

2024 INTRALOGISTICS ROBOTICS STUDY



CONDUCTED BY

PRG
PEERLESS RESEARCH GROUP

MODERN
MATERIALS HANDLING

Logistics
MANAGEMENT

SUPPLYCHAIN
MANAGEMENT REVIEW



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Introduction & Methodology

Background

Peerless is a member of the Robotics Group, which is an industry group at MHI, the nation's largest material handling, logistics and supply chain association. This study was conducted by *Peerless Research Group* on behalf of *Logistics Management*, *Modern Materials Handling*, and *Supply Chain Management Review*.

The purpose of this research is to better understand expected adoption, usage, and expanded plans for robotics usage.

Objectives

Specifically, the study is designed to examine the following :

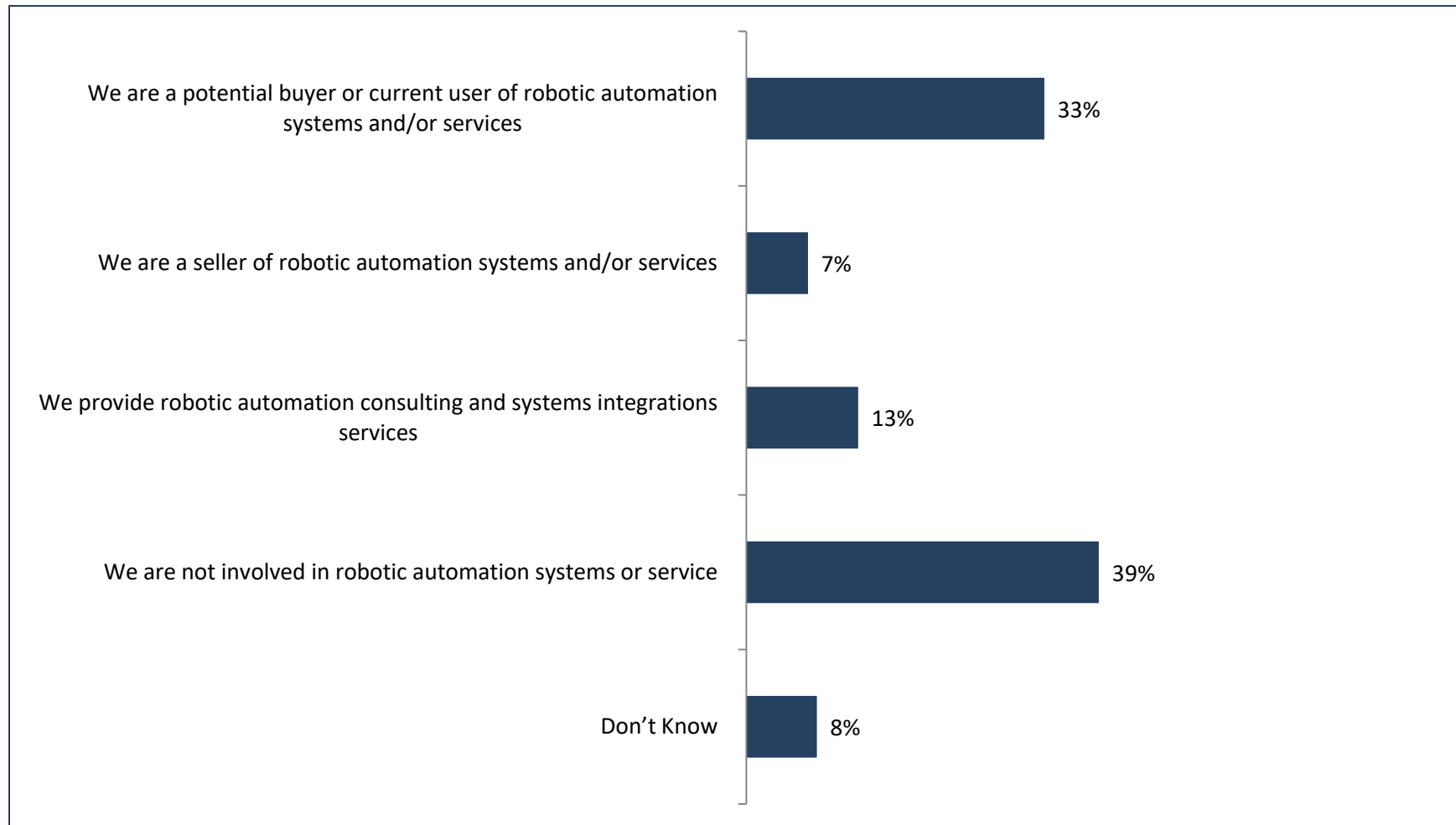
- Consideration of robotics
- Organizational readiness of adopting robotics
- Barriers to adoption of robotics
- Adoption of robots for which use cases
- Experience with your robot decision
- Probability of adopting robots for additional use cases over the next 2 – 3 years

Method

- **Sample:** Subscribers to *Logistics Management*, *Supply Chain Management Review*, and *Modern Materials Handling* magazines
- **Method:** E-mail
- **Incentive:** Drawing for a \$100 Amazon card
- **Field:** January – February 2024
- **Respondent qualifications:** Individuals were screened to have involvement with robotic automation systems or services
- **Response:** 216 individuals responded to the survey having involvement with robotic automation systems or services
- **The margin of error at the 90% confidence level :** +/- 5.6%. meaning if the entire population responded, results may vary by +/- 5.6%.



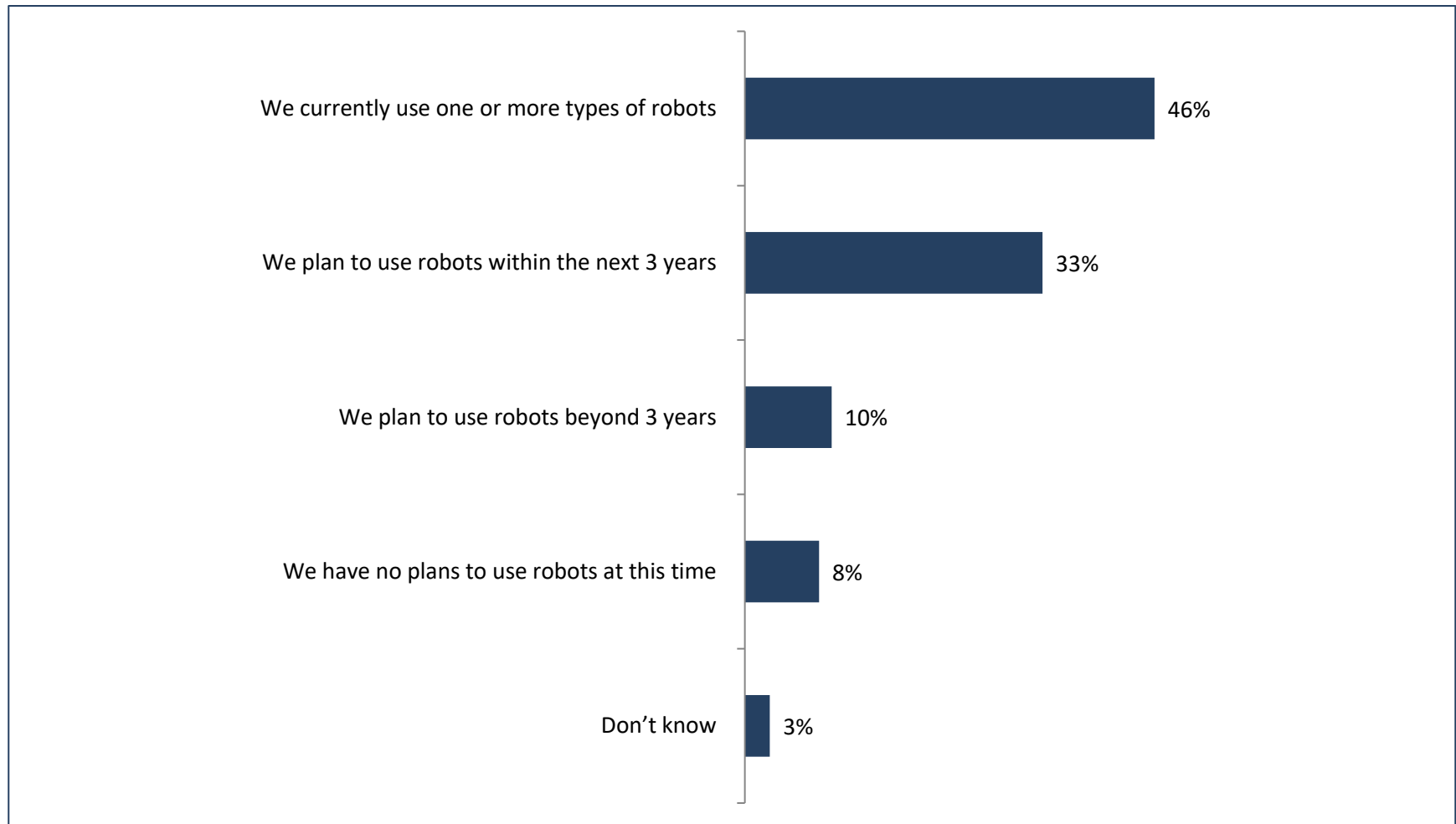
Which statement best describes your organization's involvement with robotic automation systems/services?





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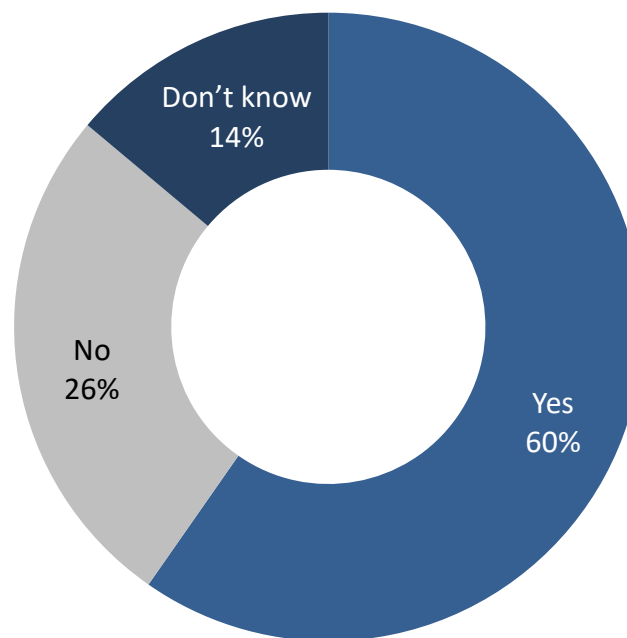
What best describes your organization's use of robotic automation systems and/or autonomous mobile robots in your warehouses, distribution centers and/or manufacturing operations?





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Are you currently using or considering other types of large-scale intralogistics automation like conveyors, sortation, storage/retrieval, or shuttle systems?





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What other type(s) of large-scale intralogistics automation like conveyors, sortation, storage/retrieval, or shuttle systems do you plan to purchase within the next 3 years for use in your warehouses, distribution centers and/or manufacturing operations?

