



THINKING OUTSIDE THE FREEZER:

# Dynamic Cold Chain Solutions for the Future

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# Introduction: Connecting People to Food

The average eater doesn't spend much time thinking about how the food on the plate in front of them got there – but there's an entire industry that does. As consumers around the world reach for frozen vegetables or ice cream in their local grocery stores, or order a hamburger and french fries at a fast-food restaurant, they unknowingly rely on a complex network of suppliers that make up what we call "the cold chain" to access the food they're craving. And at the center of it all is Lineage Logistics.

Supply chain, logistics and technology companies such as Lineage Logistics work every day to ensure food is delivered safely and efficiently from where it is grown, manufactured or sourced to its final destination near you.



## What is the cold chain?

A network of **food growers** and **producers, as well as storage, transportation** and **distribution experts** who ensure that fresh and frozen food gets to consumers safe, fresh and conveniently.

As the world's largest and most innovative temperature-controlled supply chain and logistics company, Lineage partners with customers of every size – from Fortune 500 companies to mom-and-pop shops – to store, move and prepare fresh and frozen food.

From retail chains to grocery stores to quick service restaurants (QSRs) and beyond, we help our customers optimize and protect the integrity of their temperature-controlled supply chain while maintaining the safety and quality of their products.

The average **relationship** with our **top 10 customers** exceeds **20 years**.

Deep roots in generations of cold storage expertise combined with some of the world's most cutting-edge innovations enable Lineage to provide a more comprehensive suite of services than what the industry could have imagined. We offer turnkey, end-to-end logistical services for fast implementation, but we can also design custom solutions for the long term to meet the specific needs of our customers' supply chains. Our commitment to achieving a deep understanding of our customers' unique characteristics, then deploying the right solution to take on their supply chain challenges is why we are a trusted and strategic partner to so many.

In this case study we demonstrate the ways in which we serve as that trusted and strategic partner, which allows us to think outside the freezer for our customers from every vertical. Not only because that's just how we do business, but also because we take to heart that our customers' products end up on dinner tables all over the world.



## The Challenge: Supply Chain Inefficiency

It is estimated that the **meals** in the United States **travel** about

**1,500 miles**

to get **from farm to plate**.\*

According to data from Adobe's Digital Economy Index, **U.S. e-commerce jumped**

**49%**  
in April,

compared to the baseline period in early March before shelter-in-place restrictions went into effect.

Note: Center for Urban Education about Sustainable Agriculture, July 2020

Consumers want the food they want when they want it – and those preferences often change from minute to minute. No doubt about it, trends in the way we consume food, which is defined by what we buy and how we buy it, have a significant impact on our customers' supply chains. We currently see our customers responding to two primary challenges, which are cited below and call into question the efficiency of their supply chains.

### Location, Location, Location

Customers must continuously evaluate where their products are being produced versus where food is being consumed. Think about it – the farther away from the consumer, the more points in the supply chain a product has to travel before it is purchased then consumed, which has a direct impact on our customers' bottom lines. Therefore, having access to the most widespread and diverse network of temperature-controlled distribution centers is a critical gamechanger. Not only can customers skirt the necessity to utilize multiple networks to move their products, but they also have multiple facility options in multiple population centers to choose from.

### Speed Is the Name of the Game

The increasing popularity of online food sales in addition to surges in demand – like we saw at the onset of the COVID-19 pandemic – prove that the speed and efficacy of the food supply chain has never been more important, which applies a certain amount of pressure to the way our customers get their products from where they are grown, manufactured or sourced to the plates of the world's consumers. Consequently, customers are compelled to take a hard look at supply chain operations as a whole, from cold storage to transportation to processing, to ensure their products' farm-to-fork journey is as streamlined as possible. With that in mind, wouldn't it be ideal to partner with a single provider across the entire supply chain?

That's where Lineage comes in.



# The Solution: Lineage's End-to-End Solutions Create Efficiency

As you can see, the diversity and scale of a temperature-controlled logistics provider's facility network combined with its strategic, end-to-end capability can dramatically increase the efficiency of a customer's supply chain – and Lineage is ideally positioned to serve.

