Peerless MEDIA, LLC

JULY/AUGUST 2016

SUPPLY CHAIN MANAGEMENT REVIEW

scmr.com

FEATURES

14 Making the shift
Amydee M. Fawcett and Stanley E. Fawcett

22 A portrait of the supply chain manager
Peter Bolstorff, Bob Trebilcock and Judd Aschenbrand

29 Millennial managers
John Kerr

35 Walgreens' talent strategy
Dov Shenkman, Chris Johnson and Jason Elliot

40 Bringin' it all back home
Rand Stille and Sriram Narayanan

COMMENTARY

Insights 4

Innovation Strategies 8

Talent Strategies 10

The Operations Advantage 46

Benchmarks 52

SPECIAL REPORTS

S48 The many flavors of supply chain risk management

S55 Supply chain certifications

S64 The Top 50 3PLs

scmr.com

People matter

"What's the difference between us and our competitors? Our people!" I can't think of an organization that doesn't publicly state that its people are its most important asset. Yet, anyone who has been in the workforce for any length of time knows that when the rubber hits the road—or something else hits the fan—people are usually the first casualty of cost cutting. It's far easier to free up your talent for "other opportunities" than it is to close a plant or sell a fleet of trucks.

And yet, gauging by the number of "We're hiring" signs I see at exhibitors' booths at major industry events like APICS, CSCMP and ISM, I wonder if that's starting to change. Given that many organizations cut their staffs to the bone following the financial crisis and the oft-written talent shortage, perhaps more organizations, including supply chain organizations, are beginning to rethink their hiring and retention strategies. Perhaps "People matter" is more than a slogan but an emerging strategy.

The "power of people" is the theme for the July/August issue of *Supply Chain Management Review*. We lead off with "Beyond demographics," an article by Amydee and Stanley Fawcett who argue that the talent crisis isn't just one of demographics. Instead, supply chain management organizations may need to rethink their basic approaches to recruiting, retention and even technology.

Bob Trebilcock,
Editorial Director
btrebilcock@
peerlessmedia.com

Driving home that point is a look inside Walgreens' new recruitment strategy. One of the world's largest drug store chains, Walgreens is in the midst of a supply chain transformation. The next challenge, Walgreens' executives write, is to find new ways to work with academic institutions as well as its current employees to get the skill sets it needs to operate in this new environment.

We also take two looks at the people managing today's supply chains. The first is a portrait of senior managers based on a survey we conducted in conjunction with APICS Supply Chain Council. Next, we interviewed four 30-something managers to get a look at tomorrow's leaders.

We round things out with an article on the challenges of insourcing supply chain processes by Michigan State's Sriram Narayanan and Rand Stille, a vice president with Universal Logistics Holdings. The authors offer five tips for organizations to consider if they want to successfully bring outsourced services back home.

As always, I look forward to hearing from you with any comments or suggestions for future stories in *SCMR* at btrebilcock@peerlessmedia.com.

Bob Trebilcock

SUPPLYCHAIN MANAGEMENT REVIEW

Editorial Offices
111 Speen St., Suite 200
Framingham, MA 01701-2000
1-800-375-8015

MAGAZINE SUBSCRIPTIONS
Start, renew or update your magazine subscription at scmr.com/ subscribe.

Contact customer service at:
Web: scmr.com/subscribe
Email: scmr@omeda.com
Phone: 1-847-559-7681
Mail: Supply Chain Management Review
PO Box 677, Northbrook, IL 60065-0677

PLUS subscribers: Access this issue, all archives and more at scmr.com/plus


PARTNER to SAIA CUSTOMERS EVERYWHERE
Shipping is all about communication, and communication is all about listening first. That's why Saia's team of account executives is committed to working closely with every customer: understanding goals, providing expert advice along the way, and solving problems before they arise. Each account executive at Saia is trained to deal with the everyday details – and the unexpected challenges – that occur along the way. These knowledgeable shipping professionals are focused squarely on you and your success, and they're always dedicated to helping you get the most out of your partnership with Saia.
SAIA
LTL Freight
1-800-765-7242 / www.saia.com

July/August 2016 Volume 20, Number 4

Supply Chain Management Review

FEATURES

14 Making the shift
Study after study has shown that supply chain programs aren't graduating enough new practitioners to replace those exiting the workforce. But the talent crisis is about more than demographics: A shift in thinking must also take place at the corporate level and in academia to develop talent that can collaborate in today's supply chains.

22 A portrait of the supply chain manager
Who is today's supply chain manager? And, how did he—or she—get to where they are in their career? Those are some of the questions answered by readers of *Supply Chain Management Review* and members of the APICS Supply Chain Council.

29 Millennial managers
How do Millennials in our profession think and act? What drives the successors of today's supply chain leaders? *SCMR* interviewed four up and coming 30-something managers from varied backgrounds and supply chain specializations to help answer these questions.

35 Walgreens' talent strategy
Walgreens is transforming its supply chain to meet the new demands of an omni-channel customer. The next challenge: Recruiting the talent to make that transformation complete.

40 Bringin' it all back home
As conditions change in some emerging markets, companies that once outsourced some of their manufacturing and distribution processes are thinking about bringing them back in-house. We look at the five key considerations to explore before pulling the trigger on insourcing your outsourced processes.

SPECIAL REPORTS

S48 The many flavors of supply chain risk management

S55 Supply chain certifications

S64 The Top 50 3PLs

COMMENTARY

4 Insights
The omni-channel supply chain, circa 2000
By Larry Lapide

8 Innovation Strategies
Project-driven supply chains: Repeating the unrepeatable
Roberto Perez-Franco, Sze Xin Mok and Ruggero Moretto

10 Talent Strategies
The soul of the procurement organization
By Sigi Osagie

46 The Operations Advantage
Conquering supply chain's next frontier
Sean Monahan and Sameer Anand

52 Benchmarks
Supply chain professionals want challenges and opportunities to learn
Becky Partida

To subscribe: Subscribe or renew online at scmr.com/subscribe or call (800) 598-6067. (Outside of the U.S., call (847) 559-7581. e-mail customer service at scmrs@omeda.com.

Author's Guidelines: Interested in writing an article for possible publication in *Supply Chain Management Review*? See our Guidelines for Authors on scmr.com.

Reprints: For reprints and licensing please contact Nick Iademarco at Wright's Media, 877-652-5295, ext. 102 or niademarco@wrightsmedia.com.

Supply Chain Management Review® (ISSN 1521-9747) is published 7 times per year (Jan/Feb, Mar/Apr, May/Jun, July/Aug, Sept/Oct, Nov, Dec) by Peerless Media LLC, a Division of EH Publishing, Inc., 111 Speen St, Ste 200, Framingham, MA 01701. Annual subscription rates: USA $199, Canada $199, Other International $241. Single copies are available for $60.00. Send all subscription inquiries to *Supply Chain Management Review*, PO Box 677, Northbrook, IL 60065-0677 USA. Periodicals postage paid at Framingham, MA and additional mailing offices. **POSTMASTER: Send address changes to: Supply Chain Management Review, PO Box 677, Northbrook, IL 60065-0677.**

InSIGHTS

BY LARRY LAPIDE

The omni-channel supply chain, circa 2000

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.

Two years ago I began writing about retail e-commerce, mainly highlighting the struggles that brick-and-mortar retailers have had competing against the likes of Amazon.com. Amazon succeeded in being the "Wal-Mart of the Internet" by innovating a supply chain designed to dominate large-scale, on-line, unit-based order fulfillment. My two columns on the subject were: "Holiday e-commerce: Innovation required" (Jul/Aug 2014) and "e-commerce innovation needed by retailers" (Mar/Apr 2015).

The big e-story these days is omni-channel retail supply chains. Consultants and software companies have been aggressively marketing their wares largely to business-to-consumer (B2C) supply chains. But, what about business-to-business (B2B) supply chains? More importantly, what about hybrid B2B and B2C chains? Surely (by definition) these, too, are omni-channel.

The e-business book

The only book project I was ever a part of was as a coauthor of a book written by AMR Research (now part of Gartner Inc.) and Computer Sciences Corporation (CSC). Commissioned in April 2000 by the Council of Logistics Management (CLM), now the Council of Supply Chain Management Professionals (CSCMP), our job was to provide practical advice to its members about leveraging the Internet. The research added to the knowledge our organizations previously had on where things were headed. The book had two themes:

- **Internet leverage.** How companies were leveraging the Internet and electronic connectivity to support and enhance current supply chain management processes and practices.
- **New business models.** What leading companies were doing to align their supply chains in support of new e-business models for conducting business over the Web, including internal productivity enhancements and external benefits.

The book's planning took place months before the announcement, during the Internet's initial hype period—which Gartner calls the "peak of inflated expectations" in its hype cycle for general technology. There was much fanfare for the project, which was expected to help logisticians make some sense of all the hype that was going on at the time.

However, a series of unfortunate events dampened interest in the book. The stock market's dot.com bubble—building since

1999—peaked around the time we started the project. The bubble burst shortly thereafter, as share prices dropped and startups went bust. Around the same time, the telecom bubble also burst.

Over a year later we completed the book, titled "e-Business: The Strategic Impact on Supply Chain and Logistics" (CLM, 2001). The timing of the launch was unfortunate: 9/11 happened just weeks before we were scheduled to discuss it at the annual CLM conference. Needless to say, attendance was low and attendees' minds were focused on the tragedy and its fallout. Shortly after the book was launched, Internet technology went into the "trough of disillusionment" of its hype cycle. Eventually, the book lost more interest as even the term "e-business" fell into disrepute.

The key challenge for supply chain managers, as we envisioned it, would be managing two often disjointed supply chains: the physical goods and the information flows, which would now be electronically-based rather than paper-based.

The electronically-connected supply chain

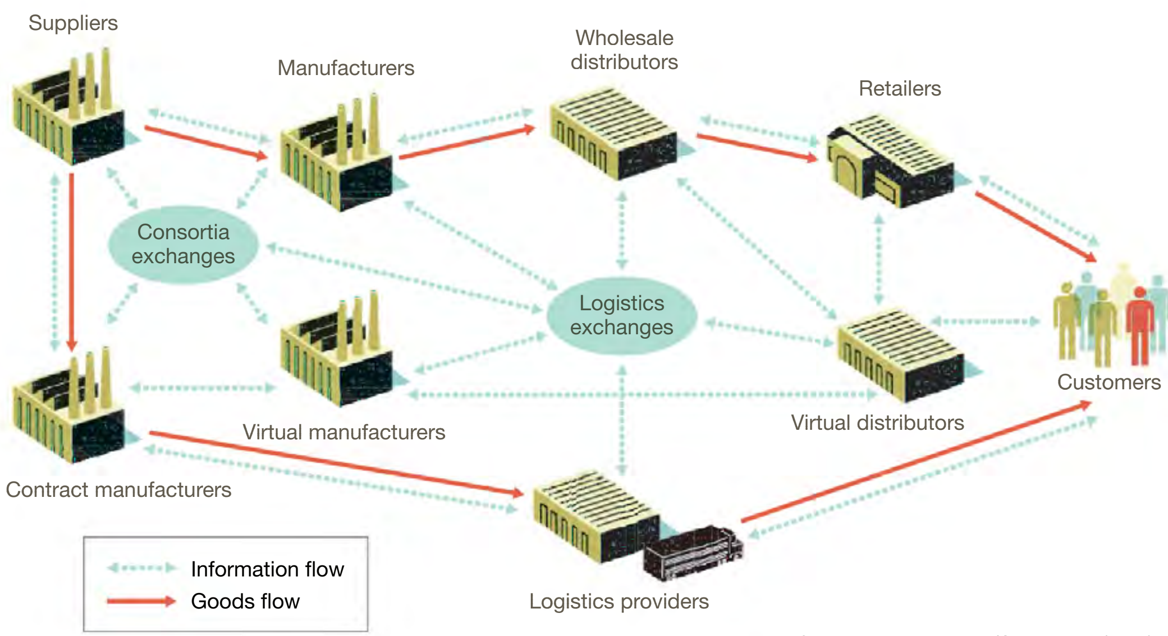
Today, Internet technology is cool again, and is in its "plateau of productivity," having gone through its "scope of enlightenment" stage in the hype cycle. With it, much of the impact of the Internet that we predicted almost 15 years ago has come to fruition.

For instance, we created Figure 1 "The electronically-connected supply chain" to depict how supply chain networks would get more complex and virtualized. (The graphic was also in AMR [2000] and *SCMR* [2001]). Back in the day, we used to talk about three types of supply chain flows: goods, information and money. The figure depicts the first two: the downstream flow of physical goods and the downstream-upstream flows of information among trading partners, including electronic orders, plans and schedules, inventories, collaboration information and co-managed inventory program data.

The solid-arrowed path at the top goes from suppliers to manufacturers, to wholesale distributors and on to retailers and customers thus representing the traditional asset-based supply chain in which trading partners take ownership and handle physical goods. The two-way dashed arrows represent the information that went along the same path. In the non-electronic chains of yesteryear,

FIGURE 1

The electronically-connected supply chain



Source: AMR Research/Gartner Inc. (2000)

information meant paper documents, such as the purchase orders and bills of lading that were shipped with the goods. Thus goods and information, such that it was, flowed along the same path.

In our book, we forecasted that electronically-connected supply networks would include an increased number of non-traditional intermediaries (making them omni-channel in today's term). These would be injected into markets as "infomediaries" that would not own or handle physical goods. These are shown in Figure 1 as having no solid arrows going to or from them. The key challenge for supply chain managers, as we envisioned it, would be managing two often disjointed supply chains: the physical goods and the information flows, which would now be electronically-based rather than paper-based. Gartner calls this the "digital supply chain." This virtual chain, or representation, enables trading partners to manage and collaborate.

The virtual intermediaries shown in the figure are described below:

• **Virtual manufacturers.** Under the virtual manufacturer model, an organization does not manufacture or handle products. A virtual manufacturer does, however, control new product development, marketing and sales, as well as coordinates customer service for its products. It hires contract manufacturers and logistics service providers to source, make, assemble and ship final products to its customers.

• **Virtual wholesale distributors.** A traditional distributor buys products from suppliers, stores them and fulfills orders from its warehouses. A virtual one does not distribute product or have warehouses. Instead, it markets products and takes and sources orders to suppliers. The virtual distributor controls marketing and sales as well as coordinates order fulfillment. It relies on suppliers to ship final products directly to customers. Amazon (an e-tailor in today's lingo) started essentially as a wholesale distributor because it primarily sold goods from its warehouses. It now is also a virtual one when it is selling third-party goods.

• **Logistics exchanges.** Traditional third-party logistics providers (3PLs) own transportation and/or warehousing assets. A 4PL does not. Logistics exchanges are 4PLs that market logistical services on a Website. Uber is currently a B2C logistics exchange, matching taxi rides with contracted drivers. It might also become a B2B exchange by matching loads from shippers to contracted vehicle owners.

• **Consortia exchanges.** These are hosted online trading exchanges (e.g., digital marketplaces) that might be formed by two or more companies coming together. The exchanges would enable the on-line matching of the buyers and sellers (within the consortium) of, for example, unused delivery capacity or surplus inventories. Alibaba.com is an asset-less, non-consortia trading exchange that was founded primarily to match suppliers with buyers; and not to get involved with order fulfillment.

Injecting these virtual intermediaries into a network renders it omni-channel, as well as supply chain operations that are more difficult to coordinate. This is especially true for order fulfillment activities in which distributed order management (DOM) and real-time visibility are needed to meet customer order expectations.

So why am I talking about these things 15 years after the book's publication? While we're generally in the stable "plateau of productivity," there is hype today around the Internet-based retail omni-channel, and very little about B2B ones. Supply chain managers in and outside of retail must be confused as to what to do—as they were then. I'm hoping that discussing the book, especially Figure 1, will lead them to understand what is happening and help them leverage electronic connectivity in their own omni-channel supply chains.

References

[1] "e-Business: The Strategic Impact on Supply Chain and Logistics," Michael Bauer, Charles Poirier, Lawrence Lapide, Ph. D., and John Bermudez, Council of Logistics Management (now CSCMP) 2001.

[2] "The Innovators Will Control the e-Supply Chain," Lawrence Lapide The Report on Supply Chain Management, AMR Research (now Gartner Inc.), May 2000.

[3] "Innovators Will Control the e-Supply Chain," Lawrence Lapide, Supply Chain Management Review, March/April 2001.

INNoVATION STRATeGIES

Project-driven supply chains: Repeating the unrepeatable

Roberto Perez-Franco, Sze Xin Mok and Ruggero Moretto

Roberto Perez-Franco is a research associate at the MIT Center for Transportation & Logistics. He can be reached at roberto@mit.edu. Sze Xin Mok and Ruggero Moretto are graduate students in the Supply Chain Management program at MIT. They can be reached at szexinmk@mit.edu and rmoretto@mit.edu.

Necessity is the mother of invention, as the saying goes. In the supply chain domain, there is no better example of this than project-driven operations in the chemical business.

Manufacturers are frequently called upon to build supply chains that support a single project. These one-off ventures can be subject to volatile demand, and sited in remote locations where the climate is extreme. Take, for example, a project that involved the transportation of 20 truckloads of chemicals per day within a tight delivery window to a site in the middle of a desert.

The highly uncertain nature of these temporary supply chains requires managers to be extremely inventive as they strive to meet customers' changing expectations.

If every project is unique, how can a chemical manufacturer develop a common methodology for building and managing supporting supply chains that minimizes cost and maximizes efficiency? Researchers at the MIT Center for Transportation & Logistics took on this challenge. Sponsored by a multi-national chemical company, the project called for the development of a repeatable template that could be applied to project-driven supply chains. The lessons learned can be applied outside of the chemical industry.

Variability as the norm

In the words of a manager responsible for creating project-driven supply chains for the sponsor company the challenge of these unique projects is succinct: "It's a fire drill all the time."

One example was a project to build a solar-thermal power plant. The manufacturer was contracted to supply chemicals to this large-scale construction site in a desert within a very narrow time window. Meeting this window was demanding enough, but the supply chain also had to flex with the project's variable construction timetable. Moreover, the chemicals were classed as hazardous materials with special handling and storage requirements. Other examples include mining and oil-field operations, where multiple orders that vary in size and timing have to be delivered to hard-to-access locations in the Gulf of Mexico or the Alaskan North Slope, where weather conditions are extreme.

In addition to physical and scheduling constraints, the company has also had to contend with an increasingly competitive landscape over the last decade that has been accompanied by eroded margins. This is even the case for specialty chemicals, many of which have become commoditized by the intense competition. As a result, manufacturers are under incessant pressure to be more cost effective.

Operational constraints

Our researchers carried out extensive interviews with managers and studied practices to paint a more detailed picture of the demands on project-driven supply chains.

During the planning phase, the biggest challenge is time pressure; there is seldom enough time to fully plan these projects once a contract has been awarded. Unfamiliar regulations and physical barriers—operating temperatures can be sub-zero or searing depending on the location—add to the pressure. In the execution phase, a key challenge is coping with variable conditions. The variability can come from a number of sources such as arcane regulations in host countries, inadequate infrastructure and climate constraints—as anyone who has watched "Ice Road Truckers" knows, Alaska's ice roads are only open certain times of the year.

The researchers drilled down further and identified 11 challenges faced by supply chain managers. These included business-specific challenges such as customers who delay the delivery of materials, cross-border snafus including differences in transportation regulations and challenges associated with the last mile, such as a lack of suitable storage facilities.

The interviews yielded specific details: One manager described a project site that was accessed via tunnels: "This was a project where all chemical products and equipment had to be broken down to a certain size to fit through [a] tunnel."

Multiple solutions

Having mapped the challenges, the researchers sought solutions to the vexing problem of how to introduce an element of repeatability to these extremely diverse projects.

One potential source of answers was the practices of other industries that experience similar issues. The level of complexity and diversity involved is unusual, but the researchers found two types of organizations that are used to coping with the demands of temporary supply chains: the military and humanitarian agencies. These organizations are routinely required to create unique, short-lived supply chains on relatively short notice, and often in adverse conditions. Chemical companies can learn much from these players, and should make efforts to establish cross-learning opportunities.

The researchers also developed solutions for three main categories of challenges faced by the chemical industry's project-driven supply chains: business-specific, cross-border and last-leg issues. In all, 17 solutions were proposed. For example, the use of flexible contracting including pre-approved supplier agreements, could offset some of the demand uncertainty. A central database of relevant experiences could ease the challenges of dealing with regulatory and customs-related bureaucracies.

While this laundry list of solutions is a valuable resource for managers, it does not solve the overarching problem of how to develop a repeatable model for executing project-driven supply chains. To meet this goal, the researchers developed a mobilization template for the chemical industry.

Mobilization template

The standalone template encapsulates the challenges and solutions identified by the research. It can be used as a high-level checklist for mobilizing project-driven supply chains in the three main categories of challenges referenced previously: business-specific, cross-border and last-leg. (See Figure 1.) The template is both a guideline for planning a new supply chain and a validation tool for confirming that the mobilization process has been thoroughly completed. To ensure that the template is used effectively, the researchers recommend a three-step process for mobilizing chemical industry project-driven supply chains. The process is managed by a contract manager. The three steps are:

- *Planning*. Determine the mobilization requirements, and include these in a plan that details the necessary actions, deadlines and responsible parties.
- *Execution*. Ensure that the mobilization is completed within the required timeframe.
- *Gate review*. Submit project documents to an executive review team. The team reviews the documents in terms of 17 sub-areas in the mobilization template. Each one is given a "pass" or "fail" grade.

Companies should keep in mind that the template is a living document that should be updated regularly.

Other applications

The analysis of project-driven supply chain execution and planning, along with the mobilization template, represent a first step in developing a repeatable methodology for improving the efficiency of project-driven supply chains in the chemical industry.

As the methodology is refined and integrated into company operations, there is much potential to expand its use beyond the chemical business.

***

This article is based on research carried out by Sze Xin Mok and Ruggero Moretto for their Supply Chain Management program master's thesis titled "Mobilizing Project-Driven Supply Chains in the Chemical Industry." *The project was supervised by Dr. Roberto Perez-Franco.*

FIGURE 1

Last-leg section of the project-driven supply chain mobilization template

Area	Sub-area	Mobilization-related questions
3.A Transportation, storage and delivery within the last-mile	**3.A.1** Centralized-logistics solutions provider	• Is there a centralized department offering transportation solutions? If, so, has it been contacted? • Is there a logistics strategy in place based on the project site's location and quantity of product to be delivered? • Have suitable logistics providers been identified and engaged to navigate the constraints of last-leg delivery?
	3.A.2 Local expert presence	• Has the most experienced ground personnel been identified and assigned to the project? • Is such personnel going to be based in loco?
	3.A.3 Relationship-building and asset-sharing	• Have trusted organizations operating in the area been identified and screened for logistics capabilities? • Has the company ever collaborated with any of them in the past? • Do such companies own any asset or expertise that may support the execution of the project?

Source: Authors

TaLENT STRATeGIES

The soul of the procurement organization

Organizations that remain successful over the long run always invest significant resources in nurturing their "people capability" because they "get it"—they understand that people are the heartbeat behind organizational performance.

by Sigi Osagie

Seasoned business leaders repeatedly affirm that people-related levers are the bedrock of creating and sustaining organizational success. These "soft" levers—like effective leadership, culture, employee engagement and talent management—can rarely be applied in isolation for optimal results. Like notes from a symphony, they must be harmonized in a holistic approach to unleash the magic of the human spirit for organizational benefit.

This applies to the whole enterprise, but in particular to functional areas like procurement.

For any procurement function seeking its mojo, the search will become like the pursuit of a mirage without enhanced people capability. You can never achieve sustainable procurement success without developing your people capability, even with best-in-class processes, systems and a sound strategy.

Effective talent management is one of the key conduits to nurture people capability. Your procurement function must have the appropriate talent to achieve its goals. If your procurement organization is staffed with "procurement assassins" focused on obtaining the cheapest price rather than "procurement ambassadors"—who I describe as individuals who exhibit positive attitudes, behaviors and performance—then success will remain elusive.

Taking a structured human resources development (HRD) approach helps ensure procurement attracts, develops and retains the right talent.