Accumulation Conveyor
Accumulation Tables
AI integration for box sizing
Assembly
Auto inloading
Auto loading
Auto vs manual sorters
Auto-bagger
Auto-boxer
Automated carton forming
Automated pallet load/unload
Automation sortation system
Autostore
Autostore for Smaller items
Bastian Robots for palletization
Case pick automation
Conveyors (5)
E-commerce Putways
Elevating Conveyors
Fortna sortation conveyors
High Density Shuttle System
Individual Pack Machine
Inspection
Material Handling Type AI
Mixed cases selection system
Product movement in CNC cells
Product transfer in & out of warehouse storage systems
Product transfer in assembly
Quality Inspection system
Reverse flow for return logistics



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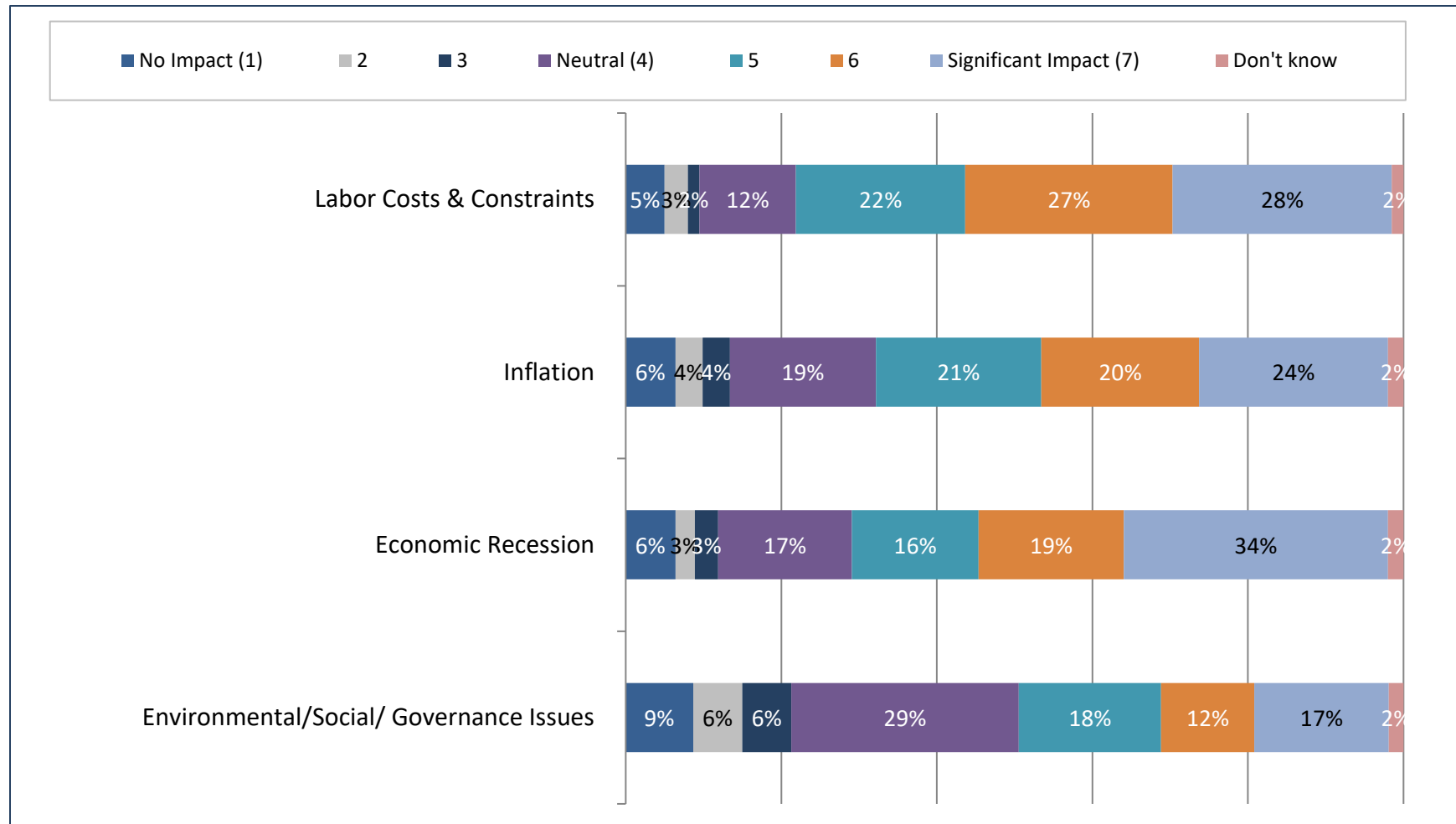
What other type(s) of large-scale intralogistics automation like conveyors, sortation, storage/retrieval, or shuttle systems do you plan to purchase within the next 3 years for use in your warehouses, distribution centers and/or manufacturing operations? [Continued]

Robotic Arm
Robotic arms
Robotic picking
Robotic Sortation
Robots to Facilitate assembly
Shuttle (3)
Shuttle systems (2)
Sortation (4)
Storage / Retrieval system (3)
Tabletop Conveyors
Utilities
Vertical Storage



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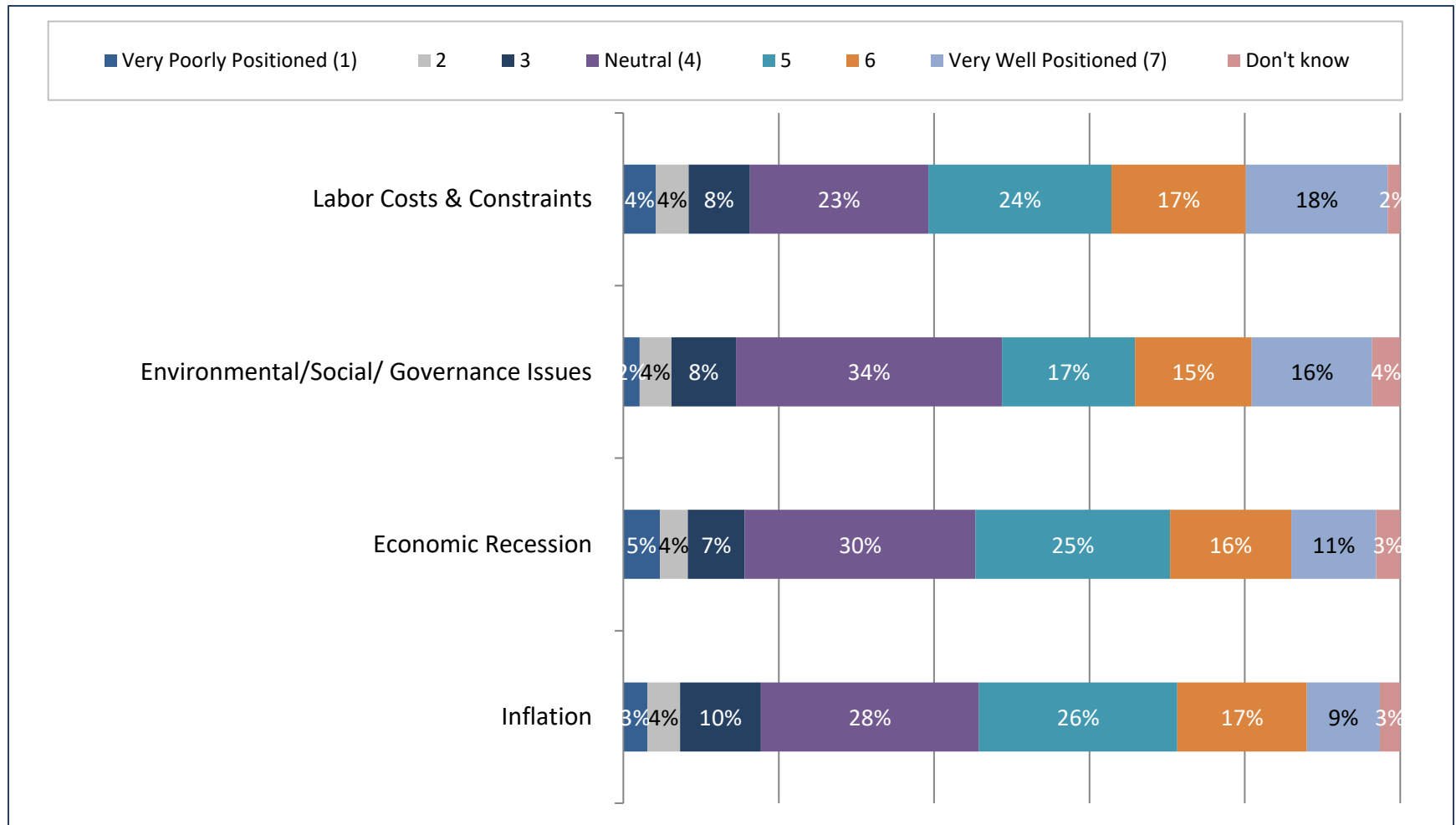
What impacts will the following factors have on your operations over the next 2 years?





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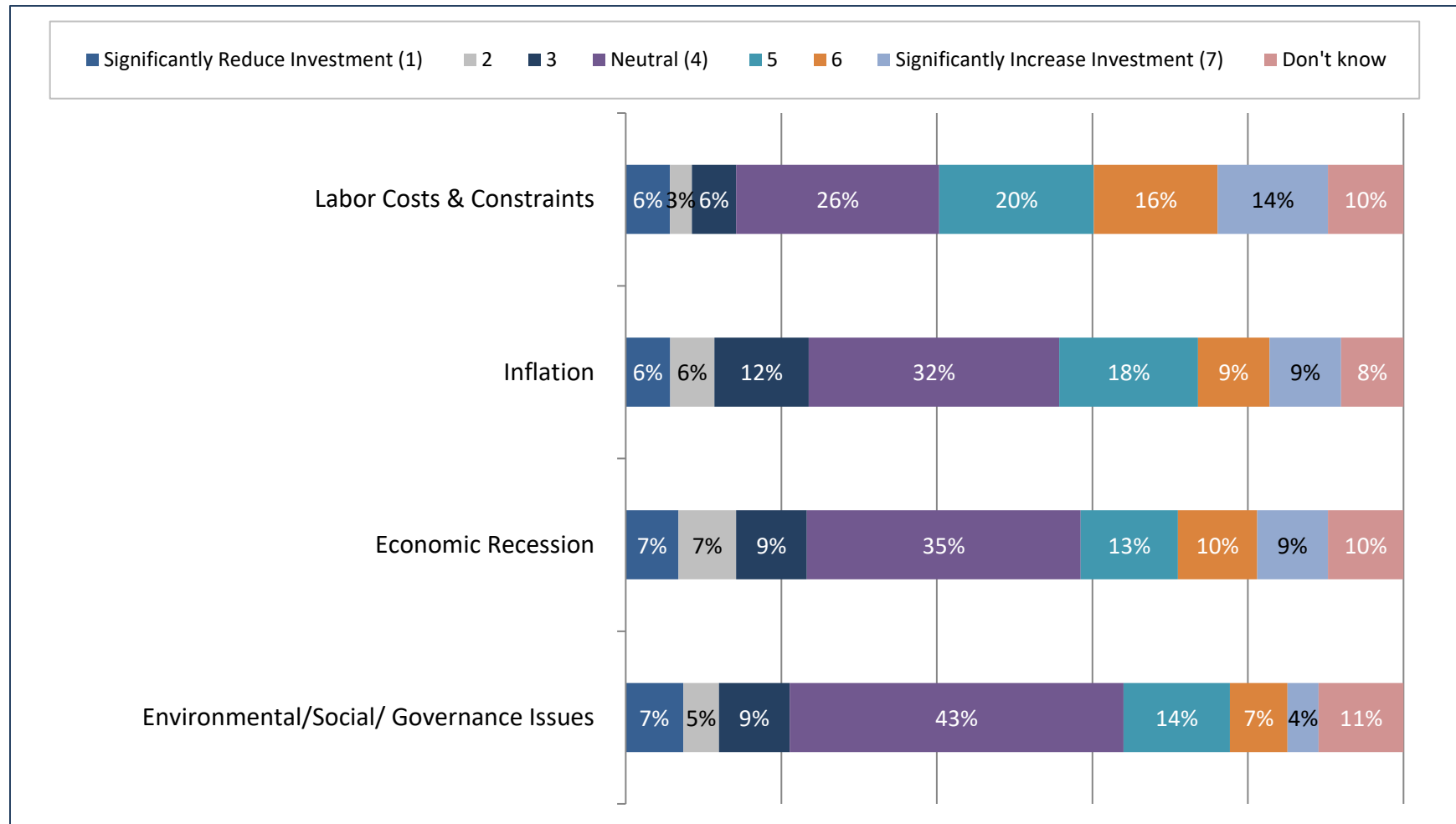
How well positioned is your organization to address the following factors over the next 2 years?





