

WAREHOUSE OPERATIONS TRENDS STUDY



CONDUCTED BY

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Introduction and Methodology

- This research was conducted by the Peerless Research Group on behalf of *Logistics Management* and *Modern Materials Handling* magazine, and marks our fourteenth annual *Evaluation of Warehouse Operations & Trends* survey.
- The study was conducted to evaluate current activities and to assess any trends in the evolution of warehouses and distribution-center facilities and operations.
- Specific areas of investigation include:
 - Nature of distribution center's operations
 - Size of distribution center and scope of distribution activities
 - Areas for possible expansion
 - Distribution center systems and technologies in use
 - Means for measuring productivity
 - Actions taken to manage warehouse operating costs
 - Events that cause disruptions in distribution center operations
- The report compares this year's findings to 2023, 2022 and 2021 results. In each wave, the survey was administered via email invitation to subscribers of *Logistics Management* magazine. Respondents were qualified for being involved in decisions as they pertain to their company's distribution center operations.
- As incentive to respond, individuals participating in the survey were offered the chance to enter a raffle for one of two \$100 Amazon gift certificates.
- A disposition of each study follows:

	Field dates	Usable surveys	+/- @ 90% confidence level
2021	September, 2021	144	6.9%
2022	September, 2022	156	6.6%
2023	September, 2023	119	7.6%
2024	August, 2024	108	7.9%



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Size and Scope of Distribution Center Network and Operations

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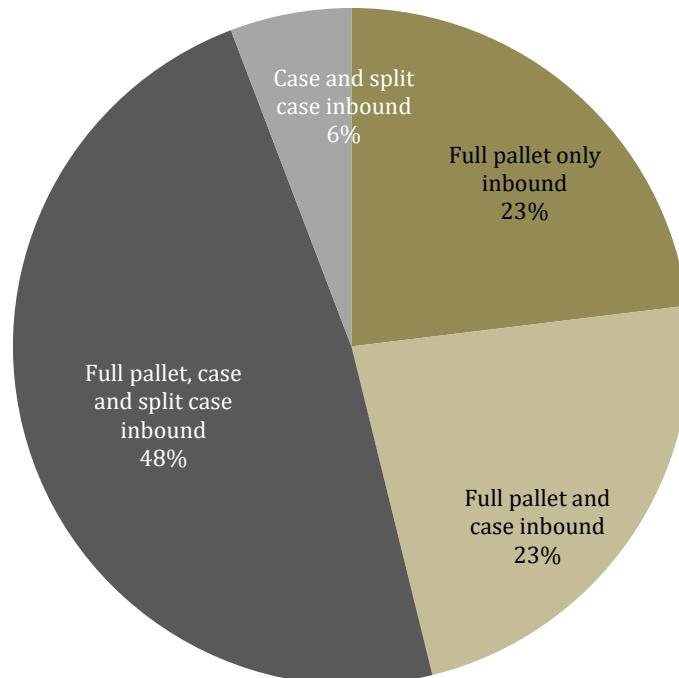
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Nature of DC's Inbound/Outbound Operation

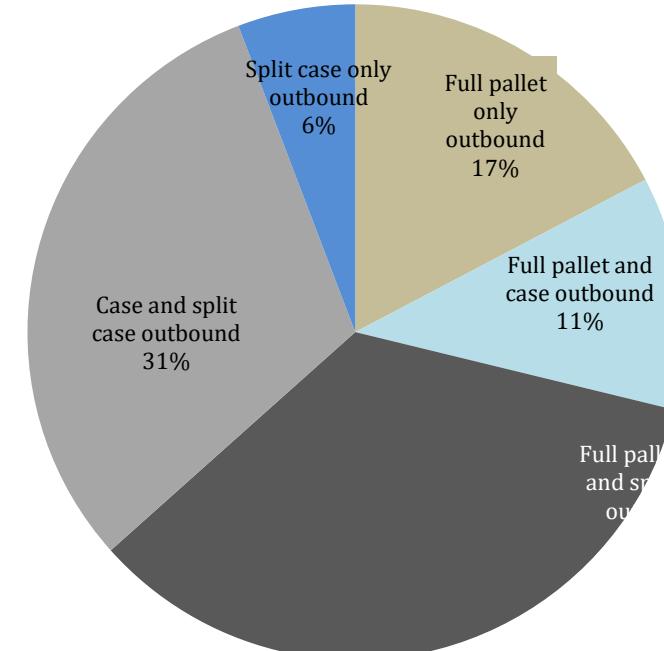
2024 Inbound:



2023 Results:

Full pallet only inbound	18%
Full pallet and case inbound	29%
Full pallet, case and split case inbound	45%
Case and split case inbound	8%

2024 Outbound:



2023 Results:

Full pallet only outbound	12%
Full pallet and case outbound	30%
Full pallet case and split case outbound	33%
Case and split case outbound	19%
Split case only outbound	6%

What is the nature of your distribution center's inbound operation?

In what quantities are individual items picked for outbound orders?

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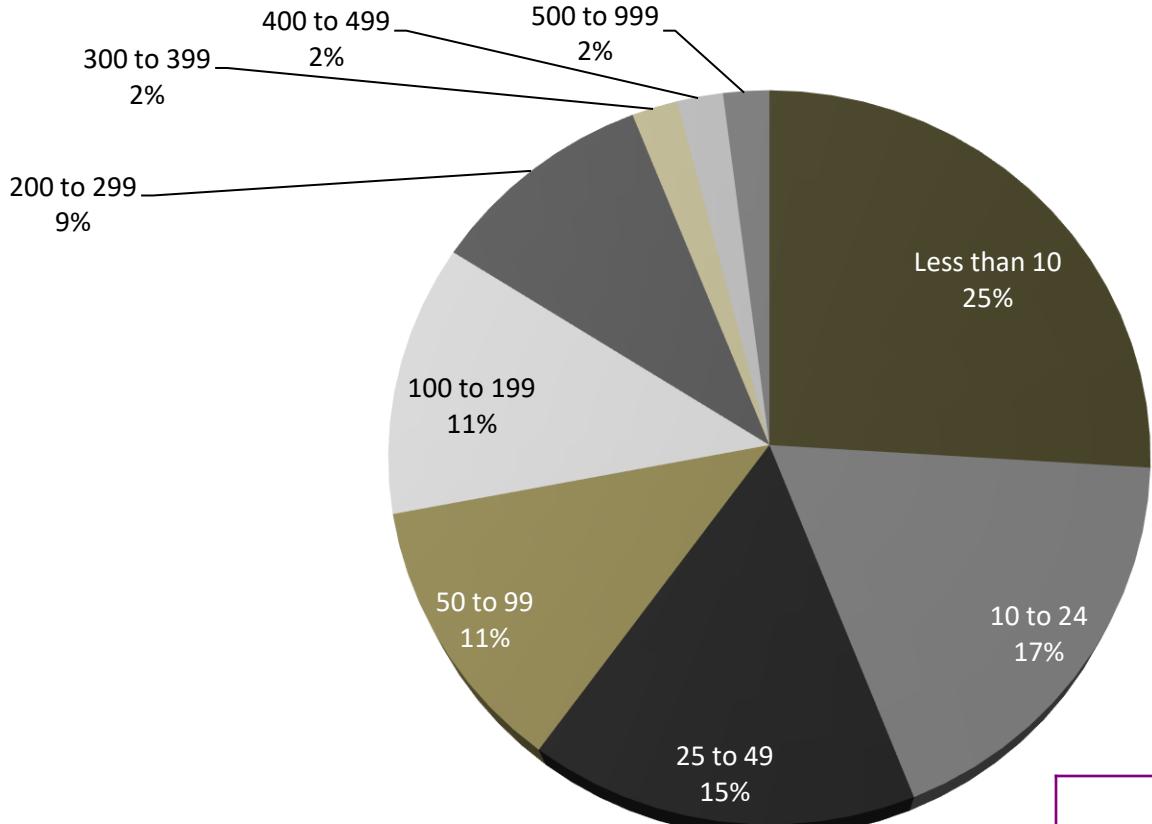
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Number of Employees in Company's Main Warehouse

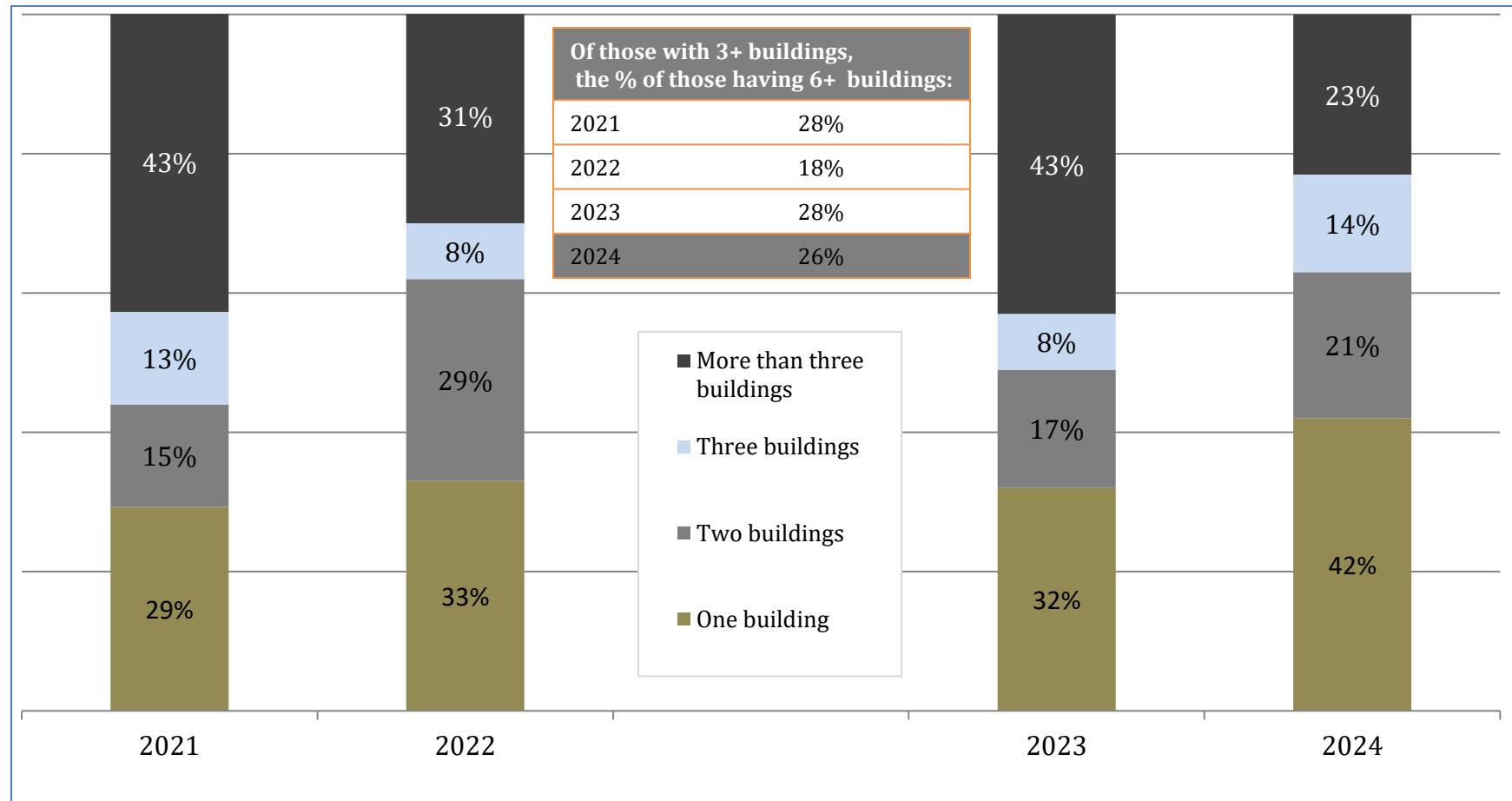


	2023	2024
Average # of employees	132	146

What is the total number of employees in your company's main warehouse?



Size of Distribution Center Network: Number of Buildings



How many buildings are in your distribution network?



