



## Executive summary

CSCMP'S ANNUAL  
**STATE OF LOGISTICS REPORT**<sup>®</sup>

AUTHORED BY KEARNEY

**PENSKE**

Rental | Leasing | Logistics

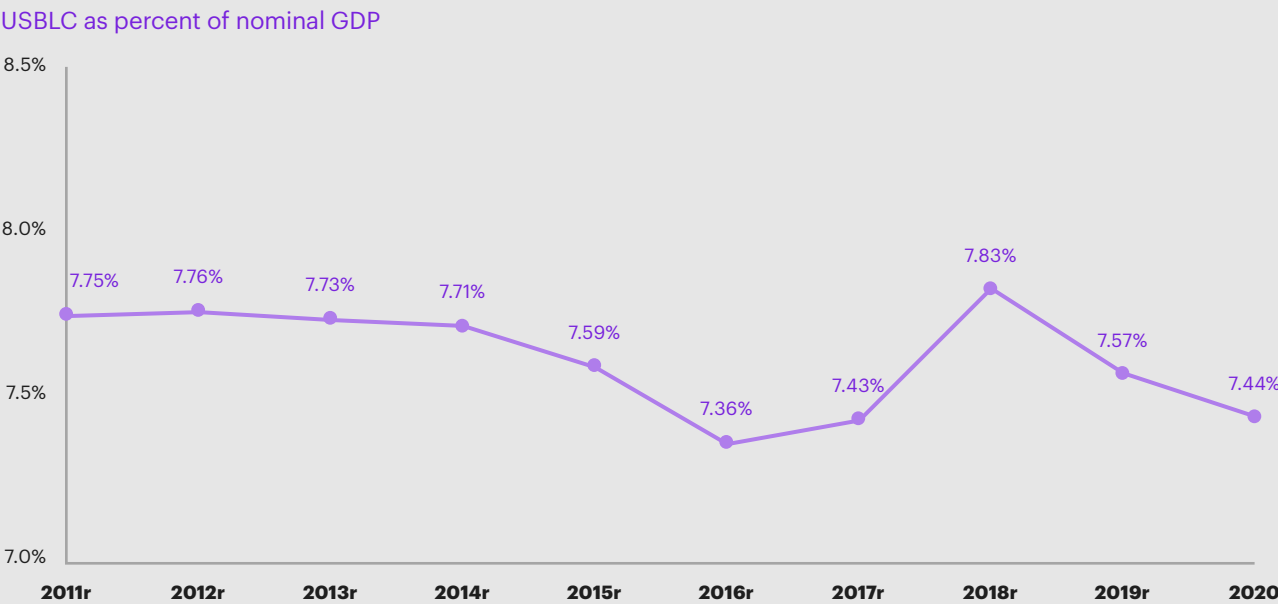
# Reflecting on chaos

The COVID-19 pandemic caused a stoppage, rerouting, and stuttering, inconsistent restart of global supply chains. This scrambling of flows and capacity brought profound inefficiencies to a once-optimized but ultimately fragile system. The resulting disruptions varied by sector, but frequently led to record-high prices and drops in service. Consumers shifted spending from entertainment and other service-oriented options to at-home consumption. As a result, many shippers faced huge demand to restock inventory—and sometimes struggled to find capacity at any price.

Logistics costs represented 7.4 percent of GDP, which was actually a decline from previous years (see figure 1). The national economy shrank by 3.5 percent, to \$20.94 trillion, while logistics shrank 4.0 percent, to \$1.56 trillion. As discussed below, this was primarily due to advantaged financial metrics such as inventory carrying costs. Operationally, however, it was a painful and chaotic year. Some companies struggled with vanishing demand; others faced scarce supply. Most faced disruptions in the networks that connected them, and many paid dearly.

The *K-shaped* recovery of 2021 accentuates the helter-skelter character of global economic conditions. The pandemic changed consumer habits in ways that decimated hospitality, restaurants, and airlines while boosting grocery retail, home improvement, and e-commerce. The US economy is now expected to grow by 7.7 percent in 2021, and the global economy by 6.3 percent—far better than economists feared at the height of the pandemic. Yet the predictions feel tenuous, fueled by fiscal stimulus with uncertain longer-term effects, and potentially vulnerable to new viral outbreaks.