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How will the following factors affect your investments in robotics over the next 2 years?



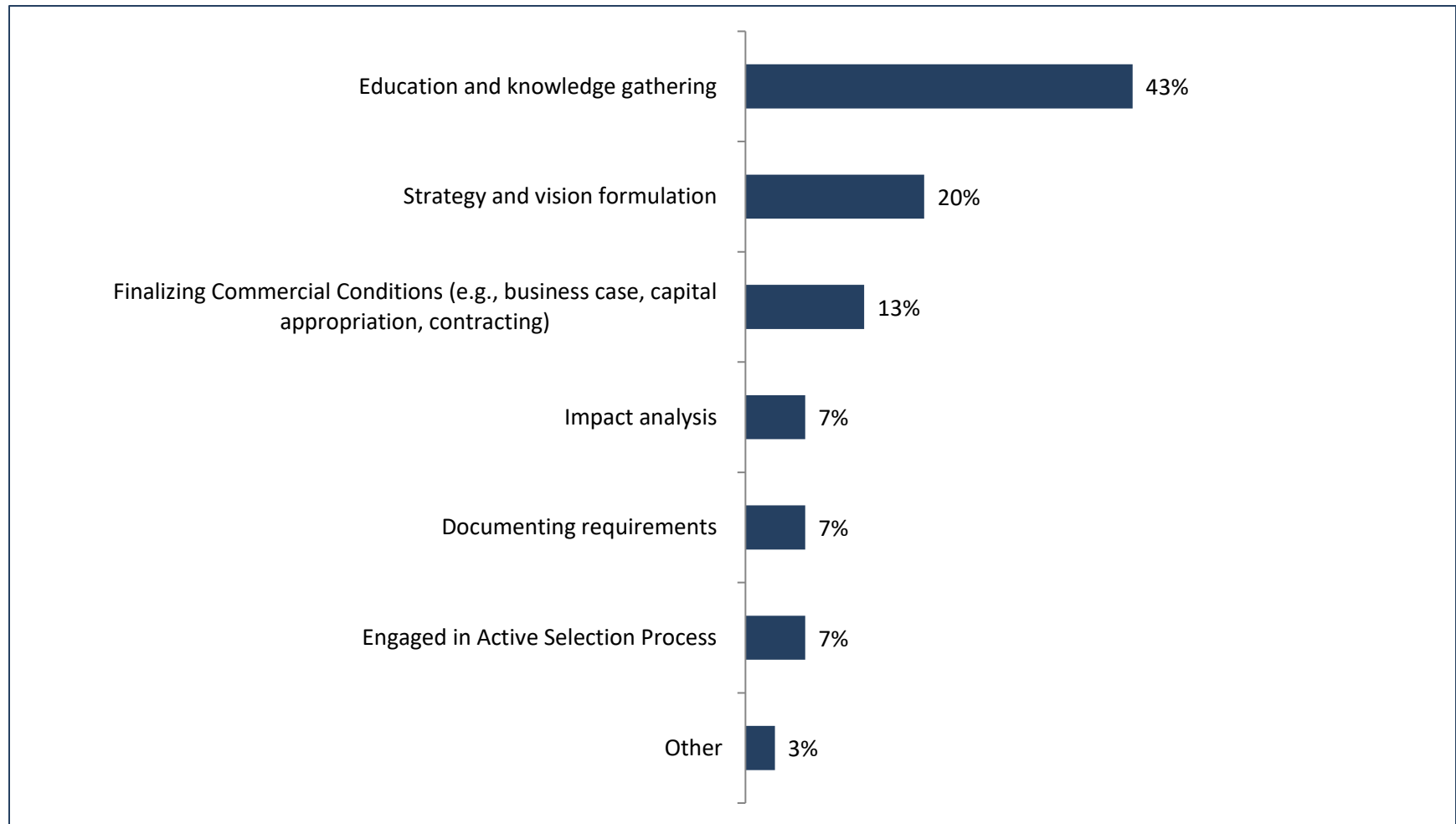


Responses from Respondents Stating: Plans to Use Robotics



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What is the current state of your organization's pursuit of robots systems in your warehouse or DCs?





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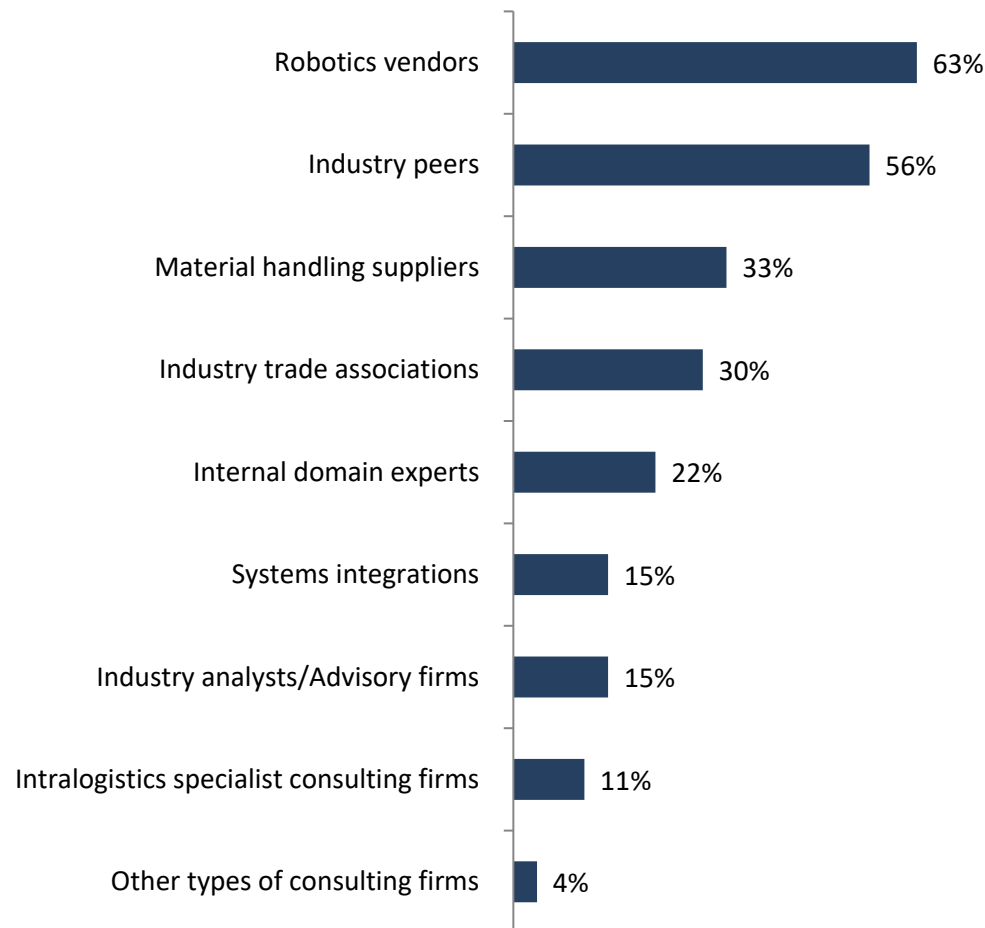
What are the top 3 factors motivating your organization to pursue robotics in your warehouses and distribution centers?

Item	Overall Rank	Rank Distribution	Score
Help Address Labor Shortages/Availability Constraints	1		31
Reduce Labor Costs	2		29
Improve Labor Productivity	3		22
Shift to more fixed costs to mitigate variable/labor cost inflation	4		21
Maximize Space Utilization	5		19
Improve Order Accuracy/Quality	6		16
Increase Flow/Through-put	7		15
Improve Safety/Reduce Injuries	8		11
Consistency & Adherence to defined “best” processes	9		8
Reduce Losses/Write-offs (e.g., damage and pilferage)	10		2

Lowest Rank Highest Rank



In your pursuit of advanced robotic automation, where did you turn for assistance and information? Please select up to three (3) attributes.

