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It's time to recalibrate

"It feels like a normal holiday season."

That was the report I got from the VP of global distribution at one of the country's best-known retail brands on the Monday before Black Friday. He added that the last time he felt that way was November of 2019.

One of the perks of this job is that I get to talk to a lot of supply chain executives. In my conversations over the last year, I've learned two things.

Operations, which was perhaps hardest hit at the start of the pandemic, has learned to operate in this new environment. Sure, there are still hiccups caused by absenteeism and inventory shortages. But those are situational—give them supply and people and operators will get stuff out the door.

Procurement and planning are still adapting. That's because for them, the world is still an unsettled mess. It's not just disruptions like Hurricane Ian or a shortage of containers. Increasingly, political instability is the cause of supply chain uncertainty. Think of how China's continuing "zero COVID" policy is threatening a global recovery, or how Russia's invasion of Ukraine has led to an increase in energy prices and commodities that are essential to food production. As of this writing, we in the United States still don't know whether rail workers will go on strike; if they strike, will port workers be next?

More importantly, we're seeing a realignment of trade agreements and relationships that may not have an impact today but could affect supply chains tomorrow.

Bob Trebilcock,
Editorial Director
btrebilcock@
peerlessmedia.com

It's a new dawn for supply chain managers, one that is going to require us all to factor in geopolitics when we do our planning, and not just the cost of getting goods from Point A to Point B.

It's time to recalibrate.

You can read more about this new dawn and the implication of politics on global supply chain management in an important article by Nick Vyas. But don't stop there. In this issue, you'll also find timely pieces on the future of omni-channel fulfillment, the outlook for logistics in 2023, how to enable organizational velocity in your company and the results of the Gartner/ASCM survey on diversity and inclusivity in the supply chain.

Last, I want to thank everyone who attended *SCMR*'s NextGen Supply Chain Conference in November. The event was live in Chicago, with presenters from companies as diverse as P&G, GE Appliances, Diageo, Estee Lauder and Kenco Logistics. We're already planning the 2023 event, so keep an eye out in the spring for information on **nextgensupplychainconference.com.**

As always, I look forward to hearing from you.

Bob Trebilcock

SUPPLYCHAIN MANAGEMENT REVIEW

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

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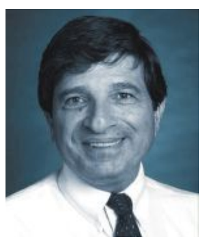
Quick response really is similar to strategic planning

Dr. Lapide is a lecturer at the University of Massachusetts and an MIT Research Affiliate. He has extensive experience in industry, consulting, business research, and academia as well as a broad range of forecasting, planning, and supply chain experiences. He was an industry forecaster for many years, led supply chain consulting projects for clients across a variety of industries, and has researched supply chain and forecasting software as an analyst. He is the recipient of the inaugural Lifetime Achievement in Business Forecasting & Planning Award from the IBF. He welcomes comments on his columns at llapide@mit.edu.



This is a revised column from one that Dr. Chaman Jain, the editor of the *Journal of Business Forecasting* (*JBF*), recently asked me to write. It discussed the relationship between strategic and operational planning. He asked me: Is there any change in the relationship between the two? If so, what changes have occurred and why?

The short answer is that operational planning under uncertainty (vis-a-vis risk), is similar to strategic planning despite the short planning horizons. That is because, in my view, both involve planning under uncertainty and both should use a scenario planning approach.

In my column in the July/August 2022 issue of *SCMR*[1], I proposed that operational planning under uncertainty be called "quick response (QR)." The response is considered "quick" because uncertainties force managers to (uncomfortably) make fast decisions with minimal or no information about the future—for example, about demand and even supply, as we all learned during the pandemic.

Hierarchy planning framework

In that column, I discussed a hierarchy demand-supply planning framework (see Figure 1) that I have written about in the past. I included the following three levels of planning processes based on the length of their planning horizons.

- ***Strategic planning.*** This looks far out into the future and has a long planning horizon with "time-buckets" in terms of years (in contrast to months and weeks). Strategic planning involves the development of a road map to the future and typically has a planning horizon of from three years to five years; and even longer in capital-intensive industries.
- ***Sales and operations planning (S&OP).*** This medium-term tactical planning process typically has a planning horizon from six months up to two years, and uses time-buckets of months and weeks.
- ***Operational planning.*** These short-term planning processes might have planning horizons as short as a single day (with

time-buckets of hours) up to three months (with time-buckets of days, weeks and months). QR is planning under uncertainty, while sales and operational execution (SOE) or demand control are under risk, because history can be used as a guide.

Strategic planning under this framework is predicated on a company believing that it will be around for at least as long as the longest planning horizon under consideration. A length for which forecasting is virtually useless to support the development of concrete strategic plans. A business environment can significantly change over this timeframe. And this length of time also needs to assume the future is fraught with uncertainties. Instead of forecasting a future, strategic planning needs to consider potential futures, termed scenarios.

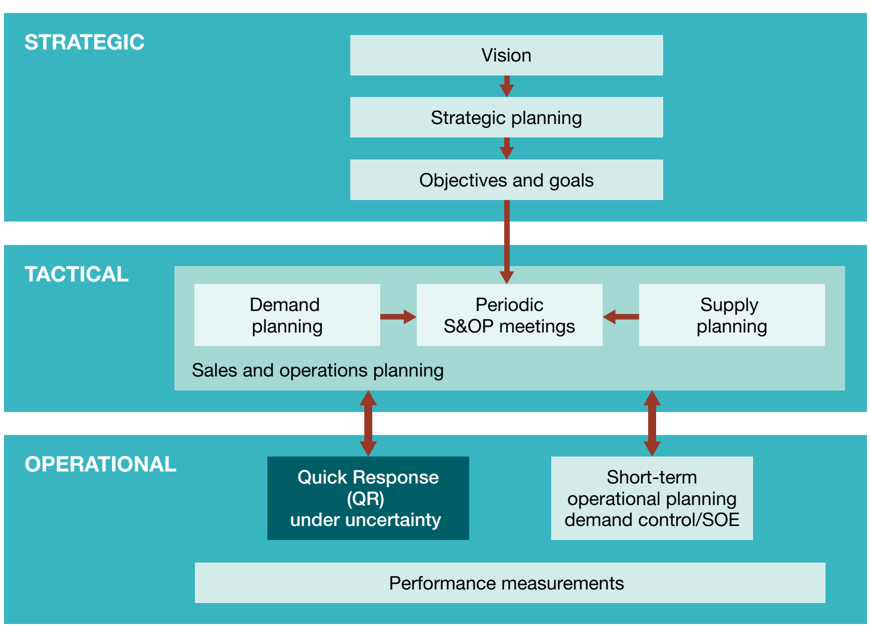
In this regard, in "Strategic planning under uncertainty: Long-term muddling-through,"[2] I described a strategic planning approach developed during the MIT Supply Chain 2020 Project that I launched in 2005. The approach in that column was positioned as an illustration of a typical strategy planning process, in contrast to shorter-term planning processes such as S&OP and SOE. The latter processes involve planning under risk, and thus assume that managers can estimate sundry probabilities using historical demand and supply data.

A strategic planning process begins with developing scenarios of futures that are likely to occur without the probabilities of their occurrences. A typical set might include: a pessimistic, a most

FIGURE 1

Hierarchy demand-supply planning framework

(Including Quick Response (QR) as a temporary process to evolve from chaos to stability)



Source: Author

likely and an optimistic scenario. In that column, I introduced a scenario planning decision making framework for making decisions and updating plans over time as the future unfolds. It discusses how, by assembling data over time, planning becomes under risk because future possibilities become estimable. The strategy typically does not change over time because it is aimed toward achieving a specific future vision of the company.

I suggested that this type of "muddling through" approach might also be applied to the QR process, aimed at mitigating the impacts of natural disasters, pandemics, earthquakes, hurricanes and wildfires. It might also apply to other sporadic events, for which the probability of an event and/or its severity would be inestimable.

QR considers flexible short-term strategies

A dictionary defines strategy as:

> *"…a word that was first used by the military. It comes from an ancient Greek word for the general officer commanding all the armed forces of a state. A strategy is a long-term plan on what to do to achieve a certain goal. When talking about the near future, people often use the word tactics. Today, the word "strategy" is in common use; people might talk about "business strategy," for example. … The distinction between strategy and tactics applies to any planning that might be done against an enemy or opponent. Strategy is what we broadly intend to do to reach our long-term goal or objective. Tactics is the detailed steps that are used as our progress is opposed by the opponent. For this reason, tactics are short-scale and flexible. Strategy, on the other hand, is changed as little as possible.*

Note that the above definition says strategy is changed as little as possible, while tactics are flexible. That is much like the strategic planning approach I described above. However, an approach for the QR process would assume that a strategy is being tested and would be revised if conditions on the ground show that it can no longer achieve its intended goal. The trouble with using strategic for only long-term planning is that "long" is a subjective term. For example, why plan five years out if your immediate survival is questionable?

My father-in-law was a wise man who lived into his mid-80s. I fondly remember him saying that at his age he shouldn't buy green bananas. This was his version of a quote from Don Meyers, a famous basketball coach, who said: "When you get to be my age, you don't buy green bananas because you may not be around to eat them."

In my younger days, I made important decisions looking at the short-term as well as the long-term consequences of my actions, sometimes as far out as retirement. Now that I am in retirement, my current planning horizon has shortened to about seven years to 10 years at most.

At the beginning of the pandemic—an event that was about as uncertain as one can get—I came to the recognition that the major concern of forecasters and planners involved losing the ability to look back in time for guidance. From a demand perspective, every product looked like a new product being introduced into new, unknown and uncertain markets. Moreover, from a supply side, each supplier's viability was at stake, and might go out of business.

Together these put a company at risk of going out of business as well. Essentially, the strategic, tactic and operational planning horizons were overlapping quite a bit. Long-term among them was likely just three months long, enough time to see whether a strategy is showing promise.

In "Decision making under uncertainty: A primer,"[3] I discussed a hypothetical example of how an initial strategy to be tested might be decided upon using a scenario planning approach in the QR process. The process begins with estimating a payoff matrix that delineates the financial consequences for each strategy being considered under a set of possible future scenarios. However, unlike typical long-term scenario planning, the strategy might need to be changed often because the business environment would be dynamic and rapidly changing.

For this reason, I also proposed using short lifecycle forecasting for muddling through uncertainties, which was the title of another column.[4] This forecasting method is used for forecasting demand during the launch of new and revised "seasonal" products. The approach starts with an initial forecast of total demand for a product over a short lifecycle of time, and the forecast is constantly revised as demand data is collected, which could be month-to-month.

Thus, a simple answer to the first of Dr. Jain's questions is that there is no change in the relationship between strategic and operational planning. The former is still long-term and latter still short-term.

His second question was: "If so, what changes have occurred and why?" I believe that the major change since the pandemic is the need for a new formal operational planning process under uncertainty that I've termed quick response. It's not the same as SOE, which is planning under risk.

In addition, the strategic planning and QR processes are strategically focused. Therefore, both processes have to be directed by someone from the executive suite because the risks are too high vis-a-vis those taken during the SOE and S&OP processes. Executives are needed to decide whether to make high risk existential decisions, and not just whether to buy green bananas.

***

1. *"Revisiting quick response,"* Supply Chain Management Review, *Jul/Aug 2022*

2. *"Strategic planning under uncertainty: Long-term muddling-through,"* Supply Chain Management Review, *Jul/Aug 2021*

3. *"Decision making under uncertainty: A primer,"* Supply Chain Management Review, *May/Jun 2022*

4. *"Short lifecycle (SLC) forecasting for 'muddling-through' uncertainties,"* Supply Chain Management Review, *Nov 2021*

Remodeling supply chain teams for data ROI

By James B Rice, Jr. and Ken Cottrill

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

Ken Cottrill is editorial director of the MIT Center for Transportation & Logistics. He can be reached at kencott@mit.edu.

Companies recruit specialists to help them generate, manage and interpret the flood of data that is the lifeblood of modern supply chains. Hence, job titles such as data analyst, data engineer and data scientist are relatively recent additions to the supply chain management discipline. How are practitioners harnessing these talents to innovate and improve supply chain performance?

A roundtable organized by the MIT Center for Transportation & Logistics and hosted by home goods retailer Wayfair explored the ROI of supply chain data. Various topics were discussed by the visiting supply chain practitioners from corporate members of the MIT Supply Chain Exchange. But three topics stood out as particularly challenging: how to define these specialist roles, how to integrate them into supply chain teams and how to manage their relationships with other stakeholders.

Confusion over role definitions

Data analytics, engineering and science involve different areas of expertise, yet there was some confusion at the roundtable over how they are differentiated within the supply chain domain.

One roundtable attendee associated data engineering with writing code and software automation. He perceived data science as an operations research type of role oriented toward applications such as the use of machine learning in demand forecasting. Another practitioner saw data engineers as responsible for identifying the right data sources and, increasingly, for supporting data governance. One company said it employed data engineers to capture and format existing data for applications like data visualization. There were many different perspectives.

Even the specialists themselves are not always clear on how the different roles are defined. "Everyone seems to think they are a data scientist when they are not," commented a practitioner. He was informed that the company employed about 50 data scientists but discovered that there were three to four individuals who actually performed this role while the rest were basic spreadsheet analysts. Moreover, "recruiters may not know the right questions to ask" or have a clear idea of how specific data management skills profiles fit specific technical roles.

A leading manufacturer has added "business translator" to the mix of data management roles. In addition to being technically proficient, this individual is well versed in the business implications of data management. He or she translates the work of technical experts into a language senior management can understand, while ensuring that this work remains aligned with the company's business objectives. The position can be filled by a "business-facing analytics leader" according to the roundtable participant.

Team-building issues

Melding these skills together into a team is not easy. "How do you differentiate analysts from data scientists, by background? And what problems do you want them to solve?" an attendee asked. Also: "The business translator is our highest-level resource, but where should they sit in the team?"

One practitioner explained his organization starts by hiring data scientists when creating a data team. His reasoning: "Because they can give you the ROI you need to gain buy-in from executives and IT." Next, it hires data engineers "to improve the data flow and quality." He described the data engineer and science disciplines as "salt and pepper" in that they are different but ought to be deployed together. Other attendees expressed a preference for hiring business translators and data analysts first, reflecting the participants' different core needs. In general, the work undertaken by data scientists should be actionable and have the potential to be leveraged and scaled, it was suggested.

Attracting sought-after data experts to the supply chain field is a perennial problem. However, today's climate of uncertainty is a boon for hiring managers because data experts are keen to apply their expertise to complex, global problems that have a human impact. Supply chain data roles check all these boxes. "Supply chain challenges involve lots of variables and you're often dealing with the unknown," observed one participant. It doesn't hurt that awareness of the supply chain function's criticality has increased.

An attendee recounted a hiring story that illustrates this effect. The company was interviewing a banker for a data job. The individual was asked how often his bank changes code, and he answered maybe twice per year. When the candidate learned that the company's practice is to change code perhaps 10 times per day, he immediately wanted the job.

Still, supply chain's notoriety only goes so far as an incentive to join the profession. Data experts value working in teams on challenging data-related problems first; interest in the supply chain domain comes second, pointed out an attendee.

Moreover, the likelihood of retaining new recruits often depends on individual lifestyle choices, and whether the job meets a person's early expectations. An attendee said that for her company making the retail business attractive for "someone in their mid-twenties who wants do to something more challenging" can be a steep uphill battle. "The culture is a big factor," she noted, "we spend a lot of time trying to develop a data-driven culture, integrating data experts in the business processes to elevate their visibility and impact."

A modern-day challenge is how to develop teams of supply chain practitioners and data specialists that work remotely. "We find that getting everyone in the same room is more effective, but this can be an ongoing struggle," said a participant.

Developing external links

A key capability that companies look for when hiring data specialists is an ability to collaborate. "Communication [skills] comes when they join a team but getting to a problem statement can be tough and this needs a lot of collaboration" commented one practitioner.

Collaborating and communicating with parties outside of the team—especially business leaders—can be a notable challenge for data engineers and scientists. The presence of a business translator smooths the way, but may not be a complete solution.

For example, an external leader might hesitate to partner with technical specialists "because they [leaders] are not comfortable in their domain and may not be able to answer their [the specialist's] questions," said a participant. In other words, a senior manager's lack of knowledge in a particular area may become exposed, and this fear becomes an obstacle in projects that require close cooperation with technical experts. No one wants to lay themselves open to embarrassment, so some managers shun such collaborative relationships.

This is particularly troublesome when the issues involved are data related. "When the rubber hits the road and it is your intuition versus the data, your credibility is the key," said the roundtable attendee. Further, "when things don't align with the data, they [non-technical managers] might question the data." A possible solution is to "put data people in the field" he suggested to give them a deeper appreciation of these issues.

A relational pain point that was a recurrent theme at the roundtable is a lack of communication between the new generation of data managers and IT departments.

In many ways IT represents the original data management resource within companies. Yet, "it can be a struggle to get IT to work with us," said a participant "We start a project that requires IT support, and a month becomes two-and-a-half years." IT is often not agile enough to tackle the many data-related problems that have become central to the task of improving supply chain efficiency, especially when it comes to building multiple models. One company has established special teams to quickly build models when other internal resources are unable to meet such needs.

A practitioner attendee was given responsibility for improving a data analytics team that was set up around two years previously. "When I joined it was a mess," she said. The teams' relationship with IT was tarnished, creating multiple data quality issues on a daily basis. She halted new development work and focused on key problem areas such as how to work better with IT personnel.

Data teams will unlock more value

Data specialists are more important than ever given the growing volumes of data available to companies and the increasing sophistication of related management tools. They play a critical role in helping supply chain teams to manage uncertainty, or "how we see around corners" to anticipate disruptions, said a roundtable attendee.

However, integrating these specialists into operational teams and leveraging their skills to support decision-making is still a work in progress.

Other challenges that need to be addressed include managing external contractors in data management and tackling data governance issues.

The role of visualization is another challenge that warrants special attention. For example, sophisticated visualization techniques that present data in easily digestible formats can reduce the need for analysts to interpret the data. The technology can also provide a platform for inter-disciplinary collaboration. MIT CTL's Computational and Visual Education (CAVE) Lab* is using the technology to enable different disciplines including supply chain, finance, and marketing to analyze the competitive implications of supply chain design changes.

An attendee suggested that as data management within supply chains matures, teams' perspectives shift closer to the customer end of the business. Mature teams find ways to use their combined talents to unlock value by enhancing the customer experience.

Along the way, they are learning some important lessons. For example, an attendee observed that in his company's experience, a higher ROI comes from adding data to a model rather than attempting to use a better algorithm.

Insights like these will surely enhance the value of data management going forward.

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**https://ctl.mit.edu/research/current-projects/computational-and-visual-education-cave-lab*

Innovation on my mind; innovation in my business

By Aaron Benningfield and Richard Sherman

Aaron Benningfield is a director, global supply chain consulting practice at Tata Consultancy Services (TCS) and can be reached at aaron.benningfield@tcs.com.

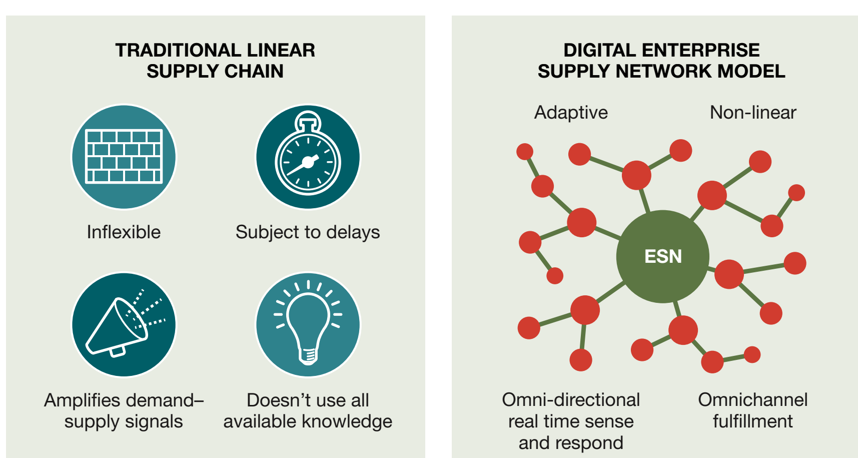
Richard Sherman is senior fellow, SC CoE, global supply chain consulting practice at Tata Consulting Services (TCS) and can be reached at Rich.Sherman@tcs.com.

As we enter the 4th year of the Roaring 20s: decade of digitalization and disruption, there has been a lot of talk about innovation. However, more has been said than done. It's time to stop talking about innovation and start innovating. Innovation doesn't have to be an invention, a patent or a discovery. Innovation is simply a change that improves the status quo. Or it can be continuous improvement that makes incremental but positive changes to existing operations.

We'd like to explore two reoccurring innovation themes that we often discuss with business executives: (1) enabling an organization's ecosystem; and (2) delivering improved decision making through digitized technology. These themes provide a clear demonstration of how existing and emerging technologies can move from concept to earned business value for an organization. Finally, we hope to motivate you to contemplate moving from innovation concepts to delivering business value from the transformation from a supply chain to a digital enterprise supply network (ESN) ecosystem (Figure 1).

FIGURE 1

Transforming from a supply chain to a digital enterprise supply network (ESN) ecosystem



Source: Authors

Emerging technologies are often the purview of market leading innovator companies that are constantly playing with new toys in their sandbox. We have been quite excited by some very futuristic possibilities that are gaining attention by early adopters. Some of the possibilities of note center on machine automation, such as flying drones and autonomous vehicles. Both of these are expanding from use case to pilot to select implementations, especially in the last-mile segments. Other exciting possibilities will provide more digital technology in logistics including warehouse and transportation simulation and modeling, warehouse execution and transportation forecasting.