Incumbent procurement staff should be adequately skilled to perform their job roles. When I talk about skills here, I don't just mean the traditional technical purchasing skills required for most procurement roles. To be truly effective, procurement people must have a combination of technical abilities and soft skills—the key intrapersonal and interpersonal competences for effective self-management and optimal relationships with others.

Conventional approaches to skills development in procurement places too much emphasis on technical competencies. Yet the prevalent evidence shows that the most effective and successful purchasing people are those with highly developed soft skills—attributes like persuasive communication; personal effectiveness; influential; results-orientation; decision-making; strategic thinking and emotional intelligence. You can't possibly be a half-decent purchasing professional without the right technical skills. But to be effective and outclass your average peers, you must have exceptional soft skills.

Of course, no one set of skills is best; it all depends on the requirements of an individual's job role. Applying a formal competency model is always a good start, if done properly. And it doesn't need to be a complex, all-singing-all-dancing tool. A simple but effective competency model can be developed on a spreadsheet.

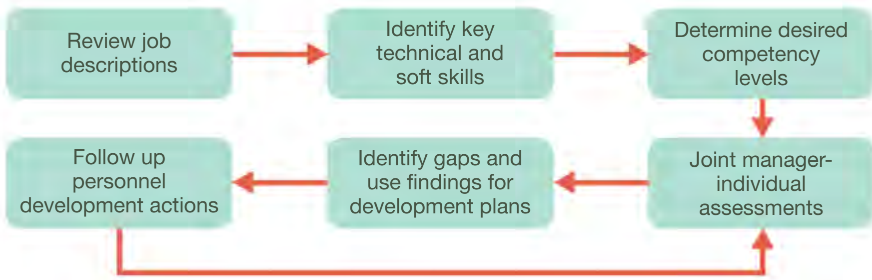
Using a good competency model covering all roles in the procurement function will help flush out relevant skills gaps. Robust personal development plans can subsequently be followed to help individuals close the identified gaps and grow their capabilities accordingly. Figure 1 illustrates this approach.

Developing a procurement competency model is not as complicated as some consultants and HR managers might have you believe. But,

Sigi Osagie is a leading author and expert on effectiveness in procurement and supply chain management. This article was adapted from his book "Procurement Mojo—Strengthening the Function and Raising Its Profile" (Management Books 2000). For more information, visit sigiosagie.com.

FIGURE 1

Using a competency model



Source: Sigi Osagie

Figure 3 illustrates this application with an extract from the talent assessment at one supply management function I led. It is worth pointing out that the illustration only portrays the output of the assessment. A talent assessment should always be built up with supplementary notes of evidence of the assessed competencies.

Whether you choose to carry out a simple talent assessment or to deploy a full competency model, the key value is in making the effort to gauge the competency of your procurement team and then taking robust actions to help people up their game.

Individual staff may disagree with the procurement leader's assessment of their competencies. In some such cases, people sometimes feel they have a level of competency that exceeds the observed reality. Many of us have felt this way at one time or another, and, probably, only became aware of the disparity through the feedback we received. In other cases, people may indeed have the required skills but may not frequently demonstrate it.

I often find such situations to be valuable additions to

it's always sensible to take the time to develop something practical that suitably encapsulates the requisite job competencies and apply it robustly to support talent acquisition and development.

Figure 2 shows an excerpt summary of a simple competency model I used to support the turnaround of one procurement function; the resulting aggregate competency profile from the first application is illustrated graphically. It isn't the sexiest competency model in existence, but it was extremely effective. The staff all held the same job role of purchasing program manager. As the model indicates, certain behavioural competencies were far more important in the role than technical skills, especially as the transformation I was driving was centered on changing the culture and boosting performance capability.

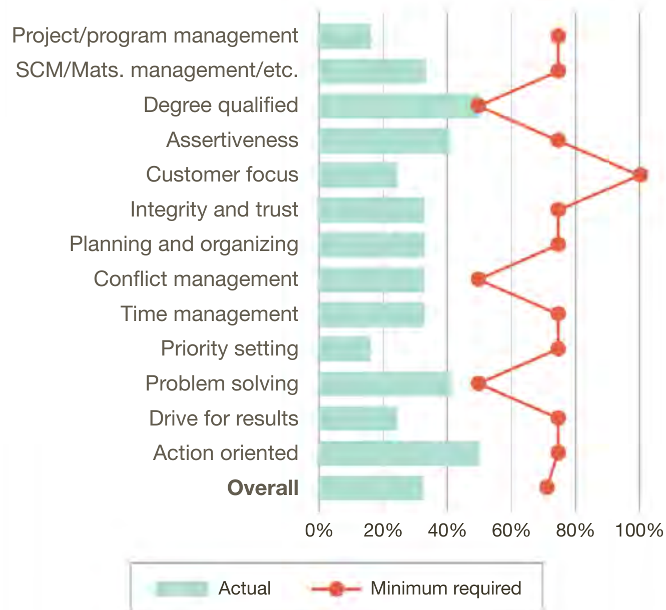
A couple of team members never made the mark after all. This can be an unavoidable consequence of up-skilling the procurement function—some incumbents may not turn out to be the right people for the job, even with reasonable investment in employee development. Rather than trying to force things or carrying the weight of incapable individuals, it is far better to support them in finding alternative jobs that will bring out the best in them.

A full competency model is an invaluable tool for building people capability, but I have also found a simple talent assessment to be effective in some situations. When carrying out a talent assessment, my predisposition to keep things simple compels me to narrow competencies down to the three groups listed below.

- **Technical skills:** Relating to the specific technical competencies for an individual's job role
- **Soft skills.** Relating to desired behaviors and attitudes that reflect the progressive values to be instilled in the function
- **Results.** Relating to an individual's drive or orientation towards delivery of end results.

FIGURE 2

Competency model (excerpt) for procurement program management



Source: Sigi Osagie

FIGURE 3

Simplified procurement talent assessment

Name	Function/role	Competency assessment PSCM	"Soft" skills	Results	Aggregate assignment	Comments
BR	Procurement manager	Med	Lo-Med	Lo	**Lo-Med**	Support and develop management capability
PB	Category manager	Med	Lo	Med	**Lo**	Develop personal effectiveness
FP	Category manager	Hi	Hi	Hi	**Hi**	Groom for succession planning
GS	Category manager	Lo	Lo	Med	**Lo**	Align; replace quickly if no early improvement
RS	Category manager	Hi	Hi	Hi	**Hi**	High potential
BD	CAPEX procurement	Hi	Lo	Lo	**Lo**	Out
MI	CAPEX procurement	Hi	Med	Med	**Med**	Develop
TC	Buyer	Lo	Hi	Lo	**Lo-Med**	Train properly
DF	Buyer	Lo	Lo	Lo	**Lo**	Replace? Manage performance and attitude
LH	Buyer	Med	Med	Med	**Med**	Develop?
BS	Projects	Lo	Lo	Lo	**Lo**	Replace quickly
DS	Supplier development manager	Med	Lo	Lo	**Lo**	Manage performance and attitude
AMcC	Supplier development	Lo	Hi	Hi	**Med-Hi**	Develop

Legend

PSCM = Understanding of procurement and supply chain management and/or evidence of key aspects for job-role.
"Soft" skills = Competency at desired inter- and intra-personal attributes or behaviors.
Results = Drive for results, i.e. focus on/orientation towards delivery of results.

Source: Sigi Osagie

personal development plans, and I subsequently focus my effort at trying to provide adequate opportunities for the individual to show they can "walk the walk" with on-going mentoring, encouragement and constructive feedback.

Applying a procurement functional competency model properly means it should be used for employee development as well as recruitment of new staff.

Capabilities like creativity; influencing at C-level; strategic thinking; political savvy; and building trust—all critical for many procurement jobs—are usually best developed through experience underpinned with good coaching or mentoring.

Using a competency-based recruitment process for acquiring fresh talent is extremely valuable, in that individuals' competencies can be assessed before they join the procurement team. Of course, dishonest smooth-talkers may try to lie their way through a competency-based interview by giving false examples of situations where they demonstrated the desired skills. An experienced interviewer should be able to "peel the onion" adequately to establish what is truthful and what is fantasy. Using a recruitment process where candidates are screened by several people to get a more rounded feedback assessment is also useful to thwart dishonest types.

The degree of subjectivity inherent in some competency models does not detract from their value as a talent management tool. As with all tools, a procurement competency model can be used properly or poorly.

Even without a formal, structured competency tool it is still possible and appropriate to identify the key skills procurement staff have strengths in and those that need development attention.

Many procurement skills development efforts focus on training in technical competencies. Training is often cost-efficient for technical skills but may not always be the most cost-effective approach. Coaching and mentoring can be far more effective to achieve desired competency development outcomes in certain skill areas. Capabilities like creativity; influencing at C-level; strategic thinking; political savvy; and building trust—all critical for many procurement jobs—are usually best developed through experience underpinned with good coaching or mentoring.

Helping procurement people grow their capabilities is a crucial aspect of organizational nourishment. If you want to get your procurement function firing on all cylinders, it is vital to invest the time, capital and leadership effort in enhancing talent. It will be an investment that will yield bountiful returns; because, ultimately, the aggregated talent of your people is the most valuable component of your functional balance sheet—it is the soul of your procurement organization.

Making the

Study after study has shown that supply chain programs aren't graduating enough new practitioners to replace those exiting in the workforce. But the talent crisis is about more than demographics: A shift in thinking must also take place at the corporate level and in academia to develop talent that can collaborate in today's supply chains. Is your organization ready to think beyond demographics?

shift

Is your company prepared for a supply chain talent crisis?

By Amydee M. Fawcett and Stanley E. Fawcett

Amydee M. Fawcett, Ph.D., is the director of the Center for Leadership in Ethics and Sustainability and Assistant Professor of Supply Chain Management at the Goddard School of Business at Weber State University. She can be reached at amydeefawcett@weber.edu.

Stanley E. Fawcett, Ph.D., is the director of the Jerry and Vicki Moyes Center for Supply Chain Excellence and the Goddard Professor of Global Supply Chain Management at the Goddard School of Business at Weber State University. He can be reached at sfawcett@weber.edu.

Study after study has shown that for every new supply chain manager entering the workforce, two (or more) are retiring. Although supply chain programs are proliferating, today's universities simply aren't producing enough high-quality supply chain managers to fill the need. This story line, however, is incomplete. The talent crisis isn't just about demographics. The crisis is more about mindsets and skills sets—and our inability to develop the talent to thrive in tomorrow's global decision-making environment.

Amazingly, the "skill set" dimension of the talent crisis is not new. Over a decade ago, authors Edward W. Davis and Robert E. Spekman warned: "It is essential that we recognize that most managers do not currently possess the skills or mindset needed to operate in an extended enterprise environment."

What skills were they referring to? Answer: Few managers—including supply chain managers—possessed the willingness to get "out of the box" and the ability to think and act collaboratively. They struggled to deal with ambiguity and change. They failed to appreciate the big picture—especially how their decisions impact value creation across the company and up and down the supply chain. Sadly, we've made little progress over the past decade in producing managers who possess these skills that are so critical to value co-creation.

Because diagnosis precedes prescription, let's answer a pressing question before we delve into the skills companies say they are looking for. Why are collaboration and systems-thinking skills so difficult to build? Part of the answer is found in the nature vs. nurture debate. But, in this case nature and nurture form a tag team that works against the development of high-level value co-creation skills. Here's how.

- **Nature's role.** By nature, Americans tend to be highly individualistic. On the individualism scale developed by the Dutch organizational expert Geerte Hofstede, America scores a 91, making it one of the most individualist cultures in the world. Managers are expected to be self-reliant and self-motivated. In fact, collaboration is not highly valued. Rather, individual accomplishment is celebrated. Merit, as evidenced by what one has done, is critical to hiring and promotion. The bottom line: Seeking the spotlight and sharing the spotlight emerge from different mindsets and promote different behaviors.

TABLE 1

Exploring demographic and psychographic skill deficits

Demographic deficit	Psychographic deficit

Supply issues:
• Too few universities have established true supply chain programs.
• Supply chain operations just aren't perceived as sexy.
 	
Demand issues:
• Retirements among SC baby boomers out pace supply.
• As globalization, omni-channel strategies, and technological innovation transform customer expectations, SCM is becoming more important to company success.
	Managers describe the following mind sets/ skill sets as missing from today's curriculums.
	• **Change management**
	  • Financial intelligence
	  • Psychological intelligence
	• **Collaboration; i.e., relational dynamics**
	  • Relational intensity
	  • Trust as governance
	• **Complexity—both detail and dynamic**

Source: Authors

- **Nurture's influence.** By nurture, Americans tend to be linear, analytical thinkers. The emphasis on left-brain thinking begins early. Best-selling author Daniel Pink uses the following story about Gordon MacKenzie, a creative force at Hallmark Cards, to illustrate this point.

When visiting classrooms, MacKenzie made it a habit to ask, "How many artists are there in the room? Would you please raise your hands?" In kindergarten, every kid quickly raised a hand in the air. By second grade, only about 75% of the kids raised their hands. But in second grade, hands went up slowly, timidly. By sixth grade, no hands were raised. Instead, all of the kids looked around to see if anyone would admit to what they had all learned was out-of-the-norm behavior.

Pink calls this a cautionary tale and warns that in today's fast-paced global market "everyone, regardless of profession, must cultivate an artistic sensibility." The push against right-brained thinking is exacerbated by business schools, which are notorious for valuing quantitative analysis. Creative and collaborative behaviors are often dismissed as "touchy/feely."

To make matters worse, companies often reinforce this attitude by hiring for analytical skills. IQ has trumped EQ as a valued characteristic. Career success depends on a manager's ability to not just "run the numbers" but also to "hit their numbers." The oft-heard criticism at a Fortune 100 company we interviewed is: "If you don't have the numbers, it's just your opinion."

Analytical skills are certainly necessary in a supply chain world, but they are no longer sufficient. New solutions to complex problems are needed. In today's supply chain, creativity, collaboration and holistic thinking are critical to long-term success. But, the reality is that nature and nurture doubly disadvantage supply chain decision makers. To overcome the skill deficit, vocal, persistent leadership is needed.

Study method

The makeup of our impending talent crisis became apparent as we conducted a longitudinal study of supply chain collaboration over a period of about 12 years. Let's briefly review our process and outcomes.

- **Study 1:** Our journey began at the turn of the millennium as we interviewed SC managers at 51 supply chain leaders. Mangers repeatedly talked about the need to do things differently. But, they bemoaned existing practices that locked existing, non-collaborative behaviors in place.
- **Study 2:** Six years later, we replicated the study. Our goal: Find out how much progress had been made. This time we interviewed managers from 61 companies. Surprisingly, managers at about 70% of the companies decried a "lack of supply chain leadership" as an impediment to talent development. They said that their companies had not invested in the routines needed to find or train highly sought-after creative collaborators. Managers continued to complain, "The most difficult challenge is to find people with the right skills."
- **Study 3:** Again, six years later, we returned to the field to revisit the question: Had firms learned to work together? This time, we interviewed managers from 23

companies, focusing on dyadic relations—that is, companies that were actively striving to co-create value. The not-so-surprising finding: Despite the collaborative rhetoric, most companies seem to be stuck on a talent-seeking treadmill, running into the same challenges and obtaining the same results.

After analyzing the interviews, what did we learn? First, we identified a handful of collaboration skills companies wish they could find among those joining the SCM profession. Second, we learned that corporate decision makers are frustrated by an academe-industry disconnect that perpetuates the talent deficit. Third, we discovered a need for a new type of industry-academic partnership.

The talent deficit: Taking inventory

So far, we have called out the mindset dimension of the talent deficit. Even so, we can't forget that real demographic challenges face the SCM profession (see Table 1). We must indeed deal with some unfavorable supply and demand trends. On the supply side, we often talk about the limited capacity of universities to produce well-educated supply chain managers. Too few supply chain programs exist to educate the next wave of supply chain leaders. More daunting, perhaps, is the fact that neither university administrators nor talented young men and women perceive supply chain as the career of choice.

Why not? Over a decade ago, Michael Hammer, the father of re-engineering, noted that fewer than one in ten major corporations had engaged in serious efforts to radically change the way they create and deliver value. He lamented that top management simply doesn't pursue operational strategies with the same gusto as financial deals. Hammer concluded: "Operations simply aren't sexy." This attitude has a trickle-down effect that strangles the growth and popularity of supply chain programs.

Regarding demand, the demographic challenge of boomer retirements is well documented. The fact that receives less attention is that key trends involving global trade, omni-channel fulfillment and technological revolution are making companies more reliant on supply chain talent than ever before. Today's operating environment simply demands more managers who understand the intricacies involved in sourcing, making and delivering the products customers want at a price customers are willing to pay.

Having summarized the demographic challenge, let's briefly discuss three skills sets managers say they are looking for but can't find among today's supply chain talent pool.

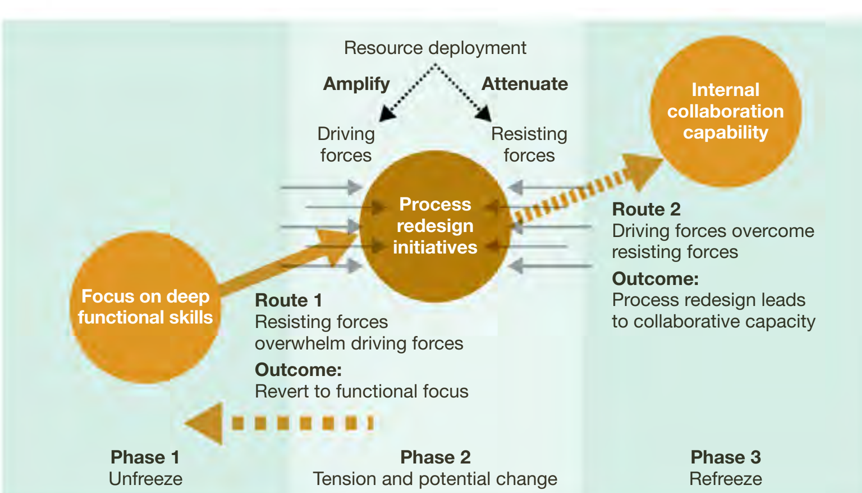
Influencers sought

Technological innovation such as computing power and the Internet have made modern SCM possible. New technologies like autonomous vehicles, additive manufacturing and predictive analytics promise to usher in a new wave of process redesign and productivity. However, poor change management skills continue to hinder value co-creation, standing in the way of new technology-enabled practices and processes. Managers who understand the dynamics of change are in high demand.

Specifically, Figure 1 denotes that firms persist in a steady state until an external force drives change. They then enter a transition phase (Phase 2) during which adaptation and change is pursued. Resisting forces, however, act as a counterbalance to

FIGURE 1

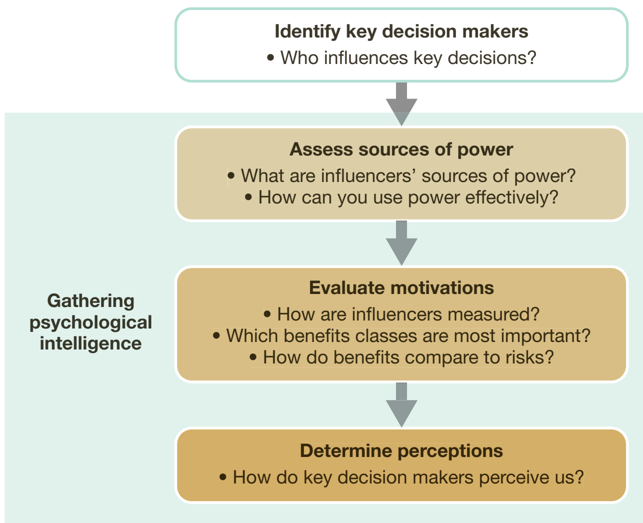
Change management as an enabler of value co-creation



Source: Authors

FIGURE 2

The art and process of psychological intelligence



Source: Authors

change. If resisting forces are more prevalent or stronger than driving forces, firms follow Route 1 back to the former status quo. Effective change agents know how to deploy resources to amplify driving forces and/or attenuate resisting forces. Critically, most managers push harder on driving forces despite the fact that removing resisting forces is usually the more effective strategy. Managers who grasp these dynamics can pull the right resource levers to help the firm follow Route 2 to new value-added processes. Beyond grasping the dynamics of the change process, supply chain managers need two enabling skills that are in short supply.

- **Financial intelligence.** Throughout our interviews, supply chain managers often lamented that finance is the language of business. Why? They don't speak the language of finance. Thus they struggle to explain how their decisions will impact the metrics top management cares about. Financial intelligence gives supply chain managers more power to influence key conversations about resource deployment and strategic direction.
- **Psychological intelligence.** Negotiation—a critical tool in the hands of the change agent—is getting what you want for the other person's reasons. Thus, it is not surprising that interview managers persistently alluded to psychological intelligence (PI) as an in-vogue skill set (see Figure 2). PI is the art and process of finding out what motivates key decision makers. As a soft-side skill, PI is often overlooked in supply chain curriculums.

Simply put, companies seek supply chain managers who are strategic influencers.

Partners wanted

Since Toyota rewrote the rules for value co-creation in the 1980s, U.S. companies have been trying to find new and better ways of working together. Yet, most rely on the old-school tools of contracts and power that impede close, collaborative working relationships in the first place. Interview managers described two tools they would like to see in today's SCM toolkit.

- **Ability to manage relationship intensity.** Companies still select suppliers on criteria like cost, quality, delivery and financial viability. They define relationship intensity based on some form of ABC classification/Pareto analysis. Supply chain leaders now recognize the need to take a more holistic approach that explicitly evaluates co-value creation potential and collaborative capability—something few managers know how to do.
- **Ability to use trust as governance.** Power and contract management are go-to tools in the supply chain manager's toolbox. Thus, the common language in buyer/supplier relationships is, "What does the contract say about it?" The result: New opportunities to work together to co-create value and change competitive rules are usually overlooked. Although managers have talked about the importance of trust-based relationships for 20-plus years, trust remains the most used and abused word in the supply chain lexicon. Few managers know when and how to build it.

The bottom line: Companies want to turn the *right* suppliers into partners in profit. But they don't have managers with the attitude, skills and vision to do it.

Clarity needed

Complexity has been called the 21st century supply chain challenge. Consider the mind-boggling numbers associated with Wal-Mart's supply chain, which manages more than 10,900 retail outlets under 69 banners in 27 countries. In a typical week, 250 million customers make a purchase at a Wal-Mart somewhere in the world. In the U.S. alone, Wal-Mart operates 158 DCs (many over 1 million square feet in size), maintains a fleet of

6,500 tractors and 55,000 trailers, stocks an average of 142,000 SKUs at each Supercenter and buys product from over 100,000 suppliers. And that is just Wal-Mart's core network. Supply chain complexity for many companies explodes as you move upstream. For example, when Chrysler first analyzed its supply chain, managers discovered a manageable 1,500 first tier suppliers, 50,000 second tier suppliers, and 250,000 third tier suppliers.

To date, companies have focused on managing this detail complexity. Supply chain rationalization is the tool of choice. However, the managers we interviewed noted that dynamic complexity—i.e., getting all of the pieces to fit and work together—is a greater challenge. But, few managers know how to bring clarity to complex networks and problems. Fewer still know how to figure out what will happen across the entire system when they pull different levers.

Ultimately, a review of university curriculums reveals supply chain programs laden with quantitative analysis courses, which are without doubt valued and valuable skills. These programs are designed to prepare students for entry-level jobs in the core source, make and deliver domains. According to the managers we interviewed, what is missing is an effort to teach relational dynamics and holistic decision-making.

The talent deficit: An attitudinal challenge

Beyond essential skills, interview managers talked about a work-ethic gap. They perceived GPAs—and even degrees—as saying little about a student's readiness for the job, noting that many graduates are ill prepared to succeed at their companies. They also described a desire to work with universities to help create a more relevant learning experience, but lamented that collaborating across the academic-industry divide is challenging. We discerned three disconnects that dissuade closer industry/academic integration.

Structural disconnect

The Academy views itself as the custodian of knowledge, discovery and dissemination, placing great emphasis on publishing in "A" journals. Thus, the saying: "Publish or perish." Regrettably, the esoteric research valued by "A" journals and the Deans of American business schools doesn't translate well into the relevant skills needed by managers who must actually make and deliver things. Roger Martin, the former Dean of Canada's Rotman School of Management, actually calculated the cost of producing each "actionable" article at $1.5 million. What does this mean? Existing academic structures allocate scarce resources to obscure research over relevant teaching—a reality that nurtures the talent crisis.