Figure 1  
In 2020, USBLC represented 7.4% of GDP



Note: USBLC is United States business logistics costs. r is revised (see appendix for details).  
Source: Kearney analysis

Thus, in our view, logisticians’ need to **change plans** will continue. The beatings of 2020 forced the abandonment of old plans. (As boxer Mike Tyson once said, “Everyone has a plan until they get punched in the mouth.”) At this point, beyond saying “new plans are needed,” logisticians must simply expect continual change. The pandemic’s aftereffects and new surprises will force continuous plan redevelopment and adaptation.

Consider that the pandemic was far from the only major disruption facing logistics—even if you include the radical changes in consumer behavior it engendered. The need for resilience has combined with trade tensions to reverse the decades-old move toward *offshoring*, [resulting now in a trend for multi-shoring](#). Technological advances offer more promise than ever before in achieving visibility and automation across logistics sectors, with great potential benefits yet many changes to old ways of doing business. Most substantially, events that threatened logistics in 2020 included a record-setting number of climate-related disasters, including hurricanes, floods, and wildfires. Such disruptions are sure to continue and they will thus require continuous plan changes.

## 2020 transportation costs increase

In 2020, United States business logistics costs (USBLC) fell by 4.0 percent (see figure 2). This drop was driven by a 15 percent decrease in inventory carrying costs. With the drop in manufacturing activity and commerce early in the pandemic, many companies reduced inventories—even if involuntary, the result was lower costs. Interest rates also fell slightly.

Figure 2  
**Although transportation costs rose slightly in 2020, results varied by sector**

US business logistics costs (\$ billion)		2020	YoY 2020/2019	5-year CAGR
Transportation costs	— Full truckload	307.6	-1.6%	2.5%
	— Less-than-truckload	69.6	-5.0%	4.2%
	— Private or dedicated	307.5	1.5%	3.3%
	Motor carriers	684.8	-0.6%	3.0%
	Parcel	118.6	24.3%	12.2%
	— Carload	47.7	-15.0%	-5.1%
	— Intermodal	26.6	-2.8%	5.8%
	Rail	74.3	-11.0%	-2.0%
	Air freight (includes domestic, import, export, cargo, and express)	96.5	9.0%	5.5%
	Water (includes domestic, import, and export)	26.1	-28.6%	-4.5%
	Pipeline	58.8	1.7%	6.1%
	<b>Subtotal</b>	<b>1,059.0</b>	<b>0.8%</b>	<b>3.5%</b>
Inventory carrying costs	Storage	146.5	1.4%	4.1%
	Financial cost (WACC x total business inventory)	120.6	-29.0%	-5.3%
	Other (obsolescence, shrinkage, insurance, handling, others)	114.5	-15.0%	-0.8%
	<b>Subtotal</b>	<b>381.6</b>	<b>-15.0%</b>	<b>-0.8%</b>
Other costs	Carriers' support activities	58.8	-11.7%	3.5%
	Shippers' administrative costs	58.1	3.1%	5.1%
	<b>Subtotal</b>	<b>116.9</b>	<b>-4.9%</b>	<b>4.3%</b>
<b>Total US business logistics costs</b>		<b>1,557.47</b>	<b>-4.0%</b>	<b>2.4%</b>

Note: YoY is year-over-year. WACC is weighted average cost of capital.  
 Sources: CSCMP’s 31st Annual State of Logistics Report (see report appendix); Kearney analysis

By contrast, transportation costs rose by 0.8 percent. This was far less than the 4.7 percent growth in 2019, or 10.4 percent in 2018, but certainly a contrast to an economy that shrank overall. The increase was driven by a 24.3 percent increase in the parcel and last-mile segment, as e-commerce and home delivery exploded. In other notable sectors:

- Air freight costs increased by 9.0 percent, as capacity was decimated by the cancellation of passenger flights, which carry about 50 percent of all cargo in the hold.
- Motor was down 0.6 percent, due to reduced capacity in the pandemic.
- Water was down 28.6 percent, due to a combination of one-time reclassifications in underlying calculations methodology, a likely drop in exports and domestic water traffic, and lower container prices in H1.
- Rail was down 11.0 percent overall, driven by a 15.0 percent reduction in traditional carloads, while intermodal fared slightly better.
- Pipeline was up 1.7 percent, despite reduced oil prices and volumes, reflecting high tariffs on contracts signed in busier times.
- Carrier support activities became more efficient and then were cut back with the drop in volumes.

