Even-Keeled: The Business of Warehousing in North America

Market Size, Market Trends, Major 3PLs, Benchmarking Costs, Prices and Practices

January 2026

Armstrong & Associates, Inc.

Phone: +1-414-545-3838

Website: www.3PLogistics.com

Email: Armstrong@3PLogistics.com

ABOUT ARMSTRONG & ASSOCIATES, INC.

Armstrong & Associates, Inc. (A&A), founded in 1980, is a leader in Third-Party Logistics (3PL) market research, consulting, and M&A advisory services. A&A has become an internationally recognized key resource for information and consulting in the 3PL market.

A&A's mission is to possess leading proprietary knowledge in supply chain management and market research that is not available anywhere else. Our ongoing commitment to this mission is demonstrated by the frequent citations of A&A's 3PL market research in media articles, publications, and the securities filings of publicly traded 3PL companies. Additionally, A&A's email newsletter currently has over 88,000 subscribers worldwide.

A&A's market research enhances its consulting services by providing continuously updated data for analysis. Leveraging its extensive knowledge of the third-party logistics (3PL) market and the operations of top 3PL providers, A&A has delivered strategic planning consulting to more than 50 3PL companies. Additionally, it has supported 26* completed investment transactions and offered advice to numerous organizations seeking to benchmark their current 3PL operations or outsource logistics functions.

**In its latest transaction, A&A was the buy-side search advisor for Palladium Equity in acquiring Source Logistics on November 2, 2023.*

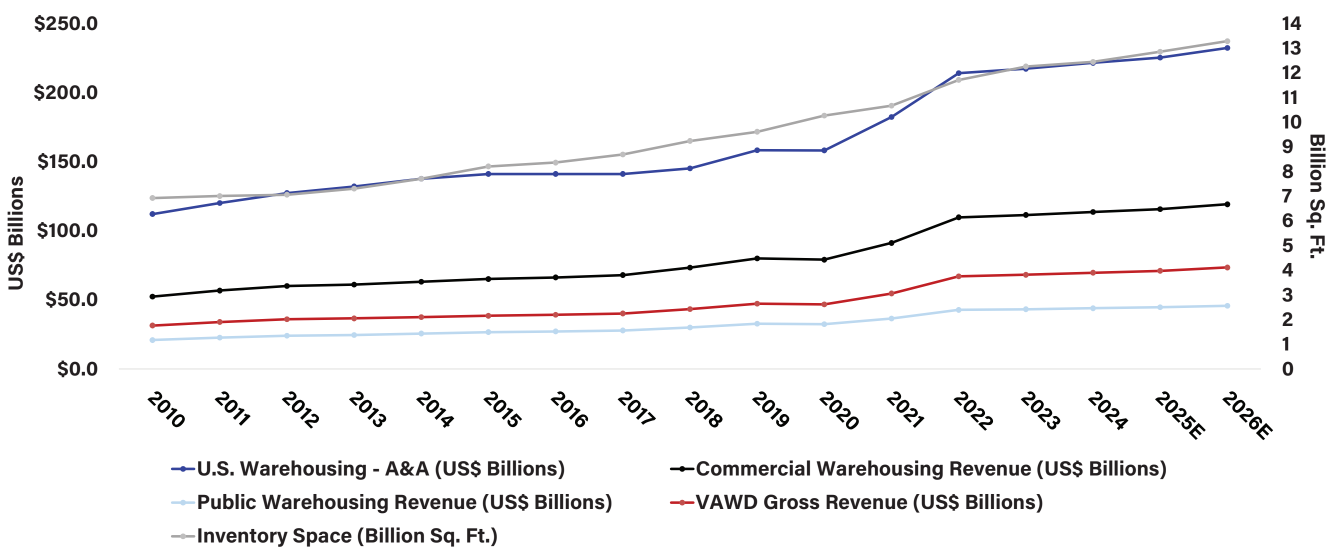
Contents

North American Warehousing Overview

Armstrong and Associates, Inc. (A&A) has been analyzing trends in North American Warehousing since 2004, when we published our first market report. Our concentration has been on commercial warehousing, particularly contract warehousing. 2025 has been shaped by uncertainty from tariff-heavy trade policies, shifting economic conditions, and persistent labor tensions. E-commerce spending growth has also consistently driven increased logistics outsourcing over the past years.

Figure 1 provides basic information concerning the U.S. warehousing market. We provide historical and forecasted gross revenues and inventory information for total U.S. warehouses, commercial warehouses, public warehouses, and the Value-Added Warehousing & Distribution (VAWD) Third-Party Logistics (3PL) Market segment. VAWD and public warehousing comprise the commercial warehousing industry; commercial and private warehousing comprise the total U.S. warehousing market. The most significant difference between a VAWD 3PL warehouse and a public warehouse is that public warehouses typically offer short-term storage and provide limited value-added services. VAWD contracts typically have terms ranging from one to three years, with some extending up to ten years or more. VAWD offers customers a range of value-added services. Key value-added services provided in the VAWD segment include kitting, pick and pack, packaging, repair and refurbishment, sequencing and sub-assembly, merge-in-transit, and shipment consolidation.

Figure 1. U.S. Warehousing Market – 2010-2026E[1]



For 2023 and 2024, the VAWD 3PL Market segment experienced steady growth and outperformed its transportation management counterparts. With a general shortage of warehousing space and an increase in e-commerce fulfillment and last-mile delivery, VAWD demand continued to grow in 2025. A&A estimates the total U.S. Warehousing Market at $221.4 billion in 2024, with Commercial Warehousing Revenue at $113.5 billion. We estimate that the VAWD gross revenue reached $69.6 billion in 2024, representing a 2.2% increase compared to 2023, and net revenue expanded by 3.7% to $53.8 billion. As an asset-based 3PL Market segment, VAWD was the third-best-performing

1 As of Jan 2026 when the report is published, all 2025 data in this report are estimated.

segment in 2024. The other three segments in 3PL are International Transportation Management (ITM), Dedicated Contract Carriage (DCC), and Domestic Transportation Management (DTM)[2] , with growth rates of 7.9%, 5.9%, and -0.7% in 2024, respectively. This follows VAWD being the best-performing segment of the four segments in 2023, with a minor 1.6% increase in gross revenue to $68.1 billion.

Total U.S. Warehousing Inventory Space reached an estimated 12.4 billion square feet by the end of 2024. Public Warehousing revenue now only accounts for 39% of the commercial warehousing market, with an estimated $43.9 billion in 2024, while VAWD 3PLs represent 61% of the total U.S. commercial warehousing market. Most 3PL providers are privately held and report revenues to us annually. The rest are publicly held, have public annual reports, and are generally helpful with clarifications.

Table 1 details A&A's estimates of VAWD 3PL Gross Revenue, Public Warehousing Gross Revenue, Commercial Warehousing Revenue, the Total U.S. Warehousing Market, and U.S. Warehousing Inventory Space. The estimates reflect a Compound Annual Growth Rate (CAGR) of 5.4% in the U.S. VAWD Market from 2010 to 2024, compared to a 5% CAGR in Public Warehousing. Overall, VAWD 3PLs with strong customer vertical strategies, operational excellence cultures, integrated warehousing and transportation management skills, and longer-term customer agreements have outperformed undifferentiated, short-term public warehousing companies. VAWD gross revenue in the U.S. remained stable in 2025, reaching an estimated $70.9 billion, with 1.9% growth compared to 2024. In 2026, VAWD is expected to reach $73.4 billion, with a projected growth rate of 3.5%.

Table 1. U.S. Warehousing Market – Recent Values (US$ Billions) – 2010-2026E

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025E	2026E	CAGR
VAWD 3PL Gross Revenue	$31.4	$34.0	$36.0	$36.5	$37.4	$38.4	$39.1	$40.1	$43.3	$47.2	$46.7	$54.6	$67.0	$68.1	$69.6	$70.9	$73.4	5.4%
Public Warehousing Gross Revenue	$20.9	$22.7	$24.0	$24.5	$25.6	$26.6	$27.1	$27.8	$30.0	$32.7	$32.3	$36.5	$42.7	$43.2	$43.9	$44.6	$45.7	5.0%
Commercial Warehousing Revenue	$52.3	$56.7	$60.0	$61.0	$63.0	$65.0	$66.2	$67.9	$73.3	$79.9	$79.0	$91.1	$109.7	$111.3	$113.5	$115.5	$119.1	5.3%
Total U.S. Warehousing (with Private)	$112.0	$120.0	$127.2	$132.0	$137.5	$141.0	$141.0	$141.0	$145.1	$158.2	$158.1	$182.2	$213.9	$217.1	$221.4	$225.2	$232.2	4.7%

For VAWD 3PLs, most warehouses are full, and higher interest rates have limited new warehouse development. Although 2025 experienced the highest vacancy rate, smaller warehouse spaces remain in short supply. There has been increased focus on fine-tuning warehouse pricing and improving bid performance. Shippers view this as an opportune time to issue RFPs (Requests for Proposals) and work to mutualize some of the one-sided agreements entered into during the post-shutdown demand surge. Many shippers are examining their supply chain networks and providers to improve inventory management and on-time delivery performance. We anticipate a continued focus on supply chain network flexibility and warehouse optimization.

In light of current geopolitical and tariff uncertainty, 3PL customers are benchmarking their current operations against prevailing market prices. If their existing pricing for VAWD warehousing was established during the peak demand period following the pandemic shutdowns, they should consider reviewing these agreements and creating an RFP with updated pricing and contract terms well in advance of their contract renewal.

2 3PL Market Segment Definitions and Sizes: [3PL/Contract Logistics Market]

Investing time in developing a comprehensive dataset of product items, orders, and shipments is crucial in preparing a successful 3PL RFP. The RFP should be structured to ensure comparable bids, facilitating the contracting and implementation processes with the 3PLs.

After several decades of helping companies outsource logistics functions to 3PLs, A&A has identified five key pitfalls to achieving a successful outcome.

Table 2. Top 5 Warehousing 3PL Outsourcing Pitfalls

1	**Not benchmarking your warehouse pricing against the current market.** Since most warehousing agreements typically last two years or more, comparing your current pricing with the current market rates several months before your contract renewal is crucial. This approach allows you to create a Request for Proposal (RFP) if your existing or proposed pricing exceeds the market.
2	**Failing to engage 3PLs at the right organizational level to get focused executive leadership.** If your company decides to outsource a warehousing operation or take an existing warehousing network to RFP, seeking executive sponsorship at the highest level possible in a third-party logistics provider is essential. Failure to do so will reduce potential savings from the RFP and lead to a lesser solution proposed by the 3PL.
3	**Running a warehousing RFP without providing the bidding 3PLs with a good operating profile, product item master, and order data.** Data is “King” when managing a warehousing 3PL RFP. Spend the time upfront to make sure you provide the 3PL with clean sales/purchase order data highlighting any seasonality and shipping modes utilized, a complete item master with all of your stock-keeping units and product cubes, shipping and receiving policies and procedures, and expected operational performance key performance indicators (KPIs) such as order-to-shipping cycle times and inventory accuracy percent by location.
4	**Not having a strong RFP template to get apples-to-apples bid responses from a 3PL.** If you don’t ask 3PLs to provide easily comparable warehousing pricing categories, you will get “oranges” when you want “apples.” Beyond bulk or rack storage, inbound and outbound handling, and staffing by position, the RFP must allow for apples-to-apples comparisons of startup costs, I.T. expenses, and corporate overhead. Cost categorization should not be taken lightly; it is a science. Once received, you can compare the 3PL bids against your current and market pricing benchmarks for a complete picture.
5	**Re-contracting with your existing 3PL if it’s operating below expectations or has a lop-sided contract.** Amazingly, a 3PL customer would consider contracting with a low-performing 3PL without even running a bid, but this happens way too often. Most of the time, the supply chain executive is too busy putting out fires to plan an operational switchover, and time runs out for planning before contract renewal. The result is ongoing subpar operational performance, often leading to customer compliance issues and low customer satisfaction.

Armstrong & Associates (A&A) has been a leader in logistics outsourcing since 1986 and is known for developing the original "Contact to Contract" end-to-end logistics outsourcing process. As a global authority in 3PL market research and the publisher of the "Who's Who in Logistics 3PL Guide", we understand which 3PLs can effectively meet clients' logistics needs and how to negotiate contracts with them for a competitive advantage.

A&A assists clients in benchmarking their warehousing operations against current market pricing before developing an RFP. We identify suitable 3PLs, create RFPs to ensure comparable bids, and support the contracting and implementation processes with these providers.

A continual headwind for VAWD 3PLs has been high warehouse labor demand, turnover, and wage increases. This is driving significant interest from VAWD 3PLs to automate warehouses with autonomous robots from manufacturers such as Amazon Robotics, GreyOrange, Locus Robotics, Geek+, and 6 River Systems. Many 3PLs invested in robotics last year to improve efficiency, accuracy, and picking speed. By accessing real-time data and analytics from the cloud, robots can optimize their routes, reduce idle time, reduce human transport/travel time, and prioritize tasks based on demand. These autonomous mobile robots (AMRs) use sensors, cameras, and mapping software to navigate the warehouse. Robots can be quickly deployed, sometimes within two weeks. Leasing robots can also offer 3PLs greater flexibility in scaling their operations up or down as demand fluctuates.

Top North American Warehousing 3PLs

The Top 50 VAWD 3PLs manage a total of 4,995 facilities, covering 1.513 billion square feet. On average, each of the Top 50 companies operates 94 warehouses, with each warehouse averaging 302,989 square feet in size. In 2022, the Top 50 had an average of 85 warehouses, with an average size of 244,874 square feet. This means the average number of warehouses has increased by 11%, and the average warehouse size has grown by 24% compared to 2022. Amazon leads the way as the top VAWD 3PL in North America, boasting approximately 284 million square feet of warehousing space across 465 facilities. There is a significant gap of 121 million square feet between Amazon and its closest competitor, DHL Supply Chain, which holds the second position. On a global scale, Amazon operates approximately 399 million square feet of 3PL warehousing across 767 warehouses.

The current top five VAWD 3PLs in North America ranked as they did in 2023, with all reporting increases in North American warehousing square footage, except for DHL Supply Chain. Almost all of GXO's North American warehousing space, 84.1 million square feet, is within the U.S., with one warehouse in Canada. In 2024, GXO expanded its U.S. warehousing footprint by six million square feet, and its U.S. revenues grew 6.1% to $2.9 billion. NFI is fifth on the top list with 73 million square feet.

Table 3 lists the Top 50 VAWD 3PLs based on warehousing space within North America. This table also includes their core warehouse/distribution center capabilities, value-added services capabilities, and the latest Warehouse Management Systems (WMS) utilized.

Table 3. A&A's Top 50 VAWD 3PLs by Warehousing Space within North America – 2025

	Third-Party Logistics Providers (3PLs)				Warehouse/ DC Capabilities					Value-Added Services Capabilities																			WMS
Rank	Third-Party Logistics Providers (3PLs)	Number of Warehouses in North America	Total Sq. Ft. in North America (Millions)	Avg. Sq. Ft. (000's)	Whse. Mgmt.	Frozen	Refrigerated	Temp. Control	Rail Siding	Call Centers	Cross Docking	Customization	Inventory Control/ Vendor Mgmt.	KanBan	Kitting	Labeling	Lot Control	Merge-in-Transit	Mfg. Support	Pick/Pack	Pool Dist.	Repair/Refurb.	Returnable Container Mgmt.	Reverse Logistics	Store Support/ Delivery	Sequencing/ Metering	Specialty Packaging	Sub Assembly	Main Brand(s) Used
1	Amazon.com	465	284.0	610.8	•		•	•		•			•		•	•	•	•		•	•			•	•	•	•	•	
2	DHL Supply Chain	524	163.0	311.1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	RedPrairie, Manhattan, HK Systems, Insight, Proprietary
3	Ryder Supply Chain Solutions	291	103.0	354.0	•	•	•	•			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	Manhattan SCALE, Zethcon Synapse, Korber/Accellos, Ryder OpsBox
4	GXO Logistics	297	84.1	283.3	•			•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	Proprietary, Infor Provia, SIMS, Reflex 400, Infolog, RedPrairie, Cadre-Accuplus, SAP, Nulogy
5	NFI	155	73.0	471.0	•	•	•	•	•		•	•	•		•	•	•		•	•	•	•	•	•	•		•	•	Manhattan, Deposco, Softeon, Maves, Proprietary
6	Lineage	313	61.4	196.2	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•		•	•	•	•	•		HighJump, Infor, Proprietary, Accellos, Boltrix
7	GEODIS	145	53.7	370.3	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	GEODIS WMS, Manhattan (WMOS), Blue Yonder (RedPrairie LMS)
8	Americold	192	50.0	260.4	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•		Blue Yonder, Koerber, Custom iSeries
9	Kenco	135	43.7	323.7	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	Blue Yonder, Korber, Deposco, Synapse
10	FedEx Logistics, Inc.	90	38.8	431.1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	Infor/EXCEED 4000, Manhattan, JDA/RedPrairie, Proprietary
11	Saddle Creek Logistics Services	75	33.0	440.0	•		•	•	•	•	•	•	•		•	•	•	•	•	•	•	•		•	•		•	•	Infor WMS, Softeon WMS
12	Penske Logistics	85	28.4	334.1	•		•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	Blue Yonder, RT Systems, Proprietary
13	CJ Logistics America	70	27.0	385.7	•	•	•	•	•		•	•	•		•	•	•	•	•	•	•	•		•	•		•	•	Proprietary, RedPrairie
14	CEVA Logistics	131	26.9	205.3	•			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	JDA, Manhattan Associates
15	Maersk Logistics	85	26.8	315.3	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	Proprietary, Manhattan, Infor WM
16	DB Schenker	91	23.7	260.4	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•		•	•	•	•	•	Infor, TECSYS, SAP, RedPrairie
17	DSV	93	21.6	232.3	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•		•	•	•	•	•	Infor, TECSYS, SAP, RedPrairie
18	Universal Logistics Holdings, Inc.	78	19.0	243.6	•				•		•		•	•	•	•	•		•	•	•		•	•		•	•	•	AccuLinc (Proprietary), Just-in-Time Sequencing
19	Metro Supply Chain	117	18.7	159.8	•			•		•	•	•	•		•	•	•		•	•		•		•	•	•	•	•	Blue Yonder (RedPrairie), Manhattan, Oracle
20	Warehouse Services, Inc.	26	18.0	692.3	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	Oracle
21	UPS Supply Chain Solutions	144	17.3	120.1	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	Infor/EXE, Manhattan, LMS, Proprietary
22	thyssenkrupp Supply Chain Services	80	15.0	187.5	•			•	•		•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	Proprietary, Blue Yonder
22	United States Cold Storage	37	15.0	405.4	•	•	•	•	•		•	•	•			•				•							•		Proprietary
23	Total Distribution, Inc.	75	13.5	180.0	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	Proprietary, Zethcon--Synapse, Cadence/Accuplus, Systems Logic--Wireless Warehouse
24	WSI	55	13.0	236.4	•			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	Manhattan, Oracle
25	C.H. Robinson	283	12.9	45.6	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•		•	•	Proprietary, HighJump

	Third-Party Logistics Providers (3PLs)				Warehouse/ DC Capabilities					Value-Added Services Capabilities																			WMS
Rank	Third-Party Logistics Providers (3PLs)	Number of Warehouses in North America	Total Sq. Ft. in North America (Millions)	Avg. Sq. Ft. (000's)	Whse. Mgmt.	Frozen	Refrigerated	Temp. Control	Rail Siding	Call Centers	Cross Docking	Customization	Inventory Control/ Vendor Mgmt.	KanBan	Kitting	Labeling	Lot Control	Merge-in-Transit	Mfg. Support	Pick/Pack	Pool Dist.	Repair/Refurb.	Returnable Container Mgmt.	Reverse Logistics	Store Support/ Delivery	Sequencing/ Metering	Specialty Packaging	Sub Assembly	Main Brand(s) Used
26	bpostgroup 3PL	38	12.5	328.9	•	•	•	•		•	•	•	•	•	•	•	•			•	•	•		•	•		•		Manhattan Associates, Augusta II
27	Hub Group	72	12.0	166.7	•					•	•	•	•	•	•	•	•			•	•			•	•		•	•	Manhattan
28	Savino Del Bene	14	11.5	821.4							•		•			•				•								•	Proprietary
29	Kuehne + Nagel	52	10.5	201.9	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	CIEL Warehouse, Provia FourSite, KN SwiftLOG
29	LX Pantos	41	10.5	256.1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	Inhouse Development
30	Cardinal Health - 3PL Supply Chain Solutions	38	10.0	263.2	•	•	•	•			•		•		•	•	•	•		•	•			•	•		•		Proprietary--AIMS
30	Cart.com	17	10.0	588.2	•	•	•	•		•	•	•	•		•	•				•		•		•	•	•	•		Proprietary
31	DP World Logistics	44	9.9	225.0	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	RedPrairie WMS, SAP EWM, Proprietary
32	APL Logistics	34	9.7	285.3	•			•	•	•	•	•	•		•	•	•	•	•	•	•	•		•	•	•	•	•	Manhattan WMi, LogFire, OWMS, Proprietary-WMSp & WMSz, eLMS, CMS, Irista
33	Logistics Plus, Inc.	30	8.5	283.3	•			•		•	•	•	•		•	•				•	•			•			•	•	CargoWise ediEnterprise (eWorldPlus.com); DiCentral Smart Turn; Vericore; FF&Eplus (Proprietary)
34	Holman Logistics	20	8.2	410.0	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	HighJump
35	NIPPON EXPRESS HOLDINGS, INC.	67	8.1	120.9	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	REWARDS, NX-GLOQ
36	ODW Logistics	27	8.0	296.3	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	Korber (HighJump), WDLS 2.0, Zethcon--Synapse
36	United Facilities, Inc.	11	8.0	727.3	•			•	•	•	•	•		•	•	•	•		•	•				•			•	•	Infor; SWIMS
36	Verst Logistics	26	8.0	307.7	•	•	•	•	•		•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	Korber
36	Wagner Logistics, Inc.	31	8.0	258.1	•		•	•	•		•	•	•		•	•	•		•	•	•		•	•	•		•	•	RAMP
36	Yusen Logistics	38	8.0	210.5	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	Proprietary, Infor, Manhattan--SCALE WMS
37	Grupo TRAXION	28	7.9	282.1	•			•		•	•	•	•			•				•	•			•	•		•		Proprietary
37	WOW Logistics	26	7.9	303.8	•	•	•	•	•		•		•			•	•			•			•						Manhattan--SCALE
38	Atlanta Bonded Warehouse Corporation	16	7.4	462.5	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	Blue Yonder
39	RJW Logistics	13	7.3	561.5	•			•			•		•		•	•				•	•		•		•		•	•	Synapse (Zethcon)
40	Estes Forwarding Worldwide	29	7.0	241.4				•		•	•	•	•		•	•		•			•		•	•	•		•		exstensiv
41	Arvato	16	6.0	375.0	•		•	•		•	•	•	•	•	•	•	•	•	•	•	•	•		•	•		•	•	SAP, Swisslog
41	Barrett Distribution Centers	24	6.0	250.0	•		•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•		•	•	Zethcon--Synapse
41	Crane Worldwide Logistics	56	6.0	107.1	•		•	•			•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	Proprietary
41	ID Logistics Group	26	6.0	230.8	•			•	•		•	•	•	•	•	•	•	•	•	•				•	•		•	•	Proprietary, Manhattan, Infolog
41	Neovia Logistics Services, LLC	29	6.0	206.9	•				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	SAP, JDA RedPrairie, Proprietary

More details on each provider are available via a Who's Who 3PL Guide subscription at: Who's Who in Logistics 3PL Guide - Armstrong & Associates

When it comes to warehouse capabilities, the top three services offered by 3PLs include Facilities Management (96%), Temperature-Controlled Warehouses (92%), Warehouses with Rail Siding (70%), and Refrigerated Facilities (70%). We analyzed the capabilities of the Top 50 VAWD 3PLs and compared them to our 2022 findings. Notably, 92% of the Top 50 VAWD providers offer temperature-controlled warehouses, and 70% provide refrigerated storage in 2025, showing 10% and 8% growth, respectively, compared to 2022.

