

CONDUCTED BY:



CONDUCTED FOR:









#### **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 thirteenth 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 2017, 2016 and 2015 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.com gift certificates.
- A disposition of each study follows:

	Field dates	Usable surveys	+/- @ 95% confidence level
2015	September, 2015	217	6.8%
2016	September, 2016	187	7.2%
2017	September, 2017	302	5.8%
2018	September, 2017	138	8.8%









# Size and Scope of Distribution Center Network and Operations

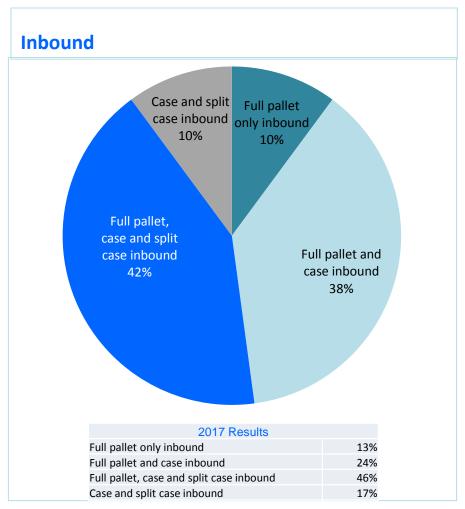




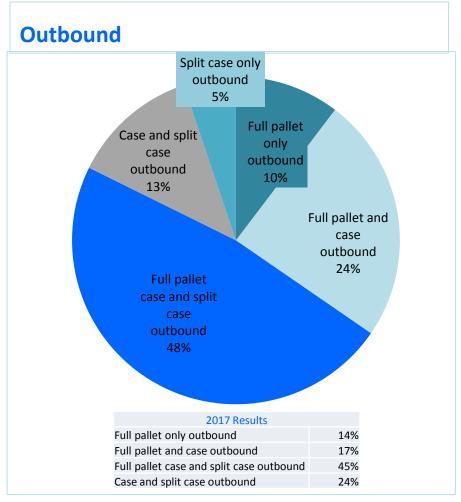




#### **Nature of DC's Inbound/Outbound Operation**







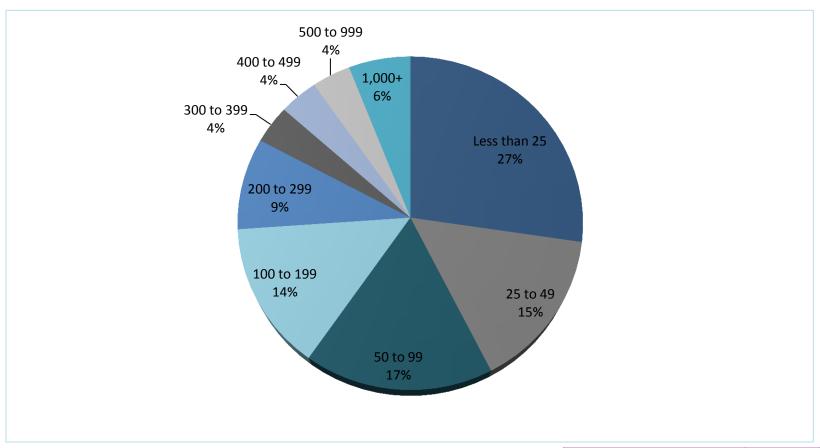
*In what unit load quantities are products shipped outbound?* 







#### **Number of Employees in Company's Main Warehouse**



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

	2018
Average # of employees	182

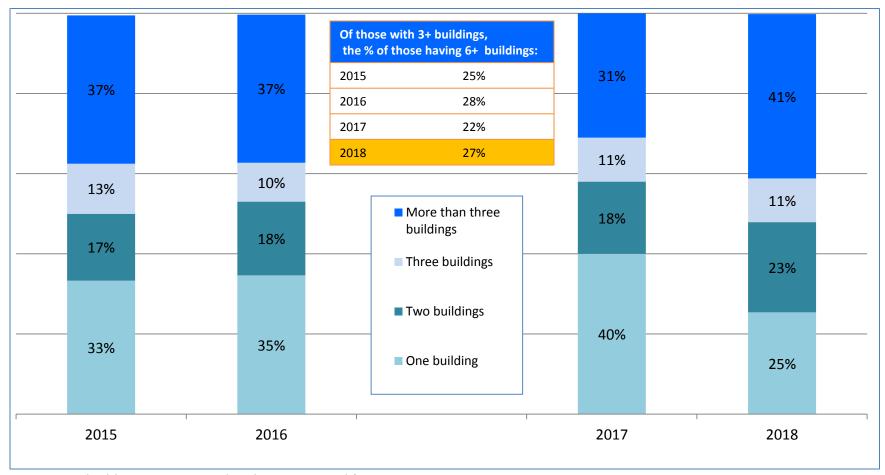








### **Size of Distribution Center Network: Number of Buildings**



How many buildings are in your distribution network?









