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SUPPLYCHAIN MANAGEMENT REVIEW®

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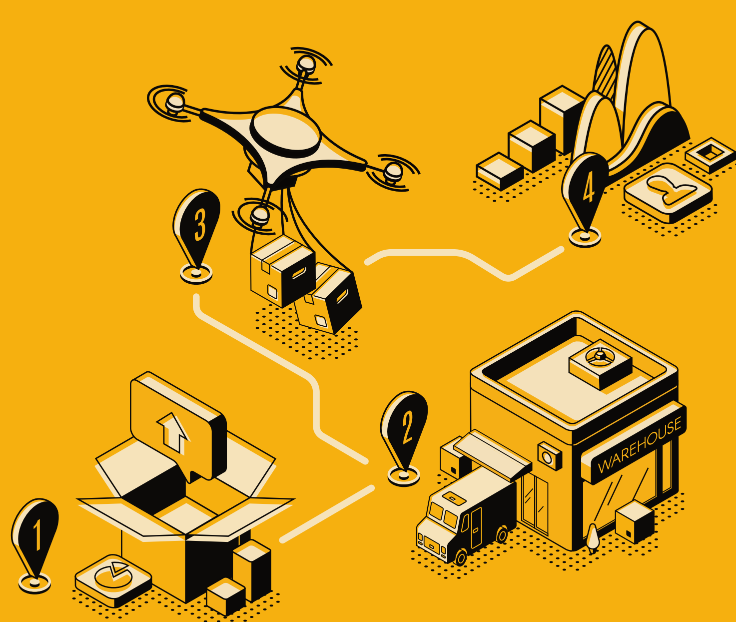
EXECUTIVE GUIDE TO SUPPLY CHAIN RESOURCES



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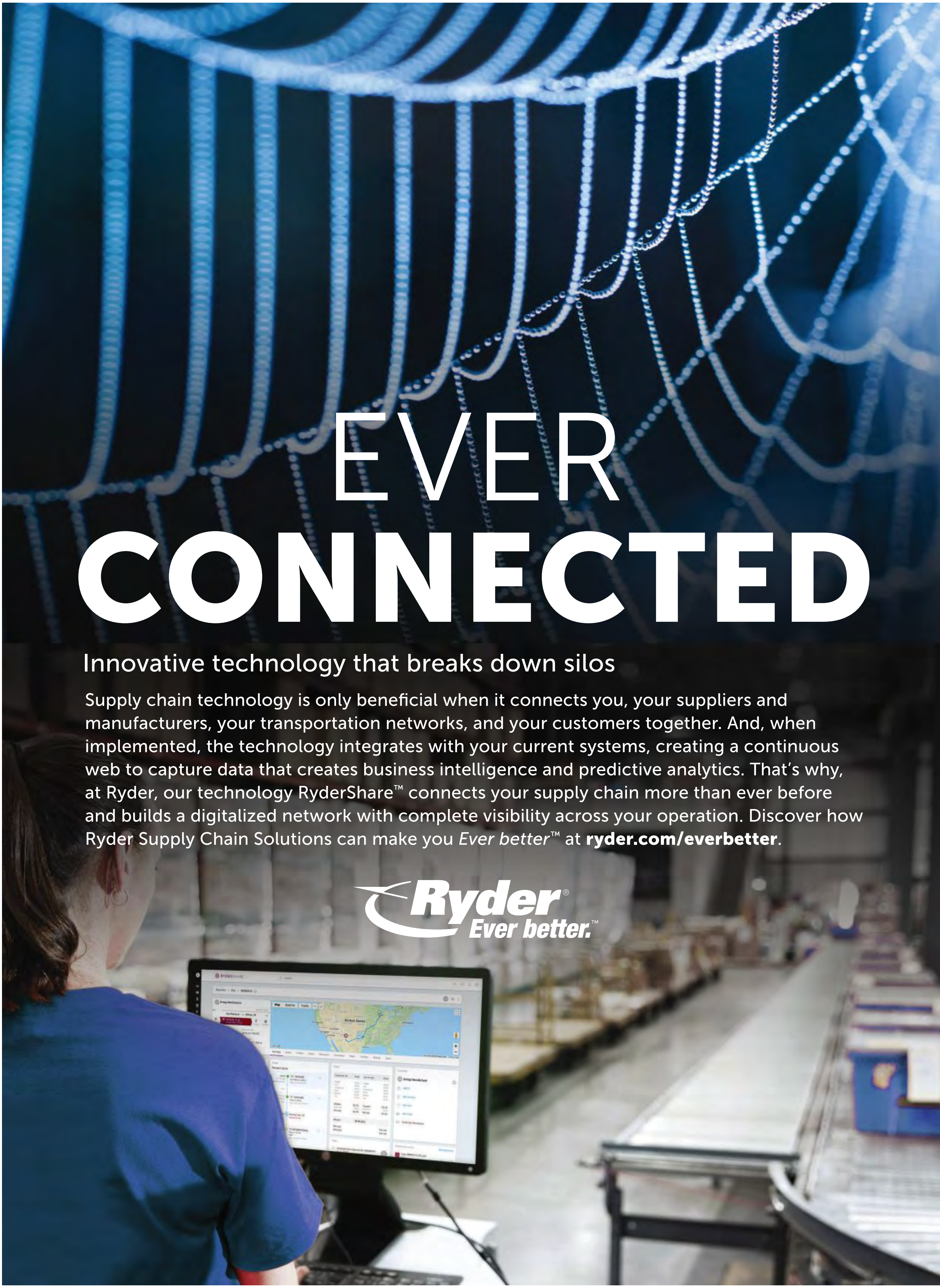
EVER
CONNECTED
Innovative technology that breaks down silos
Supply chain technology is only beneficial when it connects you, your suppliers and manufacturers, your transportation networks, and your customers together. And, when implemented, the technology integrates with your current systems, creating a continuous web to capture data that creates business intelligence and predictive analytics. That's why, at Ryder, our technology RyderShare™ connects your supply chain more than ever before and builds a digitalized network with complete visibility across your operation. Discover how Ryder Supply Chain Solutions can make you *Ever better*™ at **ryder.com/everbetter**.
Ryder®
Ever better.™

The Ultimate Digital Platform for Real-Time Supply Chain Transparency and Collaboration

By digitizing and simplifying supply chain management, RyderShare™ helps companies manage complexities, drive continuous improvement, and provide high levels of customer service.

Focused on developing smarter, faster, and more agile supply chains that display resilience in the face of adversity, more companies are turning to their logistics partners for help future-proofing those critical networks. As this reprioritization happens both in response to COVID-19 and with the goal of avoiding future disruptions, organizations also need robust technology platforms to ensure fast, efficient fulfillment and delivery of essential products.

As a partner that has a broad portfolio and decades of experience helping organizations achieve their logistics goals, Ryder combines the best of both worlds with its RyderShare™ digital platform for real-time supply chain transparency and collaboration. By digitizing the supply chain, and then using the digitization to drive speed, continuous improvement, and enhanced customer service, RyderShare™ eliminates the silos that exist in today's supply chains.

"Everyone operates in silos, has their own technology, and orchestrates their own individual link in the supply chains," says Kendra Phillips, CTO and VP of new products at Ryder. "Our goal is to break those silos down and bring everyone together so they can see the same data and interact over that data. It's about creating a transparent supply chain."

DATA IS THE NEW OIL

Made up of a supplier, manufacturer, shipper, distribution point, and end consumer, the typical supply chain is highly fragmented and siloed. With RyderShare™, each of those crucial links has a single source of truth to work from and collaborate on. This, in turn, enhances supply chain visibility, enables good communication, and allows companies to manage exceptions quickly.

Rather than acting on information that may or may not match the data that another supply chain partner is using, for instance, companies can work from the same playbook. "Everyone can see when something's wrong and then collaborate on issue management," said Phillips. "And because RyderShare™ keeps everyone aware of what's happening in real-time, it also supports good decision-making and keeps all parties well informed."

As a technology platform, RyderShare™ gives organizations access to data that they've never had access to. It also gives them a robust solution that distills large volumes of data—both internal and external—into actionable items that supply chain managers can use for good decision-making. For instance, RyderShare™ users have been able to reduce the number of trucks on the road, minimize labor turnover, reduce inventory, and optimize their physical space.

"The platform's data provides a unified experience, without having to consult multiple different tools or solutions to get to the answers that you need," says Jason Judd, group director of analytics and innovation at Ryder Supply Chain Solutions. "It connects the current and historical data with future trend predictions to drive optimal decisions."

With data science as a core operational strategy, RyderShare™ mines data and transforms it into insights that companies wouldn't be able to access individually. And while data science isn't a new term, it's now becoming a focal point for companies that want to minimize supply chain risk, avoid disruption, and meet their customers' constantly-evolving expectations.

"At Ryder, we have depth of industry knowledge—both in logistics and technically," says Judd, "plus the artificial intelligence (AI), machine learning, and advanced tools needed to build out a complex model that pulls in internal and external data that companies rely on to refine their operations."

KEEPING EVERYONE IN THE LOOP

With robust notification capabilities, RyderShare™ helps companies quickly identify and then notify customers/shippers about potential problems with their shipments. This leads to tangible improvements in customer service and customer satisfaction. Other key "wins" that companies experience when using RyderShare™ include cost savings, a 50% efficiency gain in customer service departments (made possible by fewer calls from customers who are looking for their orders), 35% efficiency improvements in labor management at the freight receiving site (thanks to more precise arrival information), and overall lifts in customer satisfaction.

"The platform is also helping companies be nimbler," says Phillips, pointing to the Do it Best hardware cooperative as one company that used RyderShare™ to manage a double-digit increase in sales when COVID-19 emerged. "Do it Best effectively shifted its supply chain to be able to manage the higher volume. All network partners knew what to expect, they communicated with one another, and knew how to handle the surge."

Phillips sees RyderShare™ expanding to become a complete, end-to-end supply chain solution that also incorporates a warehousing solution. "Companies will be able to follow the life of an order from the moment it's created all the way through to final delivery," says Phillips. "Once that happens, we'll have a completely different product from anything else on the market. No one else is doing this on the market today."

Providing a Differentiated Customer Experience
Looking ahead, Phillips sees blockchain, autonomous vehicles, and other emerging technologies becoming a more vital part of the end-to-end supply chain. With the RyderShare™ platform in place, companies will be well positioned to leverage these new opportunities while also continually improving their logistics and transportation networks.

"There's a lot happening right now, with the continued digitization of the supply chain being the essential underpinning for all of these changes," says Phillips, who also sees more companies looking at their supply chains as revenue generators versus cost centers. "They're taking all supply chain data and using it to provide a differentiated customer experience. I think we'll see more of that in the future, and that's pretty exciting."

A resource for the year ahead

Each December, the focus of the issue is our annual Executive Guide to Supply Chain Resources. This is a comprehensive guide to services, products and educational opportunities targeted specifically to supply chain professionals. But, as with years past, we're also featuring several articles we trust will give you something to think about in the coming year.

Let's start with our fourth annual look at the Council of Supply Chain Management Professionals' 2019 State of Logistics Report, authored by the partners at the consulting firm Kearney. As you might imagine, COVID-19 played an important role in shaping 2020, with the authors predicting that it will continue to affect the logistics industry in 2021.

We round out the issue with a three-article package of management articles from Stanley E. Fawcett, A. Michael Knemeyer, Amydee M. Fawcett and Sebastian Brockhaus. I met this editorial team at a CSCMP conference soon after I took over the helm of *SCMR* back in 2013. They're all academics—Stan and Amydee are at Weber State University in Utah; Mike is at The Ohio State University; and Sebastian is at John Carroll University in Cleveland—yet they also spend a lot of time with supply chain managers, like you, our readers.

Bob Trebilcock, Editorial Director
btrebilcock@peerlessmedia.com

More importantly, they have a unique take on how to advance the skills of managers by looking at how leaders in completely different industries have excelled. As a result, they've looked at successful baseball managers, rock drummers, Cirque du Soleil and decathlon athletes, to name a few. I trust you'll not only find the collection of articles in this issue a good read, but they'll help you think differently about how you approach your job and manage your supply chains.

As always, the editors at *Supply Chain Management Review* wish all of our readers a successful year to come. We hope that the information and insights contained in this issue will play a role in that success.

Bob Trebilcock

SUPPLYCHAIN MANAGEMENT REVIEW

Editorial Offices
50 Speen St., Suite 302
Framingham, MA 01701-2000
1-508-663-1590

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The Year in Logistics 2020: RESILIENCE TESTED

A global pandemic sparked diverse immediate crises. It also accelerated e-commerce, increased prices and forced shippers to emphasize more resilience in their supply chains. For 2021, increasing resilience is a necessary part of the solution.

BY MICHAEL ZIMMERMAN, BALIKA SONTHALIA, ALBERTO OCA AND JEFF SEXSTONE

2020 has been a year like no other in logistics. A global pandemic, and measures taken to reduce its further spread, decimated supply chains, scrambled logistics capabilities and destroyed huge swaths of demand. Although most observers expect an economic recovery, its size, shape and timing remain in question.

Michael Zimmerman is a partner in Kearney's Strategic Operations practice. Balika Sonthalia is a partner in Kearney's Strategic Operations practice. Alberto Oca is a partner in Kearney's Strategic Operations practice. And Jeff Sexstone is a principal in Kearney's Strategic Operations practice. They can be reached at Michael.Zimmerman@kearney.com, Balika.Sonthalia@kearney.com, Alberto.Oca@kearney.com and Jeff.Sexstone@kearney.com.

Across sectors, conditions challenged shippers and providers alike. Logistics leaders responded to crises—often with prescience, effi¬ciency and a welcome dollop of charm. But in the big picture, three stories emerged. First was the accelerating growth of e-commerce, with particular challenges posed by the shift to home delivery. Second was higher rates, resulting in part from carrier discipline as supply chain disruptions pushed demand into the spot markets. Third, and most important, was the move toward more resilient supply chains. Companies placed a priority on adjusting to and recovering from current and anticipated difficulties. Players across industries have a case to shift from single-source, cost-focused supply functions to embrace more adaptive solutions for an uncertain decade ahead.

The data: 2019's "normalcy"

The latest official U.S. business logistics costs (USBLC) calculation—by Kearney and the Council of Supply Chain Management Professionals (CSCMP)—is for 2019. It shows that costs rose by just 0.6%, far less than the 2019 inflation rate of 2.3%. Although transporta¬tion costs grew by 2.5%, inventory carrying costs fell by 4.6%, thanks primarily to a reduction in the weighted average cost of capital (see Figure 1).

FIGURE 1

In 2019, most subsegments of USBLC costs experienced declines or stayed flat

U.S. business logistics costs ($ billion)

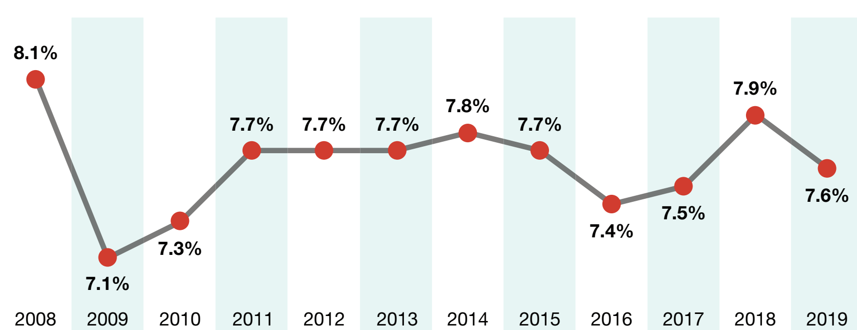
	2019	YoY 2019/2018	5-year CAGR
TRANSPORTATION COSTS			
Full truckload	306.7	1.4%	2.1%
Less-than-truckload	65.4	1.3%	1.9%
Private or dedicated	308.2	5.0%	3.5%
Motor carriers	**680.4**	**3.0%**	**2.7%**
Parcel	114.4	8.5%	8.8%
Carload	61.4	-0.2%	-2.3%
Intermodal	22.5	-4.3%	3.7%
Rail	**83.9**	**-1.4%**	**-0.9%**
Air freight (includes domestic, import, export, cargo, and express)	75.2	-9.7%	2.8%
Water (includes domestic, import, and export)	47.9	3.1%	1.3%
Pipeline	57.4	9.5%	11.4%
SUBTOTAL	**1059.1**	**2.5%**	**3.2%**
INVENTORY CARRYING COSTS			
Storage	149.6	6.6%	5.2%
Financial cost (WACC x total business inventory)	168.6	-12.7%	2.6%
Other (, shrinkage, insurance, handling, others)	136.4	-4.6%	3.8%
SUBTOTAL	**454.6**	**-4.6%**	**3.8%**
OTHER COSTS			
Carriers' support activities	59.7	1.9%	5.0%
Shippers' administration costs	56.4	8.5%	5.7%
SUBTOTAL	**116.1**	**5.0%**	**5.3%**

Notes: **USBLC**–United States business logistics costs
YoY–year-over-year
WACC–weighted average cost of capital

Sources: CSCMP's 30th Annual State of Logistics Report; Kearney analysis

FIGURE 2

USBLC as percent of nominal GDP



Note: **USBLC**–United States business logistics costs

Source: Kearney analysis

USBLC represented 7.6% of nominal GDP in 2019, down from 7.9% the previous year. Given that 2018's fast GDP growth and capacity shortages had driven logistics costs to the highest percentage of GDP since 2008, 2019 felt like a return to normal—although it has now proved to be a last hurrah of an "old normal" (see Figure 2).

Resilience tested

The total economic cost of the COVID-19 pandemic is estimated at $16 trillion, according to two Harvard professors writing in JAMA. That's far worse than conventional recessions. In fact, they write, it's "the greatest threat to prosperity and well-being the U.S. has encountered since the Great Depression." Moving the economy back to growth comes from a point of real pain.

Yet it could have been worse. Early predictions suggested that 2020 growth might be as low as –8%. It's now expected to be –3.5%, thanks in part to increased government spending from the March CARES Act. Oxford Economics now predicts that 2021 growth will be 3.7%, although a potential pandemic resurgence poses risks on the downside.

