



Criticality of a Modern, Resilient Supply Chain:

Essentials to Embrace, Pitfalls to Avoid



Expert Insights

Supply chain organizations face challenges with the complexities of their end-to-end supply chain workflows and interlinked processes. The global COVID-19 pandemic has underscored the criticality of an efficient and robust supply chain for an enterprise's success.

Traditional supply chain operations are fragmented in both approach and delivery. They are vulnerable to inefficiencies due to their interconnected nature. Events such as the pandemic only underscore the need for a holistic end-to-end approach to supply chain operations.

Organizations must innovate their supply chain operations to be ever more agile, proactive, and resilient and achieve rapid visibility into their supply chains.

ParkourSC and Sapio Research recently surveyed 210 U.S. supply chain decision-makers in the pharmaceutical and food & beverage industry. The report highlights key areas, provides unique expert insights and reveals inefficiencies in traditional supply chain operations.

Enterprises that embrace these insights and innovate to a fully automated, extensive, and predictive supply chain will propel companies' market leadership and increase revenue, customer satisfaction, and sustainability.



Supply chain visibility – *noun*

is the ability to obtain real-time information on the status, condition, and location of materials, inventory, and assets, driven by a continuous stream of granular data and ground truth from enterprises' systems, sensors, and contextual environmental data.

Cold chain – *noun*

is a temperature-controlled supply chain, a series of actions and required equipment needed to maintain an asset or product within a specified temperature range when it journeys from production to consumption.



Critical Findings Regarding Supply Chain Visibility:

92%

of respondents say they cannot 100% trust the tracking data from products within their supply chain.

99%

of respondents in the pharmaceutical industry claim to use manual processes to achieve supply chain visibility.

Product damage or spoilage **(30%)**

Temperature excursions **(25%)**

Unexpected delays **(24%)**

Lost or misplaced inventory **(21%)**

Compliance issues **(20%)**

are the top 5 current supply challenges plaguing these industries.

An overwhelming majority (87%) of respondents in the pharmaceutical industry say they lack complete (100%) visibility into the condition of products in their supply chain during the last mile of delivery.

The Business Impact of a Lack of Supply Chain Visibility:

On average, respondents in the pharmaceutical industry lost \$95 million annually in medical inventory spoilage resulting from cold chain failures. More importantly, this number jumps to \$179 million for companies with 1,000 or more employees.

On average, respondents in the pharmaceutical industry lost 202,600 doses of medical inventory annually due to cold chain failures; 6% of respondents claimed to have lost 1 million doses or more.

\$71M

are lost annually from fresh food spoilage due to cold chain failures. However, this jumps to \$179 million for companies of 1000 or more employees.

97%

of food & beverage industry respondents experience product spoilage during fresh food shipments.



The State of The Supply Chain

Supply chain speed and agility are vital in remaining resilient and competitive in today's rapidly changing environment. Having complete visibility into one's supply chain is a must to be proactive, act quickly, and respond correctly. Companies must have complete visibility and monitor their products' location, shipments, regulatory compliance, timeliness, and production conditions.

Traditional methods of obtaining and tracking this data are outdated and lack the efficiency needed to achieve complete end-to-end visibility.

It is a fact that

48%

of survey respondents claimed to use manual processes for supply chain visibility.

42%

of total respondents say they use spreadsheets to achieve supply chain visibility

37%

of total respondents say they use pen and paper to gain supply chain visibility

23%

of respondents use alarm clocks to achieve supply chain visibility

48%

of total respondents claimed to use supply chain software to achieve visibility. Yet, 92% of total respondents said they could not 100% trust their product tracking data.

The level of visibility varies as products travel through the supply chain; it is difficult and complex to pinpoint exactly where a product is no longer in the line of sight.