### **Size of Distribution Center Network: <u>Total</u> Square Footage**

	2015	2016	2017	2018
Less than 25,000 sq. ft.	14%	13%	19%	6%
25,000 – 49,999 sq. ft.	8%	9%	10%	4%
Less than 50,000 sq. ft. (net)	22%	22%	29%	10%
50,000 to 99,999 sq. ft.	9%	12%	12%	6%
100,000 to 249,999 sq. ft.	19%	17%	16%	30%
250,000 to 499,999 sq. ft.	16%	16%	11%	18%
500,000 to 999,999 sq. ft.	14%	15%	13%	10%
1,000,000 to 1,999,999 sq. ft.	7%	9%	8%	9%
2,000,000+ sq. ft.	13%	10%	10%	17%
Average square footage	570,700	539,000	473,400	672,080
Median square footage	246,341	240,410	176,600	305,000



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

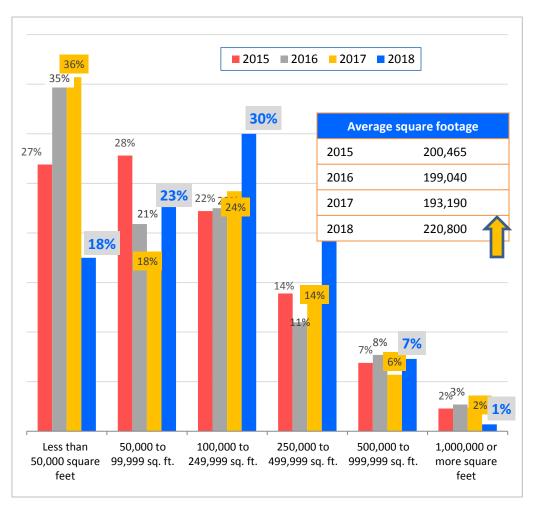








### **Size of Distribution Center Network: Most Common Square Footage**



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.	16%	2%
50,000 – 99,999 sq. ft.	9%	2%
100,000 – 249,999 sq. ft.	42%	12%
250,000 – 499,999 sq. ft.	20%	16%
500,000 – 999,999 sq. ft.	9%	12%
1,000,000 + sq. ft.	4%	56%

Average sq. footage	Network is < 3 buildings	Network is 4 buildings +
2018	267,190	736,405
2017	159,510	264,675
2016	178,090	264,445
2015	158,955	270,680





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



What is the most common clear height?



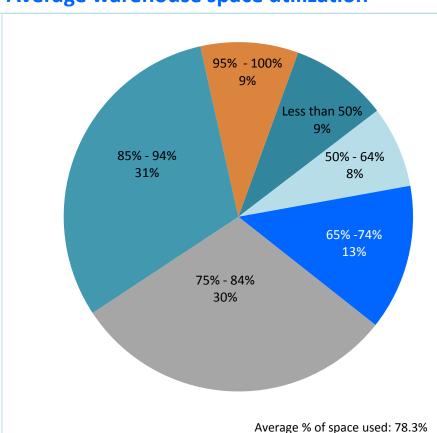






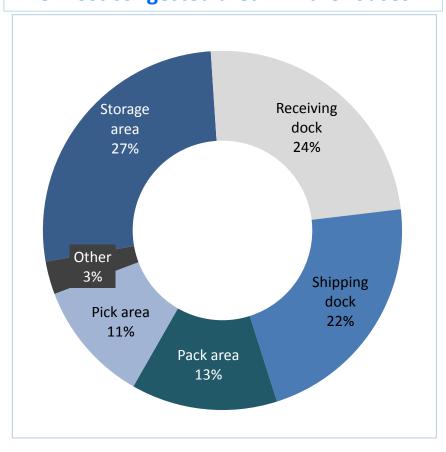
#### **Space utilization**

#### **Average warehouse space utilization**



What do you estimate your average warehouse space utilization (pallet storage capacity utilization) will be in 2018?

#### The most congested area in warehouses



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





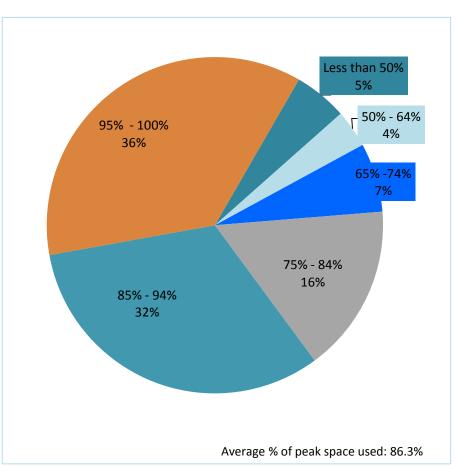


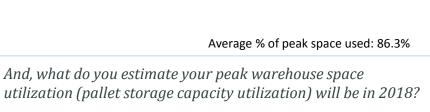
#### AN EVALUATION OF Warehouse Operations & TRENDS

