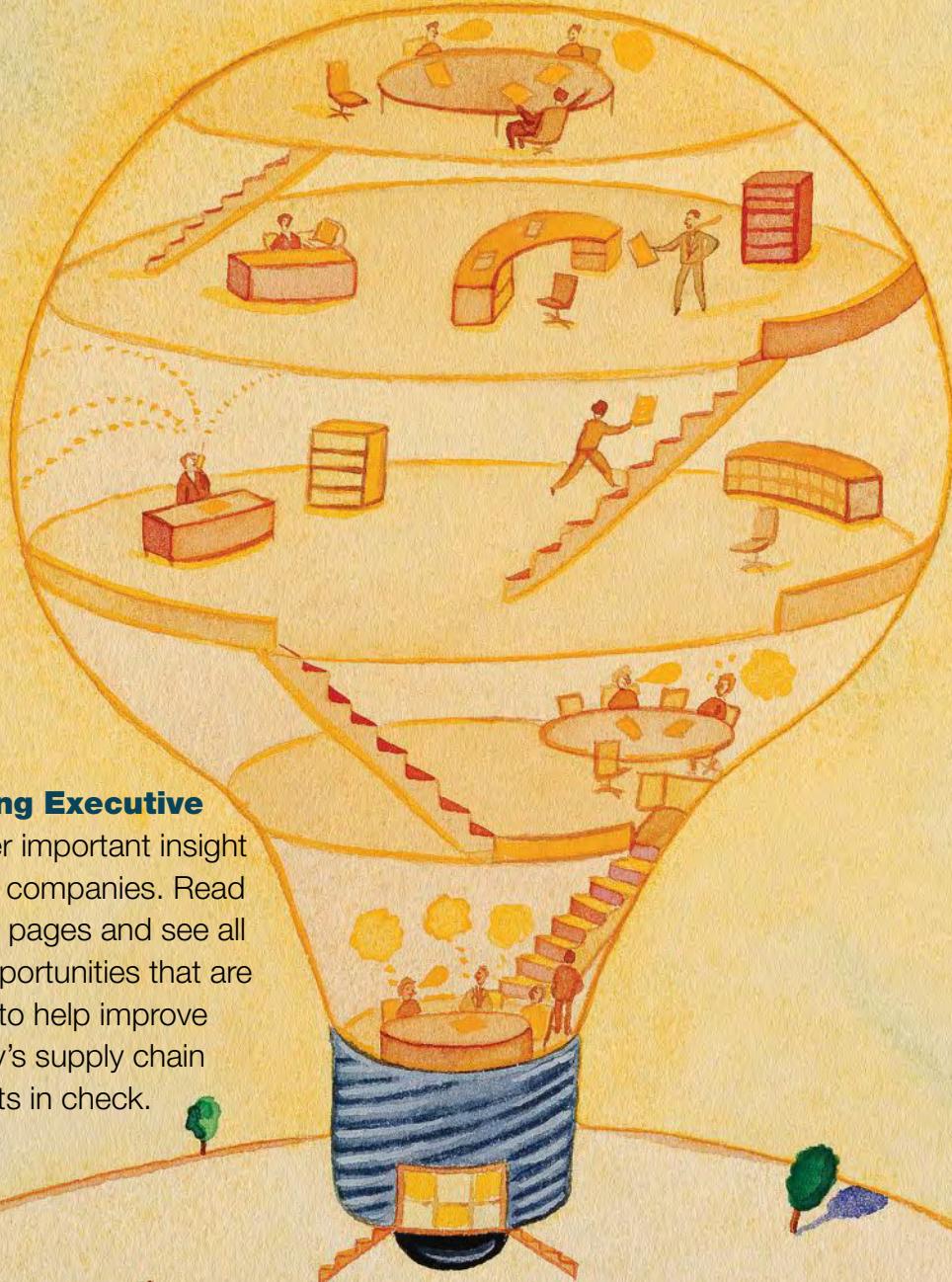


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EXECUTIVE INSIGHTS



The following Executive Insights offer important insight from top-level companies. Read through these pages and see all of the new opportunities that are being offered to help improve your company's supply chain and keep costs in check.

EXECUTIVE INSIGHTS

Turning Supply Chain Managers into Supply Chain Super Heroes

Q&A with Abe Eshkenazi, CEO, APICS

Q. Recently, supply chain and operations professionals have expanded their roles, in many cases, to the C-suite. What is causing this shift?

A. SCM professionals are a driving force in the overall success of business today. Apple is an excellent example of this in action. The company has had record-breaking quarters over the last year, largely due to its singular focus on operations and being able to meet the demand of its consumers. Even with significant constraints, the iPhone 6 supply chain was able to produce enough phones to ensure Apple could exceed its revenue goals. Increasingly, we are seeing those in and out of the supply chain function recognize the importance of its role and elevate it within the organization. This attention is not accidental—recognizing and promoting supply chain and operations is imperative to running a strategically competitive company.

Q. Why is it so important that supply chain and operations management professionals have this prominent role in organizations today?

A. There are only two functions that have a finger on the pulse of everything that happens within an organization: finance and supply chain. This unmatched visibility gives supply chain and operations managers a unique opportunity to affect the business. Having leadership that has business acumen across the functions

of a company is essential to company success and growth.

Q. What one quality is crucial for these managers to take their careers to the next level?

A. In order to be supply chain super heroes, SCM professionals must drive change, embrace new patterns of operation, provide vision, and execute the mission of the company. The most effective SCM professionals look outside of their department and constantly assess the business as a whole. Then, they proactively promote ways to make the company leaner and more agile. That will lead them to more prominent roles within their organizations.

Q. What needs to happen to elevate supply chain and operations management roles

within organizations?