Size of Distribution Center Network: **Total Square Footage**

	2021	2022	2023	2024
Less than 25,000 sq. ft.	13%	18%	19%	11%
25,000 – 49,999 sq. ft.	8%	10%	11%	23%
Less than 50,000 sq. ft. (<i>net</i>)	21%	28%	30%	33%
50,000 to 99,999 sq. ft.	12%	13%	10%	15%
100,000 to 249,999 sq. ft.	18%	27%	22%	21%
250,000 to 499,999 sq. ft.	13%	14%	13%	8%
500,000 to 999,999 sq. ft.	13%	5%	8%	8%
1,000,000 to 1,999,999 sq. ft.	15%	4%	6%	8%
2,000,000+ sq. ft.	8%	10%	11%	8%
Average square footage	609,325	570,395	479,565	408,020
Median square footage	300,000	250,000	250,000	250,000

What is the approximate TOTAL aggregate square footage of all buildings in your distribution center network?



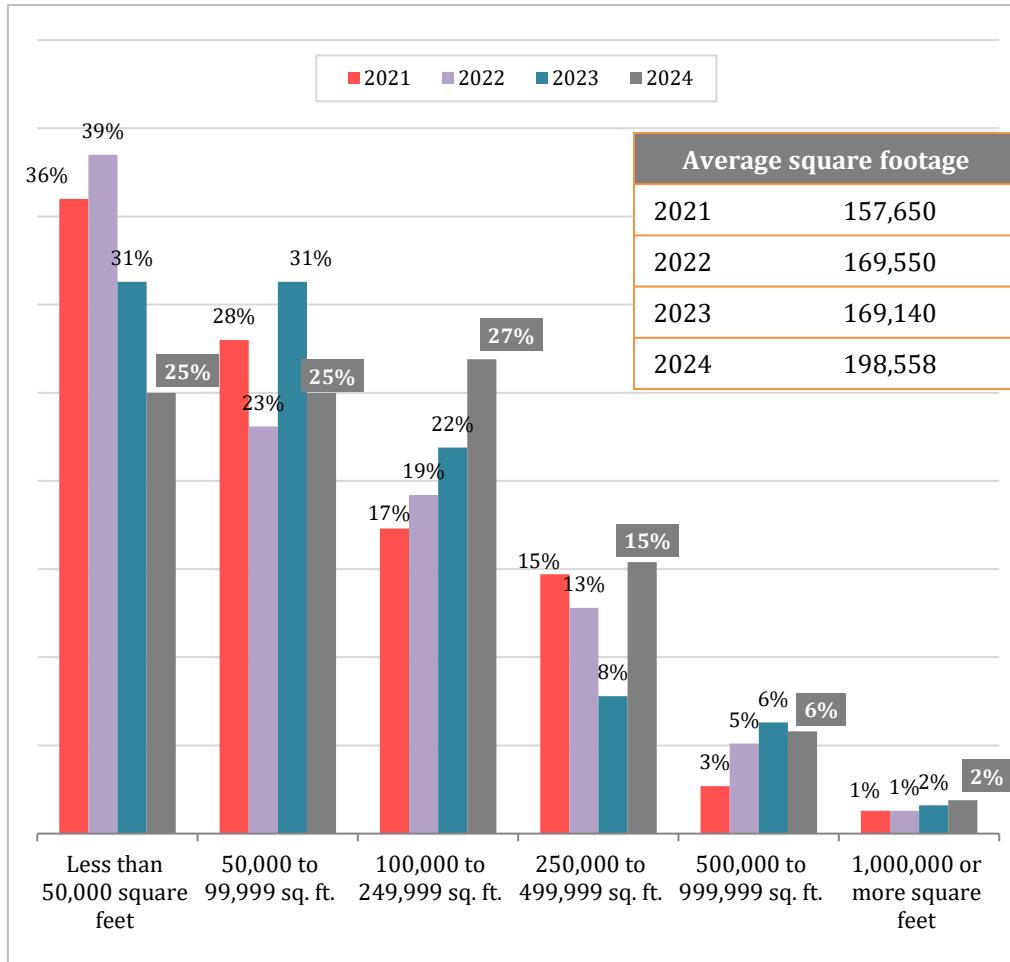
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Size of Distribution Center Network: Most Common Square Footage



Among the buildings in your network, what is the most common square footage?

Most common sq. footage if ...	Network is 3 buildings or less	Network is 4 buildings +
Less than 50,000 sq. ft.	40%	18%
50,000 – 99,999 sq. ft.	18%	28%
100,000 – 249,999 sq. ft.	25%	29%
250,000 – 499,999 sq. ft.	8%	14%
500,000 – 999,999 sq. ft.	7%	8%
1,000,000 + sq. ft.	2%	3%

Average sq. footage	Network is < 3 buildings	Network is 4 buildings +
2024	220,000	811,200
2023	227,100	423,315
2022	252,727	787,500
2021	208,720	535,550



Size of Distribution Center Network: **Clear Height of Buildings**



What is the most common clear height?



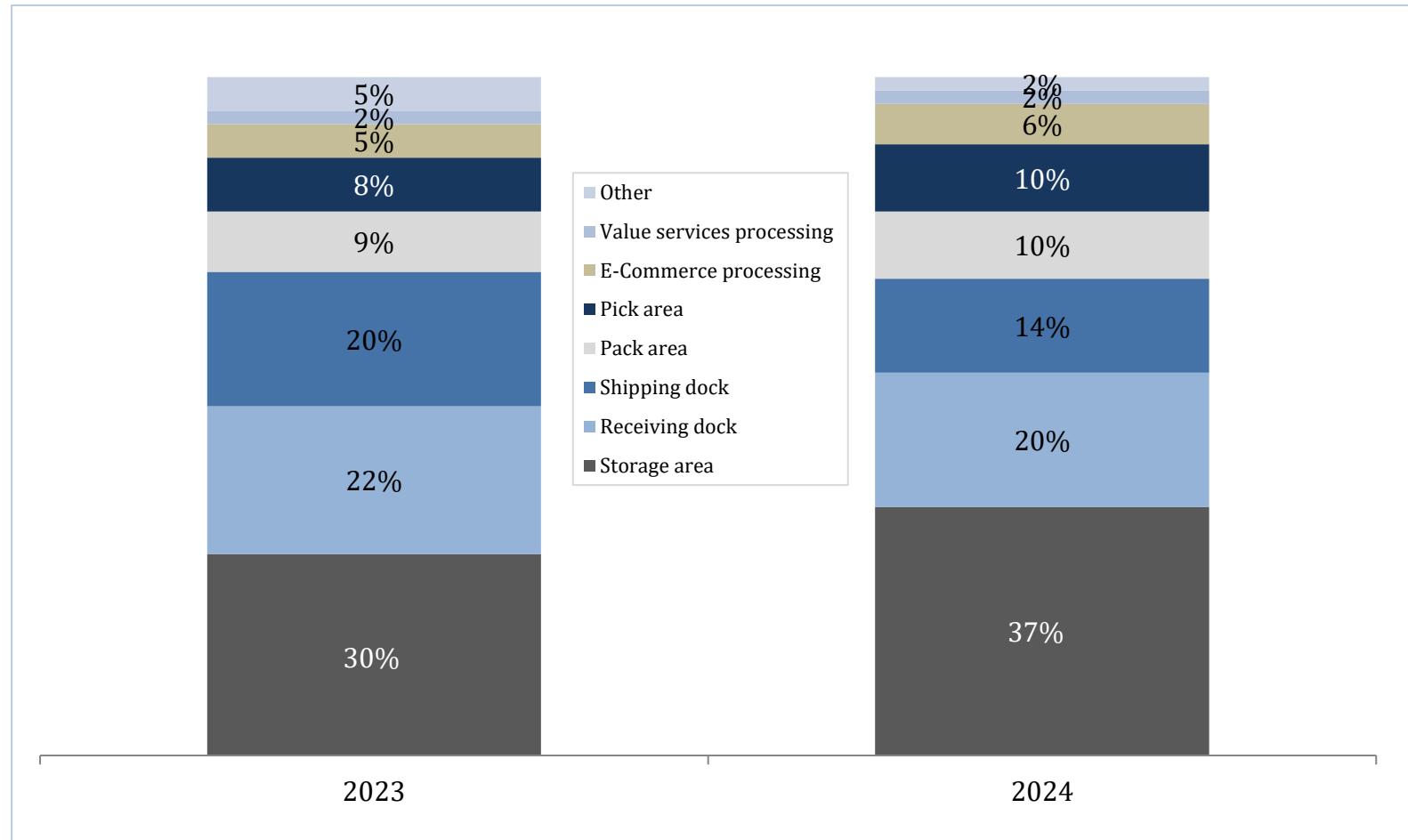
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Space utilization: The most congested area in warehouses



Which area in your warehouse is the most congested in terms of square footage (space)?



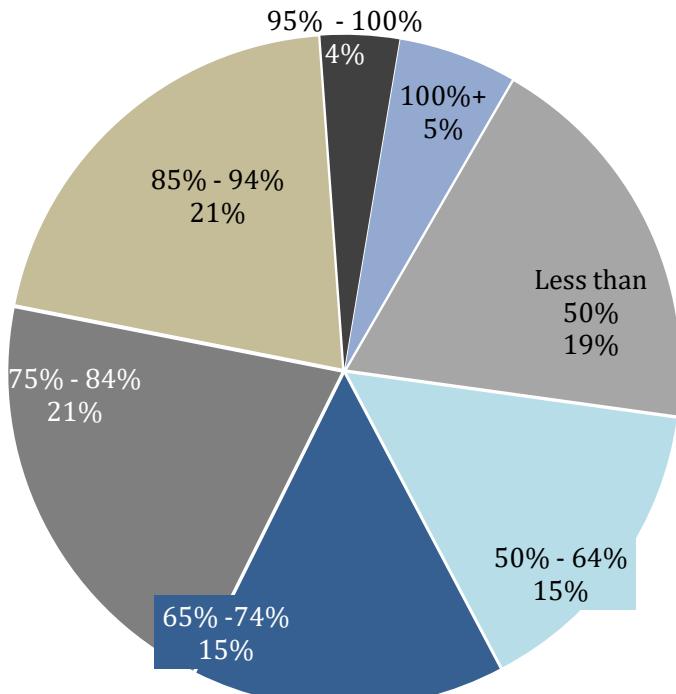
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Peak warehouse space utilization

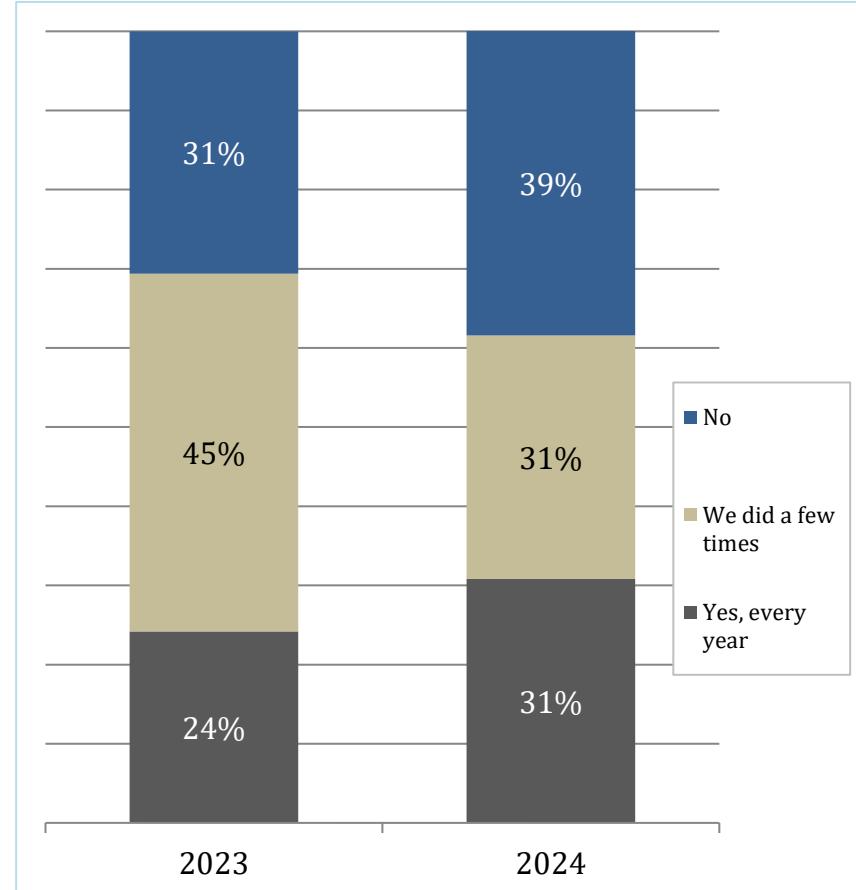


Average % of peak space used:

2023	78.5%
2024	73.2%

And, what do you estimate your peak warehouse space utilization (pallet storage capacity utilization) will be in 2024?