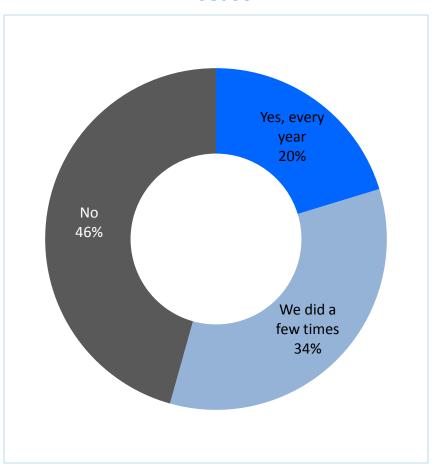


#### Peak warehouse space utilization

#### **Leasing additional space during peak** season







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

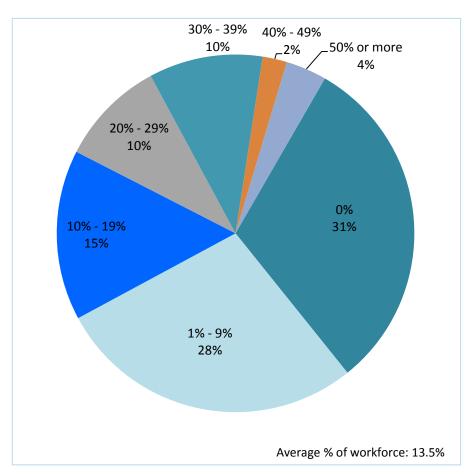








# Percent of workforce who are temporary during *average* volume periods

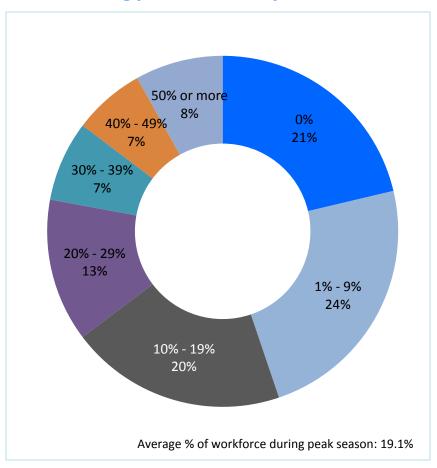


What percentage of your workforce are temporary employees during average volume periods?

### Logistics

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



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





#### **Scope of Distribution Center Operations: Annual Inventory Turns**

	2015	2016	2017	2018
Less than 1.0	6%	7%	3%	4%
1.0 to 2.9	13%	11%	16%	11%
3.0 to 4.9	21%	19%	26%	27%
5.0 to 6.9	15%	17%	14%	13%
7.0 to 8.9	7%	12%	8%	9%
9.0 to 11.9	8%	11%	8%	10%
12.0 to 17.9	15%	7%	10%	12%
18.0 to 23.9	4%	3%	4%	3%
24.0 or greater	11%	14%	10%	11%
Average	9.1	9.2	8.5	8.9

Approximately how many inventory turns do you have annually?









#### **Scope of Distribution Center Operations: Number of SKUs**

	2015	2016	2017	2018
Less than 100	12%	11%	19%	8%
100 to 499	16%	12%	11%	15%
500 to 999	10%	13%	11%	9%
1,000 to 2,499	11%	13%	13%	13%
2,500 to 4,999	9%	13%	11%	9%
5,000 to 9,999	12%	9%	9%	12%
10,000 to 19,999	11%	11%	9%	16%
20,000 to 49,999	9%	9%	7%	8%
50,000 – 74,999	3%	4%	4%	3%
75,000 or more	8%	7%	8%	7%
Average	14,036	13,774	13,130	13,985

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Roughly what percentage of your SKUs are conveyable and/or could be handled robotically?```

36%

29%

43%

Approximately how many SKUs do you carry?

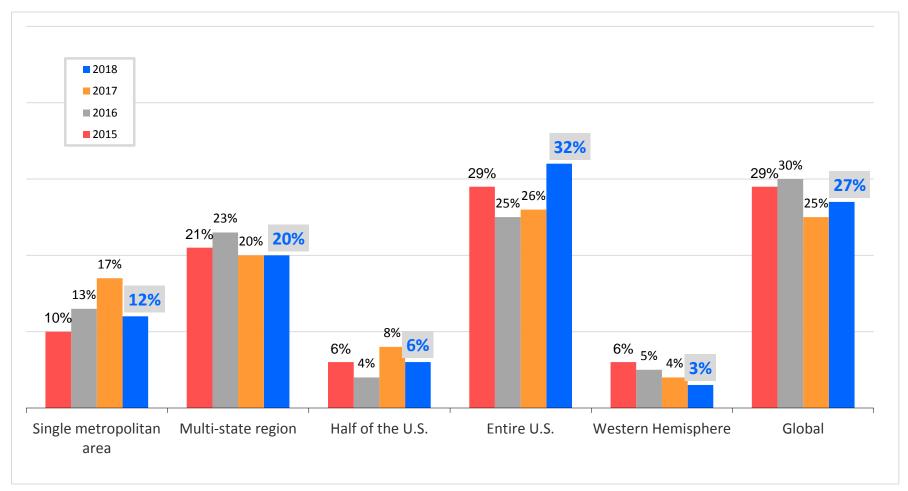








#### **Scope of Distribution Center Operations: Areas of Service**



What is the geographic scope of your distribution center operations?