Consumer spending has recovered from record lows in March 2020. But monthly job gains have not been significant, and consumer confidence remains near its own record lows (see Figure 3). In the face of jagged demand, shippers were forced to improve flexibility to adapt and mitigate future risk. The pandemic should transform the way companies think about supply chains—and thus how they think about the logistics of connecting them. They know the answer is to not rely on inflated spot markets, it is to build more flexibility into their logistics plans and agreements.

Fast-changing sectors

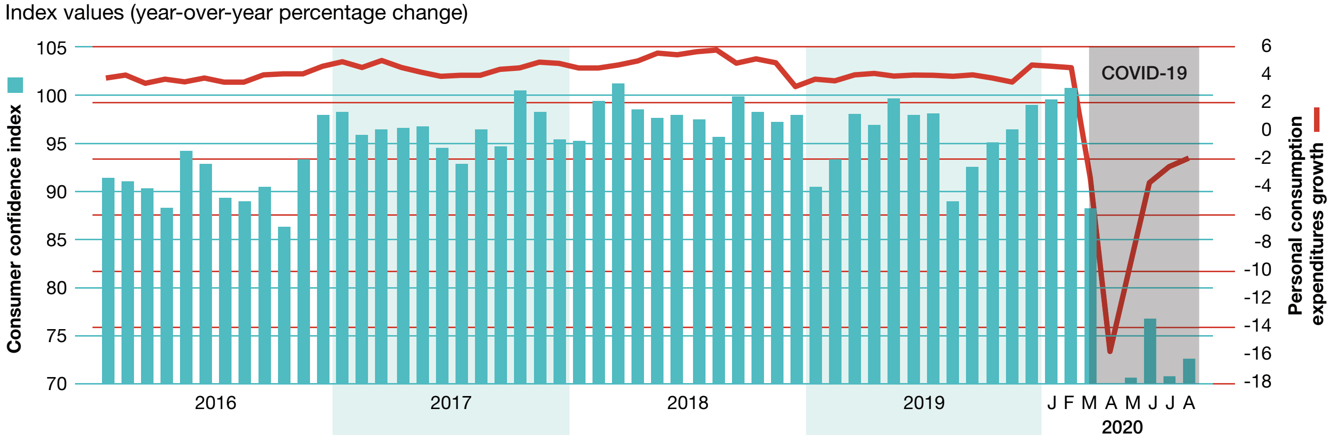
Some logistics sectors experienced a particularly lively year in 2020. They are as follows.

Last mile. The pandemic accelerated consumer adoption of e-commerce. Second-quarter e-commerce sales grew to a new quarterly high of $212 billion. That's 16.1% of total retail sales, according to the Department of Commerce. It's a 44% increase over 2Q 2019, and 32% higher than 1Q 2020 (adjusted for seasonal variation). (See Figure 4.)

FIGURE 3

U.S. consumer confidence plunged, even as personal consumption expenditure growth recovered

Index values (year-over-year percentage change)



Source: University of Michigan, U.S. Bureau of Economic Analysis; Kearney analysis

Merchandise trade follows the patterns of economic activity in general: The World Trade Organization expects it to fall by 9.1% for 2020, and rebound to 7.2% in 2021. That's better than April forecasts. However, the broad numbers obscure chaotic on-the-ground conditions. Q2 and Q3 saw numerous blank sailings from Asia to U.S. ports. Then September and October saw massive surges in imports as retailers restocked for the holiday season. The surges saturated capacity for ports, planes, trains and trucks.

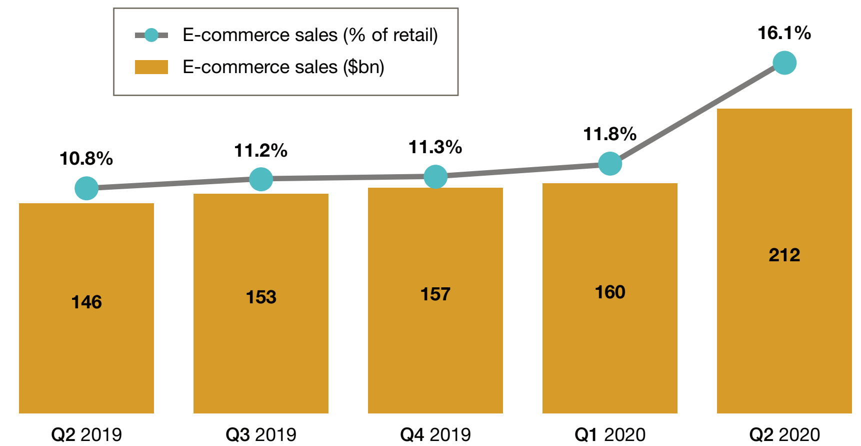
In sum, the impact of the COVID-19 pandemic has been surprisingly variable, highly unpredictable and ultimately destructive. Demand cratered in some areas, such as heavy industry and hospitality, while bulging in others, such as e-commerce and grocery retail. Capacity was idled and resources were redirected as consumers remained insatiable thanks to the CARES Act. In the face

The pandemic also changed the types of products consumers order, and thus delivery requirements. Online grocery has become one of the fastest-growing segments in e-commerce, with a 2020 growth rate of 59% over the previous year. Consumers have also expressed a preference for seamless omni-channel experiences, with choices of payment options, such as mobile app or cashier-less technology, and choices of delivery options, such as direct-to-consumer (DTC) fulfillment, buy online pickup in-store (BOPIS), curbside pickup, locker pickup, home delivery and others.

The parcel delivery industry will operate above capacity during what will likely be a historic holiday peak season. UPS and FedEx have already announced holiday surcharges of from $1 to $5 per package. The U.S. Postal Service is also applying surcharges for the first time ever.

FIGURE 4

E-commerce sales and e-commerce as a percentage of retail



Source: U.S. Department of Commerce Quality Retail E-Commerce Sales 2nd Quarter 2020; Kearney analysis

hunt for volume. Price wars amid the pandemic could have been devastating, and bankruptcy of already precarious carriers could have resulted in structural damage to the industry. But too-high prices are also dangerous, especially if they suggest collusion. As blank sailings and general rate increases (GRIs) continued into September, with rates and volumes at record highs, the U.S. Federal Maritime Commission and Chinese government expressed concern.

Ships are steaming again, but the situation remains volatile. Amid the uncertainties of the pandemic, politics and industry dynamics, all players in the industry must remain resilient and nimble.

Large shippers can mitigate these increases using carrier management and demand management strategies, negotiations with shippers and alternate cost recovery models with consumers, as we at Kearney have discussed in detail. Some retailers are seeking new partnerships (with DoorDash, PostMates, and so on). Others are expanding their own options. For example, Ulta Beauty rolled out curbside pickup in May, an effort that resulted in improved sales of key products. And Wayfair sought to reduce returns by offering a discount for orders that can't be returned.

Water and ports. When the pandemic hit China last winter, production slowed or ceased. Ocean carriers cancelled sailings. Because they were already struggling with overcapacity, their outlook seemed dire. But pricing discipline—combined with idled ships (exceeding 10% of capacity in Q1) and "slow steaming" (taking longer on the same routes)—reduced available supply and propped up rates through the worst of the crisis.

In May, some shippers delayed signing annual contracts, hoping rates would fall. But they have remained high. Now volumes are increasing, thanks first to demand for PPE equipment, restocking and now the holiday rush. Indeed, total U.S. and Canadian container imports were up 13% over 2019 in September. That pushed the year-to-date figure to 1% more than 2019, according to PIERS.

Transpacific capacity has increased 26% since May, but the spot market has nevertheless been sold out. In October, spot rates with fuel were 181% above the previous year, according to the Shanghai Containerized Freight Index. Shippers are increasingly paying surcharges ($500–$1,000) to secure capacity and move volumes above contracted commitment rates (a base contract rate of $1,500 in the May contracting period).

In past years, carriers would have undercut each other in the

Air freight. For air cargo as well, demand has outstripped available capacity. Rates have remained at two to three times historical levels. The issue is that about 48% of air cargo is carried by passenger planes—and that capacity has been decimated by COVID-19. Passenger flights remain more than 50% below 2019 levels and are not expected to return to 2019 levels until 2024.

So even as dedicated cargo capacity has increased by 30%, it hasn't been enough. Available cargo ton kilometers in August were 29% lower than last year. With too much demand chasing too little capacity, prices have soared and stay at high altitude (see Figure 5).

Demand slowed early in the year (April was down 28% from 2019) but is recovering (August was down just 13%), according to IATA. Potential vaccine distribution could keep demand high through 2021. Vaccines will need special handling and ultracold storage. For example, Pfizer expects to require 20 flights daily to transport the vaccine. The timing of this demand is uncertain but could come as early as 1Q 2021.

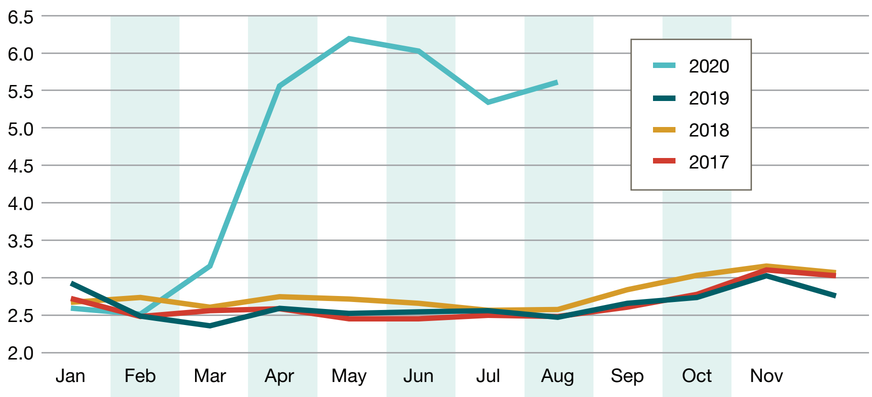
Because of these uncertainties, airlines and forwarders are reshaping their rate agreements with short validity rates. Thus, shippers that have traditionally relied on air freight (such as semiconductor or medical device companies) need to focus on improving resilience during this time of sustained disruption in air cargo. Shippers are planning for and securing additional air freight capacity, further evaluating tradeoffs between air freight and other modes, and ensuring robust contingency planning.

Warehousing. Amazon's delivery time promises have famously pressured other shippers—but they are also transforming warehousing. To meet shorter delivery windows, shippers must forward-deploy more inventory. They often have to store that

FIGURE 5

Air freight rates remain high at 2-3x historical levels

Drewry East-West average air freight rate ($ per kg)



Note: Weighted average of all-in air freight buy rates paid by forwarders to airlines for standard deferred airport-to-airport airfreight services on major East-West routes. Rates are expressed in $/kg and include three components: the base rate, the fuel surcharge, and the security surcharge.

Source: Drewry; Kearney analysis

inventory in smaller-footprint warehouses in urban centers. And to move that inventory quickly, those warehouses must often manage it more intensively, with more touches.

In the bigger picture, many retailers are reconfiguring their value chains for direct-to-consumer fulfillment. As they open micro fulfillment centers and close stores, warehouse product flows and replenishment become more complicated and labor-intensive. E-commerce consumers also return more items, which raises the profile of reverse logistics in determining warehouse operational efficiency.

As the COVID-19 pandemic has accelerated e-commerce, it has exacerbated all of these trends. It has also shifted demand to more grocery items—again, making warehousing more labor-intensive and complex. Finally, it has prompted companies to stock more product than in the past, as a hedge against potential supply/manufacturing issues. Where warehouse storage capacities of 85%–90% were once outliers, they're now averages, and more shippers are incurring additional storage costs for overflows.

Thus, the pandemic may be a tipping point for warehouse automation. Amid increased touches, using robots compares more favorably and can help minimize employee contact that spreads the virus. Amid increased operational complexity, robots reduce losses related to employee turnover. At large warehouses, shuttle systems and massive data analysis can improve productivity and the ability to flex labor. At smaller warehouses, improved technology is reducing the payback period for automated guided vehicles (AGVs) and autonomous mobile robots (AMRs).

These developments are shaking up an already saturated market. The warehouse construction pipeline is full. Vacancy rates are at record lows. Labor markets remain tight. The fourth quarter of 2019 saw delivery of 100 million square feet of supply, the highest square footage completed in a single quarter on record—and it was snapped up immediately.

Warehousing thus poses some of the most fascinating strategic challenges in the logistics industry. The search for efficiency also requires more visibility. When will the shipment arrive, so that I can manage labor at my dock? What will be in it, so that I can immediately ship some items without shelving them? Can I simulate alternate scenarios, so that I can handle disruptions such as a COVID-19 outbreak among my employees? All sizes of warehouses must now improve on these drivers of efficiency as they seek resilience at lower costs.

Gaining visibility, efficiency and resilience will require both investments and supplier and customer collaboration. Who will absorb these costs? And how will this information be shared? The success factors for warehousing are quickly shifting beyond four-wall efficiency to collaboration among partners in a vast ecosystem.

Other sectors to note

Motor carriers. Motor carriers faced a challenging 2019. After two years of scarce capacity and increasing rates, shippers regained buying power, negotiated lower rates and secured capacity. Then came the pandemic, which scrambled conditions. But consumers were still stocking up at grocery stores.

Dry van spot rates steadily increased from May to October with capacity nearly as tight as in 2018. Chinese factories have recovered, and U.S. retailers began stocking up early for the holiday rush. Given the poor conditions of 2019 and the uncertainty of the pandemic, carriers slowed their investments in new assets. Even as these carriers invested in the second half of 2020, the trucks take time to come online and capacity is still tight in early November.

The pandemic has also changed demand for different types of trucking (toward groceries and home consumables, away from industry and warehouse-to-store deliveries). This created uncertainties and discontinuities in carrier networks that the broad statistics don't show. As in other sectors, the uncertainty means that shippers must plan for resilience and communicate better with their carriers, and carriers need to be better able to adapt their strategies and sources of business to keep their trucks moving and full.

Rail. As of September, year-to-date rail traffic was about 10% below 2019 volumes. Railroads have seen significant declines in coal, petroleum and petroleum products, and non-metallic minerals. However, a V-shaped rail recovery has brought recent volumes in line with last year's. It's been driven by increases in intermodal volumes and agricultural commodities.

Railroads such as UP, BNSF and CSX have maintained or even improved operating ratios, despite uncertainty and decreases in traffic and revenue. They relied on precision scheduled rail¬roading (PSR)–like maneuvers such as running longer but fewer trains. This has also improved performance measures such as average train speed.

Some railroads are seeking to increase intermodal volumes by investing in technology and partnerships to reduce shippers' longstanding pain points. For example, several major railroad companies recently formed Rail Pulse, a technology joint venture to improve safety and visibility of railcars through telematics and GPS. In another example, CP Rail is partnering with Maersk for improvements at the ports of Vancouver and Montreal. If such improvements pan out, shippers may benefit from a wider review of truckload lanes that can switch to intermodal.

Third-party logistics. Third-party logistics providers (3PLs) create value when they, as specialists, can design a complex logistics space better than what shippers can cobble together. That's especially true amid today's volatility—a CSCMP study reports that 88% of shippers agree that the use of 3PLs has contributed to improving services. But that same volatility does require 3PLs to build strategic partnerships with their shippers.

As noted above, e-commerce is having big effects, including a shift toward B2C shipments, rather than B2B, while people work at home. E-commerce is also putting a spotlight on Amazon's 3PL service, Fulfillment by Amazon. But healthcare is also a hot topic, as pharmaceutical and healthcare supply chains may need to be reconstructed to meet continued demand for PPE and the imminent release of a vaccine. Several large 3PLs serving the healthcare industry such as UPS and DHL will also see growth in their hazmat and cold chain services.

Pipeline. In 2019, oil pipeline capacity in the Permian Basin of Texas finally met demand. Since then, oil production has cratered. Thanks to the pandemic, Permian production dropped from 4.9 billion barrels per day (BPD) in March to 4.1 billion BPD in September. The pipeline overcapacity will put pressure on midstream companies to consolidate because it's the only way they can increase footprint while decreasing operating costs.

Trends

The pandemic has accelerated growth in both e-commerce and technology. The results are changing the way many companies think about their supply chains—in ways that will only further transform logistics.

For retailers seeking to meet e-commerce demand, the challenge is fulfillment. The pandemic has had varying effects on demand for different items, and retailers are still adjusting. Furthermore, with vendor on-time and in-full (OTIF) deliveries continuing to lag, inventory management becomes a key differentiator.

The biggest fulfillment question used to be: Which products, and which customers, deserve same-day delivery, and who pays for that? Now the question is: Now that customers have so many delivery options (same-day delivery, multiple-day delivery, BOPIS, curbside pickup, lockers and more), how do we route all these products? Which ones go to stores versus micro-fulfillment centers? Oh, and who pays for all of this?

Meanwhile, the Kearney Reshoring Index suggests that manufacturers are moving their supply chains back to North American markets as they diversify from China. This will also disrupt motor carriers, railroads, parcel and last mile, and 3PLs as supply chains shift. When you combine such trends with an unpredictable pandemic and ever-volatile political and trade situations, the need for resilience is clear. All players must focus on improving their abilities to adjust to or recover from unexpected difficulties.

At Kearney, we expect that next June, when we calculate the official 2020 USBLC, it will have risen sharply. The biggest contributors to USBLC are motor carriers and inventory carrying costs, which are both trending upward. Other sectors such as parcel/last mile, air and water will also increase. Such an increase would only confirm what many shippers are currently experiencing in trying to manage their budgets.

But the USBLC number is not merely a descriptor of logistics efficiency. It also describes logistics ambition. In 2020, America is asking more of its logisticians: Please deliver to our homes. Please manage continual crises. Please get ready to deliver our vaccines. Please offer all of these improvements as essential workers during this crazy pandemic. Costs are increasing because society is asking logistics to shoulder amplified burdens. So far, logistics is delivering.

