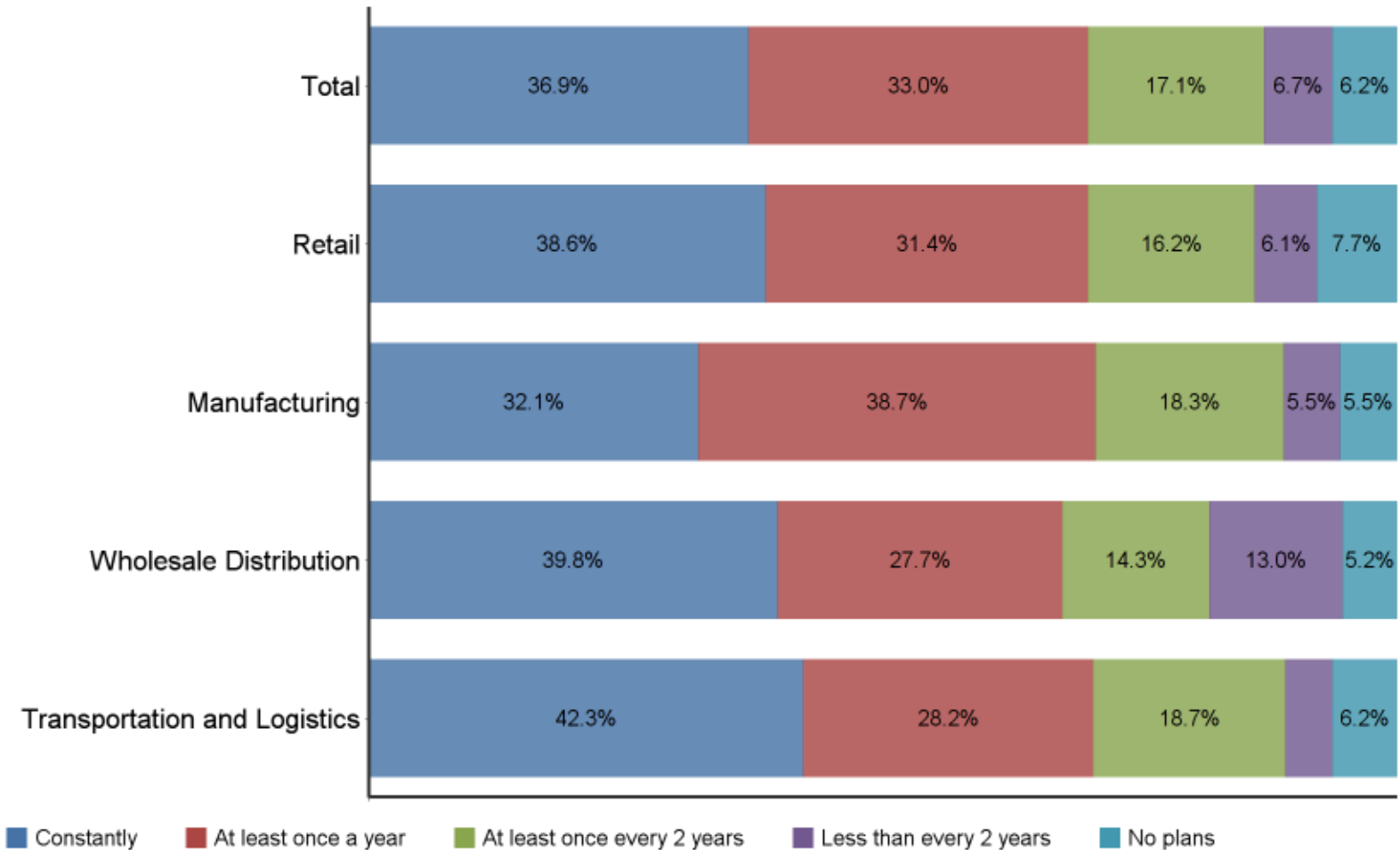**skywire**

ZEBRA

WAREHOUSE VISION 2020 GLOBAL SURVEY RESULTS
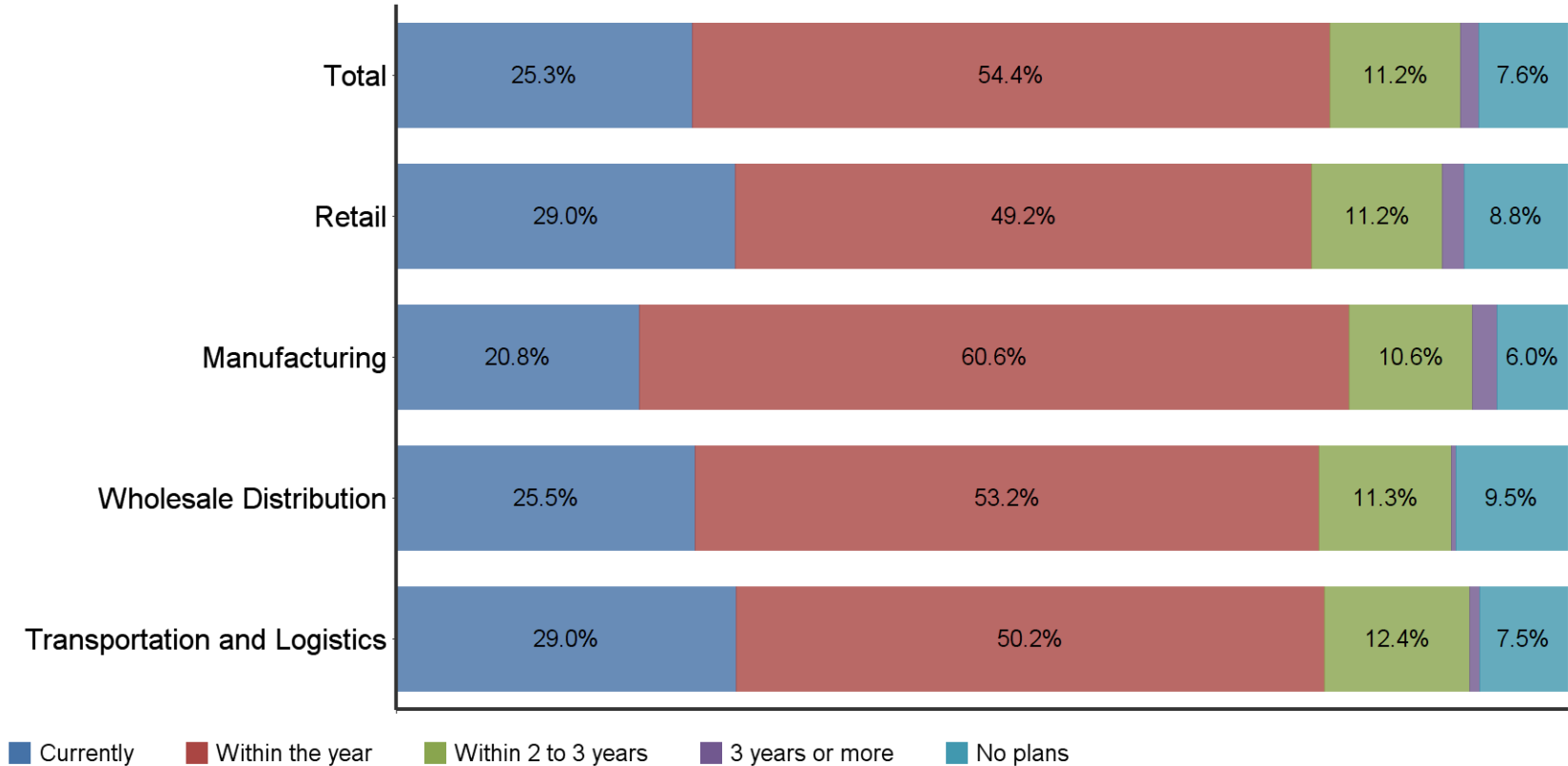
ZEBRA

SUPPLY CHAIN NETWORK EVALUATED OFTEN

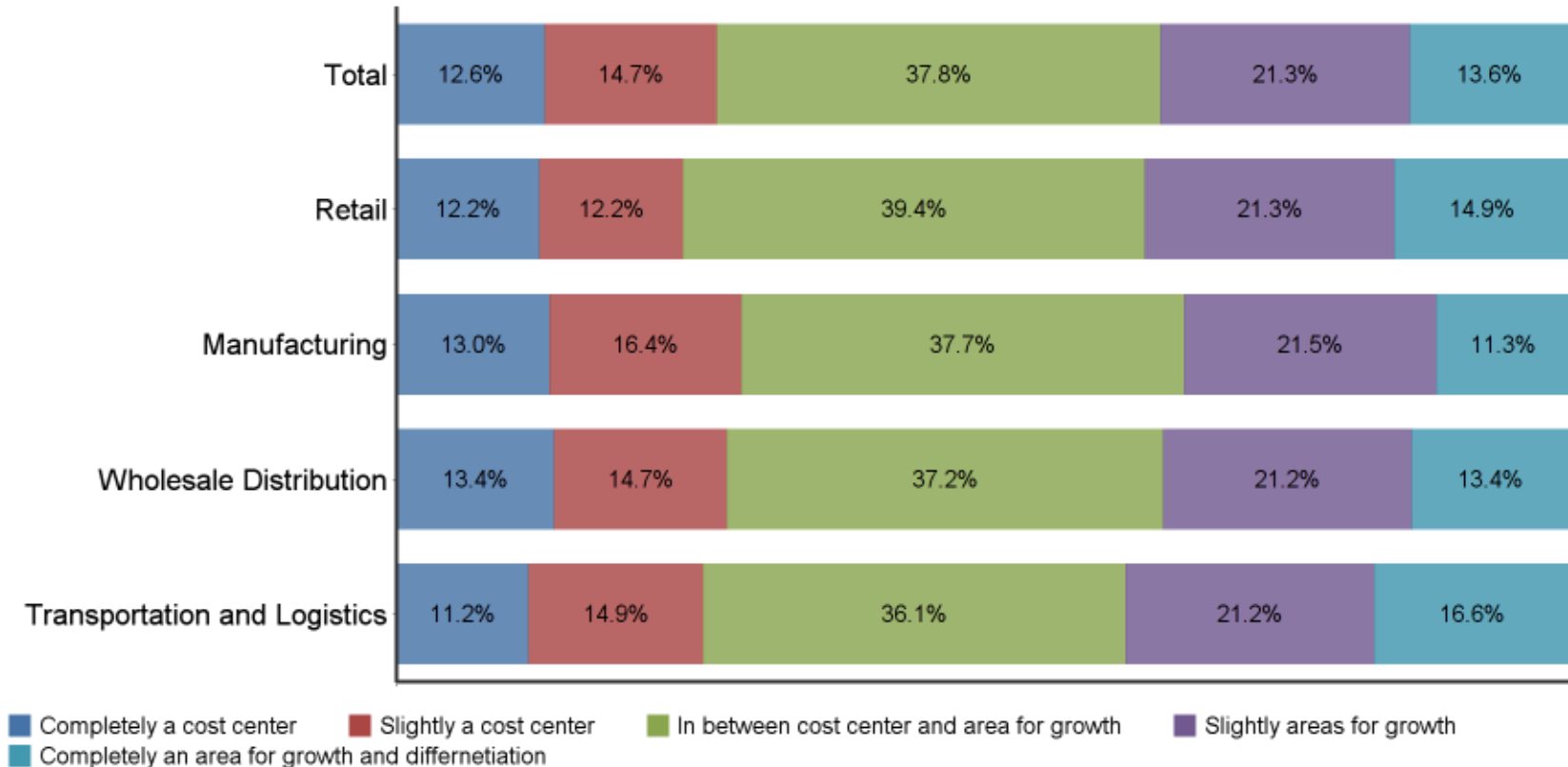**Q12 How often does your company re-evaluate your supply chain network?**

	Constantly	At least once a year	At least once every 2 years	Less than every 2 years	No plans
Total	36.9%	33.0%	17.1%	6.7%	6.2%
Retail	38.6%	31.4%	16.2%	6.1%	7.7%
Manufacturing	32.1%	38.7%	18.3%	5.5%	5.5%
Wholesale Distribution	39.8%	27.7%	14.3%	13.0%	5.2%
Transportation and Logistics	42.3%	28.2%	18.7%		6.2%

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SUPPLY CHAIN NETWORK BEING EVALUATED

Q13 When will your company NEXT re-evaluate its supply chain network?

