

## White Paper

# Supply Chain Agility in the Pharmaceutical Industry

Sponsored by: TraceLink

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## IDC OPINION/EXECUTIVE SUMMARY

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Pharmaceutical supply chains have been struggling to adapt to the global COVID-19 pandemic and prioritize planning for the future. They have consistently been unable to map and match varying demand to unpredictable supply without accurate contextual and actionable visibility both upstream and downstream. Although most of the discussions of the pharmaceutical supply chain have focused on supply reliability, demand disruptions are equally unpredictable and problematic. The survey and in-depth interviews that underpin this white paper provide a wealth of data and insight for pharmaceutical supply chains. IDC has identified the following key findings:

- As an industry, pharma has been significantly affected by COVID-19. Seventy percent of respondents felt that their supply chain was extremely vulnerable to the continuing pandemic; they are already seeing widespread drug shortages, cost increases, and significant degradation of delivery performance both from suppliers and to customers.
- The pharmaceutical supply chain is marked by generally poor visibility, particularly from an end-to-end perspective, with efforts more aspirational than actionable or achieved. Seventy-eight percent of companies felt that having timely finished goods visibility would dramatically reduce drug shortages, one of the top challenges for half of the survey respondents.
- Overall supply chain agility is limited, with 43% of the respondent companies saying that they lack the necessary agility and redundancy to survive major business disruptions. The traditional focus has been on inventory as the sole and low-risk form of agility.
- Adoption of technology is inconsistent, with significant collaboration challenges upstream and downstream. Forty-five percent of respondents say upstream issue resolution exceeds 40 days; 29% say downstream issue resolution also exceeds 40 days.
- Supply chain transformation efforts are mainly reactive or focused on a specific functional area performance, rather than on end-to-end supply chains. Only about 6% of companies say that they are actively pursuing patient-centric transformation.

All too often, companies in the pharmaceutical industry are deploying local siloed improvement solutions and fragmented fixes to address disruptions rather than using the burning platform of the pandemic to fuel the energy, urgency, and commitment to digitally transform their business and prioritize agile patient centricity. They are often stuck using traditional operational enterprise software vendors with limited cognitive and augmented analytics capabilities while focusing on inventory as the sole and safe low-risk form of agility when they should be leading a prioritized and coordinated business focus on resilient, responsive, reliable, and compliant product supply to plan and focus on meeting agreed service levels.

## IN THIS WHITE PAPER/METHODOLOGY

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This IDC white paper, sponsored by TraceLink, explores the impact of COVID-19 on the pharmaceutical industry supply chain in both the short term and longer term. The key findings in this paper are based on a survey that was completed in July 2020 and augmented with three in-depth interviews with senior supply chain executives. The survey was designed to both assess the current impact of COVID-19 and explore how companies are preparing for future disruptions. The survey was done through the lens of supply chain agility and resilience, the relative maturity of supply chain transformation, and the use of technology to both drive business process improvement and enable patient centricity.

### Survey Demographics

The survey was conducted in the second quarter of 2020 and included 532 respondents across four countries and six different subsegments within the pharmaceutical industry. Key demographics include:

- The splits by industry were pharmaceutical companies (49%), health systems/hospitals (24%), contract manufacturers (12%), retail pharmacies (10%), wholesalers (3%), and third-party logistics companies (2%).
- Respondents were distributed across the United States (41%), India (20%), the United Kingdom (20%), and selected Scandinavian countries (19%).
- 18% of the respondents were large enterprise companies (revenue above \$2 billion), 57% medium-sized companies (revenue between \$2 billion and \$100 million), and 25% small companies (revenue below \$100 million).
- Respondents were split between senior supply chain executives (25%) and more junior supply chain function leads and operators (75%).
- All respondents either work in or have significant influence over their company's supply chain.

This paper focuses on the overall findings while weaving in notable subindustry, country, or company size insights.

## DISRUPTION IN THE PHARMACEUTICAL SUPPLY CHAIN

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Although many discussions of the pharmaceutical supply chain have focused on supply reliability, demand disruptions are equally unpredictable and problematic. In the pandemic, demand forecast accuracy has deteriorated significantly, with 63% of survey respondents saying they have lost faith in their demand forecasts and 75% saying they are in reactive mode and constantly expediting to meet demand. With poor demand forecasts and unpredictable supply, achieving dynamic supply and demand balancing and effective supply chain planning will be difficult without a network of connected partners sharing data and collaborating in real time. Indeed, analytics is weak, largely functionally focused, transactional, and fragmented and not holistic – a situation that does not support continuous end-to-end balanced planning and a responsive supply chain network.

In the pharmaceutical industry, both the supply and demand chains are highly complex, with myriad channels that behave very differently (examples include hospitals, retail, clinics, distributors, and wholesalers). There are also long-standing contractual product supply relationships with CMOs that have built highly specialized capabilities over many years to support manufacturers. This adds to the complexity of the product supply network. From a supply perspective, some components come from traditional factories such as packaging suppliers, but others come from other sources such as donation centers that require people to be willing to come in to donate blood and plasma in highly controlled processes. Given the varied sourcing, particularly of biologicals, supply disruptions have been somewhat varied and unpredictable.

Unplanned allocation decisions can cause major planning disruptions across the end-to-end supply chain and make supply and demand balancing and planning processes highly complex given the limited visibility in the supply chain. Figure 1 depicts the top challenges among select respondents to the survey.