## Our Network

Lineage's network of over 300 facilities spans 12 countries across North America, South America, Europe, Asia, Australia and New Zealand, boasting a capacity of more than 1.9 billion cubic feet and 54 million square feet. According to the International Association of Refrigerated Warehouses, Lineage has the largest global network of temperature-controlled facilities – which enables our customers to leverage the power and reach of a single network to handle their products from beginning to end.

But it's not just about being the biggest, it's about being the best positioned. That's why we've invested in building a vast, far-reaching facility network, putting our customers near large population centers in major U.S. markets, such as Los Angeles, Chicago, Dallas, Atlanta and New York, as well as significant international markets, such as London, Amsterdam, Melbourne and Shanghai.

Lineage also operates in many of the world's largest ports, which are critical connection points as customers move products across multiple markets around the globe. With

more than 80 facilities located in or near the likes of the ports of Seattle, Long Beach, Houston, Miami, Auckland, Ho Chi Minh City and many others, we can help bring the cuisines of the world to consumers everywhere.

It's Lineage's collection of the biggest and best-positioned cold storage facilities in the world that offers unparalleled access and capacity for our customers, and we're constantly adding to our global footprint to give customers access to key consumer markets.

### 2020 IARW Global top 25 list of refrigerated warehousing and logistic providers

- 1 **Lineage Logistics (1,789,098,098 ft<sup>3</sup>)**
- 2 Americold (1,109,823,025 ft<sup>3</sup>)
- 3 United States Cold Storage (373,987,950 ft<sup>3</sup>)
- 4 AGRO Merchants Group, LLC (242,440,941 ft<sup>3</sup>)
- 5 NewCold Advanced Cold Logistics (194,605,755 ft<sup>3</sup>)

Calculations based on gross refrigerated space, on which dues are based, represents the total cubic refrigerated space, including freezers, coolers and docks from wall to wall, ceiling to floor, with no deduction for aisles, columns, coils, etc. This includes all space owned or operated by a member or an affiliate of a member.



## EXAMPLE:

# How One of Our Fortune 500 Customers Utilized the Power of Our Strategic Network



### SITUATION

A large global customer utilized Lineage for cold storage on a region-by-region basis. As our relationship with this customer grew, it became apparent that they could significantly benefit from access to Lineage's vast strategic network of temperature-controlled warehouses.



### SOLUTION

Our team was able to take a holistic look at their needs on a global scale and provide a single source to manage their cold storage needs across the globe. Additional automated pallet positions in our Richland, Washington, and Bergen Op Zoom, Netherlands, locations were impactful additions to their cold storage needs and helped provide high productivity and accuracy and an optimal food safety environment for their products.



### RESULTS

Today, this customer stores their products in **16 Lineage locations** across **four countries** and benefits from operational efficiency through our connected, strategic network. As their footprint continues to grow and expand into new locations, we're able to quickly provide cold storage space for their product in key markets.



While our network is the world's largest and most strategically positioned, Lineage's value proposition goes far beyond temperature-controlled warehousing by also moving and preparing our customers' food.

## Our End-to-End Solutions

While many may think of Lineage as a primarily warehousing-focused company, that's simply not the case. We have built a comprehensive suite of logistical services that complement our temperature-controlled facility network and offer customers an under-one-roof solution to further increase the efficiency of their supply chains.

Our full-service transportation offerings bring both a blocking-and-tackling capability and a creative, transformative mindset to the table. Whether a customer simply needs to combine a shipment through LTL consolidation, requires large-scale consolidation services or needs a fully outsourced managed transportation solution, Lineage leverages our scale, proprietary technology and generations of industry experience to optimize the movement of our customers' products.



### Fewer chemicals, longer shelf life

**HPP** is a **post-packaging, cold pasteurization method** of killing microorganisms that extends product shelf life, enhances food safety and most importantly protects our customers' brands.

Our transportation service offering can even start for our customers as early as when their products are on a container ship headed for a port of entry. With deep roots in customs brokerage, Lineage can expedite the import of products as a single-point customs provider, while also delivering drayage support and transportation to a facility. We also specialize in import/export compliance and offer significant guidance throughout the inspection process, working closely the Food and Drug Administration (FDA) and the United States Department of Agriculture to clear products for consumption quickly and efficiently.