|	Currently	Within the year	Within 2 to 3 years	3 years or more	No plans
Total	25.3%	54.4%	11.2%		7.6%
Retail	29.0%	49.2%	11.2%		8.8%
Manufacturing	20.8%	60.6%	10.6%		6.0%
Wholesale Distribution	25.5%	53.2%	11.3%		9.5%
Transportation and Logistics	29.0%	50.2%	12.4%		7.5%

PLANS TO INCREASE NUMBER AND LOCATION OF WAREHOUSES

Q15 What are your plans for warehouse and DCs this year? And in 2020?
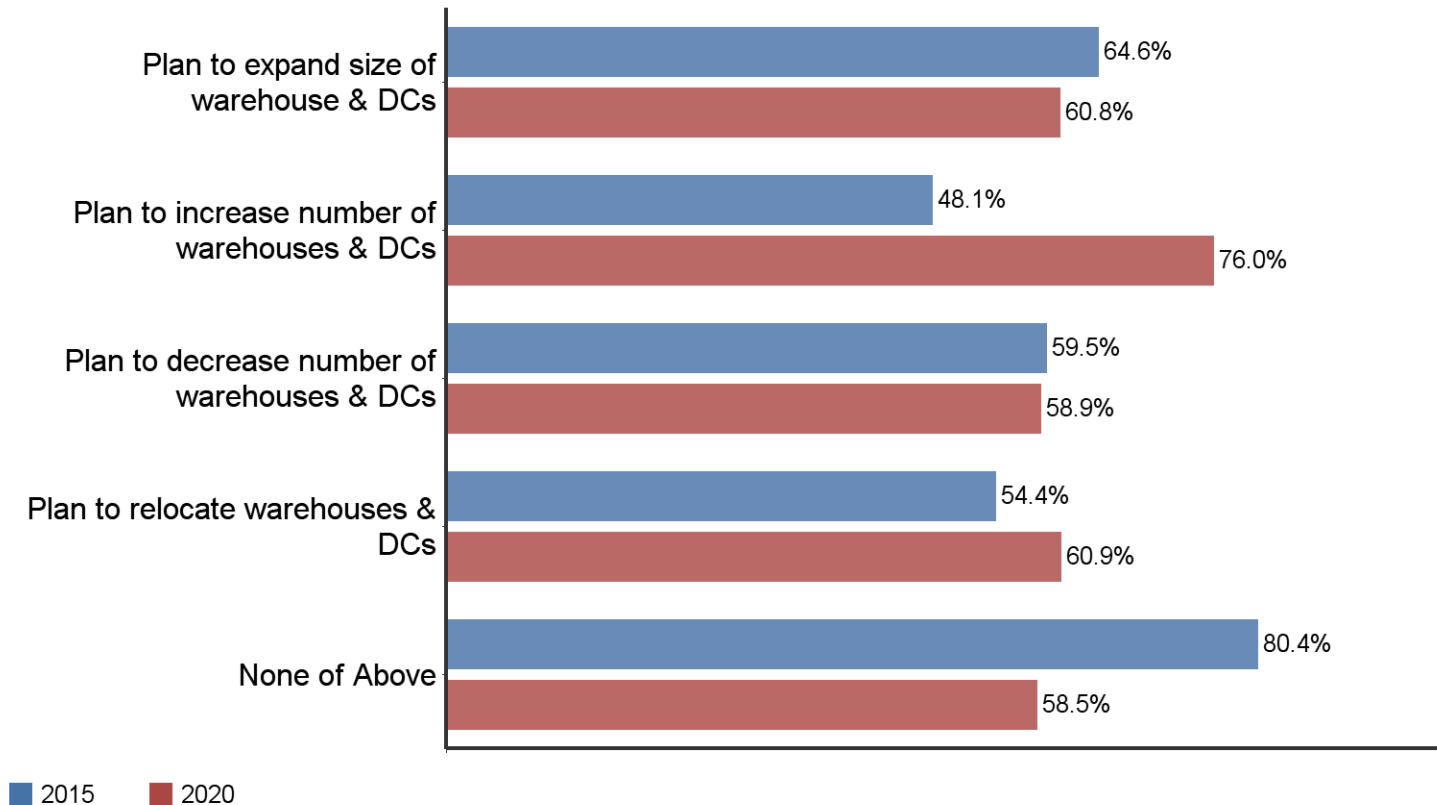
DRIVERS FOR CHANGE IN WAREHOUSE USAGE

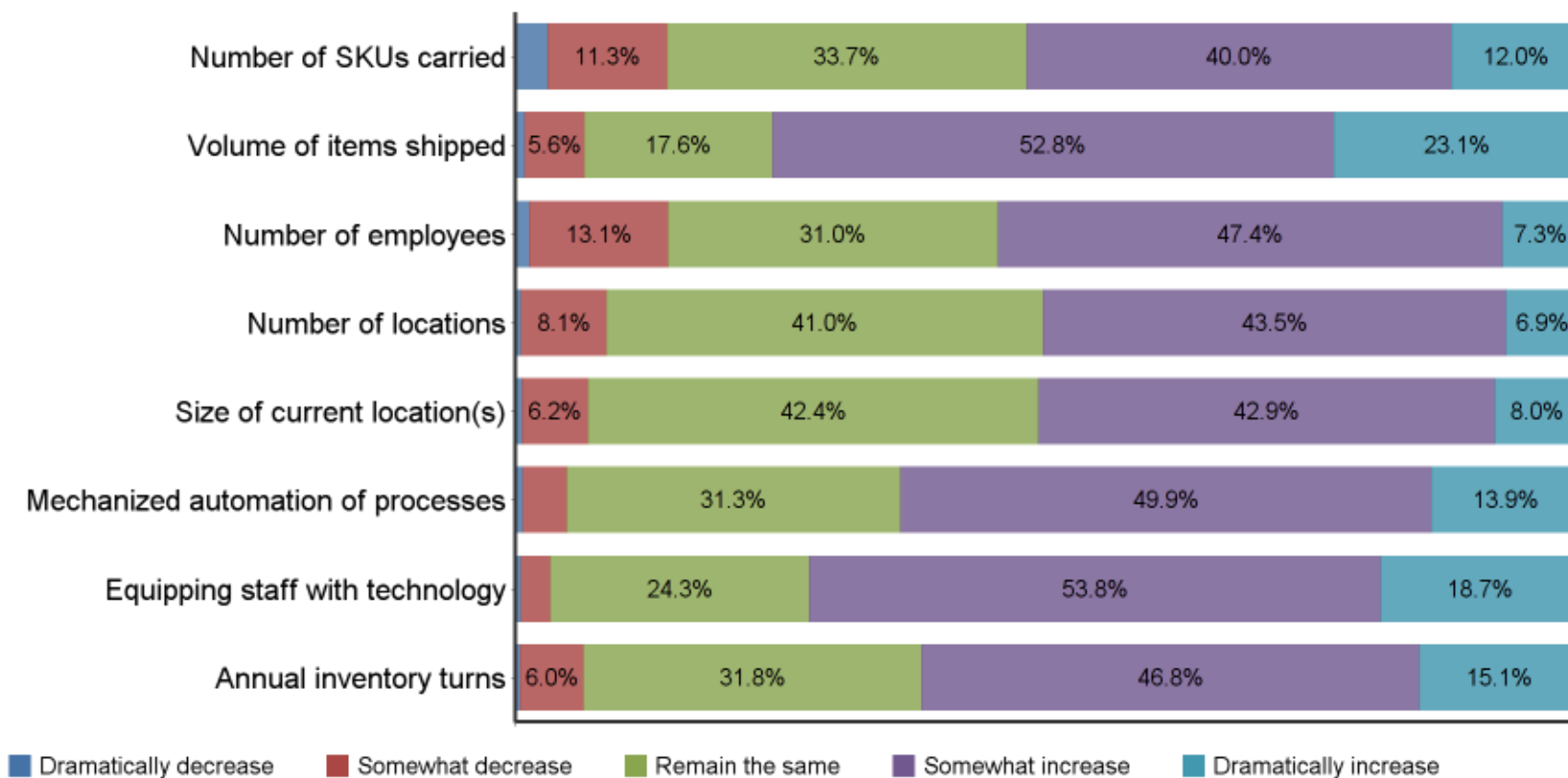Q16 Which of the following are driving these changes in your warehouse and DCs usage?
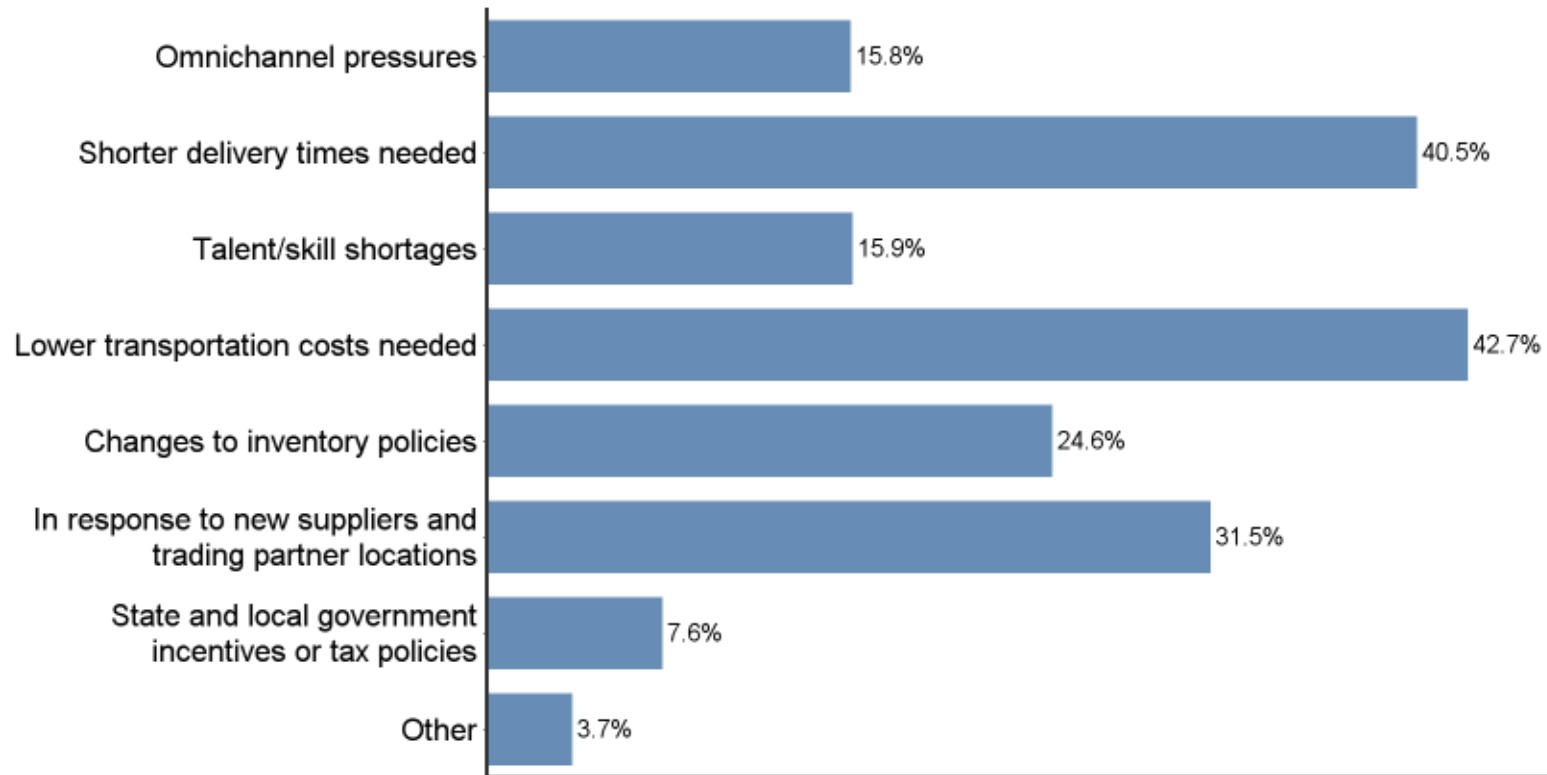
EASE IN CHANGING SUPPLY CHAIN PROCESS

Q17 How easy is it to introduce changes into your organization's supply chain process (introducing new user interface, changing execution of tasks, pick paths)? How easy do you think it will be in five years?