SUPPLY CHAIN INFLUENCE

Are we there yet?

Supply chain managers trying to get a seat at the C table ask: What do we need to know to increase supply chain influence?

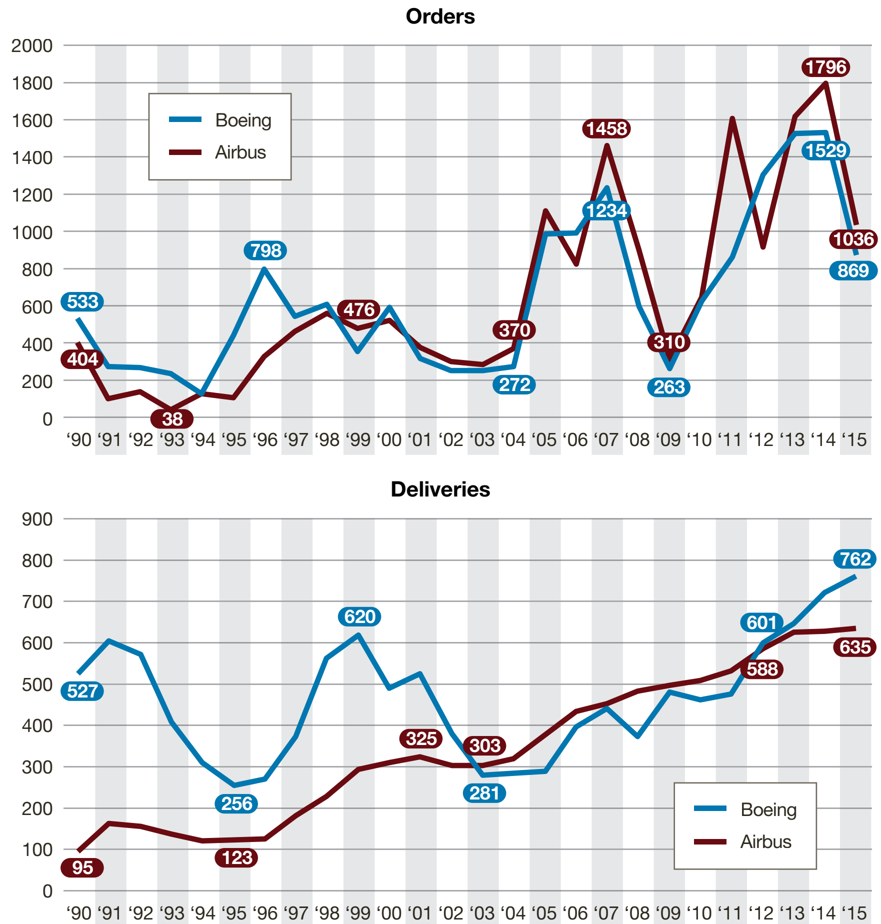
BY STANLEY E. FAWCETT, MICHAEL STEVENS, AMYDEE M. FAWCETT, A. MICHAEL KNEMEYER AND SEBASTIAN BROCKHAUS

Stanley E. Fawcett, Ph.D., is the Goddard Professor of global supply chain management at the Goddard School of Business at Weber State University. He can be reached at stan.e.fawcett@gmail.com. Michael Stevens, Ph.D., is professor of management at the Goddard School of Business at Weber State University. He can be reached at mjstevens@weber.edu. Amydee M. Fawcett, Ph.D., is an associate professor of supply chain management and Director, Center for Leadership in Corporate Social Responsibility at Weber State University. She can be reached at amydeefawcett@weber.edu. A. Michael Knemeyer, Ph.D., is a professor of logistics at Fisher College of Business at The Ohio State University. He can be reached at knemeyer.4@osu.edu. Sebastian Brockhaus is an associate professor of supply chain management at the Boler College of Business at John Carroll University. He can be reached at sbrockhaus@jcu.edu.

Bitter rivals, Airbus and Boeing have engaged in a 25-year dogfight for air supremacy. Boeing held a commanding early edge in orders and deliveries. However, fueled by fly-by-wire technology, Airbus persistently closed the gap. By 1999, Airbus took the orders lead. By 2003, Airbus passed Boeing in deliveries. Boeing's new reality was clear: As a fierce and capable rival, Airbus wasn't going away.

FIGURE 1

Orders and deliveries



Source: Boeing and Airbus

Redefining the rules

As they looked to the 21st century, Airbus and Boeing both sought to redefine the competitive rules. Airbus' goal: Eliminate Boeing's big advantage—its 747 jumbo-jet monopoly. For four decades, the 747 had given Boeing a double advantage: prestige and cash flow. Boeing had sold almost 1,400 copies of the iconic 747, spinning off profits to fund hugely successful new planes like the 737 and 777. For Boeing, the goal was simple: Find a way to sell and deliver more planes than Airbus.

The two rivals chose distinct routes. Airbus announced the A380 in early 2000. The double-decker plane would carry 550 passengers in a traditional three-cabin layout, reducing per-passenger costs by 15%. Airbus forecast orders would come streaming in—totaling 1,200 units by 2020. Not wanting to cede bragging rights, Boeing almost doubled down on its own new super jumbo. But, after running the numbers, Boeing decided the market wasn't big enough for two super jumbos. Boeing forecast a total market as small as 325 planes.

Boeing announced its own new plane—the 7E7 (E for efficiency)—in January 2003. Dubbed the "Dreamliner" in Boeing's "Name Your Plane" contest, the plane was later designated the 787. As the first commercial airframe made out of lightweight carbon-fiber, the 787 would reduce operating costs by 20% and be 33% less expensive to maintain. The 787 would also offer improved comfort—larger windows, increased cabin pressure, and higher humidity, allowing frequent flyers to arrive from long-haul flights feeling more rested.

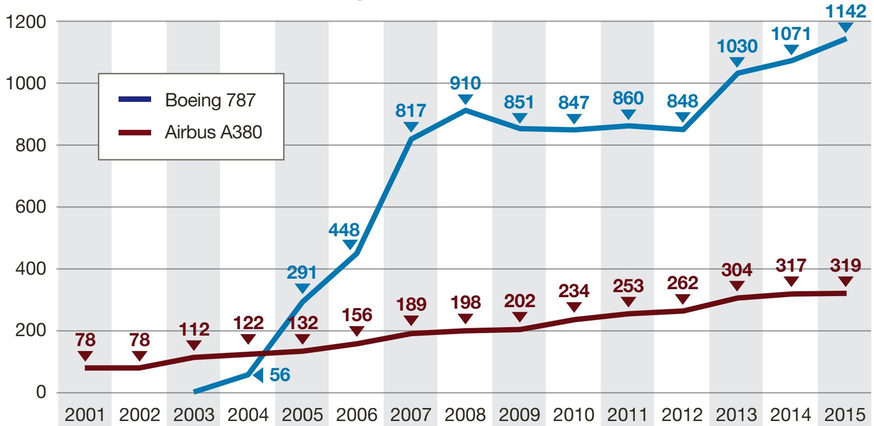
The battle of competing visions turned into a rout. Airlines found the 787's value proposition irresistible. As 787 orders shot skyward, A380 sales stalled. The Dreamliner delivered everything that the A380 hadn't—a high-flying hit. Boeing, however, couldn't deliver to promise. Design and production snafus delayed delivery to All Nippon Airways, the 787's launch customer, from 2008 to October 2011.

The rest of the story

You may be wondering: Why didn't 787 production get off the ground? To cut the 787's estimated $10 billion development cost in half, Boeing encouraged suppliers to take on the cost of designing and building major modules of the

FIGURE 2

Airbus A380 and Boeing 787 orders



Source: Boeing and Airbus

new plane. Suppliers, however, weren't ready and couldn't deliver. Boeing's dream of redefining flight for the 21st century had been grounded by a supply chain nightmare.

Now, the rest of the story: We visited Boeing back in the spring of 2004, one year after Boeing's Dreamliner announcement. Boeing's supply chain leaders told us the 787 could provide Boeing air supremacy in its dogfight with Airbus. But, they were worried. Why? They argued that the shared development-and-production model wouldn't work. They told us how they had warned key decision makers early on that they were making decisions based on the "tip of the iceberg"— highly visible, up-front R&D costs—but ignoring the below-the-surface costs of managing the supply network. Supply chain leaders couldn't, however, sway the decision. The C-suite pressed forward.

The result: Design and delivery delays pushed 787 launch costs to over $30 billion—three times the original estimate. Worse, Boeing ceded more than three years of first-mover advantage, giving Airbus space to launch the A350.

Not alone

Since our visit to Boeing almost 15 years ago, we have met with hundreds of companies worldwide. Sadly, supply chain professionals still share stories about how their voices aren't heard, even as strategic performance falters. Great companies—including Lego, Toyota and Walmart—have flown into turbulence by ignoring supply chain realities. Why does this happen? Although no simple answer exists, our field work has identified four opportunities for supply chain professionals to become more impactful influencers.

1. Speak the language of business. Supply chain professionals are by necessity multilingual. But, we don't naturally communicate in the language C-suite decision makers relate to—P&L impact.

2. Engage collaboratively. Supply chain professionals work across organizational boundaries, both within the firm and across the supply chain. Only occasionally, however, do we *engage colleagues* collaboratively.

3. Employ psychological intelligence. By nature, SCM is every organization's value-creation engine. Yet, we often fail to get into our stakeholders' minds and deliver the value they want.

4. Become better storytellers. Because SCM is the value-creation engine, we see our value proposition as self-evident. The result: We fail to tell the stories that make our case to others.

For this discussion, let's take a closer look at how we *engage up* to get work done.

The Influence Matrix

Boeing's 787 launch saga illustrates a key point: Winning companies do great things with and through partners. A failure to work well together, by contrast, drives higher costs and diminishes market success. In Boeing's case, the decision to build an ultra-efficient carbon fiber plane for point-to-point travel was a prescient game changer. The move to save cash by leveraging supplier investment, however, proved to be short sighted. Boeing built the wrong supply chain team to bring the plane to market as promised. What role did supply chain influence play in this drama? Supply chain leaders failed to *engage collaboratively* with two critical groups.

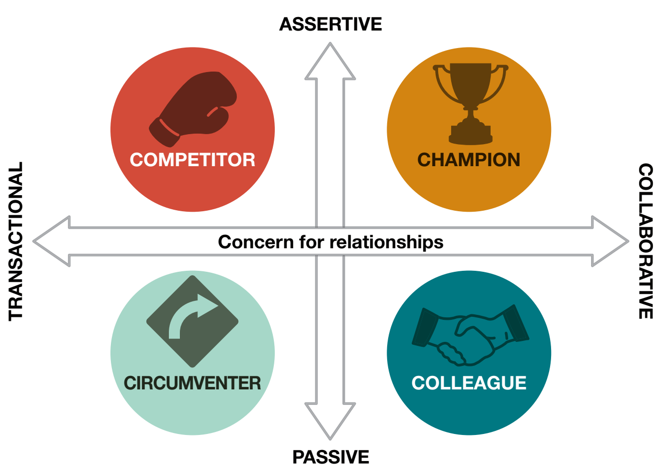
1. With the C-suite. Supply chain leaders didn't make the case to stick with a Boeing-centric development model. After all, working with carbon fiber and a new production process represented unprecedented, hard-to-manage challenges that would tax Boeing's capabilities.

2. With suppliers. Supply chain leaders didn't cultivate the open, collaborative supplier relationships needed to quickly identify trouble spots. The result: Boeing was repeatedly (and belatedly) surprised by supplier failures. Costs soared and customer relationships soured.

What do we need to know to increase supply chain influence and achieve desired outcomes through partners' capabilities and effective collaboration? One step forward is to grasp, predict and influence partners' behavior. The good news: The Influence Matrix, depicted here, helps us understand behavioral interactions. We anchor the matrix's horizontal axis along a continuum of "concern for relationships"—specifically, from transactional to collaborative. The vertical axis is anchored on a continuum from passive to assertive. We label the four resulting quadrants as follows: competitor, circumventer, colleague and champion. Please note that this is a behavioral framework. It is not a personality model. Why is this important? Because behavior is learned. That means we can learn to become more influential. Let's start by looking at each influence type.

FIGURE 3

The influence matrix



Source: Authors

- **Competitor.** *Competitors* are transactional and assertive. Winning here and now takes precedence over recognizing the concerns of others and investing in long-term relationships. Goal focused, *competitors* seek to control outcomes and leverage power to impose primarily their own position.
- **Circumventer**. Transactional, but passive, *circumventers* seek to avoid conflict. Conflict avoidance, however, is a tactic, not the goal. *Circumventers* prefer indirect, behind-the-scenes efforts to achieve objectives. They often rely on rules or policies to justify non-cooperation and advance their interests.
- **Colleague.** *Colleagues* are collaborative, but passive. They prioritize harmony, even if constructive confrontation could lead to creative problem solving and improved results. *Colleagues* rely on friendship to smooth over conflict and to attain goals.
- **Champion.** Collaborative and assertive, *champions* engage others to solve problems and achieve win-win goals. Investing in trust to develop competencies and relationships takes precedence over short-term results. *Champions* welcome constructive conflict to get to a better solution.

Simply put, the Influence Matrix describes how we engage others to get work done. Now, ask yourself: "Which influence type best describes me?" The fact is that you use all four influence types (depending on the situation and people you are working with). Everyone does. Even so, we each have a go-to style. Importantly, the people we work with view us through this behavioral lens. Frequently, however, we see ourselves differently from the way others see us—a reality that affects our relationships and may hinder our ability to get results with and through other people. Let's take the next step to becoming more influential by exploring this perception gap.

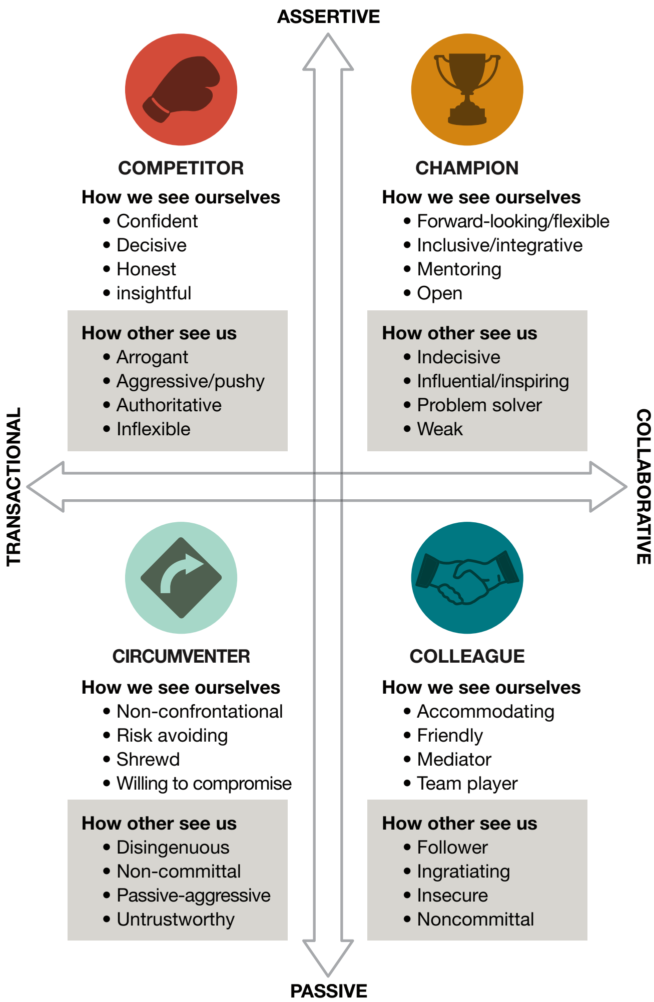
A look in the mirror

We adopt an influence type because we believe it comprises a set of useful social skills. We cultivate an influence style because we perceive it will help us achieve our objectives. We naturally view our own style positively. *Competitors*, for instance, view themselves as confident and decisive. They trust that their insight is unique and accurate. They view their candor as an asset. From their perspective, they are merely being direct, honest and results driven—and they wish others were the same. Counterparts perceive things differently. They may view *competitors*' confidence as arrogance, decisiveness as pushiness, blunt candor as demeaning and reliance on personal insight as inflexibility.

Perception gaps exist across all four influence styles. They persist because self-perception bias is real. We are, for instance, more likely to attribute our own successes to our intelligence, initiative and interpersonal skills while passing over others' successes, attributing their wins to favorable circumstances. Take a close look at the perception-gap figure. As you do, be cautious. Don't forget that the nature of each gap depends on the behavioral styles of

FIGURE 4

Perception gaps



Source: Authors

the two interacting decision makers. For example, *competitors* tend to view *champions* as indecisive—and potentially weak. *Colleagues*, by contrast, often see *champions* as inspiring problem solvers. If you aren't willing to look in the mirror, you will never see how others perceive you.

The principle of behavioral interaction

Beyond helping you look in the mirror, the Influence Matrix shares insight into how your behaviors influence other's responses—and their contribution to getting things done. Remember, managers in each quadrant share a portfolio of behaviors. More importantly, each behavior prompts reliably predictable reactions. We call this the principle of "behavioral interaction." The accompanying figure maps out these cause-and-effect responses. Note that the power difference with your counterpart matters. For instance, if you are the boss working with a subordinate, you should expect a different response than if you are dealing with a peer (or your own boss). As you might expect, high power (i.e., position authority) tends to elicit more passive responses, which we call below-the-line behaviors. Subordinates seldom take a highly assertive stance with a competitor boss—it's risky and can lead to unpleasant outcomes.

Let's talk through some of these reliably predictable responses. If your influence style is that of a competitor and you are in a power position, you are likely to see avoidance from a circumventer and smoothing-over behavior from a colleague. Both responses are non-confrontational—and driven by self-preservation. But they can be counterproductive. As your employees opt for safety, they don't share their best ideas. And, they don't share bad news—at least not early enough for you to proactively mitigate the downside costs. Although non-confrontation is the subordinate's most common response, if you are dealing with a particularly assertive, risk-acceptant employee, you may be surprised by a reciprocal, push-back response. Highly assertive people often exhibit a competitor style, regardless of power position. This reality raises a key point: You need to size up your counterparts to anticipate their responses and craft a more effective pitch for what you are trying to accomplish. Now, imagine you employ a competitor influence style with someone of an equal or higher power position. What response should you expect? The odds are that a higher-status person will push back.