92%

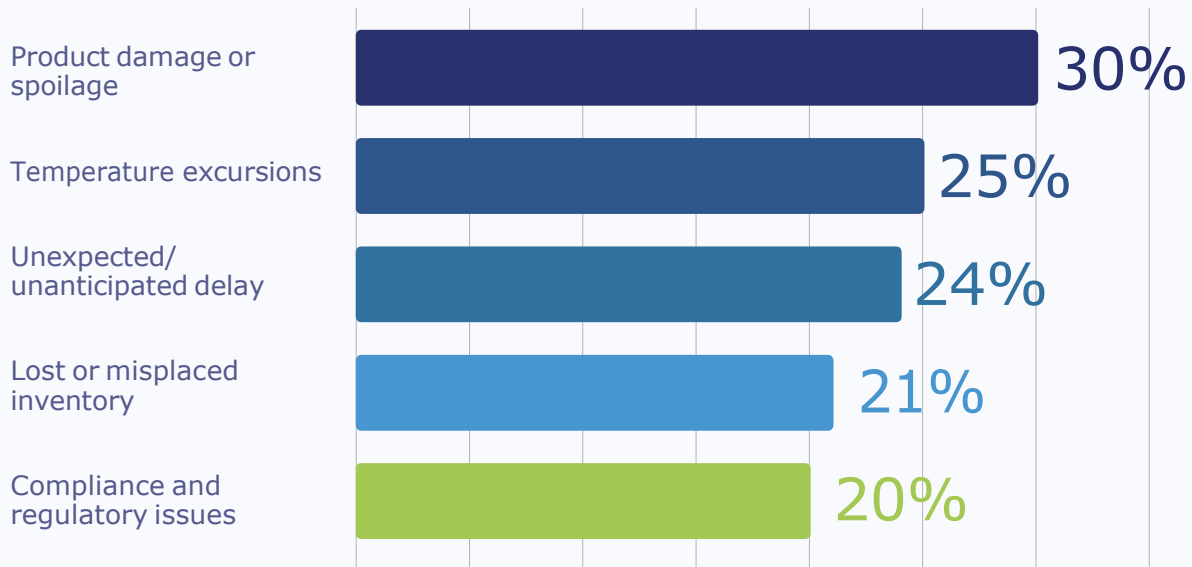
of respondents say they don't have 100% visibility into the condition of products within their supply chain during the transition from source to supplier. 6% said they had 0% visibility during this transition.

Another 89% say they don't have complete 100% visibility into the supply chain funnel about product status or condition as it transitions to distribution; 8% said they had 0% visibility.

Similarly, 79% say they don't have complete 100% product visibility during the last mile of delivery; 13% say they had 0% visibility.



The top 5 challenges within the supply chain as cited by respondents:



A unanimous 32% of respondents cited transition to distribution in the supply chain as the most likely point for product spoilage. This disruption is caused by products that are being prepared for shipment, which are typically in storage during the early phases of distribution and therefore easier to monitor and control. Problems with visibility begin to arise when the product starts its journey with handlers and transitions, which lead to a decrease in visibility of product conditions and an increase in the chance of spoilage. 23% of respondents said they did not have any processes to prevent product spoilage before it occurred.





The State of the Supply Chain: Pharmaceutical Industry

Companies in the life sciences industry must rely on a complex global network of suppliers, logistics providers, and manufacturing organizations to get products to the end consumer. The life sciences sector is also one of the most regulated industries, adding complexity. They are subject to strict rules and requirements, including batch-level traceability and a carefully controlled cold chain logistics infrastructure. Life sciences companies must have a granular view of product flow through the supply chain funnel, from the initial supplier, shipment through the funnel, and the last mile to the end consumer/patient. Given these challenges, a state-of-the-art supply chain operation and advanced digital transformation initiatives are a must for success, strong customer trust, and satisfaction.

A staggering 99% of respondents in the pharmaceutical industry claim to use manual processes to achieve supply chain visibility. Over half (53%) of these respondents are not using supply chain software to gain this visibility. Pharmaceutical industry respondent insights to achieving Supply Chain Visibility:

45%

of respondents say they use spreadsheets to gain visibility

27%

of respondents say they are using alarm clocks to achieve supply chain visibility