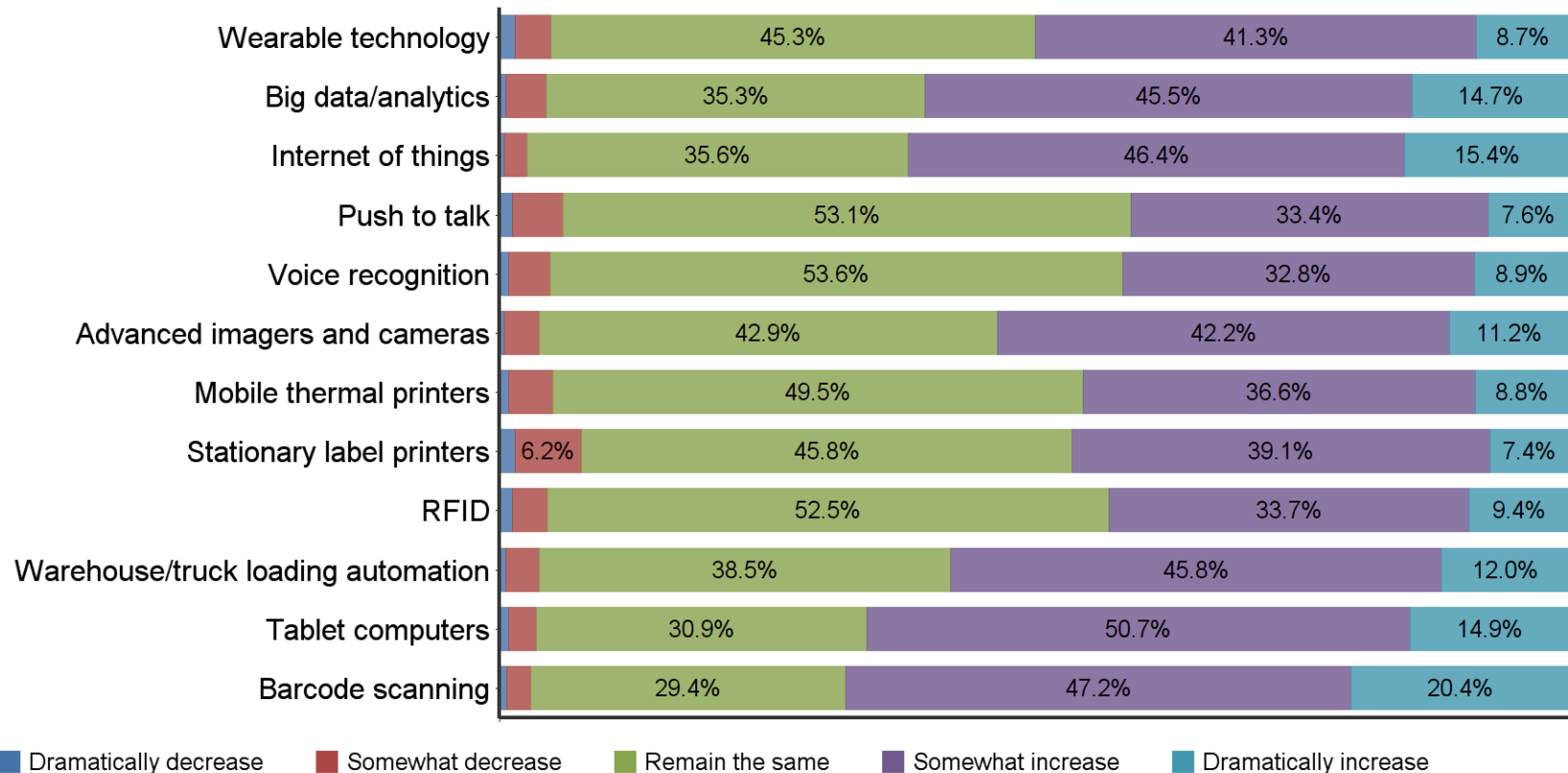Make changes to current process: 4.5% | 19.4% | 38.5% | 32.2% | 5.3%

5 years from now make changes: 6.0% | 27.3% | 40.6% | 22.1%

■ Extremely easy   ■ Somewhat easy   ■ Neither easy or difficult   ■ Somewhat difficult   ■ Extremely difficult

EXPANSION PLANS

Q18 For the next five years, what will be your company's expansion plans for:

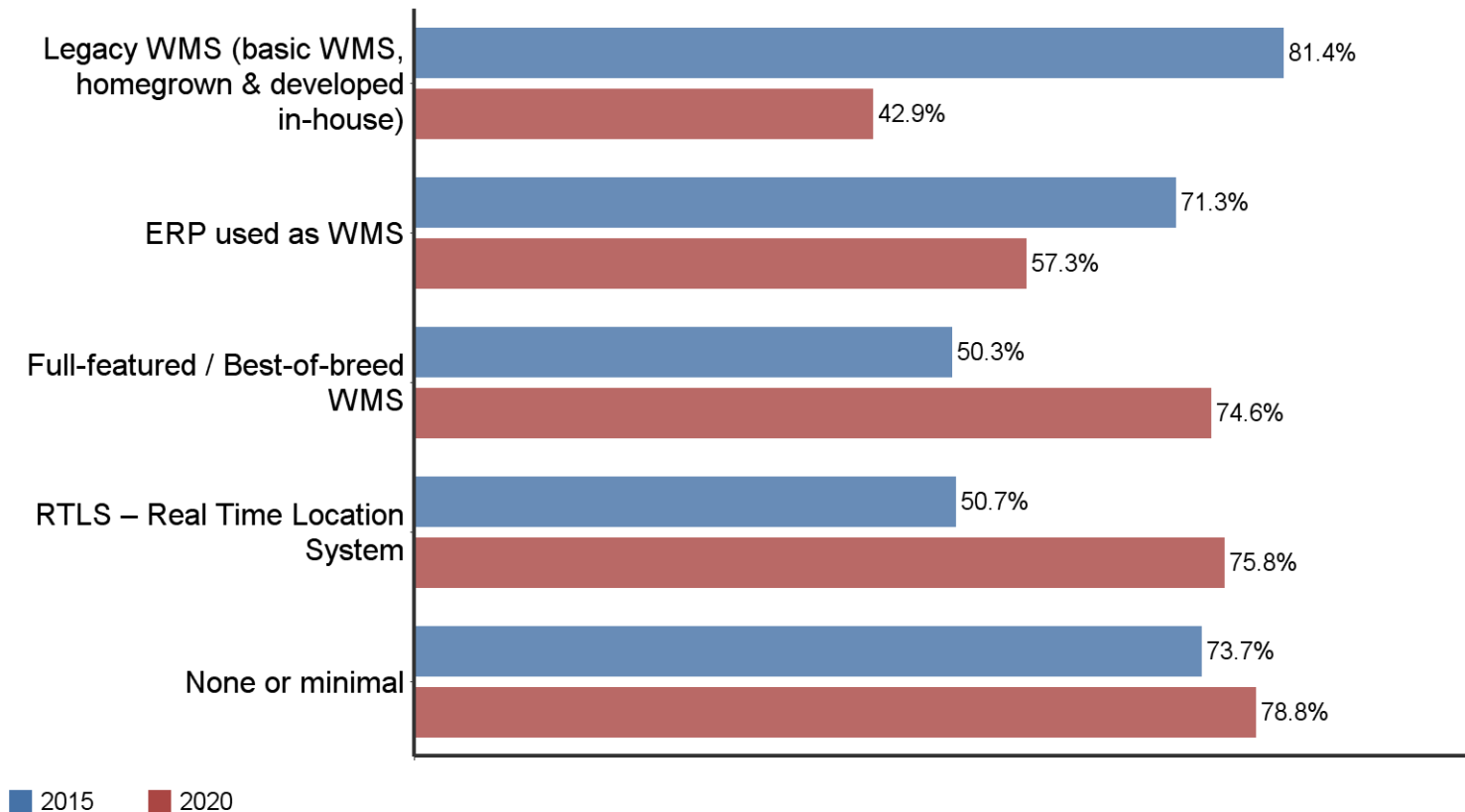|	Dramatically decrease	Somewhat decrease	Remain the same	Somewhat increase	Dramatically increase
Number of SKUs carried		11.3%	33.7%	40.0%	12.0%
Volume of items shipped		5.6%	17.6%	52.8%	23.1%
Number of employees		13.1%	31.0%	47.4%	7.3%
Number of locations		8.1%	41.0%	43.5%	6.9%
Size of current location(s)		6.2%	42.4%	42.9%	8.0%
Mechanized automation of processes			31.3%	49.9%	13.9%
Equipping staff with technology			24.3%	53.8%	18.7%
Annual inventory turns		6.0%	31.8%	46.8%	15.1%

TECHNOLOGY EXPANSION PLANS

Q19 For the next five years, what will be your company's expansion/usage plans for:

Technology	Remain the same	Somewhat increase	Dramatically increase
Wearable technology	45.3%	41.3%	8.7%
Big data/analytics	35.3%	45.5%	14.7%
Internet of things	35.6%	46.4%	15.4%
Push to talk	53.1%	33.4%	7.6%
Voice recognition	53.6%	32.8%	8.9%
Advanced imagers and cameras	42.9%	42.2%	11.2%
Mobile thermal printers	49.5%	36.6%	8.8%
Stationary label printers	6.2% / 45.8%	39.1%	7.4%
RFID	52.5%	33.7%	9.4%
Warehouse/truck loading automation	38.5%	45.8%	12.0%
Tablet computers	30.9%	50.7%	14.9%
Barcode scanning	29.4%	47.2%	20.4%

Legend: ■ Dramatically decrease ■ Somewhat decrease ■ Remain the same ■ Somewhat increase ■ Dramatically increase
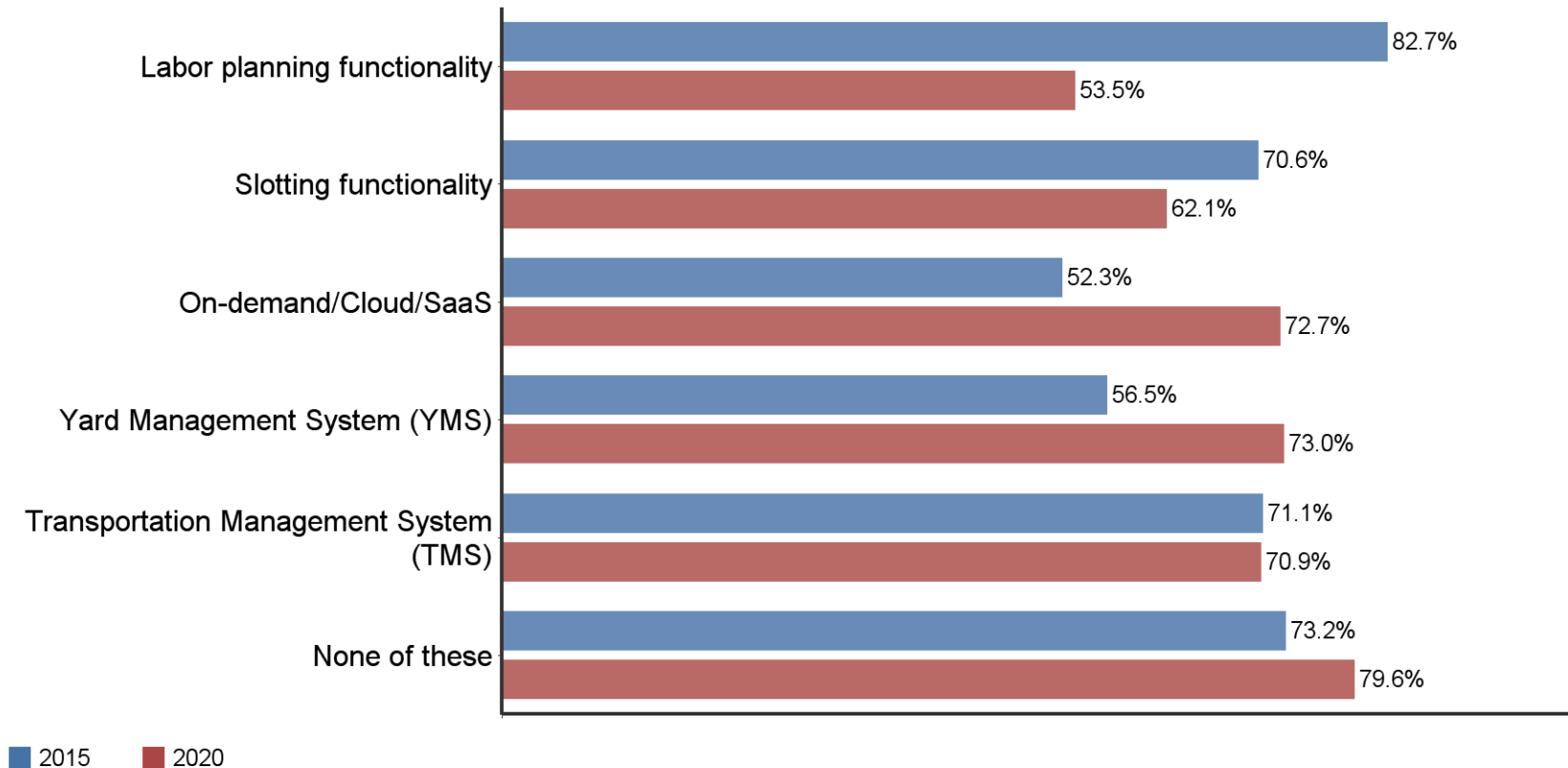
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WAREHOUSE MANAGEMENT SYSTEMS IN USE