If you employ a circumventer style, your power position really doesn't matter. Assertive counterparts will likely push back, sensing an opportunity to step in and "take charge." Your passive stance invites *competitors*, and even *champions*, to take the lead. Passive counterparts, however, will likely reciprocate your circumventer behavior. This pattern of reciprocity also holds true for colleague behaviors. You will likely see either a competitive comeback or a reciprocal smoothing-over response, depending on the other person's influence style.

From a supply chain influence perspective, your most important takeaway from the principle of behavioral interaction is that if your goal is to engage in consequential collaboration, only champion behaviors will reliably elicit the forward-looking, respectful and open behaviors you need

FIGURE 5

Behavioral interaction

YOUR INFLUENCE STYLE	COUNTERPART'S BEHAVIORAL RESPONSE: Subordinate	COUNTERPART'S BEHAVIORAL RESPONSE: Peer or boss
COMPETITOR	• Non-confrontational, avoidance or smooth-over	• Confrontational
CIRCUMVENTER	• Confrontational, perhaps reciprocal avoidance	• Confrontational, perhaps reciprocal avoidance
COLLEAGUE	• Reciprocal smooth-over, occasionally confrontational	• Reciprocal smooth-over, occasionally confrontational
CHAMPION	• Reciprocal collaborative, or shift in that direction	• Reciprocal collaborative, or shift in that direction

Source: Authors

from others to collaborate effectively. A champion's inclusive behavior and genuine desire to leverage everyone's creative and collaborative abilities cultivates an environment where more ideas are shared, quickly vetted, and adopted or discarded—all without hurting anyone's feelings. Because *champions* help others feel safe, people are more willing to get out of their comfort zones, take risks and champion one another. Of course, people who operate with competitor, circumventer or colleague influence styles may remain reluctant to collaborate, but no other influence style will encourage and enable them to shift to more collaborative behaviors.

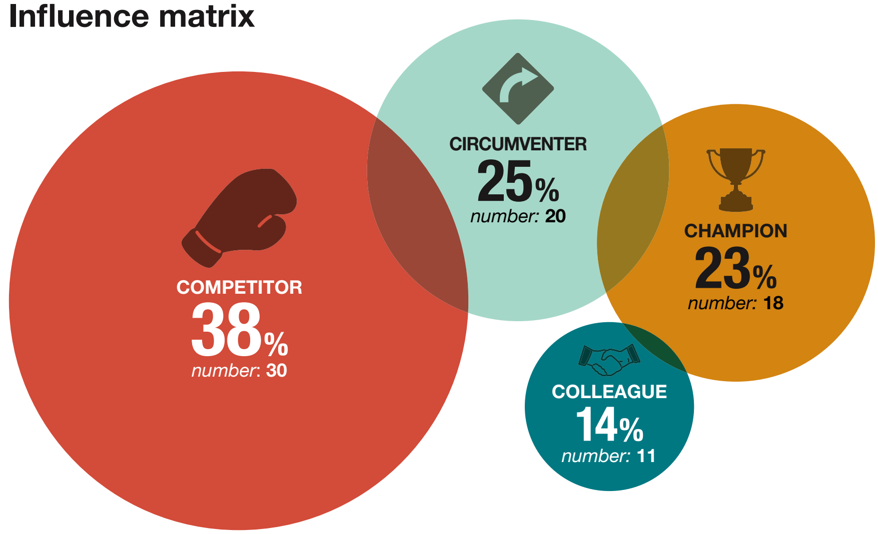
To summarize, the Influence Matrix helps us discern why other people behave the way they do so that we can more effectively elicit productive behaviors from them. Whether we are the leader, a peer or a subordinate, the insights from the principle of behavioral interaction can help us become better influencers. We don't have to be at the mercy of our circumstances. We have the capacity to constructively influence others to achieve strategic goals.

Influence styles of supply chain professionals

You may be wondering: "Where do supply chain professionals map to the Influence Matrix?" To explore this question, we invited supply chain executives who subscribe to *Supply Chain Management Review* to take a short assessment designed to help people understand their more commonly used influence styles. The results provide a good approximation for the influence behaviors we have observed in industry over the past 20 years. Overall, 79 executives provided usable results, mapping to the Influence Matrix as follows:

FIGURE 6

Influence matrix



Source: Authors

The data backs up your experience. You have worked with people from all four quadrants—that is, people who impose their ideas (*competitors*), avoid conflict (*circumventers*), prioritize social acceptance (*colleagues*) or are results oriented, but inclusive (*champions*). Our experience is that the influence style of *champions* generates the passion, open sharing of ideas and productive risk taking that is key to long-term success (like launching a radically new product). The data reveal an opportunity for supply chain professionals to engage more influentially. Let's learn more about how.

Becoming a better influencer

Once you learn about the principle of behavioral interaction, it's hard not to revisit recent, less-than-successful interactions you've had. You may have done this as you read. If not, take a moment and consider one now. Map out the interaction. Look for its cause-and-effect responses. That is, what influence style did you use? How did your counterpart respond? What did the back and forth that followed look like. Remember, much of this back and forth likely took place in behavior beyond the initial conversation. When managers do this thought exercise, they walk away wishing they could have a do-over. To help you get your do-over right, let's talk about four skill sets you can practice to help you become a more effective influencer.

Get real: Know thyself

To begin to employ insights from the Influence Matrix, you need to develop sizing-up skills. Simply put, diagnosis precedes prescription. If you can't/don't accurately assess counterparts' influence styles, you won't be able to predict how they will respond to yours. More important than sizing up counterparts is accurately sizing up our own influence style. Indeed, the biggest obstacle to more effective collaboration we have witnessed in decades of working with managers is the misguided view that we are more collaborative in our influence style than we actually are. Self-perception bias is at work—we tend to evaluate ourselves based on intentions and motives while others respond based on how assertive and respectful our behavior appears to them. If a congruity gap emerges, your efforts to engage collaboratively will fail. Outcomes will fall short of possibilities.

Assess motivations: Remember WIIFTOP

At the heart of developing greater influence is mastering the ability to answer the question, "What's in it for the other person?" Never forget, people engage most enthusiastically when initiatives advance interests they are passionate about. Messaging is thus critical. You need to communicate how working with you will benefit them. They really don't care how results will benefit you. The single best way to hone in on what motivates others is to get to know them. For instance, what are their work responsibilities, their career goals, their interests, their likes and dislikes? The better you know counterparts, the more likely you are to be able to pique their interest, raising their receptivity to the goals or initiatives you wish to advance via collaboration.

Shut up and listen

Although it sounds simple, prioritizing listening over explaining is an elusive skill for most managers. We often lack the self-regulation required to ask inviting open-ended questions and then remain fully present for the response. We also fail to use summary statements to validate relationships and assure we are really hearing what others are trying to tell us. Effectively listening requires that we suppress our urge to correct—or otherwise interrupt—our counterparts. Providing space for others to speak first and then receiving their views with genuine openness, without necessarily agreeing, is immensely difficult. It is, however, a skill at the heart of the champion's influence behaviors.

Trust the process

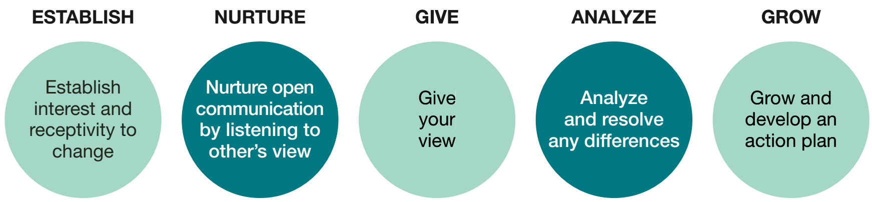
Influence often begins in a crucial conversation. The good news: A proven process for influential conversations exists. The bad news: Most managers don't follow it. Rather, most successful managers have a strong and natural tendency to take charge. They want to push things along to their desired destination. This approach is efficient, at least in the short run. However, it seldom generates high levels of buy-in. When you need to *engage* people for collaborative or creative efforts, pursue the following five-step process.

- **Step 1: Establish.** Begin by establishing receptivity to your agenda. Do your homework. Why should the other person care? This is the "WIIFTOP question."
- **Step 2: Nurture.** Once others are interested, you need to respectfully obtain their perspectives. Nurture open communication by being present as they shares their thoughts. This is "shut up and listen."
- **Step 3: Give.** Only after you have a good sense of your counterpart's position, give your views.
- **Step 4: Analyze.** On those points where you disagree, analyze the gaps and encourage the other person to suggest possible solutions to help you move forward in sync.
- **Step 5: Grow.** Leverage these suggestions to increase buy-in and to jointly map out an action plan. You'll be surprised, and pleased, at how much progress you can make when you trust this process. You will grow your own, your team's and your company's capabilities.

Now, a warning: Although these four practical skills can help you make championing behaviors your dominant influence strategy, you need to recognize that "knowing about" is very different than "knowing how." Knowing about is easy. It makes you aware of the possibilities. But it doesn't deliver the influence and results you are striving to achieve. Knowing how, by contrast, is hard. It requires active learning, persistent practice and constructive feedback from a skilled coach. But, your return on investment goes beyond potentially game-changing results. You'll have more fun in your career as you improve the bottom line and help team members reach a potential they didn't know they possessed.

FIGURE 7

ENGAGE to influence



Source: Authors

Application to supply chain relationships

As powerful as the Influence Matrix is in interpersonal influence, our experience documents that it applies equally to buyer-supplier relationships. This notion shouldn't be surprising. After all, it's people who work across company boundaries, making decisions and building relationships. Consider the 787 launch. The plan was for purchased subsystems to be shipped to Everett, Washington ready to be "snapped" together like pieces of a model airplane. Final assembly was designed to bring together about 1,200 parts. What actually happened didn't look like the plan. The first plane came to the Everett facility in 30,000 pieces. As assemblers opened boxes full of fasteners and other parts, they found instructions were missing or, in one instance, written in Italian. Boeing's snap-together model had become a monstrous jigsaw puzzle. Then CEO, Jim McNerney, lamented at the time: "The initial plan outran our ability to execute it."

As Boeing executives grasped the magnitude of the problems in late 2007, they sent hundreds of engineering, manufacturing and purchasing experts to suppliers' factories. The goal: Fix the problems and get the plane's progress up to speed. What the experts found was shocking. Some supply partners were unable to obtain parts in time to build their own assemblies. Others had outsourced key engineering tasks that Boeing had assumed they would perform themselves. A few suppliers, struggling to meet schedule, had begun to cut corners—a risky practice for a product designed to carry passengers from point to point at 30,000 feet and almost 600 hundred miles per hour. Doug Harned, an analyst at Berstein Research, commented: "Management appears to have been operating without adequate visibility into the details of program performance in the 787 organization and at its suppliers."

Now, ask yourself: "How well does the observed outcome fit the Influence Matrix's predicted behavior?" Boeing employed a competitor influence style and possessed tremendous power—both coercive and reward. Given that simple setup, how would you expect suppliers to respond? True to form, subordinate suppliers behaved non-confrontationally, either as *circumventers* or *colleagues*. Seeking a safe space, suppliers withheld bad news. That is, they avoided admitting problems existed or smoothed over their lack of capabilities. The result: Boeing suffered painful, even shocking, surprises.

Regrettably, inadequate visibility into operational and relational details isn't the worst outcome of a competitor-oriented behavioral style. Let's shift gears to share a true story from General Motors. Back in the early 1990s, J. Ignacio Lopez, GM's chief purchasing officer, tore up supplier contracts to drive prices down. Imposing GM's will saved $4 billion per year in materials costs. However, over the years, suppliers withheld their best technologies and engineering talent, a fact that by 2015 threatened GM's survival in the new era of autonomous and electric vehicles. How did GM, under new purchasing chief Steve Kiefer, respond? GM began to act more like a champion, engaging suppliers to solve problems and offering them longer-term contracts (up to 10 years) to gain access to their innovation. Kiefer explained: "We want them to double down on us." By 2017, GM was the third highest scoring OEM on Planning Perspectives' annual automaker-supplier relationship survey, behind only Toyota and Honda. The bottom line: Influence style matters in all relationships.

One final thought as we conclude: A new opportunity for supply chain to step into a strategic influencer role is on the near-term horizon. In 2017, the McKinsey Global Institute forecast that emerging technologies will displace between 400 and 800 million jobs worldwide by 2030. Artificial intelligence, additive manufacturing, and autonomous vehicles (among other technologies) are already beginning to alter business model design.

As companies tackle intensifying global competition, greater risk, and the need for more sustainable operations, they will increasingly turn to the new technologies to transform the way they do work. Supply chain professionals will be in position to create incredible value. If we are going to grasp the brass ring to create a better world, we need to become better influencers.

HOW TO BUILD A SUPPLY CHAIN CHAMPION

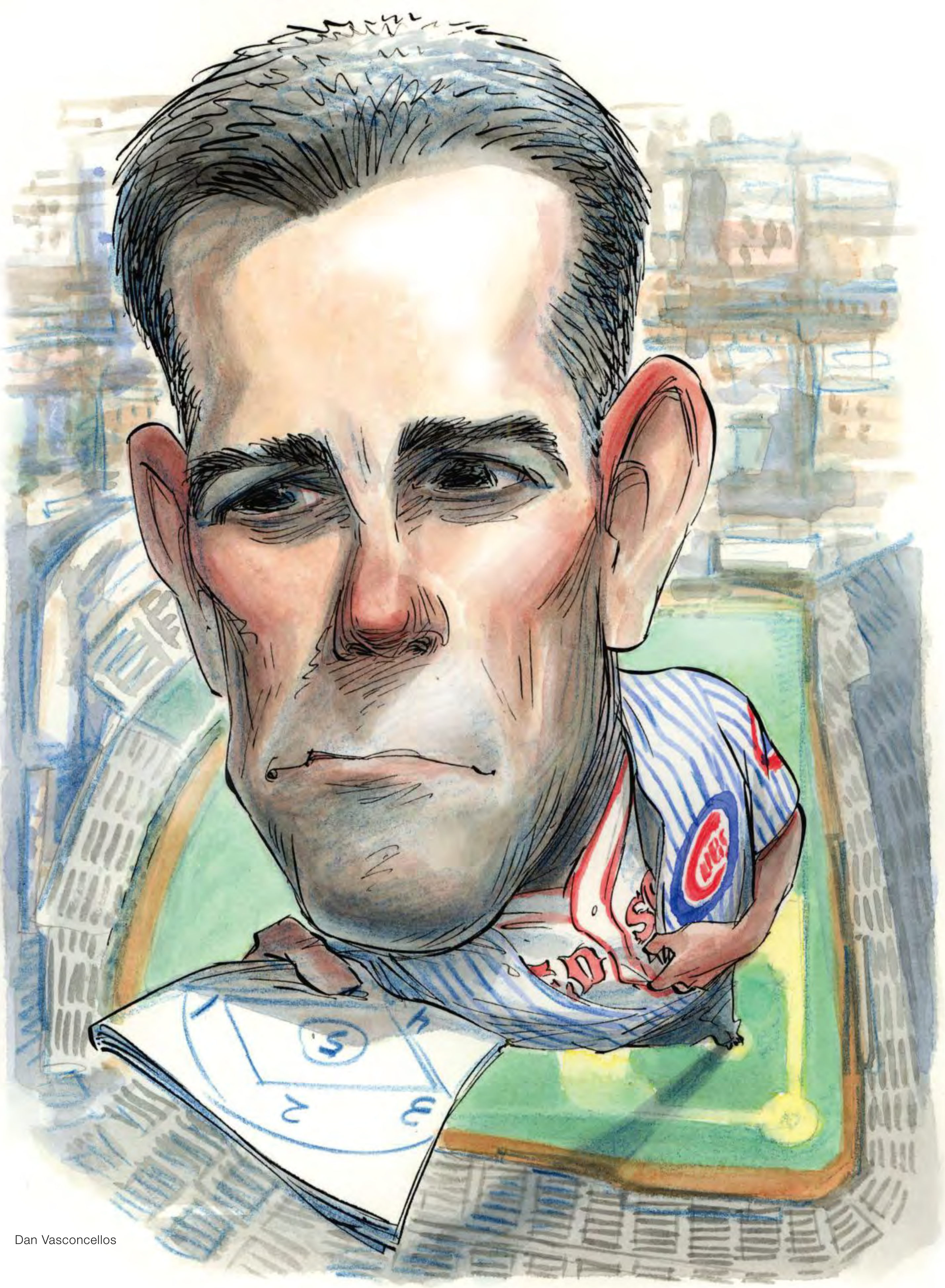
Want to avoid striking out? Supply chain managers can learn plenty from Theo Epstein's 5R approach to building a championship baseball team.

On November 2, 2016, the Chicago Cubs did the unthinkable: They won the World Series after coming back from a 1-3 deficit to the Cleveland Indians. For Cubs fans, the victory marked the end of a 108-year streak of competitive futility. Although the Cubs game seven, extra-inning victory is inspirational, you may be wondering: "As a supply chain professional, why should I care?" Answer: Because Theo Epstein, the Cubs President of Baseball Operations, knows how to build a championship team, a task that is likely high on your to-do list. Vitally, Epstein's role in the Cubs turnaround wasn't a fluke. In 2004, Epstein, as Red Sox General Manager, helped Boston vanquish the Curse of the Bambino and end an 86-year title drought.

Deciphering how Theo Epstein took the Cubs, a perennial loser, to a World Series championship has been a hot topic in the sports world. Based on our 20-plus years working with supply chain leaders, we argue that Theo Epstein's job assembling a champion on the field is a model for the supply chain leader's quest to build a winning supply chain. Let's take a closer look at how Epstein transformed the Cubs into champions. His approach highlights five principles of supply chain design that we call the 5Rs (Figure 1). The 5Rs have enabled companies from Amazon to Zara to win on the world's toughest playing field—today's global marketplace.