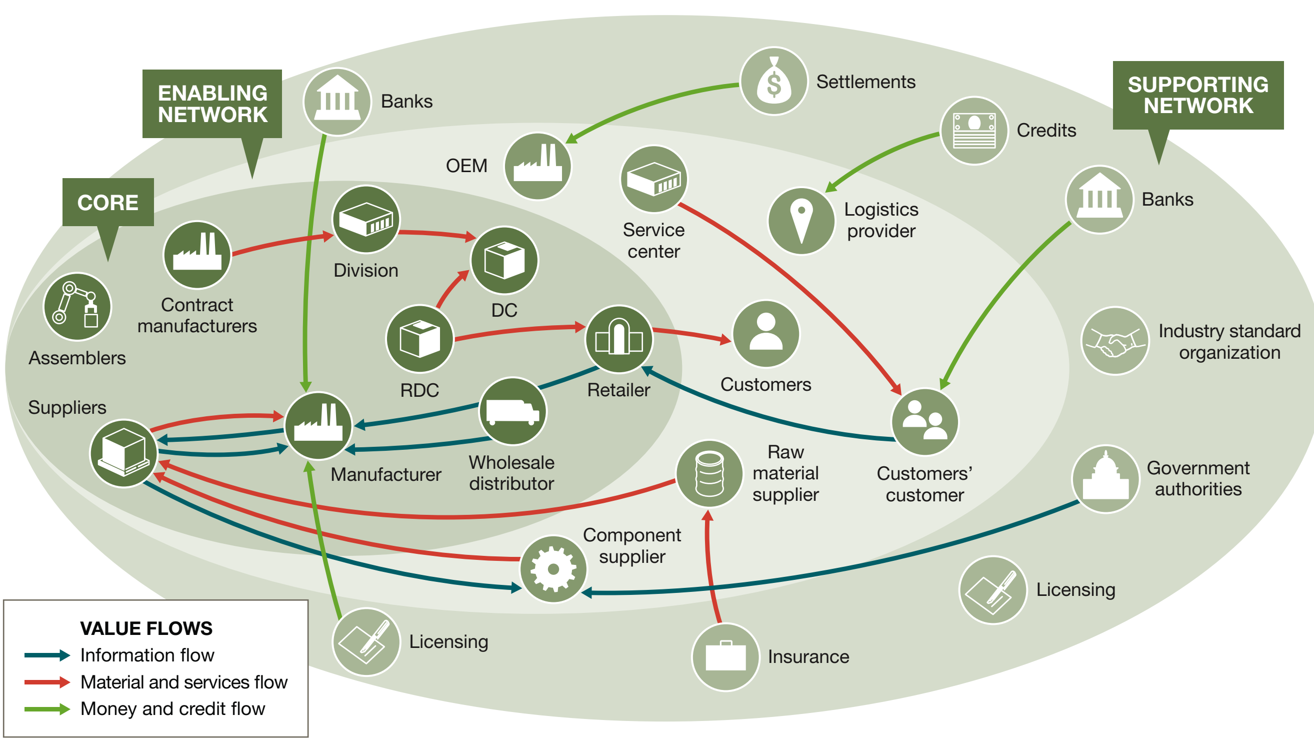
Ecosystem enablement is a key driver

The ecosystem is a key consideration for organizations to capitalize on new innovative models for integration, collaboration and operations. The Ecosystem represents the interests of stakeholders in the core enterprise supply network including suppliers, manufacturers, distributors, customers and consumers. In the enabling network, stakeholder examples include customers' customers, suppliers' suppliers, logistics service providers, service centers and even competitors (very important). Stakeholder examples in the supporting network include financial institutions, government authorities, industry standards and regulatory organizations and insurance providers.

The enterprise supply network ecosystem model leverages digitalization to connect participants as well as providing support across the network (Figure 2). Operating as a connected community of commerce, companies will operate as a market ecosystem business model. One of the key considerations for ecosystem transformation is how decisions based on intended outcomes in one network can systemically result in unintended consequences throughout the network of networks ecosystem as experienced by the major disruptions from decisions made and lessons learned during and after the pandemic.

FIGURE 2

The enterprise supply network ecosystem model leverages digitalization to connect participants



Source: Authors

To achieve ecosystem commerce, companies embark on a journey that starts with a digital transformation and digital twin foundation, one of our highlighted technologies listed below. This journey progresses through stages of digital business 4.0 maturity. The stages chart the course across the ecosystem to grow from a visibility stage to empowerment of an ERP4 (ecosystem resource planning) across multiple stakeholders in the ecosystem.

Improved decision making for resilience

We specifically call out the theme of improved decision making as the increased velocity and network effect of change requires specific up to date information, alerts, reporting and the like to adjust to changes (including unintended) good and bad in all areas of the business environment, labor conditions, network interruptions and even into everyday living. Market leaders are identifying innovation opportunities that are delivering business value and significant competitive advantage now when it usually takes from three years to seven-plus years for an innovation to reach the early majority. Identifying innovations that can be implemented effectively in a timely manner will go far in improving your speed of decision making and both cost advantage and competitive advantage.

Capturing many of the benefits enabled through enterprise supply network implementation will continue to drive gains for your resilient and sustainable decision making. Improved decision making will also come from capturing and understanding deep insights from the underlying data provided by the right intersection of supply chain technologies. In our experience, it's often the combination of emerging technologies that offers the value. Consider how GPS, location-based services, sensors and monitors and telematics are driving (pun intended) autonomous vehicles.

Emerging technology combinations to watch

Capitalizing on capturing supply network efficiency by enabling digital hubs (web-based systems) involves linking supply network partners and competitors. The purposes of digital hubs are collaboration, trading or both. As multi-enterprise ecosystem commerce platforms mature, they will leverage business 4.0 technologies to enable ERP4. Ecosystem commerce platforms will optimize purpose-driven, ethical and responsive market ecosystem networks to efficiently manage variability.

Another benefit will be capitalization of the total ecosystem material flow paths from source to consumption to sustainability. Driven by a circular economy, value will be created for all participants in the ecosystem globally (democratization). We don't compete on the transportation lane. We compete at the point of demand/order. Systems for innovative supply chain finance provide mechanisms in which the stakeholders can share in the total value to the community of commerce from collaboration. Some of the enabling solutions include the following.

Real-time supply chain visibility platforms, also known as control towers, provide increased transparency and visibility across the entire supply network by showing multiple dimensions including dollar value, product quantities and location history. Control towers provide instant communication and collaboration with ecosystem partners, including listening to the world outside the value network.

For a specific example, one of the world's largest retailers has implemented supply network control tower capabilities to ensure visibility to shipment status and on-hand inventory across all its supply network operating nodes. Visibility of the network flow volume is provided with the retailer's control tower capabilities. Proactive identification of workflow capacity utilization opportunities, or shortfalls and notification to when the forecast exceeds available capacity, is another substantial benefit the retailer relies on for competitive and cost advantage.

Last-mile delivery solutions are designed to overcome multiple existing challenges in delivering an organization's product to the end customer, whether that's delivery to a business or for home delivery. Typically, the network is multi echelon and intermodal, moves include both sensitive and regulated products and are subject to service-sensitive demands with channel shifting impacts compounding the delays and hurdles of last-mile delivery.

Some of the world's largest logistics service providers and carriers, for example, have identified how best to identify and deploy new services utilizing non-traditional means such as crowd source delivery providers (democratization), autonomous vehicles, drones and parcel consolidation along with evaluating the build versus buy scenarios for last-mile market needs. Their innovation planning has led them to expanding their services portfolio to enable their business goal of new and organic growth so these services can now be offered to their customers.

Digital twins in logistics are software representations of assets and material flow processes that are used to understand, predict and optimize performance to achieve improved business outcomes. They provide several venues for this optimization including: (1) enterprise supply network optimization; (2) scenario simulation digital twins for proactive planning; (3) producing scenario hypotheses and definitions; and (4) discrete event or system dynamic what-if analysis.

In our experience, there is considerable value in conducting modeling exercises that provide the intelligence and value from information and material flows by connecting inside and outside the four walls simulations.

By implementing multiple digital twin models, companies can model numerous scenarios to test predictive scenarios with multiple outcomes as well as modeling hypothetical what if scenarios. These scenarios leverage the technology adoption of new capabilities, multitudes of data sources (e.g., IoT, ECP, POS, legacy, social media and internet search), increased computing power and data storage and algorithms to provide simulations for understanding how minor to major changes will impact, grow and improve their logistics' capabilities. Further, it is critical to note that the models are developed with a community in mind such as supply chain finance, planners or the chief operating officer's organization. This community mindset enables users to capture the best value from the tools based on their specific needs.

Do more, talk less

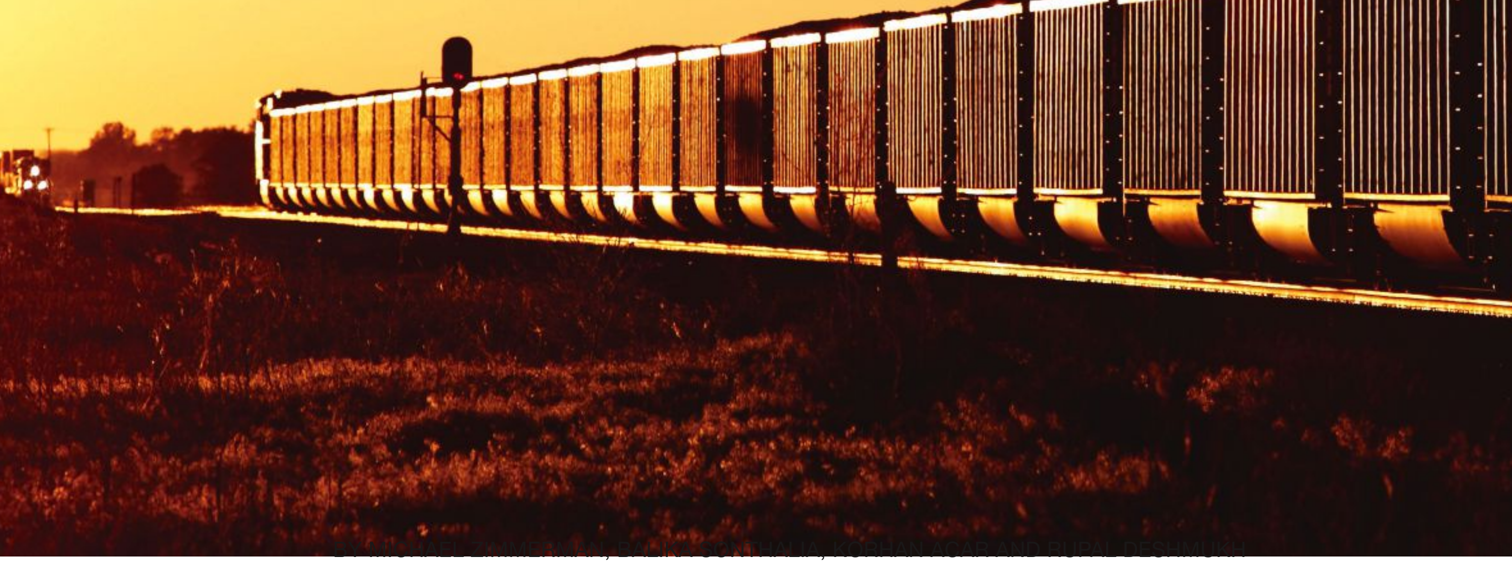
The identified technologies are presented through a logistics lens to demonstrate how one can provide a realistic path to capture value from ecosystem commerce and resource planning (ERP4). The integration of data among the ecosystem communities of commerce, the ease of onboarding new participants and leading through a service focus and collaborative capabilities inherent in new innovations have clearly demonstrated a path to business value delivery to innovators and early adopters. But you will never know until you try.

Adding innovation planning and goal setting into operations performance metrics and evaluating technology hype cycles, best practices and ROI, both financial and competitive, are critical to business strategy. Not planning for the innovation, transformation and implementation of new processes and business models may relegate your organization to the past.

THE YEAR IN LOGISTICS: UNCERTAIN ECONOMIC CONDITIONS ARE TILTING THE TABLE

A new form of uncertainty poses its own set of hazards and opportunities for supply chains.

BY MICHAEL ZIMMERMAN, BALIKA SONTHALIA, KORHAN ACAR AND RUPAL DESHMUKH



BY MICHAEL ZIMMERMAN, BALIKA SONTHALIA, KORHAN ACAR AND RUPAL DESHMUKH

COVID-generated turmoil that reshaped worldwide logistics in 2020 and 2021 has given way to something very different in 2022. Not to stability, exactly, but to another form of uncertainty—one that poses its own set of hazards and opportunities.

To stave off a potential economic catastrophe, the national governments of the United States and other countries injected trillions of dollars of pandemic relief into the world's financial bloodstream. Fortified by the infusion, the U.S. economy grew 5.7% in 2021—its sharpest upswing since 1984.

Having averted the immediate threat of a potential depression, central banks now had to contend with a very different problem—surging inflation as relief money further boosted demand against still constrained capacity. They increased interest rates more aggressively than any time in history in order keep demand in check and prices down.

Then came Russia's invasion of Ukraine in late February, which hobbled energy and food supplies, further driving up prices. The combination of varied inflationary factors, geopolitical tensions and sustained interest-rate hikes has cooled spending—and, therefore, the demand for logistical services.

As we indicated in a recent Kearney Global Business Policy Council article, these and related

Michael Zimmerman and Balika Sonthalia are partners in Kearney's Strategic Operations practice. Korhan Acar is an associate partner and Rupal Deshmukh is a principal at Kearney. They can be reached at Michael.Zimmerman@kearney.com, Balika.Sonthalia@kearney.com, Korhan.acar@kearney.com and Rupal.Deshmukh@kearney.com.

developments have contributed to broader uncertainty about economic conditions over the near and medium term.

"Our estimates here suggest global growth this year will be 2.9%—a significant downgrade from the corresponding expectation (3.7%) in our 1H 2022 forecast," we wrote. "While these projections suggest we will avoid a global recession this year, the drop represents more than a half trillion dollars (around $600 billion) in foregone global output for 2022 alone relative to our more hopeful projections in March."

The resulting dip in demand is coinciding with an upsurge in freight-carrying capacity. Manufacturers and retailers, burned by the capacity squeeze of 2020–2021, had shifted their logistical mantra from "just in time" to "just in case," investing in bolstered capacity and larger inventories.

Put it all together and you have a radically different logistical marketplace. A global supply chain previously defined by hyper-scarce capacity now faces a glut of inventory and carriage space. Carriers who formerly held powerful market leverage are now seeing once-stratospheric spot rates crash to earth, while once-desperate shippers can now afford to be much choosier about rates and terms.

How should companies respond to this extraordinary change in circumstances? A solid first step would be to reset core assumptions on the role of logistics and supplier expectations in any market. However lasting and deep the downturn in consumer demand may be, and however abrupt the eventual turnaround, shippers have to be ready to adapt better. As supply chain economist Jason Miller has pointed out, it's important to bear in mind that elevated inventory levels should be seen less as a sign of worsening consumer sentiment, and more as a vestige of pandemic-inspired hedging behavior on the part of producers and shippers worldwide.

Regarded from this perspective—one that we happen to largely share—the economy of 2022 is perhaps best seen as a correction phase, but one that seems poised to settle (at least for a time) in favor of shippers over carriers.

The latter half of 2022, then, has opened—and then widened—a window of opportunity for shippers to exert renewed control of the market. What matters is how they choose to deploy this advantage. The contention of this brief report is that they should aim for more than just "quick wins."

True, it can be oh-so-tempting to simply extract the lowest possible prices from carriers—and many shippers will undoubtedly seek that route. But we are convinced that the smartest ones will fully internalize the lessons of the 2020–2022 seesaw and use this period to build out long-term strategies that will place them in a far stronger position to weather any future storm—in an era that promises many of them.

To help translate these market realities into actionable strategies for shippers, we will now look at a few of the preeminent verticals in the logistical sector, before concluding with some overarching strategies and calls to action.

Industry analysis: A review of some primary logistics sectors

Ground. Road freight accounts for the largest share of U.S. business logistics costs (USBLC), and its dominant trends both mirror and perpetuate the deeper dynamics that have reshaped the market in 2022.

Like the other major sectors, trucking saw surging demand and constrained capacity in 2021, resulting in rising rates across both the contract and spot markets. But then, starting in the second quarter of 2022, swelling inventories and rising interest rates cooled the economy—and sent spot rates tumbling.

That downward trend is likely to continue, and anxious carriers are eager to strike deals for lower prices to keep capacity rolling. However, there are limits to their largesse. Many owner-operators who jumped into the market during the 2021 boom times still have high costs to cover (inflation, remember?).

For their part, established carriers are striving mightily to hold the line on contracted rates to prevent a market-wide collapse in prices, but the front has begun to crumble as carriers increasingly grab what they can get.

Water. Container rates continue to soften: The spot rate index for trans-Pacific shipping from Asia to the U.S. fell by 70% between spring and late summer of 2022; Asia-to-Europe sea rates were down by 45% over the same period.

Carriers have already made big concessions on 2022 contracts to sustain shipper relationships as rates drop further. So far, these concessions have tended to be of relatively limited duration (often one or two months) as carriers held out hope that the slack demand was only temporary. However, each passing week brings fresh evidence of shipping rates even lower than those reported in the major indices. No wonder that even a leading carrier like Maersk is looking to diversify its logistical portfolio in the face of such demand turbulence.

Factors to watch include the arrival of substantial new shipping capacity in 2023—some 5 million TEU (twenty-foot-equivalent units) are being added by the top 12 ocean carriers alone. This will depress rates further, despite expected blanking, loop consolidation and shipbreaking.

Then there's the wild card—still very much a developing story as of this writing—of unusually low water levels in the commercially important Mississippi River network. Drought conditions there have sent barge spot rates zooming upward, a notable outlier in a waterborne-logistics market that, for now, heavily favors shippers.

Air. Airborne freight—nearly half of which was carried in the bellies of passenger airlines—represented a vital component of global logistics in 2021, as the congestion of ocean and land routes grew to epic proportions. However, air shipment is relatively costly, and as shipping urgency waned and seaports and railyards debottlenecked in 2022, shippers avoided the tarmac.

During the second half of this year, global air cargo loads have fallen back toward pre-pandemic levels. In July, for example, shipment levels were down by 9.7% relative to the same month last year, and capacity was up by 3.6%.

As in the water sector, air carriers will suffer still steeper price reductions as the increased capacity ordered up during the pandemic begins to come online. The days of desperate shippers resorting to expensive charter flights are clearly behind us, and many are reviewing just how much of a role (if any) this expensive mode should have in their logistical portfolios going forward. If it does indeed retain such a role, it will be at lower rates and without surcharges.

Freight Forwarding. Forwarders enjoyed a year of unprecedented profitability in 2021, serving as a shock absorber between shippers and carriers in a year of unique volatility. However, the market has settled down in 2022, and carriers have become both more able and more willing to sell capacity directly to shippers.

The result is a tougher business environment for forwarders. Shippers are increasingly eager to exploit their advantage, seeking greater price concessions and higher service quality, while carriers want to cut forwarders out of the equation altogether.

Another important market dynamic is the fragmentation of the forwarding sector, as new companies have entered the business. According to the 2022 Global Freight Forwarder Insights Marketing Survey, the top 10 forwarding firms combine for only 42% of the $146 billion forwarding market.

It's a landscape in which no forwarder holds sufficient market leverage to long defy downward price pressures—and shippers have plenty of options for shopping around.

Warehousing. Warehouses may not be carriers, but they've reflected many of the broader dynamics that we've seen in trucking, waterborne commerce and air freight.

After demand soared in 2021, producers and retailers abandoned their former "lean operations" model and invested in additional capacity—and larger inventories—as a safeguard against continued scarcity.

Then, during the demand plunge of 2022, companies were left with excess inventory and warehousing space. The results so far are mixed. Asking rents are down and vacancy rates up in the Western United States. However,

the East Coast, thanks to volume shifts from the West, saw price increases in Q3 2022.

Adapting to the varied demands of omnichannel logistics, companies are reimagining their warehouse and fulfillment center footprint to ensure rapid delivery and efficient returns processing. Rising costs have helped justify speeding up investments in warehouse automation.

Calls to action: How companies can make the most of the moment

So, what do these broad economic developments and sectoral shifts mean for producers and retailers? The more forward-thinking among them are drawing some shared conclusions—and we've built upon these assessments with a few additional insights of our own.

Perhaps the most basic lesson of these past two crazy years is that contracted capacity is simply not as assured as you might have previously thought.

Particularly in a global marketplace where technological shifts, geopolitical tensions, climate-related disruptions, pandemics (which in many cases will themselves be related to climate) and other X-factors are becoming increasingly common, it's a good idea to develop stronger capabilities for handling volatility of all kinds.

In the face of such ongoing churn, you can simply no longer count on stable conditions—or on the inviolable sanctity of contracts—to assure you of the right level of capacity, and the right price, on any kind of long-term basis.

One way to build such resilience is to make logistical planning a truly cross-functional discipline within your organization. Your planning, sourcing, contracting, manufacturing, transportation management, sales, personnel, IT, finance and other teams need to be operating in alignment—or at least at a very high level of mutual awareness and support.

Another purely internal step to take is to ensure that you are using up-to-date tech tools for monitoring supply chains and assessing operation metrics. These technologies can let you know if, for example, you are over-relying on express freight or racking up too many over-capacity charges. This kind of awareness can make a decisive difference, especially when conditions shift suddenly and you need to adjust accordingly. Bear in mind that if it's your suppliers who are providing this kind of capability (many companies rely upon their forwarders or third-party logistical firms, or 3PLs, for this), make certain it's up to date.