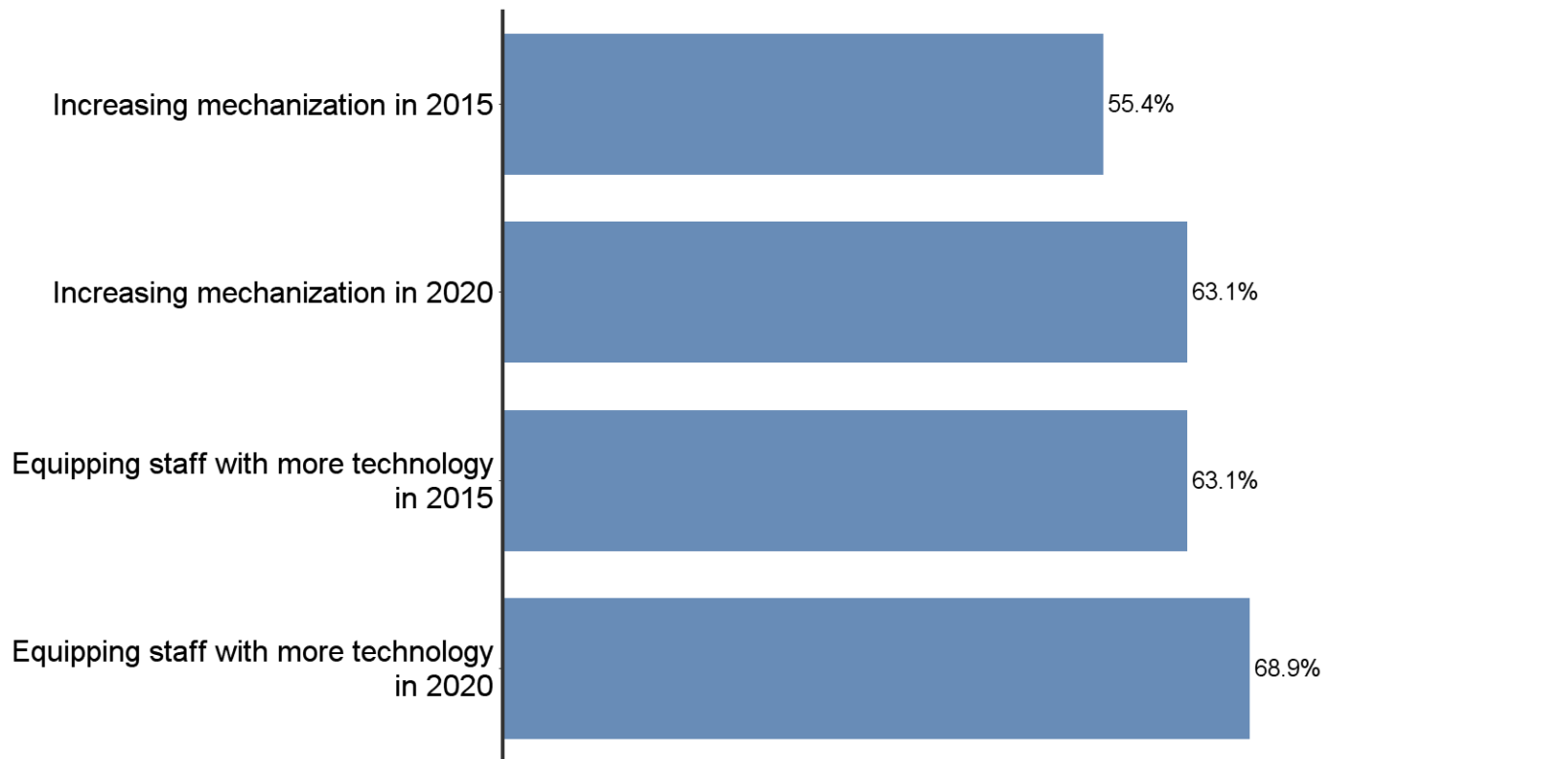**Q20 What Warehouse Management System (WMS) is currently in use at your distribution center? What will be in 2020?**

Legacy WMS (basic WMS, homegrown & developed in-house)
- 2015: 81.4%
- 2020: 42.9%

ERP used as WMS
- 2015: 71.3%
- 2020: 57.3%

Full-featured / Best-of-breed WMS
- 2015: 50.3%
- 2020: 74.6%

RTLS – Real Time Location System
- 2015: 50.7%
- 2020: 75.8%

None or minimal
- 2015: 73.7%
- 2020: 78.8%

Legend: ■ 2015 ■ 2020

LOOKING FOR MORE MECHANIZATION AND TECHNOLOGY IN WAREHOUSES

Q22 Are you currently looking at more mechanization (complete lights-out warehousing, or equipping staff with more technology to streamline and automate processes) in your warehouses and distribution centers? And by 2020?
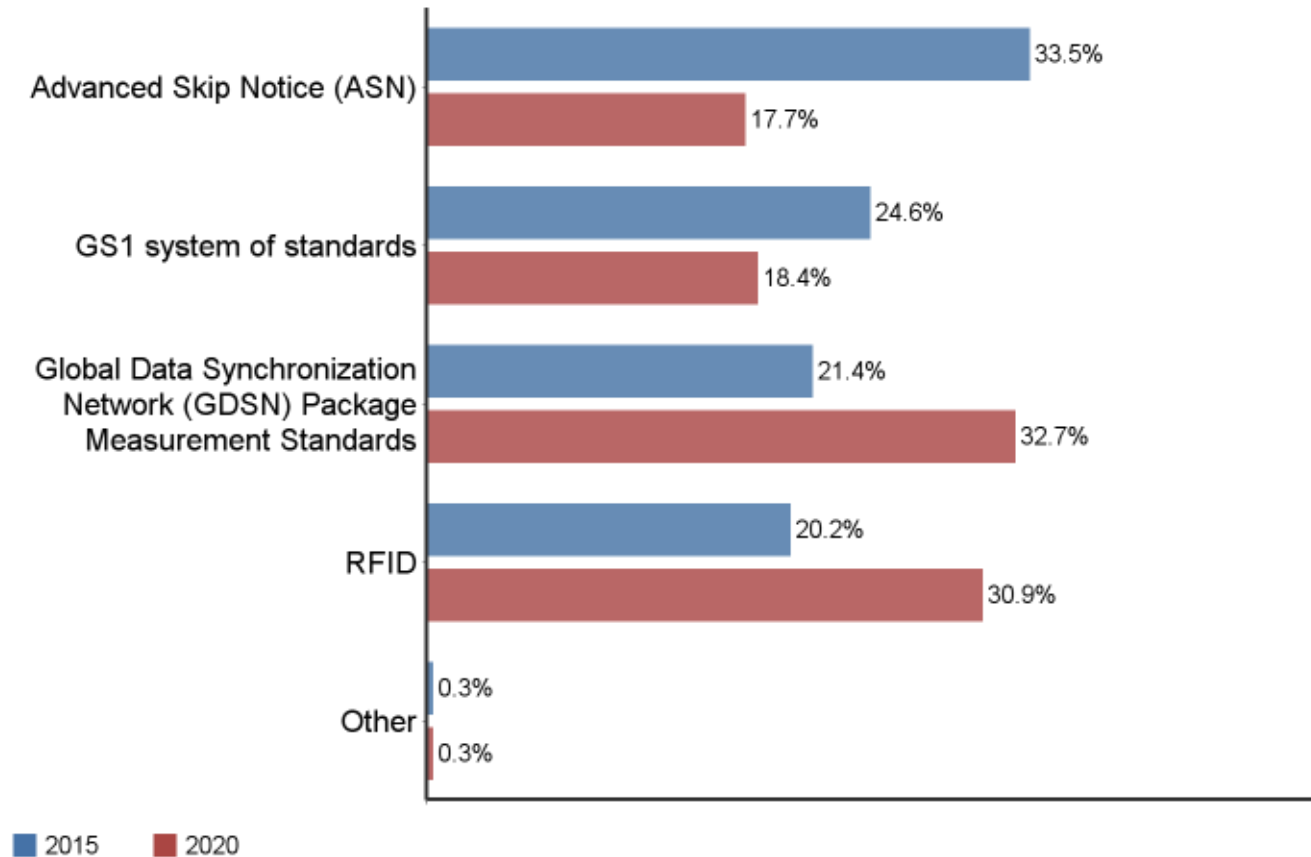

Increasing mechanization in 2015	55.4%
Increasing mechanization in 2020	63.1%
Equipping staff with more technology in 2015	63.1%
Equipping staff with more technology in 2020	68.9%