BY STANLEY E. FAWCETT, A. MICHAEL KNEMEYER , AMYDEE M. FAWCETT AND SEBASTIAN BROCKHAUS

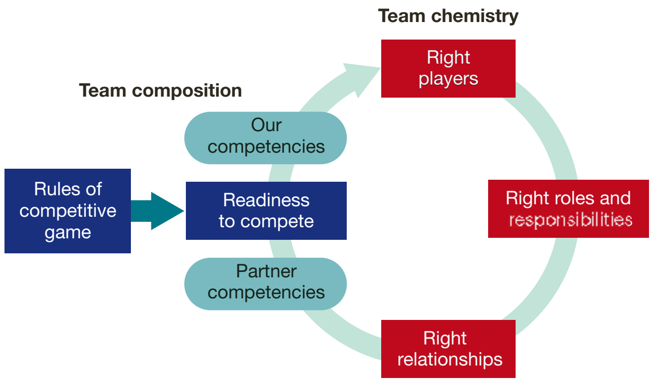
Stanley E. Fawcett, Ph.D., is the Goddard Professor of global supply chain management at the Goddard School of Business at Weber State University. He can be reached at stan.e.fawcett@gmail.com. A. Michael Knemeyer, Ph.D., is a professor of logistics at Fisher College of Business at The Ohio State University. He can be reached at knemeyer.4@osu.edu. Amydee M. Fawcett, Ph.D., is an associate professor of supply chain management and Director, Center for Leadership in Corporate Social Responsibility at Weber State University. She can be reached at amydeefawcett@weber.edu. Sebastian Brockhaus is an associate professor of supply chain management at the Boler College of Business at John Carroll University. He can be reached at sbrockhaus@jcu.edu.



Dan Vasconcellos

FIGURE 1

The 5Rs of supply chain excellence



Source: Authors

Know the rules and break them when necessary

If you want to win on the baseball field—or in the marketplace—you need to know the rules of the game. The rules define not just your strategy and value-added capabilities, but also your team's composition. Rules, however, change and disrupt industries and dethrone champions. For proof, look no further than A&P, Compaq and Pan Am. Thus, it's not enough to know the rules; you also need to pay attention to how they are changing. Spotting inflection points before rivals—and responding effectively—can give you a competitive edge. Andy Grove modeled this reality when he made the case for Intel to make the leap from RAM/DRAM to CPUs before the memory market crashed. Grove's anticipation of a threat before it was widely discerned is a big reason you know the phrase "Intel Inside."

Of course, sometimes the rules aren't fair, which is a plus if they favor you and a travesty if they don't. When you find your team disadvantaged, your job is to change the rules. This is the scenario Billy Bean, general manager of the Oakland Athletics, faced in 2001. The A's $40 million payroll couldn't compete with the New York Yankees $115 million player budget. Not only did the Yankees beat the A's in the divisional championship series but they signed the A's Jason Giambi to a big-budget free agent contract. To compete, Bean needed to build a different type of team. He stepped away from traditional approaches to player evaluation and embraced sabermetrics, a novel statistical approach that became known as "moneyball." His goal: Identify players undervalued by other teams. Bill Henry, the new owner of the Boston Red Sox, saw value in Bean's approach, and offered him the Sox' GM job. When Bean declined, Theo Epstein stepped in. He levered Boston's big payroll with sabermetrics to assemble a team that won the World Series in 2004, followed by two more championships in 2007 and 2013.

Great companies do the same thing. They execute within the rules better than rivals, or they exploit opportunities to change the rules. Consider Amazon, the poster child for e-commerce. Launched in 1995 as the "Earth's largest bookstore," Amazon began life as a pure play e-tailer, with no inventory or brick and mortar presence. It acted as a broker, linking customers to publishers. Amazon went public in 1997 and immediately began to rewrite the rules of online retailing and expand its product line. At a time when other organizations were outsourcing fulfillment operations, Amazon invested in its own distribution network. By 2016, Amazon operated 383 fulfillment centers worldwide, supporting sales of $136 billion. Amazon even began to build out an in-house network of trucks and planes to "own" the delivery experience all the way to the customer door.

Today, Amazon sports a market capitalization of $400 billion. Its allure is a willingness to push boundaries and redefine rules. Amazon made two-day "Prime" delivery an industry standard that customers were willing to subscribe to. Amazon also enabled eager consumers and intrigued investors to envision the day when drones, predictive shipping and checkout-free shopping will be common. The result: Amazon is forecast to reach half a trillion in sales over the next decade. More amazing, Amazon achieved this unparalleled success without ever making a meaningful profit on operations. According to The Economist, 92% of Amazon's value is due to profits that won't be earned until after 2020.

Amazon's story stresses a point that you need to remember. To build a winning team, you must change the competitive rules even as you execute the daylights out of existing rules. The remaining four Rs of supply chain design can help.

Assess readiness; your own and that of potential partners

By winning the World Series, the Cubs proved their greatness. Nonetheless, you wouldn't bet on the Cubs to win the Rugby World Cup. After all, the Cubs weren't built to play rugby. Yet, many companies try to do the equivalent every day. They come to market with the wrong supply chain. How do smart managers get stuck in such a predicament? Two explanations persist.

1. **Wrong focus.** Great ideas spawn companies. But, source, make and deliver decisions are often an afterthought, following marketing, engineering or finance. No one asks whether, or how, SCM can confer a competitive edge. Market mediocrity is the result.
2. **Poor scanning.** Even cutting-edge supply chains can fall behind the obsolescence curve. You've read, for instance, about the woes of some high-profile brick-and-mortar retailers. As the Internet changed the rules of retail, they didn't adapt. Now, they are dying.

Readiness assessment is a key weapon in Theo Epstein's arsenal. By conducting a two-step readiness assessment—the second R—you can avoid these losing outcomes.

Step 1 is an honest self-appraisal of the team's current competencies. Simply put, ask: "Do we have the skills we need to play, and win, our industry's competitive game?" If not, ask two questions:

- Which skills are you missing?
- What do the gaps look like?

By making capability gaps visible, you can prioritize your skill-acquisition efforts.

Step 2 is to assess potential partner competencies. Your job, like Epstein's, is to close the gaps by building or buying the right capabilities. Now, let's take a peek into how Epstein leveraged the second R to turn the Cubs into champions.

The key to winning a baseball game is to score more runs than the other team. The emphasis on runs scored has always placed a premium on two player-evaluation metrics: Batting average and RBIs (runs batted in). Sabermetrics argues you should set these metrics aside in favor of on-base percentage. After all, you can't score unless you get on base, and it doesn't matter whether you get on base via a hit or a walk. The logic of sabermetrics is simple: By using more-valid-but-less-used metrics, you can acquire the right skills at a lower price. Of course, winning attracts benchmarking, and rivals quickly copied Epstein's approach. Epstein's response: Keep refining the readiness-assessment process.

1. **Neuroscouting.** Neuroscouting uses a computer simulation to make the connection between a player's cognitive function (recognizing a pitch) and motor skills (swinging a bat). A player who picks up a pitch five feet out of the pitcher's hand will get on base more frequently than a player who doesn't read the pitch until 20 feet or 30 feet out. Neuroscouting helped Epstein identify Mookie Betts as a top prospect in the 2011 draft. Betts is now a rising star.
2. **Wins above replacement (WAR).** Epstein has grown fond of WAR, a metric that estimates how many wins a player contributes to above a replacement player at the same position. Going into the 2016 season, WAR indicated that the Cubs excelled in starting pitching, first base and third base. But, right field was identified as a liability. To fill the gap, Epstein acquired Jason Heyward in free agency.
3. **Predictive analytics.** Epstein is now experimenting with simulations to predict how a given team composition will fare in each game throughout the season. Inputs can be quite detailed and include things like ballpark where the game is played, time of day and pitcher-versus-batter matchups.

Beyond closing capability gaps, readiness assessment serves another purpose. In 2011, as Epstein's tenure with the team began, Cubs owner Tom Ricketts asked when the Cubs would be ready to compete for a championship. Epstein's response: The Cubs would get worse before things could get better. Building a strong farm system and young talent meant that the Cub faithful would need to be patient. Epstein's plan, however, leveraged the "rules" of the collective bargaining agreement, one that allocated larger draft budgets to losing teams. Losing early to win later enabled the Cubs to acquire players like Kris Bryant and Kyle Schwarber, who were key contributors to the 2016 championship run.

Readiness assessment is a pivotal part of Zara's story. Zara, like Amazon, is a rule breaker; its fast-fashion business model is truly game changing. So too are the supply chain capabilities needed to make fast-fashion work. Compare the

TABLE 1

Zara has built unique capabilities to change the rules

	Zara	Gap
Design concepts	• **What's selling:** POS data • **What's not selling:** data on styles tried on, but not purchased • **Customer desires:** daily feedback from store managers • **Fashion trends:** copy and adapt fashion-house designs	• **Fashion trends:** In-house designers • **What's selling:** POS data
Concept to market cycle	• 14-24 days • New designs (30,000 per year) arrive twice a week	• Four to six months • New designs timed to four major seasons
Sourcing	Local sourcing: • 60% in Spain • 25% in low-cost European countries	Asia-centric global sourcing
Production	• Cutting at the cube • Assembly at small, flexible "workshops" in Spain • Small production runs to demand	• Large production runs to forecast
Inventory	• Stockouts are fashionable • Markdowns on 15% of SKUs	• Stockouts frustrate customers • Mark downs on 40% of SKUs

Source: Authors

Zara way to Gap's approach (see Table 1).

The backstory: Amancio Ortega, Zara's founder, got his start in the apparel industry as a 14-year old errand boy. A decade later, Ortega began developing his own designs, reproducing popular styles, but with his own twists. He soon realized that if he could bring trendy designs to market quickly and inexpensively he could wow consumers. Ortega simply needed to convert concept into capabilities. Readiness assessment provided Ortega the insight needed to build the capabilities that would fuel Zara's fast-fashion strategy. Let's highlight two points here.

1 **Infrastructure**. Capabilities derive from infrastructure. For instance, Zara brings its 30,000 distinct designs from concept to rack in only 14-24 days (a 10X advantage over rivals). To reliably hit this target, Zara sources over 50% of all items from local subcontractors in Spain (over 75% in Europe) and preps all product to be rack ready in its 400,000 square meter DC called the Cube. Zara's infrastructure links supply to demand.

2 **Decision processes.** At Zara, decision makers evaluate every investment based on how it will enhance Zara's capabilities. For instance, Xan Salgado Badas, Zara's head of IT, stuck with an outdated, DOS-based point of sales system (POS) for years because newer systems didn't offer any strategic capability upgrade. Yet, when Zara figured out how to use RFID to gain insight into fashion trends and hasten replenishment, it rolled out the technology at a scale and speed that startled rivals (in 2016, Zara bought 500 million RFID chips, 16% of that year's total RFID sales).

Being fast and driving trends pays serious dividends. Customers visit Zara stores 17 times a year, compared to three times to five times for rivals. That's because they know if a trendy new outfit sells out, it may not be back. In effect, Zara has turned customers into treasure hunters, transforming stockouts into a sales pitch. Along the way, Zara became the world's largest fashion retailer and Amancio Ortega the world's second richest person. But, Zara's team also knows that readiness assessment and capability development must be a lifestyle, not an event. If Zara isn't always getting better, a rival like BooHoo or ASOS might make Zara's version of fast-fashion obsolete. Just like the Cubs and Zara, you are only as good as you are ready.

Assemble the right players; build or buy needed competencies

Redefining rules and assessing readiness are tough tasks. But, the outputs—a capability-development matrix and a talent-acquisition map—are critical to devising a winning game plan. Bringing all of the right pieces together and molding them into a champion is equally daunting. Emotional fortitude is needed. Executives like Theo Epstein, however, embrace the team-building challenge. Team ego results when you holistically progress through the remaining 3Rs—right players, right roles and right relationships. Let's explore

MAKING THE CASE FOR Working with a Diverse Third Party Logistics Partner

Forced to make quick decisions in response to the global pandemic, supply chain disruptions, and economic downturn, companies are leveraging diverse, experienced third party logistics partners to help run their end-to-end supply chains.

COVERED IN THIS REPORT:

- Navigating Complex Transportation Environments
- Building Resiliency into Transportation Management
- "We Couldn't Have Done It Without RyderShare™"
- Making the Case for Working with a Diverse Third Party Logistics Partner
- A Win-Win Partnership

COMPANIES ACROSS MOST INDUSTRIES are operating in a world filled with big unknowns and steep challenges right now. Somewhat unruly and often difficult to manage, supply chains and transportation networks have become especially unpredictable in today's shipping environment. Persistent issues like driver shortages, rate increases, and capacity problems have been exacerbated by the global pandemic, supply chain disruption, and economic recession.

Of course, global trade wars, changing consumer expectations, and the need to digitize antiquated business systems were all on companies' radar screens pre-COVID. The pandemic amplified these challenges, effectively creating a "perfect storm" of issues for manufacturers, distributors, and retailers to contend with.

These aren't the first major obstacles to be placed in their paths—and they certainly won't be the last—but this new environment, in particular, has prompted many organizations to reimagine their transportation management approaches.

MANAGING THE IMBALANCE

Right now, many companies are questioning whether they should be managing their own fulfillment, shipping, and delivery processes at all. A small to midsized firm with core competencies in product manufacturing, for instance, probably isn't best positioned to handle its own transportation network. This company may have successfully managed its own transportation internally during "normal" operating environments, but what it's dealing with right now is anything but normal.

"The transportation environment is uncertain and somewhat chaotic right now. There's a lot of imbalance within the networks," says Steve W. Martin, Ryder's senior VP of dedicated transportation solutions. The pendulum that swings back and forth between shippers and carriers, for example, is now firmly in the latter's territory. Meaning, rates are climbing, capacity is fluctuating, and carriers have more than enough customers to work with.

"The situation is unbalanced, and that's putting pressure on tender acceptances," says Martin, who sees more companies looking for ways to diversify the modal mixes used to move their freight, be it truckload, less-than-truckload (LTL), dedicated fleets, or a combination of all three. "These diverse approaches are helping companies deal with the cyclicality that we're seeing in the market right now."

To manage these diverse networks, companies also need the right combination of software, analytics, and visibility tools that support good decision-making and allow them to operate profitably. In absence of these tools, companies can't make the deeper decisions needed to adjust their networks and models, nor can they reduce the market-driven variabilities that are impacting their operations.

MANAGING UNDER PRESSURE

A transportation industry already dealing with driver shortages and capacity issues pre-pandemic has since been pushed into unknown territory due to the pandemic, the massive uptick in e-commerce orders, and ever-shrinking delivery times.

When the truck driving schools shut down due to COVID, for example, the new graduate pipeline also stopped. "Now they're running at reduced capacity," Martin points out, "and that's created a lack of new drivers entering the market."

Concurrently, the virus pushed some drivers out of the job market prematurely. Those that were considering retirement, for instance, took the opportunity to do that when COVID hit. This double whammy has put new pressures on carriers. The same providers are also managing higher shipping volumes; an increase in large, bulky packages being shipped to homes (versus retail outlets); and persistent last-mile delivery challenges.

As if these challenges weren't enough to make companies rethink their transportation networks, carriers also had to adjust to the "touchless" delivery environment and find ways to leave packages at the threshold while also capturing proof-of-delivery information. They're also seeing an uptick in business volumes driven by the reshoring/onshoring trend, whereby manufacturers reposition some or all of their production operations in the U.S.

Combined, these developments are putting extreme pressure on transportation networks. To cope, many companies are turning to experienced, capable transportation management partners that offer a broad scope of standard and customized services. Well versed in all things transportation, these partners ease the pain of transportation management while letting companies do what they do best: run their businesses profitably and effectively.

In this Making the Case, we explore the key transportation management challenges that companies are dealing with right now and show how a diverse third party logistics partner can help them build more resilient, future-proof supply chains in any business conditions. •

Go to: www.scmr.com/rydermtc2020 for a full report.

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how Epstein brings these Rs together.

Through experience or intuition, Epstein knows the best players aren't always the right players. Many so-called super teams never hoist the Commissioner's Trophy at season's end. So, what type of player does Epstein look for? Talent is critical, but even more so, Epstein seeks a mix of athleticism and positional skill backed up by EQ and a team-first mindset. After all, when a crisis arises—and it will during the course of a 162-game regular season—team ego decides whether the team steps up or collapses. The better question is, perhaps, how does Epstein put the right mix of skills on the field? Like you, Epstein has two options. He can build competencies or he can buy them. To field a consistent contender, he must do both exceptionally well. Figure 2 depicts Epstein's method.

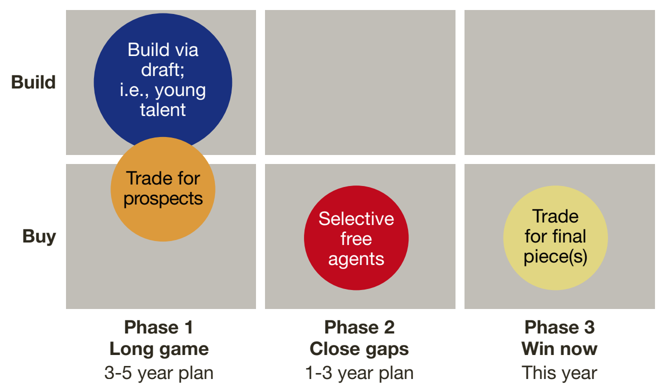
- **Phase 1: Long game.** The core of an Epstein team emerges from the draft. Young talent like Javier Baez (2011) and Kris Bryant (2013) is identified and developed. The process takes time, but it provides a big bang for the buck. Baez and Bryant both made pivotal contributions to the Cubs' World Series run. Of note, when Epstein arrived in 2011, he began to trade valuable players that didn't fit his vision and culture, giving the Cubs more draft picks.
- **Phase 2: Close key gaps.** Epstein opportunistically closes key skill gaps by acquiring proven talent via free agency or a well-timed trade. Consider Jake Arrieta, a starting pitcher acquired from the Baltimore Orioles just before the 2013 trading deadline. Arrieta won the 2015 NL Cy Young Award and was the ace of the Cubs' 2016 pitching staff.
- **Phase 3: Win now.** By July 25, 2016, the Cubs had the best record in MLB. But, by Epstein's estimation, the Cubs still lacked a critical piece: a hard-throwing lefty closer. To bring Aroldis Chapman, the hardest thrower in baseball (105-MPH fastball), to Chicago, Epstein traded four up-and-coming prospects—a steep price Epstein was willing to pay to win it all in 2016.