Table 4. Top 50 VAWD 3PLs – Warehouse Capabilities Summary

	Capability	Percent Providing
Warehouse	Facilities Management	96%
	Temperature Controlled	92%
	Rail Siding	70%
	Refrigerated	70%
	Frozen	51%

For Value-Added Services among the Top 50 VAWD 3PLs, 100% of them provide labeling, and 98% of them provide Cross-Docking, Inventory Control/Vendor Management, and Pick/Pack Services.

Table 5. Top 50 VAWD 3PLs – Value-Added Services Capabilities Summary

	Capability	Percent Providing
Value-Added Services	Labeling	100%
	Cross Docking	98%
	Inventory Control/ Vendor Mgmt.	98%
	Pick/Pack	98%
	Specialty Packaging	96%
	Kitting	92%
	Reverse Logistics	92%
	Customization	89%
	Store Support/ Delivery	89%
	Lot Control	87%
	Sub Assembly	83%
	Mfg. Support	75%
	Merge-in-Transit	72%
	Pool Dist.	83%
	Returnable Container Mgmt.	66%
	Repair/Refurb.	70%
	KanBan	60%
	Call Centers	64%
	Sequencing/ Metering	64%

Cold Chain Warehousing

Temp-controlled warehouses comprise a small portion of the overall U.S. warehousing market. However, cold-chain warehousing has experienced extraordinary growth in the past several years. Major drivers include the rapid expansion of online grocery shopping for fresh and frozen foods, the surge in e-commerce, and the transportation of temperature-sensitive pharmaceuticals, which have significantly increased the space demand from 3PLs serving the food and pharmaceutical industries. In turn, medical devices, advanced electronics, and energy storage systems are under pressure to meet and exceed rigorous temperature control, compliance, and visibility standards.

A&A estimates that the VAWD gross revenue for the Healthcare category is projected to grow at 4.8% from 2025 to 2026. As the biopharmaceutical and pharmaceutical industries expand, the need for specialized and cold chain warehousing to accommodate biologics, vaccines, and other pharmaceuticals is growing steadily. Pharmaceutical warehousing is becoming a more critical area of focus in healthcare logistics due to the expansion of pharmaceutical e-commerce and technological advancements. VAWD's gross revenue from pharmaceuticals warehousing is expected to grow 8.2% from 2025 to 2026.

E-commerce's one-day or even two-hour delivery windows have also increased the addition of cold chain facilities near population centers. New or expanding cold chain operations struggle to localize closer to their customers due to limited infrastructure, higher costs, and stringent regulatory compliance. Cold chain operations around ocean ports such as Long Beach and Savannah are also in high demand. Investors are increasingly interested in the cold storage industry, with dedicated cold storage construction projects and strategic partnerships being formed.

While we have many major refrigerated cold-chain VAWD 3PLs on our list, the Global Cold Chain Alliance's (GCCA) capacity information is beneficial. The GCCA was formed through the merger of the International Refrigerated Transportation Association (IRTA) and the International Association of Refrigerated Warehouses (IARW). We are comparing the 2025 North American Cold Chain Top List with the 2022 List below. The top three Refrigerated Warehousing 3PLs remained the same: Lineage Logistics, Americold Logistics, and United States Cold Storage, Inc. Lineage Logistics and Americold Logistics have shown impressive growth, increasing their capacity by 14% and 7%, respectively, compared to 2022. Meanwhile, United States Cold Storage is the only cold-chain 3PL that experienced a 1% decrease in capacity. This decline stems from their strategic decision made in 2022 to sell off some older properties while investing in new and automated facilities. In the meantime, 3PLs in the cold storage space are continually investing in technological innovations ranging from temperature tracking to warehouse management systems to maintain optimal visibility.

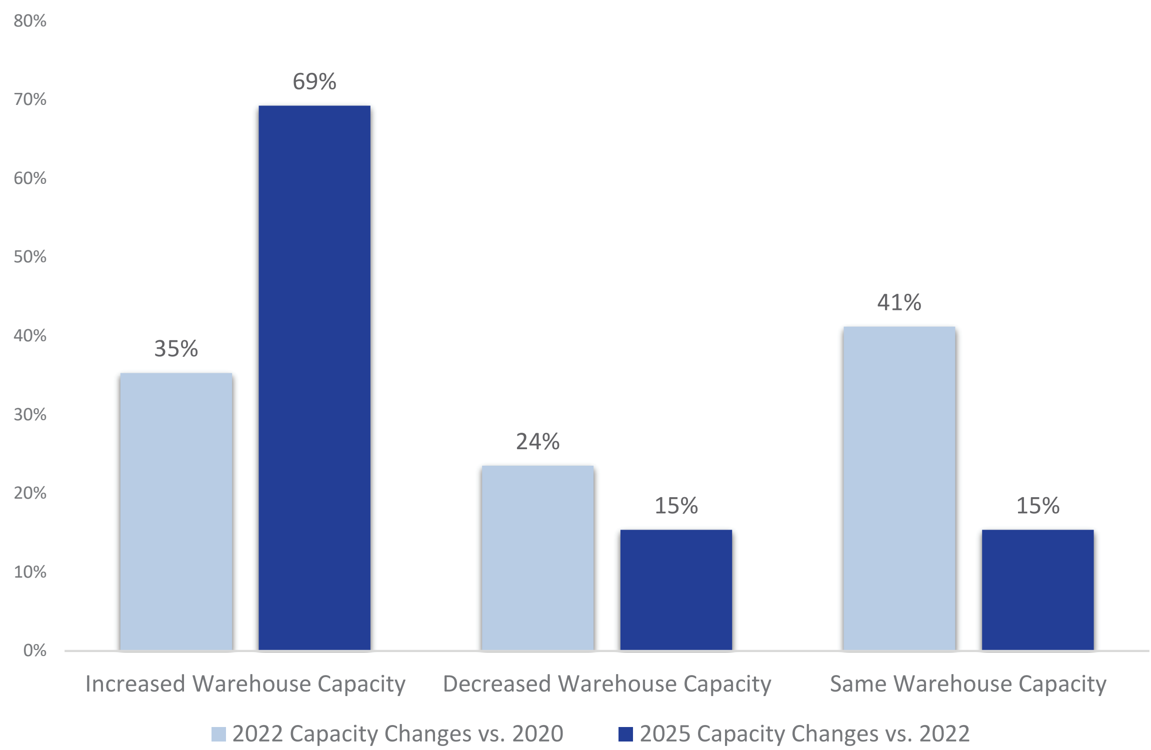
Table 6. 2025 Global Cold Chain Alliance (GCCA) North American Top 25 List

2025 Rank	Company	Capacity (ft^3)	Capacity Change 2022-2025	2022 Rank
1	Lineage Logistics	2,093,000,000	14%	1
2	Americold Logistics	1,244,600,000	7%	2
3	United States Cold Storage, Inc.	419,550,000	-1%	3
4	FreezPak Logistics	141,668,955	-	-
5	Interstate Warehousing, Inc.	132,100,387	14%	4
6	NewCold Holdings, LLC	106,214,299	121%	10
7	Vertical Cold Storage	97,428,247	-	-
8	Conestoga Cold Storage	87,212,378	36%	6
9	Agile Cold Storage LLC	78,049,918	-	-
10	Arcadia Cold Storage & Logistics	75,316,083	-	-
11	Congebec Logistics, Inc.	65,800,000	8%	7
12	Cold-Link Logistics	62,200,000	-	-
13	RealCold	47,397,171	-	-
14	Nor-Am Cold Storage	45,282,242	33%	13
15	CORE X PARTNERS	43,384,099	-	-
16	Arctic Cold, LLC	38,955,959	-	-
17	Central Storage & Warehouse LLC	34,912,134	109%	19
18	Trenton Cold Storage, Inc.	34,277,373	0%	12
19	Holt Logistics Corp.	31,100,000	-	-
20	RLS Logistics	27,700,000	-53%	8
21	Envision Cold	26,977,794	-	-
22	Midwest Refrigerated Services, Inc.	22,491,370	-	-
23	SnoTemp Cold Storage	21,602,796	13%	17
24	Interstate Cold Storage, Inc.	21,403,000	0%	16
25	ColdZone	18,204,103	-	-

Source: The Global Cold Chain Alliance (GCCA)

The industry has witnessed the emergence of many new players since 2022. There are 12 new 3PLs on the 2025 Top 25 list, which makes up nearly half of the list. Among the remaining 13 3PLs that have been on the list since 2022, 9 (69%) have increased their warehouse capacity by an average of 40%. NewCold Holdings, LLC leads in expansion with a remarkable 121% increase in capacity, followed closely by Central Storage & Warehouse LLC, which boasts a 109% increase. By contrast, two 3PLs (15%) have decreased their warehouse capacity, and two (15%) have maintained the same capacity since 2022. The total capacity of the Top 25 in 2022 reached 5,016,828,308 cubic feet, compared to 4,227,562,417 cubic feet in 2022, representing an impressive 19% growth. Figure 2 compares the changes in warehouse capacity in these Top 25 cold-chain 3PLs over the past five years. More of them have been actively expanding their warehouse capacities in the past three years compared to the earlier years leading up to 2022.

Figure 2. North American Top 25 Cold Chain Warehouse Capacity Changes



Foreign Trade Zone and Bonded Warehousing

Foreign Trade Zones (FTZs) and Bonded Warehouses (BW) offer unique benefits for businesses engaged in international trade, particularly in terms of duty and tax management. During the global tariff uncertainty, many 3PLs and their clients began seeking new ways to adapt to the changing tariff landscape. Foreign trade zones and bonded warehouses have become increasingly popular as solutions. An FTZ is a designated physical area located outside U.S. customs territory but near a U.S. Port of Entry, where goods can be stored, assembled, modified, repackaged, or relabeled without incurring duties. Tariffs are only collected once a product leaves the zone and enters U.S. commerce. As a result, many shippers and logistics providers view FTZs as a strategy to mitigate tariffs.

From A&A's analysis of the U.S. Customs and Border Protection (CBP) data, there were 2,333 active Foreign trade zone locations and 1,878 active bonded warehouse locations across all 50 states as of January 2023. In 2023, FTZs handled around $949 billion in merchandise, more than double the amount from 2005. Due to recent tariff pressures, interest in the FTZ program has surged. Establishing an FTZ can take up to a year, and Customs requires proof of adequate security and inventory control measures. Historically, FTZs have offered several benefits:

1. Goods can be imported duty-free.
2. Duties are only collected when the product exits the zone and enters U.S. commerce, allowing companies to delay costly duty payments and improve cash flow.
3. If a product is re-exported, no duties are incurred.
4. Goods can remain in an FTZ indefinitely for manipulation, manufacturing, or repackaging before leaving the zone.

Until not too long ago, companies could benefit from what's known as an "inverted tariff," allowing them to pay a lower duty rate on a finished product compared to its individual components. For example, an automaker in an FTZ could pay a lower duty on an assembled car rather than on the higher duty rates for multiple raw materials. During Trump's second term, the Trump administration terminated this rule, significantly altering the operational advantages of FTZs. Companies are now required to pay a "locked-in" tariff rate on components as they enter an FTZ, regardless of any further processing that may occur within the zone. This change has removed the advantageous option for manufacturers to pay a lower tariff rate on the finished product, rather than the higher rates on individual components. As a result, the operational flexibility that FTZs provided has been significantly diminished, potentially impacting the cost-effectiveness of using these zones for businesses engaged in manufacturing and assembly. Despite this, the many financial and logistical advantages of FTZs ensure they continue to be an essential and valuable resource for importers, manufacturers, and distributors across various industries.

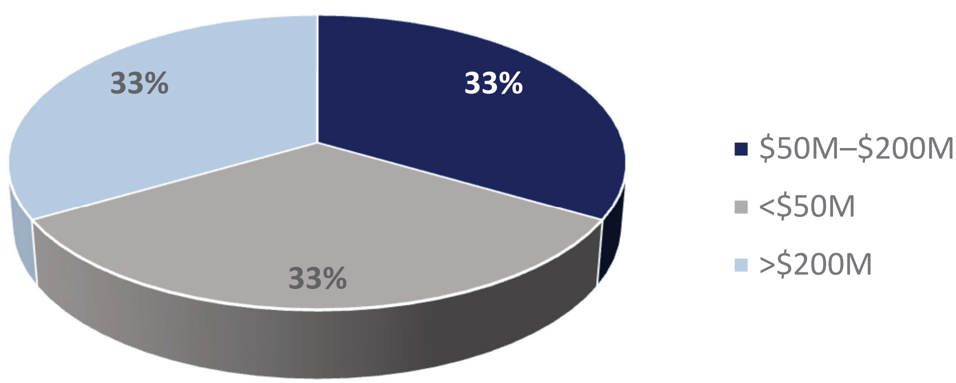
In response to economic challenges, some businesses have turned to a different type of storage solution: Bonded Warehouses (BWs). While similar to FTZs in some respects—both are located near a port or airport and allow the storage of imported goods without immediate customs duties—there are key differences. Unlike FTZs, BWs are located within the U.S. customs territory and permit more limited activities. Bonded warehouse storage is limited to five years, whereas goods can be stored indefinitely in an FTZ. Furthermore, a tariff rate can decrease while an item is in a bonded warehouse, allowing the shipper to release the item at a lower tariff rate. Typically, FTZs also provide similar tariff flexibility; however, the new executive orders have eliminated the option to release products at lower tariff rates, prompting U.S. shippers to prefer BWs. Companies opt for BWs over FTZs primarily because these warehouses help shield shippers from Trump-era tariffs. They allow businesses to manage cash flow until a buyer is found, enabling payment based on the applicable tariff rate when the item is retrieved from storage. Any company involved in foreign trade can utilize a BW, but the costs can be high, depending on the business model. Withdrawals incur fees, while FTZs generally follow a running count reported weekly, which can be a more straightforward and cost-effective approach.

Overall, factors such as storage time limits, the volume of goods, the type of operations, and the direction of tariff rates play a crucial role in determining whether an FTZ or a BW is more suitable for a business. For instance, businesses with high-volume imports may prefer FTZs to capitalize on duty deferment, while those requiring more flexible storage options may opt for BWs. Additionally, the nature of their operations—whether they involve manufacturing, assembly, or simple storage—can influence their choice. Staying informed about current tariff rates is also vital, as fluctuations can impact the financial benefits of either option. Ultimately, each business must carefully evaluate its specific needs and circumstances to make an informed decision.

A&A's North American Warehousing Benchmark Study 2025

In the second quarter of 2025, A&A collected information on 253 warehouses and 144 warehouse contracts in North America for our detailed warehousing benchmark database. In addition to the General Warehousing Study Form in Appendix A, we revised our individual warehouse location database and our warehousing e-commerce fulfillment benchmark data. Approximately 98% of warehouses are located in the U.S., and 2% are in Mexico. All the warehouse samples were split equally among 3PLs with their 2024 revenue less than $50 million, over $200 million, and between $50 million and $200 million.

Figure 3. Contract Warehouses by 2024 Revenue in North America



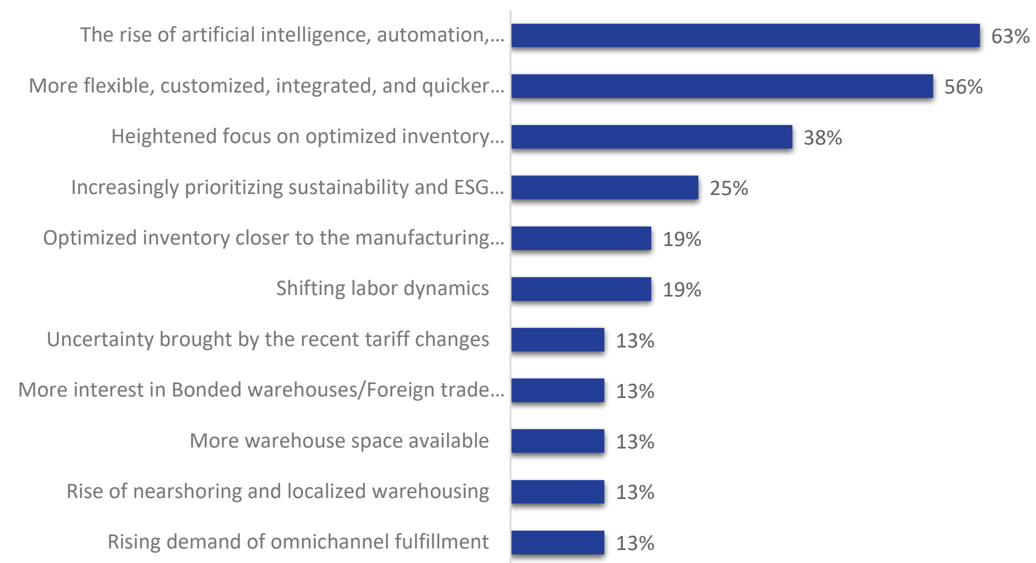
Our previous warehousing study was completed in the second quarter of 2022. It is interesting to explore how the warehousing industry has changed over the past three years, influenced by geopolitical tensions, tariff volatility, inflation fluctuations, and broader macroeconomic shifts.

Warehousing Study General Questions Overview

Below are our General Questionnaire questions and the analysis based on the feedback:
Q: What important changes, trends, and challenges have you seen in the warehousing business in the last 2-3 years?

63% of participants mentioned an increase in AI, automation, and technology applications in the 3PL warehousing industry, 56% of 3PLs highlighted the importance of flexible and customized solutions, while 38% noted the benefits of optimized inventory management.

Figure 4. Changes and Trends in the Warehousing Business

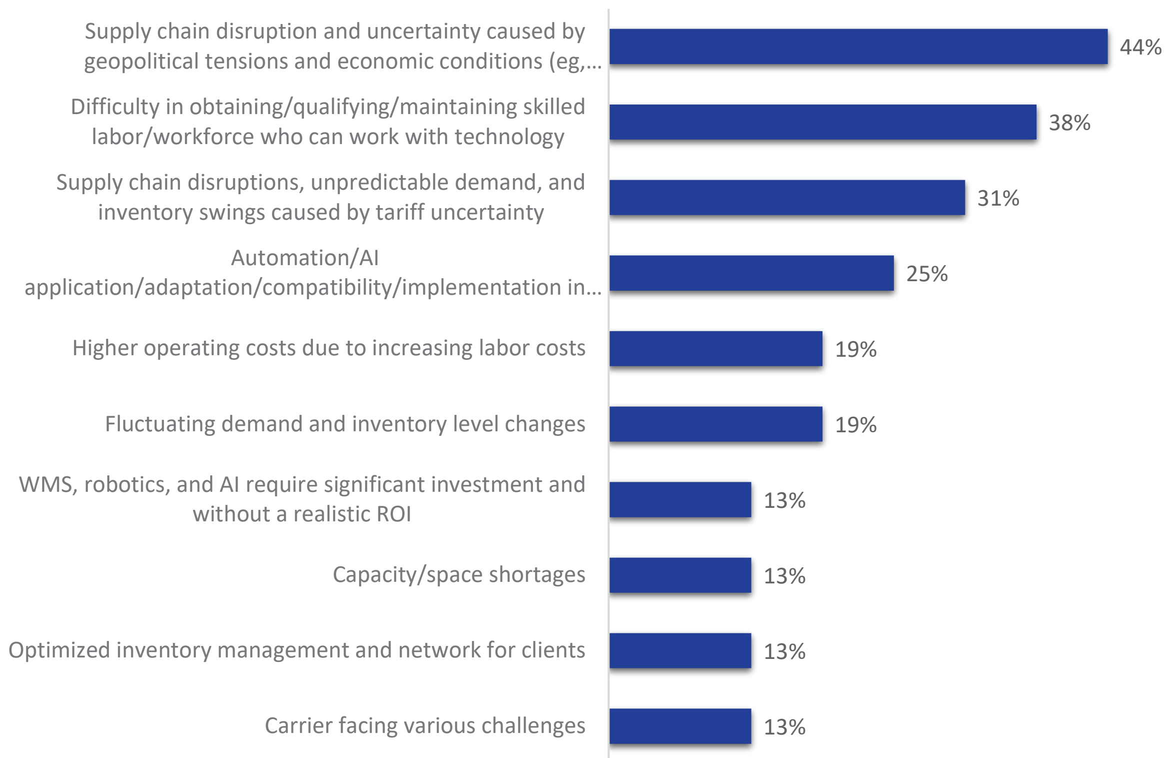


Besides the changes and trends in the figure above, the following areas were mentioned at least once:

- Increase in e-commerce fulfillment and new platforms for brands to sell products
- Offering Direct-to-Consumer (D2C) services, retail consolidation, and Business-to-Business (B2B) solutions under one roof
- Growing trend of outsourcing services
- Rise in warehouses with multi-client capabilities
- Increasing industrial rental costs
- Decrease in demand for standard warehousing
- Higher vacancy rates at facilities
- Reduction in inventory levels
- Emphasis on e-fulfillment and optimization of last-mile delivery
- Increased demand for hybrid warehousing solutions
- Shorter lead times to complete Requests for Quotations (RFQs)
- Shorter contract lengths and more requests for short-term engagements
- Inflation and rising costs are driving the need for offset strategies
- Pressure on pricing as vendors become more competitive to retain and attract new business
- More requests for pricing on new markets based on potential suppliers
- B2B companies, manufacturers, and suppliers expect service levels comparable to those in Business-to-Consumer (B2C) markets
- A shift back towards Just-in-Time (JIT) strategies

Figure 5 highlights the main challenges faced by 3PLs over the past two to three years. According to the responses, 44% of 3PLs identified supply chain disruptions and uncertainties as their top challenge. Additionally, 38% reported difficulties acquiring skilled labor, while 31% mentioned inventory fluctuations due to tariff uncertainties.