Measurement disconnect

A student recently asked: "How do you view us? Are we the customer? Or, do you see us as a product?" The reality is that business schools serve three customers: Students, taxpayers and recruiters. Remarkably, two customers—taxpayers and recruiters—view the third customer as a product. The situation is, however, more nuanced. As customers, many students exhibit an odd behavior, treating college as the "price of admission" to the professional world. The result: Higher education may be the only industry in the world where many customers actively strive to get as little as possible for their money.

How do these realities perpetuate the talent crisis? Answer: The "missing" skills described above aren't comprised of facts that can be memorized and regurgitated. To acquire these skills, professors must cultivate an experiential education, forcing students out of their comfort zone. And herein lies the dilemma. The only customer that evaluates professors is the student—that is, the person who resents being forced to venture outside the comfort zone. What does this portend for student readiness? In their 2011 book, *Aspiring Adults Adrift*, sociologists Richard Arum and Josipa Roksa described the student educational experience as follows:

> *They weren't adequately prepared during college to make successful transitions. They didn't develop critical thinking, complex reasoning [skills] and the ability to communicate in writing. [And] they didn't develop the attitudes and dispositions during college associated with adult success.*
>
> *For many, [students'] typical experience was they studied alone little more than an hour a day, and for that effort they received high grades. The students in our study who studied alone five or fewer hours a week had a 3.2 grade average. So they learned in college that success comes relatively easily.*

Consistent with the classic article titled *On The Folly of Rewarding A, While Hoping for B*, professors—like all creatures of nature—respond to measures, catering to students with lighter workloads and inflated grades.

Academic-practitioner disconnect

Finally, advisory boards, a mechanism designed to foster industry-academe collaboration, often fail to interject relevance and accountability into curriculums. Why not? Academics tend to be protective of their syllabi. One professor responsible for managing his university's supply chain advisory board summarized this disconnect as follows: "We want your help. We just don't want you to tell us what to teach." Part of this protective stance is rational. Practitioners often focus on training, but academics are charged with providing an education—and the two are not synonymous. However, the roots of the problem run deeper. Academics don't want to give up control or step out of their own comfort zones. The result: Business and academe are often out of synch.

The talent deficit: A prescription for progress

Modern supply chains are complex and value co-creation is fraught with risk. But, cultivating the sought-after-but-missing skills falls short of brain surgery or rocket science. The task is doable, but the motivation is missing. With this in mind, let's turn the clock back to the early 1990s, as the U.S. economy recovered from a recession. Recruiters at Ford Motor shared a serious message with their core university partners: Ford was spending too much time and money helping newly hired graduates come up to speed. If these core universities didn't remedy the talent deficit, Ford would find new sources of talent. Then, the stock market boomed, the economy took off and Ford's financial distress evaporated. Sadly, the threat to find new talent sources was quickly forgotten—by Ford and its partner universities.

Nonetheless, the experience points to a need for industry to treat universities as real supply partners. After all, talent is as valuable a resource as anything else a company sources. Such a repositioning of the relationship would bring two new behaviors to bear in resolving the talent crisis.

- **A role for supplier development.** To help suppliers improve performance, Honda often lends them process improvement engineers, sometimes for several months or more. Honda's supplier development approach is a powerful model for academe. Imagine how classroom dynamics would change and what learning might occur if an industry expert joined a professor to team teach kaizen bursts or value-stream mapping, especially if students were invited into the company to employ these tools. Grades, of course, would be tied to real performance improvements.

Other options for industry-engaged education include consulting field studies and "living case competitions"—i.e., competitions that use cases based on current problems at local companies with managers as judges. To make such activities the norm rather than the exception, industry must view universities as supply partners that are worthy of investment—both in terms of money and coaching. Professors must likewise embrace experiential learning and open their classrooms to industry.

- **The need for accountability.** Industry must begin to act like a real customer. That is, companies need to clearly communicate that if academe won't prepare graduates for the real world, industry will find a new source. Never before has industry had more supply options. For instance, disruptive technologies in the form of MOOCs (Massive Open On-line Courses) are democratizing education. Although the quality of a MOOC education isn't great, the bar set by traditional universities is rather low. Alternatively, some companies are beginning to insource education, and not just training, via corporate universities. And some companies like Ernst & Young are taking the unprecedented step of expanding the talent pool by removing degree classification as a criterion for entry-level positions. Ernst & Young argues that there is no evidence that a college degree correlates with on-the-job achievement and will use online assessments to evaluate the competency and potential of job candidates.

Let's conclude as we began, with a warning: Building the skills we have been talking about is hard, uncomfortable work. Companies and business schools will likely balk at the challenge. However, if you are a fan of sports movies, baseball manager Jimmy Dugan from the movie *A League of Their Own* may encourage you. At a particularly poignant moment in the movie, when star catcher Dottie (Gina Davis) is about to quit the team, saying, "It just got too hard," Dugan (Tom Hanks) responds: "It's supposed be hard. If it wasn't hard, everyone would do it. *The hard* is what makes it great."

If we're going to face the talent crisis head on and shift our way of thinking, supply chain education needs to aspire to greatness.

A portrait of the supply chain manager

Who is today's supply chain manager? And, how did he—or she—get to where they are in their career? Those are some of the questions answered by readers of *Supply Chain Management Review* and members of the APICS Supply Chain Council. Read on to see if you recognize parts of your own career in their portrait.

By Peter Bolstorff, Bob Trebilcock and Judd Aschenbrand

Peter Bolstorff is executive vice president of corporate development for APICS Supply Chain Council. He can be reached at pbolstorff@apics.org.

Bob Trebilcock is editorial director of Supply Chain Management Review. He can be reached at btrebilcock@peerlessmedia.com.

Judd Aschenbrand is director of research for Peerless Research Group. He can be reached at jaschenbrand@peerlessmedia.com.

It's been written that a career in supply chain management can be like climbing a mountain. While there is often a map for the path forward in professions like accounting, medicine and the law, in supply chain management—as with mountaineering—there are any number of paths that can reach the summit.

Those were among the findings from a research series conducted for the Council of Supply Chain Management Professionals (CSCMP) and published in the July/August 2015 issue of *SCMR*, and reinforced by research conducted by McKinsey & Company and Kuhne Logistics University. The latter, for instance, found that while many supply chain management executives had experience in logistics, procurement and sales/marketing, "... a surprising number of supply chain executives are appointed without any previous exposure to SCM…in our sample, supply chain executives spent 88% of their previous career span outside the SCM function."

Are those findings consistent with readers of *Supply Chain Management Review* and members of APICS Supply Chain Council? And, if so, who is today's supply chain manager? And, how did he—or she—navigate to their position on the mountain? Did they start out in the supply chain going back to their college days, or, as in the McKinsey study, did they come into the profession from other parts of the organization? Moreover, what are their duties today and how do they see the job changing?

Those are questions we set out to answer in a collaborative survey across *SCMR* readers and the members of APICS Supply Chain Council (see About our research). Perhaps, as you read through, you'll recognize your own career in the portrait of "today's supply chain manager."

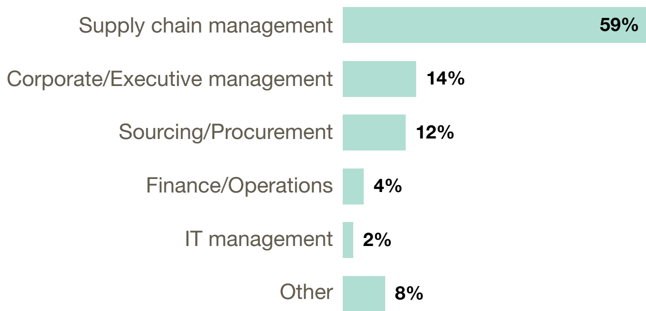
A look at the landscape

Before diving into the results, it's important to set the scene by examining the current supply chain landscape. There is no question the supply chain field is experiencing rapid change and growth. Technology and globalization have changed the skillset required to be successful as a supply chain professional. Those pursuing supply chain careers need to understand not only their organization's supply chain, but also those of their customers, vendors and suppliers. Few business functions today require this vast range of expertise, and employers are making significant investments in training to keep up.

Despite the best efforts of educators and employers, fast growth has resulted in a substantial talent gap. Eighty-four percent of executives in a recent survey agree there is a talent shortage in U.S. manufacturing. Additionally, six out of 10 open skilled production positions are unfilled due to a talent shortage, even when 80% of manufacturers are willing to pay more than the market rates. Furthermore, the skills gap is anticipated to get worse. For example, 2.7 million Baby Boomers are expected to retire and 700,000 manufacturing jobs will be created resulting from economic expansion—meaning we will need 3.4 million manufacturing workers by the year 2025.

FIGURE 1

Which best describes your primary job function?



Peerless Research Group (PRG)

FIGURE 2

In which of the following activities are you involved?

Peerless Research Group (PRG)

The supply chain talent shortage has been discussed ad nauseam. Frequently this conversation focuses on educating students and recent graduates on the job market, encouraging them to pursue supply chain careers, or on creating better college and graduate level programs to support this career path. However we also need to look at building the skillset of our existing supply chain leadership to aid in closing this gap. So, let's take a look at the makeup of today's supply chain manager so that we can better understand the various paths that lead to positions of leadership.

Down to basics

Let's start with the basic demographics of today's supply chain professional.

It will come as little surprise to anyone who has attended a supply chain conference that most of today's supply chain professionals are men—they comprised 76% of respondents while women accounted for 24% of respondents. (Read more about women in supply chain in our sidebar.)

They are also a seasoned group. The average age of respondents was 48, with nearly 60% of respondents over the age of 45, including 30% who were over the age of 55 and 8% who were 65 and older. Twenty-eight percent fell into the 35 to 44 years old category, with the remainder under 35.

Supply chain professionals are working across the United States, including 28% of respondents who hailed from the Midwest, followed by the Mid-Atlantic (15%), Southeast (14%) and South (9%), the West (10%) and New England (5%). Fourteen percent of respondents were located outside of the United States.

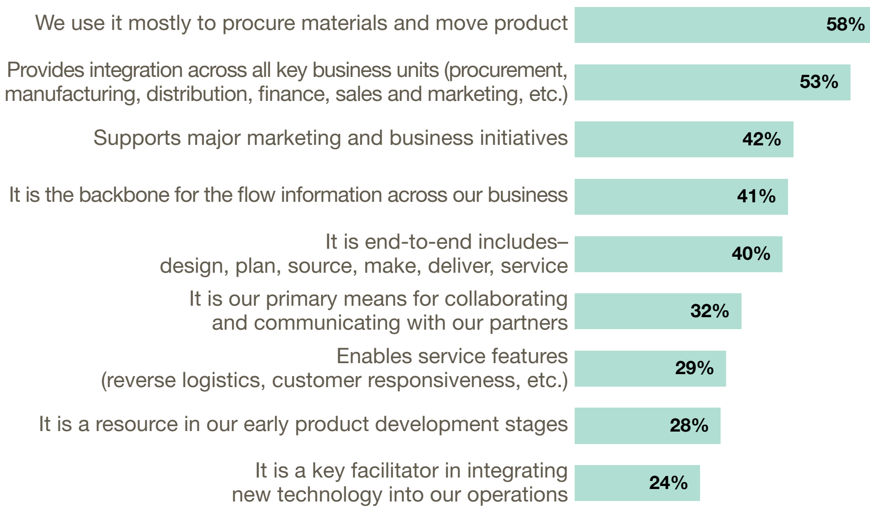
While some may have worked their way up the ranks from the shipping dock in the past, the demands of the profession today call for professionals and managers with an education: 45% of respondents held a bachelor's degree while 38% said they had a master's degree or doctoral degree. Only 11% said they had some college, but no degree.

At the same time, supply chain management as a competitive differentiator is a relatively recent phenomenon in organizations. For that reason, it may not be surprising that only 19% of respondents said they had a degree in logistics or supply chain management. The rest had degrees in fields such as business (29%), liberal arts (6%), physical sciences (4%) and computer sciences (2%), with 17% saying they had a degree in another unrelated field.

Finally, while supply chain professionals are working in companies of all sizes, including 24% of respondents who are employed by small firms with less than $50 million in revenue, the largest representation (41%) was from professionals working for companies with more than $1 billion

FIGURE 3

How would you describe your supply chain operation?



Peerless Research Group (PRG)

in annual revenue, including 31% who reported more than $2.5 billion in revenue.

The career path

For most supply chain professionals, the path is anything but straight and narrow. Less than one third of respondents began their career in supply chain management (27%), while 21% started in a business operation unrelated to the supply chain such as IT (5%), finance (4%) and sales (2%). Another 10% began their careers outside of a business function. Forty-two percent came into the profession from business functions that today would be under the umbrella of supply chain management, depending on the company, including manufacturing (24%), engineering (13%) and purchasing (5%).

Although most respondents didn't launch their careers in a supply chain-related discipline, they bring years of experience to the job, with an average of 15 years working in the field, including 44% who have been in supply chain management for at least 20 years.

They are also versatile, having worked an average of nearly four different positions over the course of their careers, with 47% reporting that they have held five or more positions. On average, supply chain professionals have worked for more than three different employers. But that doesn't mean they have jumped from one company to the next: Respondents, on average, had spent 10 years with their current employer.

Perhaps of most importance, supply chain professionals are well compensated—and compensation is getting better. The average income for 2015 was $144,410, with 59% indicating that they received a raise in 2015. One third of respondents indicated that they were making more than $150,000 a year, with 9% reporting incomes of from between $200,000 and $249,999, 6% reporting incomes of $250,000 to $499,999 and 2% earning more than $500,000 per year.

On the job

Given the executive level of APICS Supply Chain Council and *SCMR*'s readership, it's no surprise that nearly half of the respondents indicated they work at the corporate level within their organization, versus 25% at the department level and 21% at the division level.

Similarly, nearly 60% indicated that their primary job function was supply chain management, while 14% held corporate management jobs, 12% indicated that sourcing and procurement was their primary job and 4% said that

About our research

This research was conducted by Peerless Research Group in conjunction with *Supply Chain Management Review* and APICS, the leading professional association for supply chain and operations management, to better understand today's supply chain professionals. Areas of investigation included executives' professional backgrounds, the career paths they had taken and the challenges and rewards associated with their jobs.

A survey was sent to subscribers of *SCMR* and members of APICS. Results are based on 253 respondents who were pre-qualified for being either a supply chain practitioner or a consultant to supply chain operations.

"Today, a supply chain manager needs to have the right certifications and training, and mentoring is needed to prepare the next generation."

finance and operations was their primary job.

At the same time, supply chain management is increasingly a cross-functional position; managers, like utility infielders, are required to be familiar with a variety of job functions and work with different departments. Asked in which activities they were involved, 74% of respondents identified inventory control, 62% noted transportation and logistics, 53% said they were involved in production management, 43% were involved with technology and 31% said that they dealt with management consultants.

A larger trend is the integration of procurement with supply chain management. As stated earlier, only 12% of respondents checked procurement off as a primary job function, yet 61% said that they were involved in sourcing and purchasing, another 61% said that supplier relationship management was among their duties and 45% listed risk management. Another 50% said that customer relationship management was on their to-do list. Clearly, today's supply chain manager has to be agile and fluent in other corporate functions that affect the field, including procurement.

That point was further illustrated when respondents were asked which functions their supply chain operations group was involved with, even if it wasn't their primary job duty: 84% noted logistics, while 79% were involved in manufacturing, 76% in planning and product development, 52% in sales, 50% in finance and 47% in IT.

Lifelong learning

Learning didn't stop when our managers walked across the stage to receive their diplomas. Eighty-four percent are members of a professional supply chain association related to their jobs and 76% have taken some form of professional education or attended a job-related seminar in the last 12 months.

They also were active in advancing the industry: 76% have participated in a Webinar; 53% in a trade or professional association at the local level; 37% have spoken at a conference or seminar, and 34% have served as a committee member or officer with a trade or professional association.

Perceptions and reality

There is a lot of discussion today about the evolution of supply chain from a tactical unit—focused on moving goods and putting out fires—to a strategic partner with a seat at the table when the direction of the business is set and objectives are put in motion.

A majority of respondents (58%) are still answering the alarm and putting out fires: In those organizations, supply chain is mostly used to procure materials and move product. Meanwhile, only 28% said that their organization is a resource in the early stages of new product development, which is the lifeblood of many organizations, and a similar number said that it enables services features such as reverse logistics and customer responsiveness.

Still, there are hints that supply chain is becoming more aligned with business strategy: 42% reported that their organization supports major marketing and business initiatives and 40% said that they have an end-to-end process that includes design, plan, source, make, deliver and service.

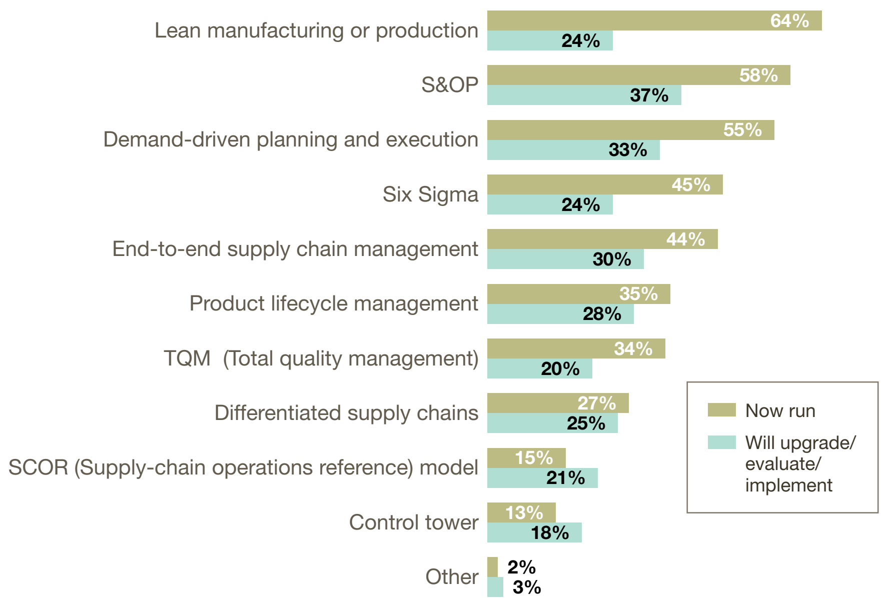
Think of those answers as the reality experienced by supply chain professionals in the trenches. What, however, is the perception of their organizations within their companies? Sixty-three percent said that they are viewed as a business asset that can help the company achieve its goals, 50% are at companies that believe supply chain can be leveraged to gain a competitive advantage, and 48% said that their companies believe supply chain can drive greater productivity. Yet, only 45% of respondents believed that they are extremely prepared to meet those objectives.

Given what is expected of supply chain managers today, we asked about the tools and strategies that are driving their supply chains or will be evaluated and implemented in the next two years.

Lean manufacturing and production was the most common supply chain strategy currently in place, with 64% of respondents employing lean methodologies and another 24% planning to evaluate and upgrade in the next two years. Lean was followed by S&OP (used by 58% with 37% planning to implement), demand-driven planning and execution (used by 55% of respondents with 33% planning to implement) and Six Sigma (used by 45% with 24% planning to implement). Logistics control towers were at the bottom of the list, with just 13% currently using a control tower to monitor their supply chains and 18% planning to implement.

FIGURE 4

What supply chain strategies is your organization currently running and which will you be upgrading, evaluating or implementing during the next two years?



Peerless Research Group (PRG)

As to the software tools that enable supply chain strategies, we found a wide variety of solutions in place now—ranging from inventory management solutions (used by 58% of respondents now with 23% planning to evaluate and implement in the future) to transportation management (with about 30% both currently using TMS and planning to evaluate and implement) to global trade management (with 14% using now and 12% planning to evaluate and implement). Leading the pack, however, were planning solutions, in all their various forms. For instance, 63% of respondents are currently using demand planning and 32% plan to implement in the next two years, more than any other solution. At the same time, supply chain planning (43%), parts planning (35%), and collaborative planning, forecasting and replenishment (20%) were widely used today.

The portrait so far

So who is today's supply chain professional? If we sort through all of the responses, today's manager is most likely a 48-year-old man with a bachelor's degree in business, 15 years of experience in supply chain management and an annual salary of nearly $145,000. He has worked for three different companies and held four different jobs—and maybe more—but has likely worked for his current employer (a large company in the Midwest, the Mid-Atlantic or one of the Southern or Southeastern states) for at least 10 years.

He (or in some cases, she) is a life-long learner who is engaged in advancing his career and the profession. Increasingly, his company is looking to the organization he manages to provide a competitive advantage and gain market share. And, while the profession has made a great number of strides in recent years, a majority of managers have work to do in order to realize those goals.

Looking ahead

We need to continue to hone the skills of those in the industry while also attracting new, fresh talent. The industry must focus on recruiting from the entirety of the supply chain talent pool, rather than a subset of it. Diversity brings people of differing points of view and experiences together and facilitates the expansion of an organization's knowledge base.

More women and minorities, for example, need to enter the supply chain and operations management workforce. Millennials are image conscious and socially networked, which may create widespread opportunities

"Working in a large company, we seem to lag in the adoption of cutting edge developments because change in a large organization is much harder than in a smaller one."

for organizations. They are continuously curating their personal brand, sharing their thoughts, influenced by and influencing others, with the expectation they will be heard and receive a rapid response. Taking steps today to attract and retain Millennials will result in a skilled, stable, and motivated staff and improved supply chain operations.

Additionally, women represent manufacturing's largest pool of untapped talent, earning more than half of the associate, bachelor and master's degrees across the U.S. work force. Management must consider the policies that appeal to women—a flexible work environment, leadership opportunities, equal pay, and a company culture that understands the need for a heterogeneous pool of talent—to get them in the door.

To ensure the profession continues to progress, companies need to be more proactive about communicating the benefits of supply chain careers to all audiences.

Women in the supply chain

When we presented these findings at a supply chain conference last fall, some in the audience asked how the survey results for women compared to men. Here are some of the key differences on a percentage basis.

Primary job function. The percentage of women who identified supply chain management as their primary job function (64.2%) was similar to male respondents (59.6%). Women (15.1%) were more likely than men (10.5%) to identify procurement as their primary job function while men (15.8%) were more likely than women (7.5%) to identify corporate or executive management as their primary job function.

Years in the profession. Based on our respondents, women have less experience in supply chain management than their male counterparts, but they appear to be entering the field in greater percentages than men. Twenty-three percent of women said they had been in the field less than 15 years, compared to 12% of men, and 13.5% said they had been in the field less than five years compared to 9.4% of men. Conversely, 46% of male respondents had been in the field for more than 20 years compared to 31% of female respondents.

Number of jobs and employers. Women (52%) were more likely than men (35%) to have held three or fewer different jobs, but they were less likely than men (65% to 48%) to have held four or more positions. Women were more likely than men (62% to 40%) to have worked for just one or two employers. At the other extreme, women and men worked for 10 or more employers in nearly equal percentages (3.8% to 3.5%).

Entering the field. Women were more likely than men to have entered the profession through procurement (11% to 3.5%) and finance (9.4% to 2%), but less likely to have begun their careers in engineering than their male colleagues (7.5% to 13.5%).

Education. Women were as likely as men to have a bachelor's degree (45.3% to 45%); less likely to have a master's degree (30.2% to 40%); and more likely to have a Ph.D. (4% to 0.6%). They were also more likely to have taken some type of continuing education in the previous 12 months (91% to 74%).

Compensation. Based on our respondents, women supply chain managers are earning lower salaries than their male counterparts. However, that may be the result of having fewer years of experience in the field. For instance, 61% of women reported earning less than $100,000 per year, compared to 41.6% of their male counterparts. They came close to parity (19% to 20%) for those making $100,000 to $149,999. Yet, while nearly 11% of men reported making over $250,000 (including 2.4% who were earning $500,000 or more) no women reported earnings at that level.

Millennial Managers:

How Today's 30-somethings are Re-energizing the Supply Chain Profession

How do Millennials in our profession think and act? What drives the successors of today's supply chain leaders? *Supply Chain Management Review* interviewed four up and coming 30-something managers from varied backgrounds and supply chain specializations to help answer these questions.