A. As we've discussed, SCM professionals are able to participate on a multilevel scale within the business, providing technical depth, business breadth, and soft-skills. The cross-functional integration of supply chain professionals is a competitive advantage that more companies should utilize. Increasingly, supply chain professionals are prioritizing academic learning, company learning, and continued education to maintain high competitive standards and elevate their success and the success of their organizations. To advance their supply chain organizations, companies need to cultivate SCM super heroes by encouraging and facilitating cross-functional learning to enhance these roles within the organization.



EXECUTIVE INSIGHTS

Deciphering the Omni-channel Buzzword

Q&A with Shan Muthuvelu, founder, ITOrizon, Inc.

Q.What is all the hype about the “omni-channel” buzzword in retail and supply chain?

A.The entire world is talking about this as if it is something innovative. I see this as the catch up game of our enterprise software solutions. End consumers adopted to omni-channel before IT because of the revolution in mobile technologies and devices. From an IT point of view, we now need more “doing” and less “talking.” More than half of the top 250 retailers are already investing in omni-channel integration technologies and IT governance. This is going to be the focus for the next three to five years.

Q.Buzzword aside, where is the world going?

A.The world is headed toward cross-channel inventory visibility, business strategy driven inventory availability: “view, buy, ship, pickup, return anything anywhere,” synchronized customer experience, cross-channel planning, and cross channel supply chain execution. Is this any less buzzy for you?

Q.Why is this so complex?

A.The concept is not rocket science. However, finding the right retail and supply chain

business consultants, application consultants, and technical architects to connect hundreds of vendor packages and legacy applications in the new technology and business platform (and making them arrive at the right solution for your business) is nothing less than rocket science. On top of this, add the challenges of change management and IT vs. business alignment.

Q.Can you provide an example?



A.We all understand that companies run hundreds of different legacy and vendor applications. But, many companies have multiple solutions for the same product procured from multiple software vendors or multiple versions of the same product running from the same vendor. Not to mention the functional limitations, technical incompatibilities, and integration challenges between all these instances. Mergers, acquisitions, spinoffs, recession, depression, etc., would not push IT to simplify their solutions portfolio to just a few options. We need to be agile enough to adapt to these challenges and still provide all the required capabilities, security, performance, scalability, and availability. Above all, companies need to offer the best customer experience to their consumers.

Q.What would you recommend to enterprise IT leaders?

A.Take a holistic approach to enterprise functional design and technology architecture, but adopt an agile approach to detail, design, and development. Keep your integration and information management frameworks ready to support your evolving IT eco system. Security cannot be an afterthought. Also, you need people with industry, application, and technical experience. We need to approach this as our new IT culture and not just a process or a product change.

EXECUTIVE INSIGHTS

2015 Retail Supply Chain Trends

Q&A with Mike Glodziak, President, LEGACY Supply Chain Services

Q. What new challenges should retailers be aware of in 2015?

A. Capacity: For starters, the economy continues to strengthen. Five years ago there was plenty of capacity available to retailers, including buildings for lease and transportation capacity. Today, real estate isn't as readily available and truck capacity is tightening up. Lead Times: We're seeing shorter lead times (speed to shelf), which has a major impact on the success of retailers – especially given the trend in multi-seasonal fashion wear. Network Structures: The need for efficient distribution and transportation networks that reduce cost, improve product flow, and serve retailers' multi-channel distribution requirements continues to be imperative.

Q. How should retailers address these shifts?

A. Empty shelves are a retailer's biggest enemy. Because of this, speed to shelf is important. The retailer that has the widest selection of products and fullest shelves will win. The key is to focus on fast inventory turns, quick response, and getting the job done. To do this, retailers need the ability to look across their supply chains and see exactly where product is located (in a DC, on the water, in a truck, etc.). Without

this level of visibility, shippers are challenged in making decisions on short and long-term capacity. They won't know how much space they need in their warehouses and they'll never be able to get out in front of the "tightening capacity" curve.

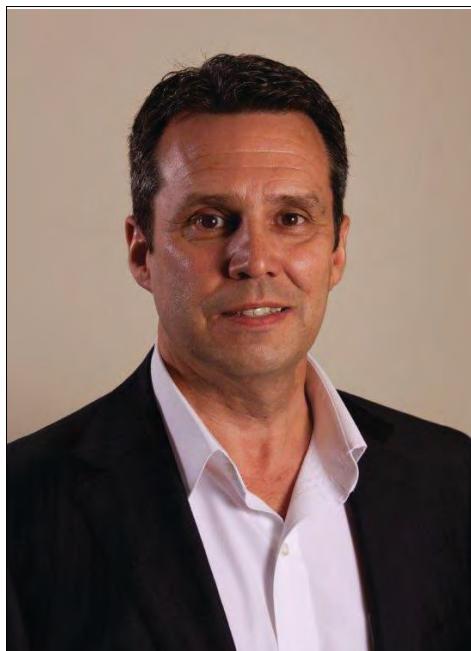
Q. What types of network strategies are shippers using right now?

A. We are seeing three high-level strategies. In order to reduce miles and costs, and increase speed to shelf, there is a trend toward regional distribution locations. Retailers are leveraging pool point distribution networks in certain markets to reduce their bricks-and-mortar

costs. Lastly, omni-channel distribution networks are being developed to meet the demands of the retail customer. These steps are all being taken in the name of reducing reliance on transportation while effectively managing the capacity constraint issue. A combination of these various strategies are all being employed for the shippers' unique situations.

Q. What major threats could impact supply chain companies that service retailers?

A. Right now, we're all dealing with increased competition, tighter logistics capacity, fewer labor/talent options, and increased regulations. As a result, margins are getting tighter and we're looking for even more entrepreneurial and creative ways in which we operate. There's reduced leverage with building landlords when renewing or structuring new lease deals as the economy improves. With the economy and unemployment rates improving, and an onslaught of governmental regulations (particularly in California)—driver talent is at a premium. Much like the customers we serve, we have to continually focus on managing this new environment to provide high quality and service levels.