Figure 5: Important Challenges in the Warehousing Business



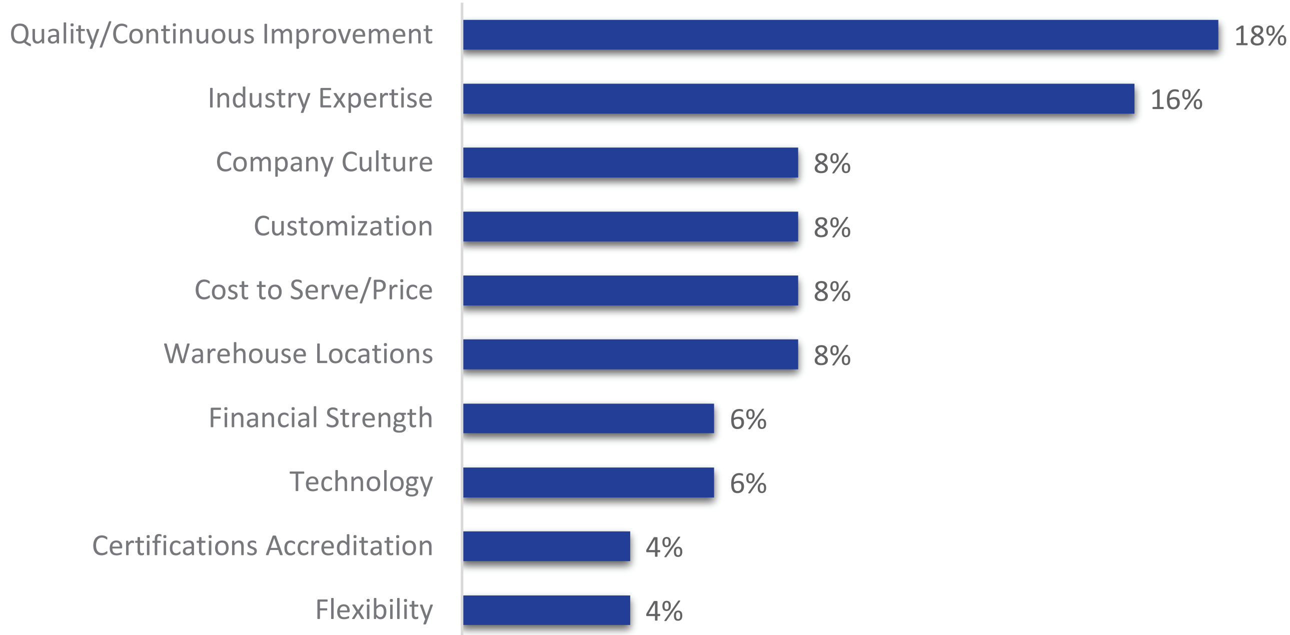
Besides the challenges mentioned above, the following areas were also mentioned at least once:

- Pressure for supply chain diversification and near-shoring
- Efficient utilization of available warehouse space
- Intense pressure on operating margins
- Capital investment needed to support changes and trends
- Need for competitive pricing
- Preference for shorter contract lengths
- Complexity in returns management
- Timing and duration of feedback from legal teams during the contracting process
- Sustainability pressures affecting operating costs for compliance
- Decreasing real estate costs post-COVID
- Ability to maintain operational fluidity at facilities
- Issues with overcapacity
- Wage pressures

Q: Based upon feedback from your customers, what differentiates your service offering from the competition?

We received a range of responses to this question: 18% of the study participants believe that quality and continuous improvement distinguish their service offerings from those of their competitors, followed closely by industry expertise at 16%. Additionally, 8% of respondents identified company culture, customization, cost-to-serve/price, and warehouse locations as factors that set them apart.

Figure 6. Differentiations in 3PLs' Warehousing Service Offerings



In addition to the distinctions shown in the figure above, the following points were also mentioned:

- Global Network
- Execution
- Foreign Trade Zone
- Integrated Port-to-Door Supply Chain Solutions within North America
- Differentiated Knowledge and Expertise across Key Industry Verticals
- Responsiveness/Communication
- Compelling Value through Operational Excellence

Q: How did your total warehousing revenue change from 2023 to 2024?

In 2024, 77% of the 3PL participants experienced positive revenue growth, with an average Year-Over-Year (YOY) growth rate of 5.6%, compared to 14% in 2021. One 3PL achieved the highest comparative YOY growth of 80%, while another faced the lowest at -24.2%.

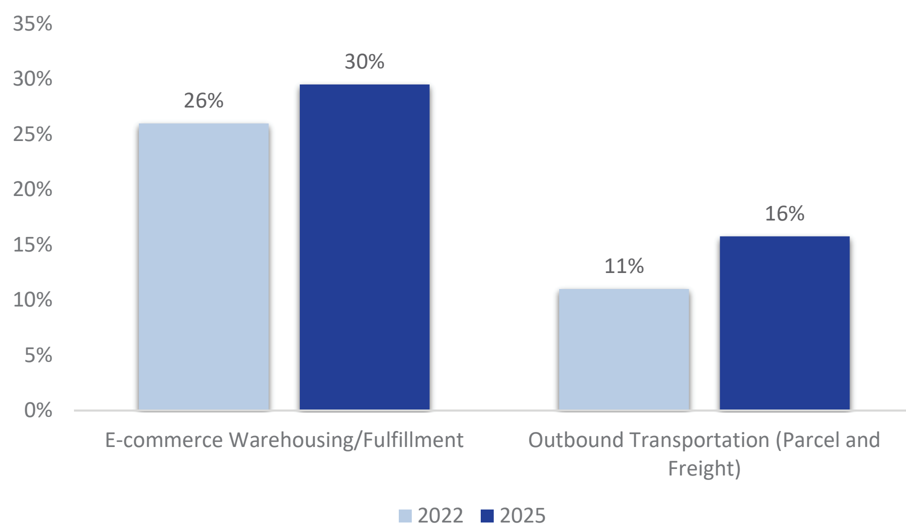
Table 7. 2023-2024 Total Warehousing Revenue Growth

Average	5.6%
Min	-24.2%
Max	80.0%

Q: For 2024, what percentage of your total warehousing revenue was from e-commerce? For 2024, what percentage of your total e-commerce warehousing/fulfillment revenue was from outbound transportation (parcel and freight)?

Figure 7 compares the parcel and freight revenue percentages for 2022 and 2025. In 2025, e-commerce warehousing and fulfillment accounted for an average of 30% of total warehousing revenue, an increase from 26% in 2022. E-commerce transportation management (parcel and freight) represented 16% of total revenue in 2025, a 5% increase from 11% in 2022.

Figure 7. 2025 E-commerce Warehousing/Fulfillment Revenue 2022 vs. 2025



Q: What is your overall Information Technology cost as a percent of the total warehousing operating cost?

In 2025, the costs associated with Information Technology (IT) in warehousing ranged from 3% to 8% of the total operating expenses, up from 1% to 8% in 2022. The average IT cost accounted for 3.7% of total warehousing operating expenses, a slight increase from 3.6% in 2022.

Table 8. I.T. Cost Percentage 2022 vs. 2025

	2022	2025
Average	3.6%	3.7%
Min	1.0%	3.0%
Max	8.0%	8.0%

Logistics and warehousing technology have undergone significant changes. The labor-intensive piece-picking work characteristic of e-commerce fulfillment requires three times as many employees per square foot as a traditional contract warehouse. As labor demand grows, high wages are exacerbated by increasing local competition. In addition, in today's fast-paced climate, 3PL operations require better planning, talent, and real-time data to meet the two-day and even two-hour delivery windows. IT expertise and technology are becoming the top reasons that companies outsource logistics. As a result, investment in technology and automated solutions has become more attractive, both as a cost-saving measure and an opportunity to drive efficiency. 3PLs will need to digitize operations, deploy best-in-breed technology solutions, and innovate to keep pace with changing customer demands and increased competition within the industry.

Traditionally, 3PLs allocate 8% to 9% of their net revenue to IT investments. Medium to large-sized 3PLs have developed an integrated core systems backbone that can be deployed efficiently. Many larger 3PLs offer integrated solutions and employ a control tower approach to manage orders and shipments, particularly to enhance visibility within customer portals. Most 3PL system suites combine off-the-shelf software with proprietary applications. Business intelligence, web connectivity, and automated data management are becoming increasingly essential. Additionally, Software as a Service (SaaS) and cloud-based solutions have become standard practices, while Customer Relationship Management (CRM) and salesforce automation are gaining traction.

Artificial Intelligence (AI) and digitalization of processes are increasingly common in 3PL operations. Advanced technologies and automation, such as Automated Storage and Retrieval Systems (AS/RS), can yield a higher return on investment (ROI). However, a challenge for 3PLs is that investing in these technologies requires significant upfront and long-term capital costs, making it a long-term commitment. Many 3PLs are hesitant to invest in technologies and automation that extend beyond the duration of their client contracts. In fact, our warehousing studies from 2022 and 2025 indicate that 3PLs rate their technology maturity and execution capabilities as the lowest, at 3.5% and 3.7% (see Figure 8), respectively. While we are witnessing a growing implementation of AI, automation, and technology in warehousing operations in 2025 compared to three years ago, this progress has also introduced challenges in obtaining qualified and skilled labor capable of effectively working with these technologies.

Below are some additional examples of emerging technologies and automation used in warehouse operations.

- Automated Storage and Retrieval Systems (AS/RS) use a combination of robotics, software, and sensors to store and retrieve products from a warehouse racking system automatically. They can be used to increase storage density and reduce the time and labor required to retrieve products.
- Layer picking robots are specialized robotic systems that efficiently pick layers of products from pallets, improving speed over manual operations.
- Automated palletizers and de-palletizers can be used to stack and unstack goods to and from pallets automatically. An automated machine palletizer takes products from a conveyor and arranges them on a pre-programmed pattern on the pallet. An automated machine de-palletizer is a machine used to remove products from a pallet. Robotic palletizers use robotic arms to stack/unstack goods on pallets. Hybrid palletizers combine the benefits of robotic and conventional palletizers to create a highly efficient and flexible palletizing system.
- Pallet conveyors can be used to transport pallets from one location to another within the warehouse, reducing the need for manual labor.

- Conveyor systems use a network of belts or rollers to transport products throughout a warehouse or distribution center. They can also automate the process of moving products from one location to another, reducing labor costs and improving efficiency.
- Pick-to-Light systems reduce the time and errors associated with manual picking by using lights or displays that guide workers through the picking process.
- Voice picking technology uses voice commands and responses to guide workers through the picking process. Workers wear a headset and are directed to the location of the item, along with the quantity to pick.
- Automated Guided Vehicles (AGVs) are mobile robots that can be programmed to transport products within a warehouse or distribution center. They are often used to transport heavy items or reduce the time and labor required to move products between different areas of the warehouse.
- Augmented Reality (AR) picking technology uses wearable devices like smart glasses or mobile devices to display digital images or information about the item to be picked. This information can include location information, images, or instructions on how to pick the item.
- Drones are used in some warehouse environments to move small items from one location to another and perform cycle counting.

The five critical areas below are attributes of leading 3PL VAWD operations:

Safety: In almost all VAWD 3PL operations, safety expectations are communicated throughout the entire organization. Safety standards are set and measured. There is a safety committee, and regular training for all associates. Housekeeping, cleanliness, and Lean process management are all part of the safety program. Equipment is checked before use, and lockout/tagout processes are implemented. There are safety audits and random safety sweeps. Accidents and near misses are discussed, and a root cause analysis is conducted to prevent future near misses or accidents. Good behavior is rewarded.

Continuous Improvement: Leading 3PLs, clearly communicate their vision, mission, and values to all associates. The associates understand the vision, mission, and values, as well as how they can contribute to the organization's purpose. There is a formal Lean/Six Sigma program with green belt, black belt, and master black belt associates available to all facilities. Visual management is standardized, with active metrics used to manage day-to-day business. Lean/Six Sigma tools are readily available to all associates. There is a process in place to manage defects, corrective, and preventative action reports. All employees understand how to perform root cause analysis, such as fishbone diagrams, SIPOC (Suppliers, Inputs, Process, Outputs, and Customers), 5-whys, DMAIC (Define, Measure, Analyze, Improve, and Control), and A4s. KPI management is standardized. The business scorecard is aligned with the business vision and mission. All associates understand the metrics that drive success in their department. The employee suggestion program is formalized. The standard worksheets are posted at workstations to include the Leadership Standard work. The leaders are trained on Lean/Six Sigma, including certification.

Quality: A formal Quality Program is in place with centralized access. The sites are audited for compliance, and there are Quality Sweeps to assess the program's effectiveness. Standard Operating Procedures (SOPs) are audited and up to date. There are SOPs for all processes.
Standard features of a quality management system are:

1. Document Control (SOPs, job descriptions, standard work, RACI matrix, training matrix...)
2. Change Control

3. Corrective Action and Preventive Action (CAPA)
4. Audit Management
5. Compliance Management
6. Risk Management
7. Statistical Process Control
8. Supplier Quality Management
9. Employee Training and Management

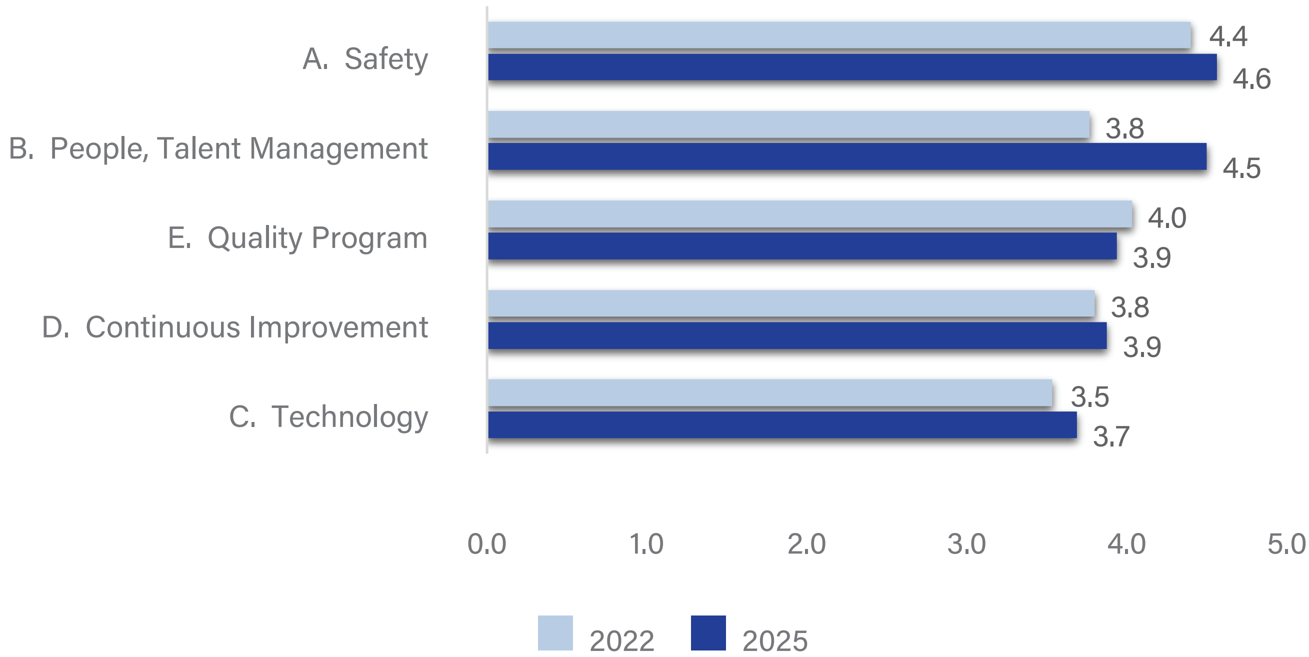
People, Talent Management: Job descriptions are formalized, and all associates are clear about what is expected of them. Employees have the tools they need to perform their jobs effectively. Performance reviews are conducted for all associates. A formal mentorship program is in place, and associates actively participate in it. There is an employee development program that allows employees to grow and learn skills beyond their day-to-day work. Roles and responsibilities are tailored to meet the strengths of each associate.

Technology: The Business Intelligence (BI) system is easy to use. The BI tool is used for data analytics, information reporting, data and process mining, benchmarking, predictive and prescriptive analytics, and strategic decision-making. All sites use a Tier-1 WMS. The Labor Management System (LMS) It is integrated with the WMS. The Customer Relationship Management (CRM) begins with sales and is maintained throughout the customer's tenure. Customers have access to the data through an online portal that includes real-time inquiries and reporting. The portal is a self-service tool for viewing and managing your account. Automation of processes is effectively utilized (examples include carousels, conveyors, automatic stacker cranes, robots, pick-to-light, pick-to-voice, and automated storage and retrieval systems). There is a digital strategy that enables digital optimization and monetization.

Q: Please rank the level of your organization's maturity in each area below (A. Safety, B. People, Talent Management, C. Technology, D. Continuous Improvement, E. Quality Program) with 1 being the lowest and 5 being the highest.

Our 2025 study's overall rankings, from high to low, are Safety, People, Talent Management, Quality Program, Continuous Improvement, and Technology. Each year, Safety is the top-scoring area. No one could argue that Safety shouldn't be at the top of the list, and it seems to be the most operationally mature. People, Talent Management ranks an average of 4.5 this year, compared to 3.8 in 2022, and is the area with the most significant improvement. Continuous Improvement and Technology also had a higher average score than three years ago. The only area with a lower score than 2022 is the Quality Program.

Figure 8. Level of Maturity in Five Critical Areas of VAWD



We have added a new section to our 2025 warehousing study that gathers sales information from 3PLs. This section includes details about the Customer Relationship Management (CRM) systems they use, their customer contract renewal rates, information regarding RFPs, and the number of sales personnel employed.

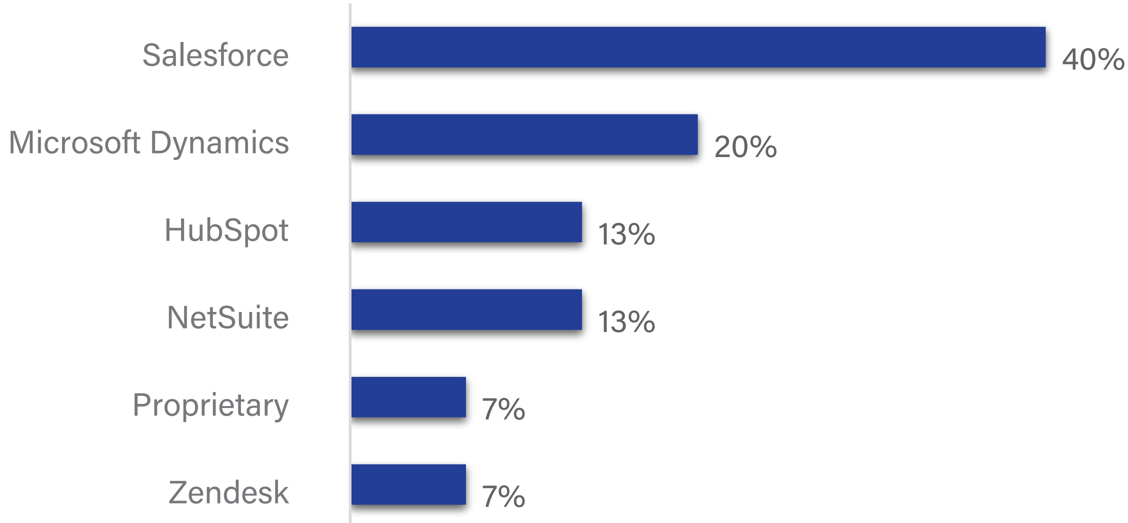
Table 9. 2024 Warehousing Sales Information

2024 Warehousing Sales Information	Average	Min	Max
Customer Contract Renewal Rate %	90%	76%	96%
Total RFPs Received Annually	74	10	250
RFP Win Rate Percentage (%)	23%	15%	35%
Annual RFPs Win	15	2	50
Annual New Business Won from RFPs (US$ Million)	$31	$1	$100
Average New Business Won Per RFP (US$ Million)	$2.4	$0.1	$6.7
Number of Sales Personnel	17	0.5*	80
New Business Won Per Sales Personnel (US$ Million)	$6.5	$0.1	$30.0

*This person takes on different roles.

We also inquired about the CRMs used by 3PLs. 40% of the respondents reported using Salesforce, followed by Microsoft Dynamics at 20%, then HubSpot and NetSuite, both at 13%. The responses also mentioned a homegrown system and Zendesk.

Figure 9. Customer Relationship Management (CRM) System



Contract Warehousing

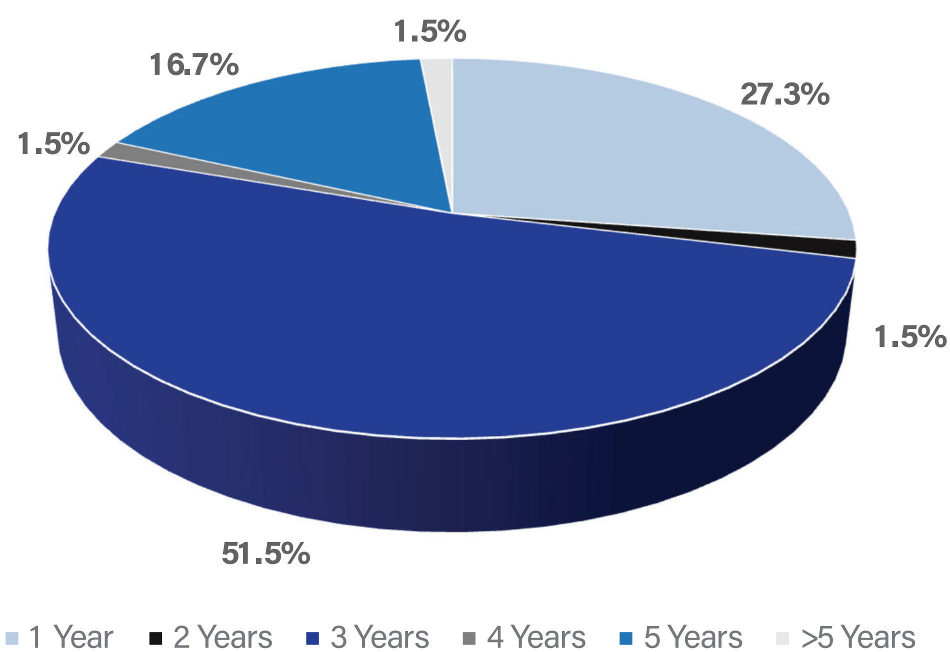
In our study of 253 contract warehouses, the average annual revenue per warehouse was $10 million, with revenues ranging from $98,000 to $62.8 million. Above 90% of the sample warehouses were classified as ambient or dry warehouses. In 2025, each contract warehouse had an average of 7 customers, a decrease from 13 in our 2022 study. One warehouse served as many as 75 customers, whereas the warehouse with the most customers in 2022 accommodated 140.

This section provides a detailed analysis of the results from our 2025 warehousing study, addressing various aspects such as contract lengths, warehouse sizes, revenues, operating margins, ownership status, types of warehouses, and the Warehouse Management Systems (WMS) utilized.

Contract Lengths

In 2025, three-year contracts are consistently the most common in contract warehousing, comprising 51.5% of the total. They are followed by one-year contracts at 27.3% and five-year contracts at 16.7%. Additionally, short-term contracts, which last between one and three years, now account for 80% of the total, while longer contracts of four years or more account for 20%.