But perhaps the biggest lessons of all have to do with how companies behave externally, in their relationships with carriers, forwarders, warehousers and other participants across the logistical chain.

The temptation for many companies will be to maximize their short-term cyclical advantages. Again, this is enticing—but short-sighted. We instead urge clients to maximize this moment by strengthening their own processes (such as freight request approvals and compliance tracking), but also by frequently revisiting such external transactions as sourcing; rate setting; and freight forwarding and 3PL arrangements. Leading firms are simply becoming more agile at market engagement.

This is an optimal time to connect with outside parties to reach out to carriers and forwarders to revisit rates, establish "shipper of choice" relationships and clarify shared expectations for what each party will do for the other in the event of (inevitable) future disruptions and ongoing spot-rate changes. Trigger points need to be agreed upon for both upward and downward moves in spot markets so that when the markets shift, shippers and carriers are brought together rather than sent hurtling in separate directions.

In short, logistics sourcing needs to be more supple and responsive. If spot market rates shift by more than 10% or 20%, shippers and carriers shouldn't simply use this as an excuse to opportunistically bail out or engage in maximalist pressure tactics. They should recognize by now that the turbulence of the past two years is probably more a harbinger of new realities than a mere fluke. Guided by this awareness, they should see steep fluctuations as a call to consult, confer and potentially negotiate adjusted terms—all in the name of preserving a mutually beneficial relationship over the long term.

The current relative lull in demand after so much inflationary rate chaos is a historic opportunity for shippers to truly get their logistics market planning and engagement right for the long term—an outcome well worth the sacrifice of some momentary margin maximization.

Any gains snatched right now are likely to pale in significance to the value of protecting yourself against future capacity shocks. Yes, there are great savings to be had—but those savings will only last if they are created with the bigger picture fully in view. This is the opportunity that 2022 has presented; it's up to each company to decide whether or not to take it.

The keys to the OMNI-CHANNEL RETAIL KINGDOM

In omni-channel retail, the stakes are high and the passions higher. For retailers, it's all about finding the right innovations that make each consumer interaction as frictionless as possible. Fortunately, there's no lack of solutions out there.

BY GARY FORGER

It's fairly clear that the most powerful word for retail consumers today is convenience. The only trouble is that consumer convenience comes in a staggering number of different forms. Consider just a few: store shopping; e-commerce shopping; online marketplaces; direct-to-consumer; omni-channel; BOPIS; curbside pickup; contactless pickup; 30-minute pickup; two-hour pickup or delivery; same day delivery.

Gary Forger is the digital editor for scmr.com.

And, that's not even a complete list. What's more, a number of those offerings didn't even exist at scale prior to the pandemic-related lockdown in March of 2022 that forced everyone serving the public to come up with new and innovative models to take care of their customers. They may be convenient for shoppers, but nothing here has made life any easier for retailers. Quite the opposite.

That said, consumer expectations are quite high but summarized simply, says Ann Ruckstuhl, chief marketing officer and senior vice president at Manhattan Associates. All consumers want is: Know me, serve me and don't waste my time.

Those three expectations, are based on a survey Manhattan did of 3,500 adults in the United States and five European countries, says Ruckstuhl.

And to confirm what you already suspect; U.S. consumers are more impatient and demanding than those in other countries. "They want everything to be faster, they want to be able to buy anywhere and they want to receive their order faster," says Ruckstuhl.

Whether their order is filled from an e-commerce distribution center or a store is of no great concern to them. They still want what they want. When they want it. And they expect every experience to be seamless.

Just to be clear, we are all co-conspirators here. These trends are multi-generational and it's happening simultaneously across physical and digital retail. Ruckstuhl says "shopping habits have changed forever as consumers have truly become phygital."

Finding phygital success

While the word phygital—a mashup of physical and digital—first appeared in 2013 (it's linked to an Australian marketing agency, if you were wondering), it is only in the past 18 months or so that it received broad recognition in retail. In other words, there's still plenty of work to be done by retailers to better match stores and e-commerce with consumers and their expectations.

And as was already said, COVID created new supply chain scenarios at a rapid rate. "COVID jammed 25 years of innovation into 18 months," says Tom Erskine, CEO of One Door.

In discussions with retailers, supply chain service providers, technology suppliers and consultants, it became clear that this is already a wild ride. While researching this story, there were times when it felt like whack-a-mole. Other days it just made my head hurt.

So, the challenge became to identify the epicenter of phygital retail.

As it turns out, there are actually two epicenters. And neither one is as flashy as phygital. One is inventory management. The other is individual consumer profiles. How mundane can you get? Or daunting? However, both are essential to removing friction from the retail experience for consumers.

With inventory management, it's all about each individual unit of an SKU and where it sits at any given moment in the supply chain and order cycle. It starts with inventory staging, moves on to order fulfillment and then delivery. Inventory management also includes the back again of returns as well as reimbursement for lost and stolen goods in the retail supply chain.

Mike Relich, co-CEO of PacSun, talks about retailers creating inventory leverage. "Inventory is the biggest source of working capital and retailers' biggest risk. We have to manage inventory across all channels and be sure enough of it is always in the right places," he says.

Unfortunately, that's not so easily done. According to the Manhattan survey, only 3% of U.S. retailers say they have an accurate overview of their inventory in stores and DCs 100% of the time. That's a tough disadvantage to overcome, especially when consumers expect each transaction to be frictionless.

Building individual consumer profiles isn't even as far along as inventory management. Here's Relich again: "We have to understand each of our customers and treat them individually and appropriately. We have to give them a great experience in stores and on the Web, then get them their order promptly with great transparency," says Relich. "We need to build a 360-degree view of each individual customer and be able to fulfill their expectations every single time."

It's important to note that inventory management and customer profiles are not mutually exclusive. And nowhere is that more evident than in the delivery phase of the retail supply chain.

Consider this quick drill down from the Manhattan survey. Regardless of where they shop, 80% of U.S. consumers expect home delivery options—34% want contactless/curbside options, 30% want same-day home delivery and 25% want same-day click-and-collect. Furthermore, 69% of consumers would like to have a choice of couriers to fulfill delivery with set delivery dates and times along with different cost options.

While consumers expect transparency across the entire retail interaction, retailers clearly lack visibility in so many ways. And that's the core problem. Any lack of visibility into inventories and individual consumers creates an overabundance of opportunities for friction in the retail supply chain. Unfortunately, fewer opportunities for friction is the goal.

As a result, "retailers are supremely focused on taking friction out of the fulfillment process," explains Marc Wulfraat, president and founder of MWPVL International.

Roots in omni-channel

Retailers' efforts to remove friction actually started eight to 10 years ago. That's when most retailers discovered omni-channel as they tried to make their retail supply chains seamless to the consumer in both directions.

Today, omni-channel is just assumed. On the consumer side, it's likely that few in Gen Z have ever heard the word. That's just as well. Everyone, not just Gen Z, simply wants what they want, when and how they want it.

"Shoppers don't see channels, they see one shopping experience however they shop," says Matt Guiste, retail industry leader at Zebra Technologies. He even goes so far as to stray from use of the word omni-channel, calling it a unified commerce approach instead.

"Omni-channel for me is a fairly narrow term that means the collapsing of the online and in-store channels," says Guiste. "It's learning about products, marketing, buying and/or returning in both." He continues to say that "unified commerce is all that, plus an all up-blending of digital and physical worlds for customers and retailers. So unified commerce includes an associate being able to check on an out of stock and deliver it to your house, or an Amazon Go-style self-checkout or a self-service kiosk in Home Depot to find a product." He adds, "This helps retailers meet shoppers how they shop—online, in store, social, mobile or any combination."

At the same time, retailers are trying to make their stores work better for them, too.

For example, many retailers (Manhattan's survey included 750 of them) are re-evaluating the roles of their stores, recognizing their added value as strategic hubs for online sales as fulfillment hubs. While digitalization and frictionless shopping are certainly the big winners from the pandemic, Ruckstuhl believes the research shows that we should not be too quick to discount the importance of human interaction or the role of the physical store in the era of digital commerce.

To help make some sense of all this, Guiste breaks unified commerce/omni-channel into three stages: philosophical, operational, and technological.

While retailers have cleared the philosophical hurdle of accepting a unified commerce approach, they are not, as a group, as far along with operations and technology. "Of course, it depends on the retailer and even the retail segment, but, overall, companies are 50% down the path," he says.

By the way, several experts interviewed for this story said too many retailers are taking the wrong track to resolving their technology shortcomings. There seems to be a general view that retailers are not sufficiently versed in technology from hardware to software to build the needed inventory and customer tracking systems. Quite simply, they need outside help. Yet, they resist. At their own peril say the experts.

Guiste believes it's worth keeping in mind that today is a long way from the days when retail ran on one path to the consumer. All of this would be so much easier if that were still the case. It's not.

Sweetwater and PacSun

Fortunately, there is no lack of effort by retailers to recalibrate their approach to omni-channel and minimize uncertainty for themselves and consumers. Consider two retailers—Sweetwater and PacSun—with quite different businesses that have taken two quite different approaches to eliminating friction.

E-commerce music retailer Sweetwater recently opened a 350,000 square foot distribution center in Litchfield Park, Ariz. Phil Rich, chief supply chain officer and senior vice president, explains that 25% of the company's customers are on the West Coast. Delivering orders to them in less than two days just wasn't possible from Sweetwater's previously lone distribution center in Fort Wayne, Indiana. Now it's one-day service from the Phoenix DC to California, Arizona, Nevada and other Western states.

Meanwhile, Sweetwater continues to operate its sole store located near to its Indiana distribution center. "Most music stores do about $400,000 a year in business. We do $20 million a year in ours. It is a true destination for music lovers," says Rich. Better yet, if an SKU is not available in the store when a customer first walks in, it is brought over in minutes from the distribution center, continues Rich. Not a bad arrangement at all.

Gen-Z clothing retailer PacSun has a different approach to reducing friction. It has about 350 stores and 3 distribution centers. According to co-CEO Relich, about 65% of sales are generated at the stores with 35% from e-commerce. But this deserves an asterisk. About 25% of those e-comm orders are fulfilled from stores.

Making this work requires "a sophisticated rules-based order management system (Manhattan Associates) and help from an analytics expert," explains Relich. "Actually, we never have enough analytics. But we're investing. It's a real challenge to manage inventory allocation to the stores. We have to have not just inventory but the right inventory in each store," adds Relich. In addition, PacSun is building a customer data platform that tracks key analytics of individual customers from their buying behavior to their profitability.

Data, analytics and metrics

For some time now, there's been a story out there that Amazon wants to have the ability to ship you what you want before you even order it. While the reality of that scenario isn't here yet, the sentiment of the ambition is. Relich certainly thinks that way. And he's not alone.

Getting there requires attention to the data streams about both the inventory and customer profiles. After all, you can't satisfy the latter without having the former in stock.

Unfortunately, almost 90% of retailers are worried that they do not have the right inventory in the right places, according to Zebra's 15th Annual Global Shopper Survey. And well they should worry. Seventy-six percent of shoppers leave stores and sites without items they intended to purchase with 49% blaming stock outs, says the survey.

Zebra's Guiste says retailers are drowning in data, but their information systems don't always work together. Among other efforts, retail leaders are working to build out real-time inventory visibility from the DC to the store, he says.

Over at One Door, CEO Erskine is knee deep in building that bridge between stores and HQ's planning and procurement departments.

While many are focused on using stores as quasi distribution centers going forward, Erskine is focused on streamlining the shopping experience in individual stores. Space planning, inventory management and shopper profiles are critical to making that work.

Retail merchandising, he says, is at a tipping point. It is in the process of returning stores from quasi-DCs to display centers that offer a great shopping experience. Central to that return to retailers' roots, Erskine insists, is the use of advanced technologies such as artificial intelligence, business intelligence (BI) and data analytics.

Erskine sees in-store merchandising, and in-store inventory management as critical elements of the solution. What he's talking about is having the right inventory displayed in the right way in each individual store based on data about that store and its shoppers. The typical keeper of all that information is the retailer's headquarters.

"Data analytics and BI enable teams at retailer HQs to have ongoing insight into consumer behavior right down to the preferred location of an SKU in an individual store," Erskine says. If that's not a takeoff on Amazon's ship-before-you-order plan, what is?

"HQ has the capability to create unique plans for each store, but each store has to consistently execute that plan at the individual store level," he says.

Execute is the key word here: And that's true throughout the phygital retail supply chain. Even for managing what's not in stock.

Remember those 76% of shoppers who leave without the items they came to buy? Half blame stock outs. That hasn't escaped the attention of Claudia Clemens, senior director analyst with Gartner's Supply Chain Practice. "Availability of an item is now as important to consumers as price," she says.

Which brings Clemens to retailers' need for a proactive backorder strategy and the need to execute it continually. "It is no longer okay to be out of stock for an unspecified time. Yet, fewer than 5% of retailers have a consistent end-to-end set of processes for managing back orders," Clemens adds.

Fortunately, she has an idea here. It's called SWIM.

Segment products as backorderable or substitutable. While some products are easier to backorder than others, every SKU needs to be assigned a pre-defined out-of-stock action.

Weigh performance with backorder metrics. It is important to define and implement both metrics and tolerance levels/ thresholds for backorders.

Involve other functions. Both internal and external partners from customer service to warehousing and logistics as well as sales and marketing need to be part of the backorder strategy and its execution.

Make backorders part of the supply chain playbook. The focus should no longer be entirely about being in-stock or mitigating out-of-stock, but to improve overall supply chain execution and customer experience.

As Clemens says, "the world has changed. Supply chains are not the same. Consumers expect more. And backorders need to be a part of the plan to mitigate supply chain volatility."

Reduce friction

We have now successfully gotten to this point in our story without once mentioning Amazon or Shopify. Not that they've been overlooked. It just wasn't time until now.

Both have had their fair share of success at molding e-commerce into what it is today. And from all indications, they aren't done yet. Remember the comment that retailers are not as good at technology as they think they are? There is at least one notable exception here: Amazon.

"Amazon's roots are as a tech company not as a retailer. So they do not think like Walmart," says Wulfraat of MWPVL International. A prime (sorry) example of that is Amazon Marketplace. This takes e-commerce into an entirely different realm than what's been discussed so far.

By building out this e-commerce platform for third-party sellers, Amazon has built a very non-traditional retail environment. The third-party sellers can fulfill orders themselves. Or Amazon can do it for them, managing inventory, order fulfillment and shipping.

While Amazon has been doing Fulfillment by Amazon for more than a decade, "only recently have others such as Walmart and Target started to think of themselves as 3PLs in the retail world like Amazon," says Wulfraat. "What they're seeing is that fulfilling these orders is not a cost center but a profit opportunity," he adds.

Wulfraat goes so far as to predict that retailers are at a point where they will have to be more than a retailer to maximize their cash flows. They are starting to look at warehousing and transportation as a service for others that can be quite profitable. American Eagle Outfitters and Gap Inc., both of which are opening their fulfillment networks to other specialty retailers, are two examples. It's a fundamental shift in the retail supply chain.

Shopify has understood this since 2019 when it launched Shopify Fulfillment Network, says Jerome Dubois, vice president of Shopify logistics.

The network stages retailers' products in Shopify fulfillment centers located to ensure rapid delivery and ease of managing returns. The service offers full inventory management, including product storage and handling as well as order fulfillment, packaging and shipping. "Ship your orders as fast as large retailers" is the Shopify value proposition, says Dubois.

It's worth noting that in October 2019, Shopify accelerated the roll out of the Fulfillment Network when it purchased warehouse robotics supplier 6 River Systems from Dubois and two other co-founders. He was also an early employee at Kiva Systems, another warehouse management robotics company. Amazon purchased Kiva in 2012 and now uses the technology to fill orders across its network of DCs.

Shopify's 2022 addition in this realm is Shop Promise. Dubois explains it as a badging system that shows customers which products will be delivered in two days and handles returns without problems. "It offers buyers the same level of service as Amazon Prime," says Dubois. "Retailers (often called merchants at Shopify) have to deliver what they promise."

Meanwhile, Amazon is not standing still here. In September 2022, it introduced what it calls Amazon Warehousing & Distribution. This service allows a retailer to ship its inventory in bulk to Amazon storage facilities for storage and eventual distribution through Amazon's Fulfillment Network. The inspiration is to help retailers have the right inventory in the right place at the right time at the right cost.

Essentially, it allows companies to skip the step of moving inventory from their upstream facilities to Amazon centers. Key words here are "automatically and strategically" position inventory across the network to optimize delivery speed and reduce costs. And this year, it will be expanded to give retailers access to Amazon Transportation, Amazon Global Logistics and Amazon Freight.

"Once again, Amazon is moving inventory in ways not previously considered, and taking friction out of the retail experience," says Wulfraat.

Another twist here is UPS' Ware2Go. It is an asset-light, software as a service (SaS) platform for small and medium sized retailers, explains Brian Gallagher, chief technology officer. "We help retailers make decisions about where and how to position inventory in more than 30 warehouses nationwide," he says. Small- to medium-sized retailers account for about one third of all retailers.

The two key aspects here are getting inventory as close as possible to consumers with a single view into the inventory. "Machine learning is critical in several aspects," Gallagher says. It makes decisions about buying inventory in the first place and then positioning it to ensure transportation and delivery are optimized for both speed and cost. "In October of 2022, we launched a beta of machine learning capabilities to make delivery date predictions for customers. The whole idea is to get in front of issues and proactively communicate with the consumer," adds Gallagher.

Meanwhile, UPS has still another angle on reducing friction in the retail experience. This time on the delivery side. In a recent survey of small-to-medium sized retailers, UPS Capital identified the top three threats to their success. Those are: porch privacy losses, 54%; damaged shipments, 51%; and lost shipments, 49%.

Just to underscore the seriousness of the top threat, Ryan Fannon, director of product management and user experience at UPS Capital, explains that there were 210 million packages stolen from porches in 2021. That should get everyone's attention.

UPS Capital asked about 2,000 U.S. e-commerce shoppers if they would be willing to insure their e-commerce orders at checkout for loss, damage or theft. They found that 60% of these shoppers would be willing to insure their orders at 1% of the order value. So, UPS Capital launched consumer-elected insurance in August 2022 with its InsureShield shipping insurance app on Shopify, says Fannon.

"This gives small-and-medium-sized companies a new tool to provide the customer experience of a larger e-retailer. It ensures that these companies are protected if shipment loss, damage, or theft occurs and that they can enable smooth reshipment and reimbursement processes for their customers," adds Fannon.

Clearly, the retail supply chain is anything but static. COVID underlined that and then highlighted it in a very bright color. Retailers, however, are very much in the hunt to please every consumer every time. The rate of change isn't going to slow down here any time soon.

THE DAWN OF A NEW SUPPLY CHAIN WORLD ORDER

Since the start of the tariff wars, geopolitical conflicts have upended international trade. To prevail in the coming years, supply chain managers must incorporate international relations into their planning and actions.

BY NICK VYAS

As a one-time operator of global supply chains, and now an academic who often consults with international firms, I've come to a simple conclusion: Students of supply chain management should study international relations as part of their curriculum. They need to acquire an academic ability to deduce the effects of statecraft and international balance of power on their work-life.

That dictum doesn't only apply to students; industry professionals, particularly those involved with strategic aspects like planning and design, must hone their ability to see through media biases and read geopolitical trends and patterns.

During the last two years, supply chain managers in the United States and elsewhere have continually encountered the direct, outsized influence of international political relations on their lives and work. The catastrophic delay of more than three weeks in the reporting of COVID-19, the deadly lag in the response from authorities in major countries like the United States, Brazil and the UK to the contagion, which partly and critically caused the shortages of lifesaving equipment and hygiene products, chip shortage in one sector and a glut in another, and the global food price inflation and energy crises have all had one factor in common—geopolitical power dynamics. We need to develop the ability to anticipate and predict them in the way that we have devised ways to forecast demand—not only react and change course *ex post facto*.

Nick Vyas is the founding executive director of the Kendrick Global Supply Chain Management Institute and an associate professor of clinical data science and operations at the Marshall School of Business at the University of Southern California. He is also a frequent contributor to Supply Chain Management Review. He can be reached at nikhilvy@marshall.usc.edu

To be fair, those of us in the business of supply chain are not political ignoramuses. More than in any other corporate function, except maybe finance, managers in our field develop a keen sense of awareness of the political environment because we often operate globally. It helps us optimize goods movement and resource pricing. The focus, however, is largely attuned to local and national political environments. It now needs to broaden to encompass international affairs. Not just by way of knowing about them, but through formal training in how to apply that knowledge. There are three chief reasons.

One, the rate of globalization has far outpaced our understanding of the increasingly diverse economic and political ecosystems that our supply networks run through. I am not aware of any survey that could provide a sense of the level of knowledge that our supply chain managers possess about international affairs, but we do have some idea about the larger populace. A recent Pew Research Center survey that assessed adult Americans' level of international knowledge produced some interesting results. Tasked with choosing answers from a list to questions such as: "Name the leader shown in the photo" (Kim Jong Un) and "Who is the PM of the UK?" respondents on average got around 60% of the answers right, close to 70% displayed low and medium levels of knowledge, and what admittedly hurt the most, the majority couldn't identify the flag of India, the world's largest democracy. This does not reflect a poor understanding of world affairs for a lay populace, but if this survey involved people handling global supply chains, I'd be highly concerned.

Two, if supply chain management were a person, it would be a Millennial. Although Booz Allen's Keith Oliver had introduced the term in 1982, it was not until the mid-aughts that industry bodies formally recognized the discipline. The Council of Supply Chain Management Professionals (CSCMP), the industry's leading association, didn't assign a place for it in its lexicon until 2003, and then, two years later, changed its name from the Council of Logistics Management, as it was known then, to CSCMP, to reflect the change. Elijah Ray, the 2003-2004 president revealed the reason: "People in our profession now have an expanded and more critical role within our companies than we did 10, or even five, years ago."