Leasing additional space during peak season



In the past five years, have you utilized additional/outside space during peak season?



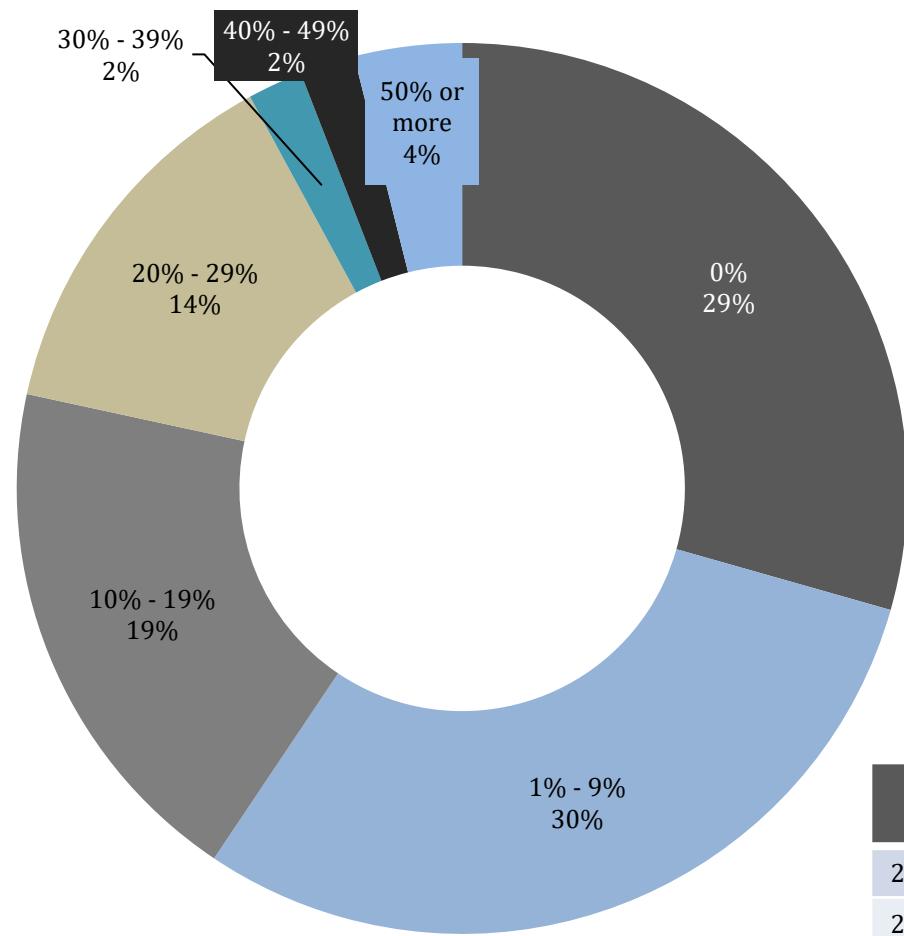
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Percent of workforce who are temporary during *peak* volume periods



Average % of workforce during
peak season:

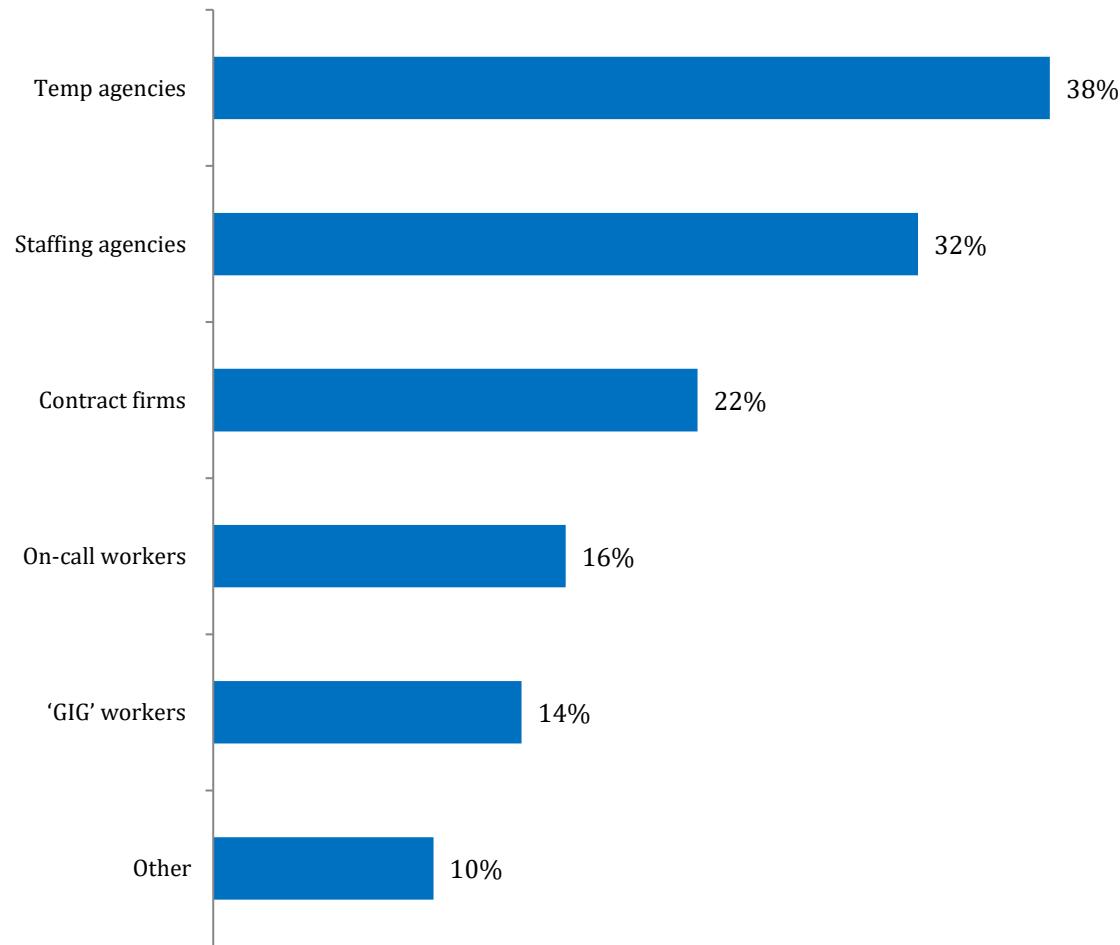
2023	14.0%
2024	11.4%

What percentage of your workforce are temporary employees during peak volume periods?

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Alternative Labor Resources to Handle Average and/or Peak Volumes



*Multiple answers accepted

What alternative labor resources are you considering given the tight labor market to handle average and/or peak volumes?

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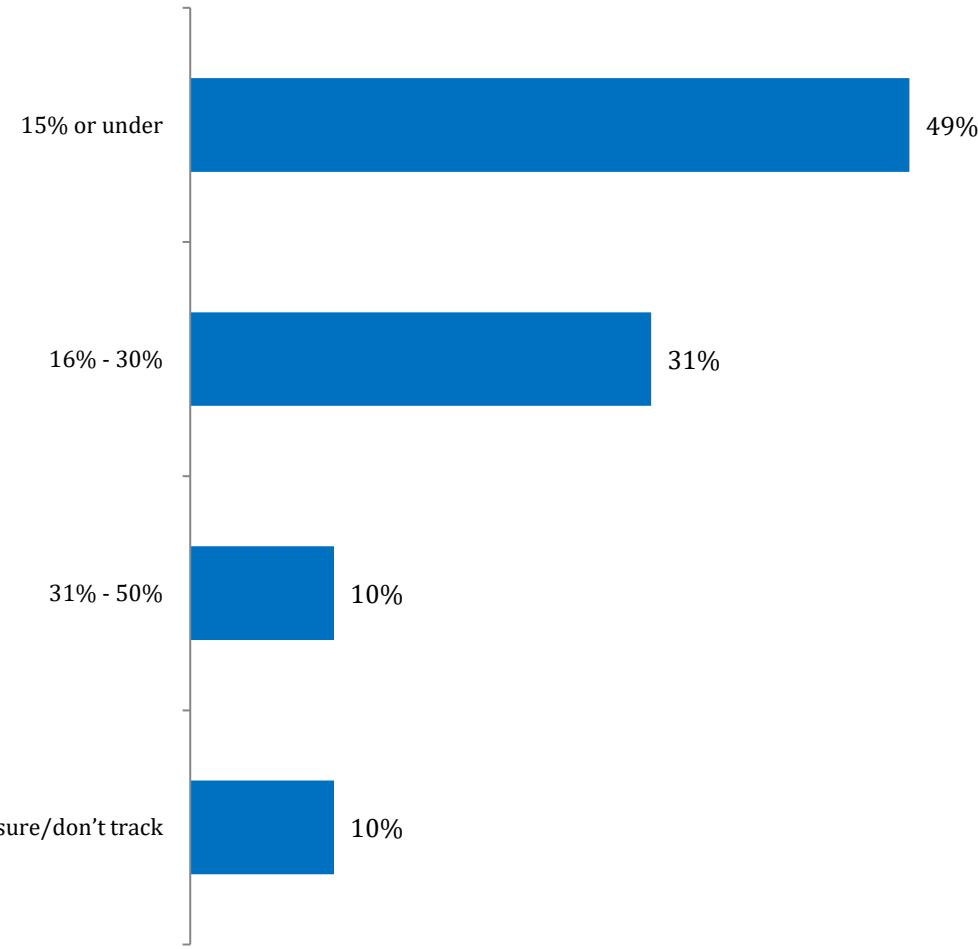
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Annual Employee Turnover Rate

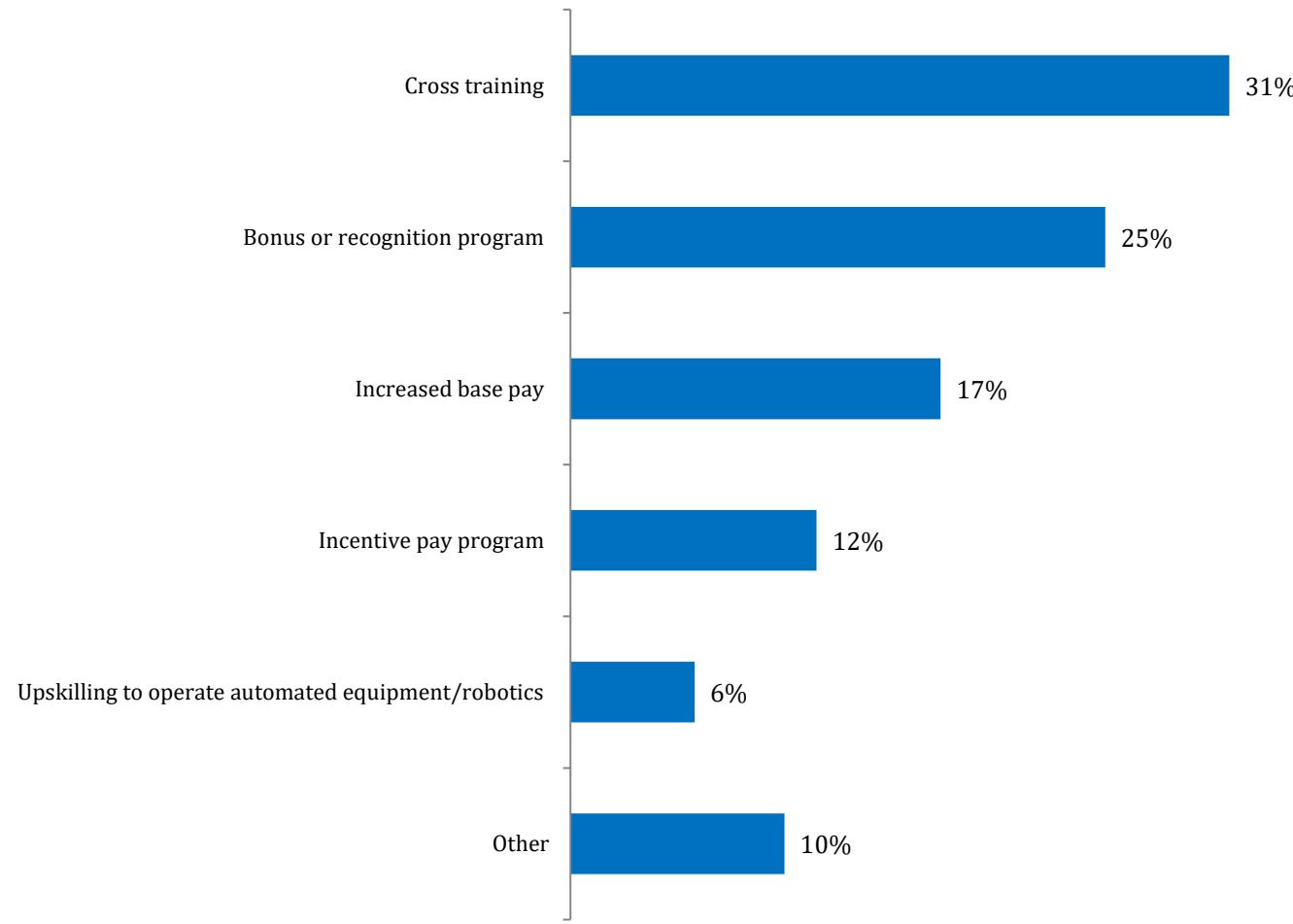


What is your annual employee turnover rate?