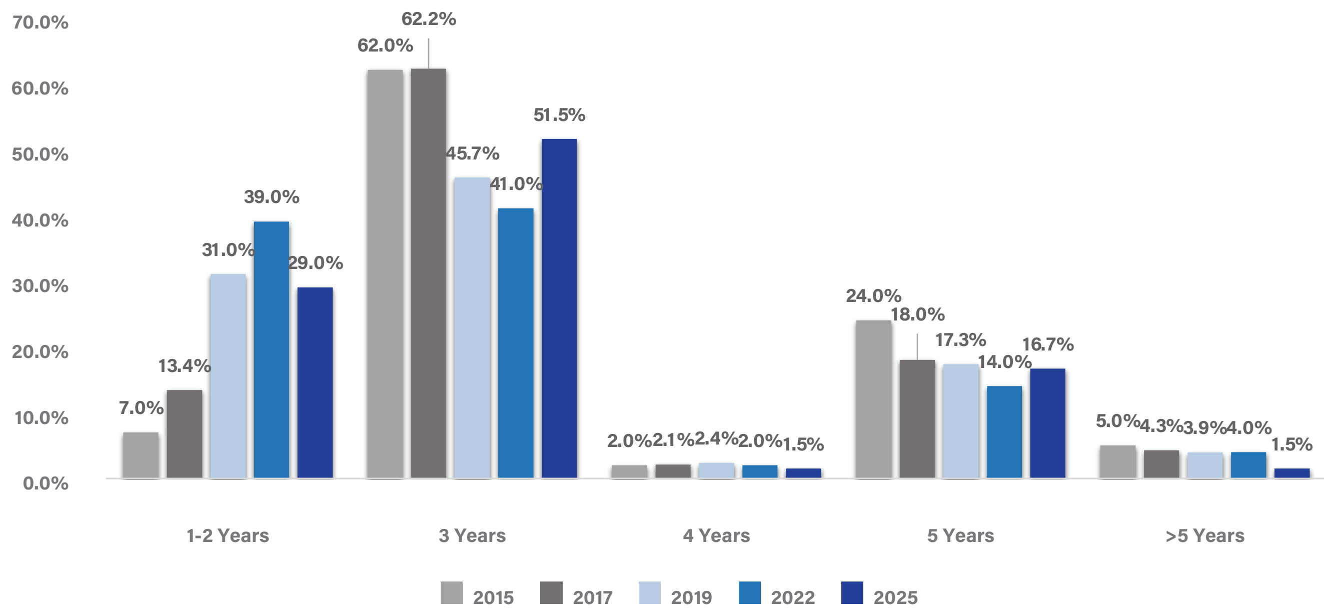
Figure 10. Contract Lengths



Combining the results from our last five warehousing studies, Figure 11 illustrates the trend in contract terms over the past decade. Short-term contracts of one to two years decreased by 10% compared to 2022, but still have the highest growth rate at 22% among all contract terms, compared to 2015. 3-year and 5-year contracts increased 10.5% and 2.7%, respectively, compared to 2022, although they showed a decrease of 10.5% and 7.3%, compared to ten years ago. Longer-term contracts with terms of more than five years dropped by 2.5% compared to 2022 and by 3.5% compared to 2015.

With the rapid growth of e-commerce, geopolitical concerns, and tariff uncertainty, multi-client warehouses with shorter-term contracts provided 3PL customers with increased flexibility. Due to the combined effects of high inflation, rising lease rates, and easing warehousing space pressure, we observed the most significant increase in three-year contracts in 2025 among all contract terms.

Figure 11. 2015-2025 Contract Length Trends



Contract Warehouses by Size

In our 2025 study, several 3PLs reported that more warehouse space has become available compared to 2022. The findings indicate that the average warehouse size has increased by 21% since our 2022 study. However, this still represents a 16% decrease compared to 2019, before the pandemic. This trend is further supported by the warehousing size data from A&A's Top 50 VAWD 3PLs (see Table 3), which revealed that their average warehouse size was 24% larger than in 2022.

Factors driving this shift in warehouse footprint include the rise in e-commerce fulfillment and its complexities, an increase in Stock Keeping Units (SKUs) sold by e-commerce retailers, and more optimized inventory locations closer to manufacturing sites, retailers, and customers. Additionally, our 2025 study found a greater number of "mega" warehouses exceeding 1,000,000 square feet compared to our 2022 study.

Figure 12. 2015-2025 Average Contract Warehouse Size Trends

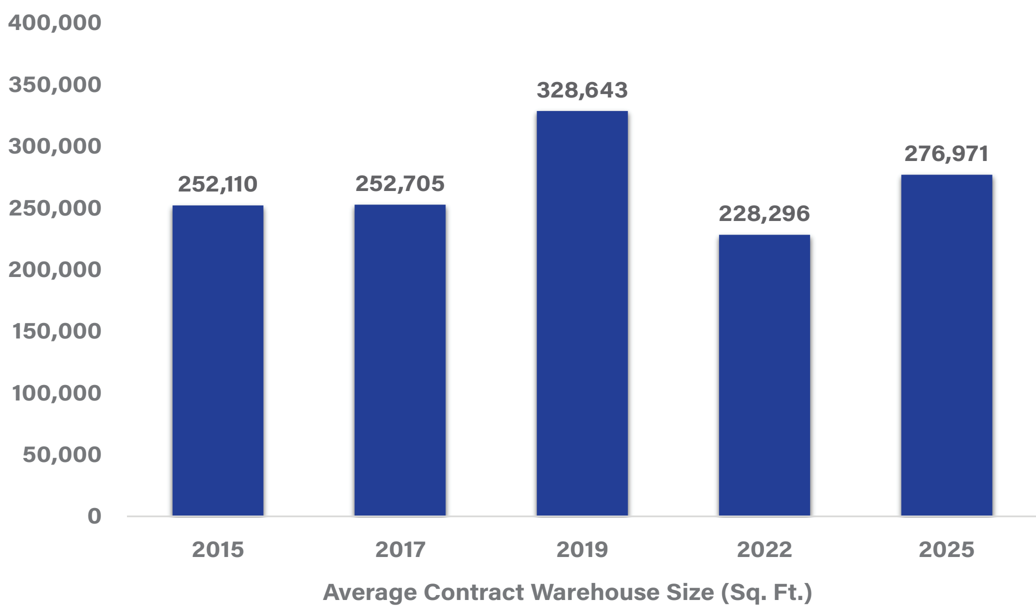


Figure 13 compares the sizes of customer warehousing operations, measured in total square footage, between 2022 and 2025. Notably, in 2025, 64% of all warehousing operations were smaller than 299,999 square feet, representing a 9% decrease from 2022. Many of these operations are in multi-client facilities. In contrast, warehouses larger than 299,999 square feet accounted for 36% of operations, up from 27% in 2022. This demonstrates that the number of medium and large warehouses has increased over the past three years, with warehouses comprised of 600,000 and 999,999 square feet experiencing the most significant growth, at 3%.

Figure 13. Contract Warehouses Percentage by Size 2022 vs. 2025

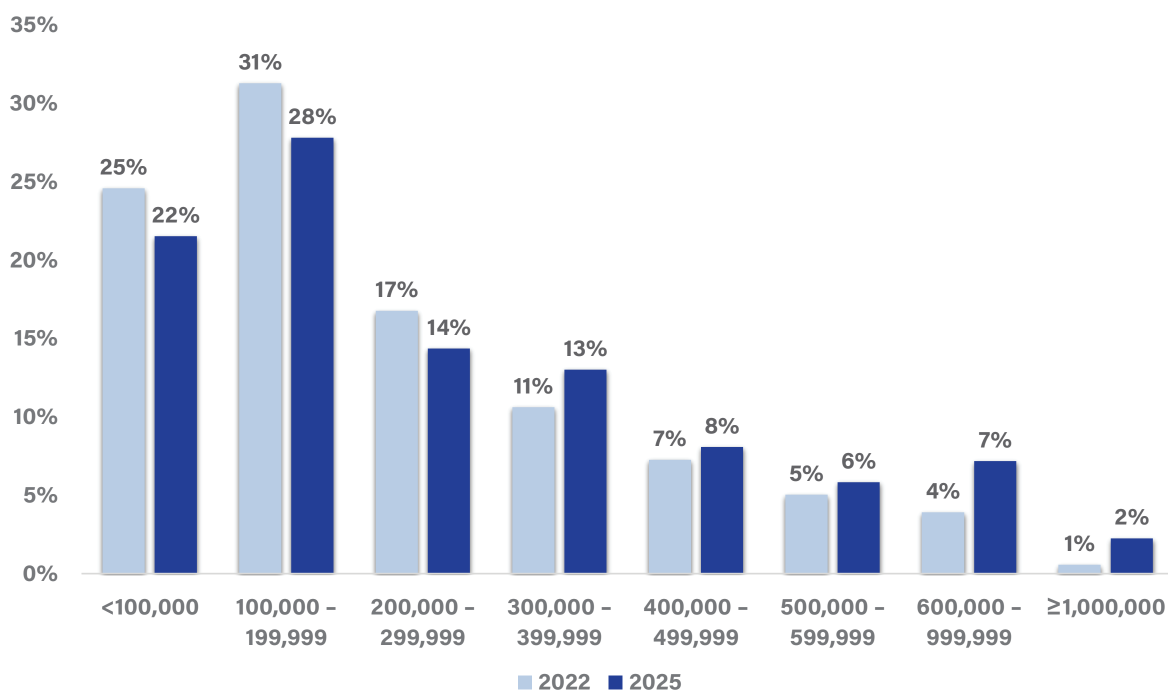


Table 10 shows the smallest, largest, and average size of the warehouses in each group.

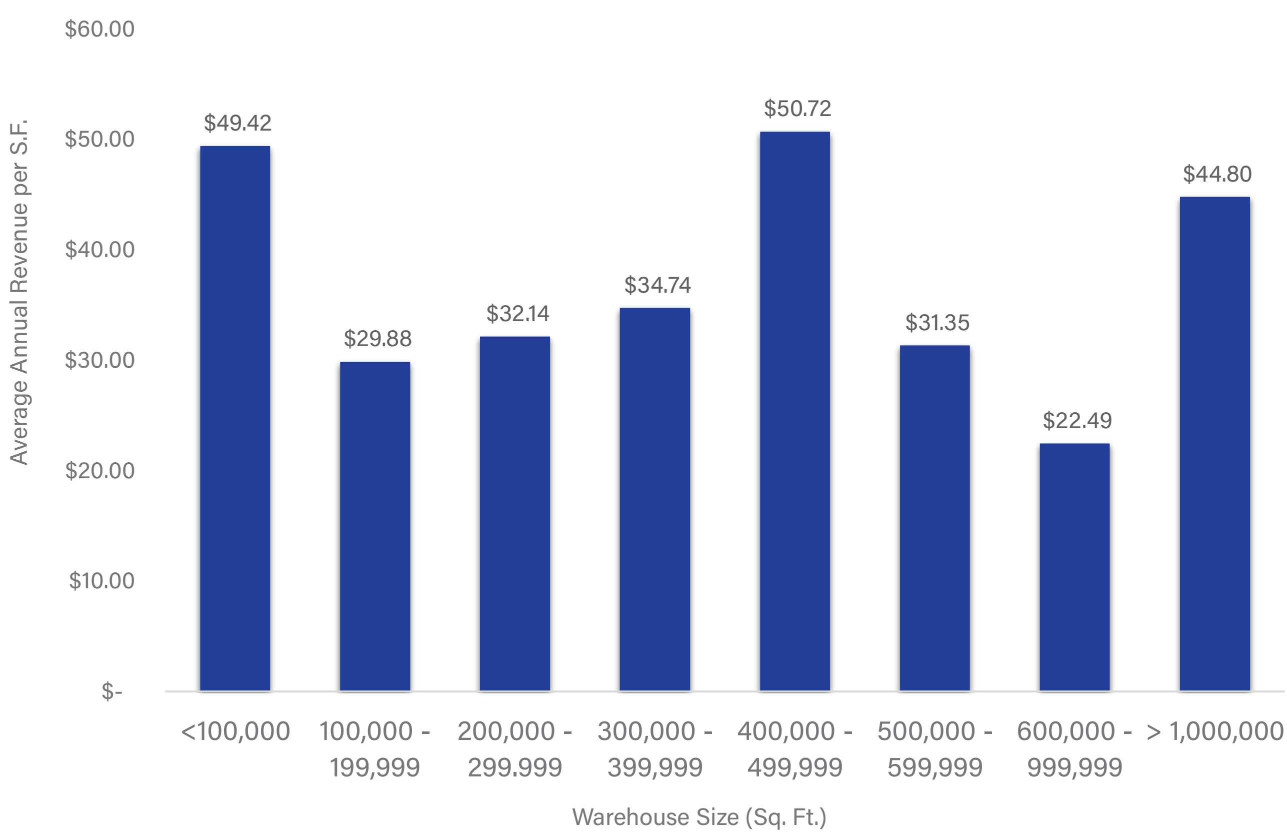
Table 10. Contract Customer Warehousing Operations by Size – Smallest, Largest, and Mean

Warehouse Size (Sq. Ft.)	Percent	Smallest (Sq. Ft.)	Largest (Sq. Ft.)	Mean (Sq. Ft.)
<100,000	22%	5,000	97,000	54,655
100,000 - 199,999	28%	100,000	196,000	140,212
200,000 - 299.999	14%	200,000	296,700	243,520
300,000 - 399,999	13%	300,000	396,000	339,477
400,000 - 499,999	8%	404,000	478,000	433,879
500,000 - 599,999	6%	500,000	593,325	543,239
600,000 - 999,999	7%	603,294	985,000	746,485
≥ 1,000,000	2%	1,000,000	1,384,000	1,198,971

Contract Warehouse Revenue by Size

This section examines the relationship between warehouse size and revenue per square foot for 253 warehouses. In 2024, the warehousing operations generating the highest average annual revenue per square foot are those in the 400,000 to 499,999 square foot range, followed by those smaller than 100,000 square feet and those greater than 1,000,000 square feet. Conversely, the warehouses with the lowest average annual revenue per square foot are between 600,000 and 999,999 square feet.

Figure 14. Contract Warehouses Average Revenue per Square Foot by Warehouse Size



Operating Margins

We compared the EBITDA/operating profit margins for 2022 and 2025. In 2025, the group with an operating profit margin of 15% to 19.9% represented the largest share of warehouse samples, accounting for 39% of the total warehouses. In contrast, in 2022, the most common group had an operating profit margin of 10% to 14.9% and made up 37% of the total warehouses.

The other two notable groups in 2025 were those with an EBITDA/operating profit margin of 30% or greater, which accounted for 20% of warehouse samples, and those with an operating profit margin of 20% to 24.9%, contributing 18%. In 2025, warehouses with an EBITDA/operating profit margin of less than 14.9% represented only 19% of the total warehouse samples. No sample warehouses had an EBITDA/operating profit margin of 0% to 4.9% in 2025, compared to 6% in 2022.

Additionally, in 2025, 20% of warehouses achieved an average operating margin of 30% or greater, a significant increase from 13% in 2022.

Figure 15. Contract Warehouses by EBITDA/Operating Profit Margin Group – 2022 vs. 2025

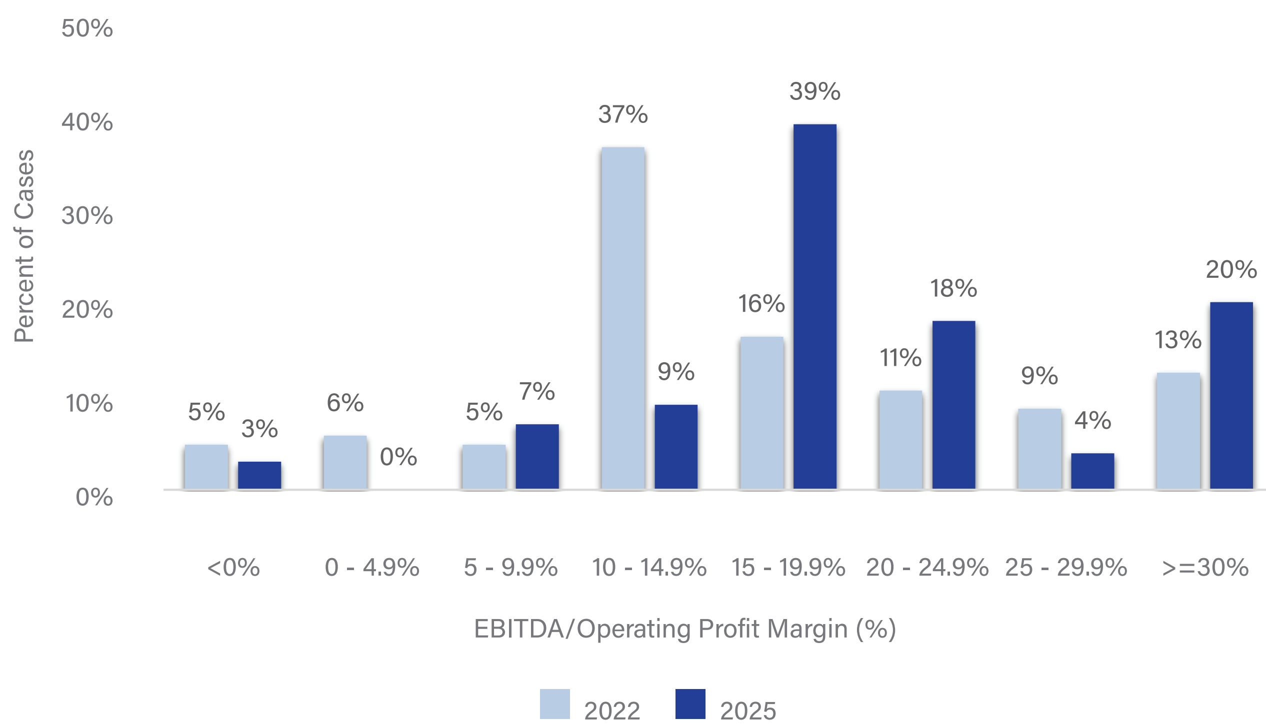


Table 11 compares the range, mean, and median values of the operating profit margin for 2022 and 2025. In 2025, the mean EBITDA/operating profit margin is 21%, and the median is 17%, reflecting growth of 6% and 3% since 2022. Additionally, the EBITDA/operating profit margins in 2025 exhibit a narrower range of values, from -21% to 50%, compared to the range of -78% to 50% in 2022. In the 2025 warehousing study, 3% of warehouses reported a loss, compared to 5% in 2022.

Table 11. Contract Warehouses by EBITDA/Operating Profit Margin – 2022 vs. 2025

	2022	2025
Range	-78% – 50%	-21% – 50%
Mean	15%	21%
Median	14%	17%

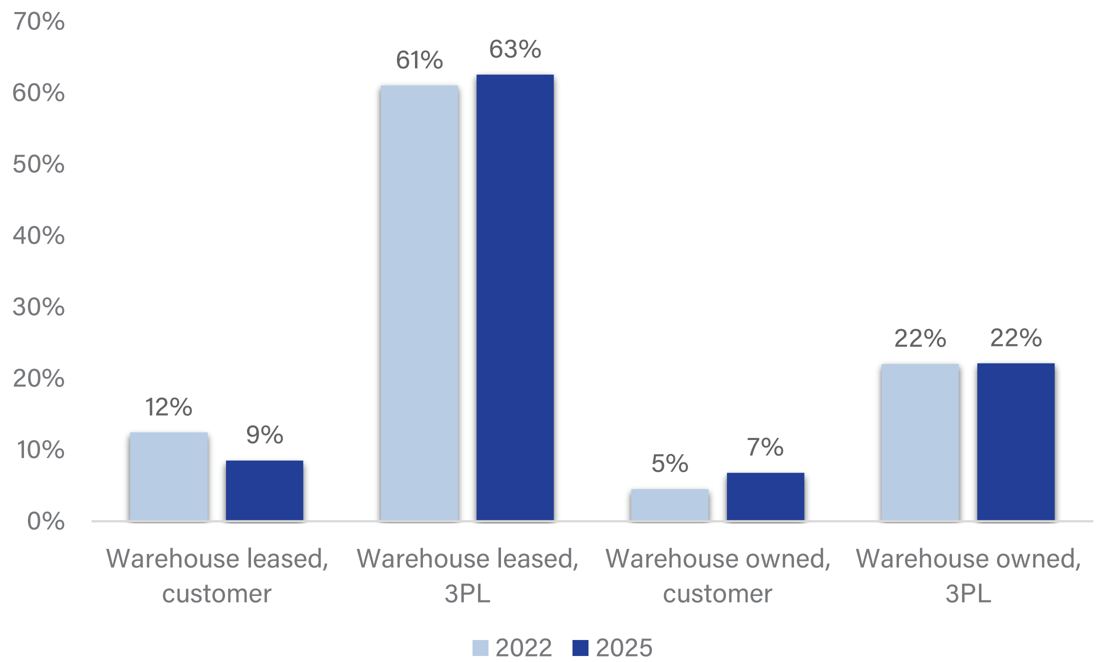
Owned vs. Leased

By comparing the ownership of contract warehouses from the 2022 and 2025 studies, we observed that the percentage of each ownership type has remained stable over the past three years. In 2025, 63% of the warehouses were 3PL-leased, reflecting a 2% increase from 2022. Additionally, 22% of the contract warehouses in 2025 were 3PL-owned, which remained unchanged compared to 2022. Customer-owned or leased warehouses accounted for only 16% of the total in 2025, representing a 1% decrease from 2022.

Our study indicates that the trend of leasing versus owning warehouses continues among 3PLs. With the high demand for industrial space, leasing offers a more flexible option for growth. Financially, leasing allows 3PLs to avoid high upfront costs, while owning a warehouse carries greater financial risks. However, over the long term, ownership can be beneficial once facilities are fully depreciated, particularly in regions like Nashville, New Jersey, Miami, and Atlanta, where lease rates have been rising exponentially.

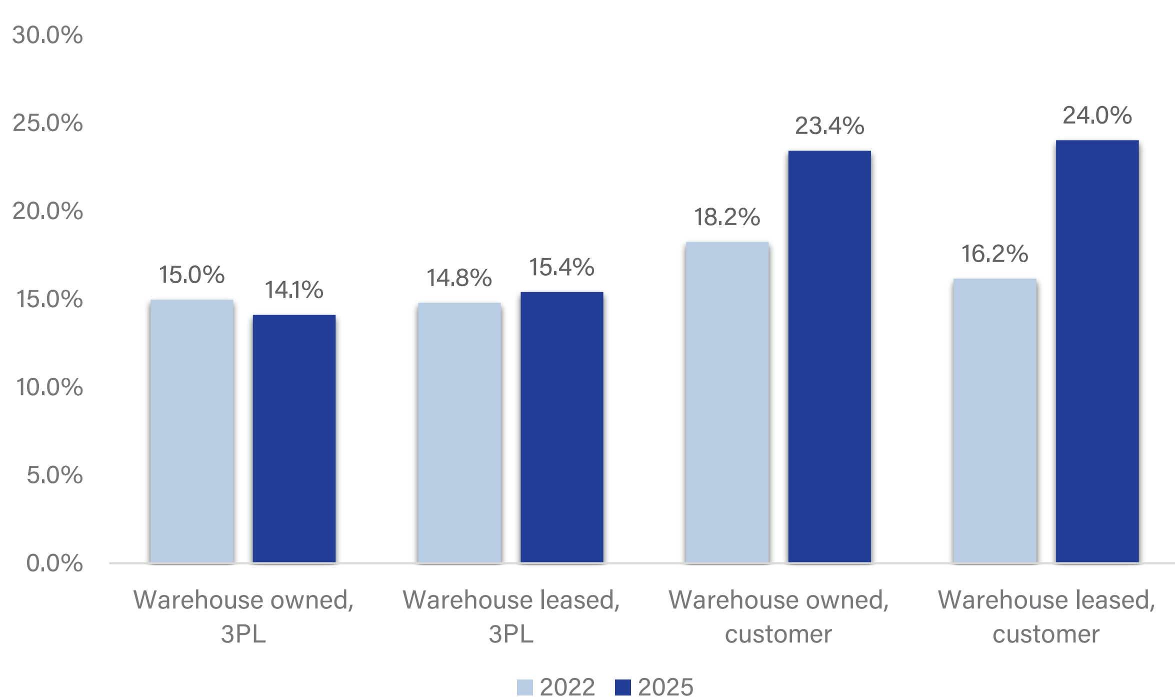
According to the global commercial real estate group, CBRE, 3PLs signed more leases for properties over one million square feet than any other industry during the first half of 2025. Specifically, 3PLs occupied 38 of the top 100 industrial leases, totaling 28.9 million square feet of space. This represents an increase from the first half of 2024, when 3PLs signed 28 leases totaling 20.6 million square feet. It indicated that 3PLs were able to take a larger share of the mega-lease market, as many retailers and manufacturers are now choosing to outsource their warehousing and distribution operations due to rising rents and operational costs.