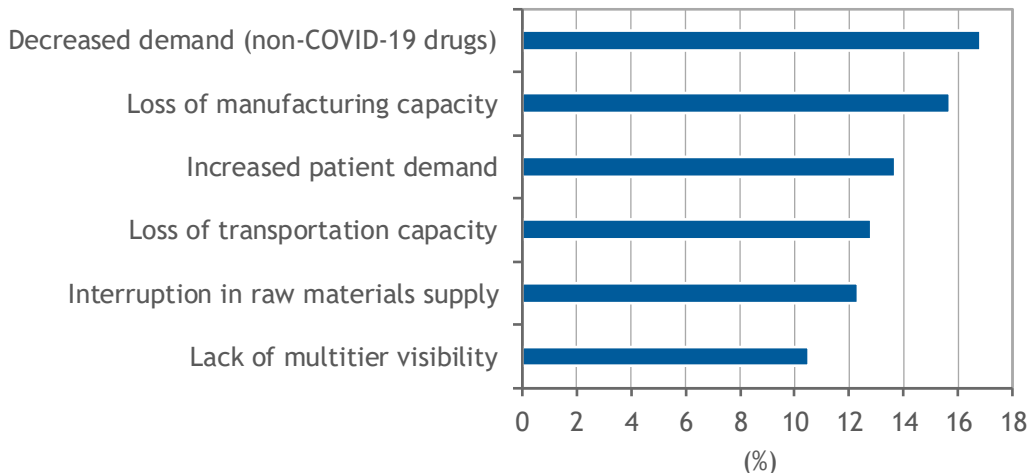
Another major issue impacting demand is the reluctance of many people to deal with medical conditions not related to COVID-19. As noted in Figure 1, this is the top challenge that pharmaceutical companies are currently facing. Clearly this will change over time as understanding of the disease and availability of vaccines increase, yet the extent of the change can only be estimated.

*We have a suite of plasma collection centers spread across the United States, some in Europe, and some in China, and all of a sudden people are being asked to self-quarantine, to stay at home, avoid crowds, and stay 6ft away from each other. As you can imagine, it made people nervous even though you could come in and donate, but we experienced people being reluctant to do so because of the concern of being exposed and being out in public and being in businesses where you will be around other individuals. — Senior supply chain executive, pharmaceuticals, on supply challenges*

**FIGURE 1**

**Key Challenges**

Q. Please rank the top challenge your organization currently faces.



n = 351

Note: Data excludes dispensing endpoints like hospitals and retail.

Source: IDC and Tracelink's *Supply Chain Survey*, 2020

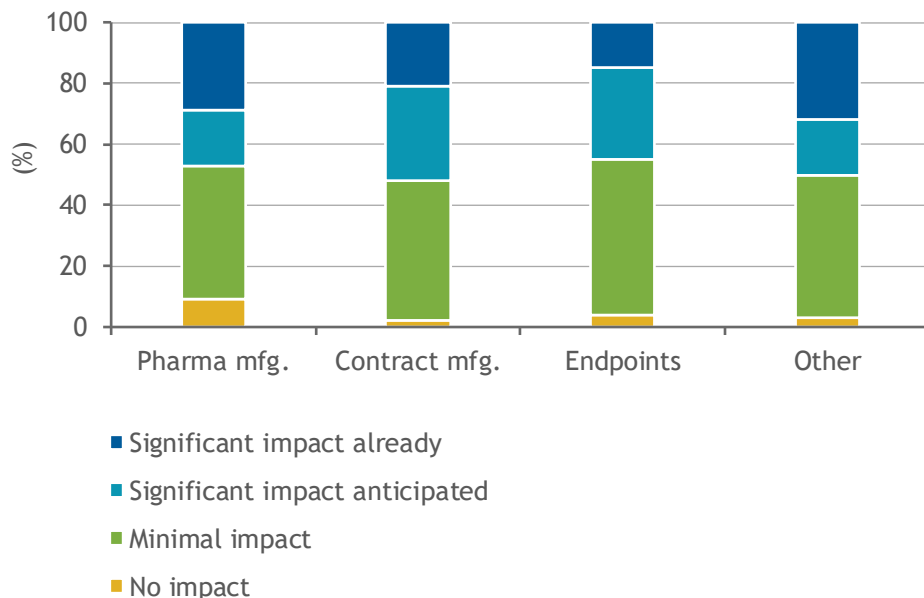
The other top challenges confirm many aspects we have been hearing anecdotally. The available manufacturing capacity has been impacted, particularly for pharma companies that have longer, globally extended supply networks, but so too has transportation. Transportation balancing between supply and demand has been both about supply capacity and the demand increases resulting from COVID-19-driven online shopping, and many companies have reported significant unpredictable shortages. We see a similar story from the dispensing endpoints such as retail and hospitals where 27% say that drug supply shortages are their principal challenge, followed by 20% that say transportation delays are rampant.

Figure 2 depicts the differences among the surveyed segments of pharma. Third-party logistics providers have seen the most immediate impact from unplanned and unpredictable demand. Dispensing endpoints have seen the smallest impact, likely a function of high industry inventory levels. There is some irony in this as companies, particularly in manufacturing, have been aggressively pursuing lean principles and just-in-time inventory management. Following these strategies, they found themselves disadvantaged by an approach that had served them and other industries like consumer electronics so well in the past. Although inventory as "band-aid" may be prudent in the shorter term, it is incumbent on pharma companies to manage smarter rather than just larger piles of inventory. This can be done using a patient-driven, demand-driven segmentation approach. Based on the survey responses, pharmaceutical companies expect to keep more inventory of both finished goods and raw materials, with expectations increasing by almost 20 percentage points for inventories that exceed 60 days on hand.

**FIGURE 2**

**COVID-19 Impact by Segment**

Q. To what degree is the COVID-19 pandemic impacting your supply chain?



n = 532

Source: IDC and Tracelink's *Supply Chain Survey*, 2020

The impact of COVID-19 on the pharmaceutical industry has been profound, and most survey respondents felt that their supply chains are still vulnerable to continuing COVID-19-related issues. At a high level, 46% of companies have experienced drug shortages, with an equal impact on COVID-19-related diagnosis and treatments and those unrelated to COVID-19.