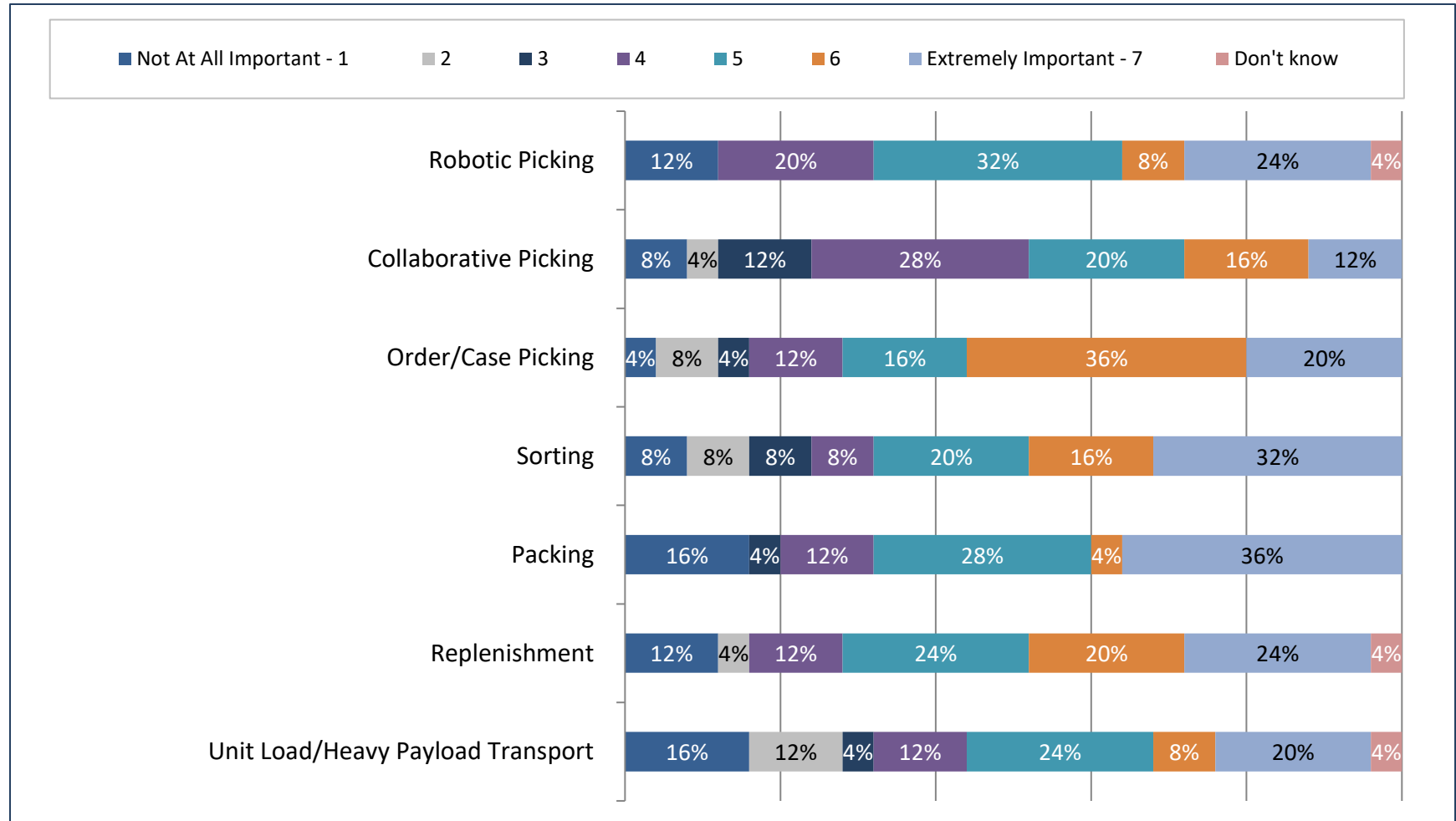


Note: Multiple answers accepted



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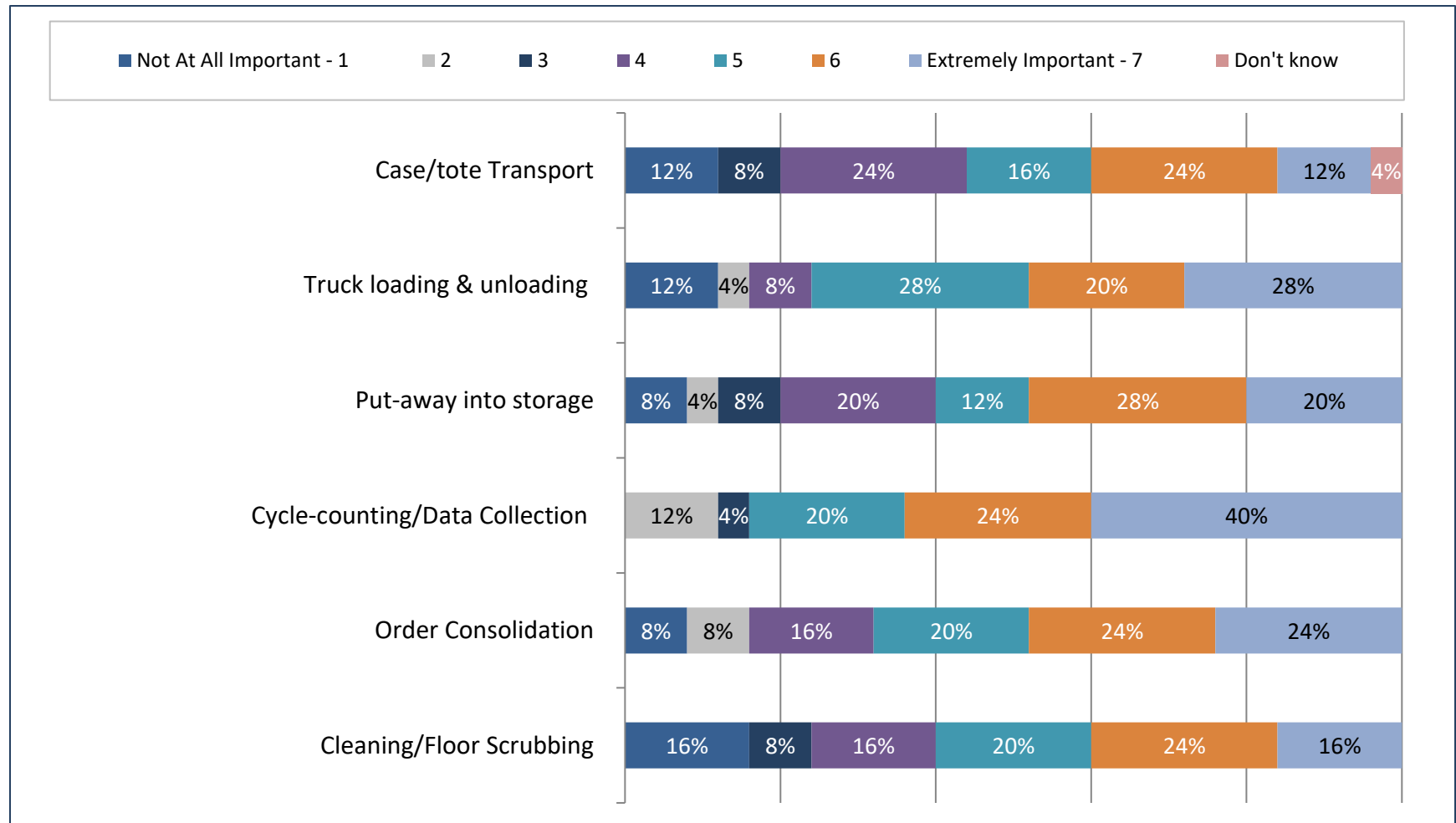
How important is the need for your operations to improve each of these processes?





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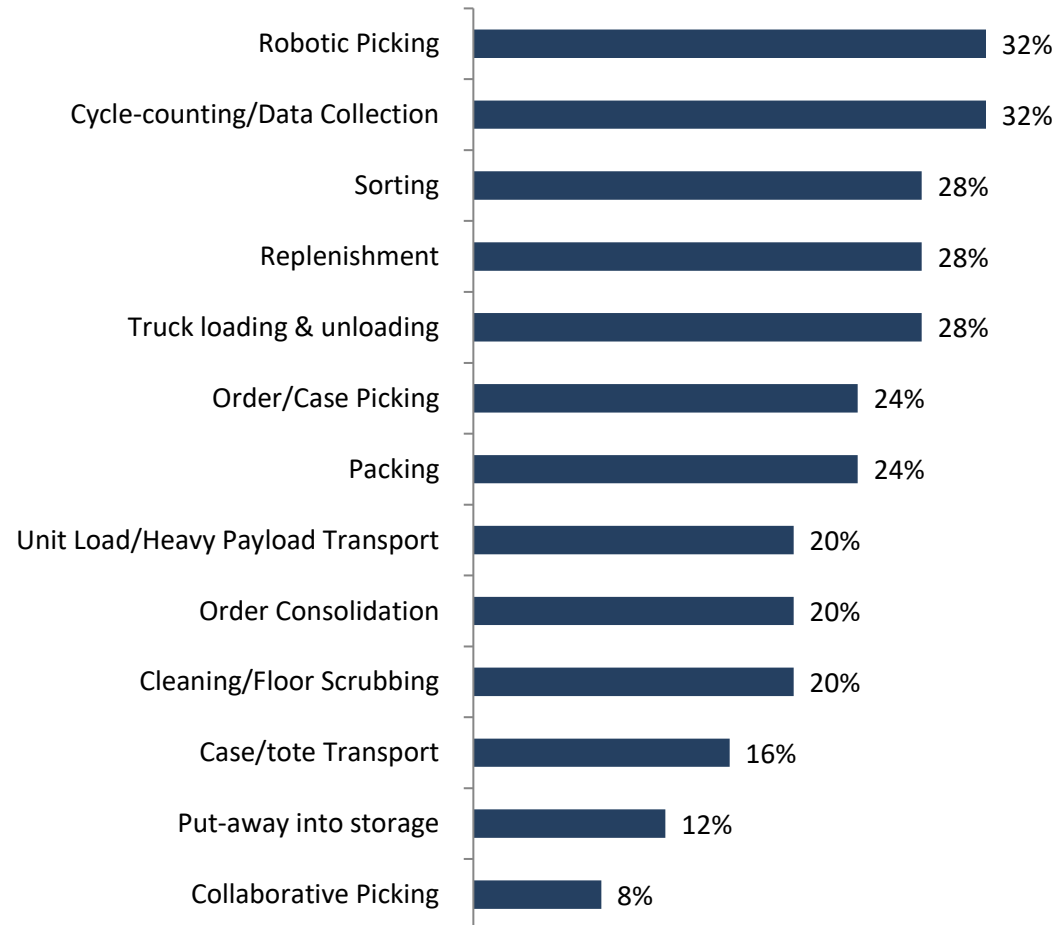
How important is the need for your operations to improve each of these processes?
[Continued]





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Which of the following use cases would be your top 3 priorities for using robots today?