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Retention Improvement Labor Management Practices



*Multiple answers accepted

What labor management practices do you use to improve retention?

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Scope of Distribution Center Operations: Annual Inventory Turns

	2021	2022	2023	2024
Less than 1.0	6%	10%	5%	4%
1.0 to 2.9	20%	18%	23%	22%
3.0 to 4.9	19%	24%	16%	27%
5.0 to 6.9	20%	15%	10%	16%
7.0 to 8.9	12%	10%	15%	9%
9.0 to 11.9	11%	7%	13%	13%
12.0 to 17.9	5%	6%	3%	2%
18.0 to 23.9	3%	3%	2%	2%
24.0 or greater	5%	7%	13%	4%
Average	7.0	7.1	8.2	6.5

Approximately how many inventory turns do you have annually?



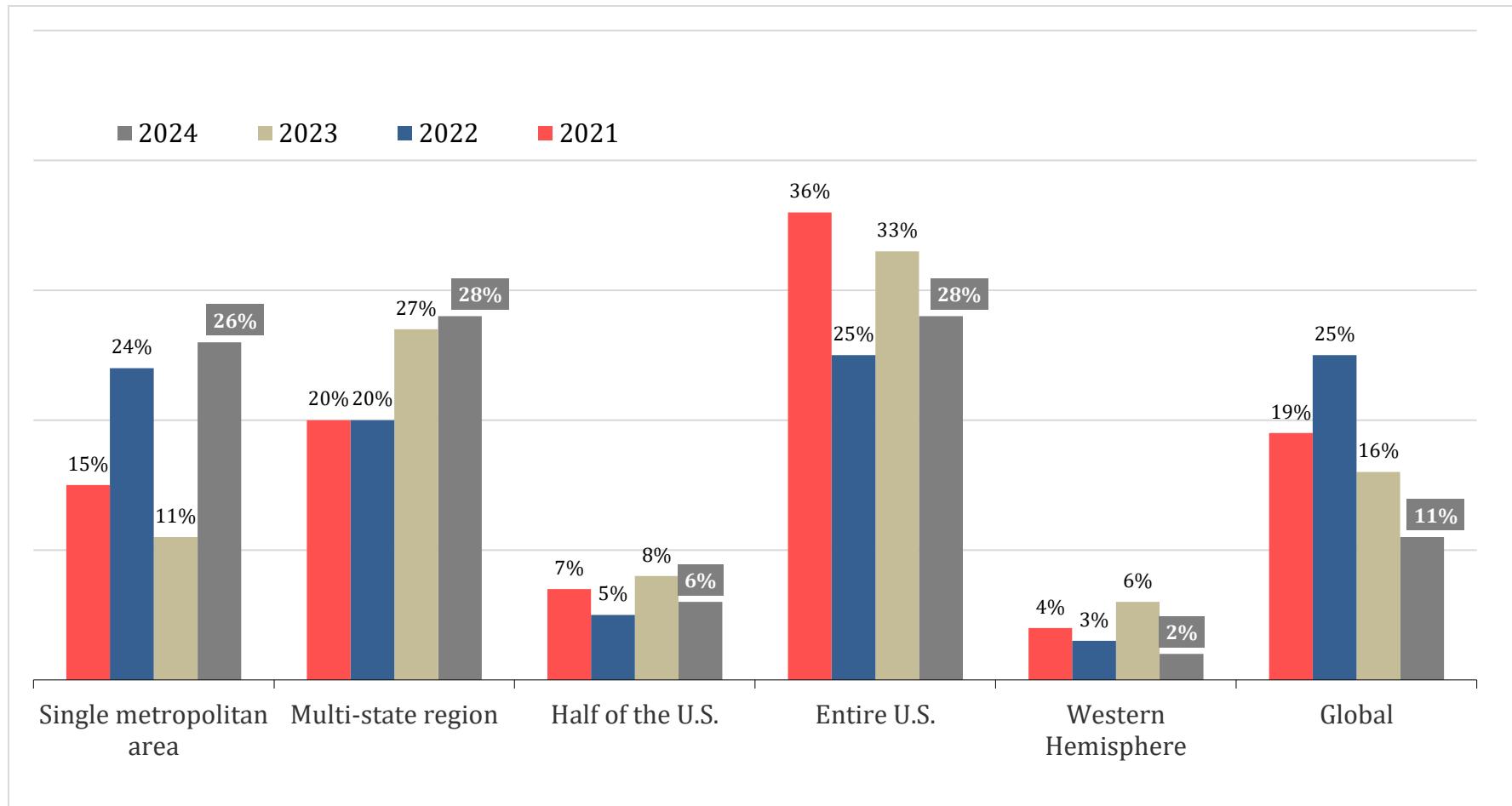
Scope of Distribution Center Operations: Number of SKUs

	2021	2022	2023	2024
Less than 100	17%	19%	24%	15%
100 to 499	15%	19%	11%	16%
500 to 999	12%	9%	11%	19%
1,000 to 2,499	15%	9%	13%	17%
2,500 to 4,999	5%	18%	5%	9%
5,000 to 9,999	15%	5%	13%	5%
10,000 to 19,999	9%	5%	15%	9%
20,000 to 49,999	6%	9%	2%	7%
50,000 – 74,999	3%	1%	5%	2%
75,000 or more	3%	6%	2%	15%
Average	9,376	10,371	8,494	7,790

Approximately how many SKUs do you carry?



Scope of Distribution Center Operations: **Areas of Service**

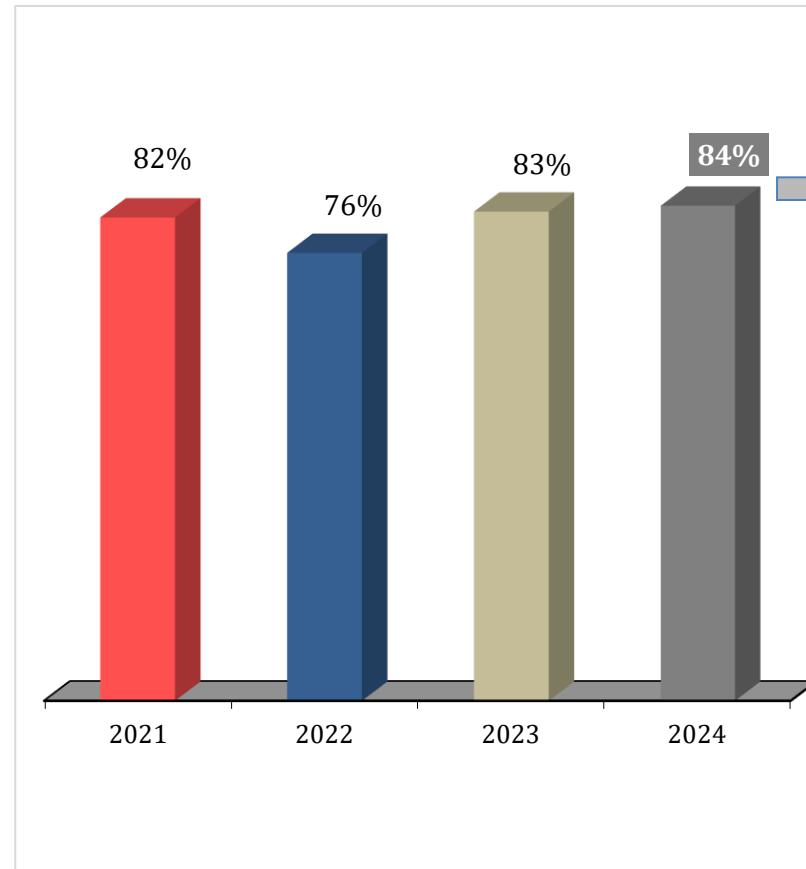


What is the geographic scope of your distribution center operations?



Distribution Center Expansion Plans

Planning to expand over next 12 months:



Areas for expansion:

	2021	2022	2023	2024
Number of SKUs	24%	25%	22%	27%
Number of employees	46%	41%	37%	14%
Overall square footage	35%	32%	33%	25%
Annual inventory turns	17%	24%	33%	16%
Area of service	20%	19%	18%	21%
Number of buildings	35%	24%	17%	23%
Height of buildings	9%	9%	7%	11%
Other	2%	3%	2%	2%

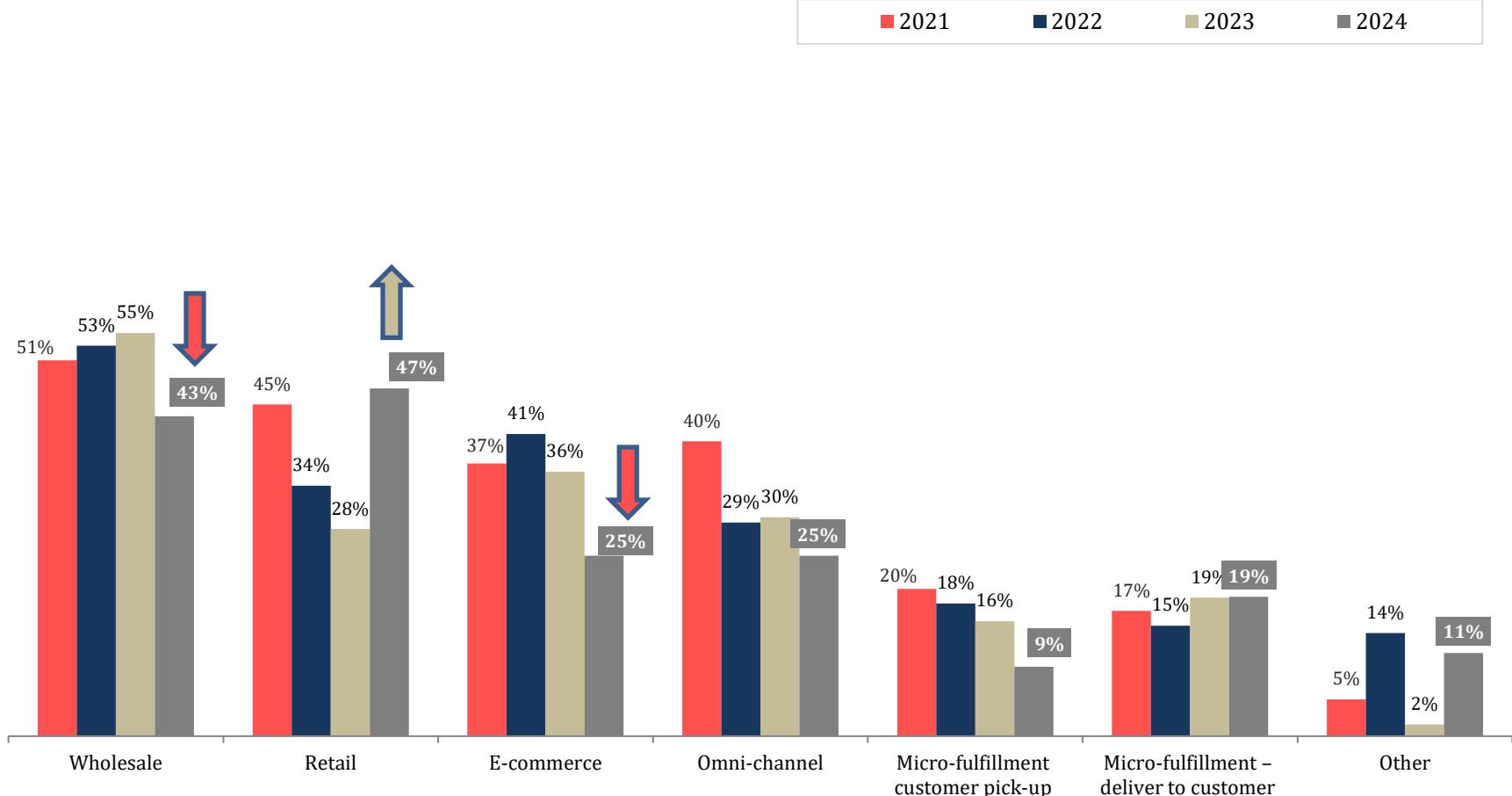
*Multiple answers accepted

Based on those planning expansion

Within the next 12 months, in which area(s) are you considering or planning to expand your distribution center operations?