Figure 16. Contract Warehouses – Ownership 2022 vs. 2025



The following comparison outlines the EBITDA/operating profit margin by four warehouse ownership types in 2022 and 2025: 3PL-Owned, 3PL-leased, Customer-Owned, and Customer-Leased. In 2025, customer-leased warehouses had the highest average profit margin, at 24%, and showed the highest growth of 7.9% compared to 2022. Customer-owned warehouses followed closely, with an average profit margin of 23.4%, representing a 5.2% increase since 2022. 3PL-owned warehouses are the only type with a 0.9% average decrease in EBITDA/operating profit margin compared to 2022.

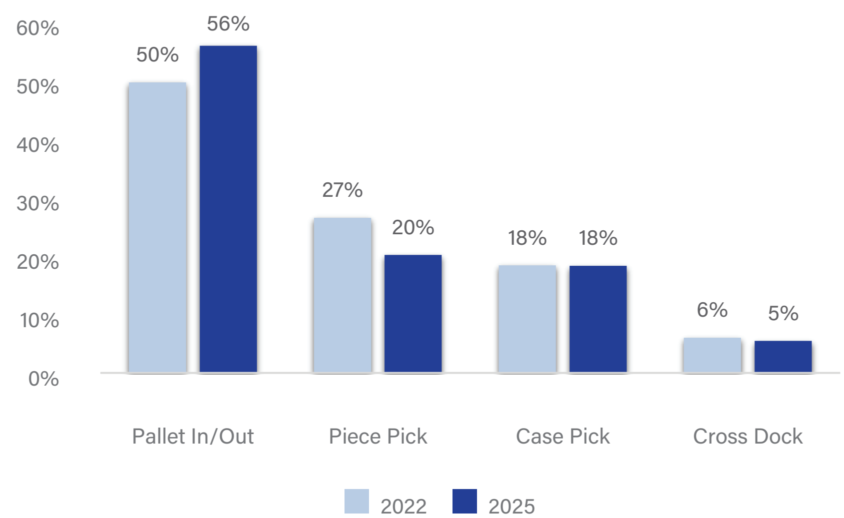
Figure 17. Contract Warehouses – EBITDA/Operating Profit Margin by Warehouse Ownership 2022 vs. 2025



Primary Warehouse Handling Types

The analysis below outlines the utilization of four main types of warehouse handling within operations: Pallet In/Out, Case Pick, Piece Pick, and Cross Dock. The warehouse handling type, ranked from highest to lowest, are as follows: Pallet In/Out - 56%, Piece Pick - 20%, Case Pick - 18%, and Cross-Dock - 5%. The average percentages of these four types have remained stable compared to 2022. Pallet in/Out had the highest growth, increasing by 6%, while Piece Pick showed the largest decline, decreasing by 7% since 2022.

Figure 18. Average/Mean Percent by Warehousing Handling Type - 2022 vs. 2025



We compared the primary warehousing handling types utilized by 3PLs in 2022 and 2025. Here, we define the primary handling type as the ONLY type used by each 3PL. Notably, the use of Pallet in/Out had the most significant increase of 4% compared to 2022, with 25% of the 3PLs relying exclusively on this method for their warehouse operations. Interestingly, no 3PLs utilized only piece pick or case pick as their operation in 2025, while in 2022, 5% of 3PLs operated solely with piece pick, and 3% used case picking. Additionally, the percentage of cross-dock warehouses decreased by 1% from 2022 to 2025.

Figure 19. Primary Warehouse Handling Type 2022 vs. 2025

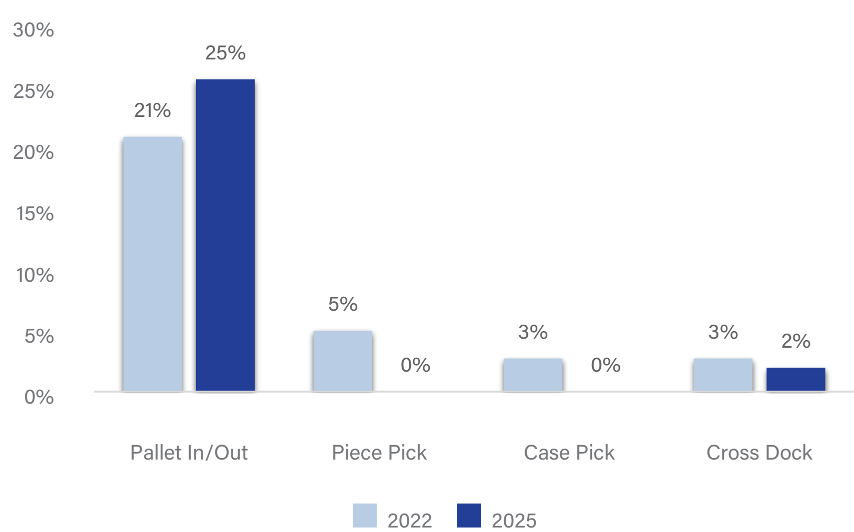


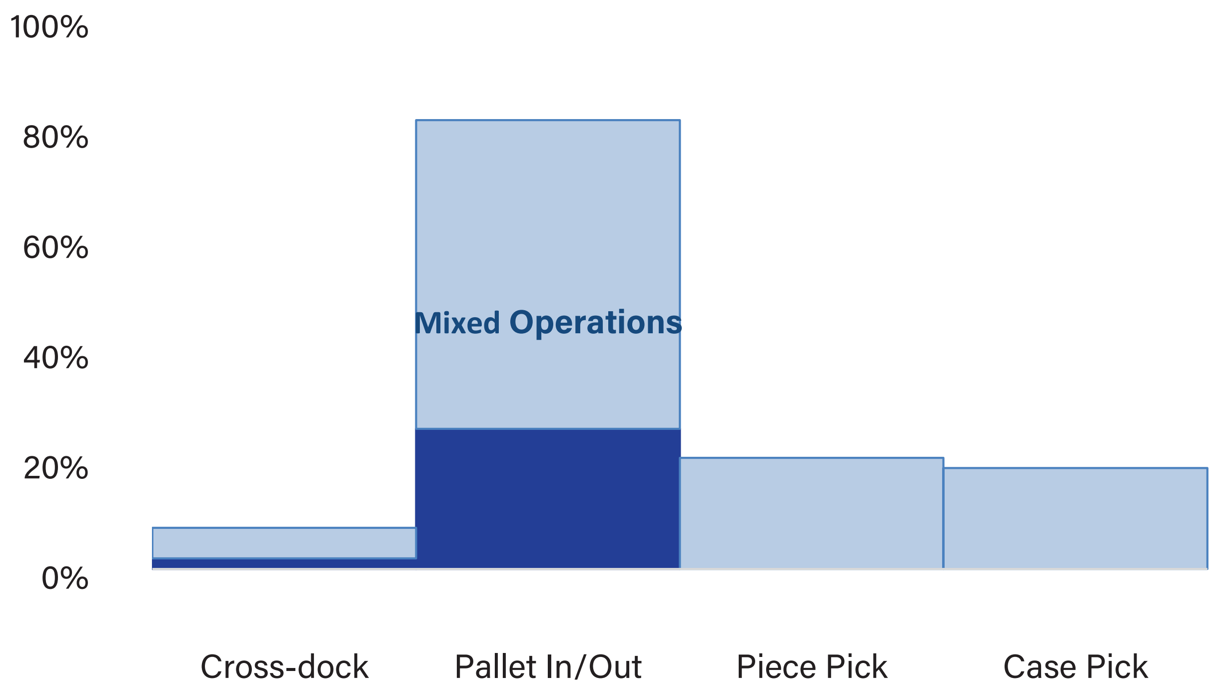
Table 12 summarizes the average percentage, median percentage, and the percentage of each handling type utilized by the 3PLs. The percentages reflect the warehouses involved in the activities in each column.

Table 12. 2025 Contract Warehouses by Primary Warehouse Handling Type

	Pallet In/Out	Case Pick	Piece Pick	Cross Dock
COUNT	95	63	57	26
Average (MEAN) Percent	56%	18%	20%	5%
MEDIAN Percent	55%	8%	10%	0%
COUNT of 100% of Type	26	0	0	2
PERCENT of 100% of Type	25%	0%	0%	2%

Figure 20 illustrates the four handling types as mixed operations (light blue area) compared to pure operations (dark blue area), highlighting that most contract warehouses predominantly employ mixed handling types.

Figure 20. Contract Warehouses by Primary Warehouse Handling Type

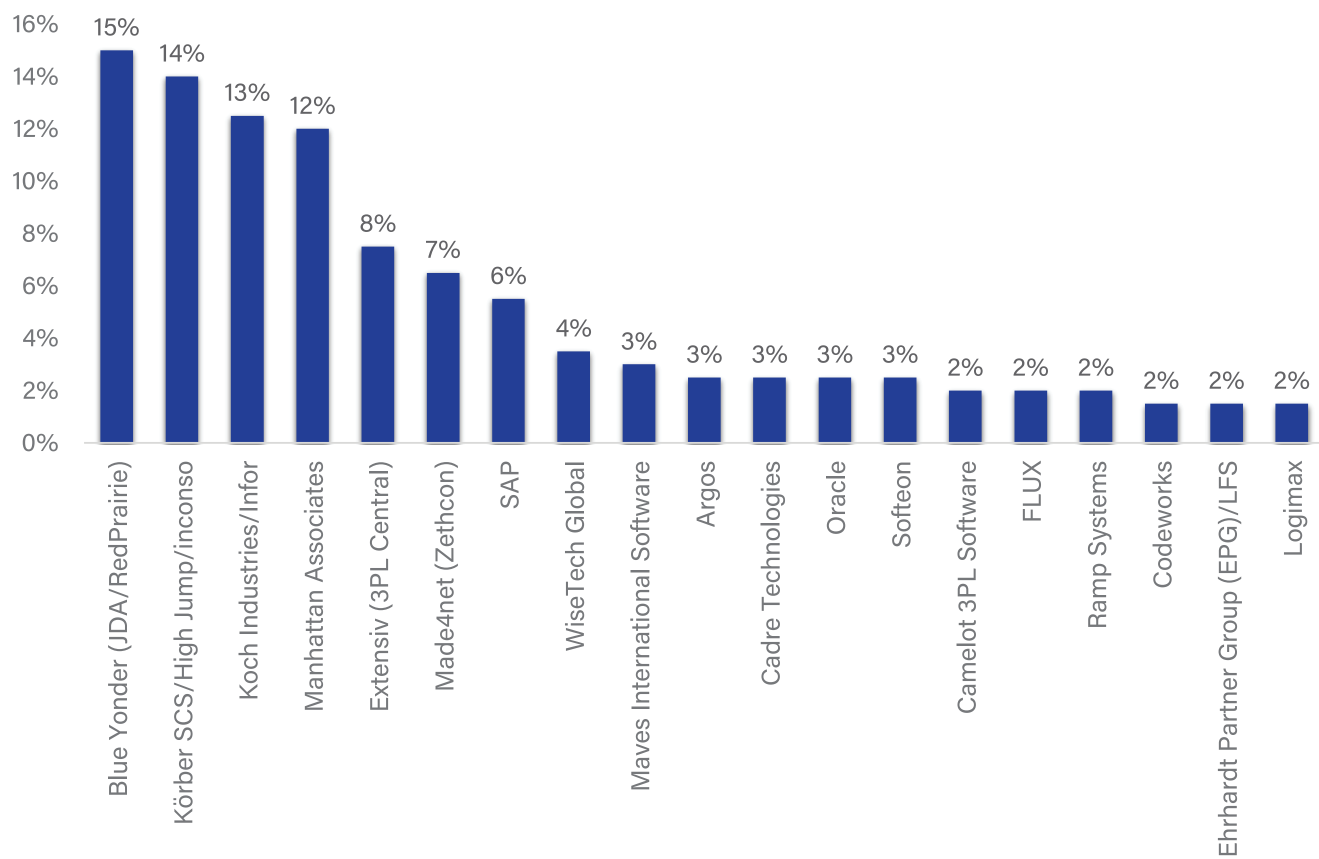


Warehouse Management Systems (WMS)

In the 3PL business, a wide range of WMS play a crucial role in managing warehouse operations. The WMS has long served as a cornerstone of most VAWD operations. The increasing growth in e-commerce, especially with time-critical shipments, along with the emergence of multi-channel distribution networks, the globalization of supply chain networks, and the growing adoption of cloud-based and AI-driven WMS solutions, is prompting more e-commerce-centric and traditional warehousing 3PLs to invest in robust WMS.

According to the A&A Who's Who 3PL Guide, we gathered information on WMS from 829 3PLs that utilize WMS in their 3PL operations as of the end of 2024. 34% utilized their proprietary WMS, while some deployed multiple WMS brands. Figure 21 illustrates 19 different WMS brands that are deployed by three or more 3PLs, with the three most commonly utilized WMS being Blue Yonder (JDA/RedPrairie), Körber SCS/High Jump/inconso, and Koch Industries/Infor.

Figure 21. Percent of Leading WMS Brands Deployed by 3PLs



VAWD Customer Contracts Overview

In our 2025 warehousing study, we gathered additional information on contract warehouses. We collected data on 144 VAWD 3PL customer contracts. The participating 3PLs provided details on their yearly 3PL contract value, number of warehouses assigned to the contract, warehouse space allocated to the contract, and the payment terms.

Table 13 provides an overview of the number of warehouses assigned to contracts and the total warehouse space allocated in North America for the 2025 study.

Table 13. VAWD 3PL Customer Contracts Overview

Number of Warehouses Assigned to Contract	**Average/Mean**	2
	Median	1
	Min	1
	Max	27
Total Warehouse Space assigned in North America (Square Feet)	**Average/Mean**	326,131
	Median	154,500
	Min	1,000
	Max	8,379,765

Figure 22 illustrates the payment terms for warehousing contracts in 2025. The most common payment term was 30 to 60 days, accounting for 51.7% of the total agreements sampled. This was followed by payment terms of 30 days at 24.5%, 60 days at 11.2%, and 45 days at 7.7%. Contracts with payment terms of 60 days or less made up 97.9% of all warehousing contracts, a slight decrease from 98.9% in 2022. Contracts with payment terms over 80 days constituted 2.1% of total warehouse contracts.

Over recent years, the trends of short-term payments in 3PL warehousing contracts can be attributed to increasing demand, market uncertainty, cash flow pressure, and risks associated with supply chain disruptions.

Figure 22. VAWD Contract Payment Terms

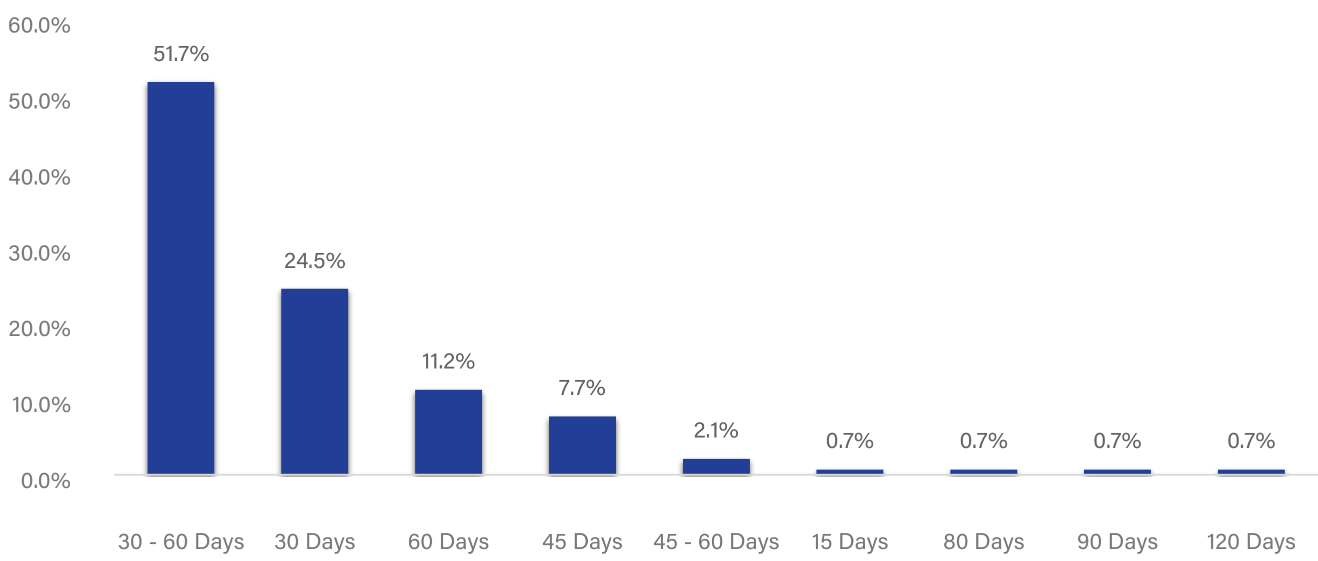
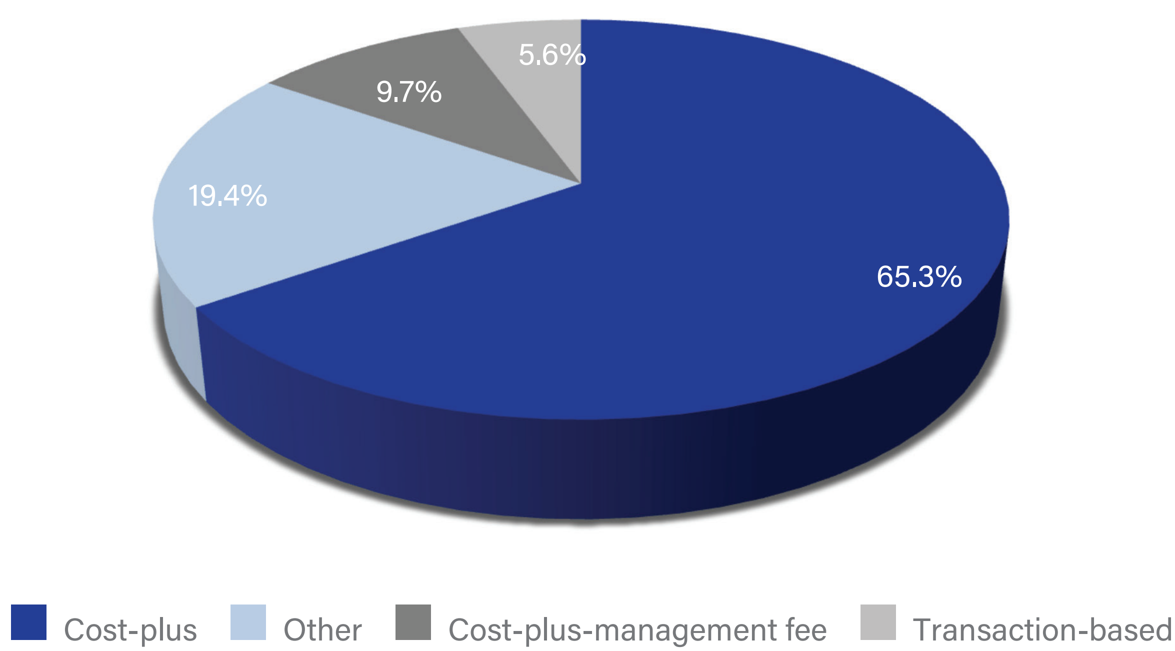


Figure 23 outlines the primary types of warehousing pricing fee structures: cost-plus, cost-plus-management fee, transaction-based, and others. Among these, 65.3% of 3PL warehouses use a cost-plus pricing structure, while only 5.6% use a transaction-based fee pricing structure.

Figure 23. Warehouse Pricing Fee Structures



Advanced Breakdown – Contract Warehouses

This section will discuss warehousing data related to various commodities and industries across different regions in the United States over the years, including VAWD revenue and space by commodity and region, as well as dedicated versus multi-client warehouse space by region.

We categorize the commodities into nine industries: Automotive, Consumer Goods, Elements, Food, Groceries, Healthcare, Industrial, Retailing, Technological, and Other. For regional classification in the U.S., we define four areas: the Northeast, the Midwest, the West, and the South.

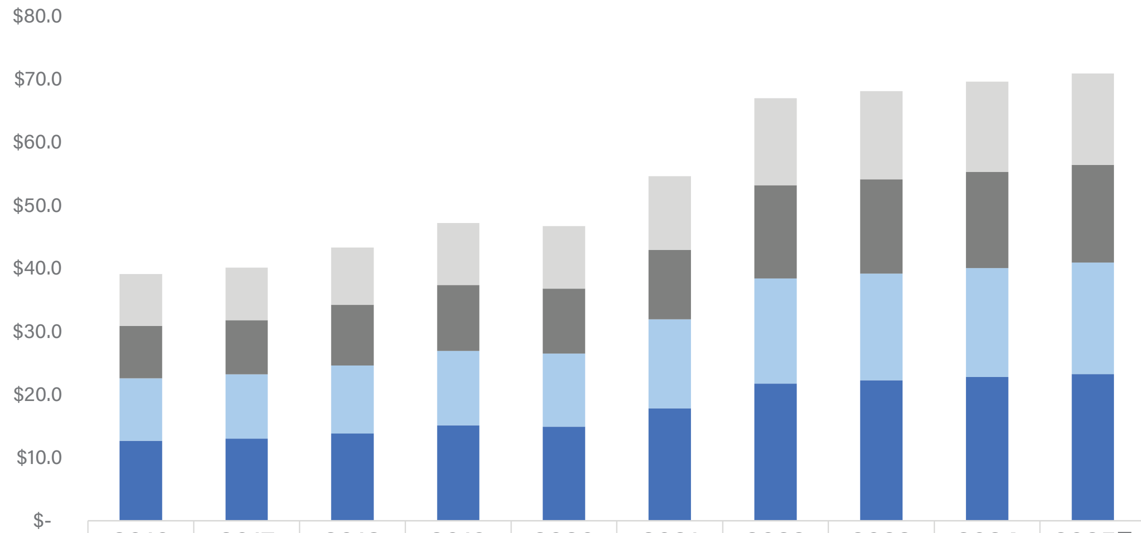
VAWD Revenue and Space by Region

Warehousing has experienced rapid growth over the past decade, driven primarily by increased outsourcing and the consistent rise of e-commerce fulfillment. Many 3PL warehouses are currently at full capacity, as customers have been rebuilding their inventories to deal with the tariff uncertainty and volatile customer demand. In 2023, the industry saw its slowest growth rate of 1.6% since the pandemic, primarily due to the global economic slowdown and recession. Meanwhile, U.S. VAWD revenue experienced a 2.2% increase in 2024 and is estimated to grow by 1.9% in 2025.