Seventy percent of companies strongly agree/agree that their supply chain is still very vulnerable to suffering more problems if the COVID-19 crisis lasts more than a couple of months longer, and 75% of companies strongly agree/agree that the COVID-19 pandemic has greatly increased/will greatly increase problems with diversion, theft, and counterfeiting of critical products such as test kits, vaccines, and antivirals.

Beyond these general observations, there are two specific areas that merit particular focus, which are discussed in the sections that follow.

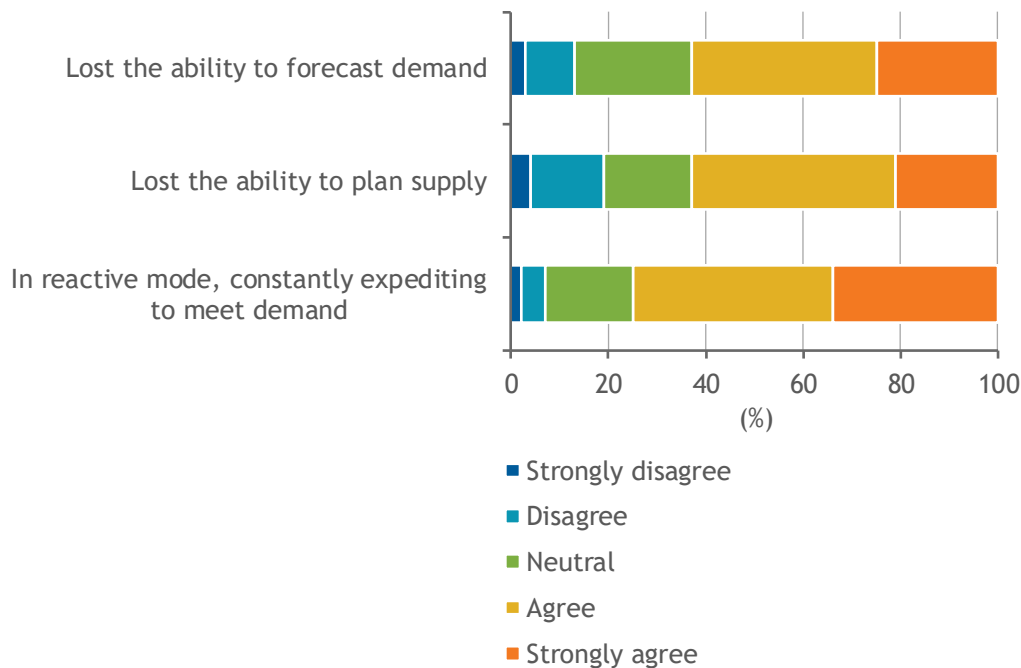
### Demand Forecasting

The ability for companies to forecast demand has declined significantly in 2020 as shown in Figure 3, with a majority of companies saying that they have *"lost the ability to forecast many products"* given the unpredictability of both supply and demand. Three quarters say that they are *"in a reactive mode and constantly expediting to meet demand."*

**FIGURE 3**

### Supply Chain Planning

Q. Please indicate your level of agreement with the following statements. As a result of the COVID-19 pandemic ...



n = 532

Source: IDC and Tracelink's *Supply Chain Survey, 2020*

When both demand and supply are each unpredictable and the demand supply relationship is variable, *supply chain agility becomes a critical capability* to meet patient needs. Agility requires much tighter and more transparent holistic relationships with suppliers and levels of collaboration that have not been consistently achieved in the pharmaceutical industry largely because of the constraints in sharing data. Although it is likely that the levels of demand and supply uncertainty will not persist at the current levels, there will be future disruptions that are best prepared for sooner rather than later.

## Degradation of Delivery Performance

On-time in-full (OTIF) performance has also degraded significantly in 2020, in terms of both shipments from suppliers and the ability to deliver to customers; the survey responses for delivery performance are shocking. As illustrated in Table 1, prior to the pandemic, 74% of companies reported OTIF from their suppliers exceeded 98%. In 2020, that number has fallen to 28%. We see a similar story for OTIF to customers: 44% maintained 98% or better prior to COVID-19, 17% have done so in 2020. At the other end of performance, sub-80% OTIF has increased by more than 15%. Part of this challenge is due to where OTIF is measured – at the patient where it counts or at some other point in the end-to-end supply chain. This lack of measurement consistency is an indication of the level of end-to-end supply chain maturity in the journey to patient-centric capabilities.

**TABLE 1**

### Degradation of Delivery Performance (%)

*Q. What is the average on-time in-full percentage service level your organization is now obtaining from its suppliers or delivering to your customers?*

	Over 98% OTIF	Between 80% and 98% OTIF	Below 80% OTIF	Increased below 80%
From suppliers before COVID-19	74	24	2	
From suppliers in 2020	28	54	18	16 percentage points
To customers before COVID-19	44	55	1	
To customers in 2020	17	64	18	17 percentage points

Note: Data excludes dispensing endpoints such as hospitals and retail.

n = 351

Source: IDC and TraceLink's *Supply Chain Survey, 2020*

Although there are many reasons for the degradation of OTIF, including the supply and demand challenges previously articulated, there is no question that transportation capacity has been impacted by COVID-19. There is a clear and compelling opportunity for the pharmaceutical industry to collaborate more effectively with third-party logistics providers. High levels of inventory in the pharmaceutical supply chain have helped blunt and buffer some of the impact of supply and transportation issues, but it had not blunted all of them, and the ability to use stock as a band-aid is not sustainable in the long term.