One more point: Epstein knows that the concept of right "players" extends beyond the playing field. To help make things click, Epstein brought on Joe Maddon, former manager of the Tampa Bay Rays. Maddon's keen sense of strategy and a sabermetrics-driven willingness to tweak the batting order and defensive alignment helped position the Cubs to win a league-leading 103 games. Simply summarized, getting ready to compete means bringing the right players on board, whether drafting undervalued prospects, signing free agents, making pivotal trades or signing a manager whose true talents are being underutilized.

Apple has shown an uncanny ability to bring the right players together to develop and deliver hit products and services. Figure 3 shows how Apple uses Epstein's playbook.

FIGURE 2

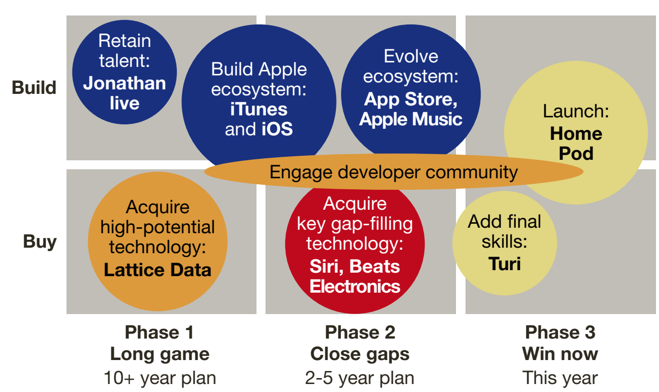
Assembling the right players



Source: Authors

FIGURE 3

Apple's path to developing the HomePod



Source: Authors

- **Phase 1—Long Game:** At the turn of the millennium, Apple began to invest in what has become the source of its success—software. The iTunes Music Store, paired with iOS, set in place the foundation for Apple's ecosystem, which consists of over one billion active devices worldwide and includes services such as App Store, Apple Pay, Apple Music and iCloud. Apple touches its owners' lives every day—and in an increasing variety of ways.

- **Phase 2—Close key gaps:** By buying Siri in 2010, Apple forged into both the search and mobile "assistant" markets. More recently, in 2014, Apple acquired Beats Electronics, quickly integrating Beats Music into its own streaming service, Apple Music. Pundits, nevertheless, questioned Beat's $3 billion price tag. But, Apple appeared to have a compelling goal: To close gaps that powered Google Android's foray into Apple's turf.
- **Phase 3—Win now:** In August 2016, Apple quietly acquired Turi, an artificial intelligence startup, for $200 million. Less than a year later, on June 5, 2017, Apple introduced HomePod, a device designed to "reinvent music in our homes." The Beats acquisition now made sense. But, that's not all. HomePod is a home assistant—Apple's answer to Amazon's Echo and Google Home. Turi's machine learning makes Siri smarter, giving Apple the win-now capability needed for HomePod to become the central nervous system for the IoT-enabled home, a nascent market with fantastic growth potential.

Apple is seldom first to market, but the design, user-friendly interface and massive ecosystem that support Apple products and services make it a game changer. The result: Apple's market capitalization hit $800 billion in 2017—2X Amazon's. Consider two facts: Despite owning only 30% of the mobile operating system market, Apple earned 90% of the industry's 2015 profits. And Apple earns developer loyalty by delivering 75% more revenue vis-à-vis Google Play, making App Store the go-to place for the latest and greatest apps. Bringing the right players to the game has made Apple a perennial industry champion.

Put players in the right roles; shift as needed

Getting the right players is just one step in the team-building process. Jim Collins described what comes next: "Get the right people on the bus, the wrong people off the bus, and the right people in the right seats." Matching players to roles is critical. Yet, the way most companies do this won't deliver a true—i.e., inimitable—competitive edge. To be a supply chain champion, you have to think differently about how to mix and match key capabilities.

With Epstein at the helm, the Cubs tinker incessantly with player roles. That's one reason Epstein hired Maddon: His teams led the league in distinct batting lineups and in-game positional shifts every year from 2006 to 2014. The goal: Tweak the lineup to improve the Cubs' chance to win any given game. Imagine sending your catcher out to pitch. Maddon did just that, inserting David Ross to pitch against the Milwaukee Brewers. Ross had never pitched in the MLB, but he recorded a perfect inning. Maddon's penchant for moving players around led the Cubs to acquire Ben Zobrist. Maddon called Zobrist a "super-U," someone who can play multiple positions. In fact, during his career, Zobrist has played every position except pitcher and catcher. Proactive role shifting made the Cubs improbable season possible.

In 2015, many pundits had already written Best Buy's obituary, claiming the electronics retailer couldn't survive Amazon's assault and consumers' affinity for "showrooming." Yet, Best Buy did survive, showing how role shifting can create a competitive edge even against Amazon. How did Best Buy do it? Consider three pivot points that enabled Best Buy to become an experience retailer.

1. **Reduced costs.** To contest showrooming, Best Buy began matching prices. To reduce costs and make price matching economically viable, Best Buy deepened collaborative relationships with suppliers, especially in the areas of merchandizing, forecasting and replenishment.
2. **Repurposed bricks.** For brick-and-mortar retailers, Amazon's onslaught turned what once was an asset into a liability. Yet by shipping online orders direct from local stores and encouraging in-store pickup of online orders, Best Buy can deliver with Amazon-like speed, turning its 1,600 physical stores back into an asset.
3. **Reimagined roles.** Clicks and mortar wasn't Best Buy's only proactive role shift. Best Buy invited top suppliers like Samsung, Apple, LG, Microsoft, Sony and Google to set up shops within its cavernous stores. Best Buy charges rent and benefits from high-margin sales of high-end appliances and electronics. What's in it for suppliers? The opportunity to create immersive customer experiences without the cost of owning stores. Google Guides, full-time Google staff, offer tutorials and tech classes, helping customers discover, play and have fun. Samsung Experience shops are located in every Best Buy store.

The result of role shifting: In 2017, Best Buy shares surged to an all-time high. However, as the Cubs know from first-hand experience, some role shifts backfire. Boeing discovered this the hard way with the launch of its vaunted 787 Dreamliner. Poorly conceived and managed shifts cost Boeing five years in first-mover advantage and, by some estimates, $20 billion in design, production and launch costs. To avoid such misfires, you really do need to do the work entailed by all five Rs. Despite the risks, as Table 2 highlights, game changers from rivals' strategic moves to disruptive technologies dictate that you begin to experiment with proactive role shifting.

TABLE 2

Forces driving role shifting

	What	Why	Who
Rationalization	The optimization of supply chain activities and relationships.	**Goal:** Drive out cost and improve relations with key SC partners.	Aldi carries 1,000 mostly store-brand SKUs per 15,000 ft^2 store, beating Wal-Mart on price by 18% on average.
Uberization	The "renting" of SC assets owned by someone else.	**Goal:** Enable sharing of existing assets. Owners earn rent; users reduce cost of access to assets.	General Motors' Maven on-demand mobility service allows drivers to rent a car as needed. GM also offers drivers the flexibility to trade in and out of its 10 Cadillac models up to 8 times a year for $1,500 a month.
Freelancing	The contracting of capabilities by independent agents on an as-needed basis.	**Goal:** Reduce fixed costs and create extreme flexibility.	Story is a unique retail concept that changes like an art gallery, but sells things like a store. The N.Y.-based retailer completely reinvents itself every three to eight weeks, requiring distinct, temporary supply chains for ever-changing product line.

Source: Authors

Cultivate the right relationships; build identity and trust

Having the right players in the right roles does guarantee that your team looks good on paper. Sadly, looking good on paper is no guarantee your team will win once the game begins. What separates paper tigers from competitive champions, both on the sporting field and in the boardroom? Champions possess chemistry; that is, a common vision backed by a willingness to work together to achieve strategic goals—even if someone has to play a less visible role. Critically, chemistry derives from trust. To fully sense the value of trust, consider this key fact from the auto industry: The most trusted automakers are also the most profitable. Your takeaway: Ultimate success requires that you invest in a culture of trust.

Theo Epstein is a culture guy. Organizational culture, after all, endures beyond the departure of talent. So, what are the core tenets of an Epstein-inspired culture? For starters, Epstein believes people perform best, especially under pressure, when they are part of something bigger than themselves. He also believes that environment matters. That's why the Cubs' new $300 million stadium renovation included a round clubhouse—60 feet, 6 inches in diameter (the exact distance from the pitcher's mound to home plate). Epstein wanted to promote collaboration by putting everyone within eyesight of each other and encouraging serendipitous conversations. The space eliminated hierarchy, engendering camaraderie and team identity. David Ross, the Cubs catcher, described the design as, "a subliminal message they're sending."

Beyond facilities, Epstein cultivates "lever points"—other people who help drive the culture. Epstein then steps back and lets them do some heavy lifting. Joe Maddon, the Cubs manager, is an ideal lever for an Epstein-built team. "Try not to suck," a key Maddonism, communicates big-time expectations without big-time pressure. Madden helped nurture the Cubs culture: Trust each other; do the right things consistently, including stretching for better results; have fun, but hold each other accountable; and expect greatness. Epstein and Maddon know that if you build the right culture, that come crunch time, someone will step up.

And that's exactly what happened in game seven of the World Series. After digging out of a 1-3 deficit and building a commanding three-run lead going into the bottom of the 8th inning, the Cubs did the unimaginable—they gave up the lead and gave away the momentum. The 103 wins didn't matter anymore; the dream was slipping away. Then, it began to rain—and culture took over. As the grounds crew came on the field, the Cubs exited toward the locker room. Jason Heyward impulsively called his teammates into a weight room for a player's only meeting. Never the outspoken leader, and struggling at the plate throughout the playoffs, Heyward reminded his teammates just who the Cubs were. David Ross recounted Heyward's message: "He just said: 'We're the best team in baseball for a reason. Continue to play our game, support one another. These are your brothers here, fight for your brothers, lift them up, continue to stay positive. We've been doing this all year so continue to be us.'"

What would've happened if Heyward hadn't spoken up? The Cubs may still have won. But, Epstein knows that you leave less to chance when you invest in the right culture.

Honda is a Cubs type of culture warrior. More reliant on suppliers than rival carmakers, Honda's buyer-supplier culture is truly unique, even a little quirky. Honda treats

The Cubs faithful view Epstein as a miracle worker. In truth, EPSTEIN SIMPLY EMBRACED CORE TENETS SUPPLY CHAIN CHAMPIONS put to work every day as they design and manage world-class value-creation teams.

strategic suppliers as an extension of Honda itself. Simply put, Honda invests in supply partners as if it is buying their capacity and capabilities, not just their parts. By the way, 90% of Honda's spend is with strategic partners. To help these partners succeed, Honda sends engineering teams to work on-site at suppliers for three months—and as long as 24 months—at no cost to the supplier. The goal: Help suppliers optimize manufacturing and business processes. A typical best practices (BP) improvement initiative improves quality by 30% and labor productivity by 50%. More importantly, under Honda's coaching, suppliers develop critical skills. Honda, in turn, gains stronger supply partners. Cost savings are shared 50/50 with the supplier.

Honda's investments aren't limited to BP projects. Honda expects supply partners to participate in corporate training, senior-leader business reviews and new product and target costing programs. You may be wondering why Honda invests so much in its suppliers instead of switching to more capable suppliers. Honda's response: Other suppliers would have similar problems. The nuanced answer, however, runs deeper. Like Epstein, Honda is playing the long game, building a trusted team that can compete the "Honda Way." Identity is critical. One result: Honda is the most trusted carmaker among suppliers. Almost 40 years after launching U.S. operations, nearly all of Honda's original supply team remains intact. The trust also shows up in Honda's profitability. Despite Toyota's superior scale—producing twice as many cars per year—Honda has consistently delivered higher profit margins.

Now, let's go back to the early 1990s. J. Ignacio Lopez, General Motor's purchasing czar, tore up supplier contracts, putting everything out to bid. By saving $4 billion dollars, Lopez saved GM from bankruptcy. But, Lopez alienated suppliers, solidifying a culture of mistrust. Over a decade later, supplier resentment still ran hot. Suppliers scored GM a 114 on the 2005 Supplier Working Relations Index (the lowest score ever—300 points behind Toyota's 415). The real cost: Suppliers were holding back on GM, dedicating their best engineers and sharing their latest technology with more trusted partners like Honda and Toyota. The rise of autonomous vehicles, however, forced GM in 2015 to acknowledge an existential threat, that it's future depended on supplier innovation. Compelled to change, GM began offering longer-term contracts to urge suppliers to more openly share their best ideas. Two years later, GM's 2017 WRI score reached its all-time high of 290, lagging behind only Toyota and Honda.

The journey continues

The Cubs faithful view Epstein as a miracle worker. In truth, Epstein simply embraced core tenets supply chain champions put to work every day as they design and manage world-class value-creation teams. What then is your key takeaway? Epstein succeeded by executing each R as part of an integrated 5Rs strategy. In Epstein's words: "Acquiring the talent is only half the battle. The other half of the Cubs' rebuilding required the organization to establish a winning culture. This meant devising a 'Cubs Way.'" In our experience, putting all five pieces of a 5Rs strategy together is quite a feat. Even supply chain champions struggle to implement all five Rs. But, Maddon offers a word of advice: "The process is fearless." If you continue to work the process, the 5Rs will help you break whatever supply chain curse you're facing.

How to Become a Supply Chain ROCK STAR

Supply chain leaders can learn a lot from rock and roll drummers.

BY SEBASTIAN BROCKHAUS, STANLEY E. FAWCETT, A. MICHAEL KNEMEYER AND AMYDEE M. FAWCETT

"So you want to be a rock and roll star then listen now to what I say . . ."

— The Byrds

Think back to the first rock show you ever attended. Do you remember how you felt as the lights went out? For a moment you stood motionless in the dark, anticipating. Then the stage lights kicked in with a "bang," you heard the fog machines hiss and the band emerged from the shadows. The crowd—all 15,000 to 50,000—roared as the first guitar chords screamed through the speaker stacks seconds before the drums and bass dropped in. The show was under way.

Sebastian Brockhaus is an associate professor of supply chain management at the Boler College of Business at John Carroll University. He can be reached at sbrockhaus@jcu.edu. He can be reached at sbrockhaus@jcu.edu. Stanley E. Fawcett, Ph.D., is the Goddard Professor of global supply chain management at the Goddard School of Business at Weber State University. He can be reached at stan.e.fawcett@gmail.com. A. Michael Knemeyer, Ph.D., is a professor of logistics at Fisher College of Business at The Ohio State University. He can be reached at knemeyer.4@osu.edu. Amydee M. Fawcett, Ph.D., is an associate professor of supply chain management and Director, Center for Leadership in Corporate Social Responsibility at Weber State University. She can be reached at amydeefawcett@weber.edu.

Did you imagine—if only for a moment—you were on the stage, singing lead, jamming on the guitar or riding the hi-hat? Most teenagers and 20-somethings do. The science behind the fantasy to find a place in the spotlight is clear. In adolescence, the brain begins to produce a neurochemical cocktail of oxytocin and dopamine that primes us to care deeply about social rewards. Maslow showed that those desires for belonging and recognition never go away. No matter our age, we derive our highest sense of self-worth from achieving our creative, intellectual and social potential. Standing in the shadows back stage simply isn't a substitute for being in the spotlight.

A tale of two drummers

Unless, of course, you're a supply chain manager. Too often, supply chain managers feel that they are stuck in the shadows, playing the drums behind the lead singer and guitar player. Even so, you may be wondering: "As a supply chain professional, what can I learn from youthful rock-and-roll fantasies?" Answer: We often forget that drummers are indispensable. After all, people at a concert dance to the drums, not to the vocals. Based on our 20-plus years working with supply chain leaders, we have learned that just as drummers deliver the beat that is the heart of every hit song, SCM delivers the value that is core to every supply chain competency.

To demonstrate our point, let's take a peek at how two elite drummers became rock stars as they helped their bands earn a place in the Rock & Roll Hall of Fame.

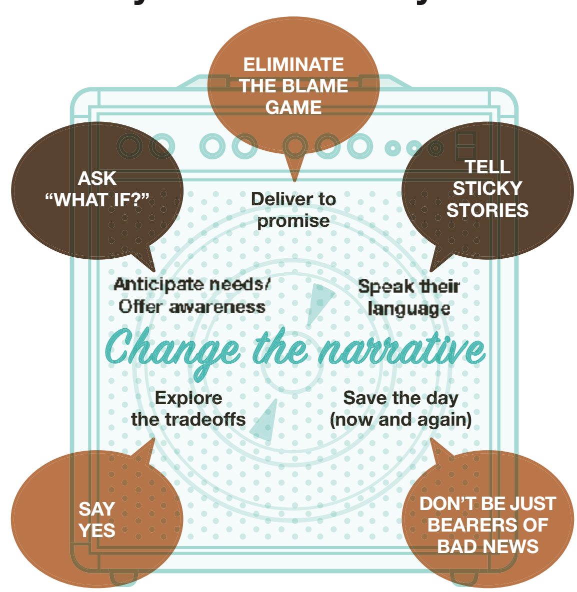
The steady beat with solo flair. Mick Fleetwood has anchored Fleetwood Mac, one of the best-selling rock bands of all time. Mick's playing is often restrained. Listen to "Go Your Own Way." You'll hear how Mick does the little stuff that pulls the band together and gives the hit its distinctive groove. His straight on-beat pushes the vocal track to the foreground at just the right time. Mick's skill with a pair of sticks reveals the genius of one of the best drummers ever.