PERCENTAGE OF BARCODED ITEMS INCREASING

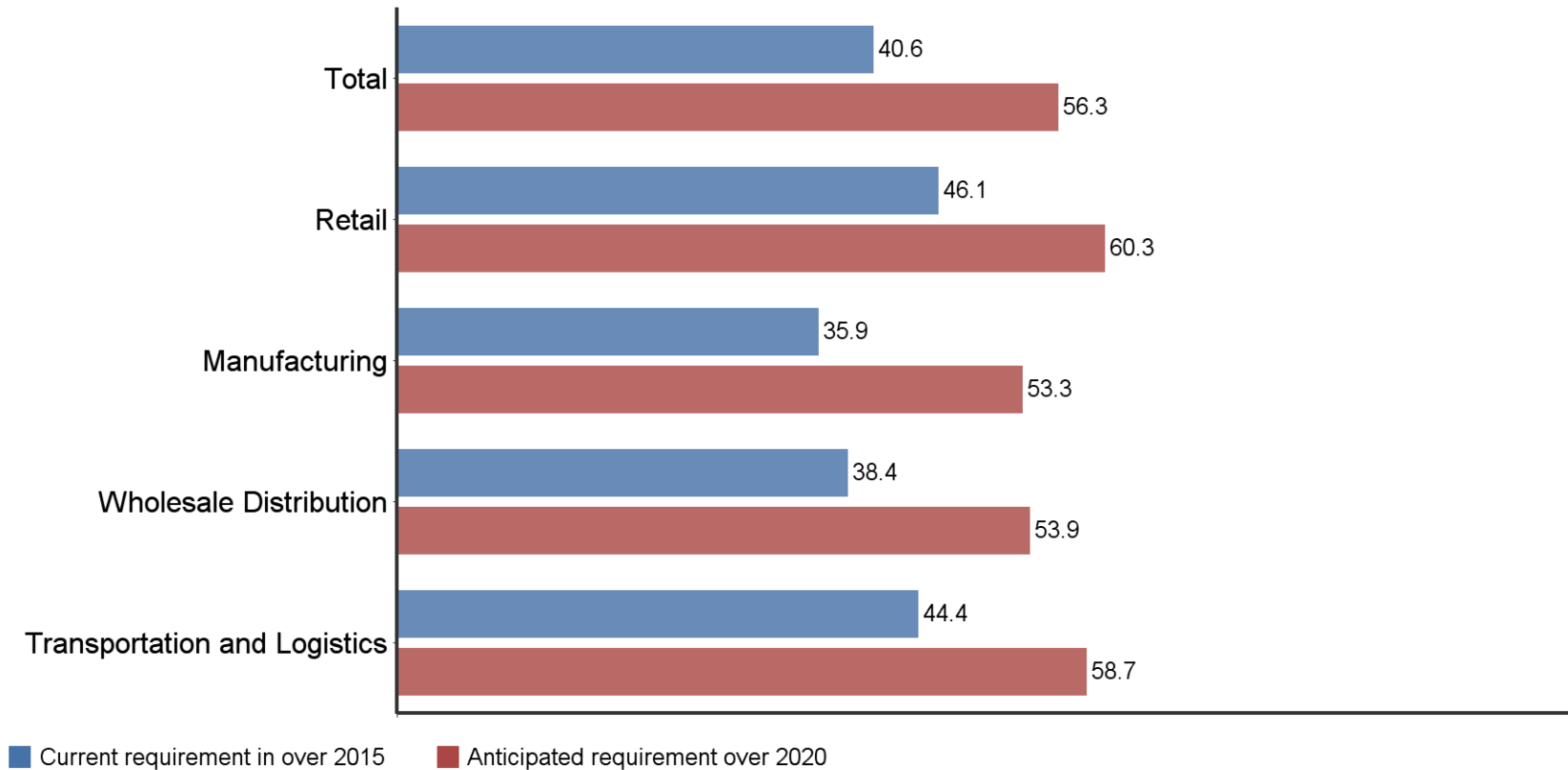Q23 What percentage of inbound items is bar coded today? What percentage do you anticipate will be in 2020?
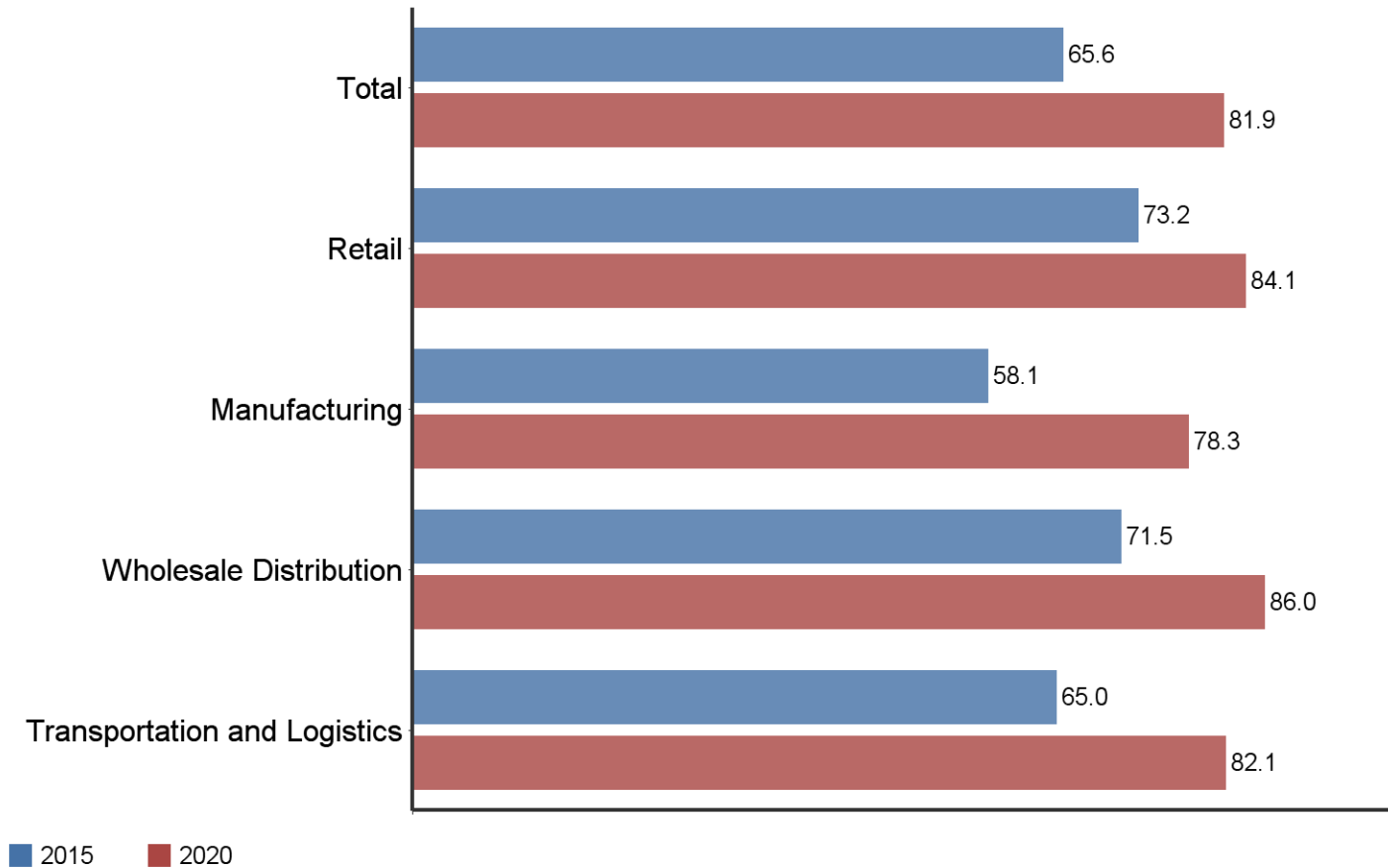
Category	2015	2020
Total	65.6	81.9
Retail	73.2	84.1
Manufacturing	58.1	78.3
Wholesale Distribution	71.5	86.0
Transportation and Logistics	65.0	82.1

■ 2015   ■ 2020

MOTIVATION FOR CYCLE COUNT/INVENTORY

Q27 What are the motivating factors for cycle count and inventory management?

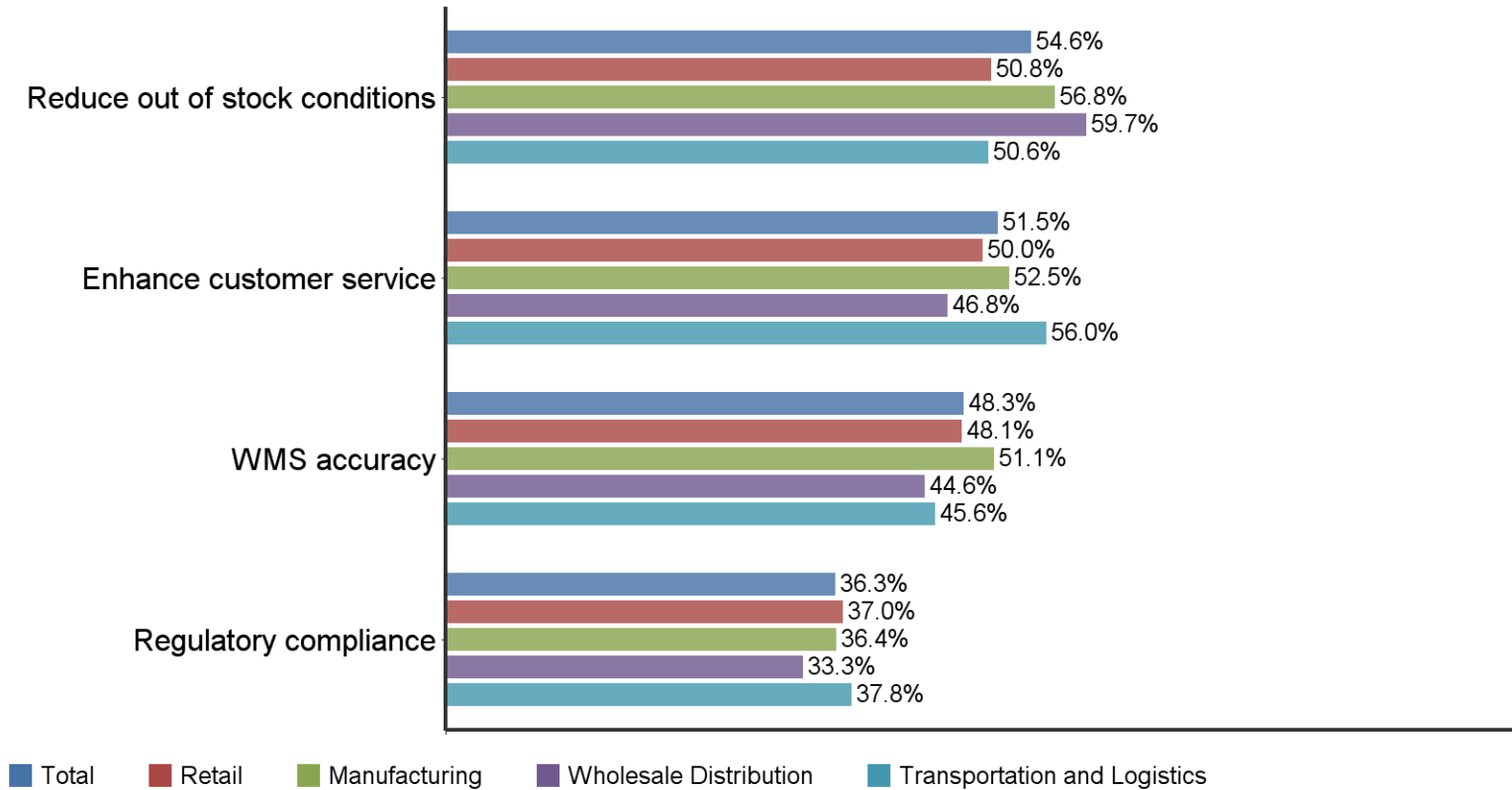|	
Regulatory compliance	36.3%
WMS accuracy	48.3%
Reduce out of stock conditions	54.6%
Enhance customer service	51.5%

PICK & FULFILLMENT ISSUES

Q28 What are biggest issues today for order pick & fullfillment?

Issue	Percentage
Labor performance/productivity	46.1%
Order turnaround time	45.5%
Order accuracy	40.8%
Staff turnover for picking	26.8%
Traceability/date code or lot number capture	24.7%
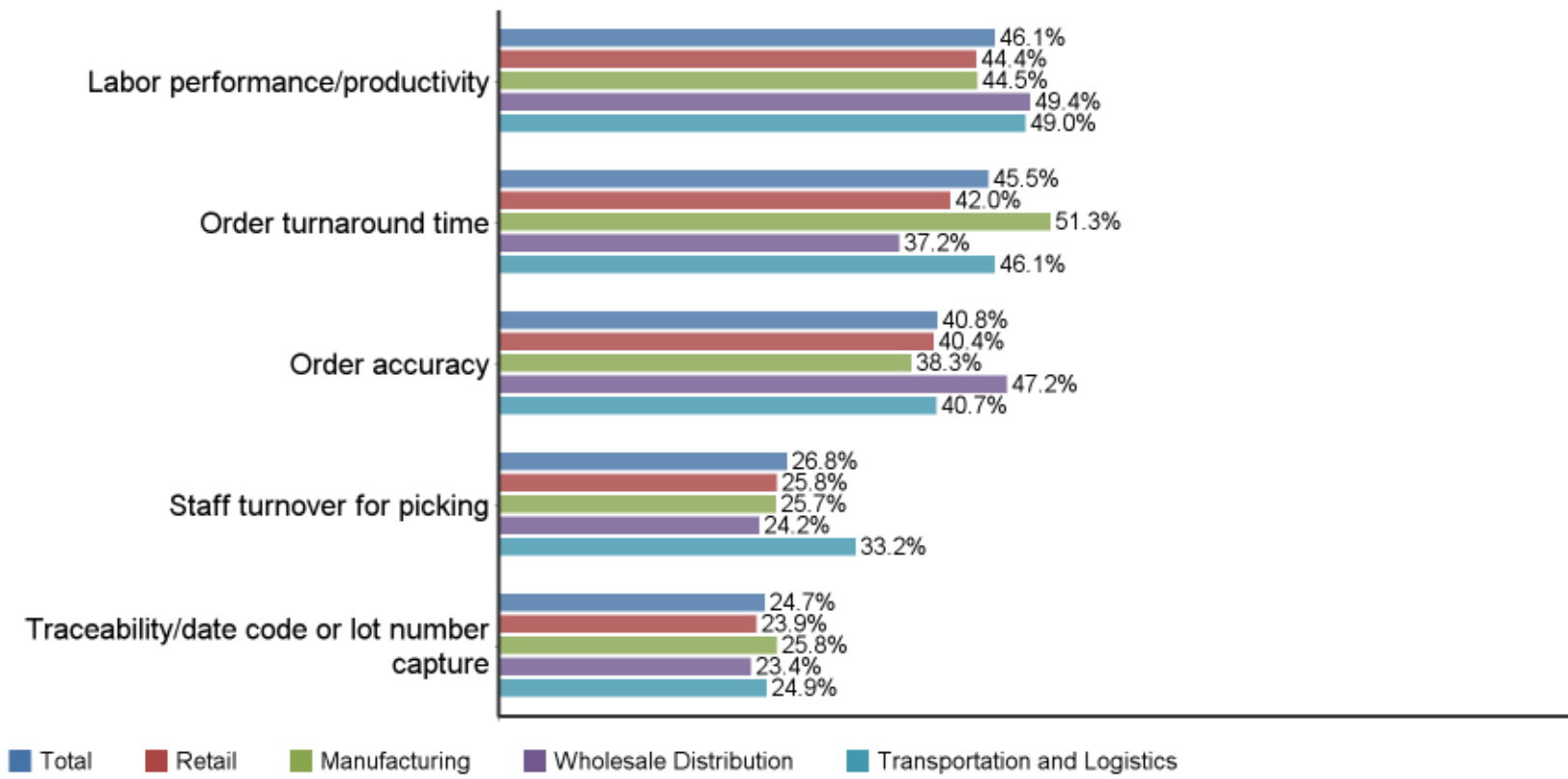
AVERAGE HOURS NEEDED TO HIT PRODUCTIVITY

Category	How many hours does it typically take for new staff to hit full productivity?	How many hours would you like for it to take to get new staff to hit full productivity?
Total	118.2	75.0
Retail	80.7	85.8
Manufacturing	148.2	78.3
Wholesale Distribution	138.2	53.6
Transportation and Logistics	91.5	71.8

How many hours does it typically take for new staff to hit full productivity?