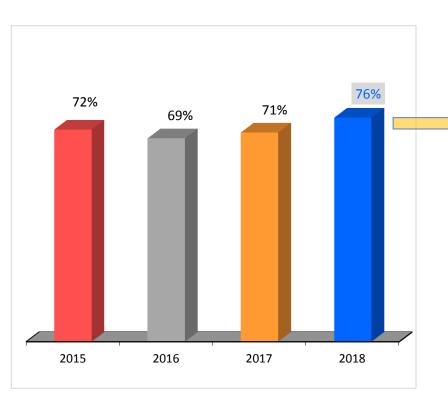






#### **Distribution Center Expansion Plans**

#### Planning to expand over next 12 months:



#### **Areas for expansion:**

	2015	2016	2017	2018
Number of employees	34%	33%	36%	33%
Number of SKUs	38%	28%	29%	33%
Annual inventory turns	22%	19%	23%	17%
Overall square footage	30%	27%	23%	29%
Area of service	26%	23%	22%	21%
Number of buildings	18%	13%	17%	23%
Height of buildings	5%	3%	5%	5%
Other	5%	2%	3%	3%

Based on those planning expansion

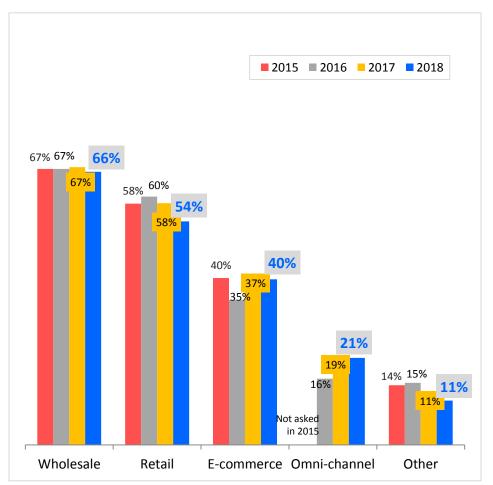
Within the next 12 months, in which area(s) are you considering or planning to expand your distribution center operations?



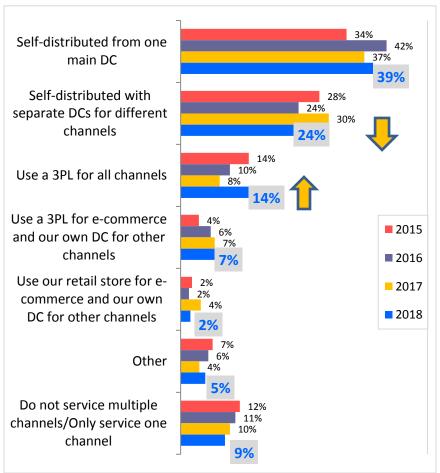




#### Market channels serviced by company



#### How multiple channels are being fulfilled



What market channels does your company service?





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





### **Systems and Technologies in Use**

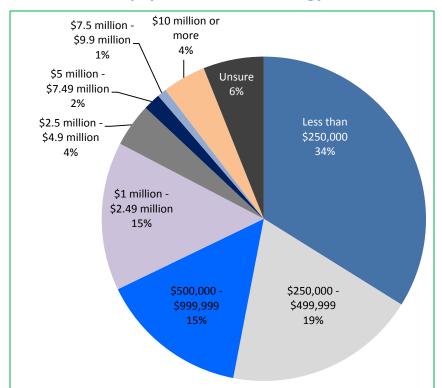








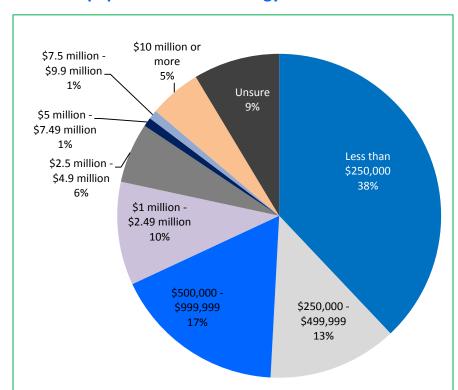
### 2018 capital expenditures for warehousing equipment and technology



	Current CAPEX						
	2015	2016	2017	2018			
Average CAPEX	\$1.213M	\$1.370M	\$1.431M	\$1.213M			
Median CAPEX	\$266,130	\$242,950	\$250,000	\$420,455			

What are your approximate capital expenditures for warehousing equipment and technology in 2018?

### Estimated capital expenditures for warehousing equipment and technology in 2019



	Projected CAPEX for next year							
	2016	2017	2018	2019				
Average CAPEX	\$1.354M	\$1.395M	\$1.517M	\$1.267M				
Median CAPEX	\$314,815	\$358,696	\$303,190	\$450,000				

And, what do you estimate your capital expenditures for warehousing equipment and technology will be in 2019?