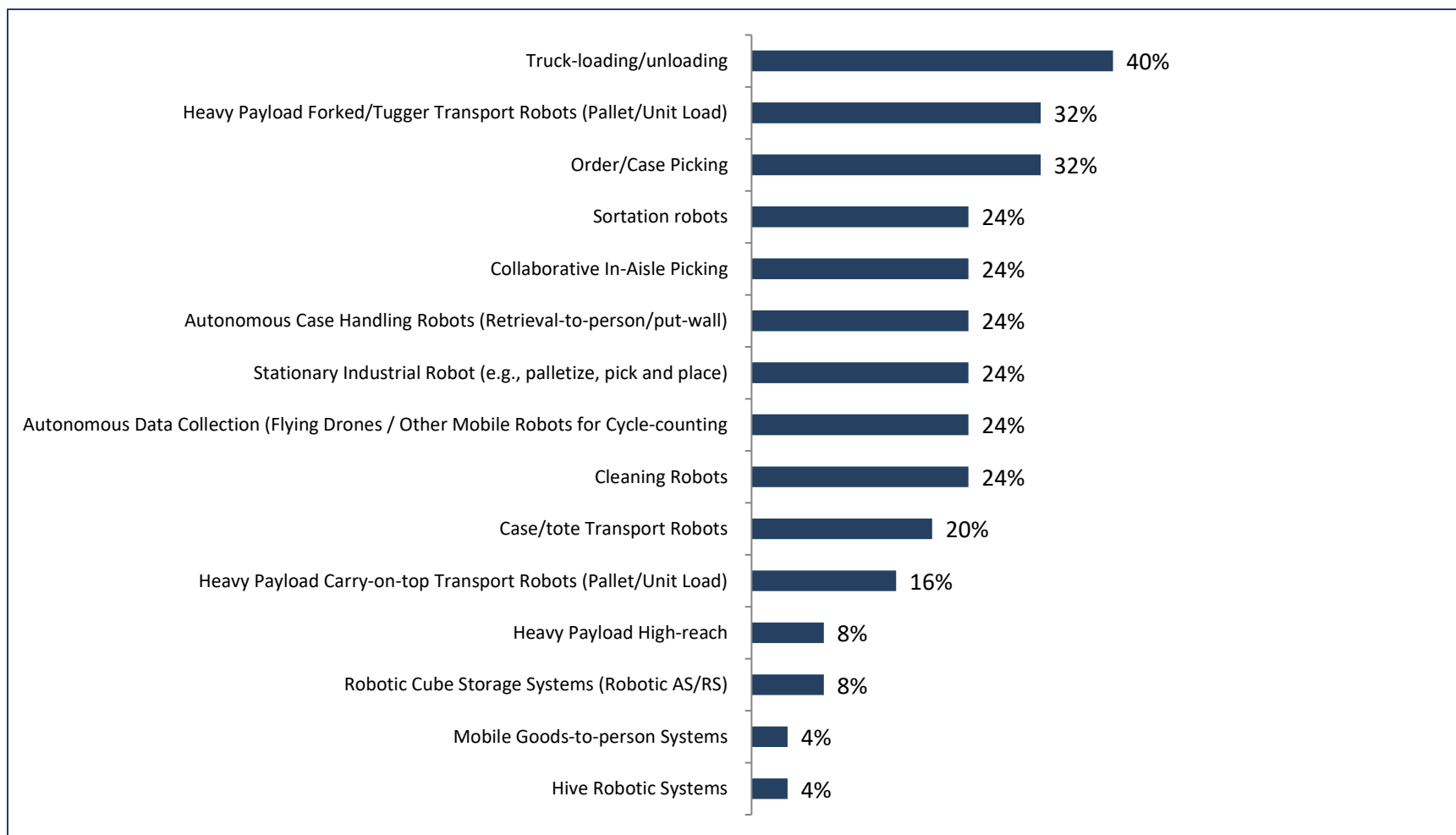


Note: Multiple answers accepted



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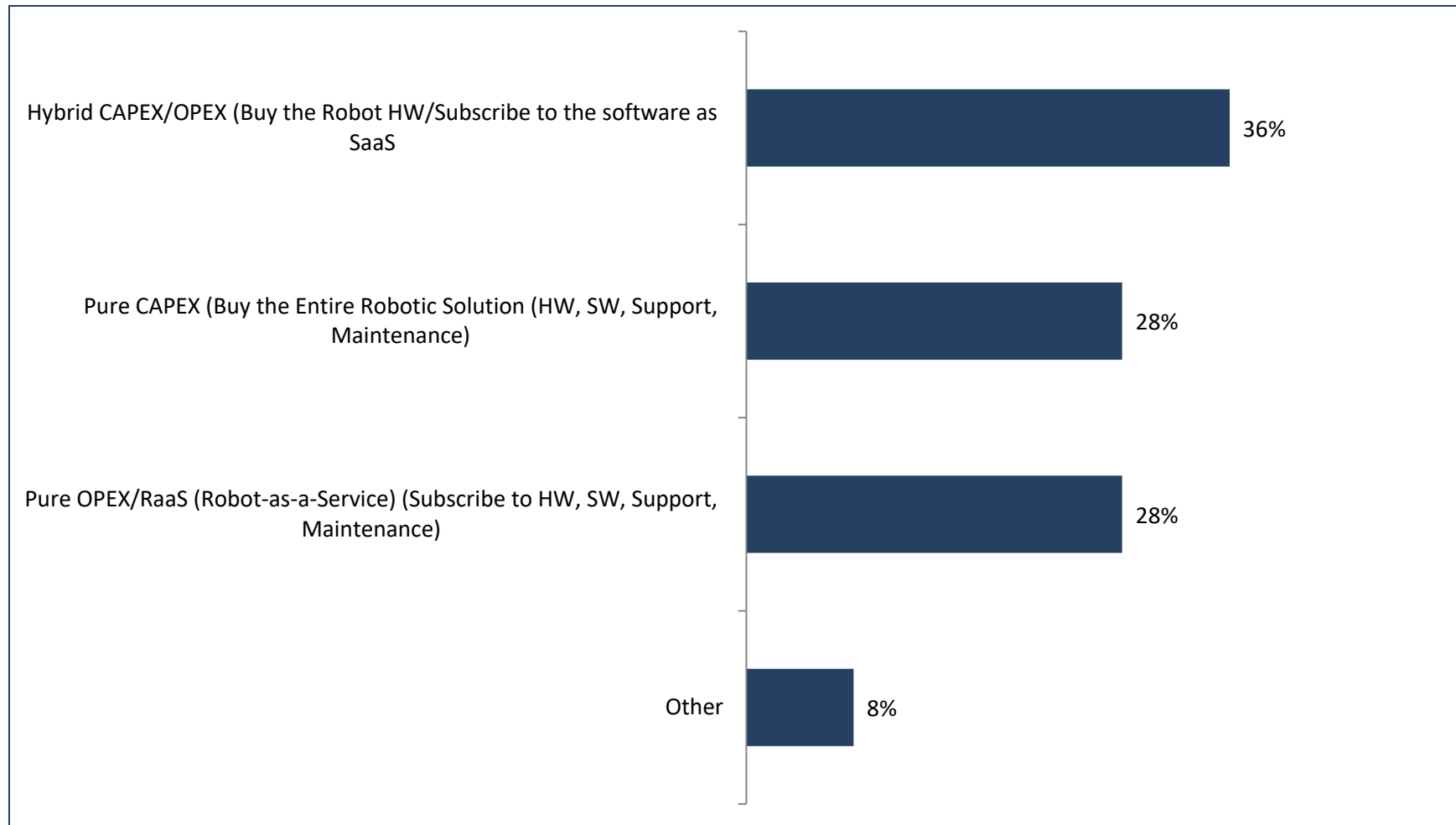
What are the primary types of robotic automation systems you are considering?



Note: Multiple answers accepted

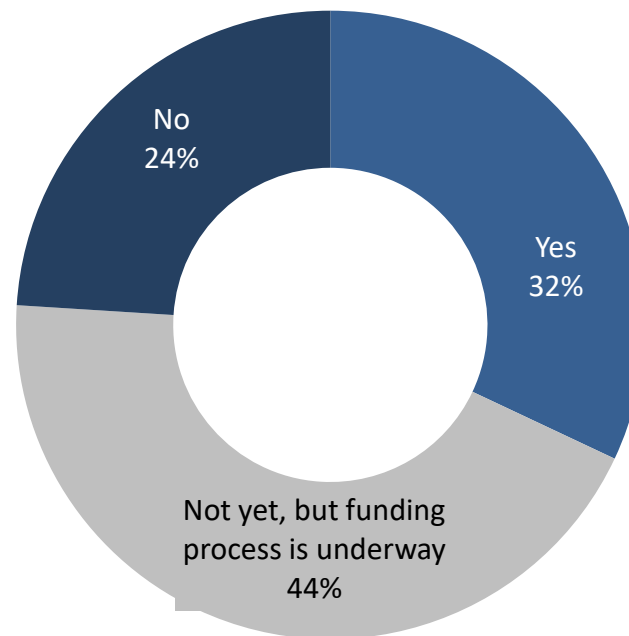


What is your preferred commercial model for your planned robotics initiatives?





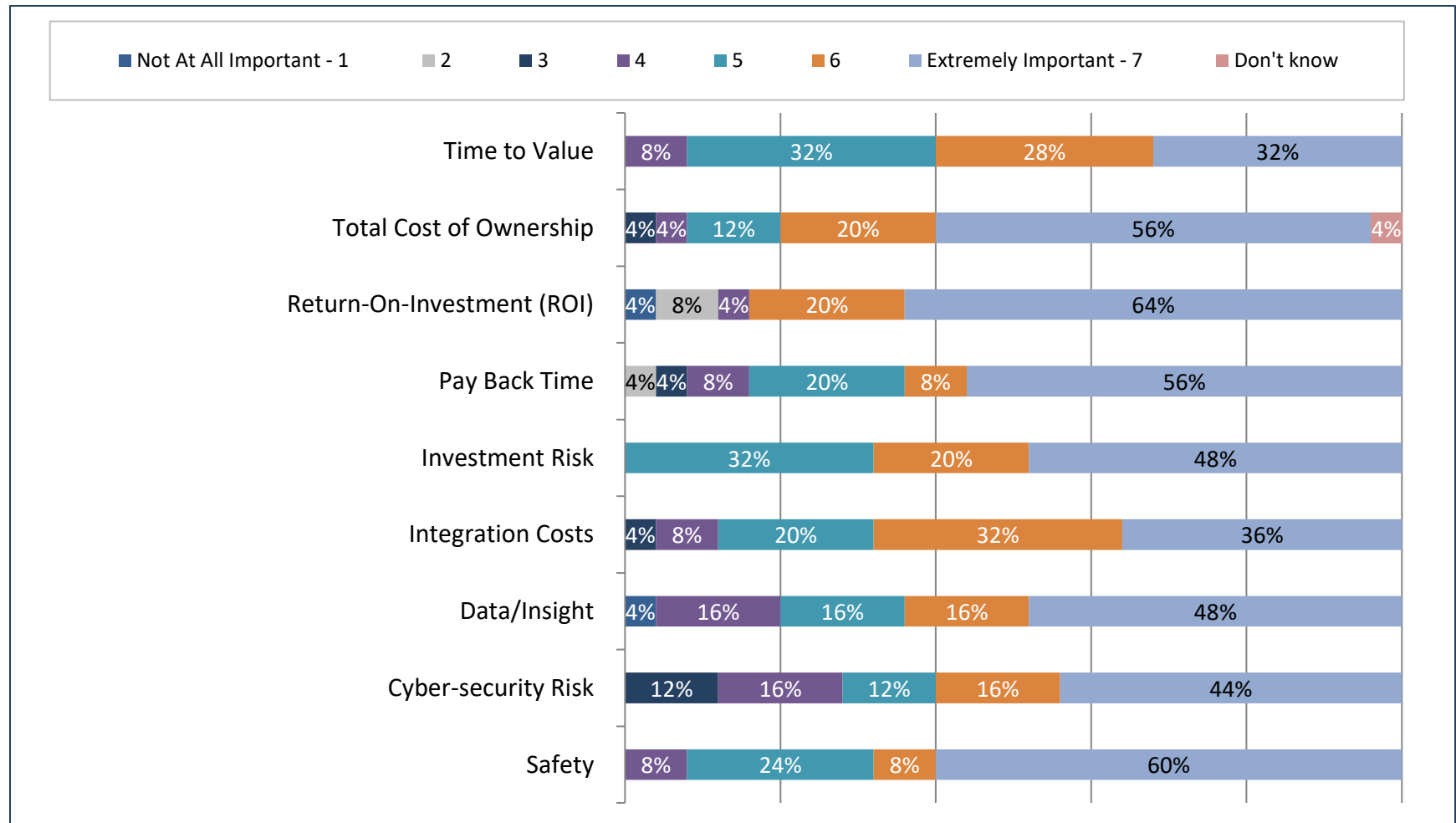
Do you currently have funding for a robotic automation system initiative?





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How important are the following business case factors when you are choosing your robotics solutions?





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What have been the top 3 challenges or obstacles you have faced as you pursued robotics?

Item	Overall Rank	Rank Distribution	Score
Identifying and Achieving Return on Investment (ROI)	1		29
Project Lead Times (Concept to Final Project Delivery)	2		22
Securing Project Funding	3		22
Concerns with Robotics Technology Maturity	4		20
Unable to Identify a Realistic Use Case with Reasonable Justification	5		17
Lack of Internal Robotics Experience and Expertise	6		15
Too Many Alternative Options to Sort Through	7		10
Difficulty Finding Partners (e.g., Systems Integrators) to Assist with the Project	8		4
Don't know	9		1