EXECUTIVE INSIGHTS

Taking Empty Miles Out of the Supply Chain

Q&A with Monica Wooden, CEO and Co-founder, MercuryGate International, Inc.

Q. Can you define “empty miles” as it relates to the supply chain?

A. Basically we’re talking about trucks that go out full and come back empty. These backhauls can be intercepted and added to in an effort to most effectively leverage return trips. This is an age-old problem on the transportation front, and one that shippers are just beginning to address in terms of utilizing the space versus just finding capacity. Empty trucks are crisscrossing the country everyday. This has historically been a very neglected area, as evidenced by the fact that at least 20 percent of total capacity exists within these empty trucks. The overall goal is to have a specific number of trucks and a certain number of shipments and freight, and to then ensure that the

trucks are at maximum capacity instead of just continuing to add more and more trucks to the fleet, and, in turn, impact the environment with increased CO2 emissions and road wear.

Q. Why aren’t more shippers utilizing their empty miles?

A. Because it’s not an easy thing to do. It requires shippers to know where a specific truck is, how much available room is on it, and how to make the connections as quickly as possible. They need this information in order to ensure that the trucks are full as they move down the road. Compounding the issue is the fact that 95 percent of the capacity in the U.S. is handled not by large carriers, but by mom-and-pop operations that

own between 1-15 trucks. As a result, there are a lot of people, vehicles, and pieces to connect in order to effectively use those empty miles.

Q. Does technology make the task any easier?

A. The Internet plays a big role in connecting people, companies, vehicles, and systems in a more effective manner. Through advanced routing optimization techniques, for example, Mojo, MercuryGate’s transportation optimization software, reduces empty miles to minimize transportation spend, improve driver utilization, and create a greener fleet. For instance, backhaul opportunities may be identified across an LSP’s customer base or by linking inbound and outbound vendors and customers in a shipper’s supply chain. Continuous moves that balance deadhead miles against repositioning inefficiencies are also powerful methods to reduce empty miles.

Q. Which organizations will lead the charge in the effort to stem the flow of empty miles?

A. Leading shippers in the marketplace will make this possible—not technology vendors alone. While we build and sell the platforms that enable the process, technology isn’t useful unless the biggest companies with the most to gain actually use it. They’re the ones that can make this work. It has to come from the top-down from the largest shippers in North America. It’s time for them to be the market leaders in making this happen.



EXECUTIVE INSIGHTS

The Role of Professional Development in Procurement Processes

Q&A with Charles Dominick, President & CPO, Next Level Purchasing Association

Q. What mindset towards professional development can help companies hone their procurement processes and deliver better results?

A. Professional development should be continuous and focused on results, with buyers shown not only what they should be doing but also how to do it. In the past, procurement training was based on simply teaching a buyer how to create a purchase order in a computer system. That was the extent of the formal training they received for their entire careers. With today's complex business environment, smarter suppliers, more robust technology, and advanced procurement best practices, professional development should not be limited to just the new entrants into the profession. Every person in procurement should be exposed to better ways of doing things throughout their entire career.

Q. What are the first steps a procurement leader should take to get this right?

A. It depends on organizational culture and leadership style. Some procurement leaders will want to conduct a formal skills assessment to identify where the gaps are in their procurement team's skills versus where they want their procurement team skills to be. Others intuitively know where their gaps are and can jump right to selecting the professional development that's needed.

Q. What's the next phase of introducing professional development into the procurement organization?

A. Once a procurement leader knows what are the skill gaps and how to fill them, he or she needs to put professional development on a timeline. That timeline needs to consider any constraints on employee time or training budget. To some organizations, an average of 50 hours of professional development per employee may be a one-year plan. To others, it may be a three-year plan. But it's important to have a plan, regardless of length. It's also important to consider whether a procurement certification should

be a part of the professional development effort. Often, the path for filling skill gaps is identical to a certification path.

Q. What benefits can an organization expect from these efforts?

A. To be effective, professional development should be aligned with the goals of the procurement department. That way, the development's effectiveness can be measured. Ideally, training should not be done for the sake of training but rather for improved results. Whatever KPIs the procurement team is using to measure its performance should be improved after a successful professional development initiative. If the goal is cost savings, then at the end of the day the organization should have more cost savings than it had before. If better supplier performance is the goal, then the company should see a higher percentage of on-time supplier deliveries and a lower defect rate from their suppliers. Finally, if the goal is better service to internal customers, then customer satisfaction ratings should be higher. If certification is an outcome of professional development, not only would the procurement team get the improved skills needed, but employees would also have a credential that increases their credibility with management, internal customers, and suppliers.



EXECUTIVE INSIGHTS

CSA's Impact on the Supply Chain

Q&A with Karla Staver, director of safety, Saia LTL Freight

Q: What is CSA?

A: Compliance, Safety, Accountability (CSA) is a Federal Motor Carrier Safety Administration (FMCSA) safety measurement and reporting initiative. It's a scorecard for carriers and part of our compliance process. CSA was initially developed by the government in 2010 with the goal of creating safer roadways.

Q: Has CSA been effective in achieving that mission?

A: Yes, to a certain extent, I think it has accomplished that goal. As a whole, both carriers and drivers are paying more attention to the need for safety—something the industry should constantly be focused on. As responsible carriers, we should be paying attention to the drivers that we're recruiting and hiring. We should be looking at driver PSPs (pre-screening programs) and reviewing their CSA scores, which serve as Department of Transportation (DOT) compliance background checks. These scores tell you a lot about the drivers, whether there were vehicle maintenance issues that could have been addressed, and whether

the driver has had any hours-of-service infractions. These are all important, telltale signs of driver and carrier behavior.