As with the economy as a whole, and the pandemic as a whole, effects were capricious. Bottlenecks became highlighted. For example, no matter how much work ocean carriers put in, congestion at ports slowed their shipments. No matter how many planes were converted to cargo carriers, disruptions of passenger networks wreaked havoc on traditional air routings. And no matter how much attention was paid to last-mile solutions, consumer demand for ever-faster deliveries for a wider range of goods proved insatiable. In general, logistics cost increases resulted from trying to meet these difficult challenges with assets that could not be deployed as efficiently, along with an expanding scope of logistics activities (see sidebar: Scope of logistics on page 4).

## Diverging by sector

Home isolation has led to explosive growth of e-commerce and last-mile delivery volumes. In 2020, e-commerce (some of which was picked up in-store) grew by 33 percent to \$792 billion, representing 14 percent of all retail sales. Consumers expanded their baskets, adding more groceries and meals. They also expanded expectations, in both delivery time and in-transit visibility. Demand for home improvement and home furnishings exploded as house-bound consumers decided to upgrade their immediate surroundings and sellers expanded the range of delivery options. Terms such as DTC (direct to consumer) and BOPIS (buy online, pick up in store) became common retail language. These were accelerations of existing trends and are likely permanent. Thus shippers must adjust their delivery offerings and solutions, managing both capabilities and consumer expectations to create a better match while developing new ways to pay for these services and control their costs.

Road freight, the biggest segment of US logistics spend, fell slightly for the year 2020. But a fourth-quarter recovery suggests that continued economic growth will keep rates high through 2021, until new trucks and drivers can increase available capacity. The need to avoid “touch” processes during the pandemic may have overcome the industry’s long-standing resistance to digitization. If so, technology will improve service levels, with advances including online freight booking, which improves efficiency, and electronic logging devices (ELDs), which provide data that is used to curb time-wasting behaviors.

Railroad volumes and revenues were down, driven by reduced volumes of industrial products and coal. The intermodal subsegment saw smaller declines, thanks in part to high prices in competing trucking markets. But complex intermodal operations have traditionally hampered the profitability of this subsegment; future cost reductions and service improvements will depend on wise development of technology. The bidding war for Kansas City Southern demonstrates the potential value of railroads. But the path to realizing that value involves not only creative vision—such as new north-south configurations to meet multi-shoring demands—but also well-executed operational investments.

# Scope of logistics

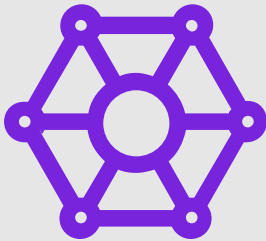
Logisticians often cheer for USBLC to fall in relation to GDP, the ratio charted in figure 1. They want to see logistics activities operating efficiently, taking up a smaller portion of overall economic activity. By this standard, the tribulations of 2020 paid off. Nevertheless, given high prices in early 2021, the future direction of this ratio seems uncertain.

However, there’s another way to look at the logistics-GDP comparison. Logistics involves the movement of goods—traditionally, from the sources of raw materials to factories, and from factories through warehouses to retail stores. Yet the rise of e-commerce is expanding the scope of logistics activities, all the way to the home of the end consumer, creating more value.

In the stereotypical 1950s version of a value chain, a shopper’s trip to the grocery store (or the department store, stationery store, and so on) was not measured as part of GDP. Today, with home delivery of those same groceries (or clothing, furniture, office supplies, and so on), this last mile enters the realm of measurable economic activity. It’s an important sector, a locus of keen competition because consumers highly desire it. (Maybe home delivery is currently underpriced, and once shippers properly allocate costs, demand will fade. But we haven’t yet seen that.) As with the rise of day-care centers or dishwashers—or the rise in the sale of new socks as opposed to darning supplies to use to fix old ones—the change represents a commercialization of formerly domestic activities. Even if the ratio were to fall, it would not be a shameful inefficiency of logistics, but instead a commendable expansion.