Lowest Rank Highest Rank

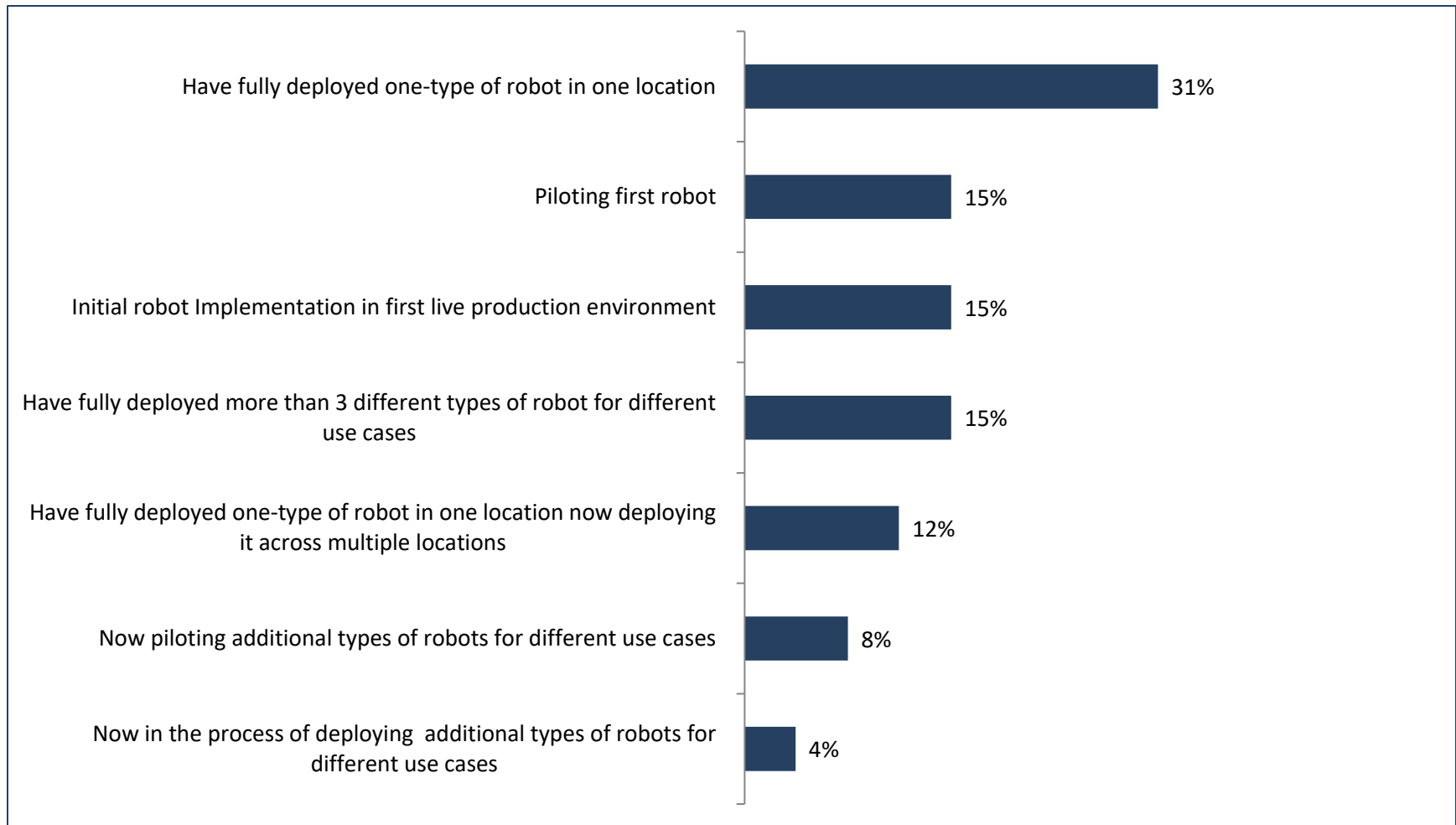


Responses from Respondents Stating: Currently Using Robotics



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What is the current state of your organization's pursuit of robots in your warehouse or DCs?





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What were the top 3 factors that motivated your organization to pursue robotics in your warehouses and distribution centers?

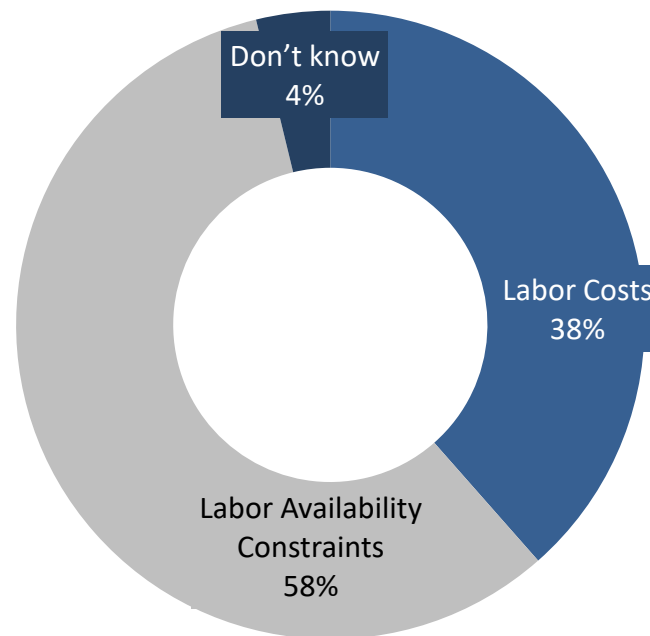
Item	Overall Rank	Rank Distribution	Score
Improve Labor Productivity	1		33
Reduce Labor Costs	2		25
Help Address Labor Shortages/Availability Constraints	3		25
Increase Flow/Through-put	4		22
Improve Order Accuracy/Quality	5		17
Shift to more fixed costs to mitigate variable/labor cost inflation	6		12
Improve Safety/Reduce Injuries	7		8
Maximize Space Utilization	8		6
Consistency & Adherence to defined “best” processes	9		5

Lowest Rank Highest Rank



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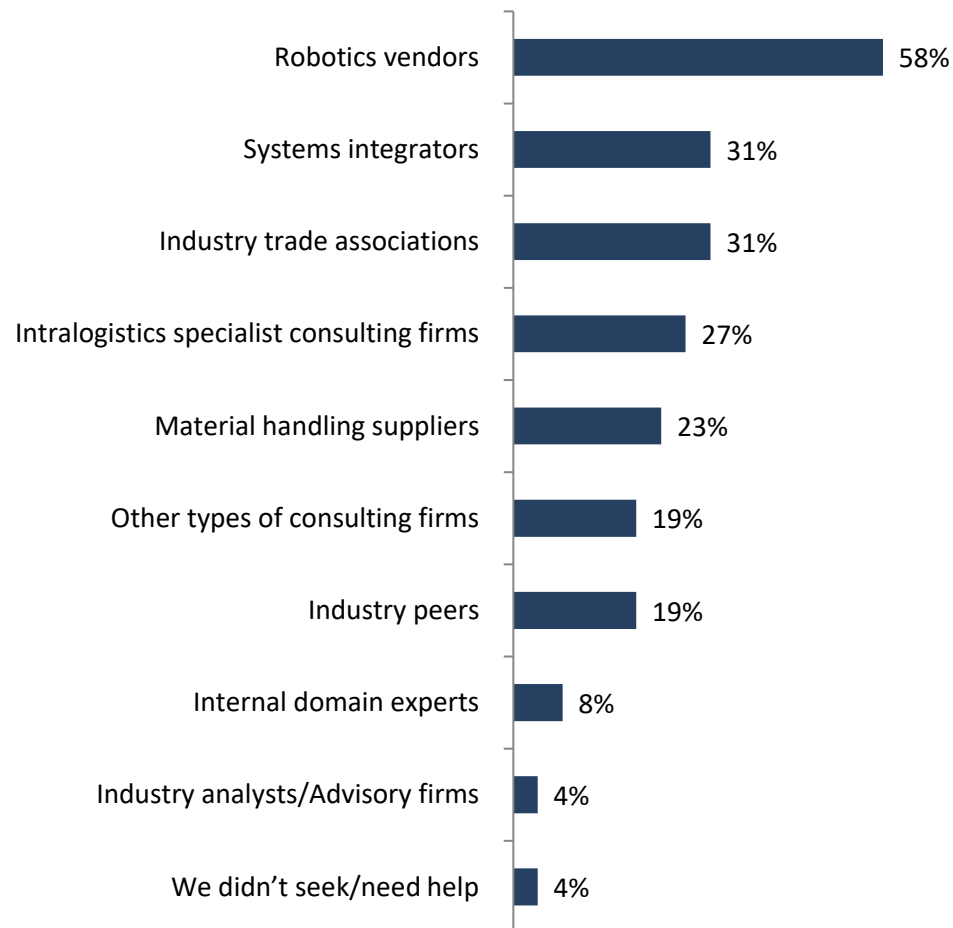
Which would be your most important motivation for considering robotics?





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Where did you turn for assistance and information during your robotics journey? (Select up to three)