Indeed, it has only been in the last decade or so that supply chain managers have begun to assume leadership roles—Apple's current CEO is a good example. Leadership roles require a greater understanding of the global business environment. The relentless march of globalization is going to make this a necessary requirement, even a differentiator.

Third, and perhaps the most important reason, is that the contemporary world order is in disarray. A corrosive mix of events, including the internal and interstate political conflicts in the West, its rising tensions with the non-Western world, a growing contempt for democracies with them being perceived as conflict-ridden and indecisive, the Ukraine war and the burning China-Taiwan issue has shaken the current world order to its core, perhaps irreversibly. This is, and will incrementally have, a far-reaching effect on global supply chain networks.

But what is this new world order that we speak of? How did it come to be, why is it said to be adrift and what are its implications on global supply chains?

Order and chaos: The circle of trade

Historically, security and stability were the foundation that supported the political framework that enabled international trade. Both have to coexist; security is to be granted by military powers, stability stems from cooperation or comprise reached between traders, middlemen, and other participants. The first recorded instance of such an arrangement was the emergence of a network of geographically shifting routes that linked Europe to the Far East. Collectively called the Silk Road, these routes came together around 130 B.C.E.

Stretching across 4,000 miles of some of the world's most daunting terrain between North-Central China and ancient Anatolia, it could be argued that the Silk Road represented the first global supply chain, bringing silk, porcelain and precious stones to Europe and horses, glassware, Neostarian Christianity and Buddhism to China. It may also have represented the first new world order in trade and supply chain terms, functioning for more than a millennium under an epiphenomenal cover of protection provided by numerous empires in return for heavy customs duties. Across time, these included the Holy Roman Empire, the Byzantine Empire, China's imperial dynasties including the Han and Tang Dynasties, the Mongol Empire and the Kushan Empire. The route met its abrupt end in 1453 CE in another era of war, strife and political instability following the fall of the Byzantine Empire to the Turks.

The end of the Silk Road set the stage for the next world order. Although European explorers like Portugal's Ferdinand Magellan sought out alternative routes to the East, international trade remained small for some 200 years, comprising less than 5% of the global GDP. Indeed, economic historians peg the first modern world order for trade to a peace treaty reached between European powers in the German region of Westphalia in 1648. Known as the Peace of Westphalia, the treaty marked the end of another era of war and instability, the 30- and 80-Years Wars, and created the political framework for modern international order. This was a Eurocentric world order, premised on the coexistence of sovereign states, a mutual respect for the rights of states to decide their own fates and religious tolerance.

The most significant impact of this event on global trade was its curtailment of inter-state aggression. The resulting balance of power in Europe allowed colonial powers like France and Great Britain to expand their dominions. Britain, aided by the rapid progress in energy generation, locomotive and navigational technologies made during the Scientific Revolution and the Industrial Revolution, achieved on its own, as well as influenced the economic integration of the world economy in the decades before the start of the first world war.

The sins of the British Empire are well documented, its imposition of common political, legal and financial institutions over about a fourth of the world population, created a framework that allowed, for the first time in history, cross-border capital flows and the functioning of free markets.

As we've seen, nothing lasts forever: The fall of the British Empire after the two World Wars marked an end of a world order that enabled the free movement of goods, labor and capital around the world. This was the first wave of globalization, which raised the share of exports in global GDP to about 15% (see Figure 1).

FIGURE 1

The rise of trade through history

Globalization era	AGE OF DISCOVERY (15th-18th Century)	GLOBALIZATION 1.0 (19th Century-1914)	GLOBALIZATION 2.0 (1945-1989)	GLOBALIZATION 3.0 (1989-2008)	GLOBALIZATION 4.0
Leading exports	Raw materials/ Basic goods	Textiles/ Industrial goods	Factories	Global supply chain	Digital goods/ services
Leading nations	• Spain • Portugal • Great Britain • Netherlands	• Great Britain	• United States • Soviet Union	• United States	• United States • China
Exports as % world GDP	<5%	6-14%	5-15%	15->20%	?
Enabling era	SCIENTIFIC REVOLUTION (15th-17th Century)	1ST INDUSTRIAL REVOLUTION (1780s-mid-19th Century)	2ND INDUSTRIAL REVOLUTION (1870s-1910s)	3RD INDUSTRIAL REVOLUTION (1960s-1990s)	4TH INDUSTRIAL REVOLUTION (2000s-2010s)
Enabling innovations					
Characterizing GDP trend	Europe	Great Britain	World	United States	China

Source: Weforum.org

The demise of the Great Britain-led world made way for a new world order built on liberal values, anti-colonial fervor and the desire of nations for reconstruction and self-reliance, with the United States in the center, one that had endured for nearly 80 years.

A new world order

It's difficult to imagine today, but until the turn of the 20th century, the United States wielded no influence of any major import in international affairs. It maintained a small standing army and a smaller Navy than Chile. What changed to bring America to the frontline of an emerging new world order was the devastating impact of two world wars, devastating famines and a contagion that killed millions in Europe coincidental to America's rapid industrialization powered by railroads, steel and electrical power, along with its decisive role in the two world wars. America was plowing ahead while Europe was tasked for years only with clearing away the rubble.

Having lived through the humiliations of the Great Depression and experiencing the useless carnage on foreign soil unleashed by war, the country had good reasons for desiring to have in place a rule-based, liberal international order. Beginning with Woodrow Wilson, America's leaders for the first time viewed \security and financial stability in global terms. In the ensuring years, American leaders with the help of their European counterparts, built multilateral institutions like the League of Nations—later revived in the form of the United Nations—the World Bank, the International Monetary Fund IMF, NATO, the World Trade Organization and the European Union aiming to move the world away from warring tendencies toward peace, prosperity and stability.

Henry Kissinger, who has played a significant role in influencing American foreign policy, articulated the democratic countries' vision of the international order in his recent book *World Order* as thus: "an inexorably expanding cooperative order of states observing common rules and norms, embracing liberal economic systems, forswearing territorial conquest, respecting national sovereignty, and adopting participatory and democratic systems of governance."

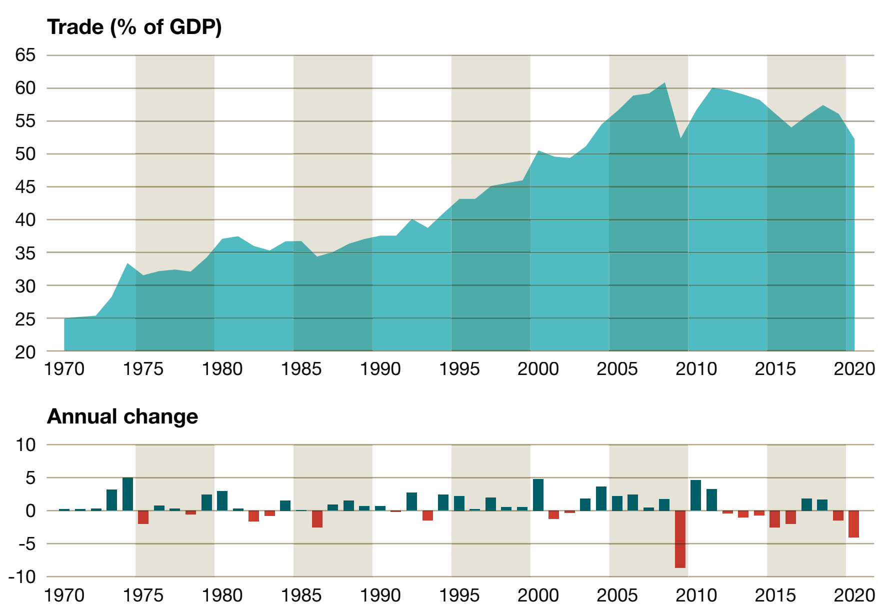
This was the first time that a consensus-based world order was created and galvanized in the history of humanity. It benefitted and prospered not only its principal architects, the United States and its democratic allies, but also the two erstwhile great empires, now under communist rule. It worked, demonstrably so, for more than seven decades, ensuring an era of relative calm and macroeconomic stability known as the Great Moderation. This era birthed the third and the fourth wave of globalization driven by advancements in telecommunications and transportation technology, and the neoliberal zeal of major and the developing economies to participate in the new world order.

Incredibly, it provided people in most parts of the world with access to goods and services that would be considered a novelty even for a Londoner in the 20th century. As John Maynard Keynes, the economist and the first vice president of World Bank, noted in his 1920 book *The Economic Consequences of Peace*: "The inhabitant of London could order by telephone, sipping his morning tea in bed, the various products of the whole Earth, in such quantity as he might see fit, and reasonably expect their early delivery upon his doorstep."

This was made possible during an era of unprecedented growth, which raised international trade to a record level of 60% (Figure 2). A globalized market reduces costs, provides access to better resources, commodities and creates

FIGURE 2

World trade to GDP ratio



Source: World Bank, MacroTrends

optimized supply chain networks all of which result in incremental cost-efficiencies.

The great unraveling

Again, nothing lasts forever. The first signs of cracks in The Great Moderation appeared nearly six years ago, with the imposition of new tariffs on China. But the underlying trigger had been building up for over a decade.

The gravity defying export growth of China since the early 1990s post-reforms era, particularly after its entry into the WTO in 2001, not only displaced the United States as the top manufacturer in terms of output but it also began to reconfigure the global supply chain. China's newly acquired global leadership did not particularly challenge the wealthy democracies in the West, the flagbearers of the world order, as long as it satiated their markets' hunger for faster, cheaper and better products. It helped reduce, for example, the price index for consumer goods in the United States by 7.6% between 2001 and 2006. What prompted a pushback, however, was what the economists call the "China trade shock." Its meteoric rise had begun affecting the employment rates and wage equality in the non-farm sectors high-income countries.

To add to their consternation, China's revivification of the Silk Road Belt and Road Initiative, a network of railroad, ports and infrastructure projects stretching from China to Europe to Africa, looked more like a projection of its geopolitical ambitions than an effort to raise the still relatively low living standards of its people.

As a result of the tariff wars, the multinational manufacturing base, including American brands like Cummins, iRobot and Crocs Shoes, moved supply chains out of China. The country's factory output plunged to a record low in 2019, when it witnessed the slowest GDP growth of the post-reform period. Then, the pandemic turned the tide. A world in dire need of medicines and essentials, and the monetary expansion unleashed by Western economies in response to COVID-19, caused China to boost its exports by double digits during most of 2020 and 2021. The growth momentum is showing signs of a slowdown largely due to its stringent zero-COVID policy, but China's runaway growth despite its playing fast and loose with guiding principles of the current world order like transparency and human rights underscore the deep structural flaws of the system.

A world in disorder

Events that cause widespread suffering are known to shift people's support toward reactionary political ideologies. The 1918 influenza pandemic may have increased support for extreme right-wing politics in Germany. The COVID-19 pandemic seems to have rekindled the revanchist tendencies among the major powers. It cannot be a coincidence that Russia's territorial claim over Ukraine or China's over Taiwan have come to a boil in the aftermath of a catastrophic event that exposed the scant attention that authoritarian regimes pay to their healthcare and public welfare mechanisms.

Barely two weeks before Russia's declaration of war on Ukraine, Chinese President Xi Jinping and Russian President Vladimir Putin issued a joint declaration for a new era that was at odds with the current world order on key matters of human rights, Taiwan's sovereignty and as curiously, a world where the United States had no leading role to play. Foreign Affairs magazine called the declaration "a shot across the bow of a sinking American ship."

These events signify a world order that, to put it mildly, stands at a crossroads. In the wake of these developments, the world's major economies have started to align, realign and revive arrangements that protect their interests in a changing world, and which will have an impact on global supply chain management.

We have the Quad, a non-formal alliance between the United States, Australia, India and Japan, that has become more aligned in response to China's recent assertions. Then there is I2U2, a new quadrilateral grouping comprising India, Israel, the United Arab Emirates and the United States. In May of 2022, President Biden launched the Indo-Pacific Economic Framework (IPEF) which includes Australia, Brunei, Fiji, India, Indonesia, Japan, South Korea, Singapore, Thailand, Vietnam and other countries from the region, with an aim to boost economic cooperation.

Clearly, these new alignments, conspicuous in their exclusion of Russia and China, have been formed or revived in response to the rising geopolitical polarization. For its part, China put its weight behind the Regional Comprehensive Economic Partnership (RCEP), a 10-member Association of Southeast Asian Nations (ASEAN), that excludes the United States.

Russia's Ukraine invasion has met unequivocal condemnation in the West. Globally, it has fewer allies now than it had at the start of the war, except the outlaw states of Iran, Syria, Serbia and North Korea. Traditional allies like China, India and Brazil have shifted positions with mounting evidence of war crimes and decisive setbacks like Russia's retreat from Kherson. Yet, Russia's economic engagements have strengthened with countries in Asia and the Middle East.

Among the most concerning developments that signal the current world order's deepening crisis are the strategic visions unveiled this year by the two major nations that outline each power's idea of the shape of global order.

The United States' National Security Strategy, released in last October, imposed stringent restrictions on the transfer of semiconductor technology to China, aiming to contain the latter's ability to develop any significant technology advantage in areas like artificial intelligence and robotics. This was the biggest measure yet by the United States against China's tech industry. The Financial Times editor Edward Luce took note of the real import of the measure, writing "Imagine that a superpower declared war on a great power, and nobody noticed."

Presiden Xi Jinping put forward the Chinese vision of global security called the Global Security Initiation (GSI) at the Boao Forum in April of 2022. One of the mainstays of GSI is the principle of "indivisible security," which states that the security of any state is inseparable from others in its region. The concept was a product of the Cold War détente in the 1970s where it was used to ease east-west relations. But the idea gained notoriety this year when Putin used the idea to justify its campaign in Ukraine.

The most important thing to note in the context of the international order is that, for the first time, China and Russia presented their visions of the world, which places a high value on security, but leaves out of the equation a respect for human rights and the non-use of force.

The international order is presented with three distinct courses from here. One led by America, its allies and other democratic, liberal forces. The second, led by China, its allies and strategic partners that see and treat economic interests and political rights as two mutually exclusive entities. And the third, a world constantly at war with itself, caught between competing forces—much like the Cold War era.

Implications for supply chains

While it is too early to tell which of those three courses will prevail in the emerging new world order, they will affect global supply chains, and the professionals who manage them.

In fact, we are already paying a heavy price for political instability and volatility. The cost in human life is heavy: In addition to the millions who died during the pandemic, more than 200,000 people, including soldiers and civilians, are estimated to have been killed or wounded so far in the Ukraine war, with no end in sight. Beyond the human toll, the war has driven up the price of food and energy for a world already reeling under inflation, with both Russia and Ukraine among the world's biggest exporters of oil, fertilizer and food. China's bid to strongarm a wily pathogen continues to slow down the manufacturing of automobiles and consumer electronics.

That the international order in disarray should come as no surprise. What should surprise us, though, is the inability of the world's biggest economic powers to contain not only the economic shocks, but also the rising populist, authoritarian and protectionist tendencies across the world. IMF and Moody's predict an even gloomier outlook than previously estimated.

One result is that single-string global supply chains, built over five decades to make products faster, cheaper and better, are history. In the new world order, countries will align more on the basis of political interests. That, in turn, means that both public and private trade flows will be driven by geopolitical interests.

Two, is that governments and corporations need to move from single, bottom-line thinking, one sharply focused on profit, to triple bottom line thinking. British author John Elkington came up with the term triple bottom line (TBL) in the mid-90s to urge leaders to rethink capitalism. The TBL strategy entails considering three distinct bottom lines focused on profit, people and planet. It involves tracking and managing the value added to—or taken away from—corporations, people's lives and the environment.

Using the same paradigm for our supply chains, a TBL approach means adopting agility, resiliency and sustainability as key deliverables alongside the market-driven practices of cost and speed. Talk to any senior-level supply chain executive at one of the world's leading companies, and you are already like to hear that TBL strategies are being implemented in their organizations, even if that language is not explicitly used.

Three, supply chain planners will need to realize that geopolitical developments provide a sound barometer of risks affecting the global supply chain. Typically, people managing supply chains are so focused on managing the physical flow of goods, assuring compliances and dealing with one supply chain disruption after another, that they don't take into account the larger human factors like political motivation of the stakeholders. Supply chain executives will need to monitor the political landscape for alarming trends and events like a rise in populism or authoritarianism, corrupt practices, exploitation of natural resources, human rights abuses or an autocrat's extra-constitutional bid to extend his term.

Hopefully, with newer business-intelligence technologies, supply-chain planning systems will have the ability to analyze reliable data coming in from all sources including social, economic, political, and environmental. This will only prove to be effective when economic powers want to engage more deeply with trade partners. One way to do this would be to ensure that Free Trade Agreements clearly spell out guidelines for an adherence to fair trade practices, while working with partners who share these values. This will help create robust multiple-strand supply chain networks that would be more agile and responsive to future shocks.

Four, we must recognize that despite the political rhetoric, globalization will not stop. Economies will still compete, and to do so they will need incremental efficiencies and savings that are only possible through globalization. Organizations, however, will seek to make the supply chains conflict-free and this could be done by building in decoupling points. Used widely for inventory management, decoupling points act as both inventory-holding points and safety buffers in a distribution network. The concept can also be applied at the level of global supply chain management, where decoupling points can be used to connect different regionalized, customer-centric supply chain networks. In the event of a crisis, a decoupling can quickly redirect production and sourcing to other hubs, making sure that operations in other parts of the supply chain continue undisrupted.

Finally, Western nations, their allies and strategic partners need to ensure that they don't permanently alienate the powers on the other side of the fence, who feel constrained by the current world order. The West cannot ignore the growing aspirations of two-thirds of the world's population that has become a thriving part of the global economic landscape. They will have to see that trade relationships are not driven by raw emotions, but by respect and trust for people and environment.

Finally, a seat at the table. Now, what?

With supply chain's new influence, there's an opportunity to create persistent advantage through organizational velocity.

BY ALAN AMLING

The global pandemic drove unprecedented change in company supply chains and business models. Consider that ship-from-store was a nascent solution in 2019. Yet during the 2020 holiday season, the number of retailers using their stores as fulfillment centers grew by 80%. By 2022, brick-and-mortar retailers such as Walmart, Target, The Gap and American Eagle Outfitters had turned their internal logistics capabilities into third-party services.

Alan Amling is a Distinguished Fellow at the University of Tennessee Supply Chain Institute, and CEO of advisory firm Thrive and Advance, LLC. This article is adapted from "Organizational Velocity: Turbocharge Your Business to Stay Ahead of the Curve." He can be reached at aamling@utk.edu.

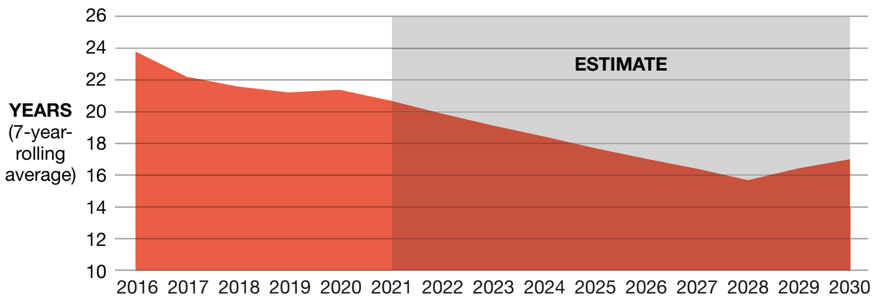
An immediate challenge to their survival drove the ship-from-store change. Many retailers had to close their doors. At the same time, their parcel carriers were limiting capacity and raising prices. Retailers had to adapt, and most did. Ship-from-store was one of many business model changes that will not subside as the pandemic fades.

Kodak that has succumbed to the forces of disruption, organizations like Microsoft and Fujifilm (see sidebar) are thriving, creating new capabilities and revenue streams, and becoming self-renewing firms built for the long haul. So what separates the gainers from decliners in the digital economy?

FIGURE 1

Corporate longevity is declining

Average company lifespan of S&P 500 companies



Source: Innosight, Statistics estimates

Adapting to changes in business environments has always been crucial to the survival of organizations. As Peter Drucker said, "The relevant question is not simply what should we do tomorrow, but rather what shall we do today to get ready for tomorrow." But how do you drive change in your organization when you don't have to? When the threat is years away, and the impact is uncertain. While most companies typically see the storm clouds of disruption on the horizon, their track record of being able to change in advance of trouble is getting worse.

Consider that the projected lifespan of Fortune 500 companies has fallen steadily since the late 1970s. Over the last decade, the average company tenure on the list was cut in half to 15 years to 20 years. In the next five years, it is projected to fall even further (see Figure 1). So, is this trend the inevitable fate of your company?

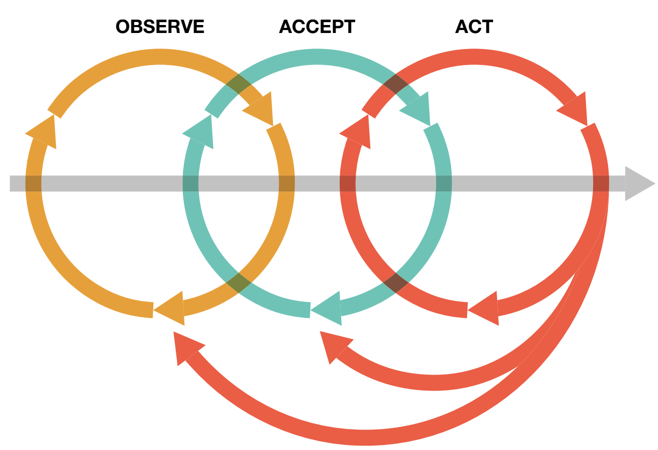
The emerging answer is "no." Organizations can live indefinitely by adapting to changes in their environment. While this sounds easy, it's not. If it was, incumbent companies with solid balance sheets, significant resources and established customers should be extending their reign, not ceding it to more nimble upstarts.