Q: How do these measures and score-carding affect the supply chain?

A: Finding and recruiting drivers right now can be challenging, but the process isn't just about "filling a seat." It's about putting the right person in the driver's seat and delivering to customers in a seamless manner. The worst thing a carrier can do is hire a driver

and then have that person go through a roadside inspection and be put out of service. Equipment, drivers, and freight are all affected when this happens. Essentially, the supply chain is undermined. It's worth noting that CSA scores are available to the public, which means anyone can review them and determine driver compliance. So, they're not just limited to one side of the supply chain—everyone involved has a bit of ownership.

Q: How else does CSA align with the current driver shortage?

A: Well, the average driver age has been increasing over the last few years. There aren't as many younger drivers, despite the fact that driving is a great career option. At Saia, most of our drivers are home at night and/or every weekend; their careers allow them to earn a good living and achieve work-life balance and a nice lifestyle. Unfortunately, we're seeing fairly significant driver shortages in some areas of the country right now and, as a result, we're having a hard time recruiting and hiring in those regions. While hiring the right person, who puts safety first, has always been a priority at Saia, CSA has made us and other carriers even more selective.



EXECUTIVE INSIGHTS

Supporting Innovation in the MRO Supply Chain

Q&A with Jim Owens, senior vice president of business development, SDI

Q: What are the drivers for innovation in the MRO supply chain?

A: Although there are multiple stakeholders, including OEM's, distributors, integrators, and end-users, the primary driver of innovation has been progressive manufacturing organizations that are driving change out of necessity, not necessarily want. Manufacturers are looking at how they can be more competitive and effectively respond to what's changing in their worlds. Everyone is trying to innovate, be it via product development or service development. They're also looking to reduce costs and become more agile and adaptable in this new environment. They're focusing more on the core aspects of their businesses and searching for ways to partner with other firms or outsource non-core projects to third parties. Overall, there's a lot more focus on supply chain management as a strategic lever. Organizations that have adopted Overall Equipment Effectiveness (OEE), Operational Excellence, LEAN, or Six Sigma philosophies have learned that the status quo or traditional approach to MRO management is no longer sustainable and that they need an MRO supply chain that is fully aligned to their enterprise-wide strategies.

Q: What are some recent innovations in the indirect supply chain, MRO in particular?

A: There are industry innovations and disruptive innovations, or game-changing innovation. From an industry innovation perspective, there are many including: cloud-based MRO supply chain management software; predictive demand planning; integrated industrial vending; RFID-enabled, unmanned storerooms, and middleware providing seamless integration to ERP systems. In terms of disruptive innovations, e-commerce with giants like Amazon Supply and Alibaba entering the scene, and 3rd party specialists like SDI that are challenging the status quo, are bringing game-changing innovation to supply chain management.



Q: What does the future look like?

A: The future will look nothing like today. Manufacturing organizations and their supply chains will be integrated in ways that are difficult to imagine. The Industrial Internet of Things (IIoT) and low-cost remote monitoring of critical assets will enable manufacturers and their maintenance teams to have real-time visibility into asset performance and condition. They'll be able to better predict failures before they happen. Another really interesting and game-changing innovation is 3D printing, or additive manufacturing. 3D printing will allow manufacturers to essentially print critical and non-critical spares, on-demand. That will dramatically reduce lead times and waste in the supply chain.

Q: What benefits come from a more centered approach to supporting MRO supply chain innovation?

A: There's an emotional element at play that spans across the entire organization. It affects not just the people on the production line, but it also impacts everyone that is operating across different functional silos and mission-critical business areas.

The goal in a more connected approach is to reduce manufacturers' total cost of ownership while also increasing their reliability, giving them certainty of outcome for the best value.

Special Report

TRUCKING REGULATION: Carriers Push Back, Shippers to Pay

Our panel of trucking analysts takes a deep dive into the federal regulations that are driving increased cost pressures on carriers—and, in turn, driving up rates on shippers.

BY JOHN D. SCHULZ, CONTRIBUTING EDITOR

When then-President Jimmy Carter signed the Motor Carrier Act of 1980, it deregulated the interstate trucking industry from a host of outdated laws governing rates, routes, and operating authority. That stroke of the pen unshackled the industry from much Washington oversight and enabled it to become the responsive and innovative transportation mode it is today—capturing more than 70 percent of total

freight revenue.

But while the landmark law economically deregulated truckers, today they're facing a barrage of regulations covering everything from how much pollution their engines emit to how much sleep their drivers must get.

"A regulatory tsunami" is how U.S. Chamber of Commerce President and CEO Thomas Donohue, formerly head of the American

Trucking Associations (ATA), recently defined it.

Clearly, Washington's regulatory focus on the less-than-truckload (LTL) industry has changed in four decades. While LTL carriers can charge any rate-per-mile they want, the regulatory focus has shifted from economic to what Dave Osiecki, the ATA's executive vice president for advocacy, calls "social regulation."

And many who keep a close eye on this industry believe he's right. In fact, one could argue that LTL carriers today face more laws from more Washington agencies than ever before, all stemming from the usual "alphabet game" of Washington regulators.

Safety laws are coming down from the Department of Transportation's Federal Motor Carrier Safety Administration (FMCSA); emission regulations and fuel mileage requirements are emanating from the Environmental Protection Agency (EPA); pension laws coming from the Department of Labor (DOL); background checks on drivers from the Department of Justice (DOJ); post-9/11 security regulations from the Department of Homeland Security (DHS); and truck safety regulations coming down from the National Highway Traffic Safety Administration (NHTSA).

"This industry is more regulated than it ever was," says James Welch, CEO of YRC Worldwide. "Government wants to stay involved in our industry, and there are a lot of good things such as the mandate for electronic onboard recorders. But there's a cost to us for all of this."