35%

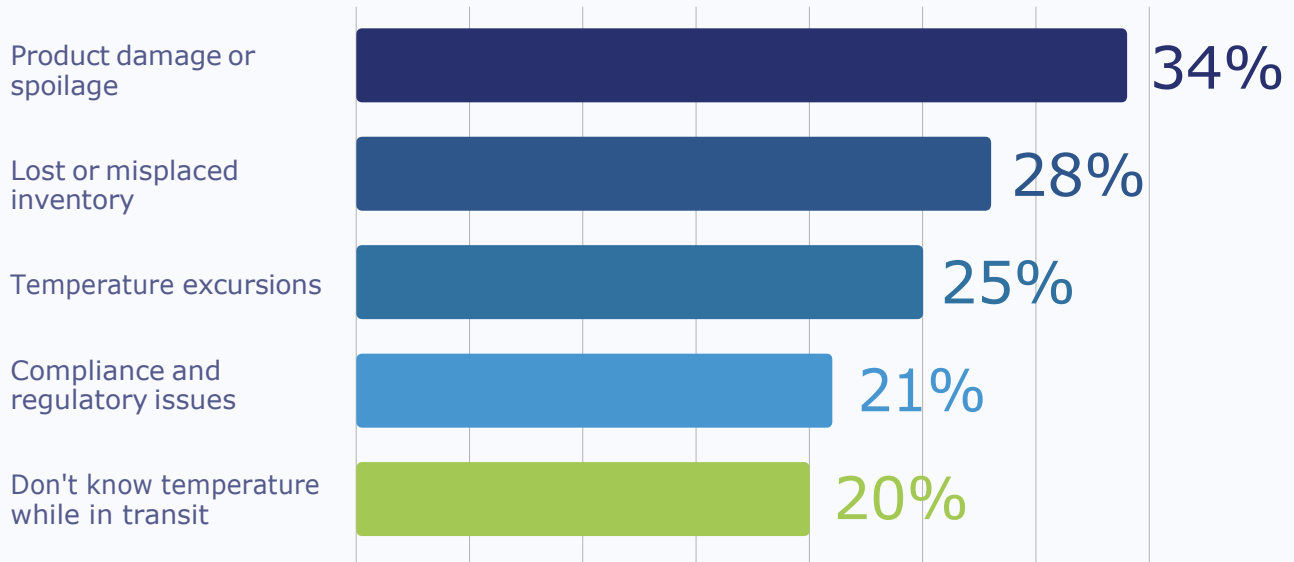
of respondents say they are using pen and paper to achieve visibility

With 34% of respondents claiming product damage or spoilage as their number one problem within their supply chain, real-time knowledge of when and where product spoilage occurs is essential. Unfortunately, an overwhelming majority (90%) of respondents in the pharmaceutical industry said that they do not have complete 100% visibility into the condition of products in their supply chain during the transition from source to the supplier. 5% said they had 0% visibility during this transition.

88% of respondents say they don't have complete 100% supply chain visibility into the condition of products transitioning from in-transit to distribution; 4% said they had 0% visibility during this transition. 87% of respondents in the pharmaceutical industry say they do not have 100% visibility into the condition of products in their supply chain during the last mile of delivery, and 13% said they had 0% visibility during this transition.



Top 5 challenges according to pharmaceutical industry respondents:



While Supply chain technology helps reveal and address these blind spots, 89% of respondents in the pharmaceutical industry did not have complete 100% trust in the data from tracking the products within their supply chain.

On average, respondents in the pharmaceutical industry reported \$95 million is lost in medical inventory spoilage resulting from cold chain failures. However, this number jumps to \$179 million for companies with 1,000 or more employees. Another 6% of respondents in the pharmaceutical industry reported anywhere from \$500 million – \$1 billion or more.

Supply Chain Visibility in the pharmaceutical industry is vital – without complete visibility, a company faces devastating impacts on its products, financial health, and consumer satisfaction.

Financial implications aside, lack of visibility impacts patient access to pharmaceuticals, especially for those who need it most. On average, respondents cited losing 202,600 doses of medical inventory annually due to cold chain failures. 6% of respondents claim to lose more than 1 million doses annually due to cold chain failures.

Real-time supply chain visibility is especially critical in mitigating cold chain risks during vaccine delivery – The COVID-19 pandemic and the need for vaccine availability are stark reminders. Failure to achieve optimal pharmaceutical supply chain visibility is critical now and in the future.