#### **Warehouse Management Systems in use**

	2015	2016	2017	2018
Using a Warehouse Management System (NET)	85%	83%	87%	93%
Legacy WMS (basic WMS, homegrown & developed in-house)	35%	35%	42%	43%
ERP with a WMS module	34%	39%	36%	33%
Best-of-breed WMS	16%	11%	13%	19%
Labor management systems (LMS)	10%	10%	12%	15%
Product slotting functionality	6%	8%	9%	10%
On-demand/Cloud/SaaS	3%	3%	5%	9%
WCS/WES-based system	NA	NA	NA	6%
None or minimal	15%	17%	13%	7%

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









### **Materials Handling Systems in Use**

	2015	2016	2017	2018
RECEIVING				
Manual receiving	86%	84%	84%	87%
Mechanized (conveyor based) receiving	14%	8%	14%	16%
PICKING				
Manual picking	74%	69%	70%	76%
Mechanized (conveyor-based) picking	12%	10%	13%	14%
Automated picking	7%	3%	10%	8%
REPLENISHMENT				
Manual replenishment	62%	65%	62%	74%
Automated replenishment	7%	7%	8%	5%
Mechanized (conveyor-based) replenishment	8%	11%	8%	8%
MANUAL STORAGE	74%	75%	75%	80%
PALLETIZERS	NA	NA	NA	19%
AUTOMATED STORAGE & RETRIEVAL	7%	9%	10%	12%
ROBOTIC/ARTICULATING ARMS	NA	NA	NA	3%
AUTOMATIC GUIDED VEHICLES/ AUTONOMOUS VEHICLES	4%	3%	6%	4%

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









### **Picking Technologies in Use**

	2015	2016	2017	2018
RF assisted w/Scan verification	50%	49%	48%	57%
Paper-based	61%	59%	62%	48%
Voice assisted with scan verification	7%	8%	7%	12%
Light assisted w/Scan verification	8%	12%	10%	11%
Voice assisted with no scanning	5%	3%	7%	10%
Parts to person technology	5%	10%	12%	7%
Automated unit sorter	4%	4%	6%	6%
Light assisted with no scanning	4%	1%	4%	6%
RF assisted with no scanning	4%	4%	7%	5%
Robotic or other automated technology	2%	3%	5%	5%
Other	2%	1%	1%	2%

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









### **Order Filling Techniques in Use**

	2015	2016	2017	2018	
Single order picking	75%	71%	79%	64%	1
Batch picking	44%	42%	43%	46%	·
Zone picking	34%	33%	27%	34%	1
Cross docking	33%	35%	30%	29%	
Wave picking	NA	NA	NA	29%	
"Put" to order	17%	15%	20%	21%	
Put-wall system		3%	4%	9%	1
Other	2%	1%	1%	1%	