John Kerr is the special projects editor for Supply Chain Management Review. He can be reached at johnkerr@ergoeditorial.com.

What's with the Millennials?

That peevish question is often behind the headlines deploring America's shortage of skilled labor: The implication is that Millennials—the 20- and 30-somethings who should be easing employers' help-wanted headaches—have a different attitude toward work than did their elders.

While they are regularly characterized as bright, collaborative, creative and digitally savvy, Millennials are also described as entitled, mercurial and self-centered individuals. Both perceptions are generalizations at best, and neither should inform practical hiring plans or retention programs.

To get a first-hand look at how Millennials in our profession think and act—and to give today's supply chain leaders a feel for their eventual successors—*Supply Chain Management Review* interviewed four up and coming 30-something managers from varied backgrounds and supply chain specializations.

What did we find? Yes, some have indeed job-hopped; yet others have been with one employer all of their working lives. They are digitally savvy, but they are also business savvy and highly engaged. They are ambitious, but realistic. Perhaps most notably for the health of the profession, they exhibit strong streaks of outreach and collaboration and a commitment to supply chain management.

By John Kerr

Meredith Marsico: Paying it forward

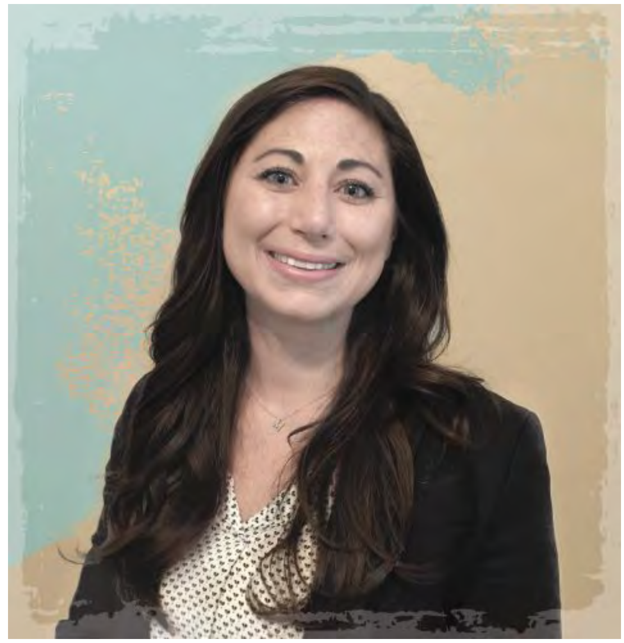
Not yet 32, Meredith Marsico is paying it forward for the next generation of supply chain leaders. In her spare time, she co-chairs a breakfast speakers program that often attracts 100 students at the Center for Supply Chain Management at the University of Pittsburgh, where she earned her MBA. "It's great to see students get excited about supply chain topics," she says.

Of course, Marsico is not that far removed from those students, having launched her career with a management consulting firm some nine years ago. Marsico says the job, which required a great deal of interaction with customers, prepared her for her current position as director of solution design at DHL Supply Chain, where she is part of a 40-strong solutions design team responsible for everything from the design and implementation of a solution to the ongoing operation of the resulting network, if the customer requires such outsourcing. "My overarching role is to provide a solution that addresses a customer's pain points, whether it involves distribution, transportation or reverse logistics," she says.

One current project involves the transformation of a large manufacturer's production network by consolidating roughly 30 different distribution centers into fewer than half a dozen. The emphasis is on decreasing costs, boosting overall network efficiency and reducing transit times. While designing such a network transformation may take just a couple of months, implementation of the plan can take up to two-and-a-half years.

A typical day for Marsico might touch on "everything from data analytics and design work up to presenting materials that express the solution in ways that the customer can understand," she says. "There's the data aspect but there's also the art aspect—what you gather from conversations that you don't really see in the data."

Marsico is a self-described operations wonk. While she earned a bachelor's degree in mechanical engineering at Loyola College in Maryland, she was drawn more toward operations management than manufacturing. "I was lucky to have a professor who had a lot of industry experience, and who helped me better understand my career opportunities within operations," she says. That led directly to an MBA program that emphasized operations management while providing a solid grounding in business. While still in school, Marsico interned with a company as a network analysis specialist; her coursework also involved a transportation management project for another business. "Those all gave me the bigger picture of how supply chain and logistics fit into the day-to-day operations at a business," she says.



Meredith Marisco, DHL Supply Chain

Marsico finds the outcomes of her work enormously satisfying, yet there are things about the practice she would like to see changed—foremost among them is her belief that supply chain remains slow to change with regard to the adoption of emerging technologies such as the Internet of Things.

During her three years in consulting, Marsico built up a body of expertise in areas ranging from value stream mapping and gap analysis to project management and client interaction; her largest project was an 18-month process improvement engagement for a government agency. She moved into the 3PL sector in 2010, starting as a solution design analyst at GENCO before being promoted to the 3PL's director of solution design. She joined DHL Supply Chain in January 2016.

While Marsico finds the outcomes of her work enormously satisfying, there are things about the practice she would like to see changed—foremost among them is her belief that supply chain remains slow to change with regard to the adoption of emerging technologies such as the Internet of Things. "I'd like to see supply chains become more dynamic and less reactive," she says. And although she has seen the profession become more diverse in recent years, she contends that there still aren't enough women in key roles, hence she is also a role model at those breakfast confabs at the University of Pittsburgh.

But those frustrations may well present new opportunities for future phases of Marsico's career. Having spent nearly a decade designing supply chains, she's keen to run a global supply chain one day, and attends her share of CSCMP conferences to acquire new skills and insights that will help bring that goal closer. It's a safe bet that Marsico will keep paying it forward throughout her career.

Nick Ammaturo: Scouting and sustaining talent

Two years ago, Nick Ammaturo was identified as a "30 under 30 Rising Star" by the Institute for Supply Management (ISM) and ThomasNet. Now a director of global procurement at Coach, the luxury leather goods company, he has a history of solid accomplishments at companies including PepsiCo and Avon. At 32, he is the youngest ever president of an affiliate chapter of ISM.

At the same time, it could be argued that with seven employers in 10 years, Ammaturo fits the stereotype of the restless Millennial, ready to hop to the next shiny opportunity at a moment's notice. But that would not accurately depict his career.

In June 2006, after graduating from Villanova with a bachelor's degree in business administration, he interned in London with consultancy KPMG before taking a job as a marketing and financial planning analyst in the Beijing offices of the research firm Ipsos. But it wasn't until he got a call from a recruiter that he made the jump into supply chain, as a senior analyst in PepsiCo's global procurement group.

One of his early accomplishments at PepsiCo was the establishment of quarterly reporting/commodity scorecards for the chemicals used in plastics manufacturing. The scorecards, which tracked how those chemicals markets correlated to crude oil fluctuations, brought him to the attention of the company's CEO in mid-2008, when crude oil prices reached an all-time high. By November 2010, Ammaturo had become a senior buyer, managing day-to-day responsibilities for beverage corrugate and olefin-based secondary packaging across PepsiCo's network. "We did some things in packaging that really changed the industry," he recalls,

Nick Ammaturo, Coach

Ammaturo's approach is always the same: collaborate with all pertinent parties; dig deeply to expose the roots of the challenge; assemble the right resources to deliver a substantial solution; and leave behind systems to ensure that the company can perpetuate the benefits of the solution.

noting that PepsiCo went so far as to hire a scientist to understand how paper is made. The worldwide savings generated from actions such as moving from slotted containers to trays ranged from 10% to as much as 30%.

Other jobs followed. At FM Facility Maintenance, Ammaturo directed a cross-functional team for a large global retailer that saved the client about 15% in cumulative maintenance costs, ranging from lighting and plumbing to elevators and food service equipment. That was followed by stints at Avon's center of

Shreya Patel, Unilever

Patel had already proven her worth with leadership as part of the team that helped Unilever achieve two remarkable milestones: zero non-hazardous waste to landfill and 100% renewable electricity for all manufacturing sites across Unilever North America.

excellence for the global sourcing and supply chain and as director of profit improvement and procurement at Hudson's Bay Co., where he was tasked with developing carefully calibrated implementation plans that produced consistent savings. It's early days yet at Coach—he started there in March 2016—but his approach is always the same: collaborate with all pertinent parties; dig deeply to expose the roots of the challenge; assemble the right resources to deliver a substantial solution; and leave behind systems to ensure that the company can perpetuate the benefits of the solution.

If there is one theme that runs throughout Ammaturo's professional life, it's something he calls "talent sustainability." "I'm always disappointed to hear that good talent quit because they didn't get promoted or they weren't motivated," he says. It something he experienced early in his career when he was warned that he was being promoted too quickly, yet he was over-performing in his role. "There's a misconception about the work ethic of Millennials," he says. "Organizations need to figure that out before they start losing a lot of talent."

He's vocal with his peers; he and a group of like-minded young supply chain professionals are pushing to get more of their peers involved at a national level with organizations such as ISM. "I want other young professionals to see that there are resources to help them build their careers," he says.

He also believes that technology is the future of supply chain management, especially social media tools. Ammaturo led his ISM chapter to overhaul its Website to be more mobile friendly to a generation that has grown up with smartphones. He mentions procurious.com, a network for a new generation of procurement professionals, which he says enables them to collaborate globally by posting questions and answers about challenges specific to their professions or industries or roles. And, he points to LinkedIn, where he posts, as a powerful tool for career building. "It has huge leverage for increasing your social brand," he notes.

Shreya Patel: Purpose beyond profit

Anyone familiar with the message behind Dove ads will get a sense of what motivates 33-year-old Shreya Patel.

Instead of lauding the cleansing abilities of Dove soaps—one of Unilever's top Sustainable Living Brands—the ads celebrate the vitality of women everywhere. It's an empowerment message that echoes across Unilever's business.

That theme is also reflected in the scope of Patel's position as Unilever's environmental and sustainable operations manager in North America—part of the safety, health and environmental (SHE) group in the corporate offices located in Englewood Cliffs, NJ. It's her job to understand and help reduce Unilever's impact on water, air, fossil fuels, contaminants and waste output—which helps position the consumer goods company as a leader in sustainability and environmental consciousness.

It's a job that, like the Dove ads, clearly speaks to a purpose beyond profit. "The interesting part about being at Unilever is that most jobs are not driven by roles and responsibilities, they're driven by purpose," she explains. "Unilever believes in brands with a purpose and also in people with a purpose." Patel adds that in the business community at large, there's a lingering perception that sustainability takes a lot of time without contributing much to the bottom line. Yet Unilever's Sustainable Living Brands are growing faster than the rest of the business.

When she left Rutgers University Business School in 2004, with a bachelor's degree in finance and religion, Patel didn't expect that one day she'd be inspecting waste cardboard in company dumpsters for a living. "I thought I would spend my career in various finance disciplines," she says. Indeed, her first six years in the workforce were spent dissecting numbers, analyzing spreadsheets and understanding P&L statements. She joined Unilever in 2008 as a senior supply chain finance analyst and then moved to the Unilever commodities procurement team. After a strong performance in the procurement role, Patel was promoted to the indirect procurement team where she negotiated energy, waste and various other contracts related to the workplace. In this role, Patel quickly became one of Unilever's first subject matter experts in energy and waste management in the United States.

In 2015, she jumped on an opportunity to transfer her knowledge of finance and procurement to the fields of energy and waste management as part of the SHE team. Patel had already proven her worth with leadership as part of the team that helped Unilever achieve two remarkable milestones: zero non-hazardous waste to landfill and 100% renewable electricity for all manufacturing sites across Unilever North America. The company reached zero waste to landfill in the United States and Canada on April 13, 2013—well ahead of its 2020 target.

The data she gathers from SHE teams across Unilever's North American sites, and sometimes first-hand, is then reported out to her peers globally and to senior management, among many other constituencies. "I understand metrics like internal rate of return and can read a cash flow statement," she says. "I have a good understanding of the questions that top management will ask and can tie CO2 emissions and reductions in waste to a business case for sustainability."

Most recently, Patel was given the opportunity to present the Unilever carbon strategy at an internal "town hall" meeting in front of the company's supply chain leadership as well as 200 colleagues and hundreds of others joining virtually. "This was a great stage for me to share my work and also align the entire organization behind the goal of reducing the carbon footprint of our operations," she says. Patel adds that it is knowledge sharing opportunities, such as the town hall session, that contribute to Unilever leading the way in sustainable business.

She is also excited by top management's plan to go carbon-positive by 2030—an area that fits perfectly with Unilever's purpose-led Sustainable Living Plan and that will provide ample room to create further business impact. Backed by such sweeping goals, other managers can generate enormous momentum. "I'd love to stay within the supply chain," she says, adding that she wants to enable sustainability in many dimensions, in ways that not only take a "total system" approach but in ways that serve shareholders well.

Nilesh Bhuthadia, Mainfreight Limited

In 2000, Bhuthadia moved from the operations floor onto the IT team. Four years later, he was given the opportunity to lead the development of the 3PL's proprietary warehouse management system (WMS), which now powers 40 of the provider's warehouses globally—up from five when he took on that role in 2004.

Nilesh Bhuthadia: Non-stop improvement

Not every supply chain professional's career began by unloading trucks at four in the morning. But that's how Nilesh Bhuthadia got his start. As one of the smallest guys on the loading dock, he'd be vaulted up into the truck by his workmates to hand down the packages and boxes to the others.

More than 16 years later at age 35, he's the IT manager at the same company: Mainfreight Limited, a global logistics provider headquartered in Auckland, New Zealand with 260 branches worldwide. In that role, Bhuthadia revisits his loading-dock roots from time to time, helping to pick orders in a DC. "There's nothing more powerful than to see for yourself how the team is doing," he explains. Think of it as keeping an ear close to the tracks.

Bhuthadia is very much a product of Mainfreight's corporate culture of continuous improvement in the service of the customer. Founded in 1978, the company's operations are rooted in a 100-year vision that translates into an "anything is possible" attitude, which in turn manifests itself as an upbeat, people-centered work style. Mainfreight is committed to delivering customer freight consignments on time and damage-free—and to promptly and honestly resolve issues when they arise. Individual employees' accountability for quality is reinforced throughout the organization.

Another manifestation of Mainfreight's culture is a commitment to reinvest in its people and a bias to promote from within. That's how in 2000, Bhuthadia moved from the operations floor onto the IT team. Four years later, he was given the opportunity to lead the development of the 3PL's proprietary warehouse management system (WMS), which now powers 40 of the provider's warehouses globally—up from five when he took on that role in 2004. More recently, Bhuthadia was asked to lead the team responsible for developing all of Mainfreight's customer facing applications worldwide, including the company's digital strategy, which is viewed as crucial to the Mainfreight's relations with its customers. "It takes only one incident to blow up on Twitter or Facebook, and you can have a huge problem," Bhutadia says.

Bhuthadia's next big challenge is the development of a global supply chain portal to provide customers with much more consistent information about their freight. The objective is to move the 3PL closer to a seamless global operation, regardless of the regulations and the operating norms across the 23 countries where it operates.

He cites one recent instance where his team's acute "digital listening" helped resolve a challenge experienced by some customers. After several operational changes, Bhutadia's team spotted a spike in the number of mobile app downloads and higher-than-usual levels of feedback among customers. "The feedback was about our service levels, and one branch in particular stood out from the rest," Bhuthadia says.

Customers had been taking what they saw as the path of least resistance to address their challenges with the under-performing branch by using the "Contact" section of Mainfreight's mobile app. By being alert to the tone and the rate of change of the digital noise, Bhuthadia's team was able to flag the need for a solution far faster than if one or two customers had come directly to Mainfreight about the branch.

That mindset also plays a role in the information tracked by third parties such as suppliers. If, for instance, a typhoon in the South China Sea delays a freighter carrying critical parts for a European assembly line, the more that Mainfreight can know about the incident, the better it can serve its customers by promptly and proactively developing alternate solutions. "We've got to get it right," declares Bhuthadia. "If we don't, it can have a major impact on our business."

Bhuthadia's next big challenge is the development of a global supply chain portal to provide customers with much more consistent information about their freight. The objective is to move the 3PL closer to a seamless global operation, regardless of the regulations and the operating norms across the 23 countries where it operates.

It's a big audacious goal, to be sure, and one that fits with the whole ethos of continuous improvement in the service of the customer.

How They Did it: Walgreens' Talent Strategy

Walgreens is transforming its supply chain to meet the new demands of an omni-channel customer. The next challenge: Recruiting the talent to make that transformation complete.

By Dov Shenkman, Chris Johnson and Jason Elliott

AT WALGREENS, we like to say that we meet our customers at "the corner of happy and healthy." For more than a century, we in all likelihood served our customers at a brick and mortar location—and possibly on a corner. Brick and mortar is still an important part of our business: We operate nearly 8,200 retail locations in the United States, where we filled approximately 894 million prescriptions on a 30-day adjusted bases in fiscal 2015, with more than 13,000 retail locations worldwide as a division of the Walgreens Boots Alliance, Inc.

Dov Shenkman is Walgreens' group vice president, supply chain operations, inventory and transportation. He can be reached at dov.shenkman@walgreens.com. Chris Johnson is divisional vice president of distribution centers. He can be reached at chris.l.johnson@walgreens.com. Jason Elliott is vice president of inventory and data management. He can be reached at Jason.elliott@walgreens.com. For more information, visit walgreens.com.

While the pharmacy has been the heart and soul of our business since our founding in 1901, our portfolio of products includes everything from school supplies to snacks and beauty products. And, while we represent one of the largest brick and mortar footprints in the industry, our business is going digital to meet the changing expectations of our customers both in the store and online. For the past four years, we have been in the midst of a fundamental supply chain transformation. Where in the past the store was our focus, today, it all starts with the customer. We use data and analytics to forecast our customers' purchase behavior and then work backwards to meet their demand. Our vision for this transformation is simple: We want to be the No. 1 customer-driven supply chain in the world. To do that, we have to be analytical and agile.

How does that change take place in the supply chain? We use our ability to forecast demand and ship exactly what is needed. For instance, we now have the ability to bring in unstructured data to anticipate flu patterns, which allows us to position over-the-counter cold and flu remedies, and tissues and toothbrushes around flu outbreaks. Using weather predictions, like a severe winter in New England, we can

pre-position salt for sidewalks and driveways, heavy clothing and hand warmers so that we're ready when the cold weather hits. We also describe Walgreens as your "neighborhood" store; that means we tailor inventory to the tastes and needs of the neighborhood where specific stores operate. For that reason, you can find beauty products and food supplements, hearty and healthy snacks, and even fresh sushi in a Chicago neighborhood catering to young professionals.

One result of those changes is the need for a new type of supply chain professional: Having distribution center managers and supervisors with strong operational skills has never been more important, especially with the impending retirement of many experienced team members in the not too distant future. At the same time, the strategic design, planning and inventory management side of our business requires team members who are analytical, collaborative and cross-functional. To ensure that Walgreens gets access to the best and brightest, supply chain is working together with human resources to launch new recruiting and retention initiatives. This is how we're doing it.

Operational excellence

A customer-driven, omni-channel supply chain is adding a new layer of requirements, and challenges, onto our network of nine major distribution centers (DCs) that support our stores. Where we used to run one or two shifts Monday through Friday, we are increasingly operating in a 24/7 environment across the network. And, while we used to move a significant amount of full pallets and cases, we do more mixed case and each picking than in the past. Our line employees may still be working 40 hours a week, but they're doing it over different periods of time. What's more, we are operating in a lean environment that is focused on continuous improvement.

After getting the green light from our senior vice presidents of supply chain and human resources, the distribution side of supply chain began to work with our HR partners in our DCs to identify schools with supply chain programs that were located close to each of the DCs.

That has real implications for our leadership teams. In the past, the general manager (GM) or director of a DC would see the entire management and supervision team during the day shift. If we had a conference call from headquarters, all of our managers were usually available for the call.

Today, a director or GM may have to work different shifts during the week, including an overnight, to see all of the team leaders. Because a GM isn't seeing team leaders every day, they have to manage differently—the GM sets the tone and is responsible for removing barriers so that their team leaders are empowered to do their best work. At the same time, we now need supervisors and lower level leaders who are both self-directed and self-starters. That can be a challenge for individuals who are not used to working that way.

A little more than a year ago, one of our former colleagues did an analysis of our management and supervisory requirements across the distribution network. One conclusion was that as a result of this new operating environment, we had an average of one manager to every 50 associates; in our view, the ideal for a lean, continuous operation was one manager to every 15 or 20 associates. What's more, a number of managers and supervisors would be reaching retirement age in the not so distant future. The bottom line is a need for more than 400 supervisors across our network over the next few years.

Last, we discovered that we had hiring challenges: It was increasingly difficult to find senior managers with the experience we required for off-hour shifts; meanwhile, the students coming out of some of the supply chain management programs where we traditionally recruited weren't focused on operations, or interested in working on the floor. Geography was also playing a role: Many of the students coming out of the supply chain programs where we had our strongest recruiting relationships wanted to move to urban areas, like downtown Chicago, and experience city life. The question, then, was: How are we going to fill those operational roles?

The answer came from a colleague who taught in the MBA program at Elmhurst College, a school in suburban Chicago with a strong focus on operations. Our colleague noticed that students in Elmhurst's MBA program were interested in jobs on the shop floor. He began to research the different supply chain management programs across the country and then track where graduates—especially from undergrad programs—went to work. Doing so, he noticed a correlation between programs with an operational focus, like Elmhurst, and students who took jobs in manufacturing and distribution. Perhaps, he suggested, we were recruiting from the wrong schools for our DCs.

After getting the green light from our senior vice presidents of supply chain and human resources, the distribution side of supply chain began to work with our HR partners in our DCs to identify schools with supply chain programs that were located close to each of the DCs. We also interviewed program leaders at several schools in Illinois to learn about the best practices for partnering with them and how we could best get their students into our pipeline. The big takeaway was that it was imperative that we had some presence on campus so that students knew we were interested in hiring them.

Interns fill the gap

What we came up with to fill the gaps was an internship program—but not just any internship program. If we are truly to gain the skills we need to operate a 24/7 omni-channel distribution network, we wanted a top-notch program with meaningful work so that students would talk about Walgreens in a positive way when they went back to campus in the fall.

As a company, Walgreens has a strong college recruiting program, so one of our first steps was to leverage the expertise of our recruiters. A second initial step was to leverage Walgreens University to develop a 10-week program that we could roll out across each of our nine DCs: We wanted to be sure that the program is consistent from one building to the next.

As to the particulars of the program, we identified two to three colleges or universities with a focus on operations located near each of our nine "parent" DCs—the large, highly-automated facilities that support our stores. That meant a total of between 22 and 27 schools. From those schools, we will select three interns per building for the 10-week program, or a total of 27 interns.

We approached the department chairs for the supply chain program at selected schools. While we did not meet face-to-face with every institution, whenever possible, our local HR and general managers paid a visit to the campus to introduce Walgreens as a company to the students—often during a career fair.

Working with HR and Walgreens University, we developed a description for the position that was posted on the Walgreens' career Website and promoted through our LinkedIn page. We launched the first internship this past May, reaching our goal of 27 interns. The interns in each building report to the local industrial engineer. They get cross-functional floor experience so they learn our standard operating procedures, the metrics that drive our operation and our staffing models with the goal of bringing them on as a group supervisor. We're looking for candidates who want to manage a facility and not just work at a computer.

Because we are a lean operation, each of the nine teams is assigned a continuous improvement project. During their 10 weeks together, they learn how to identify a problem, come up with a solution on the floor as a team, test the solution and then put it into action. At the end of the summer, we will bring the teams to Chicago, where they will present their projects to our senior supply chain leadership and the directors responsible for the DCs.

Our ultimate goal is to send those 27 interns back to campus with a job offer good for when they complete their senior year. Just as importantly, if we create a rewarding internship, those interns will speak positively about their experience and help us create a talent pipeline.

Getting strategic

The supply chain team outside the DCs is responsible for executing the supply chain strategy, including transportation management, supplier development, planning, imports, reverse logistics, master data management, inventory management and e-commerce fulfillment. From a tactical standpoint, logistics plans the procurement, movement and delivery of merchandise so that it appears at the right time and in the right quantities in our stores. From a strategic perspective, it designs the network, including how many DCs we need to operate and where they are located, selects the transportation lanes and modes and oversees the transformation initiative. Our ultimate goal, in a nutshell, is to have the best in-stock position in the industry so that the customer always finds what she needs and that we have the capability to engage with that customer across all channels through a single integrated supply chain.