Once you see it through this lens, you start seeing other shifts in the “proper” relation of logistics activities to the economy as a whole. As shippers search for resilience, they may broaden their sources of inputs, seeking to avoid political or climate risks, but increasing logistics costs in the process. They may hold more safety stock in warehouses or pay higher rents for warehouses closer to customers seeking same-day delivery, both of which would increase inventory carrying costs. Carriers and shippers alike may invest in technology, not to *replace* labor but to increase the scope of services they can offer to customers. (Indeed, those services might even include trying to reduce carbon impacts, an activity once borne in part by inefficient domestic trips to the recycling center.)

Some of these expansions in the scope of logistics may increase the costs of logistics. It’s a recognition of the importance of logistics to both economic activity and Americans’ general quality of life. These developments are often either spurs to or evidence of the change of plans that we discuss in this report. It’s truly remarkable that the USBLC/GDP ratio fell in 2020 despite these expansions in logistics activities. Going forward, a key challenge for logisticians will be to bring vaunted skills at creating efficiencies to this broader scope of activities.



Ocean shipping rates and volumes soared in late 2020 as retailers restocked. Congested ports slowed already-scrambled routes. Dockworkers fell sick, crews got stranded, shipping containers became scarce. By March 2021, when the *Ever Given* got stuck in the Suez Canal, it was just one more element of the new normal chaos. History tells us that supply and demand will eventually regain equilibrium, but the remainder of an expensive 2021 appears to promise small price declines at best, as supply chains and the modes and nodes that serve them continue to adjust to disruptions.

Even in mid-2021, air cargo rates remain shockingly high. The industry has not yet recovered from the gutting of belly freight capacity resulting from the cancellation of passenger flights. In 2020, volumes were down compared to 2019, but capacity was down more. Some passenger airlines pivoted to cargo, but operational and business-model issues meant that merely converting equipment wasn't enough. Shippers increasingly turned to forwarders, digital marketplaces, and other creative approaches, including chartering planes. But new demands—including those from global vaccines, newly resilient and more richly optioned supply chains, and a bias in favor of inventory vs. lost sales—suggest a continued situation of demand exceeding supply in 2021.

E-commerce spurred high demand for warehousing space, especially high-end facilities in urban locations. Vacant suburban malls are being converted to distribution centers, but a shortage looms of sites to facilitate urban last-mile delivery. Warehouse flows are becoming more complicated, especially with e-commerce returns. Thus, as labor conditions remain tight, many warehouses are increasingly looking at automation. Indeed, the emergence of robotics as a service (RaaS) provides financial flexibility that should boost adoption of automation across a wider variety of companies. With shifting demand and inventory mix, and increasing need for visibility, the future of warehousing presents fascinating strategic challenges.

In freight forwarding, volumes declined but higher rates led to higher 2020 revenues. Mergers and integration were big news, most notably with carriers seeking to become end-to-end providers. Traditional freight forwarders face threats on many fronts, including well-funded digital start-ups and the increasing ambitions of established players such as Maersk and Amazon. The value of freight forwarding in ever-more-complex value chains remains unquestionable. But competition among ever-widening players remains fierce.

Third-party logistics providers (3PLs) found themselves squeezed between shippers' desperate desires for better solutions and the crazy conditions of logistics markets—a perfect opportunity to demonstrate the value of their expertise. Although many 3PLs experienced higher 2020 revenues, many endured cost increases that harmed profitability. Performance improved by the fourth quarter, and the sector seems poised for growth. Many 3PLs have long specialized in factors that seem likely to drive future success, such as information, visibility, and integration (especially among smart warehouses and last-mile delivery capabilities).

In the pipeline sector, after years of capacity expansion, oil volumes have plummeted. Although gas is more stable, the industry is expected to be sluggish. Tariffs (the fees that pipeline companies charge) remained flat in 2020, thanks to long-term contracts, but are likely to decline in 2021.

COVID-19 highlighted the value of resilience in supply chains—the ability to pivot assets and flows to new sources or routes in the event of pandemics, natural disasters, or trade wars. But resilience, in turn, highlights the value of visibility. Shippers need knowledge to make the smart decisions that engender resilience. Thus, many companies are redoubling their efforts to gain greater visibility across the entire value chain with some version of a control tower. In a world of increasingly abundant information, the control tower serves as an information hub to enable better decisions. A new chapter in this year's report looks at the promise, the challenges, and what some companies are doing.