To be sure, for every Sun Microsystems and

This question was explored in interviews with corporate, startup and military leaders over five years. The learning from those interviews revealed a fundamental insight—rapid learning is the antidote to rapid change. As a result, top-performing organizations operated with organizational velocity (OV), a rapid learning paradigm of iterative observe, accept and act cycles shown in Figure 2.

FIGURE 2

Forward, always



Every cycle moves the firm forward

Source: Author

Observe. Use technology to cast a wide net capturing signals from the external environment. Observations can be reactive or proactive in the form of think tanks or experiments.

Accept. Use technology to help separate the signals from the noise based on your doctrine (e.g., mission, values, goals). Determine what signals should be acted upon and with what level of resources and urgency.

Act. Learning events to test your hypothesis. These learnings move into commercialization or get funneled back into the iterative learning cycle. Any pilots must begin with the intent to commercialize and involve the leaders who will have to execute—otherwise, the "not built here" syndrome will likely emerge. You can outsource innovation, not responsibility.

While many organizations have established systems to observe emerging threats and opportunities, the next stage of deciding what to do with that information is more problematic—accepting runs headfirst into large companies' structures and systems to control their "bigness" (a.k.a. bureaucracy). This friction throws sand in the OV gears.

Another insight is that these structures and systems are a choice, not a circumstance. Likewise, how an organization interprets and acts on changes in its environment is a choice.

The foundations of organizational velocity

While organizational velocity is simple, it is not easy. Like other simple changes that are not easy (i.e., losing weight, getting in shape), it's a discipline, a way of life. Organizational friction is also challenging to unwind, even when the issues creating the change have long since dissipated. Fortunately, research points to several foundational aspects that enable OV to thrive.

- A forever company mindset;
- extreme trust; and
- NextGen leaders.

Forever company mindset. A forever company is a mindset—an attitude—that drives decisions enabling the company to maintain its capacity for independent action into the future. This takes courage considering decisions impacting short-term profitability may not fully pay off until the leader is on to another position or retired. Forever company leaders are harvesting and growing simultaneously, in good times and bad, embracing focused failure that drives better decision-making.

These leaders create an empowering narrative that connects individuals' daily work to the organization's larger purpose. In this age of "quiet quitting," it's understood that what employees do when nobody is looking determines the organization's success. Your mission statement must grab your employees' hearts, guts and minds.For instance, Patagonia says: "We're in business to save our planet." Their employees buy into that mission statement. Patagonia is not just where its employees work; it's who they are. They're not "quiet quitting."

Finally, forever companies accept what their environmental observations are telling them. When they don't, trouble follows. For instance, Marriott and Hilton surely had heard about Airbnb in 2008. As late as 2015, Chris Nasetta, the CEO of Hilton Worldwide, stated, "I do not believe—strongly do not believe—they (Airbnb) are a major threat to the core value proposition we have." Today Hilton still has a viable business, but Airbnb had 247 million guest arrivals in 2019 and a market value of more than Hilton and Marriott combined. Not a threat? In 2019 Marriott finally accepted what the market had been telling them and launched a home rental business.

Extreme trust. Many organizations would say they have a culture of trust. But it's a rare executive who would admit: "We're not good at trusting each other." Processes that favor control over autonomy are one manifestation of mistrust, but examples come in many forms. Trust (or lack thereof) is revealed in how open and honest executives are in meetings, how much spending authority is granted and how firms utilize consultants, to name a few.

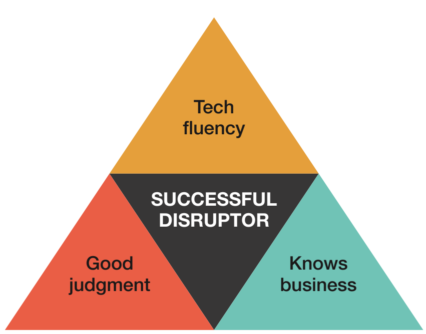
Without trust, employees experience more stress, higher burnout and less energy at work. *Harvard Business Review* compared people at low-trust companies with people at high-trust companies. Not surprisingly, at high-trust companies, there is 74% less stress, 106% more energy at work, 50% higher productivity, 13% fewer sick days, 76% more engagement, 29% more satisfaction with their lives and 40% less burnout.

Trust is invisible; there is no line item on a balance sheet. But its presence, or absence, is felt. How organizations observe, accept and act on threats and opportunities (the very definition of organizational velocity) is essentially a function of trust.

NextGen leaders. Companies don't make poor decisions; people do. The decision to do the same thing repeatedly originates from intelligent people who have made so many good decisions that they have lost their ability to be humble. They don't think to ask, "Has this good decision gone bad?" Executives tend to stick with what has worked, and their worldview is rarely challenged. Ironically, senior leaders who are not reflective enough to ask hard questions, take risks and court failures can come across as confident and visionary. While these characteristics can lead to short-term success, NextGen Leaders seek diverse inputs to inform their decision-making.

NextGen leaders must also possess good judgment, deep industry knowledge, and technology fluency, known as the Disrupter Trifecta (see Figure 3). Fortunately for most senior leaders, the first two are slam dunks. Unfortunately, "tech fluency" is often missing and designated to a "tech team." As a result, leaders are blinded to digitally enabled alternatives leading to a death march of sub-optimal decisions. More bluntly, many executives who should be directing their firms through digital transformations do not have the tech fluency to see what's possible. Moreover, a 2021 research study analyzing more than 1,300 large enterprises with "digitally savvy" executive teams found they "outperformed comparable companies without such teams by more than 48% based on revenue growth and valuation."

FIGURE 3
The disruptor trifecta



Source: Author

The concept of tech fluency is not about senior executives knowing how to code machine learning algorithms. However, an understanding of emerging technologies at an operational level is essential. A good test might be whether an executive can teach a group of non-technology professionals what these new technologies are, why they are crucial and how they change what is possible.

Creating persistent advantage

Most corporations are set up to plan and act, not sense and respond. They play defense, building sustainable competitive advantage and "creating moats" around their offerings through cost leadership or differentiation. Today, however, competing firms can cross those moats with increasing ease. There is no sustainable advantage, only persistent advantage, which is cyclical, ongoing and demands that leaders act amidst uncertainty. It's not failing fast but learning fast—and adapting.

Every organization can take three immediate actions to create a persistent advantage.

1. Go on offense;
2. uncover and eliminate double-talk; and
3. create optionality now

Go on offense. Creating the "new" versus improving the "old" requires a different mindset. David Kidder, CEO of the strategy firm Bionic, said: "When you're going to the unknowable, you're going from planning to discovery. You don't plan the future; you discover growth in the future." So are you playing to win or not to lose (which is the surest way to lose)?

At the end of World War II, the United States captured several German generals, and some of the U.S. military's current strategy can be traced to interviews with those generals. One of them was Hermann Balck, who led the 11th Panzer Division. Balck was known for nearly wiping out the Soviet Fifth Tank Army in a few weeks, even though he was outnumbered 11:1 in infantry and 7:1 in tanks. When asked how he succeeded, he said, "Go on offense. We never relented. We attack, attack, attack, attack, attack."

The decision to go on offense starts at the top. Typically, this is a CEO, but it could be any executive with the authority to allow the chaos of change to happen. Decision-making boundaries along with compensation, hiring and promotion criteria must be re-set. In the end, an OV philosophy must have board support. Without these changes, organizational velocity will quickly become innovation theatre.

Uncover and eliminate double-talk. Double-talk is typically unintentional. For example, it's popular for leaders to espouse that they are a data-driven organization. However, that may not be the experience of a frontline manager who needs specific information to do their job and finds that access to data is siloed and permission-based. If you are going to restrict decision-making information from employees, say so. Otherwise, you undermine trust and credibility.

Another popular theme among executives is "fail fast." Yet, all too often, that theme is rhetoric, not reality. In dozens of interviews with large-company executives, it was more common to hear about long "corporate memories" of failures than using the learning from a failure to propel the next iteration. Yet, there were notable exceptions, such as the senior vice president from Shaw Industries who, after hearing their supply chain leader detail a failed initiative, replied: "We've paid the tuition, now what did we learn." That's what an OV leader sounds like.

Create optionality now. Persistent advantage is built on optionality. Based on the firm's observations of the external environment, decide what's potentially material to your business and create options that allow the organization to pivot quickly.

Running pilot programs or tapping into employee expertise through exercises like Design Thinking can create critical knowledge capital. These learnings then drive the development of new options in employee capability-building, collaborative relationships, advanced technology solutions and supplier/customer diversification, to name a few.

The more options a company has, the better suited it is to deal with unpredictability, if not uncertainty. Leaders can remain calm when others panic because they have choices. Nothing feels more stifling than facing limited and stark decisions based on dramatic shifts in the market or economy. In the Old Testament, Ecclesiastes 11:2 states, "Invest in seven ventures, yes in eight; you do not know what disaster may come upon the land." Eight ventures mean optionality, which also allows leaders to capitalize on change.

Push decision-making closer to the customer.

"People want guidance, not rhetoric. They need to know what the plan of action is and how it will be implemented. They want to be given responsibility to help solve the problem and the authority to act on it."
~Howard Schultz, Starbucks

Organizational velocity at its best is coordinated action—with significant autonomy and responsibility pushed to the edges of the organization. The trick is understanding what needs to be controlled and what does not. Efficiency is essential but not sufficient. Companies in an exploration phase 24x7x365 require talented individuals to be able to act with freedom but within boundaries. Spending authorities are a critical leverage point. The less authority to spend, the more suffocating the environment will be. The greater it is, the more the company is exposed to rogue employees. Deciding where to draw that line is one of the most critical decisions the senior management team will make. Wherever the line is drawn, it must be at a place that gives those at the edges freedom to explore and take some calculated risks.

Understand that the troops take their queue on how to behave by observing what their leaders do, not just what they say. Your reaction to a bold suggestion by a subordinate in a meeting or to an innovative project that did not go as planned will speak volumes. Give your employees the permission and guidance to find new ways to deliver value.

Former Lieutenant General Garrett Burke described how his role changed from chess master to gardener over his career: "…the chess master is reaching onto the chessboard and reaching all the way down and moving every piece—deeply involved in the movement of every piece on the chessboard. Today that will never work…the real role of a leader now is to create a garden in which many leaders can flourish. And you have to water that garden, fertilize that garden. And what that means is you've got to give them resources. You've got to give them focus, guidance, and direction, but at the end of the day, they will run the organization of whatever piece of the organization they own. And that's a big shift in terms of the role of a leader."

Fujifilm thriving?

Few business transformations were more unforeseen than that of Fujifilm. Many still think of Fujifilm as the green-and-white miniature boxes of 35 MM film that sit next to Kodak's gold boxes at the local pharmacy. But Fujifilm is no Kodak. Fujifilm took an alternative journey to that of Kodak's descent into oblivion. As the core photographic film market gave way to digital photography, Fujifilm refused to "stick to its core," the mantra of most legacy executives during times of societal and economic upheaval. As the film business shrank, Fujifilm started or grew other businesses, including medical systems, pharmaceuticals, regenerative medicine, life sciences, cosmetics, flat panel display (FPD) materials, industrial products, electronic materials, recording media, and graphic systems.

The outlier seemed to be cosmetics. Interestingly, color photographic film is about the same thickness as human hair. To manufacture film that retains moisture and maintains its shape requires collagen. Consequently, Fujifilm, whose core competencies included chemical engineering, understood how to manufacture and control various types of collagens. This capability was also required in the manufacturing of skincare products. As a result, Fujifilm's leadership took stock of the resources at its disposal and built new products with existing "components" or competencies that made life better for consumers.

Fast forward to November 2022, and Kodak's market capitalization is about 25% of its value in January 2014. Meanwhile Fujifilm's diversification strategy continues to pay dividends. In just the last 10 years, Fujifilm's market value has grown by more than $18 billion.

Supply chain leaders are business leaders. A historical complaint among supply chain leaders has been senior management's lack of supply chain knowledge and, therefore, appreciation. But, of course, the pandemic changed all that. As a result, the supply chain has become a front-and-center function in most organizations, and supply chain leaders now have a seat at the table. In addition, organizations are increasingly calling on supply chain leaders to help transform the overall business as new technologies, business models and environmental uncertainties chip away at their value propositions. In "creating the new," an OV mindset can be a difference-maker.

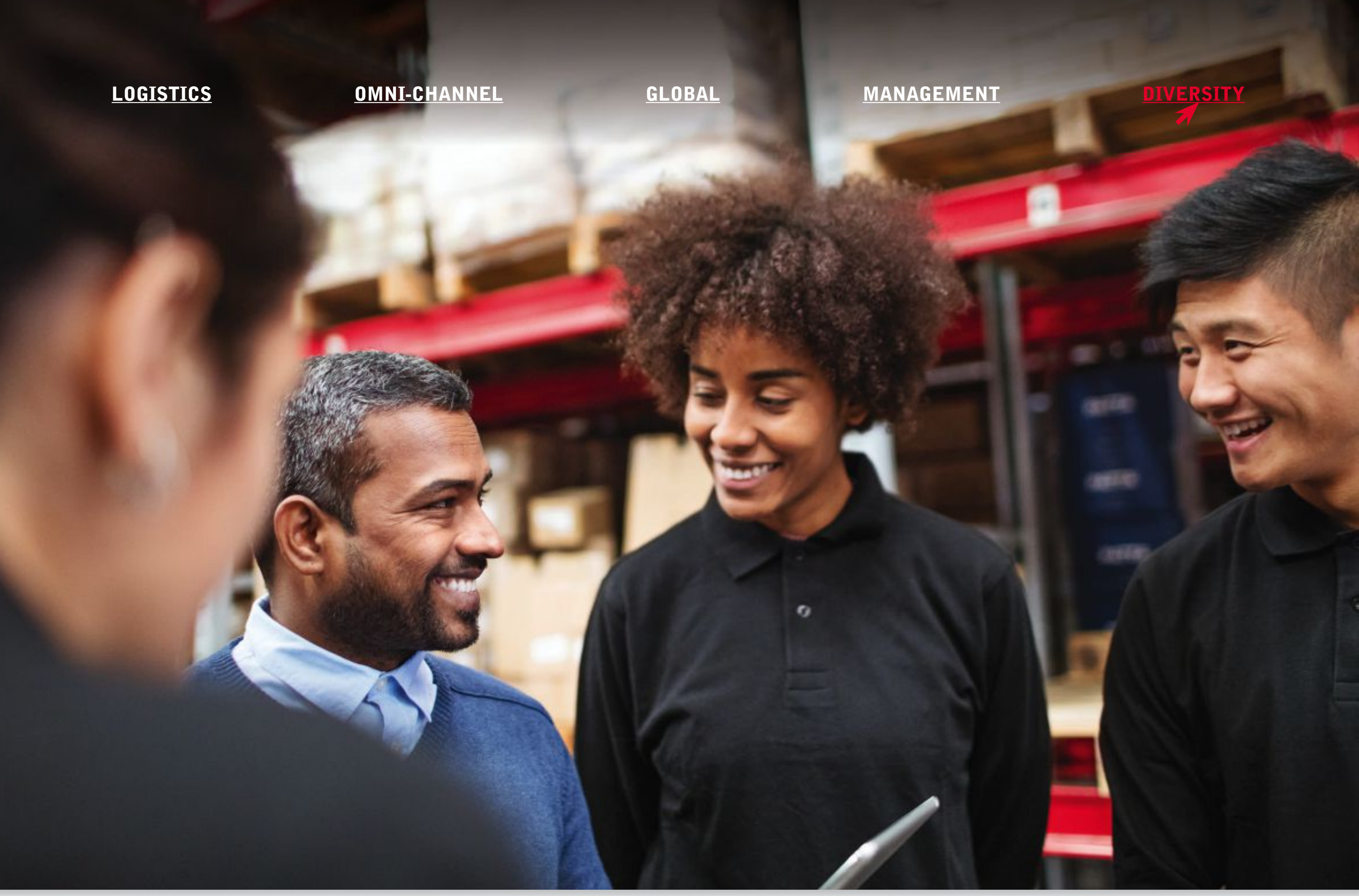
Significant challenges invite bold solutions, and the supply chain industry is flush with challenges. Supply chain leaders must not only contend with day-to-day difficulties but also prepare for challenges, both known and unknown such as:

- environmental regulations and customer demands;
- labor shortages;
- increasing e-commerce/omni-channel;
- global recession impacts;
- geo-political disruptions; and
- competing technologies and business models.

Status quo thinking is not going to win the day. Companies are crossing industry boundaries and expanding up and down the supply chain to achieve higher profits and a better customer experience. For example, ocean carrier Maersk invested in last-mile ground capabilities, and Walmart started its third-party delivery service, GoLocal. More rapid change is on the horizon. Remember when drones and both electric and autonomous trucks seemed far-fetched? Not anymore.

Additionally, many logistics companies didn't consider gig delivery companies like DoorDash a threat. Today, however, DoorDash delivers parcels for Walgreens, CVS, Walmart, Macy's, PetSmart, Shoe Carnival, PacSun and many more. Consequently, DoorDash's market value now exceeds industry stalwarts such as JB Hunt, CH Robinson, XPO Logistics and Pitney Bowes.

Supply chain leaders can embrace their expanding responsibilities by leveraging the Organizational Velocity principles to respond to current disruptions and prepare their organizations with options and capabilities to pivot to new sources of growth in the future.



THE GARTNER/ASCM SUPPLY CHAIN DIVERSITY, EQUITY & INCLUSION SURVEY

The survey showed the strongest intent yet among CSCOs to support diversity, equity and inclusion, particularly for women and underrepresented races and ethnicities.

BY DANA STIFFLER AND ABE ESHKENAZI

Dana Stiffler is a vice president and distinguished analyst in the Supply Chain Research & Advisory group at Gartner. Abe Eshkenazi is the CEO of the Association for Supply Chain Management. They can be reached at dana.stiffler@gartner.com and aeshkenazi@ascm.org.

With a war raging in Ukraine, persistent people and supply shortage, relentless disruptions, high interest rates and the threat of a recession, no one would blame chief supply chain officers in 2022 if they put a temporary hold on their diversity, equity and inclusion (DEI) efforts.

Instead, the results of the second annual Gartner/Association for Supply Chain Management DEI report, released last May, showed the strongest intent yet among supply chain organizations to support DEI, particularly for women and underrepresented races and ethnicities. Beyond the intent, new data cements previous findings that specific conditions and practices lead to superior pipelines and reported progress against DEI agendas.

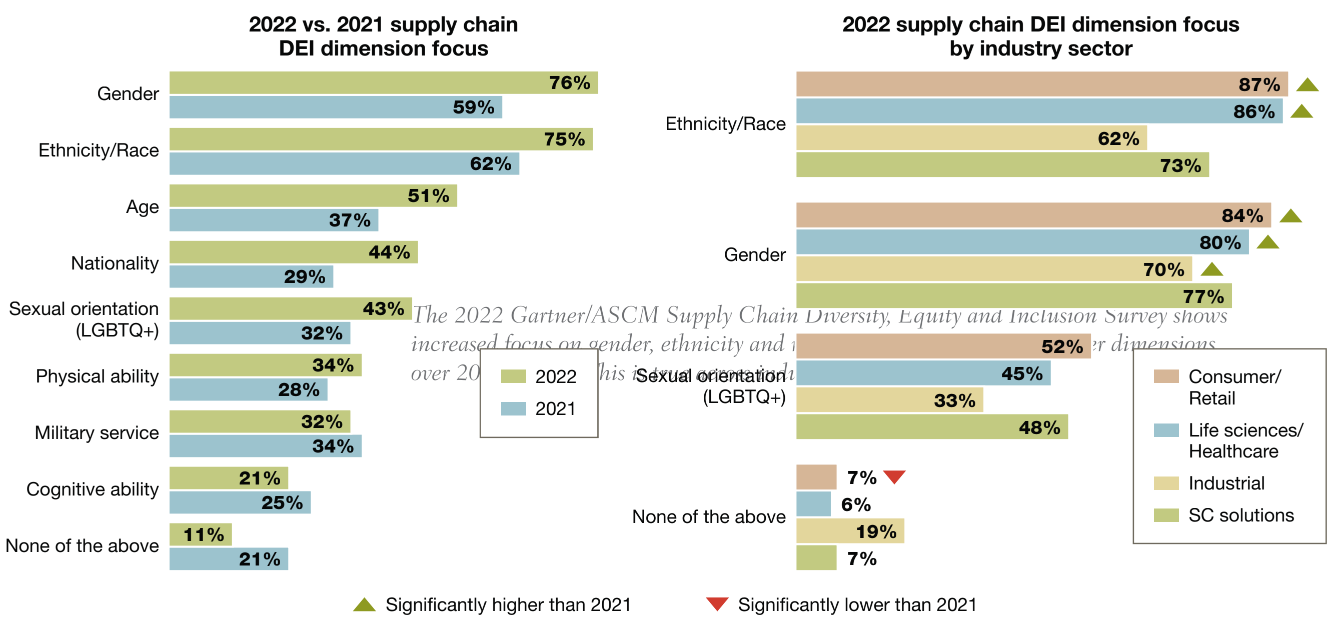
We also see a chasm widening between global, publicly held companies and the rest in terms of commitment and results. With no letup in sight for a fiercely competitive talent landscape, supply chain leaders must deliver an equitable, inclusive employee experience. Otherwise, they may fail to secure the talent necessary to ensure that lines run, orders ship, and global supply chains run sustainably and profitably.