We approached the department chairs for the supply chain program at selected schools. While we did not meet face-to-face with every institution, whenever possible, our local HR and general managers paid a visit to the campus to introduce Walgreens as a company to the students—often during a career fair.

That is a big task. Given our mandate, we are looking for the opposite of our colleagues in operations: We need individuals with analytical and planning capabilities. Jason Elliott, our vice president of inventory management, describes the change in strategy as moving from an organization where team members once had deep functional experience and operated as individuals, like golfers or tennis players, to one where winning requires the integration and collaboration of the whole team, like football or hockey. What's more, that individual needs to understand how to use sophisticated supply chain software solutions and how to process and interpret the data from a wide variety of sources that is so critical to decision making. The result is that we have to recruit a different level of talent than in the past. While distribution is seeking out schools with strong operations departments, we are focusing our recruitment strategy on institutions like Michigan State and Northwestern with strong programs in supply chain analytics.

One of our first steps was to create a dedicated recruiting team with members from the supply chain organization who are alumni of the schools we are targeting. They not only attend career fairs on campus, but when possible they also attend club and supply chain association meetings. We believe that being present sends a message that we're interested and will help us develop a better pipeline.

We have surveyed team members to find out what they're looking for in their careers, whether that is access to new technology, new experiences or changes in how we operate.

We have also engaged our interns to think about our business and develop case studies. At Northwestern, for instance, we provided our data to teams in the master's of analytics programs and challenged them to solve real world business problems, such as reducing inventory shrinkage. Dov Shenkman, our group vice president for supply chain operations, joined the business advisory group for Northwestern's transportation center. His participation enables us to build upon our relationship with this institution, work on joined programs, and have access to some young talents.

Beyond recruitment

One thing we have learned since launching these efforts: Walgreens has an outstanding brand from the perspective of the consumer, but a very limited brand as a supply chain organization. While we are working to increase our presence on college campuses, we are similarly trying to raise our profile within the professional community. We believe this will go a long way toward retaining our current team members and attracting talented executives already working in the industry who may be interested in Walgreens.

One effort this year was to sponsor an evening event at our Walgreens University campus where Chicagoland supply chain professionals were able to network and get to know one another and Walgreens. After all, with nearly 8,200 stores and a diverse portfolio of products, including highly-regulated pharmaceutical products, we have one of the most challenging and sophisticated supply chains in the country. We advertised the event through social media and, although we have only held one event this year, our plan is to extend this to up to four events a year.

We are also working with Walgreens University to create a curriculum that will develop the new tactical, strategic and leadership skills our current team members will need as we complete our supply chain transformation. Where the old supply chain encouraged team members to develop deep expertise in a functional area and follow a traditional career path, the new supply chain is cross-functional and encourages team members to learn multiple disciplines. One example: Jason Elliott began his career in logistics and transportation and was moved into inventory management; his predecessor in that role is now in store operations.

A final piece of the retention strategy is the challenge of creating a culture that will enable us to execute our vision. While culture is often thought of as one of the hard-to-measure soft sides of business, part of our performance review and compensation is based on the cultural engagement of our team. Indeed, everyone in the organization has a goal that includes engagement.

We have surveyed team members to find out what they're looking for in their careers, whether that is access to new technology, new experiences or changes in how we operate. We have also launched a series of Listening Tours. Every couple of weeks, Dov Shenkman meets informally with 10 to 15 employees over pizza. They talk about what's working, what isn't working and what is causing them concern. The goal is to create an environment where team members can voice their concerns, be heard and potentially make a difference.

Measuring success

As with any other supply chain process, the success of these new initiatives will be measured by results. In our case, the first measure will be whether our team can achieve the very aggressive goals that have been set for our organization. We can only meet those if we have put an outstanding team in place through these recruiting and retention efforts.

The second is that we want to achieve them in the right way: Our employee engagement and retention scores will define how well we are doing in terms of culture.

Finally, we know that we still have work to do and opportunities for improvement in front of us: Walgreens is not yet the best supply chain in the industry. But we are on the path to our vision of creating a best-in-class supply chain that meets our customers at the corner of happy and healthy.

By Rand Stille and Sriram Narayanan

Outsourcing and globalization: For the better part of this century, these strategic initiatives have gone hand-in-glove at many organizations. Whether in pursuit of lower costs, simplifying operations or just trying to keep pace with the global expansion of their customers, companies have sought to outsource nonessential operations with an emphasis on more global supply chains. Many of these supply chains were established at a feverish pace as the global outsourcing trend was met with the open arms of developing countries eager to participate. Today, however, some of these supply chains have been operational for years. The low-hanging fruit has been picked and the dust has long settled from the intrepid efforts of the global outsourcing "gold rush." Additionally the pace of economic growth of emerging economies has slowed, which may present new risks and financial considerations.

Rand Stille is vice president, Universal Logistics Holdings. He can be reached at rstille@goutsi.com. For more information, visit goutsi.com.

Sriram Narayanan is an associate professor in the department of supply chain management at the Eli Broad College of Business at Michigan State University. He can be reached at narayanan@broad.msu.edu. For more information, visit broad.msu.edu.

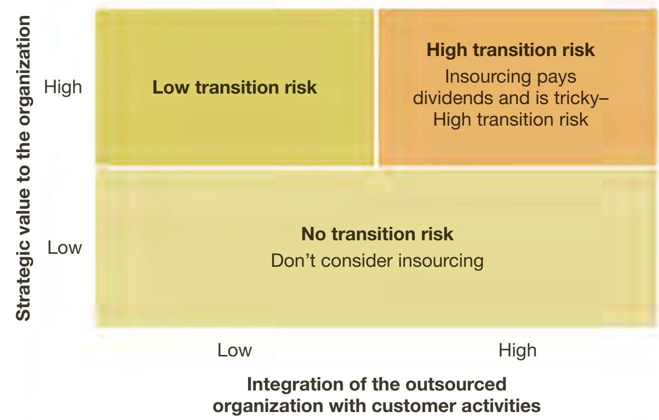
Bringin' it all *back home*

As conditions change in some emerging markets, companies that once outsourced some of their manufacturing and distribution processes are thinking about bringing them back in-house. We look at the five key considerations a company should explore before pulling the trigger on insourcing their outsourced processes.

All of that is leading some companies to reassess their operations and supply chains with more global experience and a greater sense of scrutiny. While many of the supply chains established during the globalization gold rush still provide a sustainable strategic advantage, several other outsourcing decisions may no longer represent the best value option. Accordingly, organizations need to constantly reassess their strategic options and ask where it makes sense to bring some activities back in-house. This does not necessarily mean re-shoring: While some activities may be brought back to a company's home turf, insourcing may also involve using in-house personnel to execute tasks in an existing foreign market that are currently outsourced. In this regard, insourcing is the new challenge in today's supply chains.

FIGURE 1

Framework for evaluating transition risk of outsourcing decisions



Source: Authors

Insourcing efforts are often justified on several grounds; these include reducing costs, improving the value delivered to customers and building organizational capabilities. However, insourcing activities are not risk free. Quite to the contrary, they involve critical challenges in transitioning work and carry a considerable risk of failure.

With insourcing gaining importance, selecting the right candidates for insourcing is a critical initiative. This can provide a boost to an organization's competitive capabilities. In Figure 1, we indicate the scenarios that organizations may face with respect to previously outsourced activities that they want to bring back into their organization. The framework is of particular relevance to situations when organizations outsource their customer-facing activities to a third-party provider. The key aspect in these insourcing efforts is to understand the transition risk of the activity.

Two factors drive the transition risk in insourcing efforts. First is the degree to which the activity brings strategic value to the organization's key customers. Second is the degree to which the third-party supplier is integrated with the customers of the organization. By customers we refer to the customers of the organization to whom the products and services are sold. When both of those factors are high, it is likely that the risk of failure of insourcing effort is high (see Figure 1). In that regard, direct customer support may be potential candidates for such high-risk operations.

We believe that insourcing activities on the upper right hand quadrant of Figure 1 are the hardest to plan for, as is revealed in this article. If the strategic value of the activity to the organization is low, the decision is fairly straightforward and no insourcing is necessary, entailing no transition risk for insourcing. Further, if the integration of outsourced supplier activity with the end customer of the organization is low, insourcing is relatively easy because the customer may not be involved.

In this article, we will focus on the upper right quadrant where the transition risk of insourcing the activity is the highest. Given the context of globalization described earlier, work transition challenges may be greater when multi-national supply chains are considering insourcing activities (previously outsourced to a local vendor) in foreign countries where they do not have direct local presence. We also call these "international insourcing transition." These can be attributable to a lack of awareness of the local context, culture and business practices. This article draws five key learnings from a real-life example of a successful international insourcing transition that took place in a multi-year time span within a well-established supply chain.

With experience under its belt, the local management team supporting the customer was confident it could establish an internal department to handle all the services provided by the labor supplier for a far lesser cost, and also increase service levels from what were being delivered by the third-party provider.

Brief case description

In our real-life example, insourcing involved the services provided by a third-party labor supplier (outsourced entity) at an international operation that was set in an emerging market. This particular international operation was the organization's only operation within that foreign country, and was established in order to support its largest customer. This customer had placed global expansion as a key initiative and expected its long-term supply partners to support the new site. The services provided by the organization were tightly integrated into the customer's final assembly operations. These services included kitting, sequencing and providing material handling services within the customer's facility. Any interruption in the supply of services would immediately have a detrimental, high-visibility impact to the customer—and cause serious financial loss. Additionally, the training required for the employees at the facility was extensive. For these reasons, the operations had a high level of integration with customer activities and high strategic importance; it was a high transition risk operation.

When the organization established its operations, it utilized a risk averse strategy to support the customer, as do many firms when they enter new markets. The organization initially perceived one aspect of the operation—labor—as particularly risky due to the host country's strong labor unions and punitive employer laws that made it very costly for organizations to exit the market. With these concerns in mind, the organization quickly turned to a third-party provider of labor. The organization took comfort in knowing that the outsourced labor provider would be responsible for all labor contracts, government requirements and unique, local benefits such as providing meals and transportation for all employees to and from work. In addition, the third-party provider understood the nuances of managing the local labor force early on. This allowed the organization to focus on establishing a management team, installing all equipment and implementing the operating system during the initial operations launch.

The strategy worked and outsourcing served its initial purpose. However, after five years of successful operations, the organization believed that it understood the dynamics of operating in that locale. With experience under its belt, the local management team supporting the customer was confident it could establish an internal department to handle all the services provided by the labor supplier for a far lesser cost, and also increase service levels from what were being delivered by the third-party provider. However, given the people intensive nature of the activity, it was important to the organization to retain the existing employees while somehow dissociating from the third-party labor provider. The retention of employees, so as not to lose both skills and knowledge of serving the customer, was critical to the long-term success of the organization in the market. Finally, an important aspect of the insourcing effort was managing conflicts with the third-party services provider with "zero" disruption to customer service, despite a tightly integrated operation.

Ultimately the organization decided to carefully prepare for the insourcing of the direct labor. The organization's local management team developed and staffed an internal human resources department. The establishment of this department ensured that the organization could handle an immediate takeover if necessary, as a plan B. Next the organization engaged supply chain partners that shared a mutual interest in a smooth transition. With the supply chain's support, the organization encountered a civil transition of services from the third-party labor provider and now directly employs the workforce. The insourcing project was completed without any interruption to the customer, generated significant savings and improved the organization's customer service.

Based on that successful outcome, we have identified five key take-aways for any organization considering an insourcing initiative.

When considering an insourcing project, it is important to identify the needs of the power brokers across the key affected parties in the supply chain. This is especially so when operating in an international environment with a distinctly hierarchical power structure, as is true in many emerging market contexts.

Consideration 1:
Articulate the value proposition to customers clearly

Whether an organization provides products and services at the lowest cost or at the highest quality, every supplier provides its customer with a certain value proposition. For that reason, it is important for an organization to articulate to its customer the value proposition that an insourcing effort can bring to the partnership. Otherwise, the project could unknowingly put the organization's entire relationship with the customer at risk.

As an example, let's assume that a company's value proposition is to provide the highest quality of service possible to its customers and that it is able to obtain premium pricing from its customers as a result. In this scenario, any negative impact on quality or service levels from an insourcing decision could jeopardize the organization's ability to continue to command premium prices. Thus, it is paramount when evaluating a proposal that any insourcing effort must support the quality value proposition by providing equivalent or greater quality. Communicating this to customers and obtaining insourcing buy-in is critical. In fact, this was a key element of the communication efforts of the organization with its customer in our example.

Consideration 2:
Consider the implications of the insourcing effort outside of the organization's walls

Many insourcing projects are justified primarily on their financial merits within the insourcing organization. However, an insourcing transition will likely be more successful if it considers the cost implications "outside of the organization's four walls," and ponders the unintentional manifestation of indirect costs of insourcing. Specifically, organizations need to understand the impact on costs outside of their immediate control but within their stakeholder network. For example, an organization might be the exclusive provider of multiple critical products or services. If the insourcing project targets one of those, it is likely to influence the overall sourcing costs through pricing adjustments if not managed carefully; that is because the organization's utilization is likely different for different services. Similarly, the insourced activity or process likely has larger interdependencies within the stakeholder network of the organization. For example, the supplier interfaces with other third-party suppliers or regulators need to be considered. Costs relating to managing these third-party agencies and regulators could be related to developing relationships with the other providers and regulatory agencies. In our example, all of these costs had to be factored in to better evaluate the returns from the insourcing effort.

Consideration 3:
Know the power brokers in the supply chain and get their buy-in

When considering an insourcing project, it is important to identify the needs of the power brokers across the key affected parties in the supply chain. This is especially so when operating in an international environment with a distinctly hierarchical power structure, as is true in many emerging market contexts. The key questions that the organization needs to answer are as follows: Does the insourcing project favorably support the customer's agenda? How will the customer, and the primary third-party supplier, be affected by the potential change? Should the organization communicate the potential changes to certain partners whose efforts should actively be solicited within the supply chain? If so, how important is confidentiality and timing? The support of key supply chain partners can help mitigate risks and ensure business continuity. Conversely, strong opposition from major power brokers could destroy a project and even damage your company's position within the market. In this context, it is also important to align the incentive structures of each of the power brokers.

The inability to quickly identify a root cause and correct unexpected issues can allow problems to persist for extended periods of time. These can put significant pressure on the process of insourcing and potentially derail the effort.

Consideration 4:

Create the mechanisms for conflict resolution and collaboration in the new insourced supply chain

Any change in the supply chain involves changing existing relationships and developing new ones among the key stakeholders within and outside of your organization. Even when an existing supply chain is not as effective as might be desired, it is important to recognize that it does provide the parameters for the roles and expectations among the current supply chain partners.

These standard guidelines, informal or formally documented, are inherent in the existing structure and can be lost with an insourcing project. Omitting this consideration from the overall insourcing strategy can introduce significant risk and unnecessary conflict, and inflate the costs of insourcing as well.

Although no one can identify all of the potential risks involved with an insourcing project, it is possible to mitigate many of the potential hazards by mapping the supply chain flow and identifying the current roles and responsibilities for all major functions AND supporting aspects of the supply chain, such as information management, quality assurance and communications. Nonetheless, unexpected conflicts will likely emerge on an ongoing basis—more so during the transition.

These conflicts could be between the immediate stakeholders of the organization and its network partners related to the insourcing effort. Therefore establishing a clear means for conflict resolution among the new stakeholders is critical. This is especially true for stakeholder relationships within the same organization where managers of different units may have conflicting expectations. In the case study's organization, dedicated individuals managed conflicts that arose in the process and worked diligently to manage conflicts when they arose.

Consideration 5:

Don't under estimate the required resources

Insourcing a process or service from an external provider often requires greater resources than initially anticipated. Interrupting the stability of an existing supply chain requires incremental resources due to the learning curve of the insourced task and the implementation efforts required to stabilize the activity within the organization. Management should be cognizant that they are not just replacing the external providers and the potentially dedicated resources, such as labor, capital and management, but also are likely losing the external providers "lessons learned" and "collective experience." Therefore, inefficiencies should be expected, sometimes to a significant degree. Furthermore, the resource imperative also stems from the recognition that an insourcing project is a unique event outside of the typical daily operations and a source for unique and peculiar problems to arise.

At the same time, due to the inefficiencies and implementation efforts mentioned above, the organization's resources are typically compromised by the incremental workload of the transition. The inability to quickly identify a root cause and correct unexpected issues can allow problems to persist for extended periods of time. These can put significant pressure on the process of insourcing and potentially derail the effort. Identifying emergency resources prior to the project kick-off to handle unexpected issues, and potentially to lead a project exit if necessary, can help protect your company from potentially draining and costly scenarios and management embarrassments.

While addressing these five considerations can result in a longer gestation period for the insourcing effort, it can also result in an effort that ultimately has a good chance of succeeding and achieving the strategic aims of the organization. As organizations face increasingly mature markets, in-sourcing potentially high value tasks can provide them with a greater edge to compete in future.

Conquering supply chain's next frontier

Analytics is fast becoming a competitive differentiator for many companies. Conquering this next frontier of supply chain productivity starts with asking the right questions.

By Sean Monahan and Sameer Anand

Sean Monahan is a partner with A.T. Kearney and leads the firm's Strategic Operations Practice in the Americas. He is based in New York and can be reached at sean.monahan@atkearney.com. Sameer Anand is a principal with A.T. Kearney. He is based in Chicago and can be reached at Sameer.anand@atkearney.com.

"Computers are useless. They can only give you answers." Never has Pablo Picasso's statement been truer than in today's era of Big Data and massive computing power. With an abundance of data supplying companies with more and more answers, making great decisions should be easy, right? In fact, this abundance of "answers" may be obscuring the most important component of data-driven decision-making. Are companies asking the right questions?

Recently, a client was experiencing significant cost and service pressures in their inbound supply chain and was looking to infuse analytics into their decision-making process. Under a myriad of pressures from shoppers, suppliers and logistics partners, they immediately prioritized improving their inbound service and reducing logistics spend as their initial business challenge.

They were eager to analyze their data to address these issues. However, before beginning the analytic process, it was important for them to take a step back from the data analysis and ensure that their organization was ready for data-driven analytics. Companies that have achieved this next frontier of supply chain productivity anchored their organization around several essential elements for effectively leveraging analytics.

Clarify the business objective. Companies need to define the specific business issues they are looking to solve and then drive their data and analytic efforts against these issues. Frequently, the relevant data is available to address business challenges, but often the question asked is "what insight can this data provide?" as opposed to defining the business issue first and letting that drive the analytics.

Understand the change needed to the decision-making culture. Before taking a deep dive into data analysis in the context of a business issue, companies need to examine the role of data in their decision-making culture. Most companies have a host of reports and scorecards that track performance; however, a company is not data driven just because it has scorecards. Companies need to ask themselves if they are leveraging analytics to examine root causes and initiate fact-based discussions, or are they jumping from scorecards to "expert-based" solutions? Managers need to leverage their deep understanding of operations to recognize what data is needed to get to the root cause of the issues, and how the data should be organized so that they don't mistake correlation for causation. They also likely need to get creative about using new and external data sources to provide a comprehensive look at the root causes.

Use innovative approaches to rapidly prototype analytics. Often, managers lament that their data is not integrated, the data quality is poor, or that they don't have the tools to conduct the analysis at a granular level. However, companies can work around these issues by building ecosystems for analytics experimentation and innovation by completely separating these efforts from the legacy environment and working with third-party machine learning engines to create new tools, or by investing in analytics start-ups to build their own analytics platform.

Having embraced these elements, the client referenced above reevaluated its logistics challenge from a metrics-that-matter approach to establish new hypotheses about service levels and cost issues. The effort started with workshops with key business users to identify and prioritize potential hypotheses, and the required data to test. The client then looked at data availability to determine what information could aid in its analysis. With that information in hand, the client prioritized the specific data needs and worked with its technology organization to gather the data and host it internally. It then modeled the data to prove or disprove the hypotheses and avoided the trap of data mining to seek trends that might be interesting but not relevant.

This approach uncovered several root causes to service issues including changes in carrier capacity, lack of routing updates and demand volatility. To more formally collaborate with carriers, the client designed a joint logistics planning process using data-driven analytics to eliminate the ad hoc firefighting that used to be the norm.

Sustaining the next generation supply chain

Building the next generation supply chain—one that will provide not only a one time minor increase in productivity but also a year over year significant improvement in productivity—requires embedding these new capabilities within the organization. Managers need to understand this data-driven process, learn how to perform analytical modeling and trust these new insights. The following four building blocks can sustain a supply chain transformation anchored in analytics.

1. Design analytics and visualization that business users can understand and trust. Many advanced and complex analytical models fail because business users do not trust them. It is critical to design the analytics while walking in the business user's shoes.

2. Develop process and align incentives to translate insights into action. Often the effort required to implement data-driven analytics is perceived by users as "additional analysis and meetings" in their schedule. Senior executives need to tackle this challenge aggressively by leading from the front in communicating the new data-driven way of solving the operational problems.

3. Embed analytics with the right organization structure. Companies have both hired data scientists and established analytics centers of excellence to tackle this problem. One critical aspect to raising the analytical IQ of the organization is to embed analytics within the existing user base through training individuals in modeling and visualization tools.

4. Build technology capabilities. Bring the technology team along the analytics journey rather than providing the business requirements at the end of the information-gathering phase. Allow them to evaluate the type of infrastructure needed and how users will access data, analytics, and insights. IT teams can best recommend whether analytics is best sustained in house, through cloud-based solutions, or using subscription models with third-party vendors.

Analytics is fast becoming a competitive differentiator for many companies. Conquering this next frontier of supply chain productivity requires more than aggressive data mining.

Our client extracted key business users from the team with a greater aptitude for and interest in analytics, and trained them through a combination of chair-side mentoring and learning-by-doing approaches. These users were then embedded back into the functional team as the supply chain analytics group. The approach worked because these users were not only analytics savvy but they also understood the business issues and could translate the modeling insights into business implications for the team. In addition, the client aligned individuals' incentives across the organization so that trade-off analysis became critical to making decisions that optimized the entire supply chain—even if it resulted in higher spend in one functional area.

Analytics is fast becoming a competitive differentiator for many companies. Conquering this next frontier of supply chain productivity requires more than aggressive data mining. Successful supply chain organizations will need to take the time to understand the root causes of issues within their system, how to rapidly assess their current data sources, and prototype hypothesis and build an organizational structure that engages and empowers the organization around fact-based decisions. Need answers? Start by asking the right questions.

A SPECIAL SUPPLEMENT TO:
SUPPLYCHAIN MANAGEMENT REVIEW

There are many faces of supply chain risk in today's global business environment, where anything from a natural disaster to supplier insolvency to geopolitical turmoil can temporarily or permanently disrupt the manufacturing and/or transport of goods. Add quality and safety challenges, regulatory and environmental compliance, and even economic changes like fluctuating exchange rates to the list, and it's easy to see why risk should be a top-of-mind issue for supply chain managers.

While some supply chain disruptions are identified and addressed quickly and without much fanfare, others receive national attention. In April, for example, Toyota, Honda, Sony and other major firms encountered supply disruptions in the aftermath of multiple earthquakes in Japan.

5 WAYS to Address Supply Chain RISK

Supply chain risk comes in many shapes and forms. Is your company ready to meet it head-on?

By Bridget McCrea

"The earthquakes on Thursday and Saturday, which killed at least 41 people, reflected the vulnerability of Japanese companies to supply chain disruptions caused by natural disasters," Reuters reported following the event, "and also highlighted the 'just in time' philosophy pioneered by Toyota and followed by many others."

The fact that major manufacturers experience crippling effects of natural disasters is no surprise to Yossi Sheffi, who has written entire books on how to develop resilient, sustainable enterprises. "Companies can go out of business when either they or one of their suppliers is impacted by an event," says Sheffi, director of the MIT Center for Transportation & Logistics. "At the very least, they can lose a significant amount of money if they are caught unprepared. Obviously, [supply chain risk] is something they should be thinking about it."