We also know food doesn't always arrive at its destination in the same form it was grown or produced. That's why Lineage is a forward-thinking partner to our customers when it comes to processing product, packaging product and even extending a product's shelf life via High Pressure Processing (HPP).



EXAMPLE:

# How One of Our Customers Leveraged Our Modeling Tool Kit to Improve Their Bottom Line



## SITUATION

A Lineage customer had dispersed warehouse and production operations – four different warehouses which involved a high degree of inefficient product flow between the production and finished goods process.



## SOLUTION

Utilizing Lineage's sophisticated network modeling tool kit, the customer was able to optimize the flow of raw materials, production, processing and final delivery through Lineage's integrated transportation and warehousing services.



## RESULTS

Lineage was able to leverage the strength of the network and breadth of our services to reduce transportation costs by over **8%** resulting in approximately **\$3 million in annual savings**. The efficient service program created also allowed the customer to cover **99.6%** of all delivery sites within a two-day coverage zone.



# Supply Chain Engineering: Solutions for All, Not One Size Fits All

## A Single-Point Cold Chain Partner

Lineage's unmatched ability to store, move and prepare our customers' food allows us to provide value for our customers at nearly every touch point along their supply chain. Our holistic solutions help customers realize efficiencies and solve their unique challenges while never losing sight of the safety and integrity of their product.

So, let's recap. We have a leading international facility network. We offer a suite of comprehensive logistical solutions. How do we bring them all together to achieve the supply chain efficiency our customers are looking for? That's where supply chain engineering comes into play.

Our true expertise lies in partnering with customers to implement proactive strategies and tailored solutions in order to help them realize that efficiency, while also achieving the specified goals we collaboratively define, like higher revenue growth or better responding to consumer demands.

Those strategies and solutions are right-sized for every customer and can be as clear-cut as optimizing their distribution network via consolidation or go as far as tapping into our design-and-build capabilities, in which we develop dedicated manufacturing facilities or automated distribution centers to operate on their behalf.

However, for most customers, Lineage utilizes our consult, implement and optimize approach to arrive at the ideal solution for their supply chains. We start by identifying the challenges that they're currently

facing or expect to face in the future. This defines the scope of the partnership, lays out our objectives and helps Lineage to understand what the customer is trying to achieve in the long term. We then identify – or create – a solution to get them there, leveraging our best-in-class network and truly end-to-end logistical solutions.



In recognition of the company's leading innovations, **Lineage** was recognized as the **No. 1 Data Science Company** on **Fast Company's annual list of The World's Most Innovative Companies in 2019.**

Sounds straightforward, right? But Lineage also brings to the table a critical resource that is unprecedented in the temperature-controlled logistics industry – our data science team. No doubt, data is Lineage's most powerful tool, and our award-winning data science team works closely with our customers to collect and comb through enormous amounts of data to inform thorough supply chain modeling. Lineage can model various scenarios to demonstrate how the customer can achieve their previously defined objectives, which is the baseline for an optimization study custom-built for the customer.

A Lineage optimization study outlines a customer's complete supply chain, including the location of their distribution centers, transportation network and the handling of inventory – because naturally, without a total view into every aspect of their supply chain, it cannot be accurately or fully optimized. To be sure, these models are not delivered as a final product. Rather, they are continually and collaboratively fine-tuned until Lineage arrives at a recommended solution set.

What is truly unique about Lineage is our completely customized end-to-end logistical solutions that optimize our customers' supply chains for speed, efficiency and cost savings – all driven by cutting-edge technology and data science. It's the supply chain fueled by the power of science.



# Our Top Priority: Safety and Trust Go Hand in Hand

When Lineage’s customers entrust us with their business, they’re putting their trust in the people who handle their food products as well as the quality of the environment their food products encounter. At Lineage, the safety of our team members and our customers’ products are our top priorities, no questions asked. We take great pride in our responsibility as shepherds of the global food supply chain, and as a result continue to make significant investments in food safety.

Food safety plays a central role in Lineage’s customer partnerships. Our facilities participate in one of three food safety schemes on a continual basis. Two of them, Safe Quality Foods (SQF) and British Retail Consortium (BRC), are certified programs under the Global Food Safety Initiative (GFSI) and are widely accepted by our customers domestically and internationally.