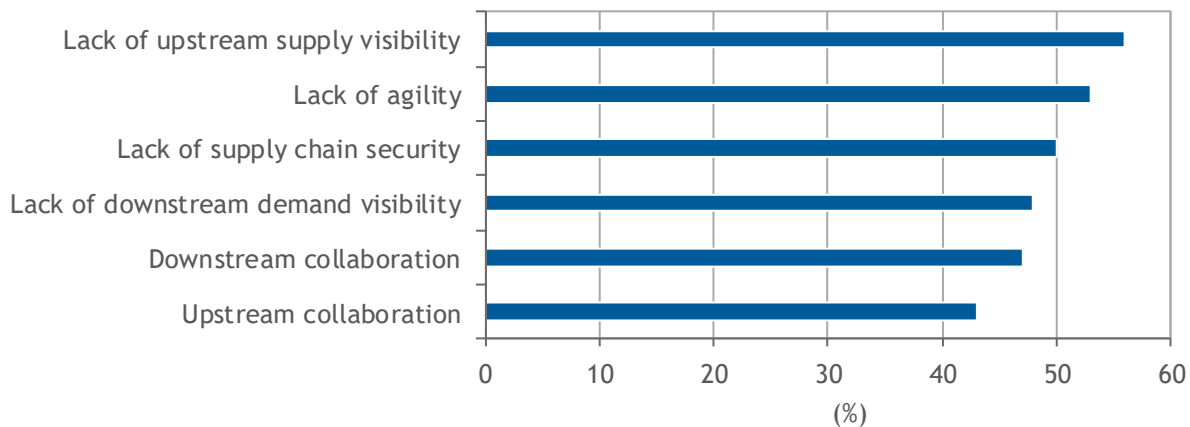
## MANAGING DISRUPTION IN THE SHORT/MEDIUM TERM

The COVID-19 pandemic has had a significant impact on the pharmaceutical industry as a whole. The gaps have indicated profound implications in the short term and long term and opportunities for improvements are clearly visible. Indeed, there are a number of critical gaps that have been exposed and reinforced in 2020 (see Figure 4). Whether a pandemic, floods, earthquakes, extreme weather, or trade wars, faster sensing and reaction to disruption and a resilient supply chain are essential. In the event of future disruptions like the pandemic, the industry needs to be capable of dealing with multi-dimensional disruptions that morph over time and may move from one country to another.

**FIGURE 4**

### Critical Supply Chain Gaps

Q. *As you think about the future of the pandemic, what current gaps are likely to be the most problematic if not addressed?*



n = 532

Source: IDC and TraceLink's *Supply Chain Survey, 2020*

IDC has distilled supply chain resilience down to the following simple equation:

Visibility + Agility = Resiliency

Visibility into the supply chain and the ability to act upon what we see within the necessary time frames are the essence of resiliency, thus the importance of supply chain resiliency can be distilled down to the "formula" of visibility plus agility equals resiliency. Visibility is the ability to see what is happening in the supply chain – suppliers, inventory, business processes, and customers. Agility is the ability to respond within the necessary timescales – adjust/repurpose inventory, adjust manufacturing capacity, or activate alternative suppliers are some examples. A supply chain that can both anticipate and respond to impactful events will be resilient. Resiliency is also about the ability to quickly adapt to changing business conditions while maintaining the core purpose and principles of the business.

It is critical to have actionable visibility into your supply chain, both upstream to suppliers and downstream to customers, to see what is happening, ideally in real time and with actionable context. Yet having visibility is not enough; the supply chain must be able to respond to what it sees – otherwise visibility is just an

academic measure. Conversely, an agile supply chain that does not know what specifically to respond to, and when, is operating blindly without actionable context. Consider agility in terms of both planned and unplanned changes that may cause disruptions – proactive versus reactive if you will. Companies must have the supply chain capabilities to quickly assess and responsively manage the impact of disruption, both efficiently and effectively, and to then build those improvements into operations in a reliable and compliant way so that the problems do not resurface or simply move to another node in the end-to-end supply chain.

Pharmaceutical manufacturers were more likely to view visibility as their most significant gap, while wholesale distributors and third parties were more likely to view agility and redundancy as the most significant gap. The latter group was also the most concerned about the lack of supply chain and product provenance security leading to counterfeiting, diversion, and theft. This clearly indicates that the level of end-to-end maturity is still somewhat fragmented and not end-to-end patient-centric focused.

A supply chain that has both actionable visibility and contextually accurate supply chain agility will be resilient to disruption more often than those that do not. While collaboration and data sharing are not specifically included in the definition for supply chain resiliency, it is a critical linkage to both visibility and agility.

## Supply Chain Transformation – From Reactive Supply to Patient-Centric Demand

The goal of supply chain transformation must be to move from being purely reactive relying on inventory buffers, and the associated poor overall performance that results, to one where visibility and agility allow companies to be proactively demand driven and patient centric.

In absolute terms, 57% of companies either remain in a reactive mode or are looking to drive transformation efforts into a narrow localized slice of their supply chain, 37% are looking at end-to-end transformation more broadly in process terms, and only 6% are looking at how they engineer the supply chain to be holistically patient centric and patient demand driven. In the absence of a modernized, digitally transformed supply chain, reactive becomes the only lever available to pull in the event of a major disruption, and it is often not timely, especially if inventory buffers are a protection to stockouts and shortages. If pharmaceutical companies don't take the actions necessary to advance supply chain transformation and be resilient, they will find themselves in the same boat when the next major disruption occurs, and they are working at lower levels of inventory.

The direct impact of COVID-19 on the supply chain has been varied. Pharmaceutical companies and distributors have experienced increased production and supply chain costs (40%), drug shortages (20%), and poor service level to patients (13%). While a number of companies put contingency plans in place as COVID-19 unfolded across the globe, the problem with contingency plans is that they have to be continuously *planned*; contingency plans work less well in reactive mode, particularly when the visibility or agility necessary for a rapid sense and response is lacking. Further, a continuously "live" risk management strategy must be a strategically imperative exercise that is regularly revisited, not one to dust off when a disruption occurs.