Sheffi says the global nature of the business world has made supply chain risk an even more important topic for today's enterprises, not all of which take the time to thoroughly assess and prepare for potential risks. He points to outsourcing as a key driver of increased supply chain risk. "Because of outsourcing, companies have more suppliers and less control over the Tier 2, Tier 3 and Tier 4 vendors," says Sheffi. "When you're dealing with multiple sub-suppliers, and as the supply chain becomes deeper, you lose visibility."

Unfortunately, these threats are not only here to stay, the current list of them will probably continue to grow as supply chains become longer and more complex. The good new is that there are strategies, tactics and solutions that companies can use to identify and prepare for these issues before they become full-blown problems. Here are five that you can start using today:

1. Get out in front of the risk

One of the worst things a company can do is sit around and "wait" for a potential supply risk to bloom into a real problem. According to Jorge Blanco, managing director at KPMG Spectrum in New York, most companies assume this reactive stance and wind up paying the price for it. This approach is especially perilous in today's "virtual real-time world," says Blanco, where things happen so quickly that companies don't always have time to react.

To help firms take a more proactive approach to risk, KPMG Spectrum recently introduced Third Party Intelligence, a tool that monitors and reports third party vulnerability. Drawing on data sources that include financials from third parties in 90 countries, as well as news feeds, websites, and blogs from 48 countries, the tool's algorithms can pinpoint and project vulnerability trends in individual third parties (and the countries in which they operate).

Blanco says the tool factors in issues like risk of corruption, political instability, transportation obstructions and other risk factors. It then pairs those factors up with financial data and uses the resultant information to pinpoint problems with suppliers in specific countries. "This aggregation of risks helps identify where vulnerabilities may occur, and helps procurement professionals say, 'Aha, my next phone call needs to be to a particular supplier in India,'" Blanco explains, "'because its vulnerability is beyond the baseline levels that we've established.'"

2. Rate your suppliers sooner rather than later

Regardless of industry, size or location, all firms need to be thinking about supply chain risk right now, says Rose Kelly-Falls, senior VP, supply chain risk for Rapid Ratings International in New York. Skip this important step and it won't be long before a natural disaster, plant mishap or geopolitical disturbance brings your supply chain to its knees. "These events may catch us off guard, but they also put the spotlight on the need to manage risk properly," says Kelly-Falls, "and not by the seat of our pants."

A good starting point for companies that want to break out of the "seat of our pants" mindset is to ask questions like: Where are the potential vulnerabilities in our extended supply chain? Are we aware of all the potential risks in that chain, or are there hidden threats lurking? What potential risks are our Tier 1, 2 and 3 suppliers facing? How much of our revenue and/or profit is at risk from possible disruption?

Answering these questions honestly can help companies that rely heavily on outside vendors to supply their raw materials and other goods. To see whether these entities are working to minimize their own risk, allocating resources to this issue and developing continuity plans, firms can investigate their suppliers' financial health using a rating system.

On Rapid Ratings' scale of zero to 100, for example, any company with 39 or lower presents a definite financial risk, while most organizations with 20 or lower have a very slim chance of ever bounding back from a major event. In most cases, a company with a financial health rating of 85 or higher is well positioned to manage a major event, while one that's hovering in the 55-60 range will "probably" bounce back. Using this information, a company can make informed decisions about who it does business with and the impact that those suppliers have on your supply chain and overall corporate health.

3. Break through Tier 1's "brick wall"

To get a true picture of your overall supply chain health—and the associated risks—you'll need to go beyond your top Tier 1 suppliers and dig down into Tiers 2, 3 and 4. "In most cases, companies are [actively] managing about 20% of their suppliers," says Bindiya Vakil, CEO and founder of Resilinc in Milpitas, Calif. "The problem is that to ship a product out the door, every single part or raw material must be there on time. If the sourcing team

By taking a proactive approach to supply chain risk, you'll not only be able to delineate the risk (or, a lack thereof) and act on it, but you'll also avoid getting blindsided."

isn't talking to—or maintaining relationships with—80% of the supplier base, that's a cause for concern."

The issue, says Vakil, is that companies tend to be very detailed and involved when dealing with their critical, high-spend suppliers, yet many times they have no clue where the rest of the parts or raw materials are coming from. Where are their factories located? Where are the raw materials and parts made? Who are their second- or third-tier suppliers? "This information is a brick wall," says Vakil.

To overcome this challenge, Vakil says companies need to think beyond Tier 1, and that 20% of suppliers that they purchase the most and/or highest-end products from, and get to know the rest of their supplier base. Find out where their global sites are, identify those sites that are riskier than others, consider the financial risk of each supplier, and look at each one's operational performance and key performance indicators (KPI) over time.

"This will give you a well-rounded look at your entire supply chain," says Vakil, "and it will push you to work with them proactively, regardless of whether the spend is high or low."

4. Turn to your logistics partners for help

Increasingly, third-party logistics providers (3PLs) are being called upon to help identify, mitigate and address supply chain risk. As the first line of defense for many manufacturers, retailers and distributors that rely on them to move their goods around the globe, 3PLs are also helping companies create strategic plans for addressing potential threats and disruptions within the supply chain.

Tom Kroswek, Ryder Group's director of supply chain excellence, says his firm is being asked to design risk out of the supply chain through contingency planning for alternative ports, transportation routes and alternative distribution centers and methods. "Ryder primarily supports business to business activity and the greatest supply chain risks in this environment are concentrated in having the right amount of inventory in support of work in process or finished goods, transportation capacity and port congestion," Kroswek explains. "Inventory has a direct impact on the ability to produce or fulfill and the risk is not being able to meet customer demands adequately."

Kroswek adds that port congestion often translates into longer lead times, increased inventory levels and the additional costs associated with that inventory. "[These] risks lead to additional inventory on hand and a reduction in return on capital," Kroswek says. "This additional inventory may also require [more] warehousing, or it may challenge the existing capabilities of the current supply chain."

He says companies can address these issues by performing risk assessment and proactive modeling and simulation activities. "[We] perform these types of assessments, modeling and simulation activities on the supply chain to evaluate the risk and mediate it through network and inventory optimization," says Kroswek, "this helps us consider different inventory and transportation policies that take into consideration security, weather, geographical and other risks."

5. Make risk assessment an ongoing exercise

Assessing supplier or site risk is not a "one and done" exercise. Because business circumstances, political climates and even weather conditions can change in an instant, supply chain risk assessment needs to be an ongoing project. William Danner, president at CreditRiskMonitor in Valley Cottage, NY, says the need for ongoing monitoring has become more important in the wake of the Great Recession.

(Danner's company offers a Test Your Supply Chain Financial Risk IQ quiz online here.)

"Globally, we're seeing issues like negative interest rates and slow GDP growth impacting the financial health of companies," says Danner. "Over the next five to 10 years, financial risk will likely become even more difficult to deal with because the frequency is going to continue to rise." To offset these challenges, Danner says companies should proactively identify, manage and monitor their suppliers' financial risk on an ongoing basis.

"You can't just come in and 'occasionally' look up a supplier to see how it's doing; that's not going to work," says Danner, whose company provides a platform that factors in company news, changes in leadership and boards of directors, financial fluctuations, and stock volatility. "By taking a proactive approach to supply chain risk, you'll not only be able to delineate the risk (or, a lack thereof) and act on it, but you'll also avoid getting blindsided."

Supply chain professionals want challenges and opportunities to learn

Opportunities for development and special projects count, but don't forget culture.

By Becky Partida, senior research specialist – Supply Chain Management, APQC

Many organizations are concerned about the availability of qualified candidates to fill their supply chain management positions. This concern is exacerbated by the impending retirement of a generation of employees who are already on the job, with years of experience. In late 2015, APQC conducted research on actions that organizations are taking to attract new talent to the supply chain field. We also sought to learn more about what supply chain professionals are looking for when they accept a new position with an organization. The most important findings are that responding organizations want to recruit top talent to the supply chain to ensure organizational success and employee well being. At the same time, what professionals consider to be most important varies some depending on their age group—but overall they want to be challenged in their roles.

Organizational priorities

At the organizational level, attracting talent to the supply chain is a high priority. Nearly two-thirds of survey respondents agree quite a bit or extremely that attracting talent is a top priority for their organizations. These results align with a focus among organizations on both the long-term health of the business and the good of their employees.

Survey respondents were also asked to rate how much they agree that certain factors are a priority for their organizations. Possible responses ranged from 1 (denoting that the respondent did not agree that the factor is a priority) to 5 (indicating that the respondent strongly agreed that the factor is a priority). Respondents rated ensuring the long-term future of the organization highest among possible priorities for their employers, with a mean rating of 4.2. This was followed by meeting short-term financial goals for the organization and ensuring employee well being (both with a rating of 3.9).

Priorities of professionals

Results from the survey also indicate that supply chain professionals are looking for challenges that can expand their skills. The survey asked respondents to rate the importance of 10 factors in their decision to accept their current supply chain role. As with questions about organizational priorities, respondents rated the importance of these factors on a scale from 1 (indicating the factor was not at all important) to 5 (indicating that the factor was extremely important).

As shown in Figure 1, the ability to work on challenging projects was rated highest among respondents, with a mean rating of 4.4. This was closely followed by the ability to work on a wide range of projects and the ability to make a difference to the organization. These results indicate that supply chain professionals are looking for positions that offer a diversity of tasks and the ability to take on new problems. But these professionals are also looking to directly benefit their employer beyond simply filling a role, which closely aligns with organizations' goal of ensuring the long-term future of the business.

Interestingly, the factor rated least important to selecting respondents' current positions was the presence of mentoring programs. Job flexibility and a clear plan that shows ample professional development or leadership opportunities were also among the lowest rated factors. These results seem to contradict responses for another question on the survey, which asked respondents to rate how much they prefer obtaining skills and knowledge through certain means.

Respondents rated their preference for 10 methods on a scale from 1 (indicating that they do not prefer the method at all) to 5 (indicating that they extremely prefer the method). As shown in Figure 2, the top three ways that survey respondents prefer to obtain knowledge and skills is through mentoring from knowledgeable colleagues, the Internet, and collaborative working groups. Supply chain professionals clearly appreciate the value of face-to-face contact with other employees and the ability to learn directly from more experienced professionals, but the ability to have this interaction is not as important of a factor when deciding to accept a new position.

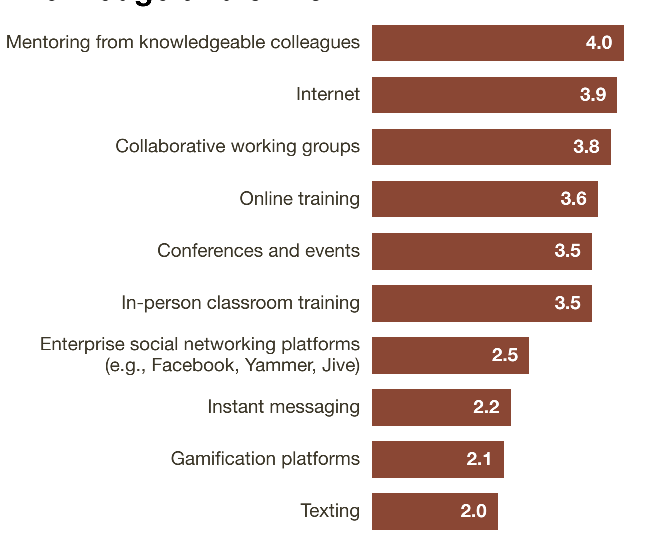
FIGURE 1

Importance of factors when deciding to accept position

Source: APQC

FIGURE 2

Methods for obtaining supply chain knowledge and skills



Source: APQC

Generational differences

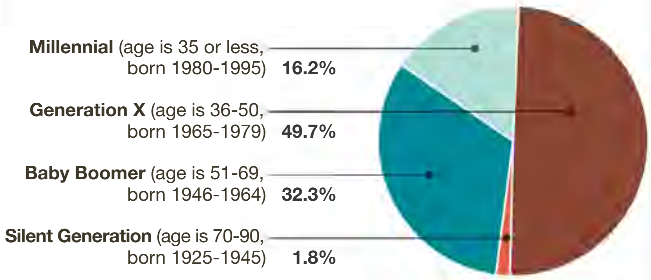
APQC's survey also sought to understand the differences in perspectives among supply chain professionals classified as Millennials (born 1980 to 1995), Baby Boomers (born 1946 to 1964), and members of Generation X (born 1965 to 1979). Of the respondents who provided their age, the largest group belonged to Generation X (Figure 3). Baby Boomers made up nearly one-third of respondents, and Millennial supply chain professionals made up 16%.

APQC found some interesting differences when comparing survey responses among generations. As noted earlier, respondents rated how important several factors were when they decided to accept their current role. The scale ranged from 1 (indicating that the factor was not at all important) to 5 (indicating that the factor was extremely important). Millennials rated some factors as more important to deciding to accept their current positions than respondents in other generations.

Millennials rated the presence of a clear plan for professional development or leadership opportunities as slightly more important than did Baby Boomers or respondents in Generation X (Figure 4). There was a similar trend with regard to mentoring programs; Millennial respondents rated these as more important to their decision to accept their current supply chain position than did members of the other two groups. These results indicate that Millennial supply chain professionals desire opportunities to both learn from their more experienced colleagues and set a path of development for themselves. This is confirmed in interviews APQC has conducted with Millennial supply chain professionals. For example, transportation coordinator Christopher Berry indicated that he looks for learning opportunities when considering a potential employer. Berry stated: "I need the opportunity to learn everything within the business. If I cannot fully comprehend how the business operates, I cannot understand what would result from ideas I would like to implement." Professionals with more experience and exposure to different areas of the business (such

FIGURE 3

Generation distribution of respondents



Source: APQC

as those belonging to Generation X or the Baby Boomer generation) may need fewer of these opportunities and thus consider them less important when accepting a position.

Another interesting difference among the generations involves the importance of making a difference to the organization. As Figure 4 shows, Baby Boomer respondents rated this factor highest with regard to its importance to accepting their current position. Members of Generation X rated this factor only slightly lower than Baby Boomers. In contrast to popular perception of Millennials seeking only positions in which they can feel they are making a difference, the Millennials in APQC's survey rated this factor much lower than the other two generations.

The Millennial supply chain professionals surveyed by APQC seem to be focused on getting their bearings in their roles rather than on making long-term contributions to their organizations. The importance they place on formal talent development programs at their employers indicates that they are committed to learning from their colleagues and developing the skills they need to be successful in the field, but that they are not ready to make significant contributions to the supply chain.

Offer a variety of opportunities

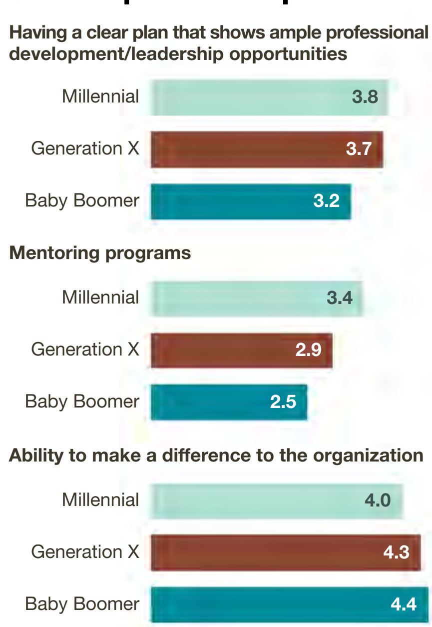
APQC's recent survey on attracting talent to the supply chain reveals that supply chain professionals are clearly looking to be challenged by their employers with regard to the types of work that they do. These professionals like to have access to knowledgeable coworkers, but overall they do not make formal development a top priority when they decide to accept a new position. The exception to this occurs among Millennials, who are newer to the field and thus may feel they need more opportunities to develop their skills. These professionals may also realize the value of connecting with others who have more experience on the job rather than learning strictly from classroom or online training.

To ensure that they recruit and retain the best professionals for supply chain roles, organizations should aim to balance the needs of both newer professionals and those with more experience. They can make efforts to develop a culture that encourages collaboration and sharing of knowledge among employees. This would appeal to many Millennial supply chain professionals, who see the value in close work within teams. Replenishment analyst Oliver York, another Millennial professional interviewed by APQC, indicated that supply chain staff "rely on our team and our counterparts." He also stated that supply chain "is not a field where the best individual performance can carry a team. Everyone is accountable and must contribute for the chain to be successful." Encouraging the sharing of experience and information through informal means would also appeal to more experienced employees among Generation X and ensure that knowledge from Baby Boomers is passed on to others.

Organizations can offer formal mentoring programs for employees who prefer to learn through a structured program. For all employees, organizations should evaluate whether there are new projects that can be given to supply chain employees to ensure that they feel challenged within their roles. By creating opportunities for growth, organizations can attract professionals looking for a role that won't become stagnant, and then motivate them to stay.

FIGURE 4

Importance when deciding to accept current position



Source: APQC

***

APQC helps organizations work smarter, faster, and with greater confidence. It is the world's foremost authority in benchmarking, best practices, process and performance improvement, and knowledge management. APQC's unique structure as a member-based nonprofit makes it a differentiator in the marketplace. APQC partners with more than 500 member organizations worldwide in all industries. With more than 40 years of experience, APQC remains the world's leader in transforming organizations. Visit us at apqc.org, and learn how you can make best practices your practices.

The REAL VALUE of Supply Chain Certification

Curious about what a supply chain certification really means for your career? Here's your answer.

By Bridget McCrea

As the executive director for the Center for Supply Chain Research at Penn State University's Smeal College of Business, Steve Tracey fields a lot of questions from students who want to know if supply chain certifications are really worth the time, trouble, cost and effort. This line of questioning is so common that Tracey has developed a series of Powerpoint slides highlighting certifications offered by APICS, ISM and

A SPECIAL SUPPLEMENT TO:
SUPPLYCHAIN MANAGEMENT REVIEW

"Certificates are focused and fast, when someone wants to improve in all facets of his or her job, then a master's in supply chain management or industrial distribution is probably more applicable. But when that person wants a quick and focused learning experience, then certification is a good option."

CSCMP, and providing insights into which pupils would be best suited for each of those offerings. And, for this issue of *Supply Chain Management Review*, we are publishing a comprehensive listing of supply chain certification offerings on scmr.com compiled by Malini Natarajarathinam and Praharsha Sunkara of Texas A&M University.

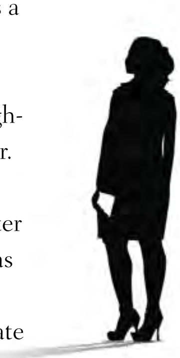
But even with that information consolidated into a svelte, five slide presentation, Tracey says whether students actually derive value from the certification experience comes down to the individual person and his or her employer (or prospective employer). "It really depends on who you work for because some companies value certification more than others," says Tracey. In some cases, for example, a designation may be a differentiator on your resume. In others, your company will reimburse you for the money spent taking the certification sources. And if the stars align in your favor, Tracey says, upon completion you may even get a promotion or a raise out of the deal.

"Before you sign up, figure out if it's going to benefit you and or your firm, and whether your employer is going to put a value on the fact that you've completed this type of coursework," says Tracey. "And while no education is 'bad,' in a sense that we should always be learning, in some cases you may just be getting a certification for your own personal benefit."

The evolution of supply chain certification

What started out years ago as a way to enhance the supply chain professional's career beyond traditional college degrees and hands-on job experience has become a way for individuals to achieve new levels of specialization and expertise. Currently, the three major players in the supply chain certification space are APICS ("CPIM"), CSCMP ("SCPro") and ISM ("CPSM"). Using instructor-delivered self-study, study guides, content manuals and anywhere from three to five exams, these organizations provide coursework in areas like internal manufacturing operations, end-to-end supply chains, logistics, transportation and distribution.

Natarajarathinam, an associate professor in Texas A&M's department of engineering technology and industrial distribution, believes that certification programs add value by helping professionals "differentiate and establish themselves as experts in focused areas." Because they can pick topics or subject areas to focus on, students in these programs can gain experience and get accredited "fairly quickly" using a certification program versus a full-blown college degree offering. "Certificates are focused and fast," says Natarajarathinam. "When someone wants to improve in all facets of his or her job, then a master's in supply chain management or industrial distribution is probably more applicable. But when that person wants a quick and focused learning experience, then certification is a good option."



As Tracey points out, supply chain certifications can also translate into higher salaries—depending on the employer. "Gut-feel tells me that if you do have a certification, it should put you in a better [position] for promotion," adds Nicholas Little, assistant director of executive development programs of Michigan State University's Eli Broad College of business, "and with that promotion would come increased

salary, hopefully. It should also make you more employable, if for any reason you need to change your job, so there's an insurance policy aspect to this as well."

Filling a gap

Initially developed as a corollary for the supply chain baccalaureate and advanced management degrees that didn't exist at the time, supply chain certification started out as a way for professionals to beef up their technical knowledge on related topics. With the proliferation of college supply chain programs over the last decade, certifications now provide value by enhancing students' existing

GE benefits from APICS certification

When Lorenzo Romagnoli took the reins of the GE Oil & Gas' materials management organization, he knew that he had a big challenge in front of him. He had to demonstrate the strategic impact of the organization, while at the same time improving the customer experience as measured by KPIs. Romagnoli was also leading a team that historically hadn't invested much in training and professional development.

Romagnoli knew that GE's strong legacy of investing in employee development was just as important as the company's commitment to applying proven best practices to achieve business results. "In order to declare success, we needed a program that was truly scalable—able to span cultures, languages and regions," Romagnoli says. "We had to align with a partner that could help us deploy industry standards that could deliver repeatable results."

To get there, GE Oil & Gas needed a supply chain and operations management authority with documented standards and best practices. These standards would serve as the training foundation across the multi-generational change program. APICS' body of knowledge, training and certification served as the foundation that would help GE Oil & Gas Turbomachinery Solutions business achieve its goals.

GE Oil & Gas committed to the CPIM certification program, covering all five of its learning modules with multiple course waves running throughout the year. The CPIM program was ideal for three important reasons: CPIM courses and tests are based on the industry-proven APICS Operations Management Body of Knowledge; the CPIM designation is a desirable professional certification and contributes value to individual professional development; and the CPIM path provides a benchmark for the organization to measure training effectiveness and, ultimately, return on training investment.

With the certification, there are also five tests aligned to the CPIM learning modules that must be passed—not only to validate the knowledge obtained but also to earn the CPIM designation. Also, because APICS CPIM is globally represented, GE Oil & Gas could measure employee-testing performance against APICS global averages—another way to benchmark program performance.

To date, GE Oil & Gas has enrolled more than 150 employees from cross-functional teams related to the Turbomachinery Solutions business in the CPIM program. "The APICS CPIM program has really stood out at GE—employees are lining up to be a part of it. It is a real pride point to be invited to participate each year," says Romagnoli. "We found a body of knowledge and program that works, and now we intend to replicate it."

Abe Eshkenazi, CEO at APICS, says that since initiating the APICS certification program, GE's on-time delivery increased to 95% (from 65%) and that its capacity utilization has increased by 30-40%. "That translates into more output and the same footprint for the factory," he explains. "Additionally, [GE's] satisfaction of delivery—from what was promised to actual delivery—also increased. They attributed that to CPIM; they did nothing differently other than to train their staff on CPIM."

Even more interesting is the fact that the individual who introduced GE to the CPIM training is now heading up the company's global supply chain operations. "This is a real-life example of how someone wanted to upgrade his team's skills," says Eshkenazi, "and wound up [discovering] a program that's now embedded throughout GE."

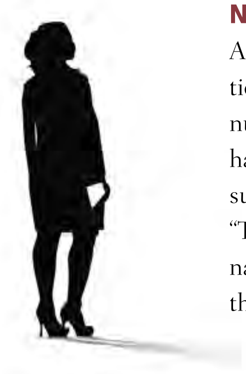
academic educations. "The expectation is that students already have a core foundation in supply chain," says Abe Eshkenazi, CEO at APICS, "and that they now want to separate themselves from the supply chain talent pool by enhancing their professional skills and reputations with one or more certifications."

APICS has conducted its own research and found that individuals with CPIM designations have received an average of 14% higher compensation, as compared to those without the designation. Eshkenazi says the designations also have an 83% favorable impact on hiring decisions when compared to those without certification.