Analysts absolutely agree with Welch. "They say it's all in the name of safety, and I agree that we definitely want to have oversight to ensure people are not driving a truck drunk," says Satish Jindel, principal of SJ Consulting, a firm that tracks the \$34 billion LTL industry. "That's not good



for anybody who uses the highways; however, it's a fine line we have to balance. That's where there is no easy answer."

And while it's easy to pick on Washington for targeting the \$700 billion overall trucking industry as a "cash cow" for additional user fees, taxes, and add-on regulatory costs, those regulators don't have the easiest task in trying to achieve that perfect balance of cost vs. safety benefit.

"Ultimately it's about the safety of your family and my family and those who travel on the roads," says Duane DeBruyne, spokesman, FMCSA. "That's what everybody is focused on. If we can make progress through safety improvements, that's what the point of the discussion needs to be about."

John Cutler, general counsel for the National Shippers Strategic Transportation Council (NASSTRAC), says that while the goal of truck safety regulations is laudable, rules can often be achieved in a more cost-effective manner without all the micromanagement from Washington.

"If the government were more concerned about the economic practicality of some of these regulatory initiatives, it would be better for everybody—better for shippers, better for the government, better for trucking industry," says Cutler.

Analyst Donald Broughton of Avon-

dale Partners says that the FMCSA's goals are certainly admirable, but so far its effort has been "ineffectual." "Have them write rules that make sense and that people can understand," he says.

So let's take a deeper dive into the regulations that are putting the clamps on LTL productivity in order to better understand what's driving the cost pressures on carriers—and, in turn, inevitably driving up shipper freight rate.

Regulatory Hurdles

Talk to any LTL trucking executive for any length of time and if the subject of regulation comes up you're likely to hear two acronyms: HOS and CSA.

HOS is shorthand for "hours-of-service," a two-decade old push to modernize the amount of time truckers can drive and be on duty. CSA stands for "Compliance, Safety, Accountability," a five-year-old program designed to weed out as many as 150,000 truck drivers that the federal government feels are disproportionately involved in truck accidents.

"To make it even more interesting, CSA and HOS are both in flux right now," says Randy Mullett, vice president of government relations for Con-way Inc., the \$5.5 billion parent that operates LTL Con-way Freight.

Thanks to Sen. Susan Collins (R-Maine), late last year the trucking industry won a delay until Sept. 30 of this year in the enforcement of the so-called "34-hour restart" provision in the latest HOS initiative. It remains unclear what, if anything, the Republican-dominated Congress will ultimately do—a fact that's causing uncertainty and adding cost for truckers that are unable to make long-term planning and staffing decisions regarding their drivers.

"We got a reprieve on the restart provision of the HOS, and that's beneficial



“If the government were more concerned about the economic practicality of some of these regulatory initiatives, it would be better for everybody—better for shippers, better for the government, better for the trucking industry.”

—John Cutler, general counsel for the National Shippers Strategic Transportation Council (NASSTRAC)

to us,” Con-way’s Mullett says. “It would be nice to get the research and make that change permanent. But we’re happy for the additional flexibility of operation for our drivers and we’re sure this will improve safety.”

Shippers applauded the delay and were thankful that the FMCSA did not alter the 11-hour per-day driving limit for truck drivers in a 15-hour, on-duty period. “We in the shipper community, like the carriers, are happy FMCSA didn’t cut the hours to 10 or less per day,” says NASSTRAC’s Cutler. “That shows some sensitivity to economic realities.”

While the LTL sector won a reprieve on HOS, Mullett believes that there’s still a significant amount of anxiety revolving around CSA. LTL carriers feel that the “safety scores” associated with CSA—and formerly available to all on FMCSA’s web site—were incorrect because of a flawed accounting system.

“As long as the scores stay hidden as it stands right now, it becomes much ado about nothing,” says Mullett. “Before they make those scores public we want to be sure that they make the scores right. However, the

energy on Capitol Hill right now is to maintain the status quo.”

For its part, FMCSA officials say that they often have little input in the final trucking regulation—yet they add that they’re often demanded by Congress to take action.

So, it’s a balancing act. FMCSA officials believe that while LTL carriers often say that they’re being picked on and micromanaged by Washington. On the other hand, the safety advocacy community often complains that FMCSA is “too cozy” with the trucking industry and is often too lenient.

As an example, when the DOT recently made its decision to expand operating authority of qualified Mexican-domiciled fleets into this country, the Owner-Operator Independent Driver Association (OOIDA) and Teamsters union both howled that it would harm truck safety. But the ATA was actually quite supportive of the move.

“Usually if there’s a decision where both sides complain then we feel that we probably got it right,” says FMCSA’s Debruyne.

Financial Impact of Regulations

While HOS does not directly affect

the LTL industry due to the design of its hub-and-spoke networks, carrier executives say that it does have a “trickle down” effect because it makes the truckload sector hire more drivers, exacerbating the driver shortage and pushing up pay for the entire industry.

“When the truckload guys have driver recruitment problems, it eventually trickles down to the LTL sector as well,” says Jindel.

Just this year, Con-way is setting aside an additional \$60 million for driver pay increases, partially because of the squeeze in productivity caused at least in part by tough trucking regulations.

This year, the final rule mandating electronic onboard recorders (EOBRs) will most likely be issued by FMCSA. Most of the trucking industry has praised the move, one that will eliminate the paper logs that drivers often refer to as “comic books.”

But while the goal of EOBRs is commendable—geared to reducing illegal hours of operation and creating a level playing field for all carriers—one of its unintended effects will be a tighter supply of compliant drivers for the entire industry.

Economist Noel Perry of FTR Associates is already predicting that the driver shortage could approach 200,000 within the next decade. While economics, changing demographics, and the industry’s inability to market itself to younger people and minorities are primarily responsible for the shortage, there’s little question that increased scrutiny of drivers is



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playing a role as well.