The revenue per square foot for U.S. VAWD varies by region, ranked from lowest to highest: South, Midwest, West, and Northeast, with the Northeast having the highest revenue. The South is experiencing strong population growth and low warehousing labor costs, along with strategic port development driven by the reshoring of manufacturing operations. The Midwest offers lower costs, a central location, and has seen strong growth in business-to-business warehousing and e-commerce. The West has large populations, and while e-commerce purchases have increased, this has somewhat offset the decline in manufacturing operations. In the Northeast, recent leasing activity has been primarily influenced by 3PLs, although demand from retail and e-commerce has decreased since its peak during the pandemic.

U.S. VAWD gross revenue was $39.1 billion in 2016 and reached $69.6 billion in 2024, producing a 7.5% CAGR. Among the regions, the Midwest had the highest CAGR of 7.9% from 2016 to 2024, followed by the South, West, and Northeast. In 2024, the South accounted for the most VAWD gross revenue of $22.8 billion, while the Northeast had the least at $14.3 billion. The South has experienced significant growth over the past 40 years, as its population and industrial base have expanded. Additionally, e-commerce activity over the last few decades has significantly contributed to growth in major population centers across all regions.

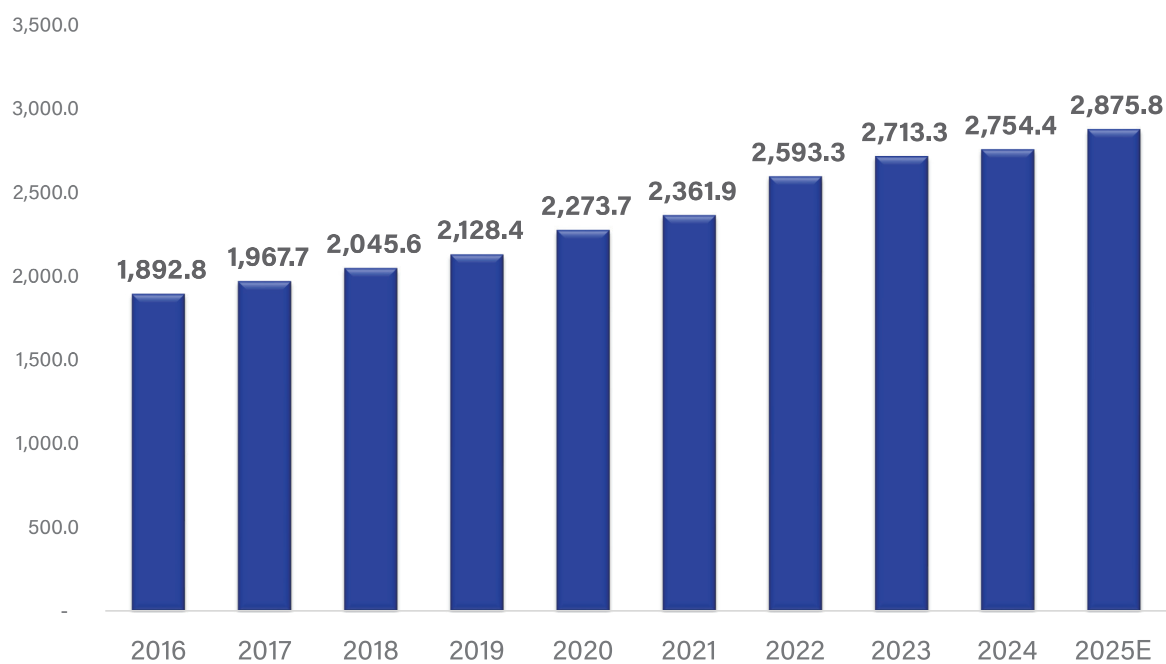
Figure 24. U.S. VAWD Gross Revenue/Market Sizing by Region ($ Billions): 2016-2025E



	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025E
Northeast	$8.2	$8.3	$9.1	$9.8	$9.9	$11.7	$13.8	$14.0	$14.3	$14.5
Midwest	$8.3	$8.5	$9.6	$10.4	$10.3	$11.0	$14.8	$14.9	$15.3	$15.5
West	$9.9	$10.2	$10.8	$11.8	$11.6	$14.1	$16.7	$16.9	$17.2	$17.7
South	$12.7	$13.0	$13.8	$15.1	$14.9	$17.8	$21.8	$22.3	$22.8	$23.2

U.S. VAWD Market space was 1,892.8 million square feet in 2016 and reached 2,754.4 million square feet in 2024, reflecting a 4.8% CAGR. A&A estimates that U.S. VAWD space is estimated to grow to 2,875.8 million square feet in 2025, representing a 4.4% increase from 2024.

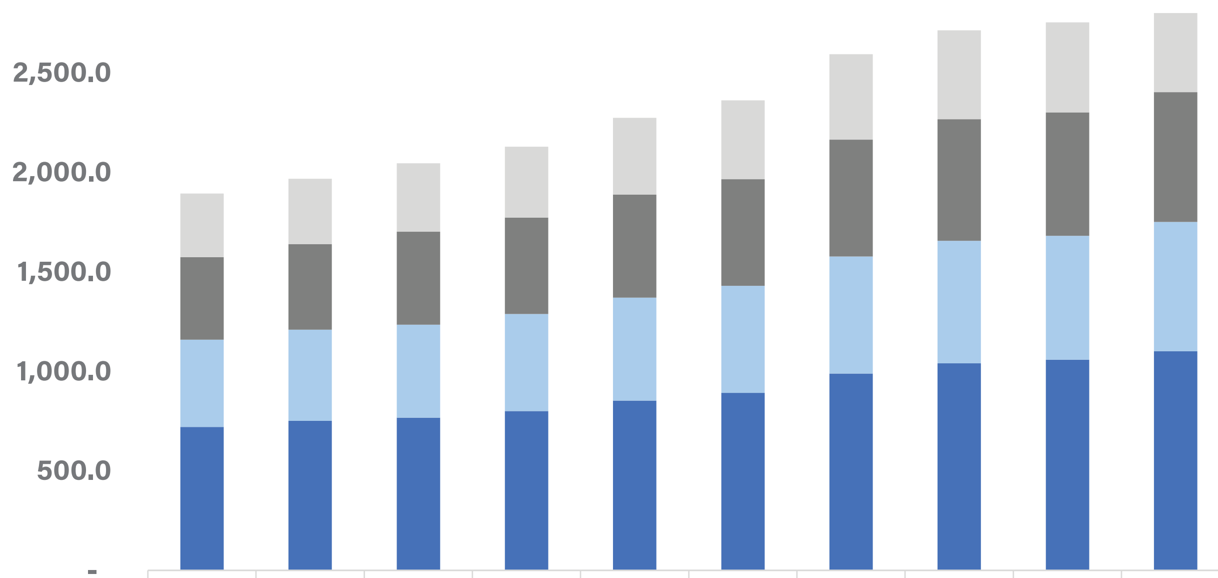
Figure 25. Total U.S. VAWD Space/Storage – 2016-2025E (Sq. Ft. Millions)



Regarding U.S. VAWD space, the Midwest experienced the highest CAGR of 5.2% from 2016 to 2024. The South, West, and Northeast regions also showed steady growth following the Midwest. By 2024, the South had the largest amount of warehousing space, totaling 1,058.6 million square feet, while the Northeast had the smallest, with only 452.9 million square feet, due to limited new construction and higher construction costs.

Over the past decades, increased e-commerce warehousing and fulfillment activity has grown significantly around major regional population centers. The South is experiencing rapid demographic growth, driving long-term demand for various markets. The trend toward reshoring also benefits areas near the Mexican border. Meanwhile, reduced imports from China due to changing trade policies have led to rising vacancy rates in the West. In the Midwest, the growth of warehouse space is attributed to its central location, strong infrastructure, and access to a dependable labor force. Investors are currently cautious about warehouse space in the Northeast due to significantly higher prices compared to other regions and a slowdown in the warehousing market.

Figure 26. U.S. VAWD Space/Storage by Region – 2016-2025E (Sq. Ft. Millions)



	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025E
Northeast	318.9	328.0	343.8	355.9	386.2	396.9	429.1	446.1	452.9	473.1
Midwest	414.3	430.7	467.3	484.4	517.3	535.3	586.7	610.9	620.1	652.1
West	439.1	458.3	466.9	487.8	516.9	537.0	589.3	616.0	622.8	649.1
South	720.5	750.8	767.7	800.4	853.3	892.7	988.3	1,040	1,058	1,101

South West Midwest Northeast

VAWD Revenue and Space by Commodity

The three 3PL customer industries with the highest VAWD revenue and space growth from 2016 to 2024 were Consumer Goods, Healthcare, and Industrial.

Consumer Goods experienced the most significant growth, primarily due to shifts in consumer behavior toward e-commerce and heightened expectations for shorter-term deliveries, including same-day and next-day delivery. This shift necessitates more strategically located and flexible warehousing solutions.

In the Healthcare industry, we are only considering the 3PL portion, excluding warehousing operations of distributors such as Cardinal Health and McKesson, which buy and maintain inventory. As the biopharmaceutical and pharmaceutical Healthcare sub-segments expand, there is a growing demand for specialized warehousing to accommodate biologics, vaccines, and other pharmaceuticals. Pharmaceutical warehousing is becoming increasingly critical in healthcare logistics due to the expansion of pharmaceutical e-commerce and technological advancements.

The Industrial customer industry segment has seen growth driven by the increase in e-commerce, on-shoring of manufacturing, and investments in infrastructure. Although there may be short-term fluctuations, the long-term forecast indicates continued expansion.

Retailing has the highest VAWD revenue, $13.3 billion in 2024. E-commerce, omnichannel retailing, an expanded fulfillment network, and increased technology application in warehousing are fueling this growth.

The Automotive industry has heavy value-added operations, including manufacturing support, spare/service parts logistics, and increasing e-commerce in the automotive aftermarket, as well as a rising demand for electric vehicle (EV) component storage.

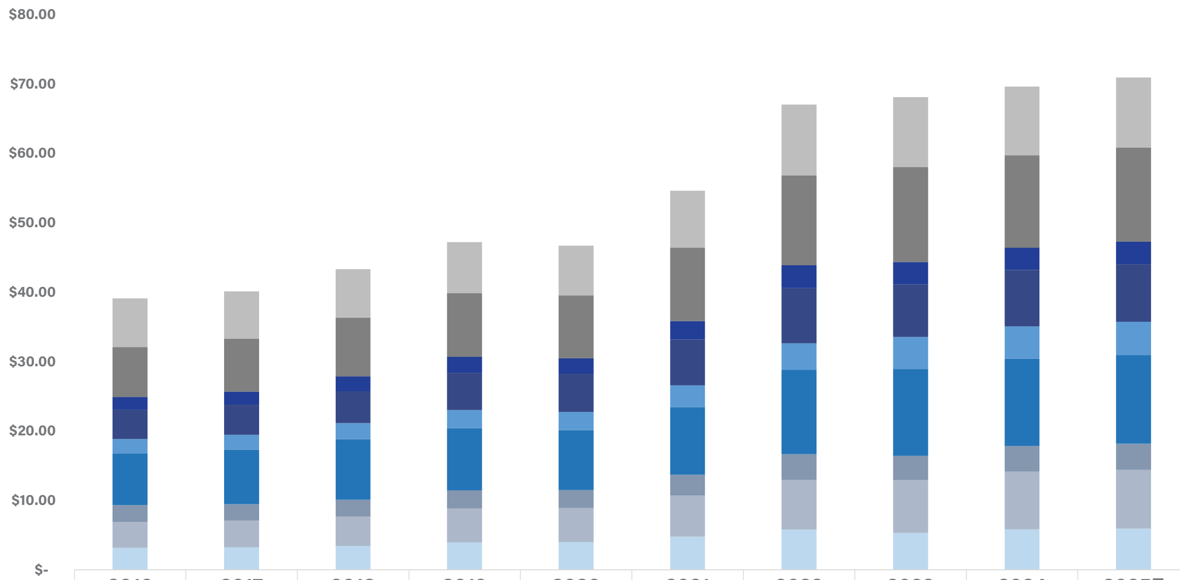
The Food, Groceries industry has seen a steady increase in temperature-controlled warehousing, mainly driven by the rising demand for perishable foods and an increasing consumer preference for fresh/frozen groceries.

We have seen strength in Technological, particularly in consumer and telecommunications products, with a focus on maintaining higher inventory levels close to customers. Repair and refurbishment operations in this category also generate some of the highest revenues per square foot. However, following a surge in demand for at-home electronics and connectivity during the pandemic, 2024 has seen a trend of market “normalization” or “cooling”.

The Elements customer industry segment has been growing steadily due to increased chemical production, stringent regulatory requirements, and rising demand for specialized storage solutions.

In terms of gross revenue in the U.S. for 2024, the three vertical industries with the highest VAWD revenue are Retailing, Food, Groceries, and Technological. This correlation is closely aligned with the overall demand for goods in these categories. Technological companies require a range of value-added services, which in turn boosts VAWD 3PL revenue. Together, these three verticals accounted for 51.4% of the market in 2024. The vertical with the lowest gross revenue was “Other”, generating $3.18 billion.

Figure 27. U.S. VAWD Gross Revenue by Commodity/Vertical Industry ($ Billions): 2016-2025E

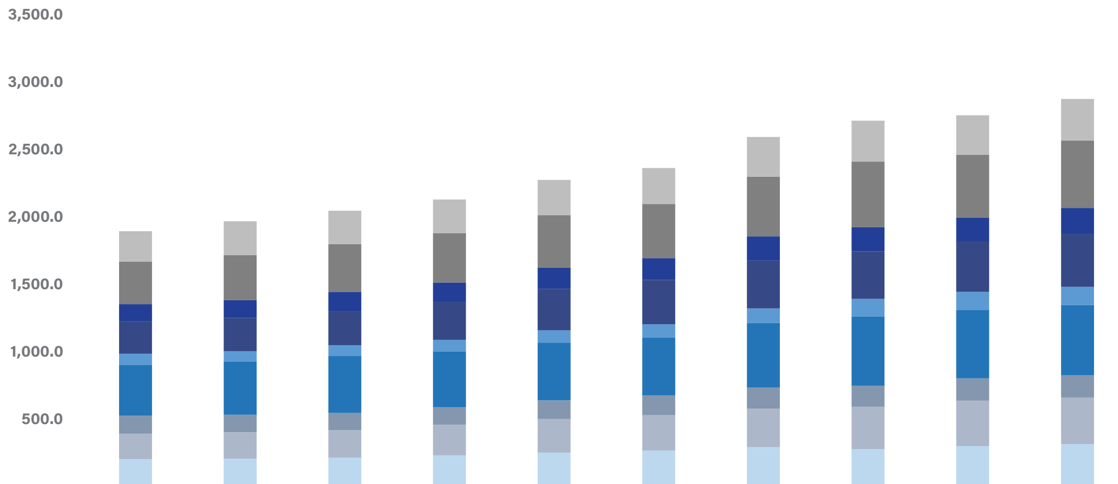


	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025E
Technological	$6.99	$6.82	$7.00	$7.37	$7.16	$8.22	$10.18	$10.09	$9.90	$10.09
Retailing	$7.22	$7.61	$8.45	$9.16	$9.04	$10.55	$12.96	$13.67	$13.33	$13.59
Other	$1.83	$1.93	$2.14	$2.32	$2.29	$2.67	$3.27	$3.22	$3.18	$3.24
Industrial	$4.21	$4.29	$4.60	$5.36	$5.47	$6.59	$7.97	$7.59	$8.13	$8.29
Healthcare	$2.11	$2.15	$2.30	$2.61	$2.64	$3.15	$3.82	$4.58	$4.67	$4.75
Food, Groceries	$7.44	$7.85	$8.71	$8.95	$8.59	$9.74	$12.14	$12.52	$12.55	$12.79
Elements	$2.45	$2.39	$2.44	$2.63	$2.58	$3.00	$3.69	$3.51	$3.71	$3.78
Consumer Goods	$3.70	$3.85	$4.22	$4.86	$4.94	$5.92	$7.18	$7.59	$8.31	$8.46
Automotive	$3.16	$3.21	$3.44	$3.94	$3.99	$4.78	$5.79	$5.33	$5.83	$5.94

Automotive, Consumer Goods, Elements, Food, Groceries, Healthcare, Industrial, Other, Retailing, Technological

The three vertical industries with the most VAWD space in the U.S. are Food, Groceries, Retailing, and Industrial. Combined, they accounted for 49% of the total U.S. VAWD space in 2024.

Figure 28. U.S. VAWD Space/Storage by Commodity (Sq. Ft. Millions): 2016-2025E



	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025E
Technological	225.4	251.9	248.3	248.7	260.6	265.4	294.3	302.6	293.4	308.7
Retailing	316.4	333.3	355.3	366.9	390.4	404.0	444.5	486.0	468.4	500.8
Other	127.1	133.9	142.7	147.2	156.7	162.1	178.3	181.9	177.6	191.6
Industrial	240.8	245.0	252.6	279.8	307.9	329.2	356.3	351.9	372.8	394.5
Healthcare	82.9	76.1	78.4	84.8	92.3	97.6	106.2	131.9	132.9	133.9
Food, groceries	376.0	396.3	422.7	413.7	428.0	430.3	480.3	513.9	509.0	523.6
Elements	134.5	130.9	128.8	131.8	139.6	143.8	158.6	156.2	163.4	164.3
Consumer Goods	187.8	195.4	205.9	225.7	247.1	262.9	285.3	312.7	338.4	345.7
Automotive	201.8	205.0	210.9	229.9	251.1	266.5	289.5	276.3	298.8	312.7

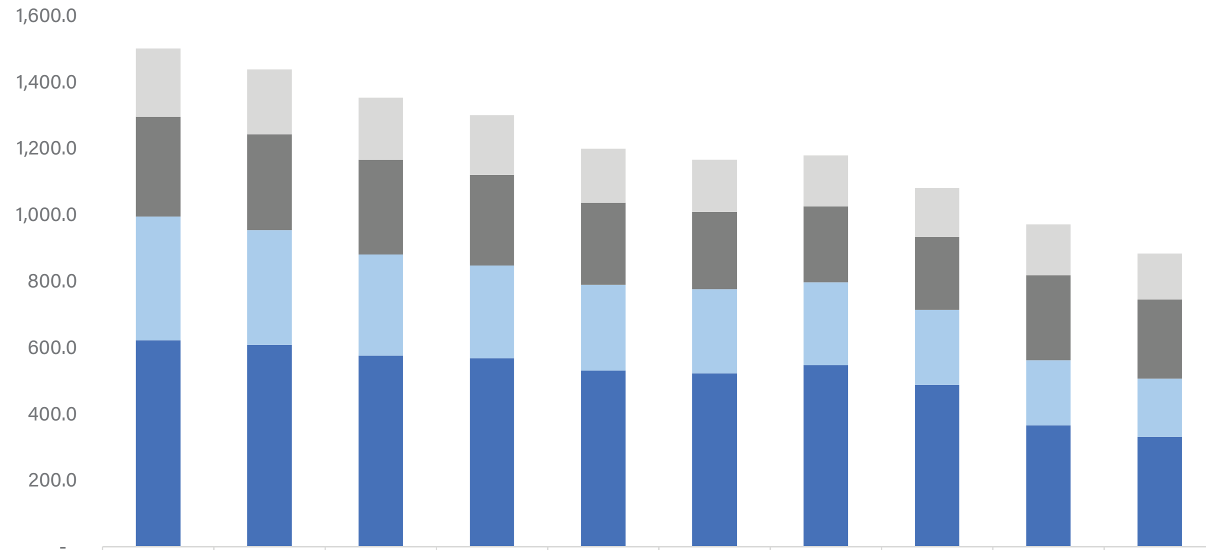
Automotive, Consumer Goods, Elements, Food, groceries, Healthcare, Industrial, Other, Retailing, Technological

Dedicated vs. Multi-Client Warehouse Space by Region

Figures 29 and 30 show dedicated versus multi-client storage space for contract warehouses in the U.S. from 2016 to 2025E. In 2016, dedicated contract warehouses, facilitating one customer, accounted for 79.3% of the total space, compared to multi-client warehouses at 20.7%. In 2021, multi-client space surpassed dedicated warehouses for the first time, made up 50.6% of U.S. VAWD warehouses. From 2016 to 2024, the multi-client VAWD space experienced a CAGR of 20.9%. By 2024, the multi-client VAWD sector accounted for 65% of the total U.S. market, marking its highest share ever. During this period, the South exhibited the highest CAGR for multi-client VAWD space at 27.7%, followed by the West, Midwest, and Northeast regions.

With most e-commerce fulfillment warehouses being multi-client, A&A estimates that multi-client VAWD space grew 11.7% in 2025 compared to 2024.