Happy back stage, but ready for the spotlight. Dave Grohl, one of the nicest guys in rock and roll, earned his place in the Hall of Fame as the drummer for Nirvana. But, in a way, Dave's story began as Nirvana's ended. On April 8, 1994, Kurt Cobain, Nirvana's lead singer and guitarist was found dead at his Seattle home. Cobain's suicide stung deeply. Initially, Dave stopped listening to music. Eventually, he returned to music as a form of healing. Dave recorded the first Foo Fighters album in 1995, playing every instrument himself. The Foo Fighters, a band Rolling Stone called one of the greatest stadium acts of our time, have been on a roll ever since—with Dave on guitar and singing lead.

Mick and Dave have both reached the pinnacle of success. Mick did so by staying behind the drums, holding Fleetwood Mac's sound together for more than 50 years. Dave, by contrast, confronted the unexpected and stepped into the unknown, ultimately developing new talents and shaping a new sound. A close look at their contributions highlight five behaviors supply chain professionals can embrace to earn their place on the stage—and in the spotlight. These five behaviors comprise the Cycle of Credibility (see Figure 1). On a side note, Mick and Dave's careers also show that you can pursue more than one path to become a supply chain rock star.

FIGURE 1

The Cycle of Credibility

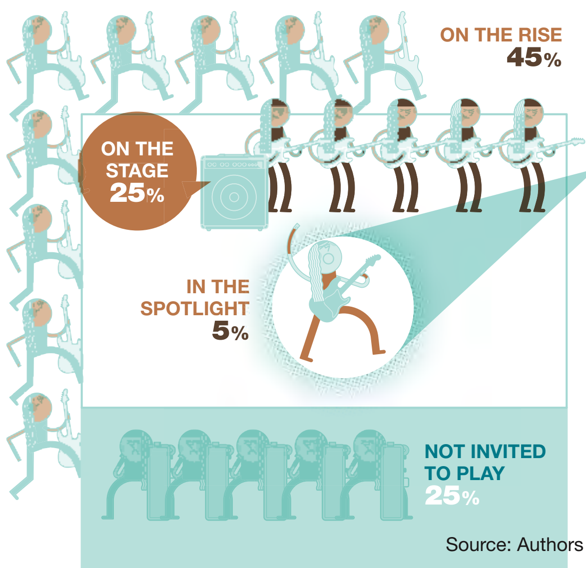


Source: Authors

A quick soundcheck

You may be thinking: "Back stage vs. the spotlight, you're kidding, right? At my company SCM isn't even on the stage, much less in the spotlight." We know where you're coming from and we have some good news. But first, let's do a quick soundcheck (see Figure 2). Over the past decade, we have worked with hundreds of companies, including some headliner supply chain organizations worldwide. How do these companies stack up on the on-the-stage vs. in-the-spotlight metric?

FIGURE 2
A quick soundcheck



Source: Authors

- **In the spotlight.** In recent years, supply chain has been spotted rising up the charts as a need-to-listen-to voice. The spotlight, however, remains elusive. Only about 5% of companies invest in and rely on supply chain as the front-stage lead.
- **On the stage.** Supply chain's rise has put it on the stage at close to 25% of companies. Supply chain may not drive the sound, but these companies realize that the hits would stop coming without supply chain setting the cadence.
- **On the rise.** Greater operating risk and evolving business models mean that supply chain has left roadie status and is climbing onto the stage at almost 45% of companies. Just setting up and maintaining the equipment isn't enough; supply chain must deliver the goods.
- **Not invited to play.** Sadly, at about 25% of companies, Dave Grohl will be the next bad boy of rock and roll before supply chain steps foot on the big stage at show time.

Now, the good news: The behaviors you need to step into the spotlight are the same ones you need to get onto the stage. And if you find yourself at one of those stragglers that doesn't invite supply chain to the jam session, using the five behaviors will give you the credibility to audition for a more exciting supply chain gig. Simply put, regardless of where you stand in relationship to the stage, the Cycle of Credibility works. Let's take the Cycle for a spin.

The Cycle of Credibility

During a rock concert, a stage isn't just crowded; its chaotic. The band has one purpose: To rock the house. Tons of equipment must be properly set up to kick out the fog, put on a light show and, yes, crank out the volume. Don't forget, creating the right vibe requires turning out the stadium lights. On stage, it's dark—and it's loud. Communication is hard. Despite the daunting task, the band delivers a well rehearsed, but still spontaneous show. Let's take a closer look.

Eliminate the blame game. The stage is the band's supply chain—this is where value is created, reputation is earned and crowds are delighted. When the spotlights go on, the members of the band must be in synch, ready to rock. But, because musicians are humans and not machines, mistakes happen. Instruments malfunction; wrong notes are played. Great bands like Fleetwood Mac and Foo Fighters make it look easy. The audience doesn't notice the miscues; they are immersed in a seamless show. And the band does it night after night. How do they do it so consistently? The band sticks together. The players adapt in real time. They "edge out kinks" and they never stop playing—ever. They own their mistakes. The stage is not the place to point fingers.

Pointing fingers, however, is a sticking point in the business world. And, it erodes supply chain credibility. Consider two classic miscues.

1. **"Not they."** A few years back, Texas Instruments suffered a production mishap. An investigation ensued. The goal: Find the cause and fix it. Senior leaders reached out personally. They learned that the supply chain culture was out of tune. Everyone—up and down the supply chain—said: "It wasn't us." Managers pointed fingers saying: "They did it." Exasperated, a member of the leadership team printed up hundreds of "Not they" pins—enough for every team member. His message was: "It's time to own our mistakes. If we don't, we won't get better and as a company we will die."
2. **The GM Salute**. You may remember the General Motor's ignition fiasco: 2.6 million cars were affected and

124 people died. The official investigation pinned the defect not on the ignition switch but on GM's dysfunctional culture, calling out two decision-making behaviors.

- The "GM salute" describes managers crossing arms with fingers pointing outward toward others, denoting that the fault belongs to someone else, not me.
- The "GM nod" refers to participants in meetings nodding in agreement that action should be taken, but doing nothing.

Now you know why CEO Mary Barra likes to talk about the new GM.

The blame game is contagious—and it's toxic. Subtly, it takes over and undermines an organization's culture and its value-creation capabilities. Put an end to it.

But how? Mick Fleetwood knows the answer. For 50 years, as band members came and went, Mick consistently delivered the dependable beat that is the heart and soul of Fleetwood Mac's sound. A few companies—and managers—get it. Think Walmart and Sam Walton. Walmart started as a "five and dime," growing to the world's largest, most profitable retailer—a title it has held for over 30 years—by promising and delivering "always low prices." Sam Walton engendered a culture and built a logistics infrastructure to exceed customer expectations and control expenses. His goal: Lower the cost of living for the people of the world.

Lee Scott learned and applied this lesson well, owning mistakes, sharing successes and consistently delivering to promise. The result: As a Wall Street Journal headline noted, Scott was one of the first supply chain guys to rise through the ranks to become the CEO of a Fortune 100 company. Even after he stepped into the spotlight, Scott stuck to promises. Case in point: In 2005 Scott announced to the world that Walmart would become a leader in sustainability. Then the Great Recession struck. Many companies stepped away from sustainability goals. Walmart persisted. By 2012, Walmart introduced a product sustainability index, engaging suppliers to make sustainability affordable—a task that continues to befuddle most companies.

One final thought: Every executive we interviewed as we sought to decipher supply chain's quest to step into the spotlight pointed to the power of delivering to promise. Their stories were consistent: "Make your business case to get support. Then do what you said you would. Earn the paycheck by providing a return. The next time you need resources, getting them will be easier." Credibility with the C-suite emerges as you deliver results—not excuses. It also buys you some precious airtime—and you need to rock that air time.

Tell sticky stories

Great rock bands are master storytellers. They have to be. It's not easy to get signed by a record label. But, when a song connects it's not just timely, it's timeless. The lyrics, the sound doesn't just catch the ear, they stir the soul. After 40 years, people are still deeply moved when they hear a favorite cut from Fleetwood Mac's album *Rumours*. And people are willing to pay $150 or more to see the Foo Fighters live. Dave Grohl explains: "When you play a song like Everlong, so many people connect with it, that communal energy makes it magical, every night."

Intel, a Gartner supply chain exemplar, has long relied on sticky stories to create magic. Think back to 1989. Intel had launched its 386 chip, but it wasn't selling. Big box makers such as Compaq and IBM didn't feel a need to upgrade from Intel's 286 chip. Andy Grove, a master storyteller, decided to take the 386's magic, faster speed directly to consumers. The Red X campaign was released. Ads depicted a 286 crossed out by a spray-painted graffiti X. The message struck a chord. Almost overnight, consumers responded and the 386 became a smash hit. A simple story had enabled Intel to co-opt power in the PC supply chain. You may have never heard of Intel's Red X campaign, but you certainly recognize its successor: *Intel Inside*, which is often accompanied by Intel's five-note chime (D flat, D flat, G flat, D flat, A flat).

Regrettably, supply chain managers aren't known for their sticky stories. They create neither energy nor magic as they dwell on costs and capacity. They don't get that their audience longs to hear a different story. Being tone deaf, they fail to connect. The executives we spoke with reiterated this point—that *"we simply don't connect"*—and identified a supply chain priority: "CFOs and other members of the C-suite aren't going to learn to speak supply chain. It's on *supply chain* to learn to speak their language." Dave Grohl offers a hint here: "Don't bore us, get to the chorus." To the C-suite, that means get to the P&L impact. Craft your conversations with a common refrain from Intel in mind: "If you don't have the numbers, it's just your opinion." Beat the drums on how each decision, each investment and each risk will affect revenue growth, profits and continuity.

And don't forget, the C-suite wants to hear it in three minutes and five seconds (the magic length of radio hit singles).

Don't just be bearers of bad news

When you think of the off-stage antics of rock stars, what comes to mind? Perhaps you think of Van Halen's David Lee Roth trashing dressing rooms, kicking holes in doors and causing thousands of dollars of damage. Maybe you remember The Who's Keith Moon smashing instruments, blowing up hotel room toilets and setting furniture on fire. Moon actually passed out in the middle of a concert. Pete Townsend stepped up to the mic and asked: "Can anyone play the drums? I mean somebody good?" You get the idea. Rock stars are known for being a pain to deal with. Compare this to Dave Grohl's reputation as a legitimate good guy. In fact, citing his propensity to stop fights, settle feuds, donate to charity, invite fans onstage (or play sets in their garages) and cook barbeques for firefighters and food banks, *Planet Rock* called Dave the "undisputed nicest guy in rock."

Supply chain typically avoids the prima donna label, but many perceive supply chain to be a pain. The executives we interviewed noted, with a hint of dismay: "Think about it, at many companies, the only time the C-suite hears about or touches supply chain is when something goes wrong. Supply chain is a bearer of bad news." Imagine Elon Musk's angst when his dream of bringing stylish electric cars to the mass market was sidelined by what he called "production hell." If you read the *Wall Street Journal*, looking for the bad news, what will you find? Only rarely is financial malfeasance or a marketing mishap reported. Supply chain, by contrast, is a frequent, unfortunate headliner. Table 1 highlights some classic supply chain misses side-by-side with a few glitches that were publicized in just one week in January 2019. With all the bad press, it is no surprise that supply chain comes across as the bad boy of business.

The executives we talked with called on supply chain leaders to rehabilitate supply chain's reputation by proactively sharing the good news—and maybe saving the day once in a while. Dave Grohl knows how this works. When Jared Champion, the drummer for Cage the Elephant, suffered a burst appendix, Dave sat in. Guitarist Lincoln Parish marveled: "I had to pinch myself. I turned around and Dave Grohl is playing the drums. It's an amazing, once-in-a-lifetime experience." Consider Sony de Mexico's story. Disaster struck in the form of a pink slip. Lower costs in Asia led management back in Japan to decide to shutter the Mexican operations. In this case, supply chain did save the day. Managers built a new robust delivery model that reduced delivery lead times by 75%—and internal inventory costs by 80%. More importantly, Asian operations couldn't match the delivery responsiveness. Customers lined up to argue the reasons that Sony couldn't leave Mexico.

TABLE 1

Bearers of bad news

	HEADLINES
1999	ORDER MANAGEMENT ISSUES CAUSE HERSHEY TO MISS HALLOWEEN SHIPMENTS
2007	WHY YOU CAN'T GET YOUR HANDS ON A WII
2011	JAPAN EARTHQUAKES RATTLE TOYOTA'S VULNERABLE SUPPLY CHAIN
2013	HOW A LITTLE-NOTICED FACTORY FIRE DISRUPTED GLOBAL ELECTRONICS SUPPLY CHAIN
2017	WITH 54 MILLION TO GO, THIS AIRBAG RECALL IS NEVER GOING TO END
January 23	SUBARU HALTS JAPAN PRODUCTION OVER POWER-STEERING DEFECT
January 23	STINTO DA NAPOLI RECALLS MEAT PRODUCTS SOLD WITHOUT FEDERAL INSPECTION
January 26	FIAT CHRYSLER RECALLS 182,000 RAM TRUCKS OVER POWER STEERING FAILURES
January 30	TYSON RECALLS CHICKEN NUGGETS OVER RUBBER CONTAMINATION
January 31	TRIS PHARMA DOUBLES RECALL OF INFANT IBUPROFEN

Source: Authors

Saving the day doesn't always require on-stage heroics. Sometimes, it can be as easy as re-sourcing a product. McDonalds did just that as Russia-U.S. relations soured in 2018. Pro-Kremlin authorities wanted to kick McDonalds out. By increasing the share of local Russian purchases to 98%, McDonalds proved its worth, placated the politicians and claimed a realpolitik success story.

Say yes

In 2015, Dave Grohl and the Foo Fighters received an unconventional—you might say unreasonable—request. One thousand rockers had gathered in Cesena, a small Italian city of 97,000, to record a live performance of the Foo Fighter's song, Learn to Fly. At the end of the video, Fabio Affagnini, the event organizer, shared his dream that the Foo Fighters would give a concert in Cesena. The video went viral. Friends called Dave and asked: "Have you seen …?" The band tweeted: "Ci vediamo a presto, Cesena" (See you soon, Cesena). Later that year, the Foo Fighters performed to promise, playing a 27-song set in Cesena.

Now, a question: Are you aware that top executives everywhere use a never-published metric we call the "we-can-do-that" metric? The metric works like this. Colleagues request your support for their ideas and projects. You may feel that a request is situated somewhere between "that's highly inconvenient" and "that's impossible" on the do-ability scale. So, you politely say: "that's impossible" or "we can't do that, nobody can." Sounds reasonable, right? The thought leaders we spoke with warned that such a response used too often tarnishes your reputation. The result: Supply chain can easily be viewed as a bottleneck—a place where managers obsess about costs and won't take risks. Our thought leaders argued that supply chain needs to learn the art of the possible by saying "yes" with a twist. Here are their recommended responses.

- "Yes, we can do that. Let's talk about what that means in terms of cost and performance." As the conversation concludes, expectations have been set, tradeoffs are on the table and you can ask: "How would you like to proceed?"
- "Here's what we can do. Would this meet your needs?"
- "What are you really trying to achieve? Let's find a way to work on a solution together."

To better grasp the power of saying "yes" with a twist, let's take a quick look at how two rivals in the airframe industry handled the supply chain challenges of a major product launch.

Squandering a lead. At Boeing, supply chain leaders said: "No, that can't be done" when the C-suite proposed a shared development and production model. Rather than asking: "What will that mean for our ability to deliver the plane on time?" they argued that follow-on supply chain costs would skyrocket. Supply chain's "no" response didn't have the clout to carry the day. The 787 came to market 3.5 years late and $20 billion over budget.

Playing catch-up. At Airbus, everyone knew that Boeing's 787 was selling lights out. Airbus needed to get its version of a fuel-sipping carbon-fiber plane to the market. Supply chain leaders stepped away from their cost orientation, asking: "What do we really need to achieve?" Speed and safety to market was everything. Despite high cots, Airbus supply chain worked with Orbital ATK and Crane Logistics to design a launch supply chain to get production up and running ASAP—and planes in the air.

Saying "yes" with a twist doesn't just enhance performance, it elevates reputations—and it is a behavior that can help supply chain learn to fly.

Ask "what if?"

The story goes that back in Dave's days as Nirvana's drummer, the band's dynamics were, let's say, a little limiting. Speaking of that earlier time, Dave shared the famous joke.

Question: What was the last thing the drummer said before he got kicked out of the band?

Answer: Hey guys, I've got some songs I think we should play.

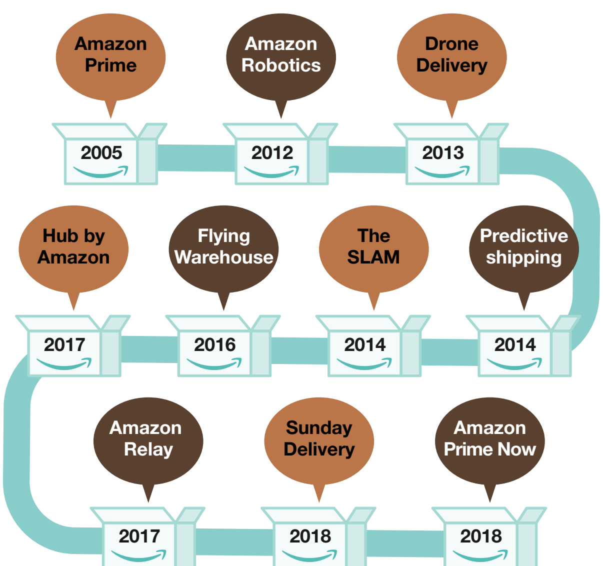
After Cobain's suicide, Dave had options. Invites to join established bands came streaming in. Dave turned them all down. When he was ready to return to music, he turned to a notebook full of songs he had secretly penned. He chose 15 and booked some studio time. Playing every instrument himself and singing the vocals, Dave put together a demo album. He titled it *Foo Fighters* and shared it with some friends. The album got out, ending up in the hands of record label execs. Suddenly, Dave needed a band. Almost accidentally, the Foo Fighters had arrived on the scene. Why had Dave been so reticent to step out into the spotlight?