*"I would say maybe we're in the last phase of the early innings. We're really now trying to explore what are the technology enablers, what are the right technology enablers that we need to be investing in that will help us digitally transform across our supply chain. There's a lot of different options out there, and as I started really looking into it a year or so ago and talking to consulting groups, different companies that were out there, whether it's cognitive decision thinking or control towers, then people have their own unique system, things like that, for the longest time it was like what's real and what's fluff."*  
— Senior supply chain executive, on digital transformation



## MANAGING DISRUPTION IN THE LONGER TERM

Although there have been some pharmaceutical companies that have successfully pursued both visibility and agility in their supply chains, most have not prioritized the capabilities systematically; the degradation of metrics such as product availability/drug shortages and OTIF performance are the result. Both visibility and agility are supply chain capabilities that must be developed ahead of and over time if end-to-end supply chains are to be reliably resilient. The onset of a major global disruption like COVID-19 is not the time to reactively begin to develop these capabilities.

### Smart Inventory: More Than Just a Band-Aid

Inventory levels have helped the pharmaceutical industry blunt the initial impact of the COVID-19 pandemic and have traditionally buffered supply chains and patients from inaccurate demand forecasts. Yet inventory management strategies present something of a mixed bag in terms of longer-term benefits. Inventory is often used as a band-aid for more structural supply chain issues, but it also plays a critical role in buffering lead times and supply issues if it is managed smartly and driven as part of a calculated patient-driven demand-driven segmentation strategy. Part of smart inventory is having visibility into both the location and the form of inventory as insight into the factors that are driving actual demand. In the survey, 79% of the respondents either agreed or strongly agreed that having timely visibility to finished goods inventory at all nodes of the supply chain would significantly eliminate the problem of drug shortages. The key to the end-to-end supply chain and patient-centric OTIF is being able to connect the dots coherently across the end-to-end supply chain nodes. Companies also need clarity into both manufacturing and transportation capacity at risk and build strategic inventory to specifically target those areas of risk. Yet doing this after a major disruption hits is often a day late and a dollar short. As Table 2 illustrates, pharmaceutical companies intend to boost the levels of inventory on hand.

**TABLE 2**

#### Inventory Positions – In 2020 and 2021 (%)

*Q. On average how many days of safety stock does your organization carry for raw material and finished goods?*

	Raw Materials — Today	Raw Materials — 2021	Finished Goods — Today	Finished Goods — 2021
Under 30 days on hand	29	14	36	23
30–90 days on hand	52	55	50	55
90–120 days on hand	13	25	9	15
Over 120 days on hand	7	6	4	7

Note: Raw materials are from pharmaceutical manufacturers and CMOs only.

n = 532

Source: IDC and Tracelink's *Supply Chain Survey*, 2020

There is a significant expected shift from holding less than 30 on-hand days of inventory to holding more than 90 days' inventory. Among the industry segments, pharmaceutical manufacturers and contract manufacturers are the most likely to increase inventories substantially as they have traditionally had to respond to sudden demand changes at the end of the chain. While this is more of a knee-jerk reaction to the pandemic versus a strategic and structural reassessment of capability and inventory, the role of inventory is a critical element of achieving better supply chain agility.

## Improving Visibility – More Aspirational than Achieved

While many companies may have good visibility into upstream tier 1 suppliers and their initial downstream distributors, there is not much beyond that. There is clearly an inability to connect the dots analytically and insightfully in the interests of patient fulfillment. The inability to see beyond the next domino in the chain means that the ability for the pharmaceutical supply chain to be proactive and anticipate potential disruptions upstream and downstream is quite limited. The inability also forces companies into potential suboptimized local and performance improvements.

In the survey, more than 90% of the respondents said that they are involved in efforts to improve visibility, but it remains very much a transformation work in progress for most companies. The scope of this transformation is significant (mental models, systems, data, processes, collaboration, skills, and organization designs). Indeed, 50% of the respondent companies lack visibility to effectively react to marketplace changes, and 78% believe that having timely visibility into finished goods inventory would allow them to significantly reduce drug shortages.

All three of the interviewed executives noted that visibility is relatively poor in the industry, making contingency planning tricky. Specifically, *"We have good visibility up to our affiliates or distributors, but once you get to the distributors, that's where we lose that visibility. As far as the inventories that are being carried at specialty pharmacies or hospitals, that is where we don't have good visibility. If we could more strategically manage inventories and ensure that we're much more agile in our decision making and obviously making the right decisions at the end of the day as far as where inventory needs to be to best meet the patient populations around the world. We have good visibility up to those distributors, but from that point forward, that's where we really lack the visibility that would be helpful."*

*"I think companies have made a minor amount of progress, but visibility is still very patchy in my experience. I am working with a couple of software companies to give greater visibility. I think the idea of this universal visibility in the supply chain is still in its infancy, and there is a long way to go." — Supply chain executive, on visibility*

Results from the survey support this notion of visibility in its infancy. IDC has identified the following three stages of visibility:

- Stage 1 is where visibility tends to be localized and internally focused.
- Stage 2 is about getting visibility extended both upstream and downstream to suppliers and distributors/customers.
- Stage 3 is full visibility upstream to n-tier supply and downstream to dispensing endpoints.