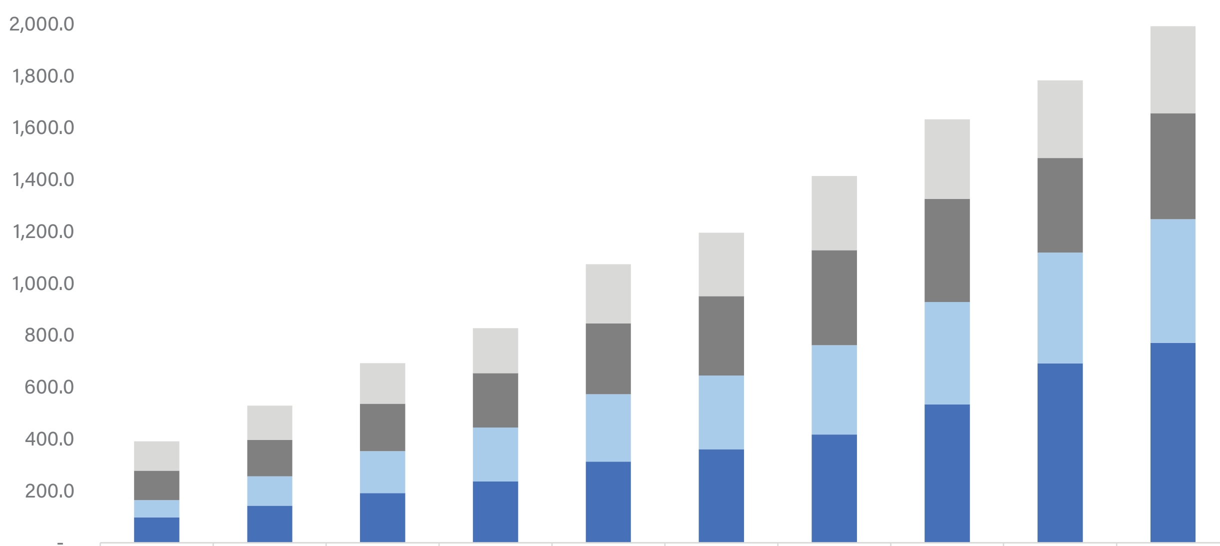
Figure 29. U.S. VAWD Space by Region – Dedicated (Sq. Ft. Millions): 2016-2025E



	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025E
Northeast	205.0	195.3	186.6	179.8	162.2	157.1	153.6	147.6	153.1	138.6
Midwest	301.3	289.2	284.9	273.6	247.6	232.4	229.0	219.0	256.4	238.4
West	372.4	345.7	305.3	278.4	259.0	254.3	249.3	226.4	195.6	175.2
South	622.4	608.5	575.8	568.7	530.2	522.3	547.5	487.5	366.4	331.3

South West Midwest Northeast

Figure 30. U.S. VAWD Space by Region – Multi-client (Sq. Ft. Millions): 2016-2025E



	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025E
Northeast	113.9	132.0	157.2	173.8	229.1	244.4	285.2	306.4	299.8	335.2
Midwest	113.0	141.1	182.3	209.4	272.9	306.6	366.5	398.3	363.7	409.4
West	66.7	112.8	161.6	208.2	259.6	283.9	344.3	394.5	427.3	476.7
South	98.1	143.2	191.9	236.5	313.1	361.0	417.9	533.6	692.2	771.0

South West Midwest Northeast

Contract Warehouse Pricing Guidelines

Several factors can influence the pricing of contract warehousing services. The pricing is tailored mainly by location. The storage fee is usually higher for areas with higher real estate costs. Besides location, costs can vary depending on whether the warehouse is owned or leased by the 3PL. Customer demands, unique circumstances, and the volume and turnover of inventory drive the process. Refrigerated or special storage conditions and specialized equipment can increase storage fees. Pricing schemes have become more varied over time.

In addition, e-commerce is changing the landscape of 3PL warehousing. Nearly every major trend in warehousing—a tight labor market, the adoption of new technologies, increased rents, low vacancy rates, and rising demand—almost equally impact both private and outsourced e-commerce warehousing. The trends of the past three years have required optimized inventory to be closer to the manufacturing site, retailers, and the customer base. 3PLs adapt to this changing landscape by being agile, flexible, innovative, and resilient. In this report, we consolidate the handling charges, accessorial fees, container inbound, fulfillment handling, and storage rate benchmarks in Table 14, based on our 2025 study.

Table 14. Warehousing Average Rate by Category for the U.S. Main Distribution Center Locations

Charge	Charge category	Event	U.S.	Inland Empire	Dallas, Ft Worth	Chicago	Savannah, Atlanta	Lehigh Valley
Supplies, cost plus	Supplies	Occurrence	14.51%					
EDI set-up fee, per transaction	Technology	Onboarding	$ 1,472	$ 1,560	$ 1,509	$ 1,486	$ 1,356	$ 1,259
Initial fulfillment integration	Fulfillment integration	Onboarding	$ 2,674	$ 2,834	$ 2,742	$ 2,701	$ 2,464	$ 2,288
Monthly minimum	Minimum	Monthly	$ 5,216	$ 5,527	$ 5,349	$ 5,267	$ 4,806	$ 4,462
Hourly labor rate, general whse	Ad-hoc	Occurrence	$ 43.76	$ 46.37	$ 44.87	$ 44.19	$ 40.33	$ 37.43
Hourly labor rate, general whse,	Ad-hoc	Occurrence	$ 60.80	$ 64.42	$ 62.34	$ 61.39	$ 56.03	$ 52.01
Hourly labor Rate, forklift labor	Ad-hoc	Occurrence	$ 43.57	$ 46.17	$ 44.68	$ 44.00	$ 40.15	$ 37.27
Hourly labor Rate, forklift labor,	Ad-hoc	Occurrence	$ 60.76	$ 64.39	$ 62.31	$ 61.36	$ 55.99	$ 51.98
Hourly rate, clerical labor	Ad-hoc	Occurrence	$ 43.70	$ 46.30	$ 44.81	$ 44.12	$ 40.27	$ 37.38
Hourly rate, clerical labor, overtime	Ad-hoc	Occurrence	$ 59.11	$ 62.64	$ 60.61	$ 59.69	$ 54.47	$ 50.56
Hourly labor rate, I.T. labor rate	Ad-hoc	Occurrence	$ 149.04	$ 157.93	$ 152.83	$ 150.50	$ 137.34	$ 127.48
Hourly labor rate, I.T. labor rate,	Ad-hoc	Occurrence	$ 192.92	$ 204.43	$ 197.83	$ 194.81	$ 177.78	$ 165.02
Pallet, inbound and outbound	Handling	Inbound Receipt Complete	$ 14.30	$ 15.15	$ 14.66	$ 14.44	$ 13.18	$ 12.23
Pallet, inbound	Handling	Inbound Receipt Complete	$ 8.16	$ 8.65	$ 8.37	$ 8.24	$ 7.52	$ 6.98
Pallet, outbound	Handling	Ship Confirm	$ 7.36	$ 7.80	$ 7.54	$ 7.43	$ 6.78	$ 6.29
Small case, outbound	Handling	Ship Confirm	$ 0.77	$ 0.81	$ 0.79	$ 0.77	$ 0.71	$ 0.66
Medium case, outbound	Handling	Ship Confirm	$ 1.03	$ 1.09	$ 1.05	$ 1.04	$ 0.95	$ 0.88
Large case, outbound	Handling	Ship Confirm	$ 1.44	$ 1.53	$ 1.48	$ 1.45	$ 1.33	$ 1.23
Piece pick, outbound	Handling	Ship Confirm	$ 0.51	$ 0.54	$ 0.53	$ 0.52	$ 0.47	$ 0.44
Return Order Fee	Handling	Return	$ 3.27	$ 3.47	$ 3.35	$ 3.30	$ 3.01	$ 2.80
Return Item Fee	Handling	Return	$ 0.81	$ 0.85	$ 0.83	$ 0.81	$ 0.74	$ 0.69

Charge	Charge category	Event	U.S.	Inland Empire	Dallas, Ft Worth	Chicago	Savannah, Atlanta	Lehigh Valley
Bill of lading fee, domestic	Accessorial	Occurrence	$ 9.97	$ 10.56	$ 10.22	$ 10.07	$ 9.19	$ 8.53
Bill of lading fee, international	Accessorial	Occurrence	$ 23.03	$ 24.40	$ 23.62	$ 23.26	$ 21.22	$ 19.70
Parcel order fee	Accessorial	Occurrence	$ 3.31	$ 3.50	$ 3.39	$ 3.34	$ 3.05	$ 2.83
Labeling fee, case	Accessorial	Occurrence	$ 0.40	$ 0.42	$ 0.41	$ 0.40	$ 0.37	$ 0.34
Labeling fee, pallet	Accessorial	Occurrence	$ 0.86	$ 0.92	$ 0.89	$ 0.87	$ 0.80	$ 0.74
Shrink wrap fee	Accessorial	Occurrence	$ 4.81	$ 5.10	$ 4.93	$ 4.86	$ 4.43	$ 4.11
Container unload, 20'	Container inbound	Receipt Complete	$ 270.29	$ 286.41	$ 277.17	$ 272.94	$ 249.07	$ 231.20
Container unload, 40'	Container inbound	Receipt Complete	$ 383.79	$ 406.68	$ 393.54	$ 387.54	$ 353.66	$ 328.28
Container unload, >53'	Container inbound	Receipt Complete	$ 410.50	$ 434.98	$ 420.94	$ 414.52	$ 378.27	$ 351.13
Order fee - 0-499	Fulfillment handling	Ship Confirm	$ 3.27	$ 3.47	$ 3.36	$ 3.31	$ 3.02	$ 2.80
Order fee - 500-999	Fulfillment handling	Ship Confirm	$ 3.09	$ 3.27	$ 3.17	$ 3.12	$ 2.85	$ 2.64
Order fee - 1,000-1,999	Fulfillment handling	Ship Confirm	$ 2.81	$ 2.97	$ 2.88	$ 2.83	$ 2.59	$ 2.40
Order fee - 2,000-2,000	Fulfillment handling	Ship Confirm	$ 2.52	$ 2.67	$ 2.58	$ 2.54	$ 2.32	$ 2.15
Order fee - 3,000-4,999	Fulfillment handling	Ship Confirm	$ 2.44	$ 2.59	$ 2.50	$ 2.46	$ 2.25	$ 2.09
Order fee - 5,000+	Fulfillment handling	Ship Confirm	$ 1.56	$ 1.65	$ 1.60	$ 1.57	$ 1.43	$ 1.33
Insert fee - 0-499	Fulfillment handling	Ship Confirm	$ 0.28	$ 0.30	$ 0.29	$ 0.28	$ 0.26	$ 0.24
Insert fee - 500-999	Fulfillment handling	Ship Confirm	$ 0.26	$ 0.28	$ 0.27	$ 0.26	$ 0.24	$ 0.22
Insert fee - 1,000-1,999	Fulfillment handling	Ship Confirm	$ 0.24	$ 0.26	$ 0.25	$ 0.24	$ 0.22	$ 0.21
Insert fee - 2,000-2,000	Fulfillment handling	Ship Confirm	$ 0.18	$ 0.19	$ 0.18	$ 0.18	$ 0.16	$ 0.15
Insert fee - 3,000-4,999	Fulfillment handling	Ship Confirm	$ 0.17	$ 0.18	$ 0.17	$ 0.17	$ 0.16	$ 0.14
Insert fee - 5,000+	Fulfillment handling	Ship Confirm	$ 0.16	$ 0.17	$ 0.16	$ 0.16	$ 0.15	$ 0.14
Each pick fee - 0-499	Fulfillment handling	Ship Confirm	$ 0.40	$ 0.42	$ 0.41	$ 0.40	$ 0.37	$ 0.34
Each pick fee - 500-999	Fulfillment handling	Ship Confirm	$ 0.37	$ 0.39	$ 0.37	$ 0.37	$ 0.34	$ 0.31
Each pick fee - 1,000-1,999	Fulfillment handling	Ship Confirm	$ 0.34	$ 0.36	$ 0.35	$ 0.35	$ 0.32	$ 0.29
Each pick fee - 2,000-2,000	Fulfillment handling	Ship Confirm	$ 0.30	$ 0.32	$ 0.31	$ 0.30	$ 0.28	$ 0.26
Each pick fee - 3,000-4,999	Fulfillment handling	Ship Confirm	$ 0.29	$ 0.31	$ 0.30	$ 0.29	$ 0.27	$ 0.25
Each pick fee - 5,000+	Fulfillment handling	Ship Confirm	$ 0.28	$ 0.30	$ 0.29	$ 0.28	$ 0.26	$ 0.24

Charge	Charge category	Event	U.S.	Inland Empire	Dallas, Ft Worth	Chicago	Savannah, Atlanta	Lehigh Valley
Bins, small storage shelf	Storage	First of Month	$ 5.39	$ 6.37	$ 5.86	$ 4.53	$ 3.29	$ 2.87
Bins, medium storage shelf	Storage	First of Month	$ 7.06	$ 8.35	$ 7.68	$ 5.93	$ 4.31	$ 3.76
Flow rack storage	Storage	First of Month	$ 8.24	$ 9.74	$ 8.95	$ 6.92	$ 5.03	$ 4.39
Carousel storage	Storage	First of Month	$ 5.36	$ 6.34	$ 5.83	$ 4.50	$ 3.27	$ 2.85
Racked, per square foot	Storage	First of Month	$ 0.91	$ 1.08	$ 0.99	$ 0.77	$ 0.56	$ 0.49
Bulk, per square foot	Storage	First of Month	$ 0.81	$ 0.96	$ 0.88	$ 0.68	$ 0.50	$ 0.43
Rack per pallet, general	Storage	First of Month	$ 14.86	$ 17.58	$ 16.15	$ 12.49	$ 9.07	$ 7.91
Racked, per cubic foot (by product)	Storage	First of Month	$ 0.61	$ 0.73	$ 0.67	$ 0.52	$ 0.37	$ 0.33
Pallet racked, single selective, 4 high	Storage	First of Month	$ 15.86	$ 18.77	$ 17.25	$ 13.33	$ 9.69	$ 8.45
Pallet racked, single selective, 5 high	Storage	First of Month	$ 12.44	$ 14.71	$ 13.52	$ 10.45	$ 7.59	$ 6.62
Pallet racked, single selective, 6 high	Storage	First of Month	$ 10.36	$ 12.26	$ 11.27	$ 8.71	$ 6.33	$ 5.52
Pallet double deep, 4 high	Storage	First of Month	$ 12.65	$ 14.97	$ 13.76	$ 10.63	$ 7.73	$ 6.74
Pallet double deep, 5 high	Storage	First of Month	$ 10.12	$ 11.98	$ 11.01	$ 8.51	$ 6.18	$ 5.39
Pallet double deep, 6 high	Storage	First of Month	$ 8.44	$ 9.98	$ 9.17	$ 7.09	$ 5.15	$ 4.49
Pallet bulk/floor, 2 high	Storage	First of Month	$ 18.74	$ 22.17	$ 20.37	$ 15.75	$ 11.44	$ 9.98
Pallet bulk/floor, 3 high	Storage	First of Month	$ 12.56	$ 14.86	$ 13.65	$ 10.55	$ 7.67	$ 6.69
Pallet bulk/floor, 4 high	Storage	First of Month	$ 9.46	$ 11.19	$ 10.29	$ 7.95	$ 5.78	$ 5.04

Current Warehouse Rental and Vacancy Rates

The warehousing industry faces conflicting trends, as vacancy rates have risen to 7.6% by mid-2025, while demand for well-located, high-efficiency space remains strong. The vacancy rate is expected to stabilize and trend downward as new construction slows significantly. Top areas for distribution warehouses in the United States are typically regions with strong transportation infrastructure, access to major shipping ports, and a large population or customer base. Here are a few examples:

- Southern California: Southern California is a major hub for logistics and has one of the largest ports in the U.S., the Port of Los Angeles. The region's extensive transportation infrastructure, including highways, rail lines, and airports, makes it an ideal location for 3PL warehouses.
- Dallas/Fort Worth, Texas: It is a central location that offers easy access to major shipping ports, including the Port of Houston and the Port of New Orleans. The region's central location also makes it ideal for companies that need to distribute products to both the East and West coasts.
- Chicago, Illinois: Chicago is a central transportation hub with access to multiple major highways, rail lines, and airports. Its central location in the U.S. makes it ideal for companies that distribute products to the East Coast, Midwest, and West Coast.
- Atlanta, Georgia: Atlanta is a major transportation hub in the Southeast, with easy access to the Ports of Savannah and Charleston. Its proximity to major highways and rail lines also makes it ideal for distribution warehouses.
- New York/New Jersey: The New York/New Jersey region is a major hub for logistics and has access to the Port of New York and New Jersey, one of the largest ports in the U.S. Its location on the East Coast also makes it an ideal location for companies that need to distribute products to the Northeast and Mid-Atlantic regions.
- Phoenix, Arizona: Phoenix has seen significant growth in the distribution warehouse industry in recent years. The region's proximity to major transportation routes and access to major ports in Southern California and Mexico make it an attractive location for companies looking to establish distribution centers.

These are just a few examples of the top areas for 3PL warehouses in the U.S. Other factors, such as labor costs and availability, real estate prices, and taxes, can also play a role in companies' decisions on where to locate their distribution warehouses.

A&A analyzed and summarized several industrial real estate reports and listed the top 5 locations under construction and the top 5 locations with inventory in Tables 15 and 16, as well as the average lease rate, vacancy rate, and inventory by North American region.

Table 15. Top 5 Locations under Construction

Under construction	Average Sq. Ft.	Average Rent per Sq. Ft.	Average Vacancy
Houston	20,659,001	$9.34	7.1%
Dallas/Ft. Worth	20,521,875	$10.28	10.3%
Harrisburg	16,251,082	$14.40	4.2%
Phoenix	15,308,034	$12.85	12.6%
Washington	13,911,311	$17.64	5.8%

Table 16. Top 5 Locations with Inventory

Inventory	Average Sq. Ft.	Average Rent per Sq. Ft.	Average Vacancy
Chicago	1,412,085,368	$8.65	5.1%
Harrisburg	896,915,355	$14.40	4.2%
New York City Metro	892,747,525	$16.77	7.1%
Los Angeles	872,580,348	$16.70	5.0%
Houston	863,395,993	$9.34	7.1%

Table 17. Price per Square Foot, Vacancy Rate, and Inventory by Market

REGION	STATE	RENT RATE	VACANCY	INVENTORY (Sq. Ft.)
Chicago	IL	$ 8.65	5.1%	1,412,085,368
Cincinnati	OH	$ 9.64	6.1%	503,356,943
Cleveland	OH	$ 5.80	4.0%	419,677,439
Columbus	OH	$ 6.60	6.9%	350,883,646
Dayton	OH	$ 5.35	4.3%	105,379,789
Des Moines	IA	$ 6.81	5.9%	361,985,952
Detroit	MI	$ 7.59	4.5%	408,643,717
Grand Rapids	MI	$ 6.65	3.3%	126,633,669
Indianapolis	IN	$ 6.38	10.5%	378,902,228
Kansas City	MO	$ 5.86	5.4%	318,702,588
Lawrence	KS	$ 9.72	2.3%	9,218,932
Lincoln	NE	$ 10.32	4.8%	20,795,285
Louisville	KY	$ 6.20	3.8%	204,340,399
Madison	WI	$ 10.75	5.7%	227,518,674
Milwaukee	WI	$ 5.82	5.9%	254,647,318
Minneapolis/St. Paul	MN	$ 8.67	4.2%	401,135,150
Omaha	NE	$ 7.40	2.4%	77,569,403
St. Louis	MO	$ 6.13	4.3%	298,380,129
Topeka	KS	$ 5.64	2.7%	22,039,121
TOTAL MIDWEST	**MIDWEST**	**$ 7.28**	**5.2%**	**5,901,895,750**
Baltimore	MD	$ 10.91	8.8%	223,102,037
Boston	MA	$ 15.07	9.6%	251,724,078
Buffalo	NY	$ 7.25	6.7%	116,213,402
Central New Jersey	NJ	$ 16.21	8.4%	370,729,490
Harrisburg	PA	$ 14.40	4.2%	896,915,355
Hartford	CT	$ 7.60	5.7%	106,404,138
Lehigh Valley	PA	$ 9.76	7.1%	116,075,730
Long Island	NY	$ 14.85	6.8%	140,368,703
New Hampshire Markets	NH	$ 11.25	6.2%	74,424,676
New Haven	CT	$ 7.52	3.9%	47,583,966
New York	NY	$ 19.08	5.9%	182,933,853
New York City Metro	NY	$ 16.77	7.1%	892,747,525
Northern New Jersey	NJ	$ 16.65	6.9%	230,369,594
NY Outer Boroughs	NY	$ 29.64	5.2%	140,242,142
Philadelphia	PA	$ 11.40	9.3%	344,235,753
Pittsburgh	PA	$ 9.10	6.2%	335,724,734
Providence	RI	$ 7.50	0.6%	78,390,305
Rochester	NY	$ 7.25	6.0%	86,441,411
Southern New Hampshire	NH	$ 11.85	6.9%	55,536,420
Suburban Maryland	MD	$ 14.72	7.9%	51,999,547
Syracuse	NY	$ 6.93	6.3%	46,934,161
Trenton	NJ	$ 16.20	6.0%	258,395,999
Vineland	NJ	$ 10.56	8.5%	44,638,415
Washington	DC	$ 17.64	5.8%	315,551,563
Washington, DC	DC	$ 15.26	7.1%	222,028,782
TOTAL NORTHEAST	**NORTHEAST**	**$ 12.73**	**7.1%**	**5,629,711,778**

REGION	STATE	RENT RATE		VACANCY	INVENTORY (Sq. Ft.)
Atlanta	GA	$	8.18	9.2%	857,413,322
Austin	TX	$	12.78	15.0%	163,299,639
Baton Rouge	LA	$	10.20	2.7%	44,496,038
Birmingham	AL	$	7.03	6.3%	78,298,445
Charleston	SC	$	8.14	13.5%	138,890,079
Charlotte	NC	$	8.87	8.8%	368,741,415
Columbia	SC	$	5.39	5.9%	92,071,706
Dallas/Ft. Worth	TX	$	10.28	10.3%	770,907,146
Durham	NC	$	11.64	8.1%	58,103,994
El Paso	TX	$	8.96	12.8%	77,462,120
Florence-Myrtle Beach	SC	$	4.41	11.3%	44,598,348
Fort Lauderdale	FL	$	16.68	4.6%	109,165,841
Fort Myers/Naples	FL	$	14.03	7.4%	53,825,035
Fredericksburg	VA	$	9.98	7.2%	20,284,577
Greensboro/Winston-Salem	NC	$	6.37	7.0%	256,596,331
Greenville	SC	$	7.60	11.1%	186,822,680
Greenville-Spartanburg	SC	$	5.39	9.2%	252,241,863
Hampton Roads	VA	$	8.61	5.8%	116,794,667
Houston	TX	$	9.34	7.1%	863,395,993
Huntsville	AL	$	8.76	10.9%	48,542,166
Jacksonville	FL	$	8.36	7.1%	129,748,855
Lafayette	LA	$	9.60	3.0%	27,095,166
Lakeland	FL	$	7.58	8.5%	74,304,096
Memphis	TN	$	4.33	8.7%	308,044,488
Miami	FL	$	17.72	6.4%	237,767,904
Naples	FL	$	18.00	3.6%	14,569,100
Nashville	TN	$	9.11	6.1%	206,230,180
Norfolk	VA	$	9.04	7.5%	91,782,192
North Shenandoah Valley	VA	$	6.77	13.7%	73,360,641
Northern Virginia	VA	$	15.09	4.6%	62,605,919
Orlando	FL	$	10.96	9.1%	201,658,624
Palm Beach	FL	$	14.20	6.6%	52,542,620
Raleigh	NC	$	12.60	6.9%	107,312,523
Raleigh/Durham	NC	$	9.89	7.9%	103,258,508
Richmond	VA	$	7.81	4.1%	118,869,365
Roanoke	VA	$	5.83	3.1%	41,006,518
San Antonio	TX	$	8.04	10.9%	138,485,727
Savannah	GA	$	8.08	11.6%	158,947,867
Shenandoah Valley/I-81 Corridor	VA	$	6.57	8.7%	144,942,914
South Florida	FL	$	16.66	6.1%	441,810,181
South Shenandoah Valley	VA	$	5.36	3.5%	71,582,273
Spartanburg	SC	$	7.08	5.9%	155,826,449
St. Petersburg/Clearwater	FL	$	12.44	5.6%	36,071,600
Tampa	FL	$	11.04	7.0%	156,841,254
Treasure Coast	FL	$	12.83	13.8%	27,984,890
Tulsa	OK	$	6.99	3.1%	67,902,982
West-Central Florida	FL	$	11.06	8.1%	590,868,286
TOTAL SOUTH	**SOUTH**	**$**	**9.93**	**8.3%**	**8,443,372,527**