Given the tremendous pressures on global supply chains and our prediction that leaders would revert to old comfort zones, relationships and crisis-based HR hiring and promotion practices, we were surprised to see that focus across various dimensions of diversity increased. Compared to 2021, a significantly higher percentage of organizations across sectors, company types and regions reported a formal focus on diversity dimensions (see Figure 1). Today, more than 75% of supply chain organizations consider gender and ethnicity/race in their DEI strategies and objectives (up from 59% and 62%, respectively).

There has been a significant increase in companies focusing on many dimensions since 2021. While the most visible increases were in gender, race and ethnicity, physical ability and less visible dimensions like age, nationality and sexual orientation also grew in importance. We also saw a significant decrease in those that focused on no DEI dimensions: only 11% in 2022 versus 21% last year. Across our four industry sectors (shown in Figure 1), all increased their focus on ethnicity and race, gender and sexual orientation. Notably, industrial

FIGURE 1

Supply chain focus on DEI increases in 2022



Source: 2022 Gartner/ASCM Supply Chain Diversity, Equity and Inclusion

The 2022 Gartner/ASCM Supply Chain DEI Survey shows that representation of people of color at different levels in supply chain organizations is stronger at global organizations with revenue over $5B, compared to supply chain organizations in large, midsize and small companies.

supply chain organizations significantly increased their focus on ethnicity/race and gender compared with 2021.

These increased levels of commitment to DEI make sense amid the new talent landscape. At 87%, attracting, retaining and engaging employees is the top reason for supply chain organizations having goals and objectives to increase diversity. Another 59% cite reflecting and supporting local communities as a reason they have DEI goals or objectives and 55% seek to improve business performance.

Across the sample, we saw slight progress on average, specifically when looking at representation of people of color in supply chain. The percentage of full-time employees that are people of color in supply chain has edged up slightly from 30% to 32% in the past year. We defined "people of color" as being Asian, Black/African/Afro-Caribbean, Hispanic/Latinx, Native American/First Nations, Pacific Islander, Middle Eastern and any other indigenous person, which are all underrepresented groups in Europe, the United States and Canada.

To determine the relative strength of pipelines, we use local demographic data. In the United States, 42% of the population is Black, indigenous or people of color. In Canada, people of color are 22.3% of the total population and are expected to comprise about one-third by 2036. In the UK overall, 12.8% residents are people of color; in England and Wales 20%. New 2021 census data will likely show significant increases. A few datapoints from around continental Europe—many countries explicitly ban collection, or do not track such data or close proxies—would show approximately 11% in the Netherlands, and 9% in Italy.

The 2022 data, compared to our 2021 data, shows that the total supply chain workforce is now less diverse on average than the U.S. population (which made up a majority of the respondents for this survey). There were, however, a few areas of progress. For example, we see people of color now make up 20% of manager or supervisor positions, up from 17% in 2021, the most important foundational role for building inclusive and diverse leadership pipelines through to top levels.

In addition to increased focus on multiple dimensions and growing pipelines, we also track DEI goals, and whether they are specific and accountable. We saw slightly higher formal commitments and slightly lower propensity to say that the supply chain organization had no formal objectives compared to 2021. This pattern repeated across sector, company size and public versus private companies, with significant jumps in the DEI commitments of life sciences and industrial respondents, and medium ($100 million to $1 billion) and large ($1 billion to $5 billion) companies.

While three-quarters of supply chain organizations report that they focus on some dimension of diversity, only 40% are working on specific DEI projects or initiatives. Other Gartner research highlights this same gap between the Gartner Supply Chain Top 25 and supply chain organizations of average performance and maturity.

Transparency + accountability + leadership = progress

What jumped out immediately from the 2022 data was the difference between the largest, publicly held companies' level of commitment, activity, progress, pay equity and representation compared to smaller and privately held companies. Well, of course, you might say: Global companies hire more employees across more places, giving them a greater chance of building inclusive and diverse teams. Public companies face more scrutiny from investors, regulators, employees, potential employees and other stakeholders. Their high stakes are visible at scale, and if they don't keep their people strategies relevant, potential risks and losses are enormous. We are seeing this every day in the struggle to reliably operate global supply chains in the face of talent shortages and the reset of labor markets.

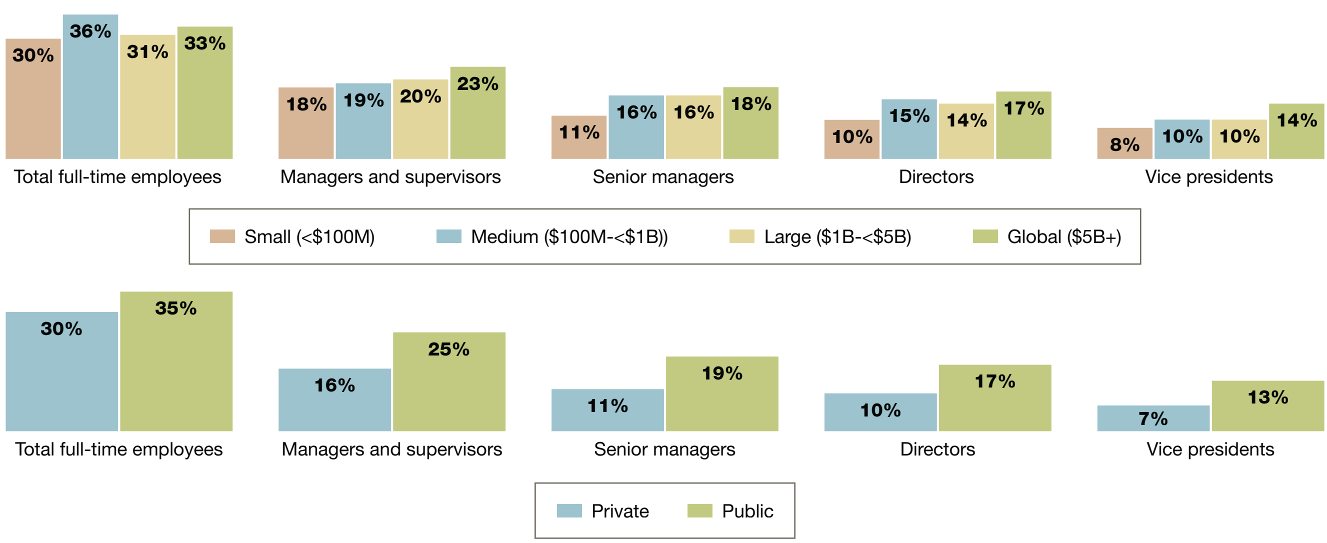
We could see immediately the larger, global supply chain organizations' and publicly held firms' propensity to report progress on diversity, equity and inclusion, their stronger pipelines for people of color (see Figure 2) and more equitable pay for women and underrepresented races and ethnicities.

DEI maturity gaps between supply chain organizations at public and private enterprises show up in pay, too. A parallel survey conducted by ASCM shows that supply chain salaries across the board are higher this year and gender and race/ethnicity pay gaps continue to narrow. However, the most stubborn gap over time appears to be between employees at public companies and private ones. Publicly held organizations show higher pay for all supply chain professionals, and a marked difference for people of color, who earn on average 25% more at public firms compared to private ones. The pay gap is narrower between different racial and ethnic groups for publicly held organizations

FIGURE 2

People of color in supply chain organizations

Percentage of employees

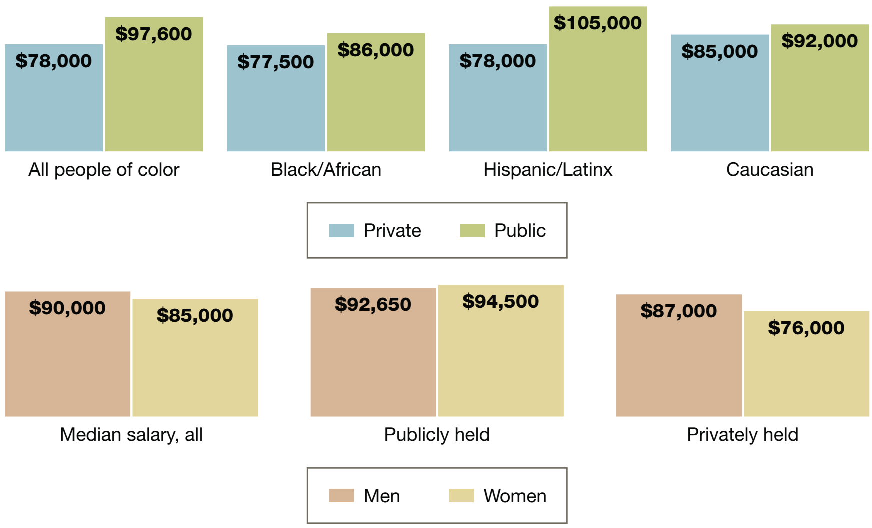


Source: 2022 Gartner/ASCM Supply Chain Diversity, Equity and Inclusion

The 2022 Gartner/ASCM Supply Chain DEI Survey shows that representation of people of color at different levels in supply chain organizations is stronger at global organizations with revenue over $5B, compared to supply chain organizations in large, midsize and small companies.

FIGURE 3

Supply chain organizations at public companies pay better, have smaller pay equity gaps



Source: 2022 Gartner/ASCM Supply Chain Diversity, Equity and Inclusion

The 2022 ASCM Annual Supply Chain Salary Survey shows higher pay at public enterprises than private ones for people of color generally, and for Black and Hispanic employees specifically. The pay gap between Caucasian employees and people of color is smaller at public enterprises than private ones.

(see Figure 3). We also see a gender pay gap between public and private companies. Women at supply chain organizations in privately held companies earn 13% less than their male counterparts. At public companies, women see a 2% salary premium.

Let's go into more detail: Why do publicly held companies reliably report more improvement and better DEI outcomes, like equitable compensation? It comes down to transparency, accountability, actions and leadership (Figure 4).

Our research since 2016, initially focused on women, and then over the last two years analyzing additional underrepresented groups, has exposed and reinforced these key themes and findings repeatedly. Supply chain organizations that own, lead and drive their own DEI strategies and initiatives get better results compared to supply chain organizations that rely only on corporate-led DEI strategies.

Does this mean that supply chain leaders in smaller or privately held companies should simply give up? Absolutely not. The small, mid-size and large companies who had goals, accountability and supply chain-led projects were also likely to report progress. Roughly two-thirds reported progress versus one-third who did not have these focuses. It means that supply chain organizations that are serious about attracting and retaining talent and ensuring profitability, diverse thought and innovation should ensure similar conditions to those outlined in Figure 4 that today are most prevalent in large, transparent enterprises.

Recruiting remains a top investment priority, but inclusive leadership drives DEI improvement for people of color

More than half of supply chain leaders have DEI objectives

FIGURE 4

Global, public supply chain organizations more likely to have their own DEI goals, actions and accountability

When supply chain leads DEI initiatives, roughly **three out of four** respondents report improvement

With enterprise-led DEI initiatives, only **half of respondents** report improvement

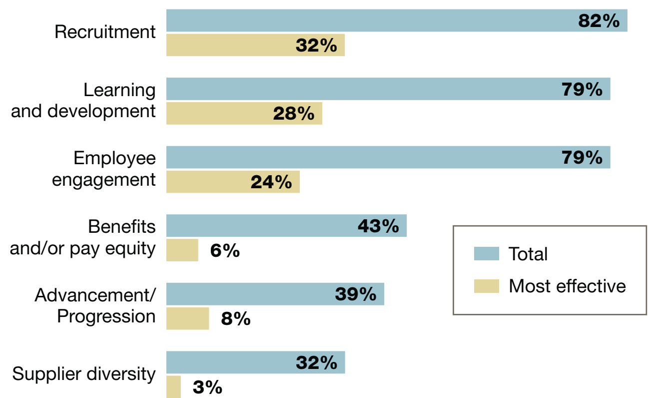
Source: 2022 Gartner/ASCM Supply Chain Diversity, Equity and Inclusion

Three key points that determine DEI success are: The presence of DEI goals, that those goals lead to specific DEI initiatives, and that supply chain leaders have accountability for reaching those goals.

or formal targets, but are their commitments translating into action? Encouragingly, the answer appears to be a resounding "yes." Our 2022 survey found that 40% of supply chain organizations now have targeted initiatives or projects to promote diversity and only 18% rely on enterprise-wide diversity initiatives. This was a slight bump from last year, which found that 36% of supply chain organizations have targeted initiatives for DEI and 20% relied on enterprise initiatives.

FIGURE 5

Recruitment, L&D and employee engagement are top DEI investment priorities



Source: 2022 Gartner/ASCM Supply Chain Diversity, Equity and Inclusion

The bar graph shows recruitment, learning and development, and employee engagement are top DEI investment areas, and also the areas where respondents were most likely to report progress. Benefits and pay equity, progression, and supplier diversity were far less likely to be targeted for investment.

But which initiatives or projects? Our clients often ask us which DEI initiatives they should invest in and what will be most impactful. The most popular are not necessarily the most impactful. In 2022, recruitment, learning and development and employee engagement are the types of initiatives/objectives most often in place in supply chain organizations (see Figure 5). Recruitment initiatives might focus on diverse interview panels or diversity referral programs, while learning and development initiatives could focus on diversity mentorship programs or inclusive leader training. Employee engagement initiatives might center around employee resource groups (ERGs) or reporting DEI metrics.

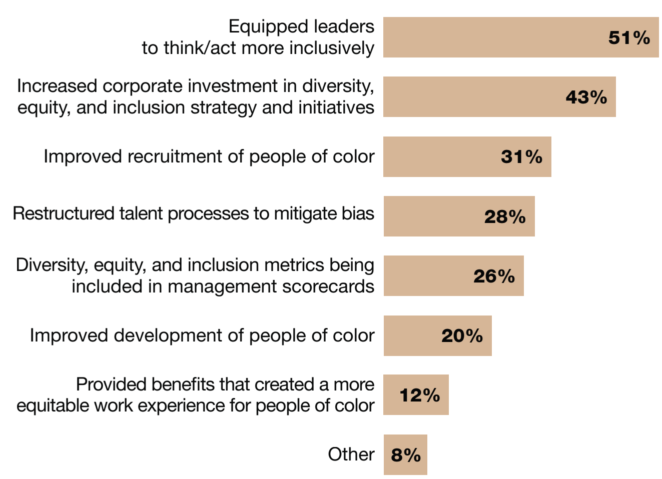
Fewer than half of supply chain organizations are implementing initiatives focused on specific benefits (e.g., elder care benefits, financial wellness programs), pay equity or advancement and progression of underrepresented groups. This may pose challenges in retention of these groups if they do not feel that they receive an equitable work experience or equitable opportunities for role progression. However, 32% of supply chain organizations feel that recruitment is the most effective initiative, followed closely by learning and development (28%) and employee engagement (24%).

We sought to understand why certain supply chain organizations are seeing progress in DEI outcomes for people of color. At 51%, equipping leaders to think and act more inclusively is the top reason organizations have seen improvement (see Figure 6). Global organizations are more likely to state increased corporate investment (61%) and metrics being included in scorecards (41%), while large organizations are more likely to cite restructured talent processes to mitigate bias (44%).

We also asked respondents who had seen no improvement in the reasons for that. The top reason given—one in three respondents—was general difficulty with recruiting. Twenty-six percent cited lack of corporate investment in DEI, 25% pointed to lack of metrics and 25% said that current talent processes—for example,

FIGURE 6

Inclusive leadership is top reason few improved DEI outcomes for people of color



Source: 2022 Gartner/ASCM Supply Chain Diversity, Equity and Inclusion

Equipping leaders to act inclusively is the top reason for better DEI outcomes for people of color, followed by increased corporate investment in DEI, improved recruitment, restructured talent processes, and DEI metrics being included on management scorecards.

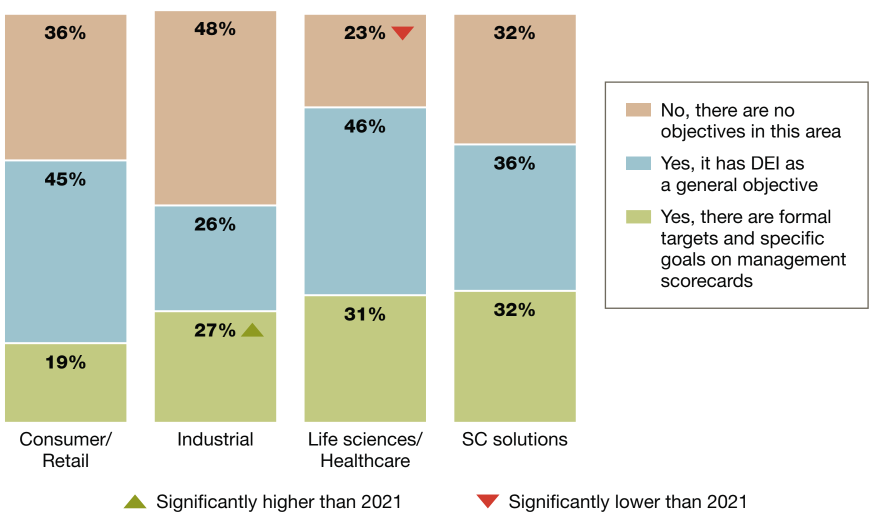
succession planning—favored majority employees over others. We also saw the (lack of) inclusive leadership show up in this list, with 22% citing it as a top reason for lack of progress.

The impact of inclusive leadership development in this research and its prominence in other Gartner projects shows it should be prioritized. Our HR research colleagues call inclusion a "competitive necessity." What might it look like in practice?

To make examples of exclusion feel authentic to current leaders, **Asda** employed actors to reenact real examples of exclusive behaviors from different parts of the organization. These scenarios were made into videos tailored to different business functions—retail, warehouse and headquarters—different scenarios and different environments. As leaders reflected on these videos, they recognized behaviors they regularly witness at work and understood how they are exclusive or unfair to others.

FIGURE 7

Life science organizations lead on DEI commitments



Source: 2022 Gartner/ASCM Supply Chain Diversity, Equity and Inclusion

Higher percentages of life science supply chain respondents show DEI goals than consumer/retail, supply chain solutions and industrial organizations.

This self-realization spurred action throughout the organization to address these behaviors and open the dialogue around these issues. Now, topics such as exclusive behavior, transparency, accountability and even mental health are discussed far more openly, and leaders are much more receptive to fostering an inclusive work environment.

Cargill has piloted three types of behavioral nudges to influence leaders in real time. Visual aids, in this case with the names of women and minorities color-coded differently, provide simple yet effective representations of where underrepresented groups are in their organization's hierarchy, talent assessments and succession lists.

Cargill also uses what it calls "promotion presumptions" in succession-planning conversations. The starting point is that leaders presume everyone is eligible for promotion. Leaders then argue why an employee is not ready, instead of pushing for an advancement. This puts all employees on equal footing, mitigating biases in advancement and succession planning. Finally, Cargill has observed success in reducing bias by requesting a few volunteers or all leaders in the discussion to act as bias champions. Bias champions ask questions to check for bias in the room if they detect it may be influencing the discussion. For example, they may ask: "Is this feedback due to a capability gap or simply a work style difference?" As a result, everyone in the talent conversation begins to recognize and acknowledge their own biases.

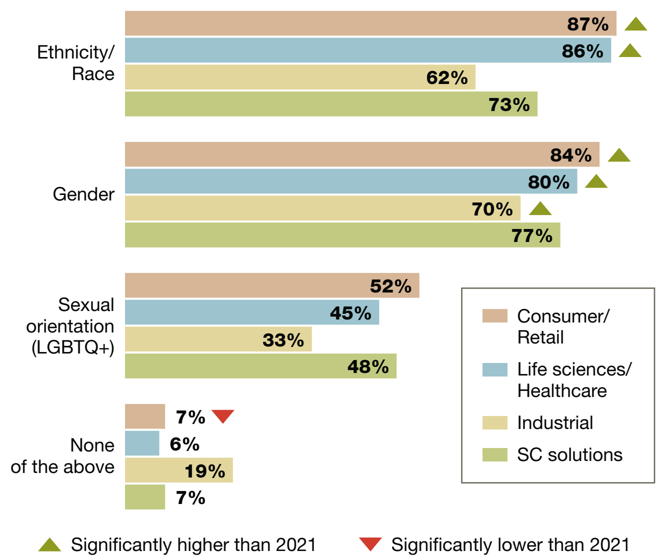
Most sectors are committed, but life science organizations lead

As we've seen, the social justice movements of 2020 and 2021 that inspired reflection and enhanced commitment from supply chain leadership to DEI are still inspiring action in 2022. But significant differences in commitments, action and outcome emerge when we look at industry segments. While 77% of life science organizations, 68% of supply chain solution providers and 64% of consumer/retail organizations have stated objectives to improve DEI, only 52% of industrial supply chain organizations can claim the same (Figure 7).

However, while industrial organizations are the most likely industry segment to lack DEI objectives or goals, a growing number of these organizations are setting formal targets and goals on management scorecards, up to 27% from 14% in 2021. One in four have now decided that while it is difficult to build talent pools and pipelines, particularly for more technical STEM roles, to be competitive, they must be more proactive and accountable. Consumer/retail sector organizations have seen improvements in general objective-setting (up to 45% from 41% in 2021), but saw a surprising decline in formal target-setting (down to 19% compared to 28% in 2021). Life science organizations have made significant advancements in their DEI commitments. In 2021, almost half (44%) had no objectives for DEI, but this number has dropped to 23% over the course of a single year. And while only one in four supply chain solution providers had formal targets or goals in management scorecards in 2021, almost one-third have them in 2022.

FIGURE 8

Life science supply chain organizations most likely to focus on top DEI dimensions



Source: 2022 Gartner/ASCM Supply Chain Diversity, Equity and Inclusion

Life science organizations are most likely to focus on dimensions of gender, race/ethnicity, and sexual orientation, and least likely to focus on no dimension of diversity, compared to consumer/retail, industrial, and supply chain solutions organizations.