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

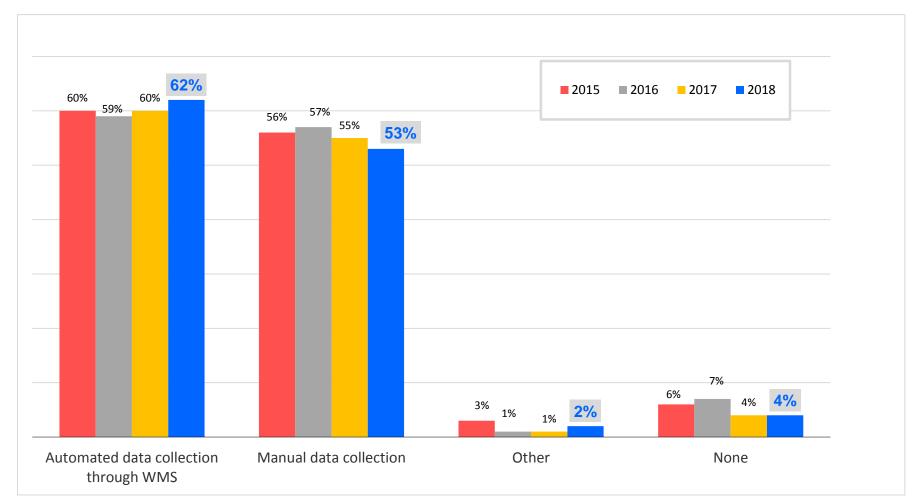








#### **Data Collection Methods Used to Gauge Productivity**



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

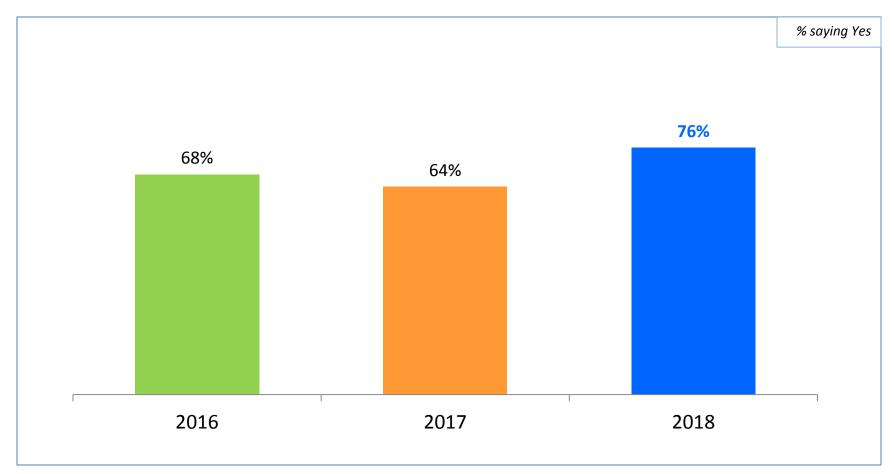








### Do you have SKU weight and dims in your Item Master?



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

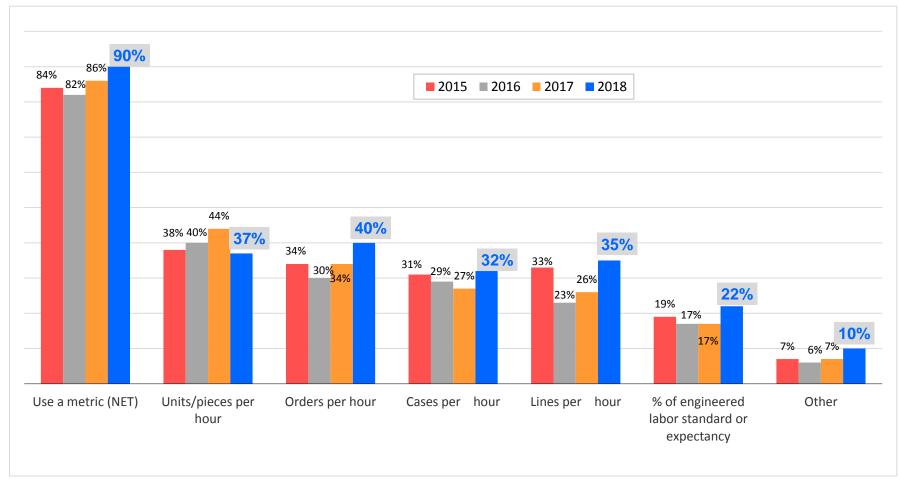








#### **Productivity Metrics in Use**



And, which metrics do you use to gauge productivity?

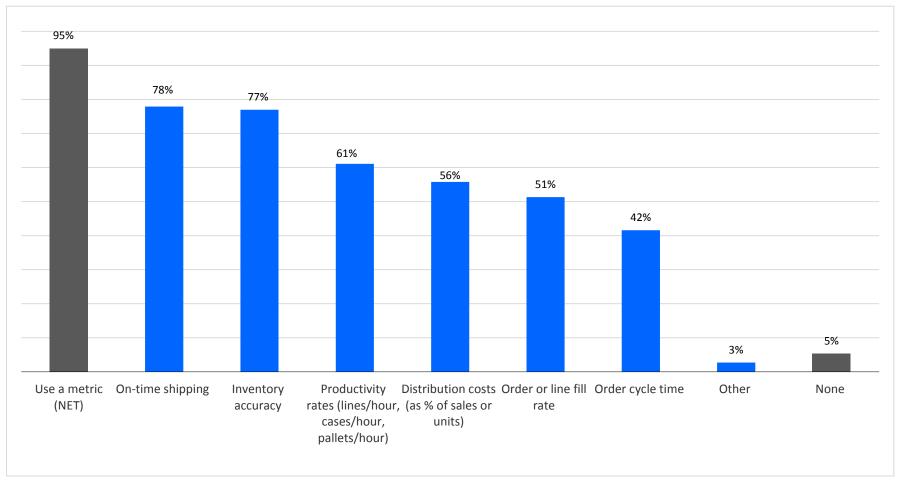








#### **Metrics Use to Collect/Manage Warehouse Operations**



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

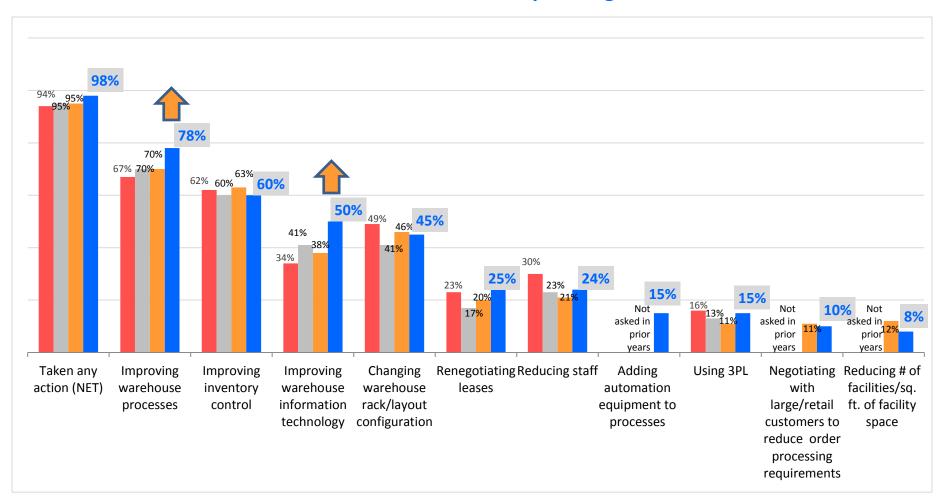








#### **Actions Taken to Lower DC Operating Costs**



During the past 12 months of this challenging economy, what actions have you been taking to lower operating costs within your distribution facilities?