Market channels serviced by company



*Multiple answers accepted

What market channels does your company service?



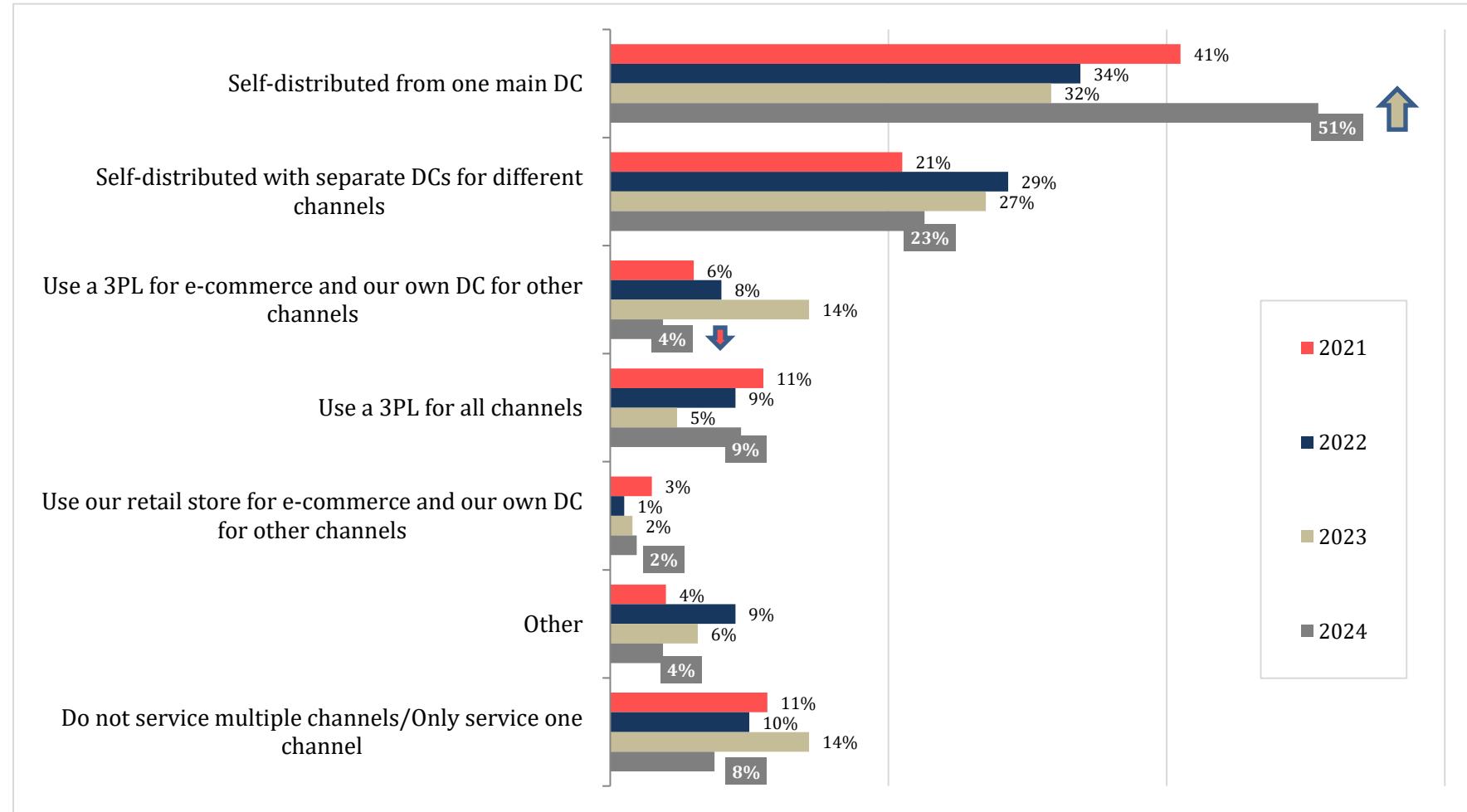
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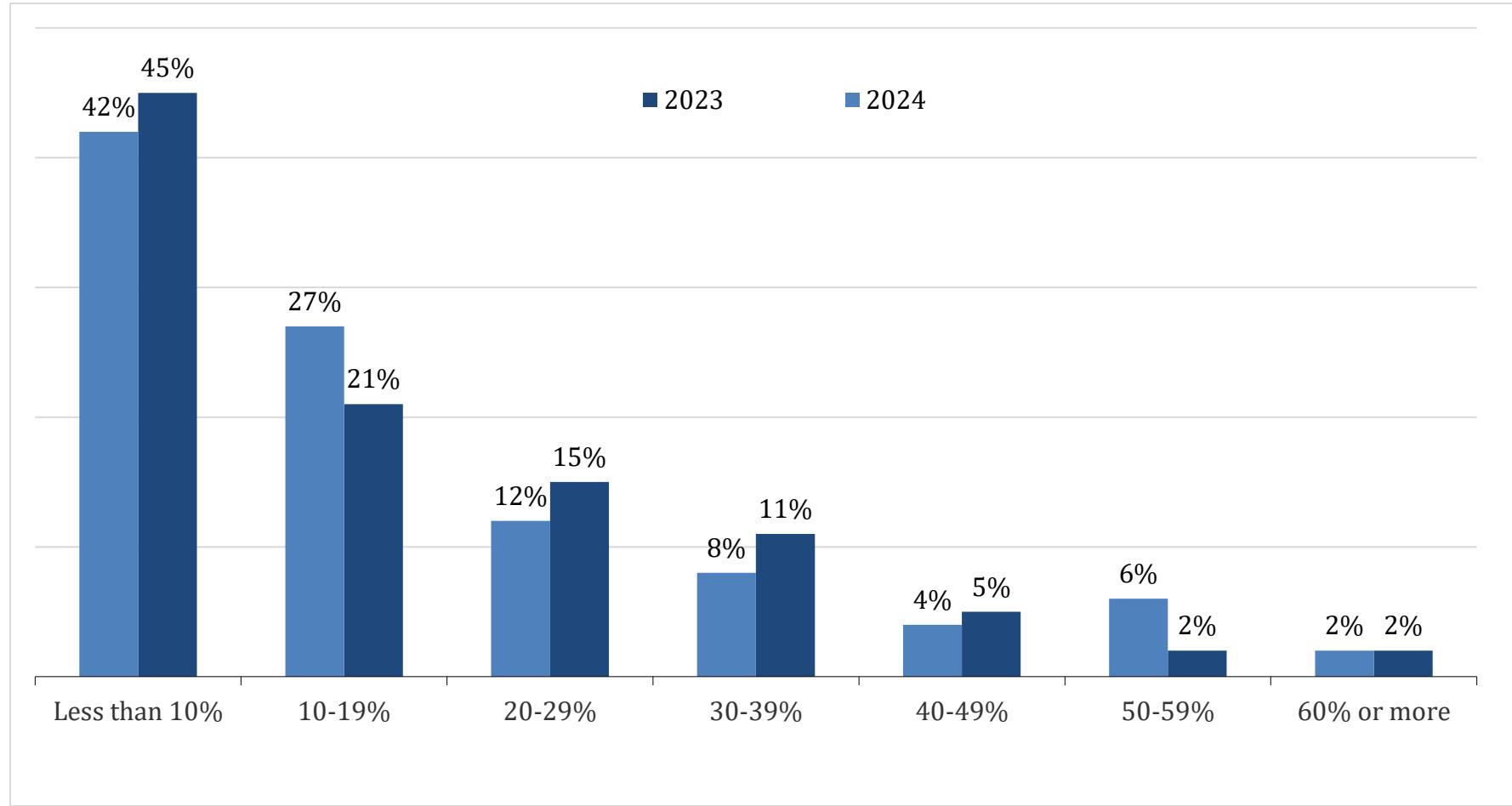
How multiple channels are being fulfilled



If you are servicing multiple channels, how are they fulfilled?



E-Commerce Channel Growth in Past 12 Months



By what percentage has the E-Commerce channel grown in the past 12 months?



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Systems and Technologies in Use

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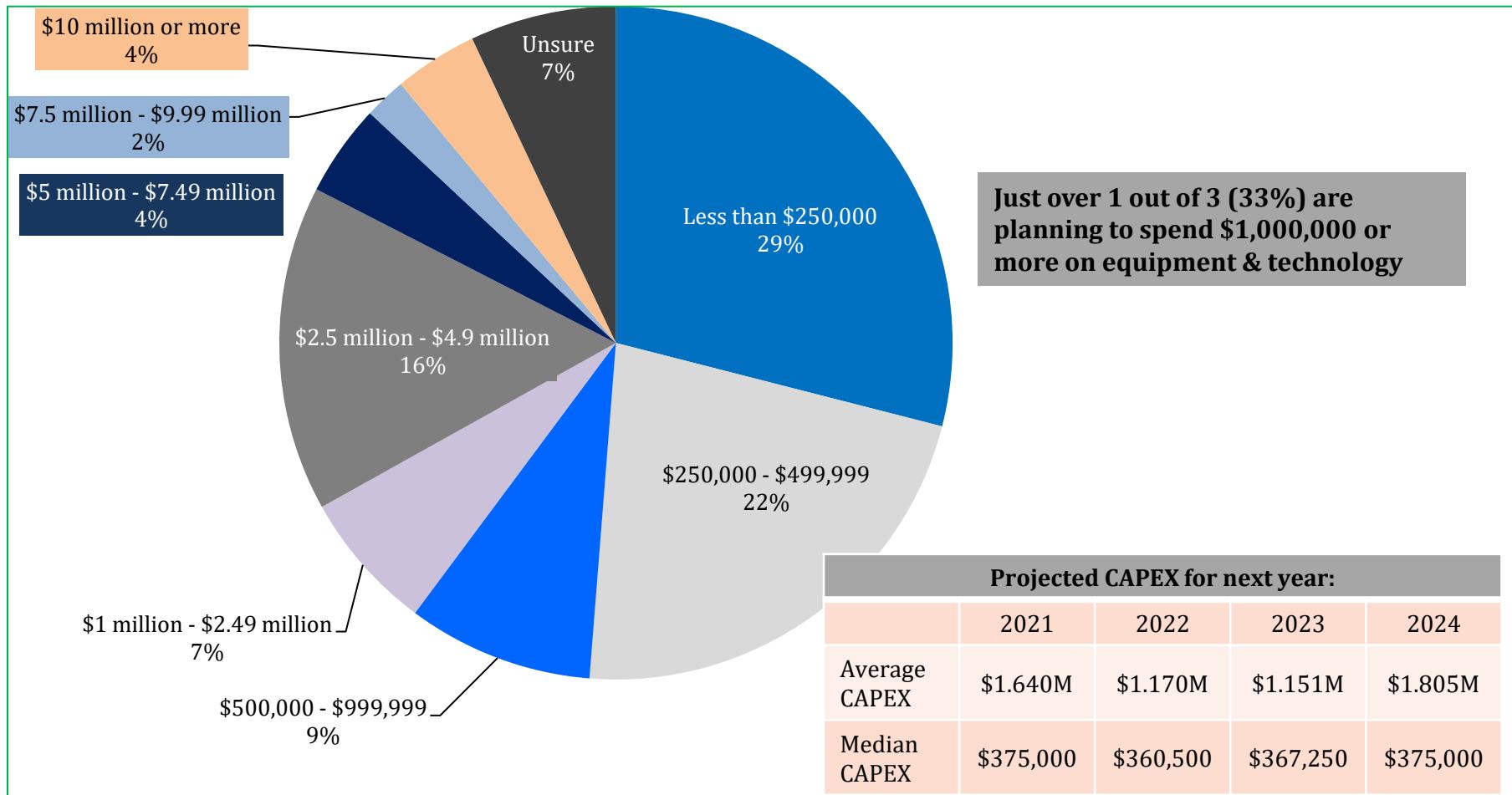
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Estimated capital expenditures for warehousing equipment and technology in 2024



And, what do you estimate your capital expenditures for warehousing equipment and technology were in 2023? And will be in 2024?