What DEI dimensions are considered also varies across sectors (see Figure 8). Gender and ethnicity/race are significantly more likely to be present in life science and consumer/retail organizations. Industrial organizations are significantly more likely to have no dimensions. Even so, we see significant strengthening of focus on age, nationality and sexual orientation compared to last year's survey.

Life science organizations are more likely to have

About our research

To support CSCOs and their organizations on their DEI strategies and actions, Gartner and the Association for Supply Chain Management teamed up for a second time to field the 2022 Supply Chain Diversity, Equity & Inclusion Survey. Designed to measure and improve diversity, equity and inclusion in supply chain organizations, we focus on respondents and supply chain operations in the United States, Canada, and Europe, at companies of all sizes. Gartner's 2022 Supply Chain Diversity, Equity and Inclusion was conducted in conjunction with the Association for Supply Chain Management to capture high-level data on broad DE&I efforts (ethnic minorities, women, LGBTQ+, physical ability and others) and drill-down on ethnic and racial DE&I data and best practices in supply chain organizations.

Key learnings

CSCOs responsible for strategy, leadership and culture should know the following.

• Transparency, accountability and supply chain leadership of DEI results in progress. A higher proportion of the largest global, publicly held supply chain organizations meet these conditions, and report superior pipelines and progress.

• Inclusive leadership development is underutilized relative to other types of DEI initiatives.

• Life science/healthcare supply chain organizations lead in DEI commitment and results comparisons across sectors.

targeted initiatives for supply chain with 60% saying yes, significantly higher than all other industries and a significant increase from 34% in 2021 (see Figure 9). Industrial supply chain organizations are less likely to have any DEI initiatives or consider one, with 34% having a hard “no.” Only 26% of consumer/retail organizations have targeted DEI initiatives for supply chain, but are the most likely to at least have enterprise-wide initiatives.

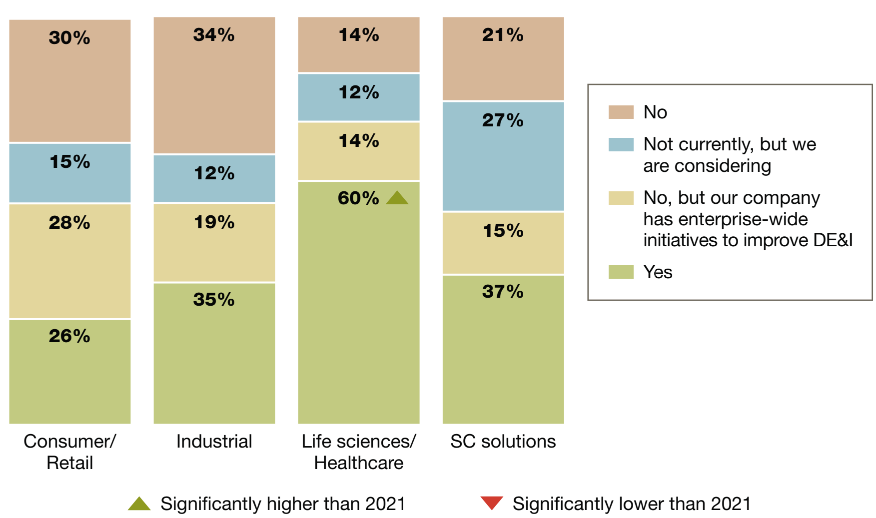
Unsurprisingly, life science organizations show higher improvement than industrials in both diversity and inclusion. More than half of life science organizations and supply chain solution providers cited slight to considerable improvement toward achieving diversity, equity and inclusion of people of color over the past year. They are also able to show stronger pipelines for people of color at nearly every level (supply chain solution providers edged them out at the vice president level in Figure 10).

Life science organizations were also significantly more likely to predict a more diverse workforce than other industries. Across industries, the average supply chain organization predicts that 20% of VPs or higher will be people of color in five years. Yet, life science organizations state a significantly higher percentage (25%).

Overall, 12% of supply chain organizations have a person of color in their most senior role. Global organizations ($5 billion or more) state

FIGURE 9

Life science organizations are significantly more likely to have targeted DEI initiatives



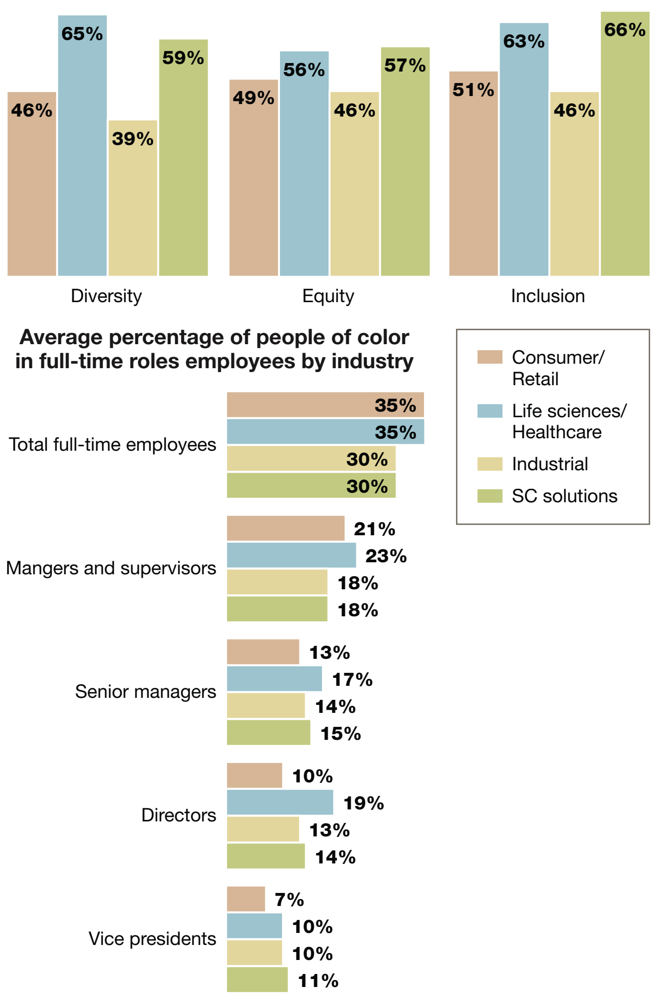
Source: 2022 Gartner/ASCM Supply Chain Diversity, Equity and Inclusion

Life science supply chain organizations are much more likely to have targeted DEI initiatives than other sectors. Industrial supply chain sectors are most likely to have none.

FIGURE 10

Life science organizations lead on reported progress and pipelines for people of color

Progress toward diversity, equity, and inclusion for people of color: Percentage of reporting improvement



Source: 2022 Gartner/ASCM Supply Chain Diversity, Equity and Inclusion

Life science supply chain organizations were more likely to report progress on DEI outcomes for people of color in their companies than consumer/retail and industrial supply chain organizations. Life science companies also reported stronger pipelines for people of color at nearly all levels.

Key recommendations

CSCOs responsible for leading and transforming their supply chain organizations should do the following.

- Elevate DEI outcomes to the same priority as other business goals for individual leaders by rating leader inclusion and making DEI outcomes a requirement to advance in the organization.

- Complement or replace unconscious bias training with organization-specific examples of observed non-inclusive behaviors, rather than one-size-fits-all examples.

- Focus on multiple dimensions of diversity, set specific goals and objectives, and lead your own initiatives to accelerate progress and build stronger pipelines.

17% of their senior roles are people of color, and industrial organizations are significantly more likely to have a person of color in the most senior role (16%) than consumer organizations (6%).

High-maturity, high-performing life science supply chain organizations—use the Gartner Top 25 as a reference point—typically have strong talent strategies as a central pillar of their leadership vision, strategy and roadmap. DEI is an integrated element that the CSCO and their team is responsible for rather than an afterthought.

It's time to move beyond just-in-time and just-in-case

By Jennifer Blackhurst and Andrew Balthrop

Jennifer Blackhurst, Ph.D., is associate dean for graduate programs and the Leonard A. Hadley Professor of Business Analytics in the Tippie College of Business at the University of Iowa. Andrew Balthrop, Ph.D., is a research associate at the Supply Chain Management Research Center at the University of Arkansas. They can be reached at jblackhurst@uiowa.edu and ABalthrop@walton.uark.edu.

The quest to find the Holy Grail of inventory management has led many companies to settle on one of two approaches—just-in-time or just-in-case—or to bounce back and forth from one to the other.

Both strategies have served supply chain managers well through the years, but the decision typically is driven by a pre-pandemic model that's based on product types and the quest for supply chain efficiency. In today's ever-changing and unpredictable world, neither strategy is enough.

It's time for a new, more agile approach—one that begins with the assumption that everything involved in the supply chain is subject to change as quickly as the waters of a swift-flowing stream. Inventory management that doesn't monitor the currents and conditions and respond accordingly is dead in the water.

We aren't suggesting that just-in-time or just-in-case have become irrelevant, but that neither approach in extreme will produce the consistent results that managers want and customers demand from today's supply chain. What is needed is a strategy that anticipates change and pivots with the circumstances so that inventories are available when needed and never stockpiled when they are not—one that goes with the flow.

We call this strategy risk-adjusted, agile inventory management.

The just-in-time advantage

In the idyllic world of just-in-time inventory management, manufacturers receive materials and retailers get their products just when they are needed—no sooner and no later.

When it's time to make bars of soap, for instance, the raw ingredients arrive just in time to go into the production process. And when consumers are ready for more soap, it is readily available on the shelves of their favorite retailer. The efficiency of the strategy means everyone cleans up, so to speak.

In the traditional view, as laid out in the iconic 1997 *Harvard Business Review* article by Marshall Fisher, functional products that have predictable demands and reliable suppliers lend themselves to a just-in-time approach. And, thanks to advances in technology and data collection, buyers are far better informed about what they need and when they will need it because they have insight into shoppers' buying habits.

A wide range of ever-changing risk factors—from geopolitical issues to hurricanes to the influence of a 12-year-old's TikTok video—can undermine the efforts of a just-in-time strategy.

The just-in-case protection

When the demand or lead time is hard to predict and suppliers are less reliable, a just-in-case strategy provides some protection against unavailable materials and out-of-stock products.

With this approach, companies hold stock in reserve to ensure they have what they need when they need it. The raw materials for making soap are stored and waiting for their production journey, or the bars of soap are warehoused, just in case of a sudden rise in consumer demand.

This works best when materials are low cost, easy to procure and nonperishable. In addition, just-in-case can lead to high inventory levels throughout the supply chain, resulting in sluggish response to change.

But the cost of storing materials or products drives up prices throughout the supply chain and can lead to a bullwhip effect that tempts decision makers to overcompensate in one direction or the other. In addition, overestimating demand can lead to the need to offload inventory at steep discounts, as was seen with patio furniture in 2022.

The risk-adjusted, agile inventory management alternative

Of course, the idyllic world doesn't exist. But the stability that once was common for some materials and products is now a thing of the past, even for something as simple as Fisher's example of a can of soup.

Consider, for instance, the dilemma faced by a global food producer that found itself short on a key perishable raw material. The item is used in multiple products and the shortage forced decisions the producer had not faced prior to the pandemic. Most notably: Should the inventory be used in high-margin items or on a brand with lower margins but strong growth potential?

In this case, the firm decided to buy as much of the product as possible and quickly adapt to ensure the robust-growth brand maintained its momentum. The producer gave up potentially higher revenue to actually leverage the industry-wide shortage to gain market share and become the product of choice into the future. Thus, a common food ingredient going into products once considered functional and stable enough to do well with a just-in-time strategy no longer could depend on a passive approach.

Meanwhile, products that once seemed a perfect fit for just-in-case are finding that's, well, just not the case. Going into 2022, for example, the forecasts for outdoor furniture were miscalculated. As consumers adapted to the new realities of the pandemic and travel resumed, the demand for patio furniture was far weaker than expected. Warehouses were filled with outdoor tables and chairs in anticipation of more sales; however, changes in demand patterns had created an oversupply.

The need for more flexibility in inventory management began even before COVID-19 disrupted supply chains, because technological advances already were sending the speed of change into hyperdrive. These factors are in addition to the usual suspects when it comes to supply chain chaos—labor issues, inflation, trucking shortages, fuel prices, wars in countries with key suppliers, weather that wipes out crops and government policies with unintended consequences.

The risks associated with inventory management now apply across the board to products of just about every type in practically every industry, which is why flexibility must be the core component of any modern strategy. Risk-adjusted, agile inventory management is a dynamic process that requires constant monitoring of the risks and other related factors that will drive decisions.

Considerations

Leaders need to consider a number of factors when taking an agile approach, but we can boil them down to the following three.

1. Inventory levels.
2. Data from analytics that predict demand and risk.
3. Supplier reliability and agility.

Companies need to be ever vigilant and adaptive with their inventory strategies. Safety stock should not be a static number; rather, firms should use technology to constantly adjust safety stock and inventory locations based on risk factors and fluid events in the supply chain.

Tying into inventory levels requires an unrelenting focus on understanding and even predicting events that threaten to cripple the supply chain. Advances in artificial intelligence (AI) could allow companies to not only monitor risks but anticipate what will happen so they can prepare for it.

Supplier reliability and an adaptive supply base design is the third area that needs constant consideration. For instance, choosing a China-based supplier five years ago might have been brilliant. But the low costs that drove the decision might now be offset by lengthy order delays, so perhaps it's time for a new supplier or multiple suppliers. Measuring cost versus predictability and cost versus reliability can drive such changes.

Ultimately, the goal for managers is still to create the most efficient supply chain possible for their inventory management. Rather than committing to just-in-time or just-in-case, an unpredictable world demands that managers mitigate risks by always being agile.

Last-mile deliveries need both old and new solutions

Organizations should use a variety of methods to improve the cost and reliability of last-mile deliveries

By Marisa Brown, senior principal research lead, supply chain, APQC

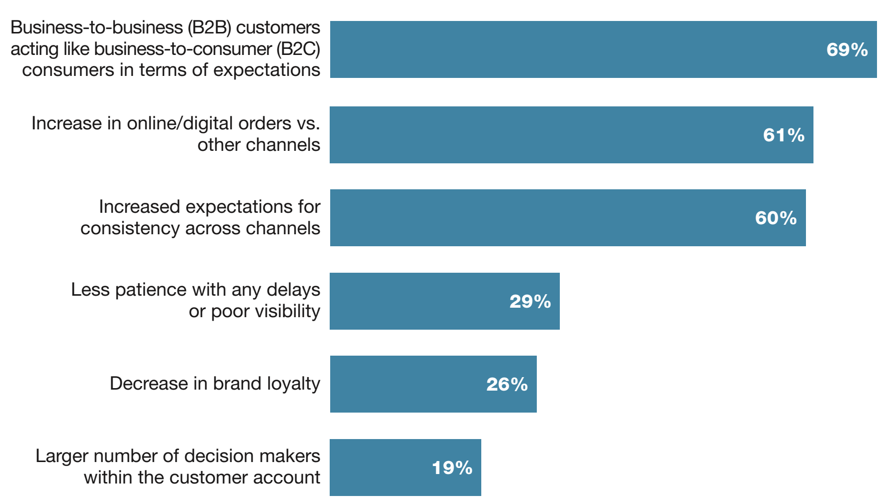
Marisa Brown is senior principal research lead, supply chain management, APQC. She can be reached at mbrown@apqc.org.

Markets have seen numerous shifts in consumer behavior as a result of the COVID-19 pandemic. Many organizations have noted an increased demand by consumers for faster order delivery and more visibility into order processing. APQC recently conducted research into customer behavior to quantify the changes noted by companies.

As shown in Figure 1, the expectations of consumers are creeping into the expectations of business customers, with nearly 70% of organizations reporting that their B2B customers have the same expectations as B2C customers. Organizations have also noticed an increase in online orders, as well as less patience among customers for delays or poor visibility into orders.

FIGURE 1

Changes in customer behavior due to pandemic



Source: APQC

The changes in expectations among both businesses and consumers have placed greater importance on last-mile logistics, during which a product is delivered to its final destination (often a store or customer location). Since the start of the pandemic, the last mile has focused more on the delivery of products to consumers' homes as online shopping increased.

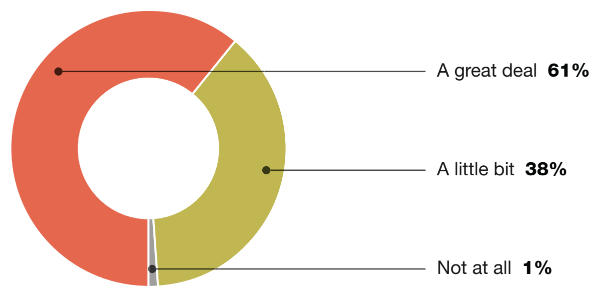
Changes in customer behavior and expectations have made an impact on organizations' costs. As shown in Figure 2, 61% of those surveyed by APQC report that changes in customer behavior have made a great impact on their cost to serve, profitability and ability to fulfill orders in a timely manner. Only 1% of organizations say that their costs have not been affected at all.

These results highlight the key roles that timely delivery and order visibility play in customer satisfaction. For better or worse, organizations must prioritize improvements to last-mile delivery. Customer service and product offerings pale in comparison to the importance of orders arriving on time as promised.

APQC's research into last-mile delivery indicates that organizations have room to improve the delivery experience for their customers. Technology developments offer the prospect of enhanced visibility and efficiency, but organizations should consider other improvement options as well.

FIGURE 2

Impact of changes in customer behavior on cost to serve, profitability and ability to fulfill orders in a timely manner



Source: APQC

Methods of last-mile delivery

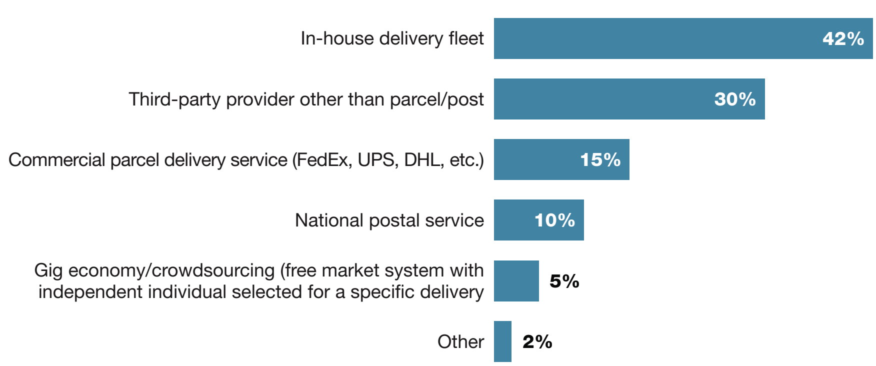
APQC collected performance data from more than 1,100 organizations through its Open Standards Benchmarking in Logistics. Analyzing this data, APQC looked at how organizations approach their last-mile deliveries. As shown in Figure 3, there is no clear leader among the methods organizations use.

The most common method used is an in-house

FIGURE 3

Method of last-mile delivery

(Median values)



Source: APQC

delivery fleet. To ensure greater control of their last-mile deliveries, some organizations rely on their own fleet of delivery vehicles. They may also use a hybrid method of their own vehicles, third-party providers and gig delivery drivers to ensure maximum availability. This presents its own challenges as tracking the various parties involved in deliveries can be difficult.

Many organizations rely on third-party providers that are not a traditional commercial parcel delivery service or the national postal service. Although 25% of organizations use services such as FedEx, UPS and the postal service, these providers have faced their own difficulties in delivering packages on time and in a cost-effective manner. Some major companies have leveraged the size of their logistics networks to provide shipping services to outside brands, offering another option to organizations needing delivery resources.

Five percent of organizations report relying on the gig economy or crowdsourcing for their last-mile deliveries. This can ensure timely delivery as having a variety of independent providers means that there can be a vehicle available whenever the company needs one. However, there are tradeoffs to this method. The independent nature of the drivers means that companies have less visibility into the status of a package. There is also some risk that a delivery still may not arrive on time or in the manner anticipated by the customer.

Visibility: It's a problem

Savvy customers now have less patience for limited visibility into the status of their orders. Figure 4 shows the extent to which organizations' customers can see real-time order status through to the last mile of delivery. Nearly half of the organizations in APQC's data enable customers' visibility to a very great or significant extent (47%). More than half do so to some extent or to a small extent (51%)—resulting in these customers having much less visibility into orders during the last mile.

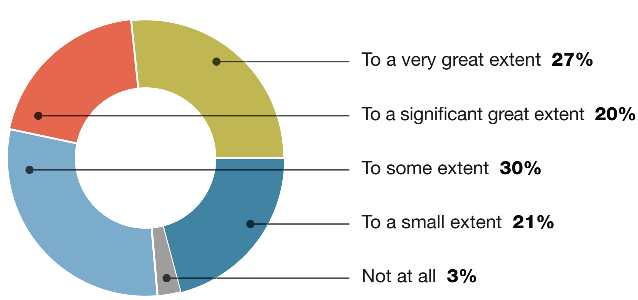
Customer expectations have only increased since the start of the pandemic. It is no longer enough for companies to offer fast, free shipping; customers also expect to know where their orders are from the moment of shipment to the moment the package arrives at its destination. All of this leads to substantial costs, both for shipping overall and for the last-mile delivery in particular.

Support from technology

Organizations have numerous new technologies to consider when seeking to improve their last-mile deliveries. Much attention has been paid to delivery technologies such as autonomous vehicles, delivery drones and delivery

FIGURE 4

Extent to which customer visibility of real-time status extends into the last-mile of delivery



Source: APQC

robots. Although these have not yet been widely adopted, the underlying technology has advanced quickly and is worth tracking by organizations for future investment.