“We’re not necessarily talking about economic regulation, but health, safety, environmental, and security regulations,” says Cutler. “It just seems to me that for some time the FMCSA’s focus is not primarily on safety, but almost exclusively on safety without regard for cost or adverse implications for trucking companies or their shipper customers.”

Other analysts agree. “Absolutely,”

says Jindel. “In terms of all this compliance, especially CSA, we hold the driver of the truck to a much higher level than our elected officials. They say it’s all in the name of safety, which is fine. However, if society wants to have all these regulations to ensure a high level of safety, then we have to agree it comes with a cost and we have to pay the trucking company more for it.”

Regulatory Road Ahead

Rest assured that there’s plenty more coming down the regulatory pipeline. FMCSA is now talking about tougher rules for truck driver training and driving schools; rules governing sleep apnea are in the works; and President Barack Obama recently signed a law requiring trucks to effectively double their miles per gallon (mpg) in fuel efficiency.

The price of a new Class 8 truck

CSA: ATA vs. FMCSA

The American Trucking Associations (ATA) continues to joust with the Federal Motor Carrier Safety Administration (FMCSA) in delaying appropriate action on the important issue of crash accountability in its “Compliance, Safety, Accountability” (CSA) safety monitoring program.

The ATA says that over the past five years it has asked FMCSA to screen out crashes from CSA where it’s plainly evident that the professional truck driver and motor carrier were not at fault.

“Instances where a truck is rear ended by a drunk driver, or hit head on by a motorist traveling in the wrong direction on the interstate, or as happened recently when a truck was struck by a collapsing bridge, are clearly not the fault of the professional driver and certainly should not be used to target his or her carrier for potentially intrusive government oversight,” says Dave Osiecki, executive vice president of ATA.

FMCSA uses overall crash history as one of several data points in CSA. ATA has repeatedly asked for improvements to CSA, particularly in the area of crash accountability, where the agency contends that just being involved in a crash is an indicator a carrier may not be safe.

“It is not lost on the trucking industry that the word ‘accountability’ is in the title of CSA, yet FMCSA continues to ignore crash accountability,” says Osiecki.

ATA Chairman Duane Long adds that the industry wants only to be “fairly

judged” and not be penalized by crashes that truck drivers could not reasonably avoid. “It’s not only a fairness issue, it’s a good government oversight approach,” says Long. “We continue to trust that FMCSA might eventually arrive at this conclusion.”

For its part, FMCSA issued its own rebuttal to its crash analysis formula and said it would further study the issue thoroughly. Specifically, FMCSA said it would examine:

- Whether police accident reports provide sufficient, consistent, and reliable information to support crash weighting determinations.
- Whether a crash weighting determination process would offer an even stronger predictor of carrier crash risk than the current assessment method.
- How the agency might reasonably manage and support a process for making crash weighting determinations, including the acceptance of public input.

FMCSA is inviting shippers and other logistics stakeholders for feedback on what steps the agency should take regarding the weighting of crash data in the agency’s systems based on the carrier’s role in a crash. Presently, the agency considers all recordable crashes involving a commercial motor vehicle occurring in the preceding 24 months as an assessment within its Safety Measurement System—which quantifies the on-the-road safety performance of motor carriers to prioritize enforcement resources.

FMCSA argues that a motor carrier’s

involvement in a crash, regardless of their role in the crash, is a “strong indicator” of a trucking fleet’s future crash risk. The study referenced by FMCSA examined police accident reports obtained from two national data sets: the National Highway Traffic Safety Administration Fatality Analysis Reporting System and the National Motor Vehicle Crash Causation Survey (NMVCCS).

Various statistical and analytical approaches were employed to assess crash-weighting benefits, including an analysis of motor carriers involved in single-vehicle fatal crashes over time, the agency says. “Changing the crash weights based on a motor carrier’s role in the crash did not appear to improve the ability to predict future crash rates when all crashes are considered,” states the FMCSA.

The administration also stated that it was concerned about the reliability of using police accident reports to make this determination. The study pointed out that implementing a crash-weighting effort on a national scale would require a method for uniformly acquiring final police accident reports, a process and system for uniform analysis, and a method for receiving and analyzing public input.

It is estimated that the annual costs for operating a system to process police accident reports, including the acceptance of public input and reviewing appeals, would be between \$3.9 million and \$11.2 million, according to FMCSA.

—By John D. Schulz,
Contributing Editor

has risen more than 40 percent in the past decade to more than \$125,000, at least partially because of new EPA-required emission standards. At the time it issued the rule, EPA stated that the additional cost for those pollution controls would be about \$5,100. In fact, according to a report from the American Truck Dealers, the actual increase was over \$21,000 per truck.

Doubling the fuel efficiency of an 80,000-pound truck that today gets about 6 mpg will no doubt be a daunting and expensive task. Privately, truck manufacturers say that they don't know how they'll get there, but they do know it will be expensive.

"It will require a ton of money for add-on environmental and improvements in those engines," adds Conway's Mullett. "That's another thing that will have a huge impact on costs."

As for rates, shippers can expect all

this regulatory overkill to drive up carrier costs, which have already been rising at an annual rate in excess of 10 percent. And if there's any universal complaint in trucking today, it's that regulatory pressures are driving up rates.

"I don't think shippers are aware of it," says YRC's Welch. "They hear us talk about the cost of regulations, but I don't think they understand the ramifications of it all. There's a cost of everything, and we have to do a better job as an industry of explaining what government regulations are costing us in the future."

According to Jindel, it's about time carriers become more aggressive with shippers on rates. "If you don't get a correct return, don't cry about the shipper," he says. "Find a way to get adequately compensated for your services. If society wants to have all these regulations to ensure high levels

of safety, then we have to all agree it comes with a cost—and we have to pay you for it."