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Warehouse Management Systems in use

	2021	2022	2023	2024
Using a Warehouse Management System (NET)	83%	79%	84%	93%
Legacy WMS (basic WMS, homegrown & developed in-house)	30%	28%	32%	33%
ERP with a WMS module	38%	36%	31%	38%
Best-of-breed WMS	14%	10%	13%	13%
Labor planning function (LMS)	8%	12%	15%	13%
Slotting functionality	3%	3%	12%	22%
On-demand/Cloud/SaaS	6%	5%	12%	4%
WCS/WES-based system	3%	3%	8%	13%
Goods To Person (GTS)	Not asked	Not asked	10%	7%
Shuttles	Not asked	Not asked	7%	4%
None or minimal	17%	21%	16%	7%

*Multiple answers accepted

What Warehouse Management System (WMS) is currently in use at your distribution center?

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Materials Handling Systems in Use

	2023	2024
Fork lifts	79%	78%
Push Carts	53%	42%
Conveyors	41%	31%
Palletizers	16%	24%
Vertical Lift Modules	34%	13%
Carousels	5%	7%
Sorters	13%	23%
Robotics / Articulating Arms	23%	11%
AGVs/AMRs	20%	11%
Other	8%	9%

*Multiple answers accepted

What types of material handling systems are currently in use at your distribution center?



Picking Technologies in Use

	2021	2022	2023	2024
Paper-based	59%	53%	56%	44%
RF hand-held	45%	50%	48%	54%
Voice	9%	6%	21%	12%
Pick to Light	13%	15%	12%	16%
Other	6%	9%	5%	7%



*Multiple answers accepted

What kinds of picking technologies are currently in use at your distribution center?



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Order Filling Techniques in Use

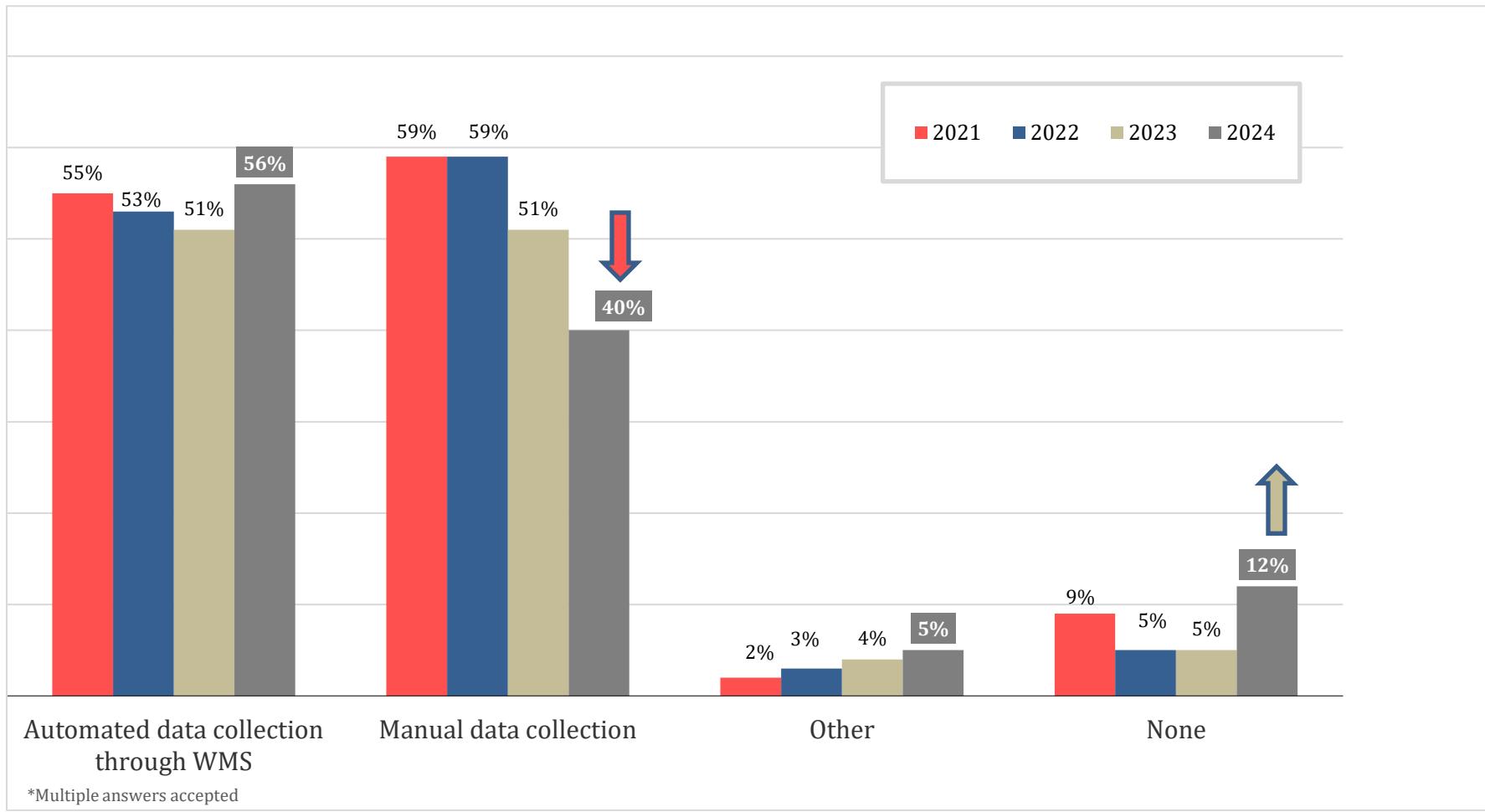
	2021	2022	2023	2024
Single order picking	71%	61%	62%	58%
Batch picking	40%	29%	39%	44%
Zone picking	31%	24%	30%	22%
Cross docking	34%	20%	18%	14%
Wave picking	23%	20%	18%	19%
“Put” to order	15%	15%	8%	20%
Put-wall system	8%	6%	7%	5%
Continuous order release/waveless picking	--	--	--	14%
Picking by product category	--	--	--	24%
Other	3%	0%	2%	2%

*Multiple answers accepted

Which kinds of order filling techniques are currently in use at your distribution center?



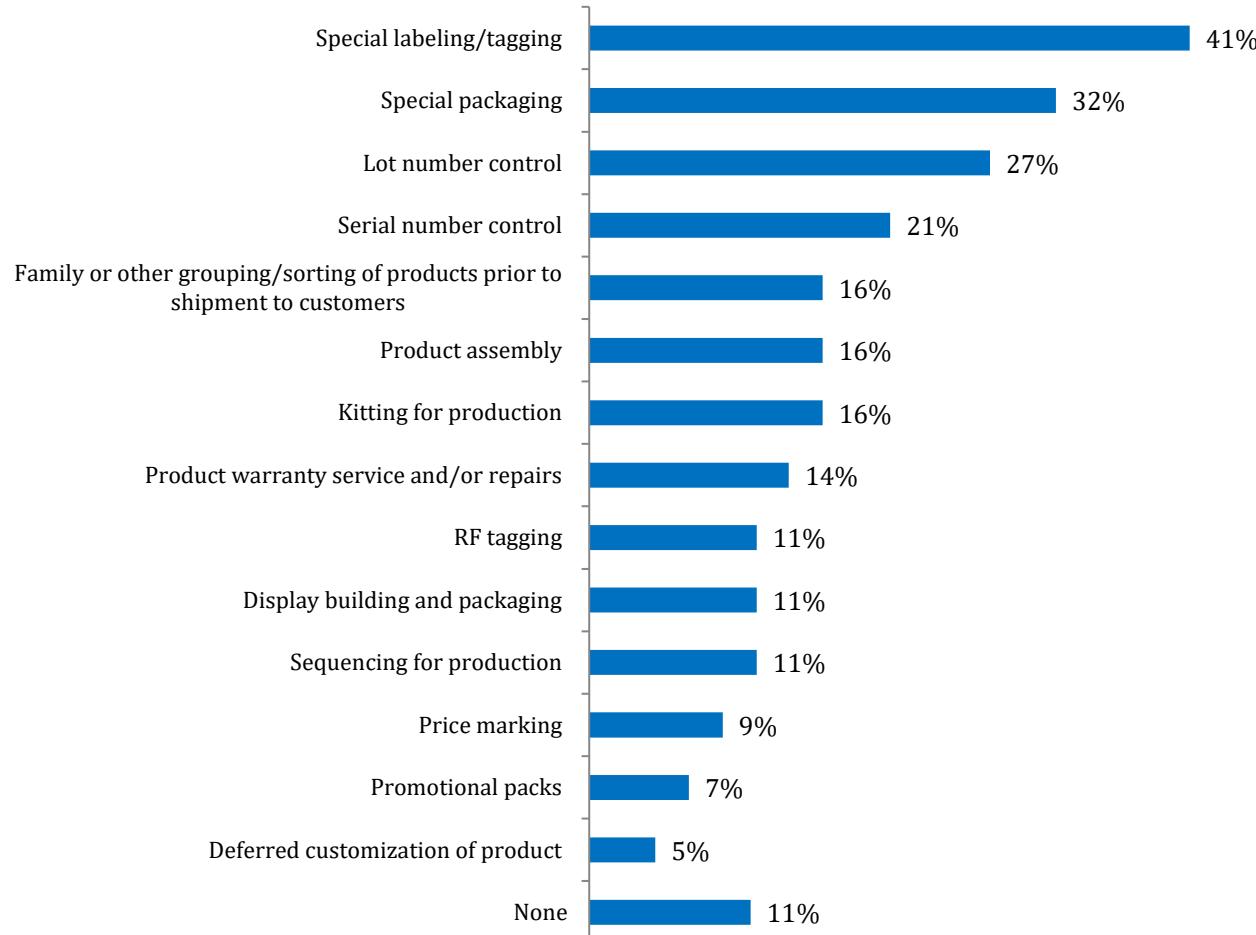
Data Collection Methods Used to Gauge Productivity



What data collection methods does your organization use to gauge productivity?



Additional Value-Added Services Offered to Customers



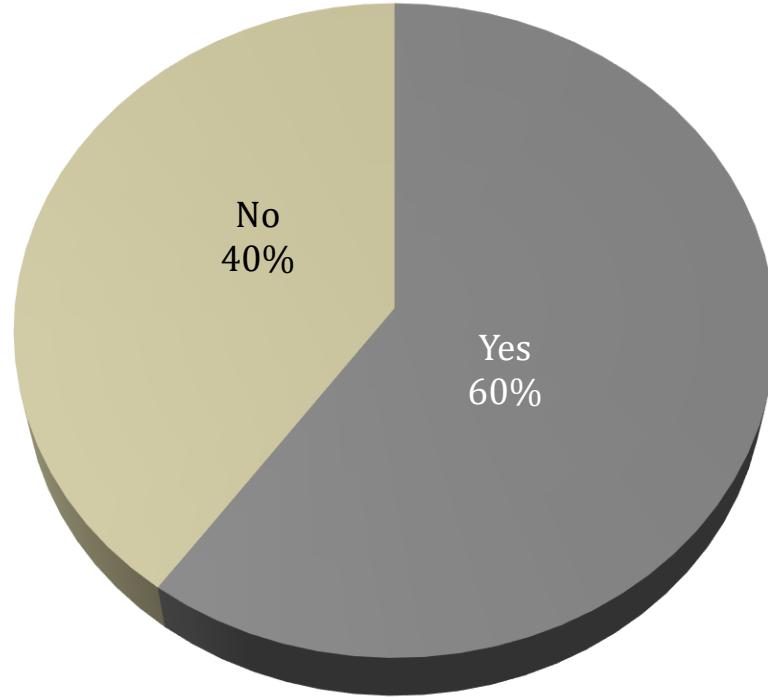
*Multiple answers accepted

What additional or value-added services do your offer to customers?