How many hours would you like for it to take to get new staff to hit full productivity?

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VOICE PICKING IS INCREASING AS INPUT TO USER

Q31 What level of voice picking is in use today as input to user? What do you anticipate it to be in 2020?

	Screen only	Voice guidance only	Voice and screen
Currently use 2015	70.0%	12.3%	17.6%
Will use 2020	27.9%	14.3%	57.8%
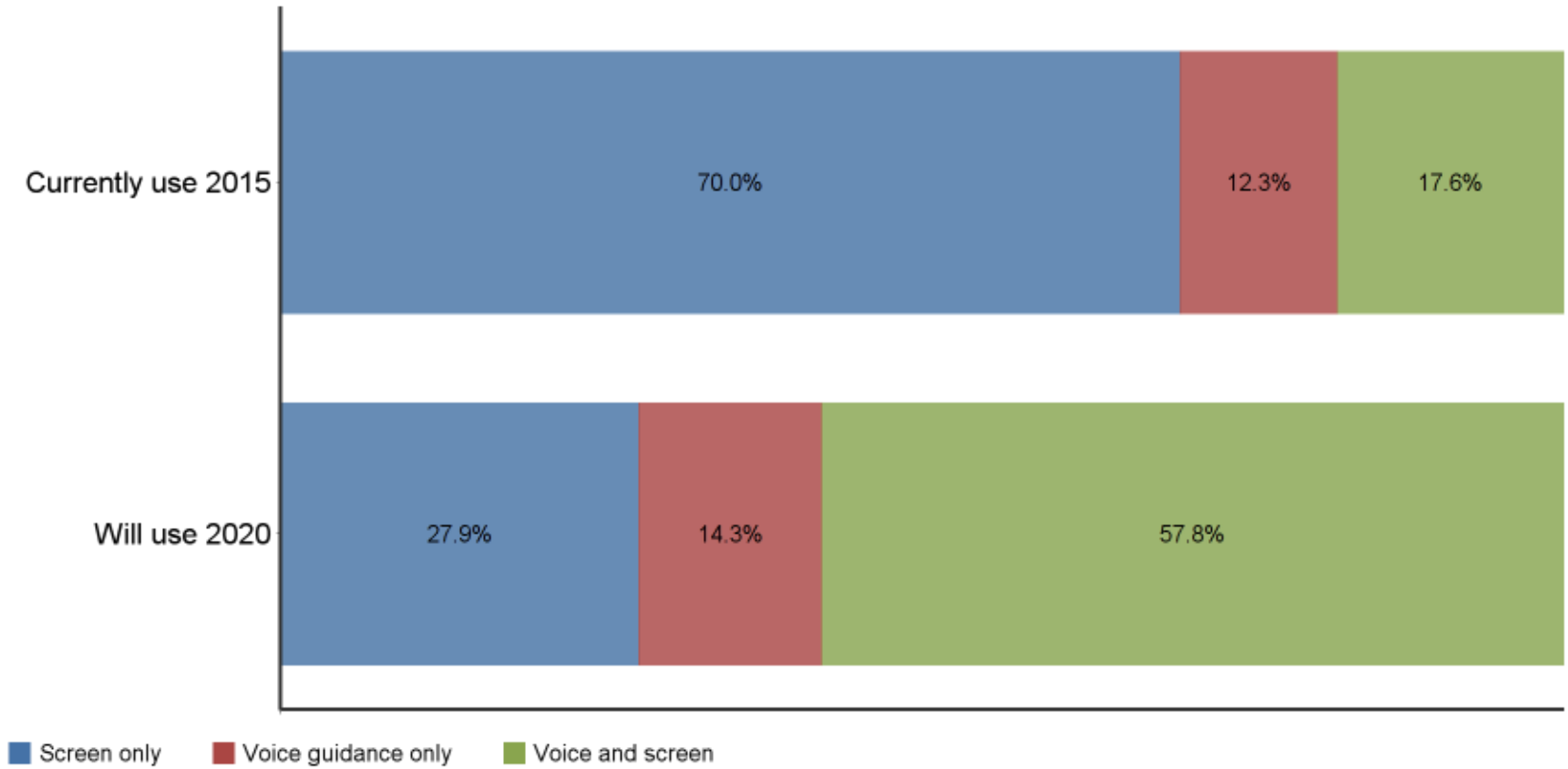
VOICE PICKING INCREASING FOR DATA CAPTURE

What level of voice picking is in use today as for data capture? What do you anticipate it to be in 2020?

Currently use 2015: Barcode scanning only 77.4%, Voice recognition only 10.2%, Voice recognition and scanning 12.4%

Will use in 2020: Barcode scanning only 33.4%, Voice recognition only 10.4%, Voice recognition and scanning 56.2%

Legend: Barcode scanning only | Voice recognition only | Voice recognition and scanning
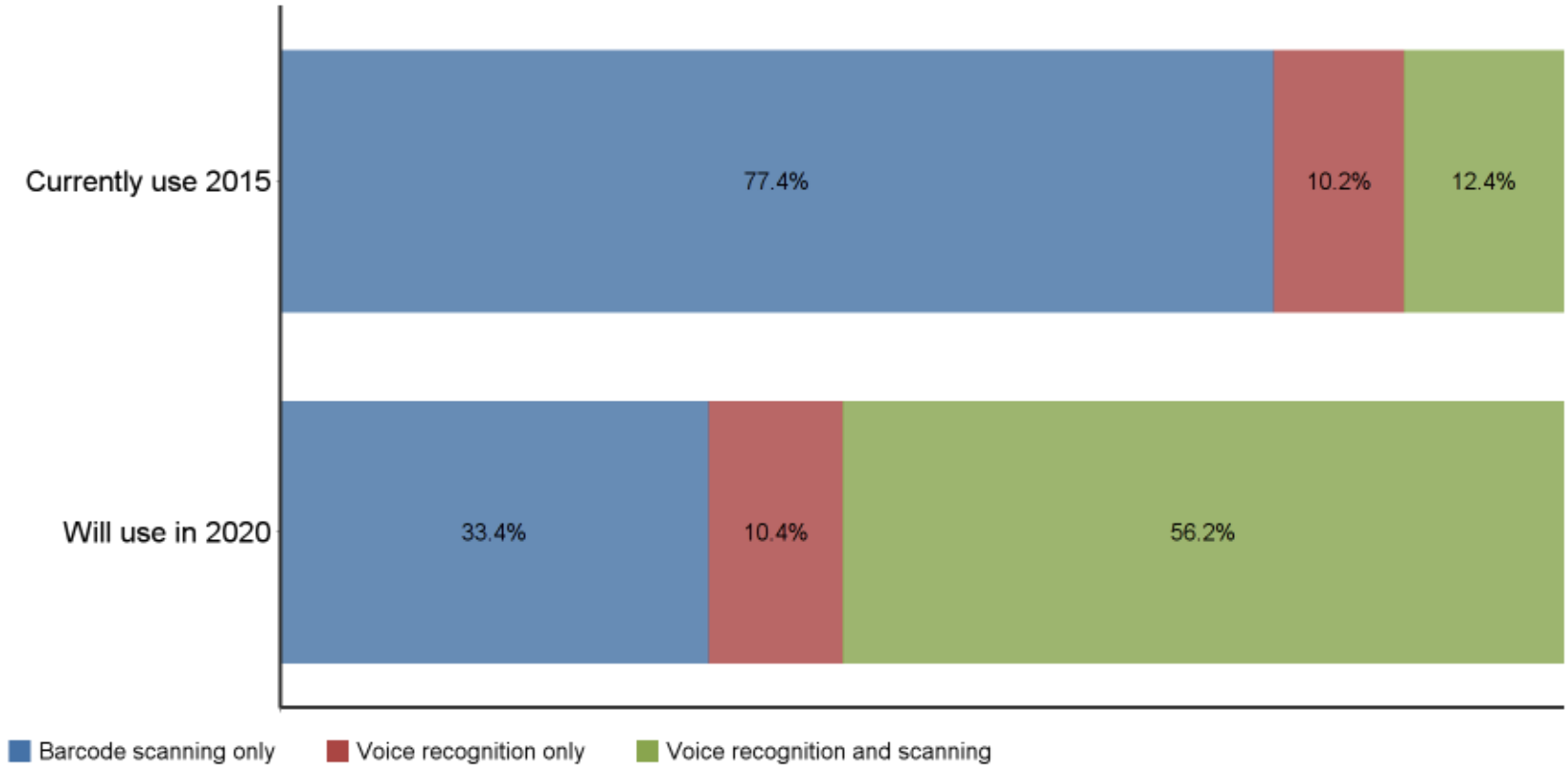
USAGE OF TASK INTERLEAVING INCREASING

Q32 To what extent do your warehouse management systems drive "task interleaving" (The ability to assign tasks to workers in the optimum way considering their location, equipment, and task priority)?