As individuals get these certifications, Eshkenazi says they are recognized in their profession for having achieved a higher level of learning for that specific field. And while at least some of the value comes in the form of personal satisfaction and achievement, he says the portability of a certification (i.e., you can take it with you from one employer to the next) gives it more meaning. And, perhaps more importantly, it demonstrates your commitment to a field of practice.

For example, APICS has conducted its own research and found that individuals with CPIM designations have received an average of 14% higher compensation, as compared to those without the designation. Eshkenazi says the designations also have an 83% favorable impact on hiring decisions when compared to those without certification.

"Similarly, those with the CSCP designation have also received approximately 12% more in compensation over those without the certification, along with an 81% favorable impact on hiring decisions compared to job candidates without this credential," Eshkenazi adds. "Certification holders for both programs have a proven understanding of key organizational skills needed for developing more streamlined operations for their employer."



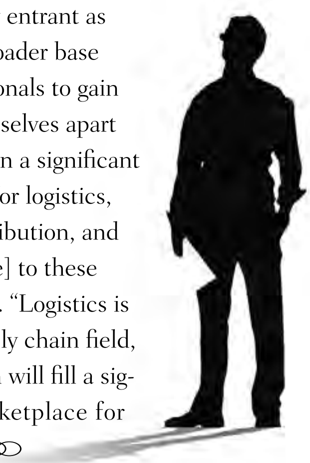
New opportunities ahead

Along with the professional organizations that offer certification programs, numerous institutions of higher education have developed their own versions of the supply chain certificate or designation. "Those certifications rely on the brand name and familiarity that people have for the educational institutions themselves," Little points out. "For example, a number of universities offer a selection of 100% online courses available for people to mix-and-match when they want to fill in 'gaps' in their supply chain knowledge."

At Michigan State, those online courses fall under the institution's master's level program offerings. The student who has studied within a specific area of supply chain management, for example, can round out that education by taking courses that support his or her future career aspirations.

In the future, Little sees the potential for these college-based offerings to include a short exam that—once passed—would allow the student to transfer into a full credit program. This is already a common practice in Europe, he notes, but it has yet to take hold domestically. "I don't think many U.S. universities have gotten to that stage yet," he notes, "but there's definitely potential for that to happen in the future."

Eshkenazi, who notes that APICS will introduce a new logistics, transportation and distribution certification in mid-2016, sees this new entrant as yet another way for a broader base of supply chain professionals to gain knowledge and set themselves apart in the field. "There's been a significant gap in the marketplace for logistics, transportation, and distribution, and no designation [available] to these individuals," he explains. "Logistics is the fastest-growing supply chain field, and our new designation will fill a significant gap in the marketplace for that content area."



Supply Chain Management Certifications Review

By Malini Natarajarathinam & Praharsha Sunkara, Texas A&M University

Tasked with making sure their companies' goods and services reach the end customer, supply chain departments can be found in every organization that delivers products and services. Today's all-encompassing supply chains include manufacturers and suppliers plus product development, customer service, finance, logistics, operations, distribution and other departments that play a role in getting the product or service to the end customer. Collectively, these entities help ensure a constant flow of information and products across the supply chain.

With the increase in the market standards, the growing complexity of the supply chains, and the growth of e-commerce, all organizations need professionals to effectively lead and manage their supply chains. Supply chain management certification programs help these professionals develop their skills while keeping them abreast of their rapidly evolving discipline.

Rewind just a few years, and most organizations were focused on what was happening during production rather than how the end product actually reached the customer. Few companies spent time understanding supply chain activities—an oversight that resulted in highly ineffective supply chains that had a direct, significant and negative impact on customer satisfaction levels.

The landscape today is much different. The supply chain has become a key focus and has created a need for related talent, skill sets and job experience. Put simply, recruiting proper talent is the need of the hour. Today's companies are facing the tough challenge of recruiting the right people for supply chain management positions—a goal that's been difficult to achieve and that won't get any easier to attain in the future.

To bridge the supply chain talent gap, numerous professional institutions, universities, colleges and companies are expanding their degree programs, online courses and certifications in the area of supply chain management. These courses focus not only on traditional supply chain management, but also on collaboration skills, strategic planning, communication, work culture, finance, global operations and information technology, to name a few.

To choose the right certification, consider your current level of experience and career direction. The APICS certifications, for example, are recognized worldwide, while the university offered certifications are more prominent in the United States compared to other parts of the world. In the chart below, we highlight three professional organization certifications and 39 university offered certificate programs. Our goal with this research was to provide a basic understanding of the type of certifications available and highlight the eligibility, expectations and requirements for the completion of the certificate program.

A more complete description of these certifications is available on scmr.com.

Issuing Institute	Certification Name	Eligibility Requirements	Duration for completion	Type of Teaching
Manufacturing Skills Standards Council	Logistics Certification (CLA + CLT)	10th grade	70 hours	Classroom
Air Force Institute of Technology	Graduate Certificate in Supply Chain Management	Bachelor's degree holders	1 year	Classroom/ Online
American Public University	Graduate Certificate in Logistics Management	Open for all	1 Year	Classroom
APICS	APICS Certified in Production and Inventory Management (CPIM) program	Open for all	No duration	Online
APICS	APICS Certified Supply Chain Professional (CSCP) Certification Program	Supply chain professionals	No duration	Online
APICS	APICS Certified in Logistics, Transportation and Distribution (CLTD) program	Open for all	No duration	Online
Arizona State University	Supply Chain Management Certificate	Supply chain professionals	No duration	Online
California State University at Dominguez Hills	Online Certificate in Purchasing Education and Training	Open for all	No duration	Online
California State University at Dominguez Hills	Online Certificate in Supply Chain Management	Open for all	No duration	Online
California State University at Fullerton	Supply Chain Management	Supply chain professionals	1 Year	Classroom
California State University at Long Beach	Global Logistics Specialist Online Professional Designation Program	Supply chain professionals	2 Years	Classroom/ Online
Columbus State Community College	Supply Chain Management Certificate	Bachelor's degree holders	1 Year	Online
Council of Supply Chain Management Professionals	SCProTM Supply Chain Management Certification Program	Bachelor's degree holders	No duration	Classroom
DePaul University	Logistics and Supply Chain Management Certificate Program	Bachelor's degree holders	17 Weeks	Classroom
Eastern Michigan University	Graduate Certificate in Supply Chain Mgmt	Bachelor's degree holders	1 Year	Classroom
Ferris State University	Advanced Studies in Global Logistics	Open for all	1 year	Classroom
Fontbonne University	Certificate in Supply Chain Management	Open for all	1 Year	Classroom
Georgia Institute of Technology	Distribution Operations Analysis and Design Certificate	Distribution operations professionals	6 Years	Classroom

Issuing Institute	Certification Name	Eligibility Requirements	Duration for completion	Type of Teaching
Georgia Institute of Technology	Health and Humanitarian Supply Chain Management Certificate	Government and members of humanitaian activities	6 years	Classroom
Georgia Institute of Technology	Lean Supply Chain Professional Certificate	Supply chain professionals	6 years	Classroom
Georgia Institute of Technology	Strategic Sourcing and Supply Management Certificate	Supply chain professionals	6 years	Classroom
Georgia Institute of Technology	Supply and Demand Planning Certificate	Bachelor's degree holders	6 years	Classroom
Georgia Institute of Technology	Supply Chain Management Certificate	Bachelor's degree holders	6 years	Classroom
Golden Gate University	UG certificate in Operations and Supply Chain Management	Bachelor's degree holders	No duration	Classroom
Golden Gate University	Graduate Certificate in Supply Chain Management	Bachelor's degree holders	No duration	Classroom
Leheigh University	Supply Chain Management Certificate	Open for all	1 year	Online
Lonestar College System	First Line Logistics Leader Certificate	Bachelor's degree holders	1 semester	Classroom
Loyola University	Essentials of Logistics and SCM	Key employees and engineers	1 year	Classroom
Michigan State University	Master Certificate in Supply Chain Management and Operations	Open for all	24 weeks	Online
MITx (MOOC)	MicroMaster's Credential in Supply Chain Management	None - open enrollment	Self paced - typically 24 months	Online using the edX Platform
MIT Sloan	Executive Certificate in Technology, Operations, and Value Chain Management	Sr. Managers and above	2 days	Classroom
Northeastern University	Supply Chain Management Graduate Certificate	Bachelor's degree holders	1 year	Classroom
Pennsylvania State University	Graduate Certificate in Supply Chain Management	Bachelor's degree holders	12 months	Classroom
Rutgers State University	Supply Chain Management Certificate	Sr. Managers and above	4 days	Classroom
Shippensburg University	Advanced Supply Chain and Logistics Certificate	Open for all	1 year	Classroom
Southern New Hampshire University	Operations and Supply Chain Management Graduate Certificate	Open for all	1 year	Online
Southern Polytechnic State University	Industrial Engineering Technology Department Certificate of Logistics	Bachelor's degree holders	3 years	Classroom/ Online
St. Louis University	Integrated Supply Chain Management Program	Supply chain professionals	18 months	Classroom

Issuing Institute	Certification Name	Eligibility Requirements	Duration for completion	Type of Teaching
Stevens Institute of Technology	Logistics and Supply Chain Analysis Graduate Certificate	Bachelor's degree holders	1 year	Classroom
Syracuse University	Executive Certificate in Supply Chain Management	Key employees and engineers	10 weeks/ course	Online
Towson University	Supply Chain Management Post Baccalaureate Certificate	Open for all	1 year	Classroom
University of Alaska at Anchorage	Undergraduate Certificate in Logistics and Supply Chain Operations	Open for all	2 years	Classroom
University of California at Los Angeles	Supply Chain Management certifi-cate	Open for all	5 years	Classroom
University of California at Riverside	Professional Certificate in Purchasing, Logistics and Supply Chain Management	Bachelor's degree holders	1 year	Classroom
University of California at San Diego	Certificate in Purchasing and Supply Management	Supply chain professionals	No duration	Classroom/ Online
University of Houston at Clear Lake	Purchasing and Supply Chain Management Certificate	Open for all	2 years	Classroom
University of Indianapolis	Global Supply Chain Management Graduate Certificate	Master's degree	1 year	Classroom
University of Michigan - Ann Arbor	Lean Supply Chain and Warehouse Management Certificate	Bachelor's degree holders	2 weeks	Classroom
University of Missouri at St. Louis	Graduate Certificate in Logistics and SCM	Open for all	1 year	Classroom
University of North Carolina - Greensboro	Supply Chain, Logistics and Transportation Management	Bachelor's degree holders	6 months	Online
University of North Florida	Certification in Transportation and Logistics	Supply chain professionals	5 days	Classroom
University of San Francisco	Advanced Professional Supply Chain Management Certificate	Bachelor's degree holders	No duration	Online
University of San Francisco	Advanced Professional Sustainable Supply Chain Management Certificate	Bachelor's degree holders	No duration	Online
University of Texas at Dallas	Supply Chain Management Certificate	Bachelor's degree holders	12 days	Classroom
Walden University	Global Supply Chain Management Certificate	Open for all	1 year	Classroom
Washington University at St. Louis	Supply Chain Management Certificate	Open for all	5 days	Classroom

A more complete description of these certifications is available on scmr.com.

A SPECIAL SUPPLEMENT TO:
SUPPLYCHAIN MANAGEMENT REVIEW

State of Third-party Logistics:

Top 50 3PLs

INSIDE

State of the 3PL Market: Technology now the key differentiator S66

Panjiva reports March decline in U.S.-bound waterborne shipments S74

XPO Logistics reports major gains in Q1 revenues along with a net loss S78

UPS rolls out plan for 3D printing manufacturing network S80

New trends revealed in DHL's "2016 Logistics Trend Radar" S82

The benefits and drawbacks of outsourced warehousing S84

Industrial real estate market remains in solid shape in 2016, reports JLL S88

Special Report
Top 50 3PLs

State of the 3PL Market:

Technology NOW THE KEY differentiator

Following last year's merger and acquisition frenzy, the speed of technology implementation by the new "mega 3PLs" will need to keep pace with the evolving challenges of omni-channel fulfillment. Those providers that meet shipper needs will remain dominant.

By Patrick Burnson, Executive Editor

The merger and acquisition frenzy of 2015 may have abated a bit over the past few months, but the trend for larger third-party logistics providers (3PLs) to consolidate could be played out for some time, contend leading industry analysts.

Since early 2014, there have been 10 major acquisitions by 3PLs totaling $18 billion due to the need to expand the array of services and extend their geographic footprints in order to drive scale. In the wake of this activity, there are over 30 domestic 3PLs that have revenue exceeding $1 billion.

Continued on page S68


REAL.
SMART.
LOGISTICS.®
A one-stop shop for your truckload, less-than-truckload, intermodal, air, ocean, and cross-border needs. From unmatched asset services to customizable technology, we hunt for solutions that fit your unique needs. That's our commitment to you. No Excuses.
COYOTE
A UPS COMPANY
877-6-COYOTE
CONTACTSHIPPER@COYOTE.COM
WWW.COYOTE.COM

Armstrong & Associates Top 50 U.S. 3PLs (April 2016)

2015 Rank	Third-party Logistics Provider (3PL)	2015 Gross Logistics Revenue (USD Millions)*
1	C.H. Robinson	13,476
2	UPS Supply Chain Solutions	8,215
3	Expeditors	6,617
4	J.B. Hunt (JBI, DCS & ICS)	5,816
5	XPO Logistics	5,540
6	Kuehne + Nagel (The Americas)	5,230
7	UTi Worldwide	3,696
8	Hub Group	3,526
9	Burris Logistics	3,524
10	Schneider Logistics & Dedicated	3,480
11	DHL Supply Chain North America	3,300
12	FedEx Trade Networks and FedEx SupplyChain	3,178
13	Panalpina (The Americas)	2,784
14	DB Schenker (The Americas)	2,687
15	CEVA Logistics (The Americas)	2,452
16	Ryder Supply Chain Solutions	2,443
17	Coyote Logistics	2,315
18	Total Quality Logistics	2,239
19	GEODIS (The Americas)	2,000
20	BDP International	1,900
21	Landstar	1,760
22	GENCO	1,640
23	Transplace	1,633
24	Americold	1,555
25	Echo Global Logistics	1,512
26	Transportation Insight	1,500
27	Penske Logistics	1,433
28	Swift Transportation	1,418
29	Cardinal Logistics Management	1,361
30	NFI	1,200
31	Werner Enterprises Dedicated & Logistics	1,158
32	APL Logistics Americas	1,030
33	Mode Transportation	929
34	syncreon	900
35	Yusen Logistics (Americas)	899
36	England Logistics	882
37	Ruan	869
38	Damco (The Americas)	860
38	Neovia Logistics Services	860
39	Lineage Logistics	800
40	Nippon Express (The Americas)	791
41	DSV (The Americas)	757
42	Worldwide Express	750
43	Ingram Micro Supply Chain Solutions	740
44	Radiant Logistics	724
45	Agility (The Americas)	703
46	Hellmann Worldwide Logistics (The Americas)	662
47	Crane Worldwide Logistics	654
48	BNSF Logistics	610
49	Odyssey Logistics & Technology	590

*Revenues are company reported or Armstrong & Associates, Inc. estimates and have been converted to US$ using the average annual exchange rate in order to make non-currency related growth comparisons.


"With the Echo team's technology solutions, we're able to reduce our workload and focus on what we do best."
Jon Backes
Director of Operations
Culligan International Company

Armstrong & Associates Top 50 Global 3PLs (April 2016)

2015 Rank	Third-party Logistics Provider (3PL)	2015 Gross Logistics Revenue (USD Millions)*
1	DHL Supply Chain & Global Forwarding	29,562
2	Kuehne + Nagel	21,100
3	DB Schenker	17,160
4	Nippon Express	15,822
5	C.H. Robinson	13,476
6	UPS Supply Chain Solutions	8,215
7	DSV	7,574
8	Sinotrans	7,314
9	CEVA Logistics	6,959
10	Expeditors	6,617
11	DACHSER	6,116
12	Panalpina	6,091
13	GEODIS	5,864
14	Toll Group	5,822
15	J.B. Hunt (JBI, DCS & ICS)	5,816
16	Hitachi Transport System	5,612
17	XPO Logistics	5,540
18	GEFCO	5,387
19	Hellmann Worldwide Logistics	3,987
20	Agility	3,907
21	Yusen Logistics	3,835
22	Bolloré Logistics	3,735
23	UTi Worldwide	3,696
24	IMPERIAL Logistics	3,596
25	Hub Group	3,526
26	Burris Logistics	3,524
27	Schneider Logistics & Dedicated	3,480
28	FedEx Trade Networks and FedEx SupplyChain	3,178
29	Kintetsu World Express	2,942
30	CJ korea express	2,888
31	Damco	2,740
32	Kerry Logistics	2,723
33	Ryder Supply Chain Solutions	2,443
34	Coyote Logistics	2,315
35	Total Quality Logistics	2,239
36	Sankyu	2,043
37	BDP International	1,900
38	Fiege	1,860
39	Wincanton	1,782
40	Landstar	1,760
41	NNR Global Logistics	1,683
42	APL Logistics	1,659
43	Mainfreight	1,640
43	GENCO	1,640
44	Transplace	1,633
45	arvato	1,561
46	Americold	1,555
47	Echo Global Logistics	1,512
48	Transportation Insight	1,500
49	Penske Logistics	1,433

*Revenues are company reported or Armstrong & Associates, Inc. estimates and have been converted to US$ using the average annual exchange rate in order to make non-currency related growth comparisons.


WHAT IF ______ COULD
YOUR PRODUCT NAME
GET TO/FROM ______
CITY, COUNTRY
____ DAYS FASTER?
NUMBER
ACCELERATE YOUR ADVANTAGE®
Find out more at acceleratey ouradvantage.com
800.323.7587 | solutions@chrobinson.com
C.H. ROBINSON
© 2016 C.H. Robinson Worldwide, Inc. All Rights Reserved.

"The pace of 3PL merger and acquisition will certainly continue," says Evan Armstrong, president of the third-party logistics consultancy Armstrong & Associates. "In fact, this year we expect to see a large number of mid- and small-sized deals versus the $100-million-plus deals seen throughout 2015."

In the meantime, Armstrong stresses that the pace of technology implementation by 3PLs will continue to accelerate at breakneck speed, as more and more shippers need to be interconnected by systems to keep pace with the evolving challenges of e-commerce and omni-channel fulfillment. "In today's logistics management environment," he adds, "data is the new oil."

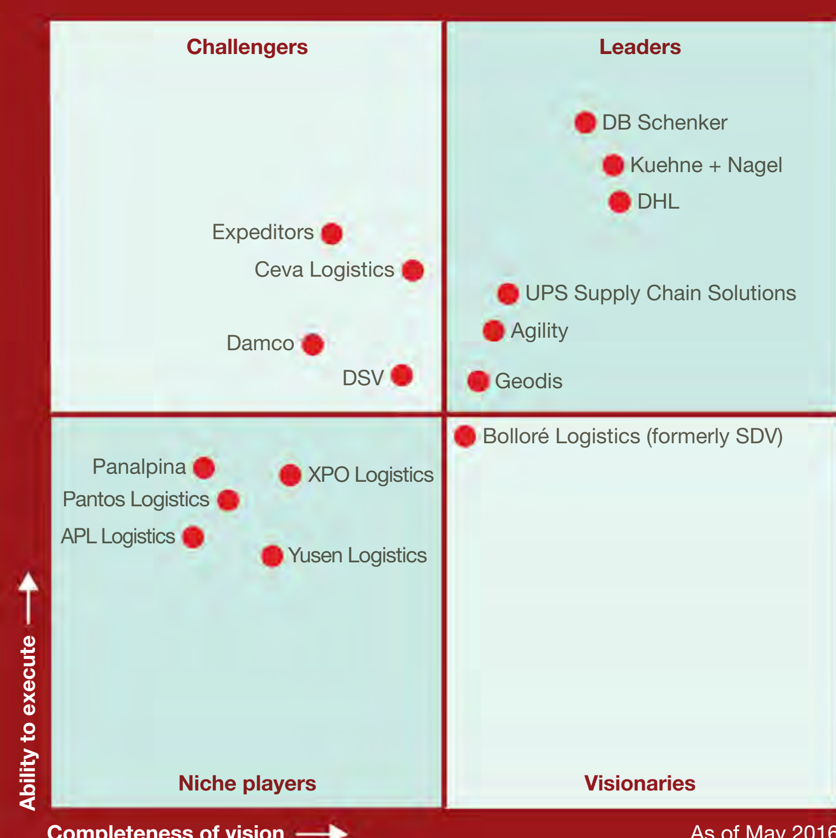
Similar findings surfaced in Gartner's annual "Magic Quadrant" report that was released last month at its supply chain conference in Phoenix, Ariz. Gartner notes that 3PLs have extended their services beyond the basics, providing opportunities to increase their value and resolve additional customer supply chain challenges.

For example, standard services now include transportation procurement, logistics network design, returns and repair processing, assembly and kitting, cross-docking, shipment consolidation, packaging, postponement, shipment consolidation and project logistics.

"However, technology, whether proprietary or private-label, is playing a significant role in

Magic quadrant

Magic quadrant for third-party logistics providers, worldwide



Source: Gartner (May 2016)


SMALL FREIGHT
IS A BIG DEAL
LTL shipments can be expensive and complex to manage. Unyson pushes through the complexities of these solutions with our people, processes and technology, which result in increased savings, improved utilization and upgraded service. To learn more email us at Info@Unyson.com
UNYSON
unyson.com

sustaining growth for service providers," says Greg Aimi, Gartner's director of supply chain research and co-author of the "Magic Quadrant."

Aimi notes that as Big Data continues to saturate the space, logistics managers are looking for partners that can help capture, analyze and execute information. "Integration with customer processes and data strengthens the relationship, "say Aimi, adding that technology investment increases visibility so logistics managers no longer fear losing control over their networks.

"The challenge for 3PLs is in how their customers are choosing to engage with technology, and whether 3PLs are perceived as the vendors or facilitators of technology," says Aimi. "Software vendors are just as likely to promote their technology packages and managed services to logistics managers directly as they are to their outsourced 3PL partner."

"The pace of 3PL merger and acquisition will certainly continue. In fact, this year we expect to see a large number of mid- and small-sized deals versus the $100-million-plus deals seen throughout 2015."

—Evan Armstrong, Armstrong & Associates

These observations mirror those contained in a recent study by the University of Tennessee's (UT) Haslam College of Business Supply Chain Management titled "Selecting and Managing a Third-party Logistics Provider."

"Today's 3PL is not your grandfather's 3PL," says Paul Dittmann, executive director of UT's Global Supply Chain Institute (GSCI). "The scope of third-party logistics has widely increased and expectations of them have accelerated, but that does not mean that firms are using 3PLs to their full advantage."

Dittmann partnered with Kate Vitasek,

Panjiva reports March decline in U.S.-bound waterborne shipments

U.S.-bound waterborne shipments stumbled in March to end the first quarter, according to data issued by Panjiva, an online search engine with information on the freight movements of global suppliers and manufacturers.

March shipments at 798,180 trailed February by 12% and were down 19% annually. For the entire first quarter, shipments were relatively flat annually, rising 0.27%. Panjiva said that March's sequential decline was atypical in that in previous years shipments have risen from February to March, with a 24% gain in 2015, and a 9% gain in 2013.

In the report, Panjiva analysts explained that part of the decline could be attributed to a strong February, with an extra day due to the leap year, while making it clear that "it is evident from the annual comparison that March's shipment levels were still low." Analysts added that April is usually a growth month, with the expectation that shipments should head up in comparison to March.

In an interview, Panjiva research director Annelise McCarthy said that while March was down, it was encouraging that things began well to start the year in January and February.

"That helps to explain a little bit of the March decline, although it does not entirely solve the year-over-year drop off," said McCarthy. "It's too soon to see if what happened in March is the beginning of a trend, and we will need to see how April shakes out to see if it was a one-time thing for March or an indication of something larger at play. However, we have heard a bit of a disconnect from clients in that they are less optimistic about 2016 than they were in 2015."

—Jeff Berman, group news editor

author of "The Vested Way," to find the best practices for creating competitive advantages through use of a 3PL. More than 60 executives interviewed for the study said that the biggest mistake they made was not doing a thorough needs assessment before hiring a 3PL.