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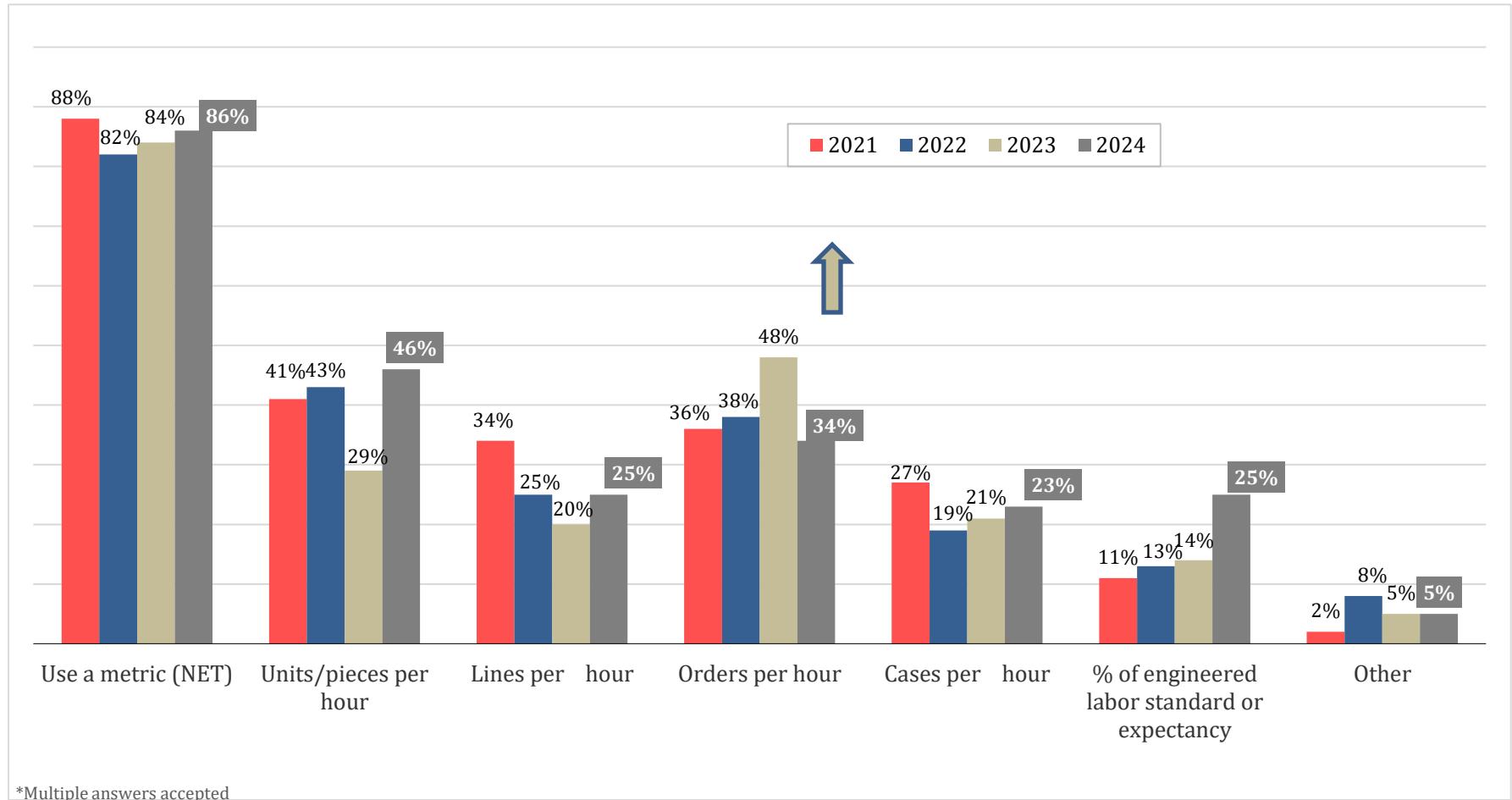
Do you have 100% SKU weight and dims in your Item Master?



Do you have SKU weight and dims in your Item Master?



Productivity Metrics in Use



*Multiple answers accepted

And, which metrics do you use to gauge productivity?



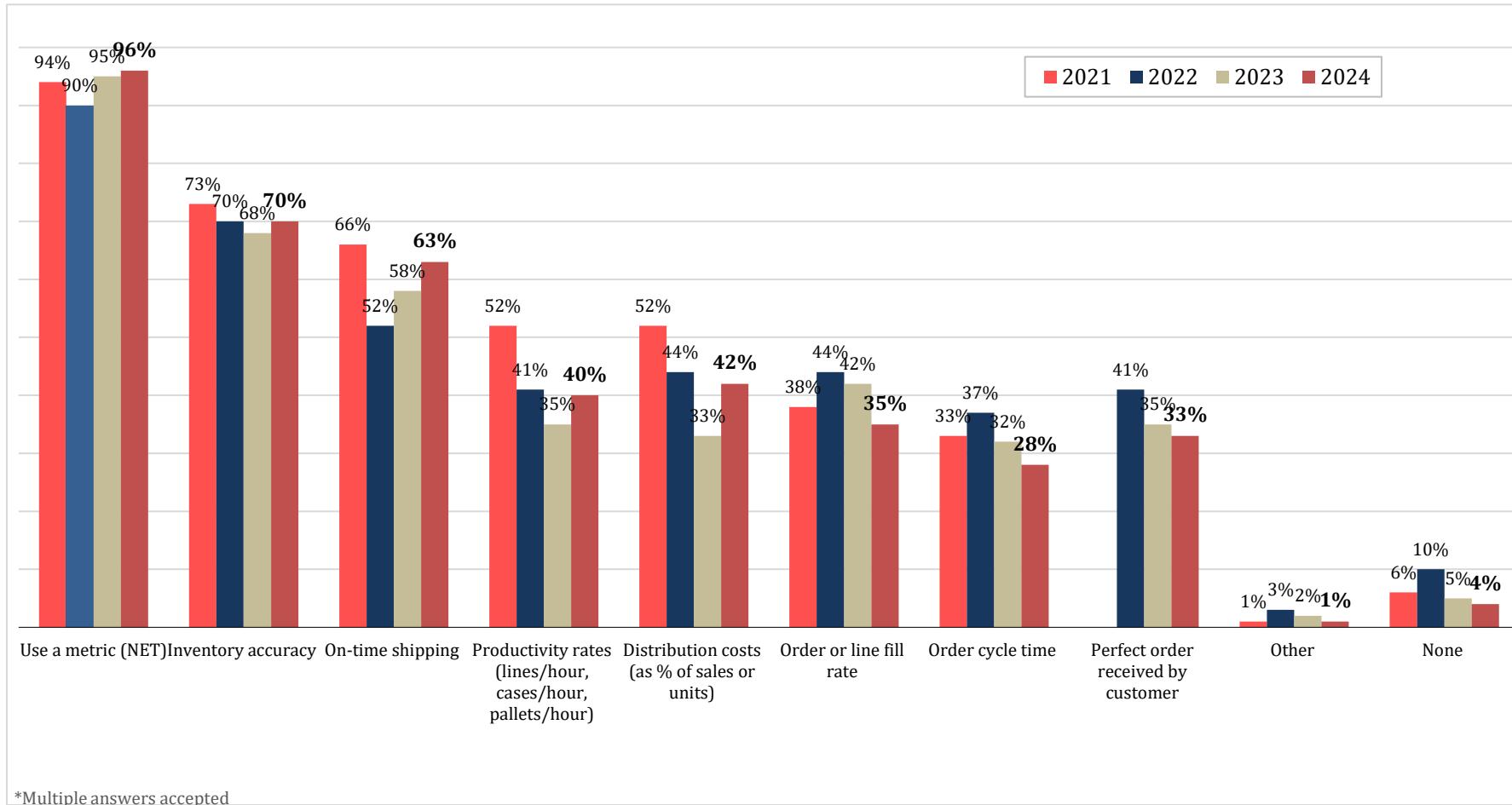
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Metrics Used to Collect/Manage Warehouse Operations



*Multiple answers accepted

What metrics does your company collect/manage within your warehouse operations?



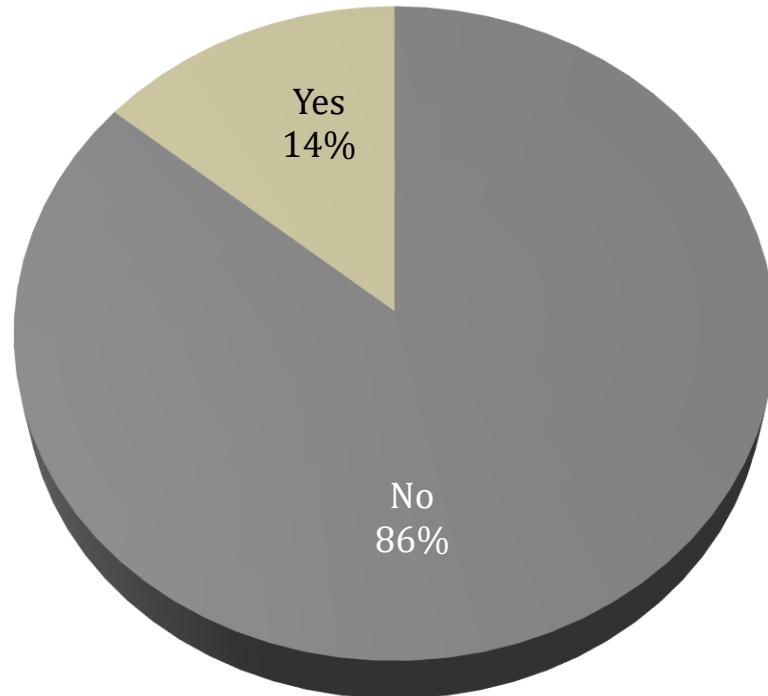
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Experienced “Catastrophic” Events in Last 2 Years



Has any part of your supply chain experienced any “catastrophic” events in the last 2 years (i.e. earthquakes, hurricanes or other extreme weather events, hackers, labor strikes, supplier failures, etc.)?



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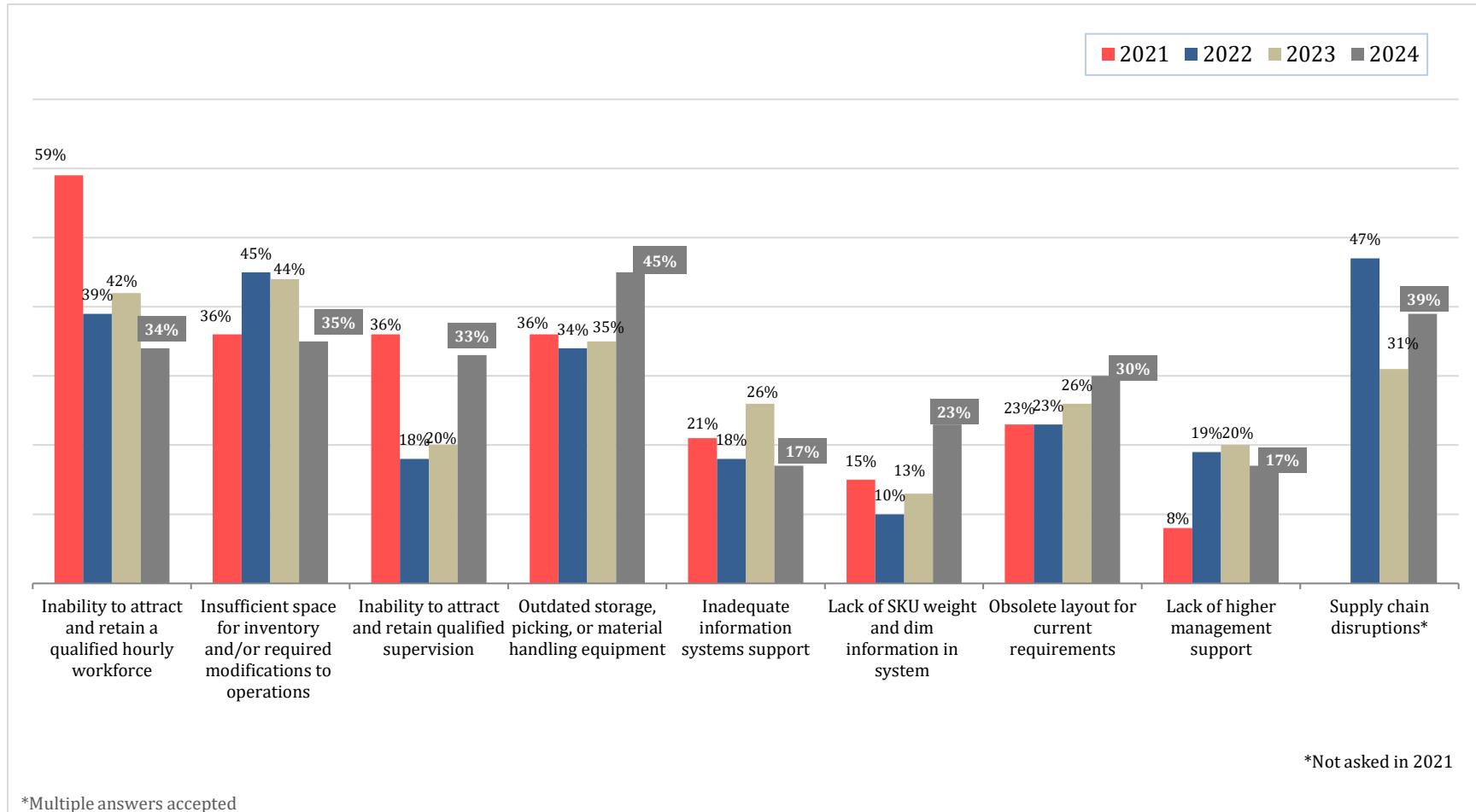
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Company Policies/Initiatives

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Major Issues as it Pertains to Warehouse/DC Operations



*Not asked in 2021

*Multiple answers accepted

Which of the following would you consider to be major issues?