## Our No. 1 value is **Safe**

The third scheme was developed by Lineage’s use of the FDA’s Current Good Manufacturing Practice and food safety criteria. All of our safety schemes are audited

annually by a third-party food safety firm for a variety of reasons, including to evaluate process and system performance as well as to ensure we are holding ourselves to the highest of standards.

But we don’t stop there.

Lineage’s Food Optimization Team, led by Dr. Stephen Neel, is tasked with creating and implementing programs that go beyond food safety and address food quality, food maximization and value-added services. Neel has over 30 years’ experience with food safety, food quality and process control in the global food industry. The Food Optimization Team is also responsible for standardizing the food safety programs across our network and ensuring that the individual sites are prepared for their annual third-party audit.

At Lineage, safety has been and always will be our No. 1 core value and priority. We don’t look at the food we handle as simply a pallet or a case of product. It’s a direct reflection of our customers’ brand and reputation that they trust us to handle, and at the end of the day, it’s the food we all sit down to eat as we gather around our dinner tables around the world.



## Customer Growth Journey

While food giants continue to expand and demand more space, Lineage also fosters the growth of promising start-ups with limited supply chain capabilities. Lineage's ability to invest in innovative technologies as well as an expansive global footprint offers an advantage to companies of all sizes that would otherwise struggle to connect the dots in their supply chain.

For some of Lineage's customers, a partnership has existed from the beginning and we've helped support the tremendous growth that they've seen. Custom solutions help move product faster in order for Lineage's customers to meet their customers' demands, exceed expectations and keep up with the speed of growth.

And if a solution doesn't exist? Lineage has the resources, capacity and technology to make almost any solution – no matter how unique – a reality.





EXAMPLE:

# How We Developed a Strategic Temperature-Controlled Warehouse Solution for a Customer



## SITUATION

A large meat processing client needed cold storage space in the southeast U.S. to facilitate an important packaging process and support their East Coast supply chain. Rather than making a large investment in a new building that would take significant time and financial resources, they looked to long-time partner Lineage for support.



## SOLUTION

Utilizing Lineage's sophisticated network modeling tool kit, the customer was able to optimize the flow of raw materials, production, processing and final delivery through Lineage's integrated transportation and warehousing services.



## RESULTS

Today, Lineage lends space in **the Georgia facility** to our customer to house their packaging equipment while their employees facilitate the process. This allows our client to **easily and quickly package their product** while Lineage employees prepare the products for shipment – all within the same temperature-controlled building.



# Looking Ahead: A Supply Chain Partner for the Future

Bain & Company predicts that **online grocery spending could increase to between 5% and 10% post-COVID-19.**

The importance of a strong and streamlined supply chain has never been more important. As customer demands and preferences continue to evolve, the supply chain must keep up. Speed and efficiency are critically important – but not at the expense of quality and freshness.

COVID-19 has proven to be a true test of the global food supply chain, by fast-tracking the shift to online sales and creating a never-before-seen surge in demand. Online grocery sales skyrocketed during the pandemic and saw an increase of 110% in daily sales between March and April, leading to a sharp increase in demand for space in Lineage warehouses, some as much as 50% or more.

And those customers who were not online grocery shoppers before COVID-19? Many of them will remain online shoppers. Only about 3% or 4% of grocery spending in the U.S. was online before the coronavirus outbreak, according to research by consulting firm Bain & Company. Bain also predicts that could increase to between 5% and 10% post-COVID-19. A newly released report from Nielsen and the Food Marketing Institute found that online sales of food and beverages will reach \$143 billion by 2025. In contrast, the same report in 2017 predicted that online grocery sales would hit \$100 billion by 2025.

This massive shift for shorter delivery times and demand for supply chain transparency will continue to place pressure on our customers. Without a doubt the COVID-19 pandemic brought with it many challenges for Lineage and the food supply chain, but it also confirmed that a responsive, agile and creative partner with access to resources is not only critical but essential.

If it wasn't clear before, it's certainly clear now – Lineage is that partner.



Partner with Lineage to transform  
your food supply chain.

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