Shippers, carriers, investors, and consumers are increasingly acting in ways that demonstrate the value they put on sustainability. They see the economic consequences of the global climate crisis, and demand that their business partners participate in shared journeys to lower carbon emissions. Companies can join these journeys using three pillars: sustainable operations, sustainable service, and sustainable supply. The operations goal, which includes cost-saving efficiency measures as well as investments in alternative fuels, may even lead to receiving deserved credit for previous cost-reduction efforts. Another new chapter in this year's report surveys efforts across various logistics segments.

Beyond these trends, continued development of technology, especially in visibility and automation, will affect the future of logistics. So will [multi-shoring or right-shoring](#), as offshoring evolves into more diverse and resilient supply networks. Such networks require greater optionality—multi-shoring means that logistics becomes more multi-mode and multi-node. The outcome is greater complexity to be managed, and a higher-profile role for logistics in helping shippers achieve resilience. The upside is greater flexibility and resilience. Finally, we expect increased merger and acquisition (M&A) activity in logistics, as these new trends and challenges lead to new visions of how to combine capabilities into business models that create the most value.

The report is again linked to a deep dive for a logistics-dependent industry; this year, for the first time, we look at the healthcare sector, where patient expectations are increasingly shaped by their experiences in consumer e-commerce, where specialty drugs (with special handling requirements) are on the rise, and where complex medical equipment increasingly follows treatments away from hospitals. Although it's not compiled as part of the physical report, you should not miss [this sidebar](#).

For logisticians used to taking volatility and change in stride, the conditions in 2020 represented a massive escalation. In 2021, even if conditions prove less volatile, the changes may be more profound. The pandemic stretched and broke supply chains, as factories stopped, and shelves were empty. Now supply chain managers are building them back, in ways that we hope will be better and more resilient. These changes will pose new levels of challenges. And like the supply chains they serve, logistics networks must fundamentally rethink and redesign their solutions. If 2020 meant a change in plans, the coming years will be only more so.

**Like the supply chains they serve, logistics networks must fundamentally rethink and redesign their solutions.**

# Authors



**Michael Zimmerman**  
Partner, New York  
michael.zimmerman@kearney.com



**Balika Sonthalia**  
Partner, Chicago  
balika.sonthalia@kearney.com



**Alberto Oca**  
Partner, Atlanta  
alberto.oca@kearney.com



**Arsenio Martinez-Simon**  
Partner, Washington, D.C.  
arsenio.martinez@kearney.com



**Korhan Acar**  
Principal, Chicago  
korhan.acar@kearney.com



**Yan Sun**  
Principal, Chicago  
yan.sun@kearney.com



### About CSCMP

Since 1963, the Council of Supply Chain Management Professionals (CSCMP) has been the preeminent worldwide professional association dedicated to the advancement and dissemination of research and knowledge on supply chain management. With CSCMP members located around the world, representing nearly all industry sectors, government, and academia, CSCMP members receive unparalleled networking opportunities, cutting-edge research, and online and on-site professional educational opportunities. To learn more, visit [cscmp.org](https://www.cscmp.org) and find CSCMP on social media: [Twitter](#), [Facebook](#), [LinkedIn](#), [CSCMPtv](#), and [Instagram](#).

**[cscmp.org](https://www.cscmp.org)**

### About Penske Logistics

Penske Logistics is a Penske Transportation Solutions company with operations in North America, South America, Europe and Asia. Penske Logistics provides supply chain management and logistics services to leading companies around the world. Penske Logistics delivers value through its design, planning and execution in transportation, warehousing and freight management. Visit [www.penskelogistics.com](https://www.penskelogistics.com) to learn more.

**[penskelogistics.com](https://www.penskelogistics.com)**

### About Kearney

As a global consulting partnership in more than 40 countries, our people make us who we are. We're individuals who take as much joy from those we work with as the work itself. Driven to be the difference between a big idea and making it happen, we help our clients break through.

**[ken.com](https://www.ken.com)**

For more information, permission to reprint or translate this work, and all other correspondence, please email [insight@ken.com](mailto:insight@ken.com). A.T. Kearney Korea LLC is a separate and independent legal entity operating under the Kearney name in Korea. A.T. Kearney operates in India as A.T. Kearney Limited (Branch Office), a branch office of A.T. Kearney Limited, a company organized under the laws of England and Wales. © 2021, A.T. Kearney, Inc. All rights reserved.

AR