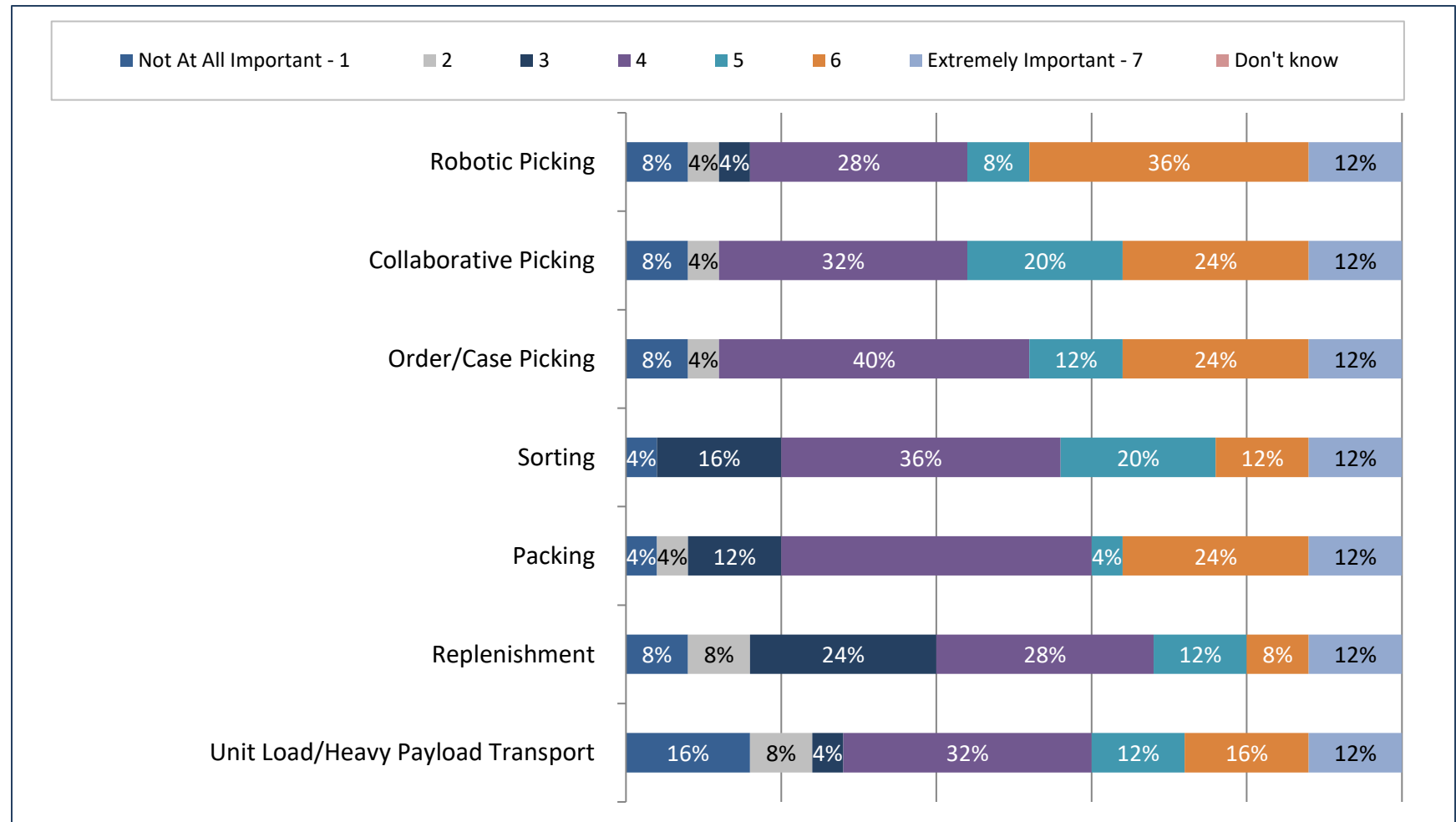


Note: Multiple answers accepted



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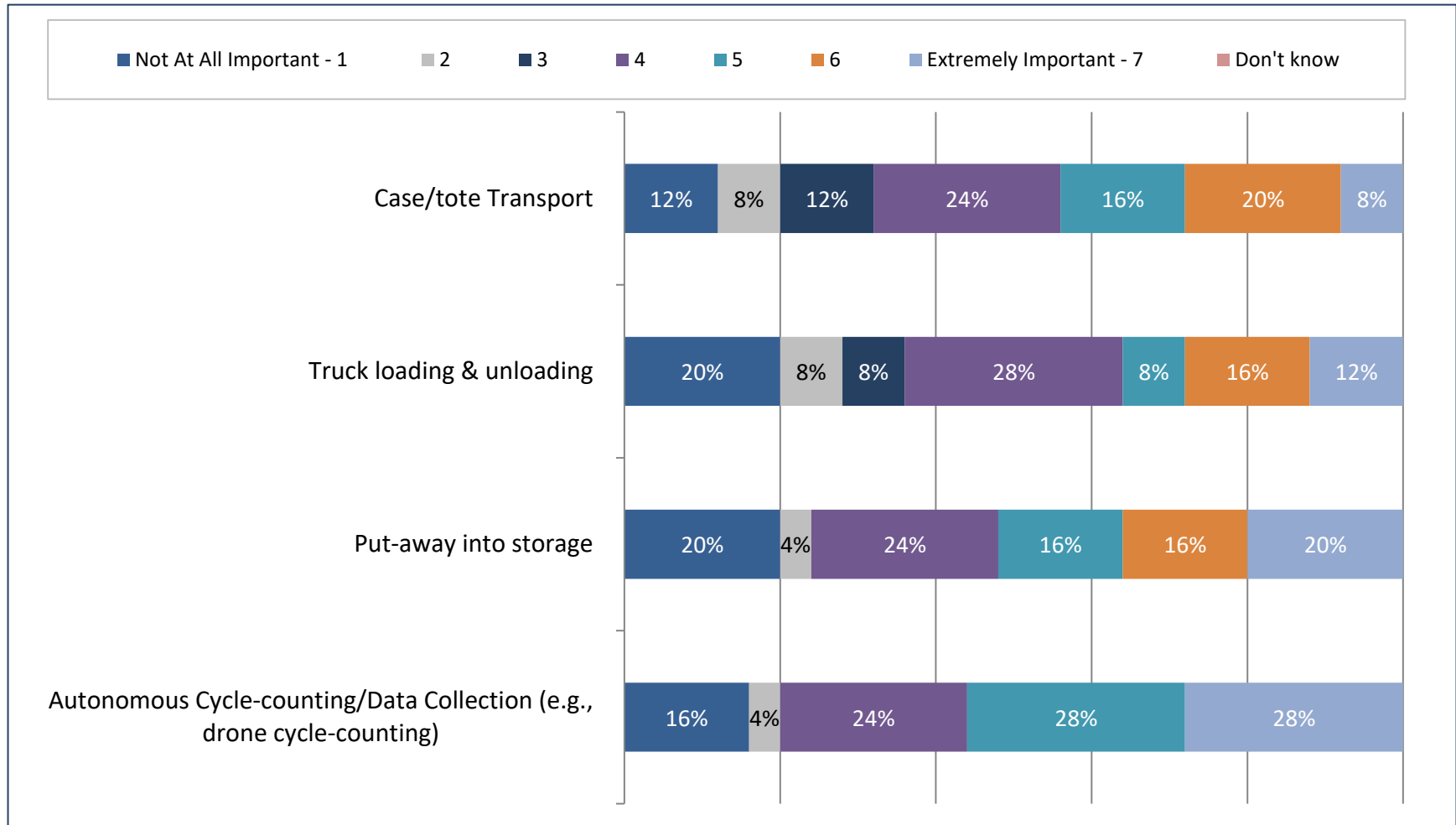
How important is the need for your operations to improve each of these processes?





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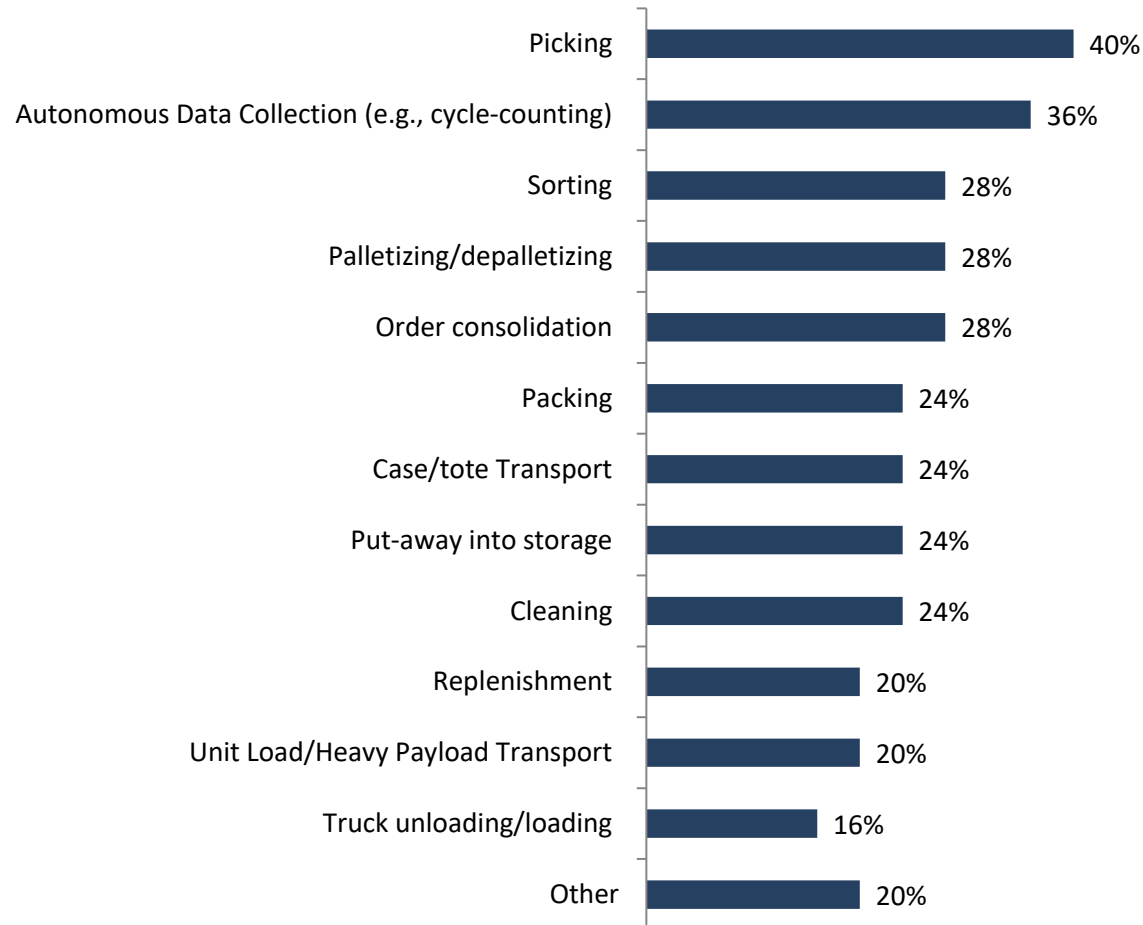
How important is the need for your operations to improve each of these processes?
[Continued]





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Which use cases are you addressing with robots today?

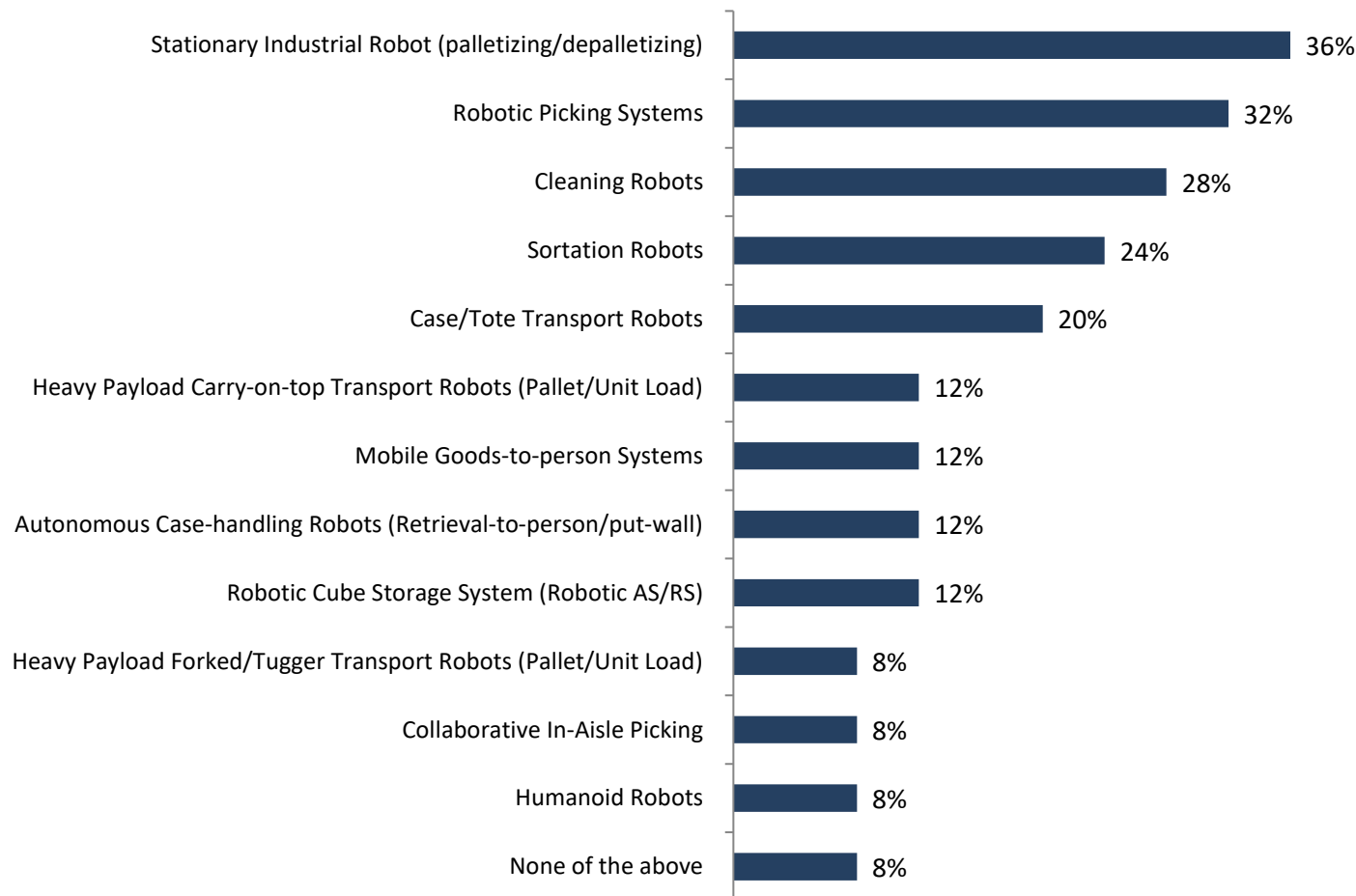


Note: Multiple answers accepted



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What are the primary types of robotic automation systems you are using today?