Jindel and other industry analysts believe that LTL carriers should and must raise rates to cover compliance costs with CSA and other initiatives. However, the question remains: Will the Republican-controlled Congress act to water down some of these initiatives?

It's possible, analysts say, but don't count on it. "I wonder if they have motivation to change anything," adds Jindel. "There are so many other things for Congress to deal with at this time that things would have to evolve into a crisis for them to act. Right now, trucking has not reached a crisis point."

—John D. Schulz is a Contributing Editor to SCMR

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IT Risk Mitigation is Still a Work in Progress

For real results, organizations should implement supply chain risk management practices.



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

Risk within the supply chain has become a growing concern for organizations in recent years. Although high-impact disasters such as tsunamis and inclement weather often grab the headlines, organizations are also concerned with risks that can impact the systems that support day-to-day operations. For instance, the risk presented by IT disruptions

organizations from more than 40 industries.

The survey results reveal that many organizations have been affected by IT disruptions and that their leaders are concerned about IT risk. However, survey respondents indicated that their organizations occasionally use IT risk management practices and that they find these practices to be only somewhat effective. Organizations that conduct regular evaluations of their supply chain’s resiliency use risk management practices more often and consider these practices to be more effective.

is of great significance given the technology necessary to support complex global supply chains.

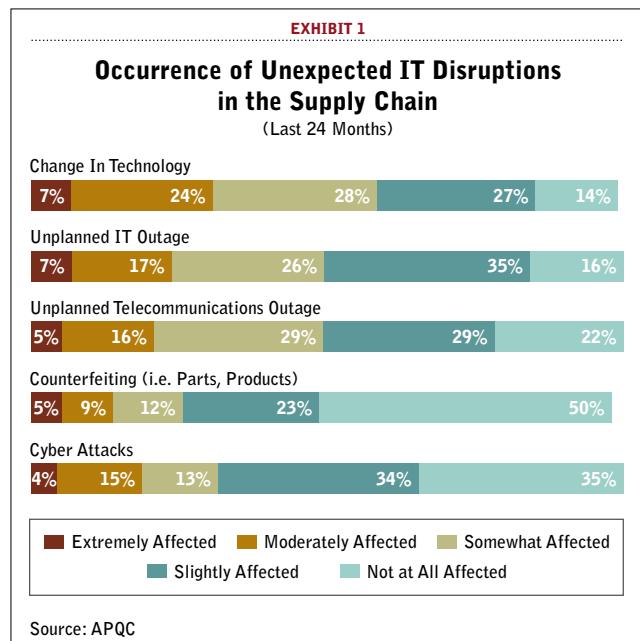
APQC recently conducted a survey to get a snapshot of the current state of IT risk in the supply chain. The survey focused on four research questions:

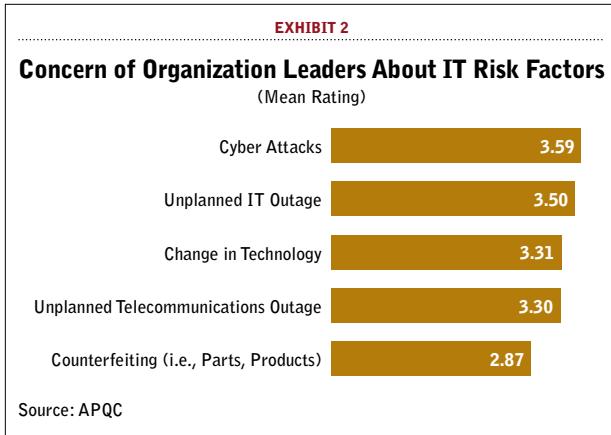
- What IT risks are supply chain organizations experiencing?
- What is the level of concern for various IT risk factors?
- How controllable are organizations finding the disruptions they are experiencing?
- What practices are organizations using to ensure supply chain resiliency in light of potential IT disruptions?

There were 118 respondents to the survey, representing organizations of various sizes and from a variety of regions. A majority of the survey respondents were from the United States/Canada (47 percent) or the Asia-Pacific region (25 percent). Respondents represented

Concern and Controllability

APQC’s survey asked respondents to indicate the degree to which their organizations have been affected by unexpected IT disruptions in the





supply chain in the last two years. As Exhibit 1 shows, a majority of respondents' organizations have been affected to some degree by nearly all of the disruptions listed on the survey. Changes in technology and unplanned IT outages affected the largest percentage of the survey respondents.

The survey also asked respondents to indicate the degree to which their organizations' leaders are concerned about certain IT risk factors. Responses were provided a scale from not at all concerned (1) to extremely concerned (5). As shown in Exhibit 2, organization leaders are, on average, somewhat concerned about all the IT risk factors included in the survey. Cyber attacks and unplanned IT outages were rated highest, while counterfeiting raised the least amount of concern.

In what may be a reflection of the level of concern shown by organization leaders, survey respondents indicated that they felt the risk factors listed on APQC's survey were all moderately controllable. There were only small differences in the average ratings assigned to the factors, but changes in technology (3.38) and counterfeiting (3.34) received the highest average ratings, indicating that respondents considered these to be the most controllable factors among the list. Unplanned telecommunications outages were rated least controllable (3.23).