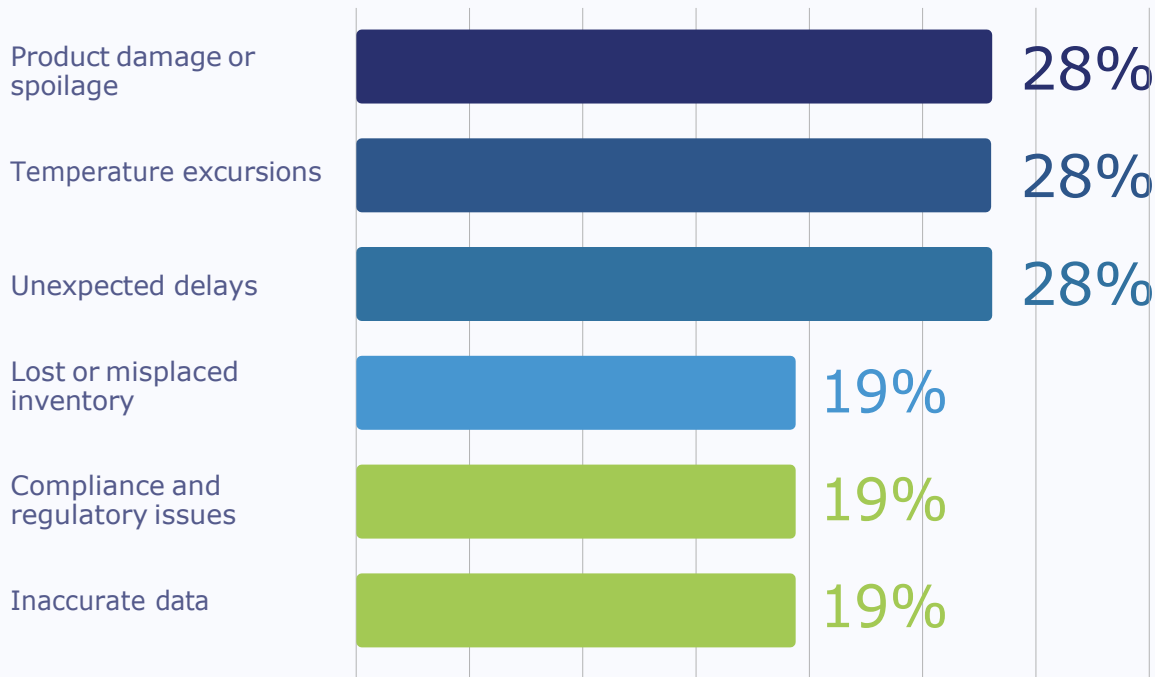


The State of the Food & Beverage Industry's Supply Chain

Pharmaceuticals and Food & Beverage share many challenges: transporting sensitive, highly perishable goods and ensuring product quality and integrity are paramount in both industries. Having visibility into asset and product condition, timing, and location creates a real-time view at every point along the supply chain. Due to temperature, humidity, light, and vibration excursions, food spoilage in the supply chain could result in severe illness and even loss of life.

A lack of end-to-end supply chain visibility creates challenges within the Food and Beverage supply chain, leading to food-related impacts on communities.

Top 5 challenges according to respondents:





Causes of a lack of visibility in the Food and Beverage Supply Chain

Food and Beverage industry respondent insights to achieving Supply Chain Visibility:

An average of **79%**
of respondents claim to
use manual processes

44%
of respondents
say they use
spreadsheets

43%
of respondents
say they use pen
and paper

27%
of respondents say they use
alarm clocks to achieve supply
chain visibility

Only 47% of respondents in the food & beverage industry said they are using supply chain software to gain supply chain visibility. A staggering 92% of respondents in the food & beverage industry say they do not have complete 100% trust in the data from tracking products within their supply chain.

A lack of supply chain visibility profoundly impacts food waste and insecurity

93% of respondents in the Food & Beverage industry said they do not have 100% visibility into the condition of products in their supply chain during the transition from source to supplier. 5% said they had 0% visibility during this transition.

87% of respondents in the Food & Beverage industry say they don't have 100% visibility into the condition of products in their supply chain during the transition from in-transit to distribution. 8% said they had no 0% visibility during this transition. While 76% of respondents in the food & beverage industry said they do not have complete 100% visibility into the condition of products in their supply chain during the last mile of delivery, 11% said they had no 0% visibility during this transition.

On average, almost \$71 million is lost annually from fresh food spoilage due to cold chain failures. However, this jumps to \$179 million for companies with 1,000 or more employees. 3% of respondents in the food & beverage industry claimed to have lost \$1 billion or more annually from fresh food spoilage caused by cold chain failures.

Cold chain failures in the food & beverage industry account for large amounts of waste and impact access to fresh foods for those who need it most.

97% of Food & Beverage respondents experience at least some product spoilage during fresh food shipments. On average, 42% of that is the result of temperature excursions.

For companies of 250-999 employees, this rises to 46%. The survey reveals that the larger the company, the higher the risk of product damage and the more food waste. A simple fix for maintaining product efficacy in the Food & Beverage industry is to get products offloading docks much earlier, significantly reducing waste caused by cold chain inefficiencies.