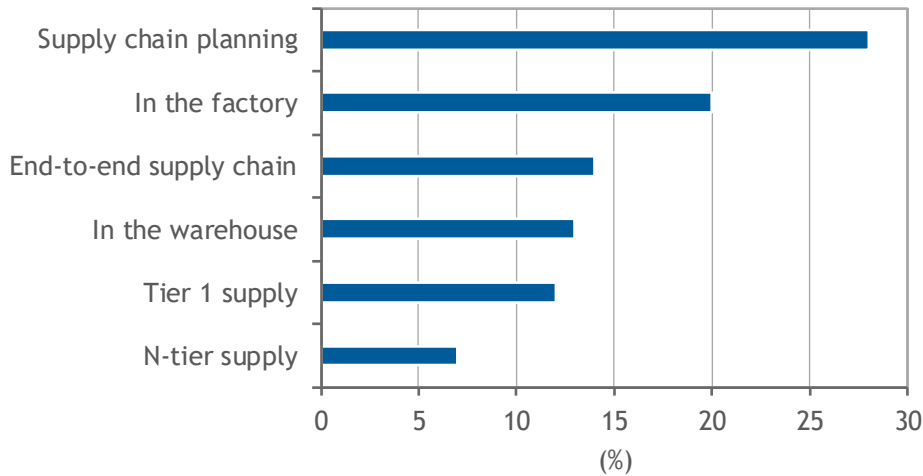
As illustrated in Figure 5, the majority of respondents remain in Stage 1 with an internal focus on either supply chain planning or the factory. These are both important, certainly, but as the COVID-19 pandemic has shown, most of the supply issues occurred either at tier 1 suppliers or further back to tiers 2, 3, or even 4. Only about 15% of survey respondents are focusing on tier 1 supply specifically, with even fewer beyond tier 1.

If we accept that pandemic-like disruptions will be the new normal in the pharmaceutical supply chain, then visibility must be accelerated through the use of more diverse data sets, digital network platforms, holistic analytics, and better collaboration within the relevant ecosystems.

**FIGURE 5**

**Focus Area for Visibility**

Q. Where is the focus for visibility in the supply chain?



n = 532

Source: IDC and TraceLink's *Supply Chain Survey, 2020*

In addition, systematically improving actionable visibility must be accelerated. In part, this is a technology and organizational maturity discussion, in terms of the better use of data, processes, and analytics. This is also an organizational/cultural discussion that means expecting better and different patient-driven demand-driven metrics and performance at suppliers and distributors.

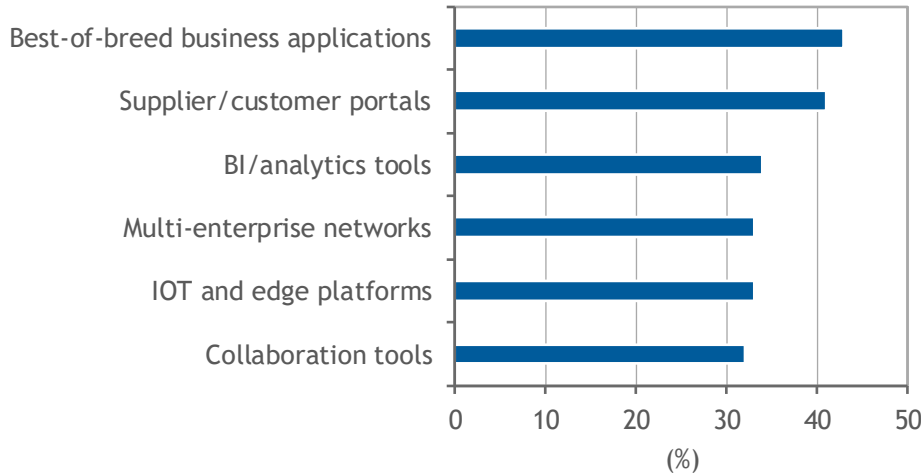
Pharmaceutical companies clearly understand that technology is an important enabler of visibility. Figure 6 illustrates the top responses for future plans to improve visibility. Improving the capabilities of the foundational supply chain systems is the top priority and speaks to the relative immaturity of the industry in holistically achieving visibility.

*"I think healthcare and pharmaceuticals lag behind. There are still huge walls between the manufacturers, the wholesalers, the hospital networks, etc., and they all see it as a pricing gain or advantage to not share information across the network. I believe that is probably the biggest potential breakthrough in both managing healthcare costs and managing healthcare services and availability and everything else to truly get to the truly transparent and ubiquitous healthcare network." — Supply chain executive, on visibility*

## FIGURE 6

### Visibility Enablers

Q. Please rank your organization's top 3 priorities to enable visibility in the supply chain.



n = 532

Source: IDC and TraceLink's *Supply Chain Survey, 2020*

Visibility is only going to be as good as the data available and the collaboration processes in place – thus event-driven IoT and edge platforms will be crucial as well. IoT is less about sensors and sensor technology and more about the continuous data stream of real-time data related to the digital twin of the product flow as it moves through the supply chain that it provides. In other words, it is increasingly a data and analytics opportunity.

Progress is being made, but the overall state of visibility in the pharmaceutical industry is quite limited and tends to be achieved with standalone event-driven systems like control towers!

### Achieving Agility

The other key component of supply chain resiliency is the ability for the supply chain to be agile and responsive. Figure 7 shows the initiatives that companies say they either are doing or plan to do to become more agile. Inventory pops up again as something that can be affected in the short term, but most of the other activities are longer-term actions.

As COVID-19 has exposed a lack of agility, there has been quite a lot of buzz around globalization versus localization and the need to bring supply back to local shores. When considering both the present and the future of the supply chain, companies need to avoid the kind of knee-jerk reactions that result in making poor choices about long-term supply chain strategy. One of these reactions is globalization versus localization. Many global supply chain partnerships are complex and have been built over many years. Change will be expensive and not an overnight event.