### **Company Policies/Initiatives**









#### **Value-added Services Offered to Customers**

	2015	2016	2017	2018	
NET any value-added service	87%	89%	90%	87%	
Special labeling	54%	54%	54%	48%	1
Special packaging	NA	NA	NA	37%	
Lot number control	40%	37%	34%	33%	
Kitting for production	28%	26%	29%	28%	
Display building and packaging	19%	15%	17%	25%	1
Grouping/sorting of products prior to shipment	24%	17%	23%	23%	
Serial number control	30%	33%	30%	22%	1
Promotional packs	28%	28%	25%	21%	Ť
Product assembly	24%	27%	31%	20%	1
Price marking	13%	19%	18%	15%	
RF tagging	11%	13%	13%	15%	
Deferred customization	15%	11%	15%	9%	
Sequencing for production	10%	11%	13%	5%	
Other	3%	3%	3%	3%	

What additional or value-added services do you offer customers?

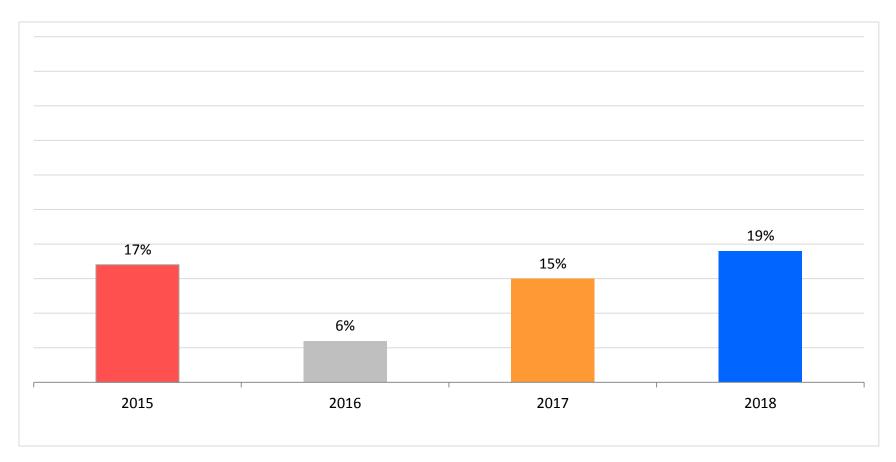








#### **Organizations That Have Experienced a Catastrophic Event**



Has any part of your supply chain experienced any "catastrophic" events in the last 2 years (i.e. earthquakes, hurricanes, other extreme weather, hackers, labor strikes, etc.









#### **Changes in DC Operations over the Last Three Years**

- Implementing/Improving technology (ERP, WMS, etc.)
- Increased volume
- Growth; adding more space; changes to warehouse configuration
- Implementing automated systems (racking systems, scanning, voice picking, etc.)
- Improving operational efficiencies; process improvements; usage of warehouse efficiency metrics
- Change in management
- Replacing personnel
- Customer issues (improving service; adjusting to customer order patterns
- Warehouse consolidation; combining facilities
- Increased number of SKUs

What would you say has been the most significant change in your distribution center operations over the last three years?