- mean % time interleaving in 2015
- mean % time interleaving in 2020

Total — 39.7 / 59.2
Retail — 45.1 / 62.6
Manufacturing — 34.8 / 55.4
Wholesale Distribution — 41.4 / 62.0
Transportation and Logistics — 40.3 / 59.6
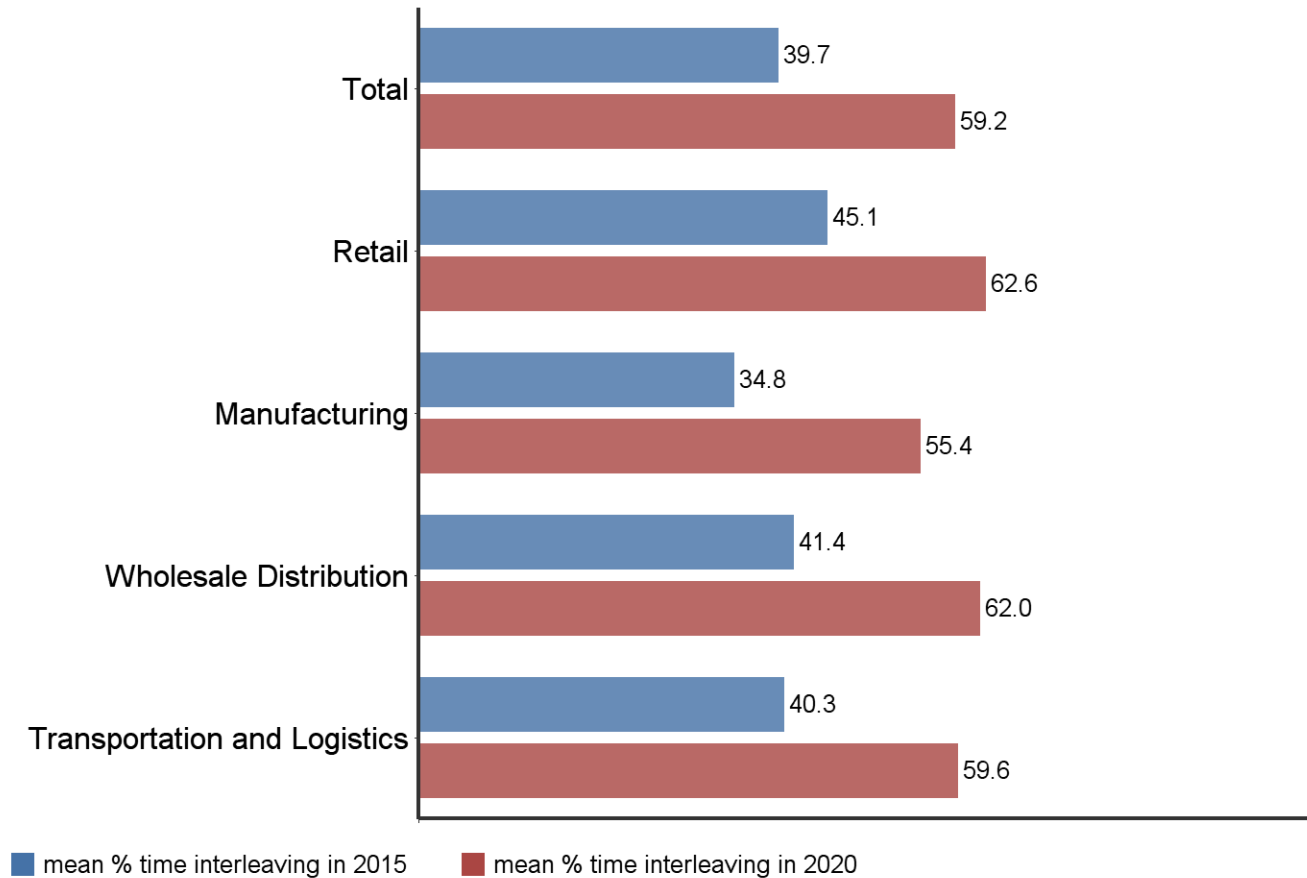
CUSTOMER REQUIREMENTS

Q25 What percentage of your current customers requires adoption and use of the following? And what do you anticipate it will be in 2020?

41
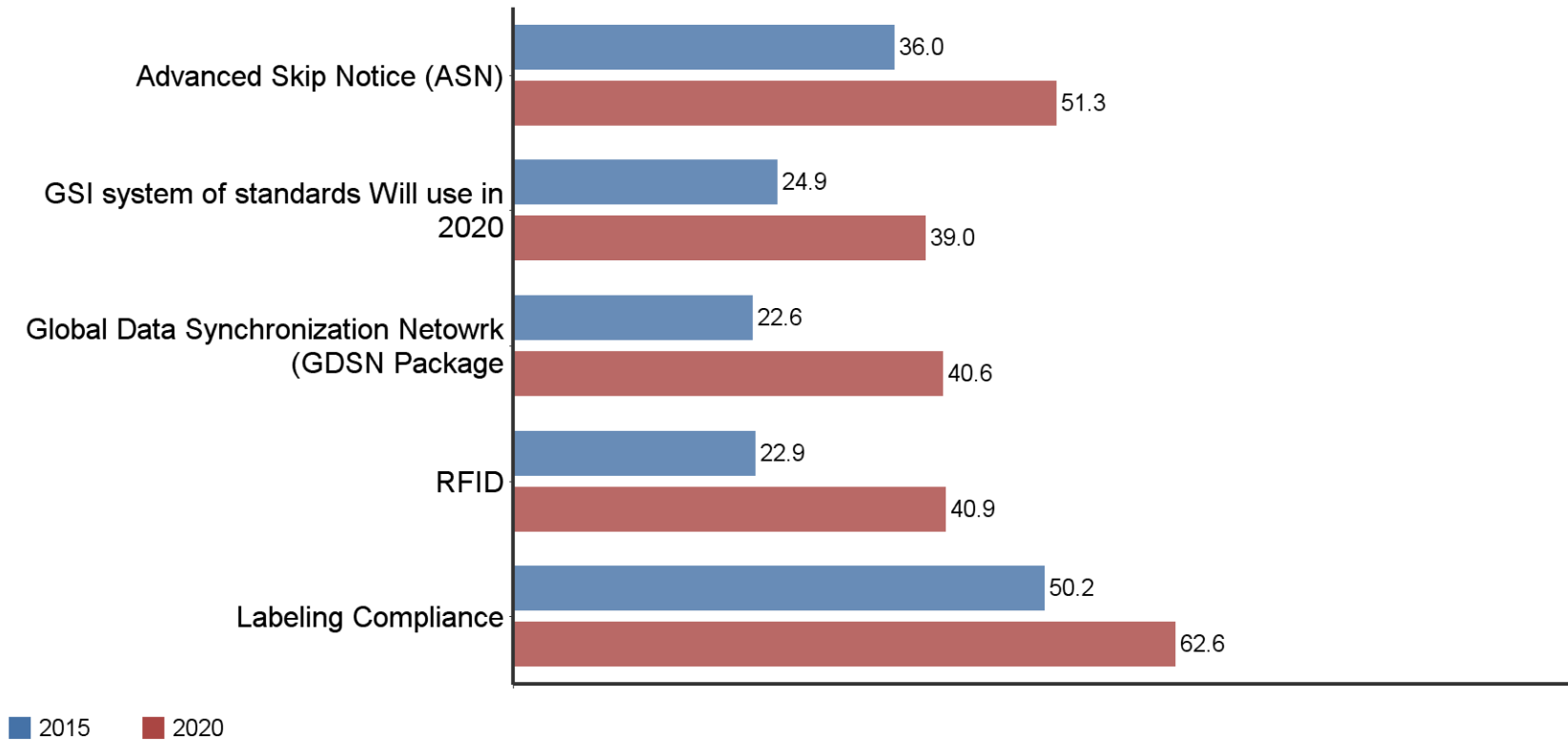
NEED FOR LOAD OPTIMIZATION AND PERFORMANCE MONITORING

Q35 Are you currently performing load optimization and performance monitoring? And do you anticipate you will be performing load optimization and performance monitoring by 2020?
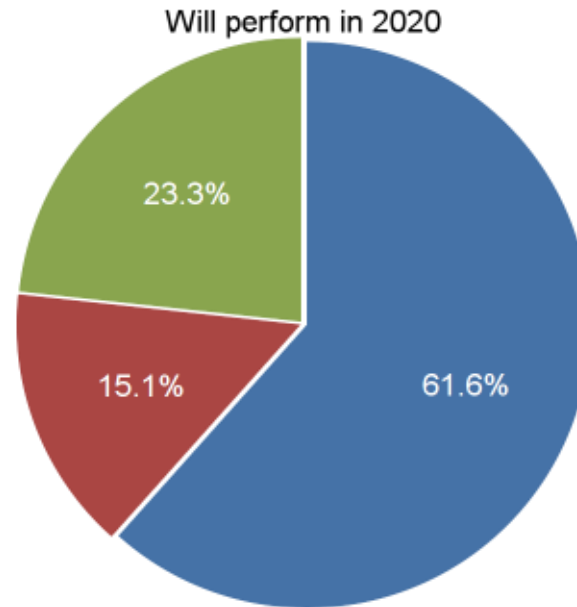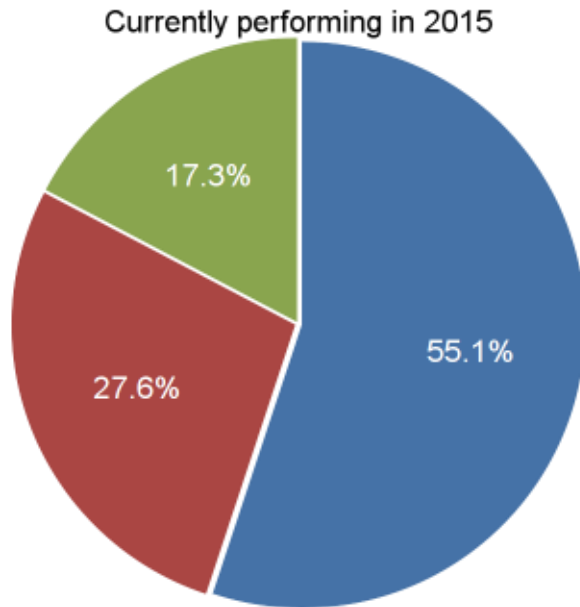
RETAIL: D2C FULFILLMENT WILL REMAIN SEPARATE

Q36 Is D2C (direct to consumer) fulfillment currently separate from store replenishment? By 2020, will D2c (direct to consumer) fulfillment be seperate from store replenishment?
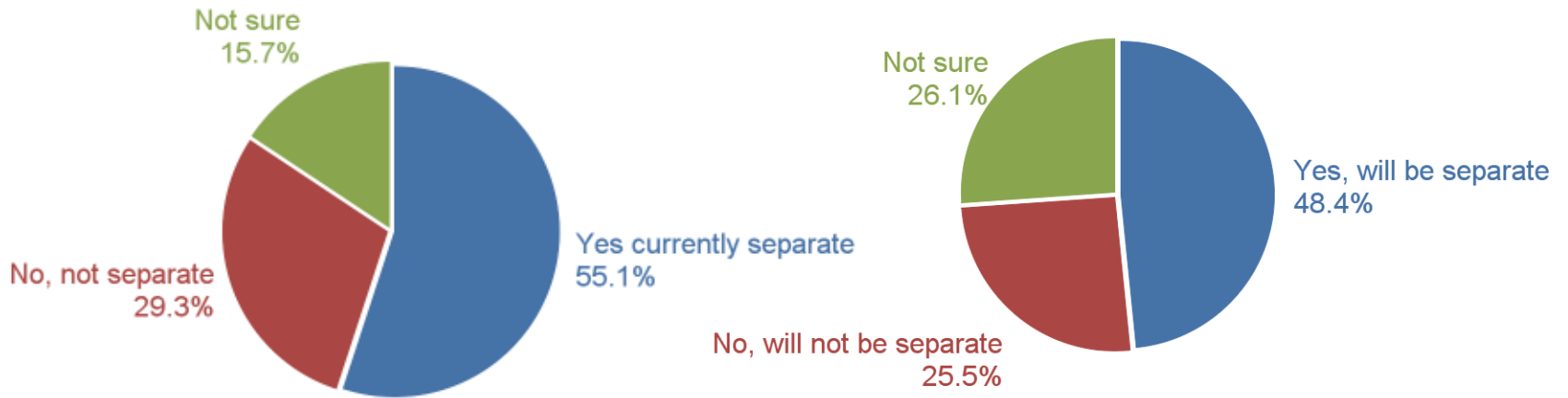
GREEN INITIATIVES IN PLACE TODAY