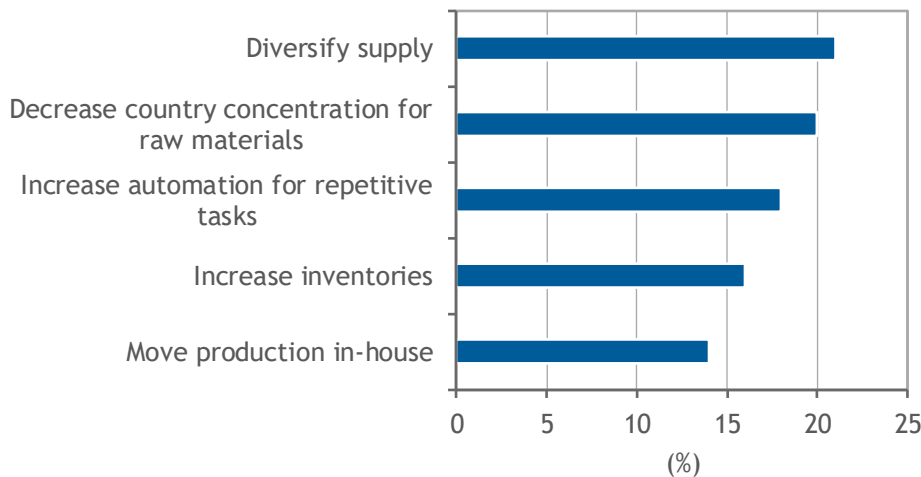
COVID-19 has had a major impact on globalization. The world economy is at a perceived inflection point where concerns about the dependence on others are growing. Policymakers and business leaders are questioning whether global supply chains have been stretched too far and too thin without

countering the negative effects of too long and too thin! With both the market costs and risks of global operations shifting, pharmaceutical companies need to decide where to compete in various capabilities along the value chain, consider new service offerings, and reassess their geographic footprint and risks. Striking the right balance between globalization and localization will present businesses with both opportunity and challenge.

**FIGURE 7**

**Supply Chain Agility**

Q. Please rank the top 3 highest priority steps your company is taking or planning to take to increase supply chain agility



n = 532

Source: IDC and TraceLink's Supply Chain Survey, 2020

Agility and speed to market in the future are likely to become more critical elements of competitive performance, and most companies should explore a better strategic balance between globalization and localization for improved supply chain resilience and coordination. As one pharmaceutical executive noted, *"There will be some minor shifts, but unless there's a massive tax burden placed on companies, particularly pharmaceutical companies, they won't change their sourcing much. There will be some focus to increase their agility and flexibility and potentially their idle capacity slightly, and it might be a bit more onshored than offshored."* There has already been a big move toward nearshoring. China is no longer the place to automatically go to do manufacturing because it's not a third-world country anymore – the labor rates and utility costs, which are the two big leaders for low-cost manufacturing, have caught up, although there is a compelling market for products that will evolve over time for those who understand how to do business and manage risks in China. So places such as Brazil, Bangladesh, Vietnam, and Mexico have definitely seen a resurgence in the past five years. Agility requires diversification, so there will absolutely be a move to be less reliant on specific suppliers and on specific geographies, but as long as demand is global, supply must be global. Agility also means enabling teams to work together with new digital tools (with members from manufacturers and their suppliers) that allow for faster resolution of issues once they occur and better insights across the organization.

Another interesting insight from Figure 7 is the notion of "smart" and "augmented" automation for repetitive tasks and human augmentation. Although automation is often brandished as a threat to jobs, past concerns about job losses in the manufacturing industry have not materialized and, excluding the 2020 bubble, there are more people employed than at any point in the past. IDC expects this trend to continue where automation is less about people replacement and more about task replacement and people augmentation. Indeed, the use of key technologies, a smarter approach to buffer inventories, and sensible steps to improve supply diversification will improve supply chain agility significantly.

**THE BENEFITS OF A RESILIENT SUPPLY CHAIN**

We asked companies about the relative level of transformation in the pharmaceutical supply chain. Correlating answers with the impact of COVID-19 yields some interesting insights (see Table 3). Companies that viewed their supply chains as more progressed in their transformation journey were more likely to view the impact of COVID-19 on their business as less severe than those that judged their supply chain transformation to be less progressed. It is interesting to note how more senior business executives tend to see the state of transformation as being more progressed than the levels of capability as experienced by those in the trenches.

**TABLE 3**

**Correlating Supply Chain Transformation with COVID-19 Impact (%)**

	COVID-19 Major Impact	COVID-19 Minor Impact
Reactive	70	30
Functional focus	85	15
Enterprise focus	55	45
Patient centric	50	50

Source: IDC and TraceLink's *Supply Chain Survey, 2020*

COVID-19 is impacting everybody and will continue to do so until systematic agile capabilities are built. There is some quantitative support for the contention in Table 3 that companies with more progressed digital transformation efforts are likely to fare better than their less progressed competition. In fact, we saw the same kind of correlation between digital supply chain transformation and a somewhat lessened impact of COVID-19 in IDC's 2020 *Supply Chain Survey*. This advantage could well be associated with the emerging digital networks that are able to exchange real-time data. If prior economic recessions are any indicators, technology plays well during and after a disruption.