"The challenge for 3PLs is in how their customers are choosing to engage with technology, and whether 3PLs are perceived as the vendors or facilitators of technology."

—Greg Aimi, Gartner

The report also found that many—if not most—bids for third-party logistics providers contained unrealistic data on company operations. Omitting business leaders from the selection process was another common pitfall, leading to a lack of business-wide strategy for the partnership.

Finding the right 3PL fit

The authors of the UT report maintain that the major merger and acquisition trend in the 3PL industry is going to spawn the emergence of small niche players, just as it has in the software industry. In this environment, logistics managers will need to craft more incentive-based contracts in which each side will need to share in the risks as well as rewards.

"More risk will be transferred to 3PLs, including headcount, environmental, and supply chain performance," says Dittmann.

"At the end of the day, it's going to be about getting the best people, and there will continue to be a major competition for the best and brightest talent."

Corporate procurement will also be involved in the outsourcing process, say UT researchers, who maintain that it's "incumbent" on both sides to work hard at developing a mutual understanding and trust to get maximum benefit from the relationship. At the same time, innovation will also increase.

"The wide array of technology and the rate of its adoption will become more and more important in defining how we do business with 3PLs," says Dittmann. "This will range from omni-channel support to disruptive technologies like drones, 3D printing, Internet of things, driverless vehicles, advanced robotics, wearable technology and 'Uberization.'"

According to the logistics and supply chain practitioners that the UT team interviewed for the study, the future growth projections show e-commence doubling to over 20% of total sales in just three years.

"With that in mind, companies will want to partner with their 3PLs to help navigate the maze of a constantly changing business model," says Dittmann. "There will be an emergence of creative ways to fully utilize available capacity, including co-shipping and co-habitating even with competitors."

Value proposition flipped

According to Adrian Gonzalez, founder and president of the consulting firm Adelante SCM, the 3PL value proposition is "flipping."

"Meeting a shipper's capacity and service level requirements at a competitive cost is no longer enough," says Gonzalez. "Logistics service providers also need to meet the information requirements of shippers—that is, provide them with timely, accurate, and complete data and insights."

"The scope of third-party logistics has widely increased and expectations of them have accelerated, but that does not mean that firms are using 3PLs to their full advantage."

—Paul Dittmann, UT's Global Supply Chain Institute

For the past few years, Gonzalez has explored the convergence of business models—specifically the business models of logistics service providers, technology companies, and consulting firms—and how shippers are looking for the right mix of technology, advice, and managed services from their 3PL partners. "What's becoming clear is that technology, including access to IT resources and advice, are contributing more to the overall value proposition these days," he says.

For example, at a 3PL customer conference earlier this year, a leading shipper presented a case study that focused not on transportation or warehousing services, but on the master data management and business intelligence services the 3PL was providing them. "If the names and logos had been taken out of the presentation," says Gonzalez, "you would have thought the customer was talking about an outsourced IT provider instead of a 3PL."

Gonzalez also maintains that it's still

XPO Logistics reports major gains in Q1 revenues along with a net loss

While a fair amount of first quarter earnings reports for transportation and logistics service companies were on the mundane side, first quarter earnings issued by XPO Logistics last month were mostly positive.

Total gross first quarter revenue for XPO was up 404.4% annually to $3.5 billion, with net revenue up 510.5% to $1.6 billion. While gross and net revenue were up, the company reported a net loss of $23.2 million, or $0.21 per diluted share and an adjusted net loss attributable to common shareholders of $9.3 million or $0.08 per share. First quarter EBITDA, at $249.3 million, was ahead of the first quarter of 2015 at $29.2 million.

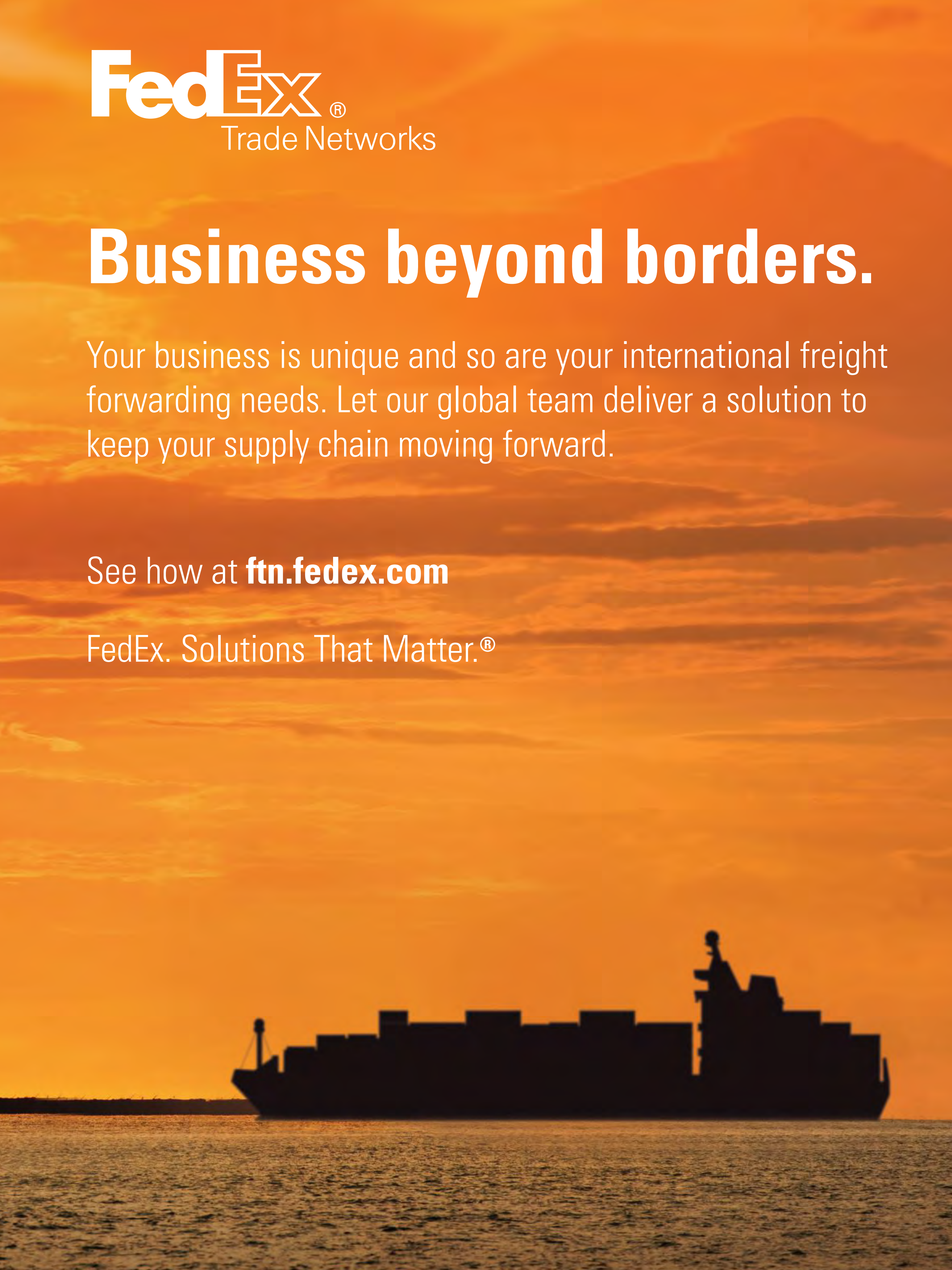
"We started the year off with a bang," said XPO chairman and CEO Brad Jacobs. "Our organic revenue growth was 12%, and we have been able to buck the sluggish macro trends. Our fastest top-line growers are in truck brokerage and last mile, but Europe, which is one-third of our business, is also firing on all cylinders as both transportation and logistics in Europe beat budget again this quarter as they have done every quarter since we entered Europe a year ago."

Jacobs added that XPO's European transportation business experienced strong shipment growth broadly across almost all regions in the quarter, with that trend continuing in April—especially for its truckload and less-than-truckload (LTL) groups performing consistently well across its European footprint.

On the truckload side, Jacobs said XPO has put in a new management team and is instilling the same sense of urgency used to create its LTL. He said XPO Truckload has begun selling some of its capacity to its brokerage network, which has resulted in far more truckload bids than ever before.

"There is a strong emphasis on profitable organic revenue growth, and we are hiring additional sales staff in Europe and North America, with a big part of our strategy to cross-sell our services to our largest customers," added Jacobs. "Our plan calls for doubling the size of our strategic account managers this year."

—Jeff Berman, group news editor


FedEx® Trade Networks
Business beyond borders.
Your business is unique and so are your international freight forwarding needs. Let our global team deliver a solution to keep your supply chain moving forward.
See how at ftn.fedex.com
FedEx. Solutions That Matter.®

difficult for logistics managers to obtain IT support and funding for technology, so executives are looking to their 3PL partners to meet their technology needs. This includes software such as a transportation management system (TMS), automation technology in the warehouse, or a business intelligence or analytics-based Control Tower platform.

"There has been a lot of buzz in recent years about how Amazon is becoming a 3PL," says Gonzalez. "What's ironic is that customers are pushing 3PLs to become more like Amazon—specifically, more like providers of cloud computing services such as Amazon Web Services."

Gonzalez concludes that this shift is forcing 3PLs to re-evaluate their business models, as well as their pricing and go-to-market strategies, what technologies and resources to invest in, as well as how they communicate their value proposition to shippers.

Return to growth

Nearly all of the 3PLs in Gartner's 2016 "Magic Quadrant" report posted year-on-year growth in revenue, volumes or net earnings

UPS rolls out plan for 3D printing manufacturing network

Global logistics and transportation service provider UPS announced last month that it's launching a full-scale, on-demand 3D printing network.

UPS said that this new effort will mesh its global logistics network with 3D printers at more than 60 U.S.-based UPS Store locations and work in conjunction with the on-demand production platform and 3D printing factory from Fast Radius, a provider of on-demand part manufacturing and an additive manufacturing company.

The service provider added that it will partner with technology powerhouse SAP to foster an end-to-end industrial offering that will mesh SAP's supply chain offerings with Big Brown's on-demand manufacturing services and global logistics network in an effort to simplify the industrial manufacturing process from digitization, certification, order-to-manufacturing and delivery.

"By building this disruptive technology into our supply chain models, we also bring new value to our manufacturing customers of all sizes," said Stan Deans, president of UPS Global Distribution & Logistics. "Additive manufacturing technology is still developing rapidly so 'manufacturing as a service' is a smart approach for many companies."

UPS has been expanding on-demand manufacturing capabilities for the last two years, beginning with more than 60 UPS Store's having 3D printing capabilities for small businesses, designers and entrepreneurs. In 2015, UPS invested in Fast Radius (formerly CloudDDM) and placed its production plant in the heart of its Louisville supply chain campus, just minutes from the UPS global air hub.

In terms of customer benefits, UPS said that this effort will benefit customers of all types and sizes, including manufacturers wanting to reduce inventory for slow-moving parts; manufacturers with short production runs; manufacturers and retailers of custom/semi-custom goods; industrial designers and engineers who want rapid prototypes; and entrepreneurs, start-ups and manufacturers who don't currently have access to 3D printers.

—Jeff Berman, group news editor


ATTENTION CUSTOMER:
REPORT DAMAGE NOW!
CONTENTS OF THIS CARTON WERE CAREFULLY PACKED
AND LEFT THE WAREHOUSE IN PERFECT CONDITION.
IN CASE OF DAMAGE, CALL DELIVERING CARRIER'S
AGENT AT ONCE AND REQUEST INSPECTION REPORT.
DO NOT CONTACT US FIRST-NOTIFY CARRIER.
THIS END UP
SHIP TO
FRAGILE HANDLE WITH CARE
MADE IN USA
64% of shoppers say delivery speed is important when buying online.
In today's omnichannel marketplace, it's critical to get products into customers' hands ASAP — without breaking the bank. Whether you're shipping B2B or B2C, Saddle Creek helps you deliver. With our advanced systems to fulfill orders quickly and efficiently and our strategic locations nationwide, you'll reach 70% of US customers in 2 days via ground — 99% when using multiple DCs. Speed. Service. Satisfied customers.
Saddle Creek
LOGISTICS SERVICES
sclogistics.com | 888-878-1177
*Source: Seamless Retail Survey Results 2015

of between 3% and 11%. This growth trend across the sector reflected an improving global economic landscape, organic growth of incumbent businesses and an intense period of mergers or acquisitions. However, the forecasted economic headwinds in key global economies such as China and Europe—and the need to invest in upgrading assets, equipment and technology—will place pressure on future revenue and escalating costs of the leading 3PLs.

"To mitigate these challenges, 3PLs are investing in capabilities that are focused on higher-return business," says Gartner analyst James Lisica. "3PLs are carefully choosing when and where to aggressively compete for new business in established vertical markets as well as seeking new ones."

And while merger and acquisition activity was significant in 2015 across the 3PL sector, more deals, albeit on a smaller scale, are expected in 2016. However, over the coming year Gartner expect 3PLs to refocus efforts on organic growth and driving operational efficiencies to increase margins.

Indeed, Gartner adds a cautionary note by observing that shippers are wary of all of merger and acquisition activity, given that it typically drives a period of instability and integration challenges within the merged companies. But more importantly, it reduces the competition by increasing the influence of the newly formed, mega global 3PLs. To that, they add, global shippers must pick and choose their partners wisely. •

Patrick Burnson is executive editor of *Logistics Management*

New trends revealed in DHL's "2016 Logistics Trend Radar"

A recently published report from global logistics services provider DHL reveals 26 key trends that could make an impact on the logistics industry in the next five to 10 years. In its report "2016 Logistics Trend Radar," the third in the series, DHL introduces new trends, tracks the evolution of trends spotted in earlier editions as well as trends that have faded or become mainstream since the series started in 2013.

"Predicting trends is notoriously challenging," says Markus Kückelhaus, vice president of innovation and trend research at DHL. "It's difficult to know ahead of time which trends will have a long-term effect on businesses and which ones are simply parts of a short-lived hype."

The latest edition of the report track macro trends such as the changing energy and trade landscape to micro trends such as logistics startups that are unbundling the logistics industry. It reveals what sectors will be affected by developments and time frames for potential impact or introduction over the next decade.

Artificial intelligence and personalization are behind several of the most transformational trends of the 2016 report, including intelligent supply chains that use self-learning or 'machine learning' systems. "The impact of data-driven and autonomous supply chains provides an opportunity for previously unimaginable levels of optimization in manufacturing, logistics, warehousing and last mile delivery that could become a reality in less than half a decade despite high set-up costs deterring early adoption in logistics," says Kückelhaus.

Set to have a big impact on logistics, on-demand delivery will enable consumers to have their purchases delivered where and when they need them by using flexible courier services. The report explores what could happen as consumer demand for highly personalized products goes head to head with mass production over the next 20 years.

A batch size of one, for example, would lead to decentralized production and rapidly changing supply chains that will require logistics providers to be fast and flexible to react to changes in time and place of production.

—Patrick Burnson, executive editor

Special Report
Top 50 3PLs

The BENEFITS & DRAWBACKS of Outsourced Warehousing

Hiring a vendor to manage warehouses and distribution centers is no guarantee of superior performance, but it does offer flexibility.

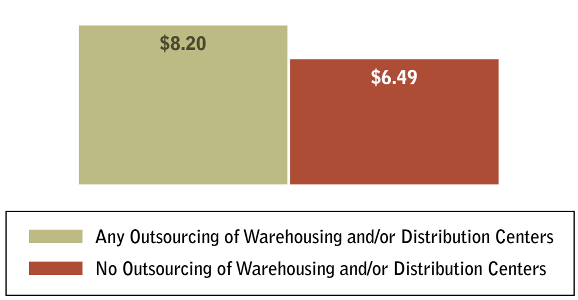
By Becky Partida, Senior Research Specialist – Supply Chain Management, APQC

Organizations have been outsourcing non-critical functions within the enterprise for years. Logistics activities such as transportation, warehousing, and distribution are no exception. The prevalence of 3PLs allows organizations to evaluate whether it makes more sense to outsource logistics activities that can be better performed by a specialized vendor. Although much attention is paid to the outsourcing of transportation, APQC's Open Standards Benchmarking data in logistics indicates that nearly 58% of responding organizations outsource the management of their warehouses or distribution centers to a third party. Specifically, 40% outsource this to some degree, and nearly 18% outsource this function extensively.

The question is: Does outsourcing the management of warehousing and distribution activities result in advantages when compared with keeping these functions in-house? To find out, APQC compared the performance of organizations that have outsourced this to any degree against the performance of organizations that have not outsourced warehousing and distribution center management at all. The data indicates that, not surprisingly, outsourcing organizations spend slightly more on warehousing than organizations that do not outsource. Outsourcing, however, is no guarantee of superior performance in other aspects of warehousing and distribution.

Figure 1

Total Cost to Perform the Process "Operate Warehousing" per $1,000 Revenue
(Median)



Source: APQC

Cost to operate warehousing

APQC's data indicates that organizations outsourcing the management of warehouses and distribution centers to any degree spend slightly more on these functions than their counterparts that do not outsource. This is not surprising given the additional cost associated with hiring a third-party to oversee these activities. As shown in Figure 1, at the median organizations outsourcing the management of their warehouses and distribution centers spend $1.71 more per

$1,000 in revenue on warehousing.

Interestingly, APQC's data also shows that outsourcing organizations have personnel costs associated with warehousing that are very close to those of organizations that do not outsource. At the median, outsourcing organizations spend $2.36 per $1,000 in revenue on personnel costs for operating warehousing, and organizations that do not outsource spend $2.74 per $1,000 in revenue on the same type of costs. Although outsourcing offers organizations the benefit of not having to manage warehouse employees because labor is handled by the vendor, it does not necessarily mean that these organizations spend significantly less on the staff needed for warehousing tasks.

Warehousing performance

When it comes to performance on measures related to warehousing operations, organizations that outsource have some advantages over organizations that do not outsource. First, these organizations process more sales orders per full-time equivalent employee (FTE) dedicated to warehousing activities. Outsourcing organizations process nearly 2,500 sales orders per FTE at the median, whereas organizations that do not outsource process fewer than 2,000 sales orders per FTE. Clearly the warehouse staff for outsourcing organizations is able to process more than the in-house staff of organizations that do not outsource.

And, outsourcing organizations have shorter pick-to-ship cycle times for customer orders than organizations that do not outsource. At the median, there is a one hour difference in performance for these two groups. Although this is not a large difference at first glance, an extra hour can translate into additional orders handled by warehouse staff for greater throughput, or an extra hour for delivery that can expand the geographic reach of a facility; that can impact the number of sales orders these staff members process overall.

Although APQC's data shows that outsourcing organizations are able to process more customer orders at a faster rate, in other areas these organizations fall behind their counterparts that do not outsource. These organizations have slightly higher inventory carrying costs (0.7% higher) at the median than organizations that do not outsource. Although this is not a large difference, it is surprising given that outsourcing to 3PLs is often seen as a way to streamline inventory and other aspects of warehousing. It may be that outsourcing organizations need more time to get their stock to the warehouses of their vendors, which results in additional safety stock to compensate for the additional transit time.

Another unexpected finding from APQC's data is that outsourcing organizations have the same inventory accuracy as their counterparts that do not outsource. Both groups of organizations have an inventory accuracy rate of 98% at the median. Although outsourcing organizations do not perform worse with regard to this aspect of warehousing, one would expect that they would have superior performance given that inventory management has been transferred to a vendor specializing in warehousing and distribution.

A last surprising finding is that organizations outsourcing warehousing and distribution center management have to expedite more of their orders than organizations that do not outsource. At the median, outsourcing organizations expedite one% more (5%) of their customer orders than organizations that do not outsource (4%). Although these organizations have shorter pick-to-ship cycle times, other factors are clearly affecting customer order processing that results in the need to expedite more orders.

Balance strategy with flexibility

The results of APQC's analysis indicate that organizations outsourcing the management of their warehouses and distribution centers have some advantages over organizations that do not. However, outsourcing may not guarantee superior performance in all warehousing activities. The vendors that serve outsourcing organizations seem able to process orders faster and in greater numbers with similar staffing, but there are tradeoffs in other areas. The data indicates that there is clearly room for vendors managing warehouses and distribution centers to improve their performance.

Despite the mixed performance, APQC believes that organizations may still find it worthwhile to hand off management of warehouses and distribution centers to external providers. A strong motivation behind organizations outsourcing any function, including activities related to logistics, is that these activities are not a core competency. The outsourcing costs and potential for mixed performance may be acceptable if outsourcing gives the organization greater freedom to focus on functions that are central to the business. •

Industrial real estate market remains in solid shape in 2016, reports JLL

When it comes to the current state of the industrial real estate market in 2016, it stands to reason that the times are not necessarily changing, at least when compared to 2015. That was a major takeaway of recent research issued by industrial real estate firm JLL.

The data presented in JLL's research continues to tell a positive story for the industrial real estate market, including:

- U.S. industrial vacancy, at 6.3%, is at a 15-year low and is lower than the previous cycle's low point of 7.4% in 2007.
- U.S. warehouse asking rents are expected to increase for the sixth straight year, with the current average asking rate at $5.01 per square foot.
- 78% of U.S. industrial net absorption activity in the first quarter of 2016 was dominated by move-in's into facilities that were built in the last 27 months.

"We're looking at 2016 to be a lot like 2015 in that we have had a real continuing steady and positive absorption, with the first quarter numbers showing 51 million square-feet in net absorption compared to 49 million compared to last year," said Craig Meyer, president of industrial brokerage at JLL.

Two underlying themes that influenced this data cited by Meyer include a reset of the U.S. supply chain, which has seen major growth in direct-to-customer, or Internet, sales, along with the replacement of traditional distribution centers.

The growth of direct-to-customer over the last seven years has been spurred by e-fulfillment, which Meyer said has been driven by the replacement of the distribution center, which was taking product from a warehouse to a store, whereas a fulfillment center is taking product directly to the consumer—or the "Amazon effect."

Meyer explains that this is permeating throughout the entire retail sector, with the shrinking retail footprint is growing the industrial footprint in the U.S. "It is a paradigm shift that is going on," said Meyer. "And as buildings have grown in size in this particular cycle, they have gone from 500,000 square-feet to 1 million square-feet and have become very significant institutional grade investments."

A major implication of current market conditions for occupiers, in the form of shippers and 3PLs, as outlined by JLL, is that they need to forecast and get ahead of the market as early as possible. And with rates heading up, acting sooner rather than later will provide them with a real estate advantage, with market conditions not expected to materially change in the near term.

—Patrick Burnson, executive editor

Uniquely Designed to Deliver Exceptional Transportation Logistics Solutions

The LANDSTAR NETWORK is UNMATCHED in the industry.

9,000 LEASED OWNER-OPERATORS

44,000 OTHER AVAILABLE CAPACITY PROVIDERS

The LANDSTAR ADVANTAGE:

LANDSTAR

- *Independent agents and capacity providers with a VESTED INTEREST in your SUCCESS*
- *Recognized INDUSTRY LEADER*

1,100 AGENTS

- *Local SERVICE, global REACH*

Truckload & LTL

14,000 *pieces of trailing equipment*

Over **1,400** *stepdecks & **1,300** flatbeds*

- *Serving all of NORTH AMERICA*

Emergency/Expedited

- *ANY SIZE, ANYWHERE, Ground and Air*
- *Cargo van, straight truck and tractor-trailers*

Heavy & Specialized

- *80 ton capacity, 40-ton lowboys, multi-axles*
- *Schnables, beam, blade, stretch trailers*

Air & Ocean Freight Forwarding

- *Air express, air cargo and air charter*
- *Import/Export at all major ports*
- *Licensed NVOCC*

Rail Intermodal

- *Boxcar, bulk, flatcar and tank capacity*
- *Service in/out of CANADA and MEXICO*
- *Contracts with major RAIL and STACK TRAIN operators*

The Landstar network is unmatched in the industry. We provide customized solutions via air, land and sea that can take your freight around the world.

Visit www.landstar.com to learn how Landstar can be the single source for all of your capacity needs.

SmartWay Transport Partner
Getting There With Cleaner Air

LANDSTAR

877-696-4507 | solutions@landstar.com