Q52 Do you currently have any of these green initiatives in place today?
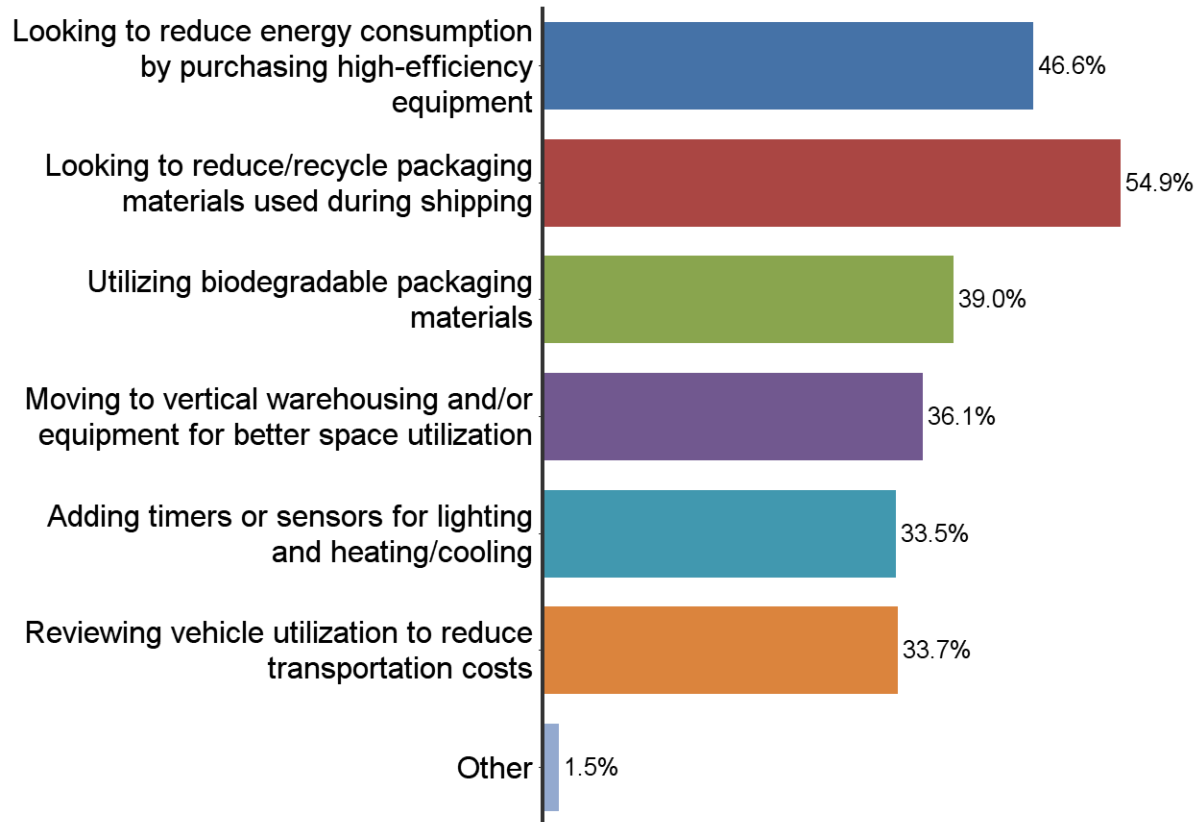
MANAGEMENT VIEW OF SUSTAINABILITY

Q53 How does your company management view your given green initiatives and sustainability?

Legend: As an expense | 2 | In between expense and area for saving | 4 | As an area for savings

	As an expense	2	In between expense and area for saving	4	As an area for savings
Total	7.3%	6.0%	54.1%	13.4%	19.3%
Retail	6.6%	6.6%	54.0%	12.5%	20.2%
Manufacturing	7.4%	5.7%	55.1%	12.8%	19.1%
Wholesale Distribution	9.1%	5.6%	54.5%	15.6%	15.2%
Transportation and Logistics	6.2%	5.8%	51.9%	13.7%	22.4%

USAGE OF KPIS

Q54 Do you use key performance indicators to measure efficiency of order fulfillment, inventory management, and/or warehouse performance to assess the effectiveness of your operations?

Category	Percentage
Yes, order fulfillment indicators	50.3%
Yes, inventory management indicators	55.0%
Yes, warehouse performance indicators	36.2%
None of the above	10.2%
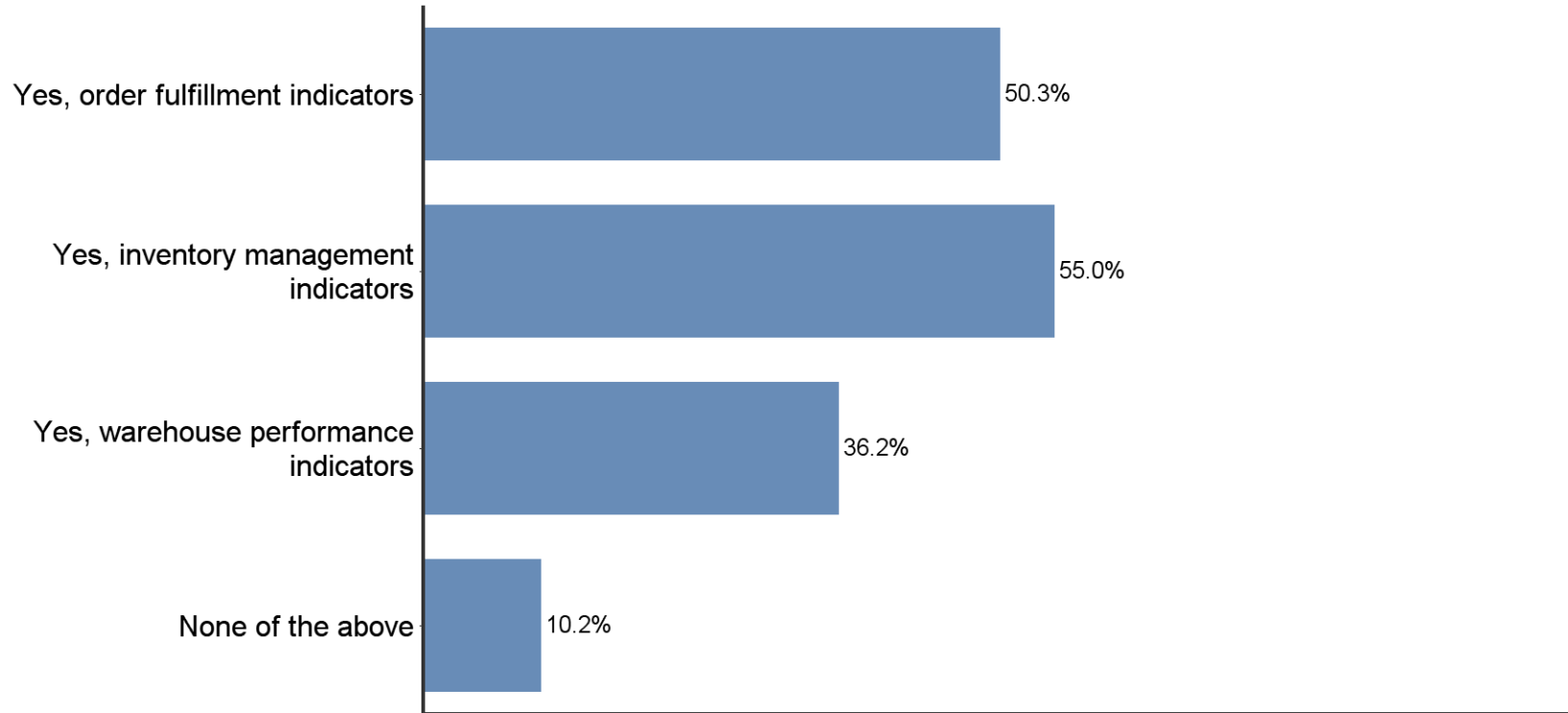
ORDER FULFILLMENT METRICS

Q55 Please rank the following metrics in importance for order fulfillment

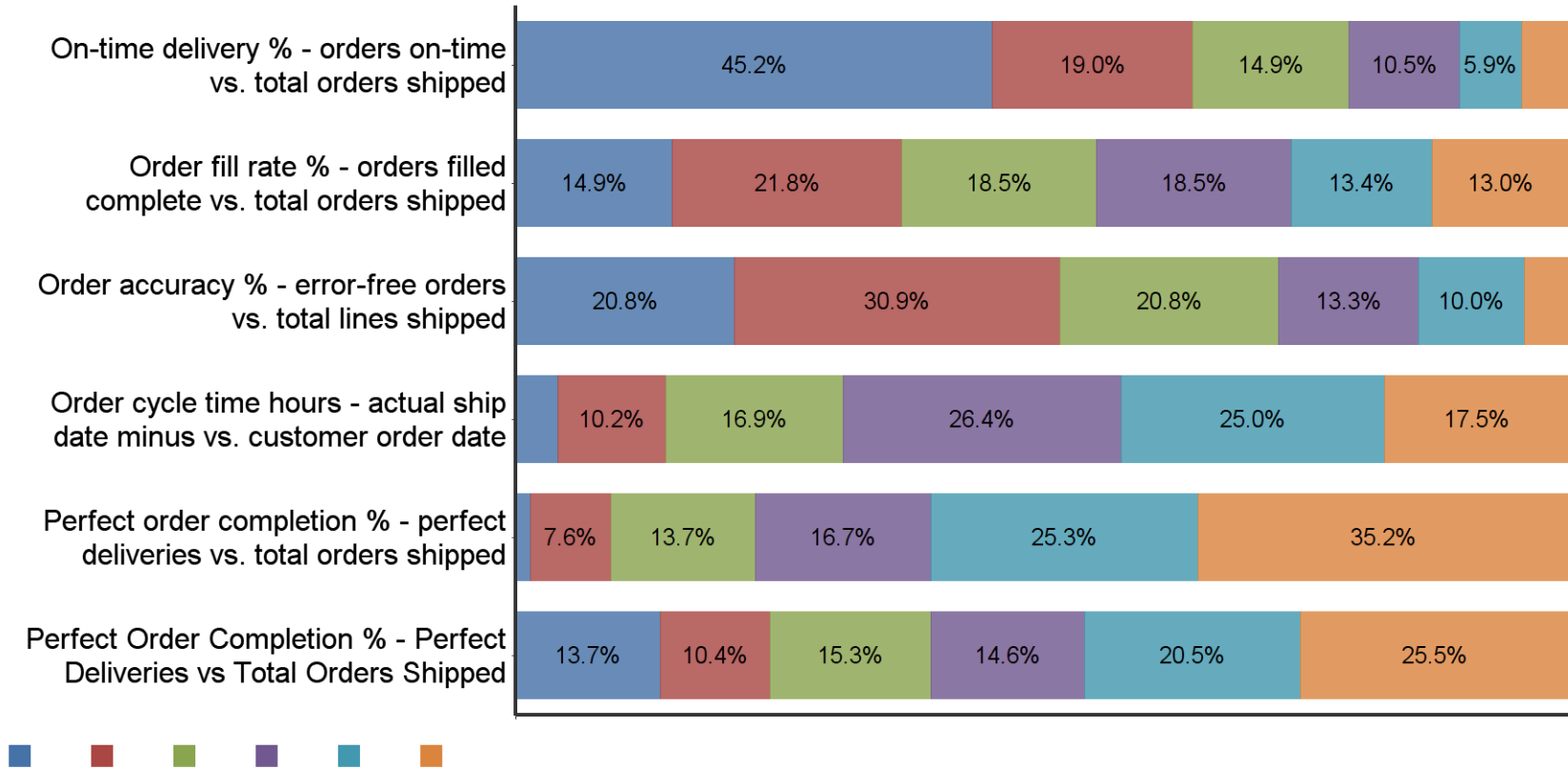| Metric						
On-time delivery % - orders on-time vs. total orders shipped	45.2%	19.0%	14.9%	10.5%	5.9%	
Order fill rate % - orders filled complete vs. total orders shipped	14.9%	21.8%	18.5%	18.5%	13.4%	13.0%
Order accuracy % - error-free orders vs. total lines shipped	20.8%	30.9%	20.8%	13.3%	10.0%	
Order cycle time hours - actual ship date minus vs. customer order date		10.2%	16.9%	26.4%	25.0%	17.5%
Perfect order completion % - perfect deliveries vs. total orders shipped		7.6%	13.7%	16.7%	25.3%	35.2%
Perfect Order Completion % - Perfect Deliveries vs Total Orders Shipped	13.7%	10.4%	15.3%	14.6%	20.5%	25.5%

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INVENTORY MANAGEMENT METRICS

Q56 Please rank the following metrics in importance for inventory management

Inventory accuracy % - actual quantity per SKU vs. system reported quantity: 48.2%, 16.4%, 13.7%, 7.8%

Damaged inventory % - total damage $$$ vs. inventory value (cost): 10.8%, 14.9%, 17.4%, 14.0%, 15.2%, 10.7%, 17.0%

# of days on hand - average month inventory $ vs. average daily sales/month: 15.6%, 23.1%, 18.7%, 15.4%, 12.9%, 8.3%

Storage utilization % - average occupied sq. ft. vs. total storage capacity: 9.8%, 16.6%, 18.6%, 19.0%, 14.5%, 12.5%, 9.0%

Dock to stock time in hours - total dock to stock hours vs. total receipts: 11.7%, 14.0%, 13.6%, 20.2%, 20.4%, 16.5%

Inventory Visibility Hours - Receipt Entry Time vs Physical Receipt Time: 7.8%, 8.8%, 16.5%, 19.3%, 24.9%, 18.3%

WIP Inventory/Turns -- dividing cost of goods sold by average inventory used to produce those goods: 7.8%, 9.5%, 8.7%, 13.7%, 12.0%, 18.7%, 29.6%