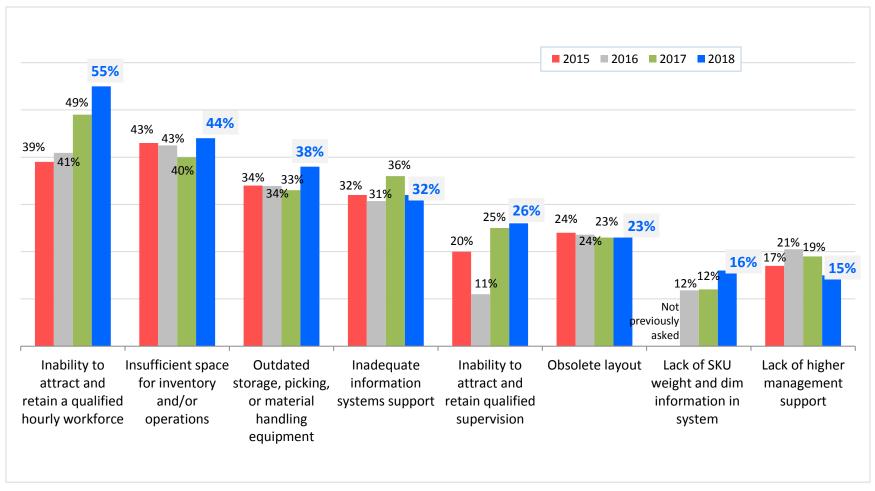








#### Major Issues as it Pertains to Warehouse/DC Operations



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









### **Respondent and Company Profile**

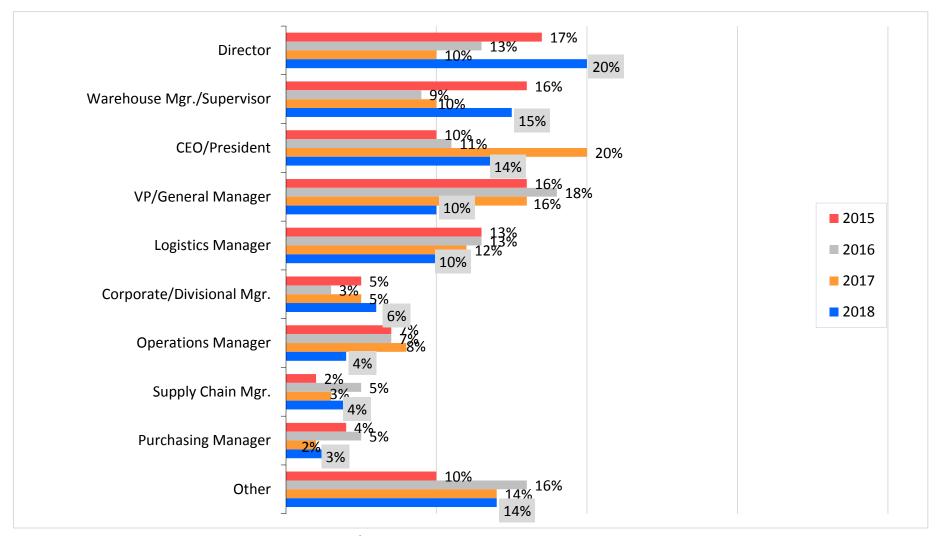








#### **Job Title/Function**



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

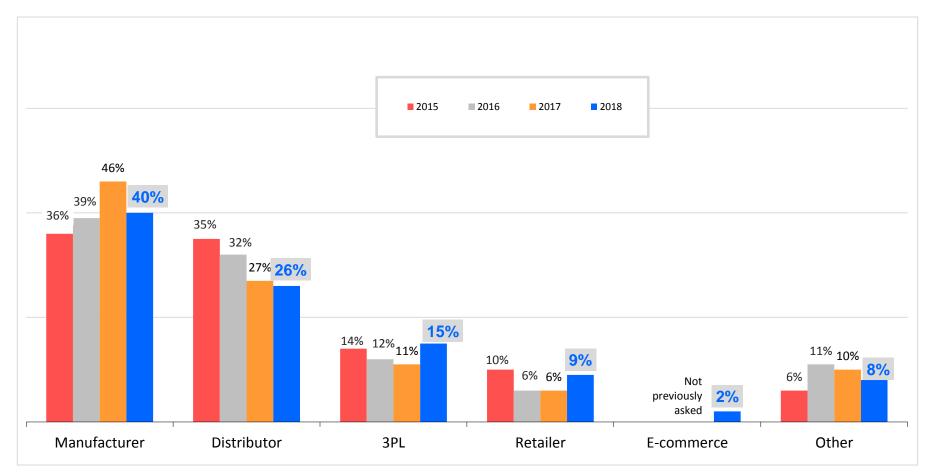








#### **Type of Business**



Please indicate which of the following best describes your company.









### **Primary Business at Location**

	2015	2016	2017	2018
Food & Grocery	16%	12%	13%	19%
Paper, Packaging and Office Supplies	5%	6%	5%	7%
Apparel, Shoes, Accessories	5%	6%	4%	7%
Building, Construction & HVAC Materials	7%	5%	5%	7%
Automotives, Aerospace and Aviation	6%	9%	7%	6%
General Merchandise	6%	6%	7%	6%
Pharmaceutical/Health Care/Medical Devices	6%	4%	3%	6%
Furniture and Appliances	1%	4%	3%	5%
Fabricated metals	4%	6%	6%	4%
Electronics, Computers and Software	7%	4%	7%	4%
Parts and Equipment	1%	3%	3%	4%
Chemicals	4%	4%	3%	3%
Industrial equipment	3%	4%	5%	3%
Cosmetics, Fragrances, Beauty	1%	1%	2%	3%
Rubber, Plastics, Ceramics, etc.	3%	1%	2%	2%
Other (includes sporting goods, agriculture, energy, etc.)	25%	25%	25%	14%

What is the primary product at your location?

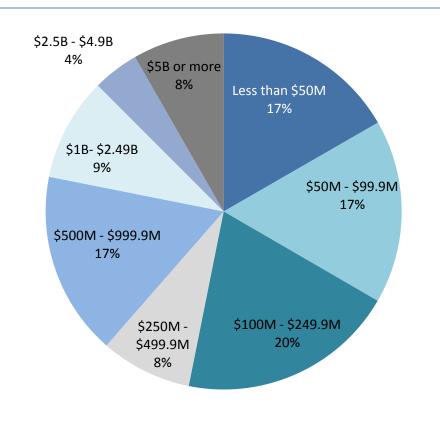








#### **Annual Revenues**



	2015	2016	2017	2018
Average revenues	\$886.2M	\$726.1M	\$771.9M	\$1.251B
Median revenues	\$187.5M	\$100.0M	\$93M	\$226M