Stakeholders in the Food & Beverage supply chain implementing advanced practices and cold chain technologies will reduce over 20% of annual food waste (\$20.8 Billion) over the next ten years. In the immediate post-pandemic economic recovery period, supply chain leaders must consider this their civic duty to support their community's needs. Over the long term, the impact of these changes will be on a global scale, helping to address world hunger.



Overcoming supply chain challenges

The findings in this report demonstrate the impact of supply chain and cold chain inefficiencies on businesses and communities worldwide. Highlighted below are key points to help stakeholders optimize their supply chain in real-time, minimize product spoilage and manage disruption.



Organizations must track both hard and soft attributes

Many organizations believe in tracking only complex traditional attributes within their supply chains, such as location, temperature, vibration, and humidity. True end-to-end visibility accounts for these complex attributes; more importantly, it also accounts for soft attributes. There are two contexts for soft attributes: (1) business process context, such as purchase orders, payment terms, and (2) environmental context, such as weather and traffic conditions.

Hard and soft attributes are directly tied to values and consequences, making them relevant in the context of business. The link between hard attributes to values and outcomes is clear. The same is also true of soft attributes, as they affect the successful shipment. Changes in both hard and soft attributes impact different aspects of the supply chain. For example, if a soft attribute like a contract payment term changes, the product owner in the warehouse needs to change; otherwise, it will impact the owner's liability, risk, and balance sheet.

Both hard and soft attributes are tied directly to values and consequences, making them essential in the overall business context. Tracking changes in hard and soft attributes enables companies to make accurate predictions, plan better, make decisions faster, reduce risk, and increase revenue. Tracking hard and soft attributes helps eliminate supply chain blind spots, showcasing business and customer value progress.



Organizations must enable visibility and tracking

Organizations that can track hard and soft attributes in real-time can gather all relevant data and superimpose it onto a digital model of the various supply chain components (digital twin), allowing real-time analysis. This analytic data set can take timely action, mitigate risk and improve operations and planning.



Organizations must monitor both soft and hard handoffs

Inefficiencies can occur in two main areas: (1) The transition from one step to another within a function and (2) the transition between functions. The first type of transition is a "soft handoff," while the second type is a "hard handoff." Organizations that detect a delay in the soft handoff can address them using escalations within the organization. Conversely, hard handoffs require intervention methods other than escalations, as they occur across organizations.



Within an organization, soft handoffs are managed by tracking soft attributes. Every handoff has a "from" state and a "to" state as the workflow is executed. Upon reaching a "from" state, the stakeholder proactively notifies the stakeholder of the "to" state, reducing system inefficiency. For example, upon purchase order approval, the supplier immediately sends a notification to shipping, triggering the shipment without any delay. If shipping fails to trigger within the specified time, additional alerts are sent or escalated in the organizational structure. If this soft handoff occurs within an organization, it can trigger an enterprise-wide messaging system. Soft handoffs across organizations need to be closely tracked or may cause blind spots in the supply chain.

Hard-attribute-based tracking reveals that it cannot identify why it did not happen when the hard handoff does not occur. For example, when the raw material loads onto a delivery truck, sensor-based tracking can detect it. However, if the loading does not happen, hard-attribute-based tracking can't determine why and cannot take appropriate action. Since soft attribute-based tracking is more granular, it knows precisely where and when the workflow failed. The process can proceed without any hitches if a timely message is sent to the right stakeholder when this occurs.

Think of the entire supply chain as a large workflow of interlinked processes. By tracking hard and soft attributes, organizations can reveal and address blind spots, leading to improved performance management, accurate predictions, and less waste.

ParkourSC partnered with Sapio Research to survey 210 U.S. supply chain decision-makers across the Pharmaceutical and Food & Beverage between October 19 – November 6, 2020. This report results from this collaboration and highlights critical areas and steps companies must embrace to optimize their supply chains.

About us

ParkourSC powers next-generation digital supply chains with insights from ground truth and real-time decision-making. Our SaaS platform leverages hyper-scale cloud, digital twin, AI/ML, and IoT technologies to deliver continuous visibility and intelligence. We enable business leaders to make the right decisions in real-time to increase revenues, avoid disruptions, deliver better business outcomes, improve customer satisfaction and increase sustainability.

parkourSC.com