Effects of Frequently Assessing Risk

We also asked respondents to indicate how frequently their organizations evaluate their supply chain's resiliency and exposure to IT risk. The survey data reveals some interesting results for those organizations that conduct such evaluations more frequently. Respondents from organizations that evaluate resiliency every month to every 12 months indicated that their leadership is more concerned about disruption risk factors than respondents from organizations that evaluate resiliency less frequently. This higher concern may be the motivation for these organizations to

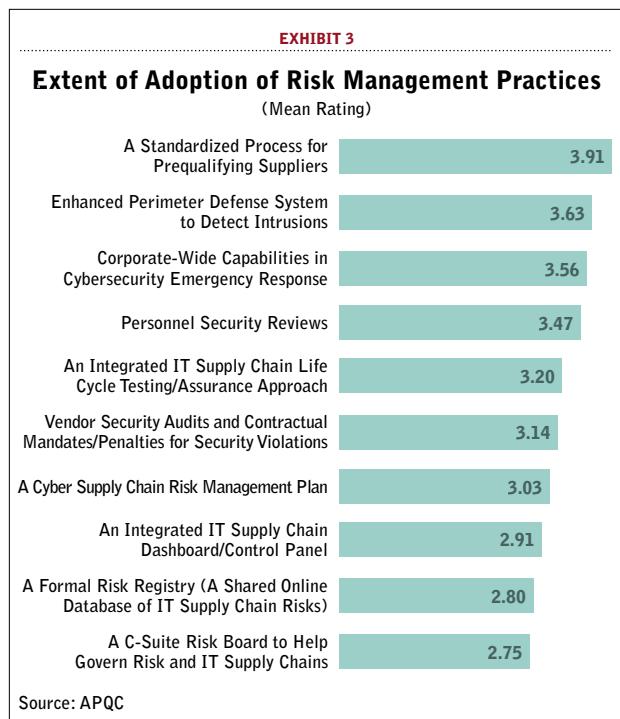
conduct more regular evaluations of the resiliency of their supply chains and their exposure to risk.

Respondents from these organizations also believe that IT risk factors are more controllable than do respondents from organizations conducting less frequent evaluations. It may be that the organizations with more frequent evaluations respond this way because they have a better idea of their risk for potential IT disruptions as well as the ways that they can best minimize the effects of any disruptions.

Risk Management Practices

Survey respondents indicated how often their organizations use certain practices to manage the IT risk in their supply chains. The scale ranged from never (1) to always (5). As shown in Exhibit 3, on average respondents rated all the practices on the survey near the middle of the scale, indicating that none of the practices are used extensively. However, respondents indicated that a standardized process for pre-qualifying suppliers is the most frequently used of the practices. The practice receiving the lowest rating was the adoption of a C-suite board to help govern risk.

The survey asked respondents to rate the effectiveness of each of the risk management practices from ineffective (1) to highly effective (5). On average, respondents rated all of the practices near the middle of the scale, indicating that they regard the practices as somewhat effective. The three most frequently used practices (an enhanced



perimeter defense system to detect intrusions, corporate-wide capabilities in cybersecurity and emergency response, and a standardized process for prequalifying suppliers) were also the practices rated most effective.

The results indicate that organizations seem to be relying on practices that tackle IT risk at the more tactical level of the supply chain. Organizations use supplier evaluations as the primary way of managing risk rather than relying on leadership to help govern IT risk. Organizations also rely on more practical tactics such as adopting an enhanced perimeter defense system to identify IT intrusions rather than the loftier goal of creating a formal registry of IT risks that can then be shared within the enterprise.

Survey results indicate that organizations evaluating their supply chain resiliency every month to every 12 months use risk management practices more frequently than organizations that evaluate their resiliency less frequently.

It is worth noting that although all the practices on APQC's survey were rated only in the middle of the scale with regard to effectiveness, these practices are not used regularly by the responding organizations. It may be that organizations are not seeing excellent results from the practices they adopt for managing IT risk in the supply chain because these practices are not used consistently. More wide-scale adoption of risk management practices may improve their effectiveness for these organizations.

Effects of Frequently Assessing Risk

APQC's survey results indicate that organizations evaluating their supply chain resiliency every month to every 12 months use risk management practices more frequently than organizations that evaluate their resiliency less frequently. As with others, these organizations rated a standardized process for pre-qualifying suppliers the most frequently used on average. However, the average rating assigned to this activity was nearly one point higher (4.35) than that assigned by organizations evaluating their resiliency less frequently (3.36). This indicates that some organizations are adopting comprehensive strategies to address IT risk in the supply chain that include frequently engaging in risk management activities as well as regularly gauging the resiliency of their supply chains to identify potential weaknesses.

Focus on Development and Visibility

Our research indicates that organization leaders are concerned about IT risk in the supply chain and

that most organizations surveyed have been recently affected by IT disruptions. Although many of these organizations have adopted practices aimed at managing risk, on average these practices are used infrequently. Accordingly, organizations indicate that these practices are only somewhat effective.

Other results from the survey also support the idea that organizations could go further in ensuring that IT risk in the supply chain is adequately addressed. When asked how often their organizations evaluate supply chain resiliency and exposure to IT disruption risk, 21 percent of respondents were unsure of the frequency. These organizations may conduct such evaluations on an irregular basis, which could put them at an increased risk for disruption. It may also be that these organizations do not adequately communicate their risk mitigation activities to the supply chain and IT groups.

APQC found similar results with regard to whether the respondents' organizations had added rigor to their assessments of supply chain resiliency within the last 24 months. Thirty-two percent of respondents were unsure whether their organizations had or had not taken this step. The fact that 52 percent of respondents could definitively say that their organizations have taken steps to improve the rigor of their assessments indicates that some organizations are indeed adopting a comprehensive program to reduce IT risk. However, those who have not taken these steps or who have little visibility of the IT risk strategy within the organization could leave themselves more vulnerable to an IT disruption.

To strengthen their ability to address unanticipated IT events within the supply chain, organizations should work to regularly use risk management activities and make these efforts more visible to the supply chain and IT groups. Depending on the organization and the needs of its supply chain, it may not be necessary to fully adopt all the risk management activities mentioned in APQC's survey. By selecting the most strategic practices and developing their capabilities in these areas, organizations can improve the effectiveness of these practices and improve their ability to identify and respond to disruptions.

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 us at www.apqc.org and learn how you can make best practices your practices.

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