REGION	STATE	RENT RATE		VACANCY	INVENTORY (Sq. Ft.)
Albuquerque	NM	$	11.66	3.3%	43,068,897
Bakersfield	CA	$	48.70	10.5%	57,605,026
Boise	ID	$	11.08	8.5%	55,474,713
Central Idaho	ID	$	13.35	1.9%	15,145,843
Central Valley	CA	$	8.70	9.0%	173,839,830
Colorado Springs	CO	$	11.07	5.4%	40,921,264
Denver	CO	$	10.34	8.7%	283,512,073
East Bay	CA	$	16.40	8.0%	241,265,037
Eastern Idaho	ID	$	7.07	2.8%	12,005,779
Fairfield	CA	$	10.37	8.8%	61,256,261
Fresno	CA	$	8.56	5.0%	71,108,368
Honolulu	HI	$	18.07	1.5%	42,042,864
Inland Empire	CA	$	13.24	7.5%	694,726,770
Las Vegas	NV	$	11.41	8.9%	125,951,763
Los Angeles	CA	$	16.70	5.0%	872,580,348
Oakland/East Bay	CA	$	16.00	7.4%	209,513,931
Orange County	CA	$	19.03	4.8%	266,902,617
Phoenix	AZ	$	12.85	12.6%	470,595,345
Portland	OR	$	11.20	6.3%	252,990,405
Puget Sound - Eastside	WA	$	12.36	7.8%	67,251,219
Reno	NV	$	11.47	11.3%	156,397,522
Reno-Sparks	NV	$	9.76	10.5%	125,375,807
Sacramento	CA	$	9.27	6.2%	162,760,752
Salt Lake City	UT	$	9.92	6.4%	190,005,522
San Diego	CA	$	17.99	7.6%	187,339,709
San Francisco	CA	$	28.20	13.3%	103,486,645
San Francisco Bay Area	CA	$	14.85	8.4%	577,313,785
San Francisco North Bay	CA	$	15.84	6.1%	32,585,388
San Francisco Peninsula	CA	$	21.58	8.1%	53,734,519
San Jose (Silicon Valley)	CA	$	19.61	5.0%	87,772,799
San Luis Obispo	CA	$	16.56	4.3%	10,167,486
Santa Barbara	CA	$	18.00	4.3%	20,787,805
Santa Fe	NM	$	12.42	5.1%	1,516,384
Seattle	WA	$	11.89	8.3%	557,357,780
Seattle-Puget Sound	WA	$	12.60	8.5%	340,733,242
Silicon Valley	CA	$	18.00	8.1%	245,646,308
Stockton	CA	$	9.20	9.4%	147,289,642
Tucson	AZ	$	9.15	5.6%	52,050,529
Utah County	UT	$	9.91	4.9%	50,580,299
Ventura	CA	$	14.88	5.2%	76,202,611
TOTAL WEST	**WEST**	**$**	**14.33**	**7.4%**	**7,236,862,884**
U.S.	**U.S.**	**$**	**11.19**	**7.2%**	**27,211,842,938**
Calgary	AB	$	11.19	4.5%	194,166,155
Toronto	ON	$	17.62	8.4%	388,585,585
Vancouver	BC	$	19.99	4.0%	284,521,395
CANADA	**CANADA**	**$**	**15.29**	**5.6%**	**867,273,135**

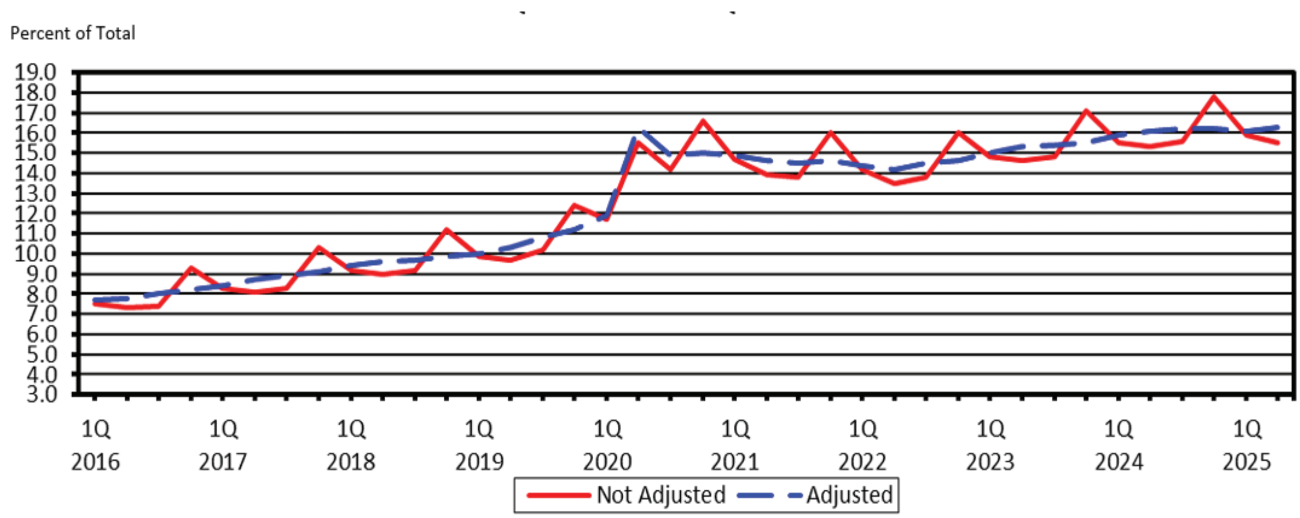
Sources: CBRE, Colliers, Cushman Wakefield, Lee & Associates, and A&A Analysis

In 2025, demand for industrial space in the U.S. experienced a significant slowdown, marked by the first negative absorption in Q2 2025 since 2010, driven by macroeconomic uncertainty and high interest rates. However, there are indications of a potential rebound in demand by late 2025 and into 2026. 3PLs providers are becoming increasingly important to the industrial market as retailers and wholesalers continue to outsource their distribution operations. E-commerce will require 1 to 1.25 million square feet of distribution space for every additional $1 billion in future sales, which is approximately three times more space than is needed for traditional retail sales.

E-commerce Fulfillment and Value-Added Warehousing and Distribution (VAWD)

The U.S. Census Bureau reported that seasonally adjusted retail e-commerce sales for Q2 2025 reached $304.2 billion, representing an increase of 1.4% from Q1. Total retail sales reached $1,865.4 billion, representing a 0.4% increase from the previous quarter. Compared to Q2 2024, e-commerce sales grew by 5.3%, while total retail sales increased by 3.9%. In the second quarter of 2025, e-commerce accounted for 16.3% of total retail sales, up from 15.9% in the first quarter.

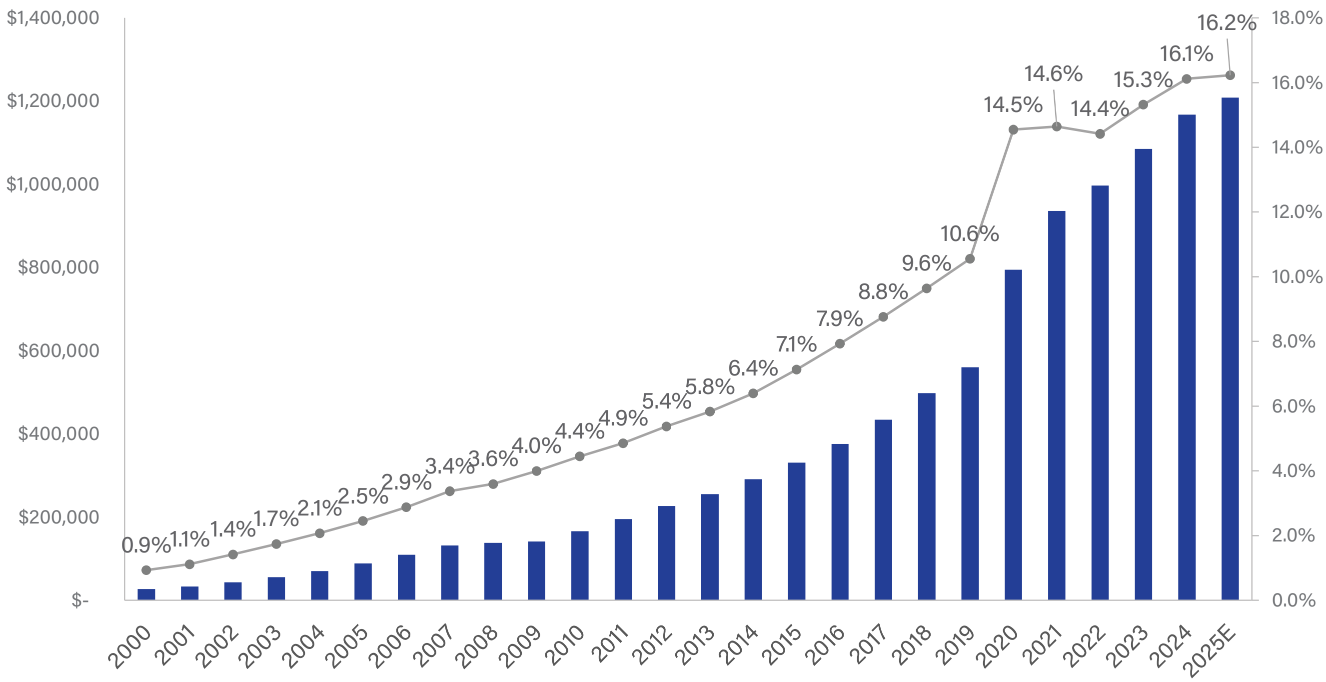
Figure 31. U.S. Retail E-commerce Sales as a Percent of Total Quarterly Retail Sales: 2016-2025



Source: U.S. Census Bureau

The e-commerce retail segment in the U.S. experienced a CAGR of 17% from 2000 to 2024. In 2020, during the pandemic and nationwide shutdowns, e-commerce purchases surged, accounting for 14.5% of total retail sales in the U.S. This led to an unprecedented year-over-year growth rate of 42%. However, e-commerce retail growth slowed after 2022 due to the normalization of consumer spending habits post-pandemic, high inflation, and the impact of tariffs. In 2024, e-commerce retail represented 16.1% of total retail sales in the U.S. and is estimated to achieve a year-over-year growth rate of 3.5% in 2025.

Figure 32. U.S. E-commerce Retail Growth 2000-2025E



Source: U.S. Census Bureau

U.S. E-commerce 3PL Market Segment

E-commerce continues to be a significant growth driver for the 3PL industry, affecting all four segments. It can lead to higher margins for 3PLs offering integrated fulfillment and transportation management services. Its volatile volumes play well for 3PLs, which can flex labor and capacity more quickly than those with more static operations. Thus, e-commerce, along with omnichannel business, presents many opportunities for 3PLs.

Changes in the profit margins of e-commerce 3PL providers have been primarily influenced by the volatile market conditions that followed the pandemic. Profitability, which peaked during the e-commerce boom in 2021, declined due to a freight recession in 2023, excess capacity, and rising operating costs. Although market conditions improved slightly in late 2024, margin pressures continued into 2025 due to a combination of economic challenges and shifting customer demands.

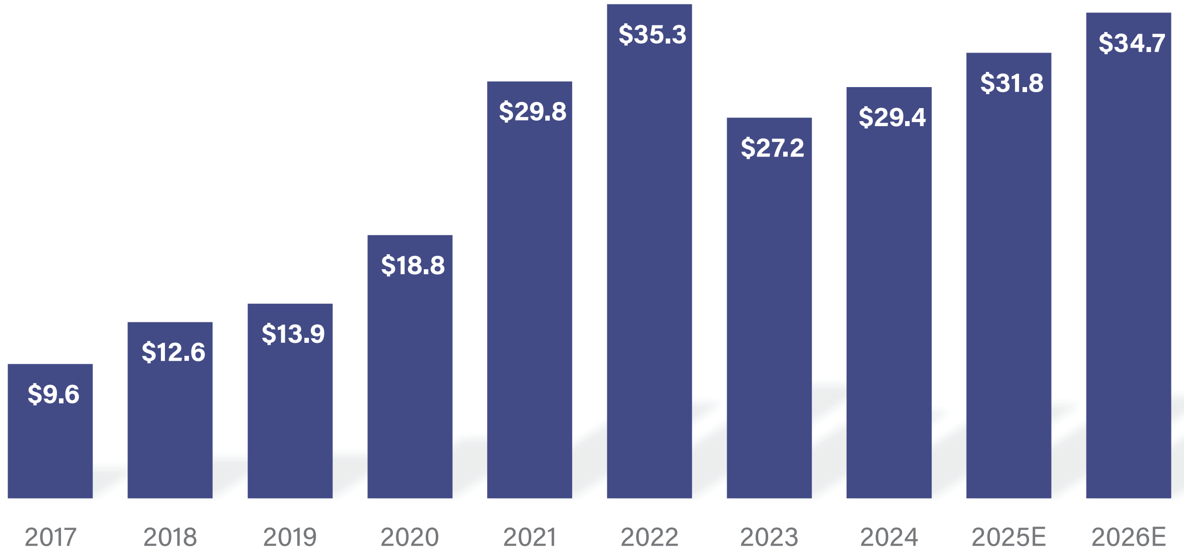
Overall, e-commerce logistics costs have increased in tandem with e-commerce sales. Major cost drivers include the continued expansion of e-commerce retail in both domestic and cross-border markets, logistics networks, warehousing development, increasingly complex last-mile delivery, the shift to B2C in the parcel segment, a tight labor market, and the growing importance of reverse logistics.

The national industrial vacancy rate rose to over 7% by the second and third quarters of 2025. While overall warehouse space is no longer as limited as during the post-pandemic boom, the warehousing market is now unbalanced and increasingly specialized. Specific segments, notably smaller, modern facilities that are strategically located, continue to be challenging to obtain. Shippers want to deploy e-commerce fulfillment parcel shipping out of warehouses as close to the customer as possible to increase service levels. VAWD warehouses are increasingly focused on providing a variety of e-commerce fulfillment services. These fulfillment services include picking, packing, and shipping orders directly to customers. Many provide value-added services, such as bagging, labeling, bubble-wrapping, performing drop tests, and ensuring the goods are ready to ship.

The market has recognized the competitiveness of VAWD 3PLs. Several resources report that in 2024, 50-60% of brands outsourced, surpassing in-house fulfillment, which accounts for 40%. This represents a significant increase from 2021, when only 40% of outsourced. In other words, 3PL fulfillment companies handle most U.S. e-commerce shipments and maybe more when considering value-added services. By outsourcing, companies can scale their operations quickly without the burden of establishing their own infrastructure. Additionally, 3PLs possess the expertise to navigate supply chain disruptions, labor shortages, and rising shipping costs more effectively.

Based on A&A's analysis, U.S. 3PL e-commerce revenue dropped 23% to $27.2 billion in 2023, but it's projected to reach $34.7 billion in 2026. 2021 saw the highest YOY growth since 2017, reaching as high as 59%, as e-commerce purchases spiked due to the pandemic and shutdowns. For 2025, we estimate 8% growth in U.S. 3PL e-commerce revenue.

Figure 33. U.S. 3PL E-commerce Revenues (Fulfillment and Last-Mile) w/o Amazon 2017-2025E ($ Billions)



The table below lists the leading retail e-commerce companies in the U.S. and some of the top 3PLs they use.

Table 18. Market Share of Leading Retail E-commerce Companies in the U.S.

Company Name	Share of Retail E-Commerce Sales	Number of 3PL Relationships	Top 3PL Competitors Serving Company
Amazon	37.6%	27	C.H. Robinson, GXO Logistics, Hub Group, J.B. Hunt, Kuehne + Nagel, Maersk Logistics, Nippon Express, RXO, WWEX Group
Walmart	6.4%	61	DHL Supply Chain, DSV, Expeditors, FedEx Logistics, GEODIS, Knight-Swift, Kuehne + Nagel, Maersk Logistics, Werner Logistics
Apple	3.6%	10	DHL Supply Chain, DSV, GEODIS, Kuehne + Nagel
eBay	3.0%	3	FIEGE Logistik
Target	1.9%	27	C.H. Robinson, Expeditors, FedEx Logistics, Hub Group, J.B. Hunt, Knight-Swift, Maersk Logistics, NFI, Schneider, Toll Group
The Home Depot	1.9%	30	CEVA Logistics, DHL Supply Chain, DSV, GXO Logistics, Hub Group, Kuehne + Nagel, Maersk Logistics, RXO, Werner Logistics
Costco	1.5%	14	FedEx Logistics, Knight-Swift, Lineage, RXO

Source: Statista; A&A Analysis

In 2023, Walmart was the only company to experience an increase in its market share of retail e-commerce sales, rising to 6.4% from 6.3% in 2022. All of the other companies listed, including Amazon, have lost market share since 2022. Best Buy fell off the list in 2023 with only 1.4% market share compared to 1.6% in 2022. Only companies with a 1.5% share or more are listed in Table 18.

Appendix

ARMSTRONG & ASSOCIATES, INC.

North American Warehousing Study 2025 – General Questionnaire

13400 Bishops Lane | Suite 70
Brookfield, WI 53005 USA
Office: +1-414-545-3838
www.3PLogistics.com

Karen Erickson
Vice President
Phone: +1-801-608-1504
Karen@3PLogistics.com

Jenny Sun
Senior Research Analyst
Phone: +1-414-545-3838
Jenny@3PLogistics.com

Thank you for your participation in this study. Your input is critical to developing a realistic picture of the current and future warehousing market. The reliability of the resulting metrics depends on your accurate responses. Individual company responses are confidential; we combine them to develop vital market benchmarks and insights. Please provide complete responses to the following questions. If you have any questions, please let us know.

1. What important changes, trends, and challenges have you seen in the warehousing business in the last 2-3 years?

Changes/Trends
Challenges/Pain Points

2. How did your total warehousing revenue change from 2023 to 2024?

Total warehousing revenue 2024 (US$ M)	Total warehousing revenue 2023 (US$ M)

3. For 2024, what percentage of your total warehousing revenue was from e-commerce warehousing/fulfillment?

For 2024, what percentage of your total e-commerce warehousing/fulfillment revenue was from outbound transportation (parcel and freight)?

4. What is your overall I.T. cost as a percent of the total warehousing operating cost?

5. Based upon feedback from your customers, what differentiates your service offering from the competition? (Choose the Top 3)

1st Choice		If other, explain	
2nd Choice		If other, explain	
3rd Choice		If other, explain	

6. Please rank the level of your organization's maturity in each area below, with 1 being the lowest and 5 being the highest.

A. Safety		Safety is embedded into daily operations with defined standards, regular training, and active committees. Programs include 5S (Sigma), equipment checks, lockout/tagout, safety audits, and behavior-based safety recognition. Root cause analysis is conducted on incidents and near misses.
B. People, Talent Management		Roles are clearly defined, and associates have the tools and training to succeed. There are structured performance reviews, mentorship programs, and employee development paths. Responsibilities are aligned with individual strengths, where possible, In the program. There is an employee development program where they can grow and learn skills beyond the day-to-day work. Roles and responsibilities are personalized to meet the strengths of the associates.
C. Technology		Technology includes an integrated Tier-1 Warehouse Management System, Business Intelligence tools, Labor Management System, and Customer Relationship Management System. Real-time customer access is available via a self-service portal. Automation (e.g., robotics, AS/RS, pick-to-light) is used where appropriate. A clear digital strategy has been developed, supporting optimization and innovation.
D. Continuous Improvement		Lean/Six Sigma principles are in place, with certified belts supporting operations. Visual management and KPI tracking are standardized. Employees are trained in root cause tools (DMAIC, 5 Whys, fishbone, etc.), and there is a formal suggestion and leadership standard work process.
E. Quality Program		A centralized Quality Program ensures compliance and continuous audit readiness. SOPs are current and accessible. Core components include CAPA, change control, risk management, supplier quality, audits, training, and statistical process control.

7. 2024 Warehousing Sales Information

What Customer Relationship Management System are you using?	
Customer Contract Renewal Rate %	
Total RFPs Received Annually	
RFP Win Rate Percentage (%)	
Annual New Business Won from RFPs ($)	
Number of Sales Personnel	

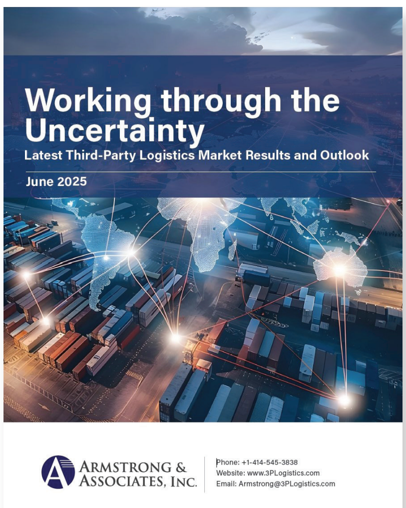
Market Research

New Releases from Armstrong & Associates, Inc.

Expert Information Service: A&A's premium market research and online 3PL guide.

[Expert Information Service (E.I.S.)](#)

Our premium market research and analysis offering includes access to our eight most popular [3PL market research reports](#) and a subscription to our leading 3PL guide, [Who's Who in Logistics Online](#). Phone consulting is available.



Working through the Uncertainty:

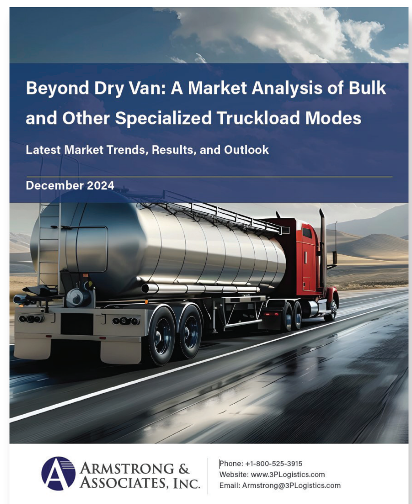
Latest Third-Party Logistics Market Results and Outlook– 2025

This report provides the latest trends in the third-party logistics industry and all four major segments, latest trends and estimates in the U.S. and Global 3PL Markets, including the 3PL M&A activity. The report also contains A&A's lists of the Top 50 Global 3PLs and Top 50 U.S. 3PLs for 2024.

Delivering through Uncertainty:

Big and Bulky Last-Mile Delivery in the United States – 2025

The National Home Delivery Association (NHDA) and A&A partnered for this study covering the U.S. Big and Bulky Last Mile Delivery Market. This major market research report provides updates on current market size, growth, and outlook, key providers, customers and verticals served, estimated route costs and average stops by geography, as well as employment and other trends.



Beyond Dry Van: A Market Analysis of Bulk and Other Specialized Truckload Modes

Latest Market Trends, Results and Outlook– 2024

This report analyzes the U.S. for-hire truckload market by segment, compares dry van against the bulk, flatbed, and refrigerated truckload segments, and provides estimates for all modes/trailer types from 2017-2027.

- The reports above are part of A&A's premium market research Expert Information Service (E.I.S.)
- The reports above can be downloadable as Adobe PDF file with a single user license.

More reports are available for purchase at https://www.3plogistics.com/product-category/guides-market-research-reports/market-research-reports/