Dave's answer: "I didn't like my voice, I didn't think I was a songwriter, and I was in a band with one of the greatest songwriters of our generation. *I didn't really want to rock the boat*." Many supply chain managers feel the same way. They jot down their best ideas—a new product concept here; a process improvement there. But they, like Dave, keep their ideas to themselves. In fact, we estimate that someone in the organization already has the answer for 90% of the problems companies hire consultants to solve. The thought leaders we spoke with identified three reasons why supply chain managers hold back:

- they sense that ideas from backstage aren't welcome;
- they are too busy putting out the day-to-day fires that define SCM; and
- the busyness is an easy excuse to stay backstage in the comfort zone.

TABLE 2

Amazon's anticipated out-of-the-box logistics solutions



Source: Authors

Thought leaders accepted that culture and the chaos of day-to-day supply chain operations can indeed make sharing hard. They expressed dismay, however, that many supply chain managers aren't rocking the boat more often by anticipating needs and offering new, creative alternatives. They explained that asking "how can I help?" is not nearly as cool as asking "what if?" What if, for instance, Dave hadn't booked that studio? More to our point, what if, like Dave, supply chain leaders accepted the risk of stepping into the spotlight with their best ideas?

Amazon provides an answer. Amazon changed consumer behavior and expectations as logistics leaders dared to step into the spotlight and ask, "What if?" Go back to Amazon Prime. The idea was new, but the team was confident, saying, "We never thought it wasn't going to work. This was one experiment we knew we were going to make work—failure was not an option." Over a decade later, getting out in front of the market is the rule, not the exception, at Amazon. No one is surprised anymore when Amazon publicly anticipates a new, out-of-the-box logistics solution (see Table 2). Amazon's ability to anticipate the future is as common as a Foo Fighter hit song.

Setting the cadence for the 21st century

Like all cycles, the Cycle of Credibility takes you back to performing to promise. The cycle isn't just about getting onto the stage and stepping into the spotlight—the neuro-chemically induced fantasies of adolescence. It's about boosting your career and changing the world. The Cycle of Credibility is all about your professional dream of doing something incredibly cool while you share the spotlight. This just happens to be the proven path to the top of Maslow's hierarchy.

As we close our set, don't forget that Mick and Dave made it to the top of the charts by doing the right things their own way. Mick mastered the drums, delivering the groove that inspired a multi-generational love for rock and roll. Dave earned confidence at the drums, a confidence that helped him step into the spotlight. He and the Foo Fighters have been creating a new sound ever since, shaping a new generation's passion for rock and roll. If you're wondering which way to go, Dave's story may strike the better chord for 21st century SCM.

What do we mean? The world is changing. Industry 4.0 is disrupting the way business gets done. It's anyone's guess what the next act will be. The question is: Who is going to set the cadence? Why not you—the confident, competent supply chain professional? And if you're not quite ready, just jump onto the Cycle of Credibility and give it a spin.

Trust the process, take confidence in your progress and remember Dave's advice to every struggling drummer: "Everyone thinks you're dumb. What they don't realize is, if it weren't for you, their band would suck." Yesterday's gone. It's time to turn it to 11; we'll count you in.

A SPECIAL SUPPLEMENT TO:

SUPPLYCHAIN MANAGEMENT REVIEW

Improving 3PL Management: DIGITAL TRANSFORMATION

The future of the third-party domestic transportation management market is now centered on creating digital experiences, workflow automation, and optimizing customer and carrier focused service performance. Here's a breakdown of what's happening in what many call the most dynamic segment in logistics.

BY **EVAN ARMSTRONG**, ARMSTRONG & ASSOCIATES

In 2019, the U.S. third-party logistics (3PL) market had total gross revenue of $212.8 billion. Of that, the non-asset based domestic transportation management (DTM) segment accounted for $83 billion, or 39% of total 3PL market revenue.

DTM focuses on the management of truckload (TL), less-than-truckload (LTL), and intermodal rail shipments managed on behalf of shippers of freight using motor carriers and railroads to perform the underlying transportation. DTM splits into two primary sub-segments: freight brokerage that accounts for 83% of total segment revenues; and managed transportation that accounts for 17%.

Current DTM 3PLs look vastly different from the original "one man with a desk and phone," manual-process based freight brokerage model of old. The evolution of manual-process based freight brokerage into DTM and its core offering—information systems-based freight brokerage with a host of value-added services—stems from the federal deregulation of brokerage licenses in 1980 as part of motor carrier deregulation.

Today, most DTMs have a transportation management system (TMS) that many have augmented with applications to improve load tendering, carrier onboarding, shipment visibility, freight bill payment and document processing.

The Digital Transformation of Transportation Management

Top 25 DTMs in North America ranked by gross revenue

Rank	Provider	HQ (City, State/Province)	2019 Gross Revenue (US$ Millions)	2019 Net Revenue (US$ Millions)
1	C.H. Robinson	Eden Prairie, MN	11,283.7	1,797.4
2	XPO Logistics	Greenwich, CT	3,895.0	876.0
3	Coyote Logistics	Chicago, IL	3,600.0	465.0
4	Total Quality Logistics	Cincinnati, OH	3,394.0	687.0
5	Hub Group	Oak Brook, IL	2,800.0	400.0
6	Echo Global Logistics	Chicago, IL	2,185.0	386.0
7	MODE Transportation	Dallas, TX	2,075.3	285.0
8	Landstar System	Jacksonville, FL	2,052.0	340.0
9	Schneider Logistics	Green Bay, WI	1,794.1	229.0
10	Worldwide Express/Unishippers	Dallas, TX	1,675.0	365.0
11	GlobalTranz Enterprises	Scottsdale, AZ	1,532.0	275.0
12	J.B. Hunt ICS	Lowell, AR	1,348.0	176.6
13	Transplace	Frisco, TX	1,000.0	115.0
14	Nolan Transportation Group	Atlanta, GA	875.0	124.9
15	Universal Logistics Holdings	Warren, MI	745.0	95.0
16	Uber Freight	Chicago, IL	731.0	0.0
17	Redwood Logistics	Chicago, IL	720.0	131.0
18	BNSF Logistics	Flower Mound, TX	613.0	114.0
19	Convoy	Seattle, WA	600.0	0.0
20	Allen Lund	La Canada, CA	595.0	101.0
21	Trinity Logistics	Seaford, DE	579.6	101.5
22	Arrive Logistics	Austin, TX	550.0	69.0
23	FLS Transportation Services	Montreal, QC	500.0	70.0
24	Matson Logistics	Concord, CA	495.0	62.0
25	Werner Logistics	Omaha, NE	489.7	78.2

Source: Armstrong & Associates, Inc.

Digital freight matching evolves

Since our first report on digital freight matching (DFM) in 2016, there has been significant focus on DFM companies that have been seen by investors as disruptors to the DTM 3PL market sub-segment.

DFMs primarily include two categories of companies: load boards such as DAT and Truckstop; and digital freight brokers such as Convoy, Loadsmart, Transfix, Uber Freight, and uShip. These companies aim to match shipper demand with carrier capacity via digital—web or mobile-based—platforms, usually in the form of applications.

Key functionality includes:

- communication via app;
- track-and-trace;
- GPS-based alerts for nearby loads;
- automated pricing;
- task automation;
- digital document storage;
- two-party interaction; and
- push notifications.

The increased competition from digital freight brokers has paved the way for widespread digitalization throughout the industry. The modern day features available through digital freight brokers and traditional DTM freight brokers that digitalize service offerings provide ample benefits to shippers during a time where doing more with less has become a necessity.

Digital freight brokers (DFBs) look a lot like their modern DTM freight brokerage brethren, but have focused on automating transactional freight brokerage in three major areas: Pricing; load/carrier matching; and shipment tracking and tracing. Shipper customers can receive upfront pricing for a shipment, and, once the shipment is tendered, the DFB's system automatically matches the shipment to a motor carrier and the shipment is automatically tracked until delivery.

DFBs are defined by a set of distinct operating characteristics:

Intelligent capacity systems. Digital freight brokerage operations are centered on what we define as "intelligent capacity systems." At a given moment, millions of information points touch a freight brokerage. Data points such as traffic, weather, historical carrier transactions pricing and performance, third-party capacity markets, and other variables make the task of decision-making complex.

Processing carrier capacity data, making real-time routing decisions, and facilitating digital bookings are all capabilities of intelligent capacity systems that are used to augment TMS. Intelligent capacity systems use artificial intelligence and machine learning to perform transportation planning, routing, and carrier selection functions traditionally managed by carrier sales staff in a buy/sell side freight brokerage model.

Intelligent versus rule-based systems. Digital freight brokers that are on the right side of the paradigm tend to shift away from rule-based systems and move toward A.I. and machine learning centric intelligent systems, efficiently accounting for multiple data streams and are continuously learning and matching shipments to carrier capacity in the Cloud.

Digital user experiences to improve stickiness. Motor carrier partners and shippers now expect a best-in-class digital user experience. Automated functions such as search, pricing, booking, and payments are becoming expected. Freight broker digital experiences are expected to be on par with consumer digital experiences, and the digital platforms are exploiting this gap.

Straightforward, user-friendly digital experiences help build sticky carrier capacity and create more liquidity on a freight broker's platform, allowing it to transact and execute bookings more easily. Early adaptors who build liquidity will reap rewards in the form of valuable freight platforms with readily available carrier capacity.

Visibility management systems and exception management. What we define as "visibility management systems" are further systems augmentations to core TMS that provide real-time tracking information from multiple sources. Adopting these systems improves the percentage of freight that is tracked in real time and is an important customer success metric. In a digital freight brokerage environment, it's expected that shipments will be tracked in real-time, and in-transit exceptions will be highlighted and resolved as they occur.

Digital freight broker (DFB) core functionality

- Automated pricing
- Capacity Management: Digital carrier experiences and automated execution
- Instant booking experiences
- Visibility Management: Real-time tracking and exception handling
- API-based network
- Communication via web or mobile client
- Workflow and back office automation
- Automated detention monitoring and settlement

Connectable digital carrier capacity networks. With key automated workflows such as pricing, carrier capacity management, and load booking, DFBs can embed their carrier capacity networks into shipper transportation management systems and routing guides to gain a competitive advantage in procuring freight.

We anticipate a not-so-distant future in digital freight brokerage where shippers seamlessly tender shipments to DFBs at a contractual or an automated spot price via interfaces between their TMS and a freight broker's intelligent capacity system. The system will then select the optimal carrier based on detailed and data-rich smart carrier profiles, lane history, and multiple other data points; it will then tender the load to a carrier; handle tender acceptance/rejects (re-tendering); and book the load in the freight broker's TMS.

Using the TMS, an appointment will be scheduled, if needed. This will trigger the visibility management system to initiate transit status updates until delivery where back office automated proof of delivery information is uploaded into a TMS and freight bill payment/carrier settlement is triggered. Transactional freight brokerage is getting closer to the automation levels seen in managed transportation.

Feedback loops. The focus on digital experiences helps companies collect more capacity information leading to better freight matches, more bookings, and carrier capacity information. Each transaction builds upon itself, laying the groundwork for increasingly optimal future transportation planning and execution.

Carrier experiences are key. Positioned around personalized digital user experiences, DFBs are spending time on building straight-forward, user-friendly digital experiences with carriers. Every DFB is focused on data-collection to continuously drive improvements in its carrier experience and freight matching. In addition, they've built out automated document handling and freight bill payment/carrier settlement processes.

Digitalization of freight brokerage is driving distinct advantages for shippers

- Freight brokers are developing enhanced applications for shippers creating an improved user experience.
- Up-front pricing eliminates the time to determine if a freight broker is competitive by lane or for a specific transportation mode.
- Automating and digitally matching freight to carriers increases the amount of available capacity to a freight broker, and in-turn provides shippers with quality carriers to cover loads faster than ever before.
- Visibility systems monitor data to help improve service performance in areas such as on-time pickup and delivery, in-transit status updates, and service exception alerts.
- Back-office automation systems focus on automating the cash-to-cash cycle from shipment tender, document collection, carrier settlement, and invoicing.
- Images of shipment documents, proof of deliveries, and freight bills are captured and converted into data to populate a TMS without manual data entry.
- Carrier freight bills are processed more accurately and on-time.
- Shippers are invoiced once, consistently, and accurately, for shipments and have online visibility to all pertinent shipment documents.

Digitization efforts by 3PLs

Market entrants such as Uber Freight, Convoy, and Transfix have placed a mounting emphasis on "digitalizing" DTM operations. While managed transportation has been highly automated for years through TMS, EDI and other systems interfaces, most freight brokerage operations still have many manual account management, carrier sales/procurement, and back office processes.

The future of the DTM 3PL market segment is now centered on creating digital experiences, workflow automation, and optimizing customer and carrier focused service performance. Freight brokerage is made up of carriers and customers, both who want a mix of the best price, service performance, and user experience.

In the meantime, pressure to evolve and digitalize increases as freight brokerage competitors adopt strategies centered on automating operations and improving customer/carrier experiences via digital platforms.

Serious action is being taken by approximately half of the Top 50 DTM freight brokers to build a digital freight brokerage platform. These freight brokers are responding by either building technologies in-house, buying from third-party software vendors, or a mixture of both.

However, of the freight brokers we analyze, very few have developed and implemented a long-term strategy to achieve full digital transformation.

Evan Armstrong is president of 3PL consultancy Armstrong & Associates. He can be reached at Evan@3plogistics.com.

COMPANY PROFILES

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

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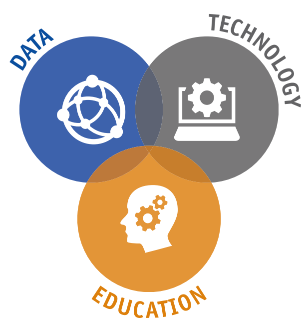

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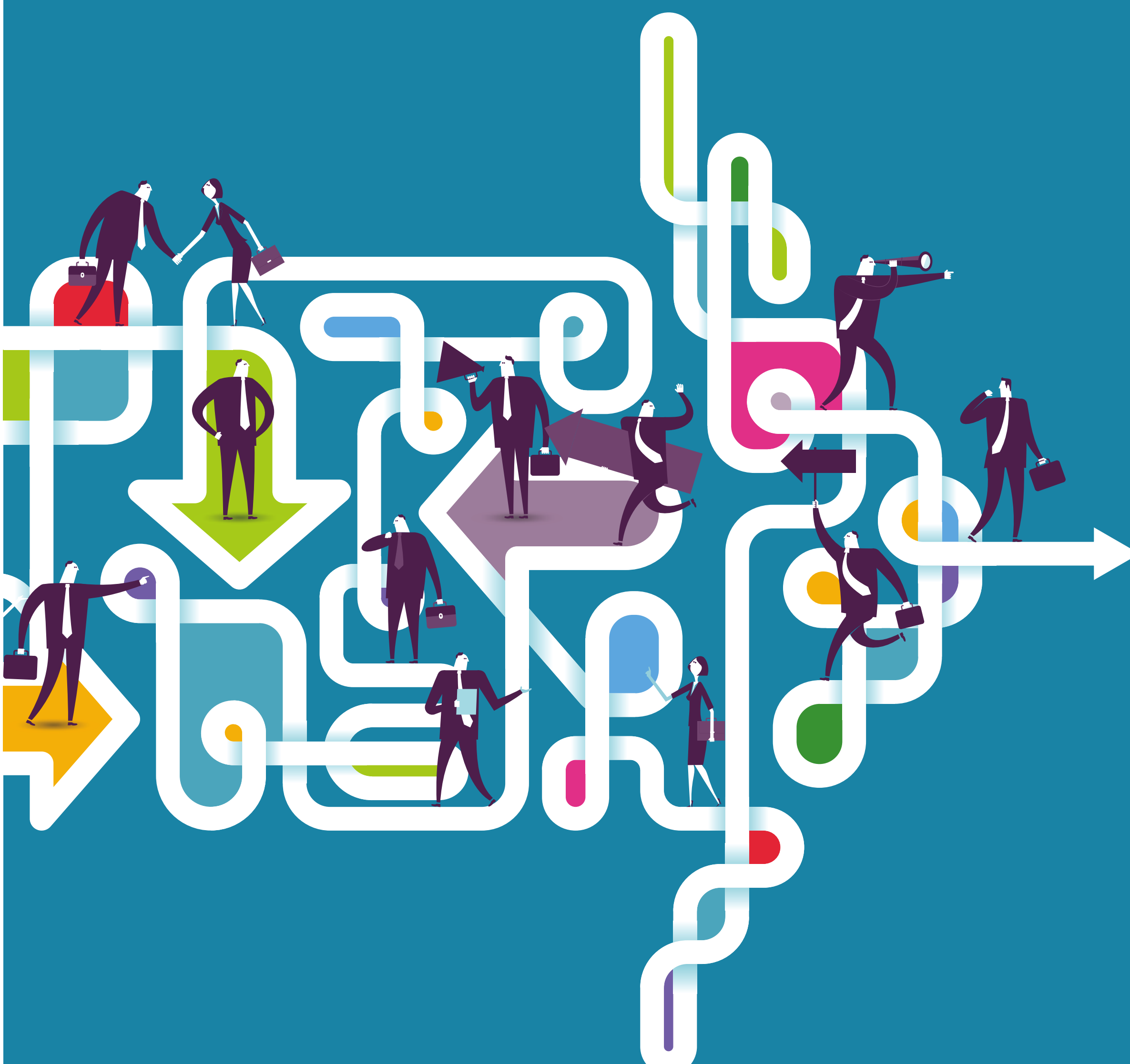

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