Organizations can also adapt existing technology. For example, GPS and RFID tags have enabled companies to enhance the visibility of their supply chain for their customers. Organizations have also adopted route planning software to increase the efficiency of their inhouse fleets and speed up deliveries.

Organizations can use analytics to their advantage to counteract the rising costs of shipping. If they have existing analytics functions, these can focus on identifying and applying changes that can reduce costs associated with internal processes. This will enable the company to reduce costs where it can without reducing the service levels expected by customers.

Organizations need not rely only on their technology capabilities to enhance last-mile deliveries. They can partner with 3PLs that have the infrastructure needed to optimize shipping. A third-party provider with an advanced warehouse and inventory management system can both speed up deliveries and reduce cost to the company.

Focus on variety

The demands of customers have caused organizations to scramble to ensure timely deliveries with a high degree of visibility. Technologies can support an organization to meet its logistics needs while addressing the costs associated with last-mile deliveries. However, these are not the only tools organizations can use.

They can examine their warehouse locations to determine whether additional space would be a cost-effective way to deliver orders to the largest number of customers using the shortest timeline. For example, they can reduce the distance a package travels in urban areas by increasing the number of their warehouses in cities. This can reduce shipping costs up front and get orders to customers faster, as soon as same day or next day in many instances.

Organizations need not rely on traditional warehouses. Some organizations are embracing micro warehousing, in which a company rents additional space, most likely in an urban area, and dedicates each space to specific types of deliveries. This flexible solution enables businesses to distribute inventory at locations in which demand is highest.

They can also leverage their existing business relationships to gain greater visibility into shipments. They can develop data sharing agreements with partners to identify and facilitate lower cost shipping options. The agreements allow the parties to share key types of data that enable more accurate demand planning based on recent customer behavior and translate that into fleet strategy.

Organizations are having to be more creative with ensuring deliveries meet the expectations of customers. Through a combination of technology adoption, resourceful shipping decisions, and new ways of using existing relationships, they can develop new ways to address complex shipping needs and last-mile deliveries.

About APQC

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

2022 VIRTUAL SUMMIT: Enabling the workforce of the future

Here's how companies can use automation, technology and other advanced tools to support and nurture their evolving workforces in today's competitive business environment.

BY **BRIDGET McCREA**, CONTRIBUTING EDITOR

The world of work as we know it has changed dramatically over the last two years to three years. Ongoing labor constraints, a persistent truck driver shortage that's expected to reach 160,000 by 2030, and continued e-commerce growth have all forced shippers to think harder about how they'll enable the workforce of the future.

For some companies, the workforce of the future may be more remote in nature and connected via technology. Other organizations will use automation to augment their physical workforces, and still others are coming up with hybrid arrangements that effectively balance available labor with customer demand.

Knowing the importance of these decisions and future states, *Logistics Management* and *Supply Chain Management Review* focused this year's Virtual Summit on Enabling the Workforce of the Future.

Across five distinct sessions and one keynote, the magazines' editors put today's game-changing strategies and automated solutions into perspective and offer practical tips for evaluating, implementing and leveraging these tools. These expert presentations will ensure that your company builds out a workforce that will take your logistics and supply chain operations to the next level now—and well into the future.

KEYNOTE

Supply Chain: The rise of human-centric digital automation

On an annual basis, Gartner, Inc.'s analysts research the supply chains of hundreds of companies, taking note of the key trends that those organizations are focusing on and where the companies are investing time and effort.

In response to ongoing labor challenges, Gartner says that today's leading supply chain organizations are balancing long-term automation investments with other near-term technologies. In most cases, the latter are focused on reducing employee "cognitive overload" and helping organizations prioritize time and focus attention to areas where human performance outdoes that of machines.

In his keynote, Mike Griswold, research VP in Gartner's Consumer Value Chain team, discusses the challenges that supply chain professionals face when trying to find, hire and retain talent in the current labor market. "It certainly has not gotten any easier over the last several years," says Griswold, who also focuses on the increasing number of supply chain disruptions and the interconnected nature of those interruptions.

"The frequency and magnitude of disruption is increasing on a global scale," Griswold says. "It's really important that this context of disruption serves as a catalyst for us to think about how we want to manage and motivate our associates."

Griswold also covers the distinct reinventions for supply chain leaders, the focus on human-centric work design and the top supply chain "macro trends." He explains the value of implementing a future of work strategy, balancing business outcomes with talent outcomes and moving toward the workplace of the future.

"The way we used to work just won't work anymore," says Griswold, who ended the session with several specific opportunities and strategies that companies can use to reinvent their own workforces.

SESSION 1: Transportation

31st Annual Logistics and Transportation Trends Study: Meeting the need for talent

In this session, Christopher Boone, assistant professor at Mississippi State University, and

Karl Manrodt, professor at Georgia College and State University, present the findings of their 31stAnnual Logistics and Transportation Trends study.

Drawing on responses from the more than 300 logistics and supply chain professionals that participated in it, the study reveals impacts that the turbulent market has had on shippers, carriers and service providers. It also focuses on one of the most

critical issues and threats facing today's logistics and supply chain leaders: people.

"We're seeing more employee-centric factors that are becoming increasingly important to people, and just how they approach work," says Boone, "and I think we're seeing that in the results of the survey."

Boone impresses upon attendees the importance of understanding just how turbulent the environment has been over the last few years. He also mentions that both shippers and carriers have "worked really hard" to adapt and move between different types of transportation in order to meet customer demand.

Boone and Manrodt also discuss the role that technology is playing in helping companies tackle current challenges while also planning for the future. "If you thought transportation was changing rapidly, technology is changing maybe even faster," Manrodt says, "and the capabilities that are out there are really interesting."

SESSION 2: SOFTWARE

Supply Chain Management Software: The hub of the modern operation

Essential to the efficiency and productivity of modern supply chains, supply chain management (SCM) software helps companies coordinate cut-off times and service levels and better understand how to scale automated systems in order to accommodate peaks in demand.

In this session, Howard Turner, director, supply chain execution systems at St. Onge Company, gives attendees an in-depth look at how companies of all sizes can use SCM to drive efficiency and flexibility.

"This software provides a coordinated view of multiple systems and a centralized way to look at and take action on all of the related information," says Turner. "Using SCM, companies can make better decisions and get to the point where they truly have visibility into their operations."

Turned then walks attendees through a case study on China's acceleration of

warehouse automation and discusses the role that software plays in controlling warehouse automation. He also talks about the important role that managers and employees play in the adoption of warehouse software and automation solutions.

"No matter how great a solution it is," says Turner, "if you don't have your team on board and you don't really address the change management, you're setting yourself up for failure."

SESSION 3: WAREHOUSE/DC

2022 WDC Operations Survey: Recalibrating operations and spend

Every year, St. Onge Company partners with Peerless Research Group (PRP) to produce our Warehouse & DC Operations Survey that provides an up-to-date snapshot of current trends in warehouse/DC management. In this session, Don Derewecki, senior consultant, and Norm Saenz, partner and managing director, discuss the many findings of this year's report.

"This year has been interesting in many aspects," says Derewecki. "The continuing shortage of available labor to staff operations is a high-level concern going right up into the C-suite." He goes on to say that the rate of inflation and the interest rate increases have also created complexities for companies. Even so, he says that St. Onge is seeing "high levels of interest in various types of automation and mechanization and information systems upgrades going forward."

"This was a busy year for warehouse shippers dealing with the tightening labor market, supply chain uncertainties and a growing concern now with the future strength of the economy," Saenz adds. "The survey shows things aren't getting any easier for operators."

While St. Onge is seeing more companies interested in automation, many of those organizations are focused on low-cost process improvement and conventional storage equipment and handling equipment. "There's an increased demand out there for equipment and technology," Saenz says, "and that has resulted in some higher costs of goods and longer lead times than we've seen in many years."

SESSION 4: 3PL

3PLs: Time for collaboration in technology and talent

The continued disruption in logistics and supply chain operations has accelerated the technology transformation within the industry. Due to this ongoing reality, new skill sets are necessary across the board as more technology and automation is integrated into third-party logistics (3PL) operations.

"We've been through unprecedented times and knowing that we have not faced one disruption in terms of supply chain capabilities, but many," says Sarah Banks, managing director, global lead freight & logistics at Accenture. "It's really caused a critical inflection point for leaders in the supply chain domain to think about what we need to take care of."

In her session, Banks covers technology and talent; talent engagement capabilities shippers should assess in 3PLs; technologies to attract and retain talent; and talent strategies for shippers and 3PLs. She explains that supply chains are "competitive advantage areas" that 3PLs can use to support revenue and growth.

Banks then walks through the initiatives that companies are prioritizing in the next 12 months and discusses how future-proof supply chains must incorporate a thoughtful and deliberate talent management approach. "And that's not just on the 3PLs; we also need the shippers to be engaged in that strategy with their logistics partners," says Banks, "to ensure that the right environment is provided for future workers."

SESSION 5: Robotics

Robotics: The "heterogeneous fleet" takes shape

According to a recent Gartner, survey, 86% of companies plan to increase their robotics fleet over time. These companies are exploring various different robotics platforms and figuring out how to both integrate work across a fleet of robots and also integrate those robots with other systems.

The push to implement robotics is largely being driven by the core challenges that fulfillment operations are facing. "If you look at the logistics world today, we're at a point where we're looking at the need for transformational change," says Dwight Klappich, research VP at Gartner.

"Logistics operations are under significant pressure right now and managing different types of orders and distribution models," he continues. "They have to support omni-channel or hyper-local fulfillment, all during a period of high inflation, high interest rates and increasing cost pressures."

Companies are also managing ongoing labor constraints and looking to robotics and automation for help, according to Klappich, who discusses the broad spectrum of robotics with a focus on intralogistics smart robots. This is a class of robots that operates primarily within the four walls of the warehouse or DCZ. Intralogistics smart robots can be mobile or stationary, and can operate autonomously or collaboratively.

A SPECIAL SUPPLEMENT TO:
SUPPLYCHAIN MANAGEMENT REVIEW

PUTTING THE RETAIL SUPPLY CHAIN IN REVERSE

Retailers that don't consider product returns their biggest source of supply may want to rethink their reverse logistics approaches for 2023.

BY BRIDGET McCREA, CONTRIBUTING EDITOR

Managing product returns has always been a headache for retailers. The e-commerce boom only increased that pain and pressure. Call it buyer's remorse, but when customers can't see, touch and try on merchandise before they buy, they're more apt to return it. The proof is in the numbers: By some estimates, online return rates average anywhere from 20% to 30%, versus about 9% for in-store sales.

For retailers that were already letting returns pile up in a corner of their warehouse or DC pre-pandemic, the sudden onslaught of online ordering that happened in early-2020 and hasn't really let up yet was further proof that they needed better returns management processes. E-tailing giants like Amazon are also struggling under the weight of returns. In an article about the company's "massive returns problem," CNBC did the math and determined that, based on Amazon's $469 billion in net sales for 2021 and assuming a 21% product return rate, the company's return numbers are "likely staggering."

Along the way, customers have also started demanding, and retailers have been delivering, a better returns experience. They want extended returns windows, faster refunds and easier ways to physically return the goods, for example. Meeting these demands can get costly for anyone running a retail supply chain. In response, more technology vendors are developing solutions that help with everything from receiving and tracking the returned goods to merchandise inspection at the warehouse and issuing customer refunds or credits.

Returns as a source of supply

Even with a boost from technology and automation, the retail supply chain is struggling to absorb the huge backflow of returned goods that its customers are sending back. And once the merchandise makes its way back to the retail warehouse or third-party logistics provider (3PL), there's still the question of what to do with all of it. "The assumption is that technology will be the silver bullet that solves this problem," says Debrup Jana, a senior director analyst at Gartner, Inc., "but it won't be."

Instead, Jana says retailers should shift their thinking about reverse logistics and viewing the backflow of merchandise not as a burden but as a source of supply. Assuming that just a small percentage of the products are actually defective, broken or unsaleable—and that the average supplier provides about 5% of any company's stock—returns are actually any retailer's largest supplier.

"The industry average for retail returns in 2021 was about 16%, which proves that returns is actually these companies' biggest supplier," Jana explains. "And yet reverse logistics and returns have been brushed under the rug for a long time. It's still largely an afterthought that's handled reactively."

Retailers that focus too closely on processing returns versus preventing them in the first place have only added to their own reverse logistics challenges. "Solving the problem will require a completely different approach that's centered on prevention," says Jana, "versus just blaming the consumer for having to return something."

Here's where technology can help. Virtual dressing room applications, for example, let consumers use their own uploaded photos to "try on" apparel. This helps them check for look and fit before hitting the buy button online. Similar platforms can be used to see how furniture looks in specific areas of your home or visualize what that new pair of glasses will look like on your face.

Tony Sciarrotta, executive director of the Reverse Logistics Association, says these efforts also help retailers operate more sustainably. "Software that helps you size things better or envision what that new dining set will look like in your house can help stem the flow of returned merchandise," says Sciarrotta, "and in turn, reduce the amount of waste that's piling up in the landfills."

Rethinking return policies

Sciarrotta says retailers are also rethinking their return policies, with ZARA being among the first companies to start charging its customers to return their purchases. Those who dropped the returns off at a store receive full credit, but customers who ship the goods back have to shell out a few bucks for that option. "We'll probably see more of this happening," Sciarrotta predicts.

Some of the push to improve returns management is coming from the retailers' suppliers, who used to take back 75% or more of the merchandise from retailers, according to Sciarrotta. The other 25% was usually liquidated. Now, the same vendors are giving retailers allowances for disposing of the goods instead. "They're playing a real game with their environmental, social and governance (ESG) scores and other sustainability [metrics]," says Sciarrotta.

In response, retailers have started reassessing whether they even want the products

Supporting the regenerative supply chain

A model that factors in all of the business activities that go into satisfying customer demand, ASCM's Supply Chain Operations Reference (SCOR) model helps companies assess and improve their supply chains.

In September, the organization released SCOR DS ("digital standard"). According to Peter Bolstorff, ASCM's executive VP, the new SCOR DS modernizes the open access framework to include resilience, sustainability, omnichannel and other modern supply chain concepts. It also helps companies address their returns challenges with an eye on creating a more "circular" supply chain—versus a one-way, outbound path—returns included.

"Our main objective was to create a model for 2030, where people and organizations could see themselves in their supply chains inside the model," says Bolstorff, who encourages retailers to focus on orchestrating circular supply chains that support effective planning from the return standpoint. "Whether it's a product or some other asset," he says, "think about what you need to do to be able to efficiently and effectively bring it back in, repair it, restock it and resell it."

Offered at no charge, the SCOR DS model provides a compass that organizations can use to standardize and improve all aspects of their supply chains. "It fuels innovation," says Bolstorff, "so I would challenge people to explore that idea and use it in their own operations."

This is vastly different than the retail supply chain of old, which was largely focused on bridging a linear path between supplier, retailer and end customer. With an average of 16% of outward bound products now coming back to retailers, smart companies are coming up with new ways to manage the "right-to-left" flow as well as the traditional, "left-to-right" freight movement.

"It's about organizing the supply chain in a continuous way," says Bolstorff. "It's one thing to be able to forecast demand, but retailers also have to be able to concurrently forecast supply capacity in order to orchestrate the synchronization of the regenerative supply chain. The SCOR DS model supports that regenerative supply chain."

back, or not. Consumers are often told to just keep low-value items that would cost the retailer more to ship back, process and try to resell. This puts the onus of disposal on the consumer. “That’s not a very environmentally-friendly reverse logistics approach,” Sciarrotta points out. “It’s also not sustainable, but unfortunately it’s happening more and more.”

The burgeoning secondary market

When Zac Rogers began analyzing the secondary market—dollar stores, salvage dealers, factory stores and the like—in 2008, the total market size was about $308 billion. Last year, the number reached $689 billion, or roughly 3% of the total U.S. gross domestic product (GDP). “The market has more than doubled over the last 13 years,” says Rogers, assistant professor of supply chain management at Colorado State University, “and I wouldn’t be surprised if it doubled again over the next 13 years.”

Credit the overflowing reverse logistics pipeline with driving at least some of that growth. This year, for example, the gradual easing of pandemic pressures created a lot of overstocked inventory at the retail level. Rising interest rates, inflation fears and a drop in consumer spending hit all at once, leaving retailers holding the inventory bag.

“A lot of those goods were stuck with nowhere to go,” says Rogers. For help, retailers turned to secondary outlets that by the end of 2022 were also dealing with a “record number of overstocks,” he says. The cycle repeated itself as salvage dealers and outlet stores offloaded some of the stock to their own secondary market outlets, many of which were also already swamped, according to Rogers.

As retailers work to solve this immediate challenge and look for ways to avoid it in the future, Rogers says more of them will probably use data and technology to better understand what inventory they have on hand.

To stem the flow of returns, however, he says retailers will have to cumulatively start rethinking their longstanding “free and easy” return policies. Much like a single airline can’t lower fees without the rest of its competitors at least trying to follow suit, at least one large retailer will have to be a first-mover in this area.

“I don’t think retailers are going to be able to put that genie back in the bottle. I teach classrooms of Gen Z students who have grown up in a world where you can always just pull out your phone, select three different options, keep one and then drop the rest of them off at a Kohl’s or UPS Store,” says Rogers, “and all for free.”

The new returns mindset

Like Jana, Vincent Crimaldi says a mindset shift may help willing retailers get a better handle on their reverse supply chains. A Capgemini VP for consumer products, retail and distribution, Crimaldi says returns can be an especially good source of goods at a time when pandemic-driven supply chain shortages are still lingering.

“If a product is scarce and if 20% to 30% of the goods sold online are being returned, you really need to take care of that product not only when it’s on its way out to the customer,” says Crimaldi, “but also on the way back.” Retailers that extract maximum value from those returned products—be it via resale, refurbish, liquidation, donation or another means—can effectively transform returns into assets versus just burdens.

“Look at returns as another source of supply,” Crimaldi recommends. “You may need to refurbish that product and it does take time to determine why the product was returned. In the end, higher-value items in particular can translate into significant value when they can be received, inspected, restocked and sold as quickly as possible.”

ABOUT OUR 2022 EVENT

On October 17–19, Peerless Media and *Supply Chain Management Review* brought more than 150 supply chain professionals together for the 4th annual NextGen Supply Chain Conference, the premier educational and networking event that answers the question "What's next in supply chain management?" for senior-level SCM professionals.

Held at the landmark Chicago Athletic Association hotel, the two-day event featured top level presentations and case studies focused on the emerging technologies that are powering tomorrow's supply chains and enabling the digital transformation of supply chain processes today.

Nearly 40 speakers from companies as diverse as Estee Lauder, P&G, GE Appliances, MilliporeSigma and Shopify covered the breadth of supply chain management, from talent development to logistics and transportation, as well as the impact of robotics, AI and the metaverse on supply chains.

The NextGen Supply Chain Awards recognized 10 industry leaders, leading solution providers, startups and supply chain visionaries who are leading the way in the adoption of NextGen technologies.

By the end of the event, attendees were able to answer the question: What's next in SCM?

SAVE THE DATE
5TH ANNUAL

NEXT GEN
Supply Chain Conference
CHICAGO ATHLETIC ASSOCIATION

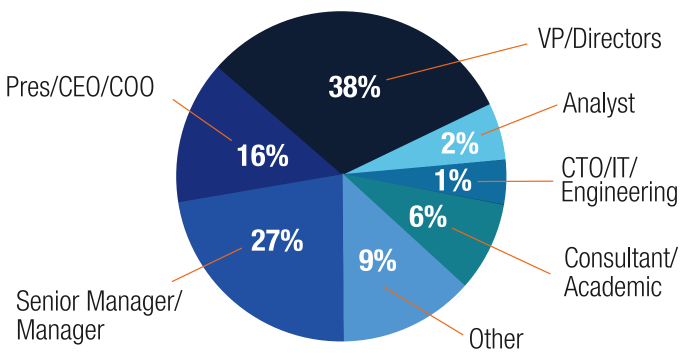
OCTOBER 16-18, 2023

NextGenSupplyChainConference.com

NEXTGEN 2022 REVIEW

2022 ATTENDEE PROFILE

2022 Attendee Profile



2022 Industry Profile

Academic/Student **4%**

Association **3%**

Components/Parts/Software Provider **17%**

Consultant **20%**

End User **37%**

Integrator (Designer Install Robotics Systems) **2%**

Investment/Financial **1%**

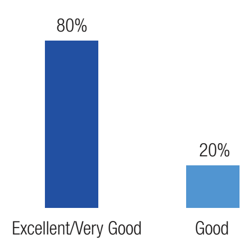
Robotics Solution Provider **13%**

Systems Integrator **4%**

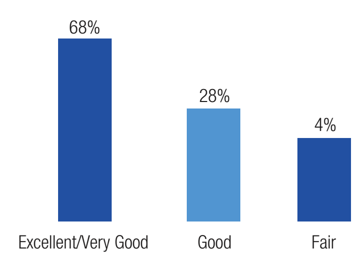
Other **4%**

2022 ATTENDEE FEEDBACK

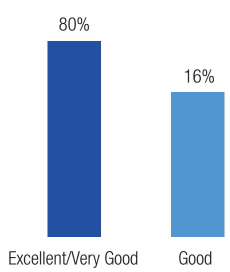
Quality of Speakers



Quality of Sessions



Attendee Feedback on Professional Level/Quality of Delegates



80% of Attendees gave an overall rating of conference of excellent/very good

35% have a budget of $500,000 to over $1 million

77% of 2022 Attendees have a direct role in purchasing

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SIGN UP

To sign up for information about our 2023 event, including how to submit an abstract to speak or nominate your company for a supply chain award, visit **nextgensupplychainconference.com** or email **elena@nextgensupplychainconference.com**.