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Respondent and Company Profile

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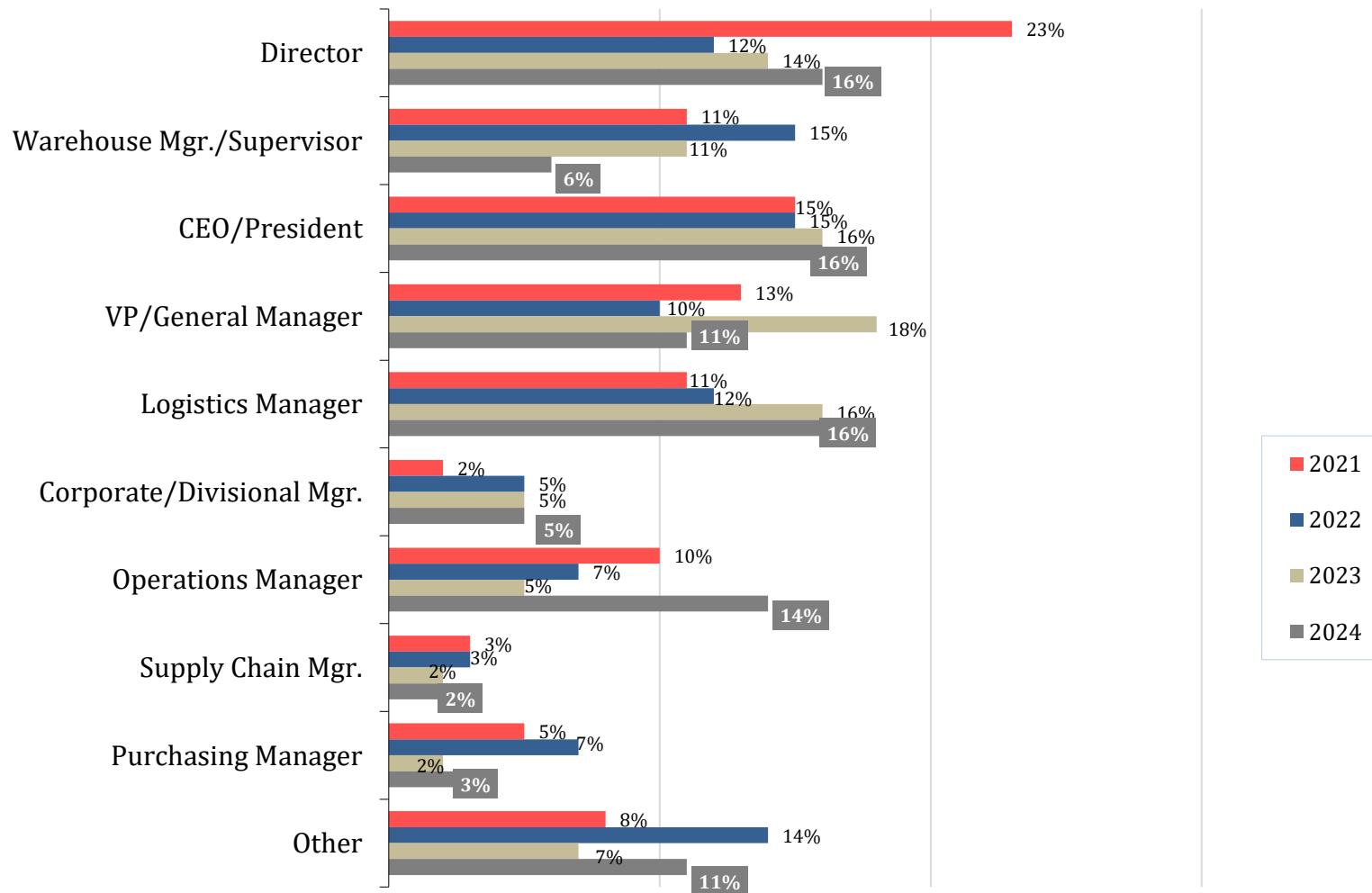
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Job Title/Function



Which of the following best describes your job title/function?



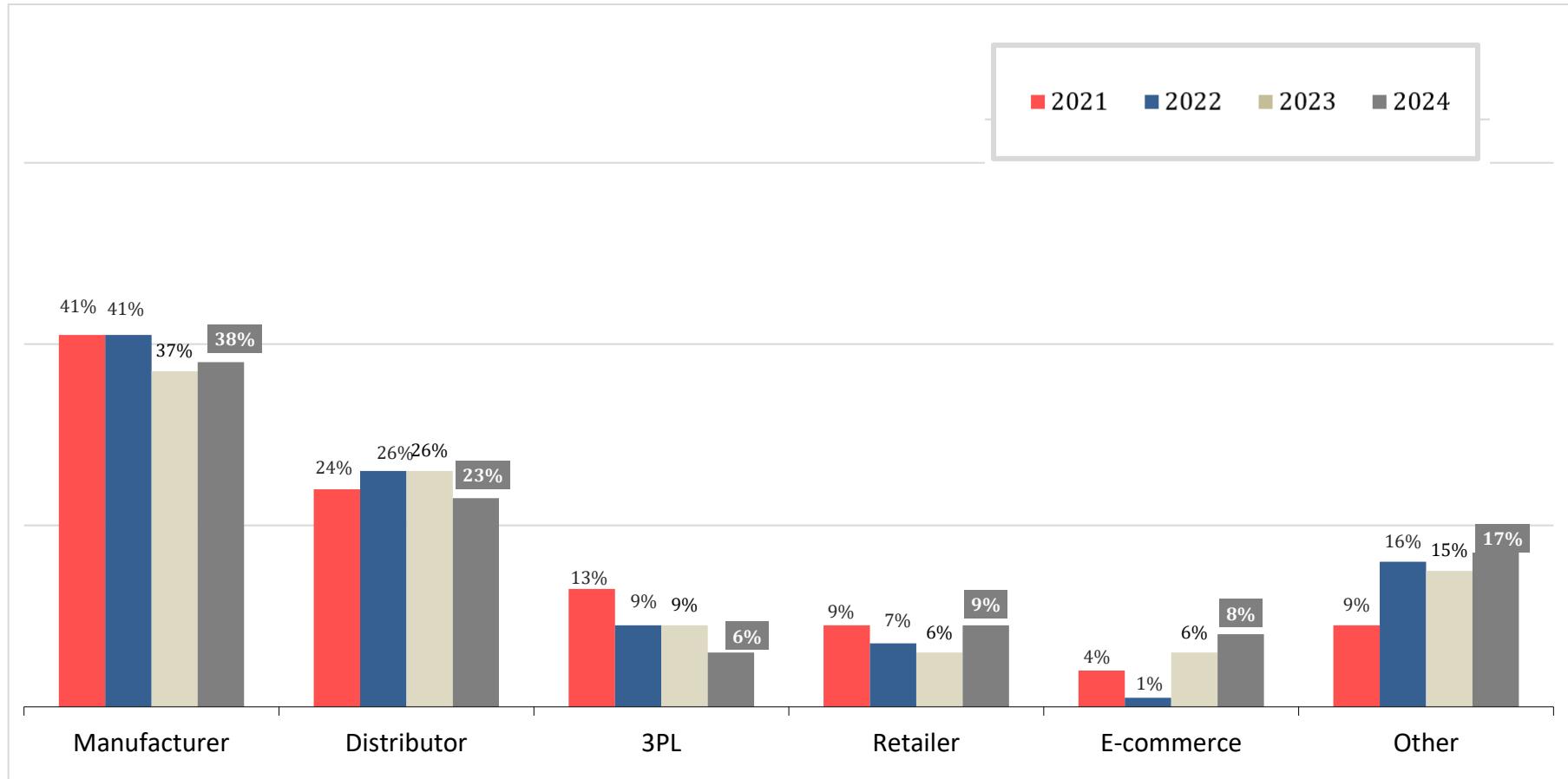
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Type of Business



Please indicate which of the following best describes your company.



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Primary Business at Location

	2021	2022	2023	2024
Food & Grocery	13%	13%	19%	14%
Building, Construction & HVAC Materials	8%	5%	3%	8%
Automotive, Aerospace and Aviation	4%	10%	5%	4%
General Merchandise	8%	5%	6%	2%
Electronics, Computers and Software	12%	5%	3%	4%
Pharmaceutical/Health Care/Medical Devices	1%	6%	6%	8%
Chemicals	4%	--	--	--
Paper, Packaging and Office Supplies	7%	1%	5%	6%
Furniture and Appliances	4%	3%	3%	2%
Cosmetics, Fragrances, Beauty	1%	1%	--	--
Fabricated metals	3%	6%	3%	8%
Electrical supplies	1%	6%	4%	7%
Agriculture	1%	1%	2%	4%
Parts and Equipment	7%	5%	3%	5%
Apparel, Shoes, Accessories	7%	3%	2%	3%
Rubber, Plastics, Ceramics, etc.	1%	--	1%	2%
Other (includes sporting goods, Industrial, energy, etc.)	18%	15%	20%	23%

What is the primary product at your location?

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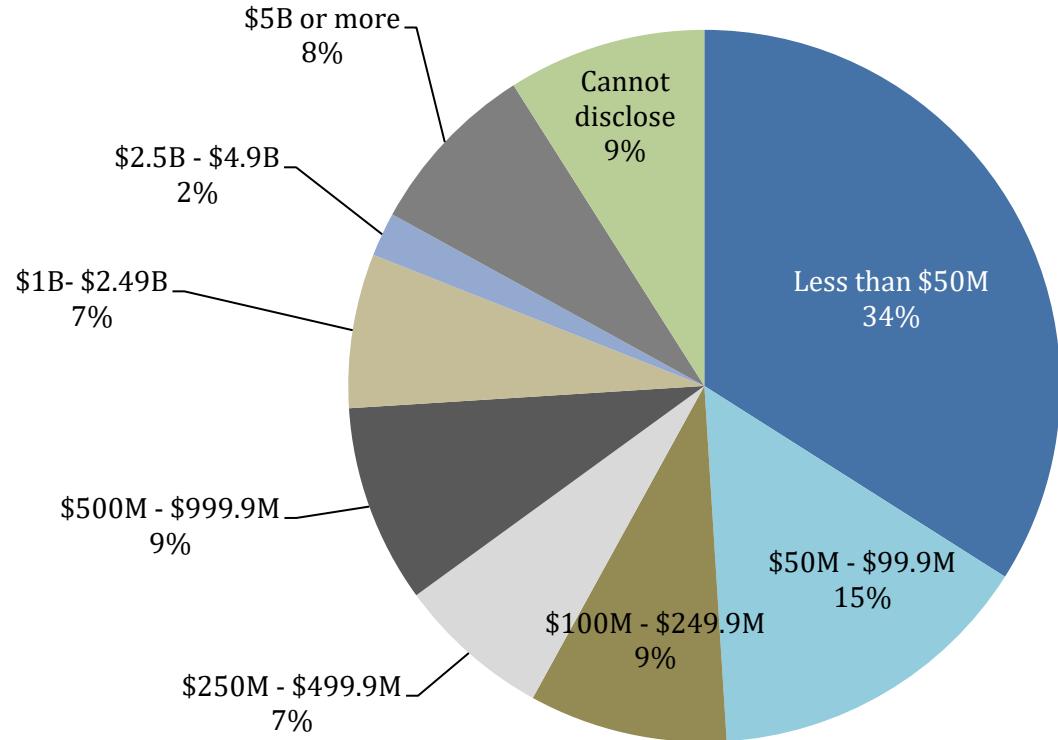
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Annual Revenues



	2021	2022	2023	2024
Average revenues	\$641M	\$301M	\$778M	\$774M
Median revenues	\$120M	\$100M	\$175M	\$100M

What do you estimate your company's overall sales or revenues will be in 2024?

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