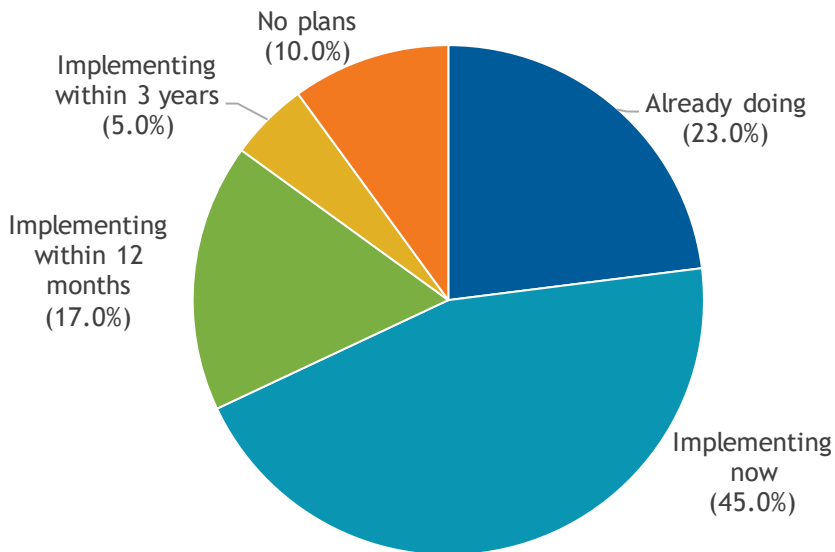
## Technology Adoption

There is also a strong correlation between supply chain transformation maturity and the "smart" use of technology capabilities. Whether participating in multi-enterprise supply chain networks, leveraging AI, or using patient data, the adoption of technology generally means better visibility, greater agility, and better overall supply chain resiliency. Pharmaceutical companies are gradually adopting these technologies, albeit more slowly as summarized in Figures 8 and 9. Adoption remains slightly above 50% for the use of patient data, but only at about 25% for multi-enterprise networks.

When forecasting becomes broken, the best approach is to get as close to the demand source data as possible. In this case that is patient data. Companies that can use patient-centric dispensing and usage data on a significant scale to gain more visibility to structured segments of downstream demand will find that it helps enormously to smooth forecast error.

**FIGURE 8**

### Use of Patient Data



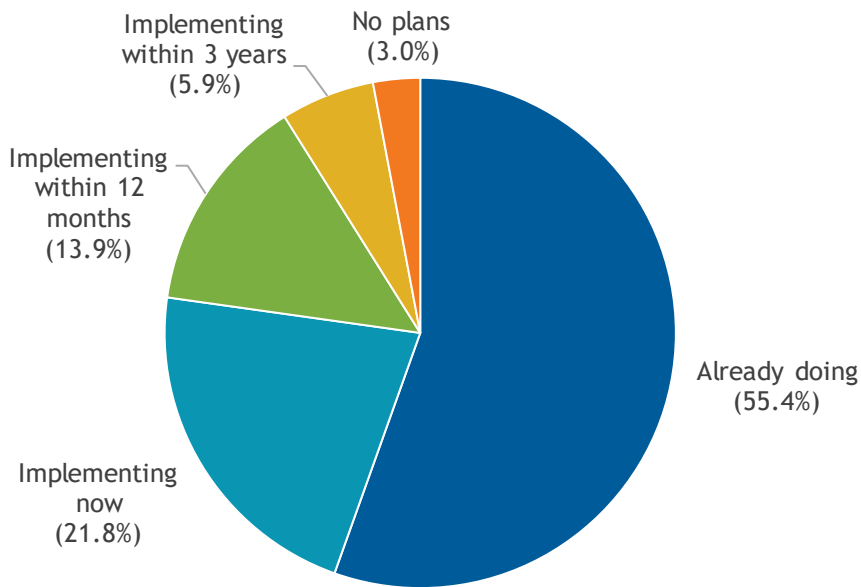
n = 532

Source: IDC and TraceLink's *Supply Chain Survey, 2020*

The same is true with networks. Insightfully using third-party multi-enterprise business networks to share data, exchange information, and better collaborate with both downstream and upstream trading partners delivers real-time visibility and a technology platform through which to better enable agility. Complementing this with advanced augmented analytics will introduce the notion that the data lakes in the network can be used to find and answer questions that were not previously possible with interconnected transactional architectures of systems and data investments of the past.

**FIGURE 9**

**Use of Multi-Enterprise Business Networks**



n = 532

Source: IDC and TraceLink's *Supply Chain Survey*, 2020

**ESSENTIAL GUIDANCE/ACTIONS TO CONSIDER**

All too often, companies in the pharmaceutical industry are deploying local siloed improvement solutions and fragmented fixes to address disruptions rather than using the burning platform of the pandemic to fuel the energy, urgency, and commitment to digitally transform their business and prioritize agile patient centricity. They are often stuck using traditional operational enterprise software vendors with limited cognitive and augmented analytics capabilities while focusing on inventory as the sole and safe low-risk form of agility when they should be leading a prioritized and coordinated business focus on resilient, responsive, reliable, and compliant product supply to plan and focus on meeting agreed service levels.

Companies that have yet to adopt digital technology in their supply chain or are just beginning their supply chain transformation efforts must take action now. These companies can start by exploring ways to deploy enabling technology with agile processes. These processes should support end-to-end collaboration, provide actionable visibility, and enable data sharing between partners both inside and outside the organization and across all stakeholder functions. While the old ways of working may have served companies well enough in the past, such approaches will not work as the COVID-19 crisis persists. Nor will they work well for disruptions that are certain to occur in the future.



IDC suggests that companies take the following actions:

- Look for quick wins by adopting technology that brings collaboration and responsiveness to existing systems and processes to improve overall agility.
- Identify and prioritize the most important capabilities identified as major weaknesses in the pandemic, such as actionable and accurate data sharing for end-to-end upstream and downstream visibility.
- Plan holistically for transformation across all functional departments and investigate platforms to enable integration of planning and operations across the end-to-end demand and supply network.
- Lead a prioritized and coordinated business focus on resilient, responsive, reliable, and compliant product supply to plan and focus on meeting agreed service levels.
- Collect and analyze downstream demand data from various sources to aggregate realistic and reasonable data and improve demand forecasts for use in planning the product supply network.
- Strive to be digital leaders by transforming operating models from supply driven to patient driven.

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