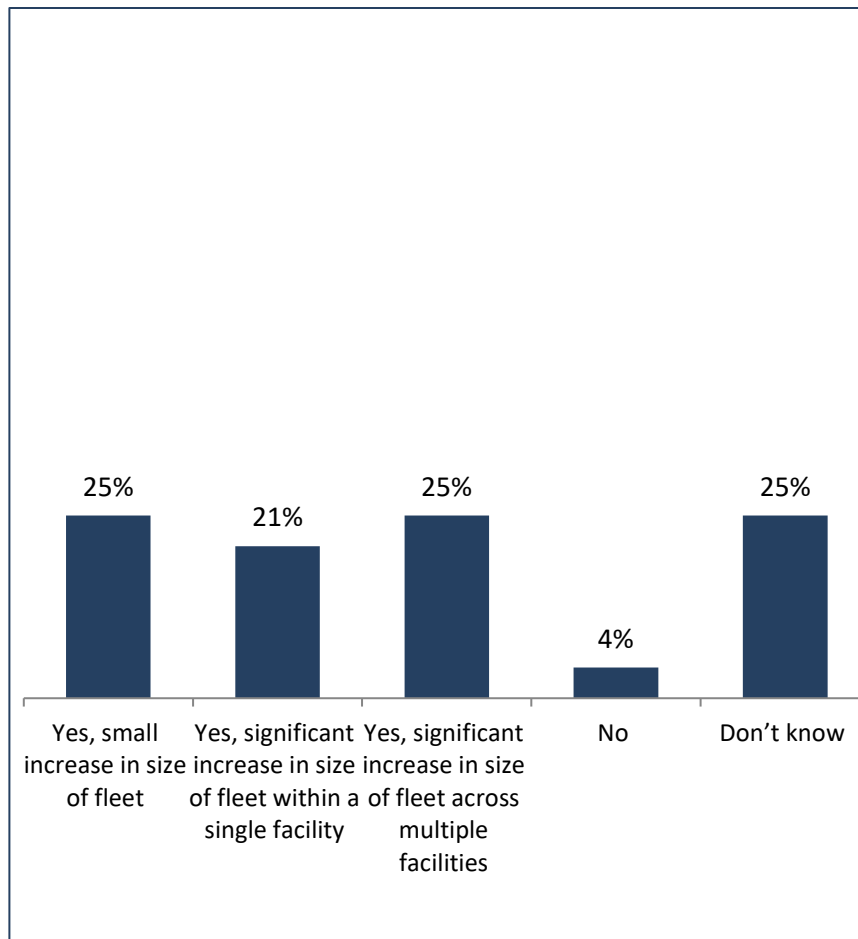


Note: Multiple answers accepted

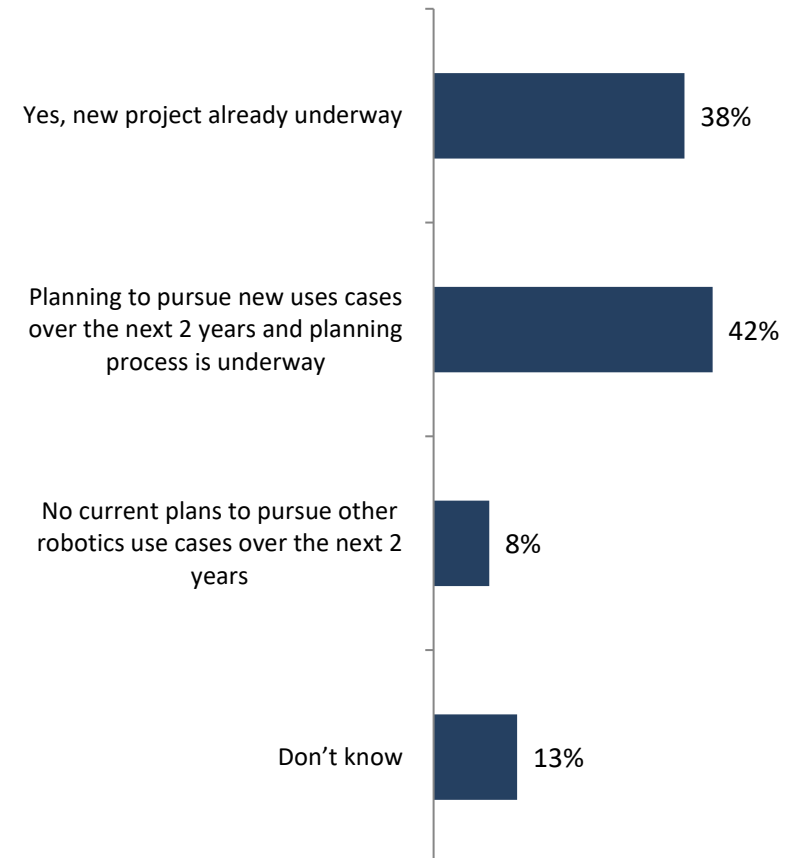


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Will you expand the fleet size of your existing robotic automation systems over the next 2 years?



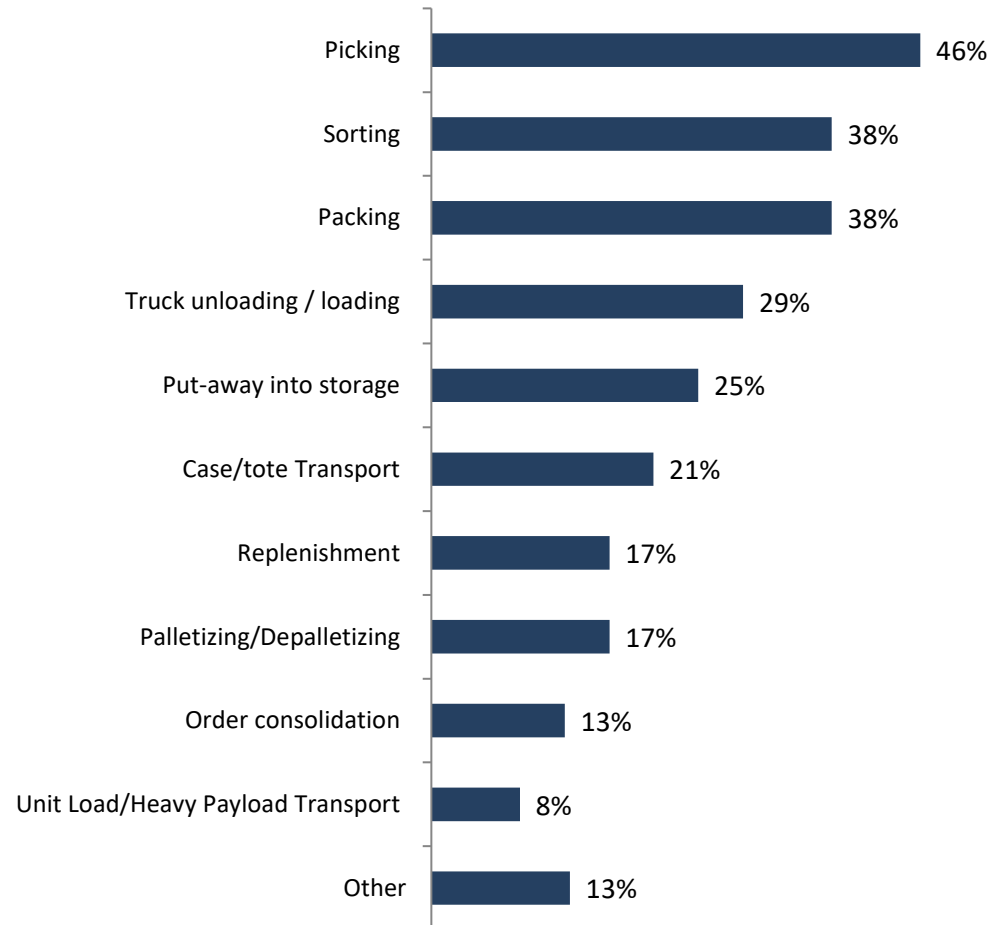
Do you plan to pursue other robotic automation use cases over the next 2 years?





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Which use cases are your next top priorities for using robots?

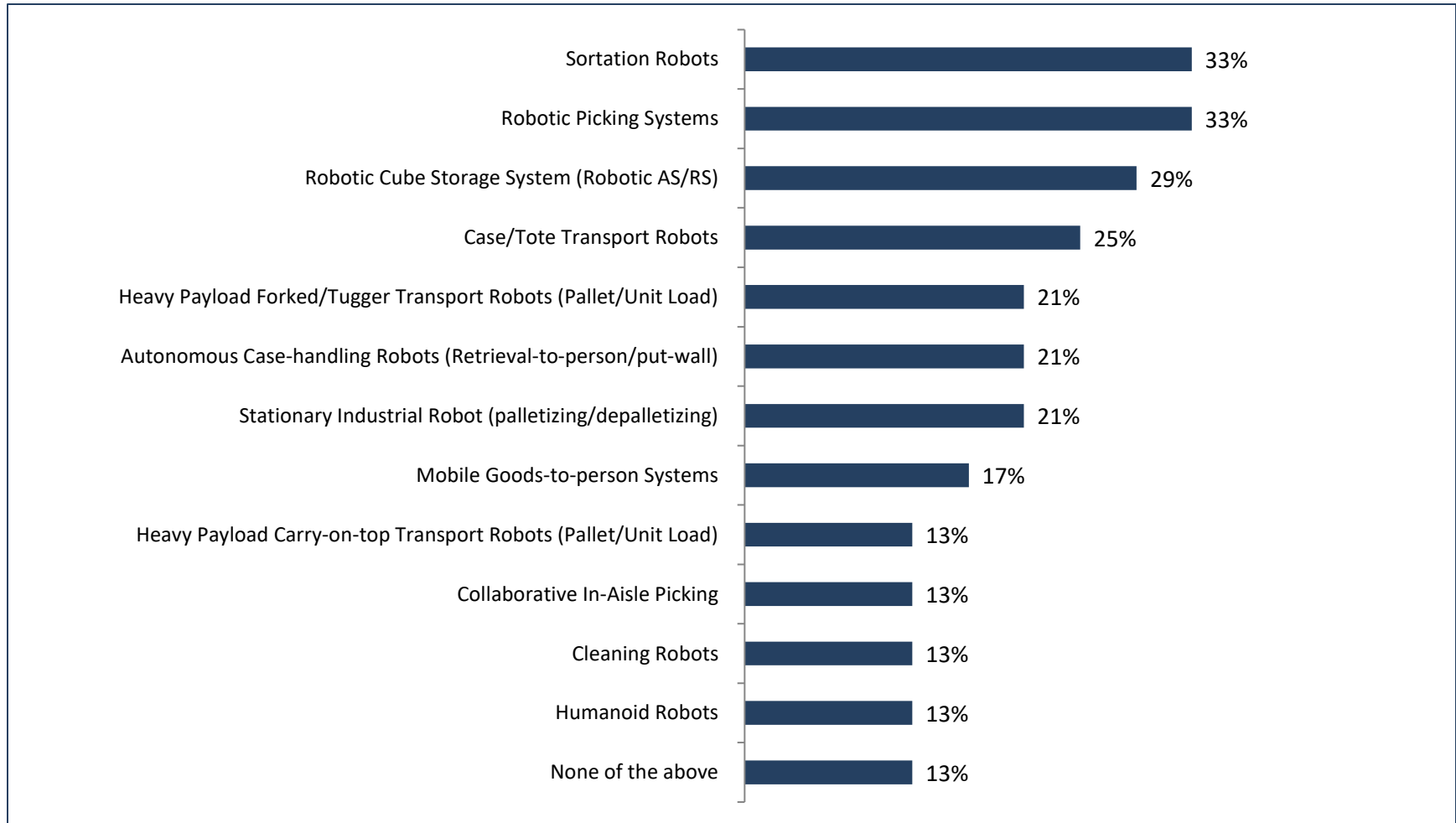


Note: Multiple answers accepted



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What are the primary types of robotic automation systems you will likely consider in the next 2 to 5 years?

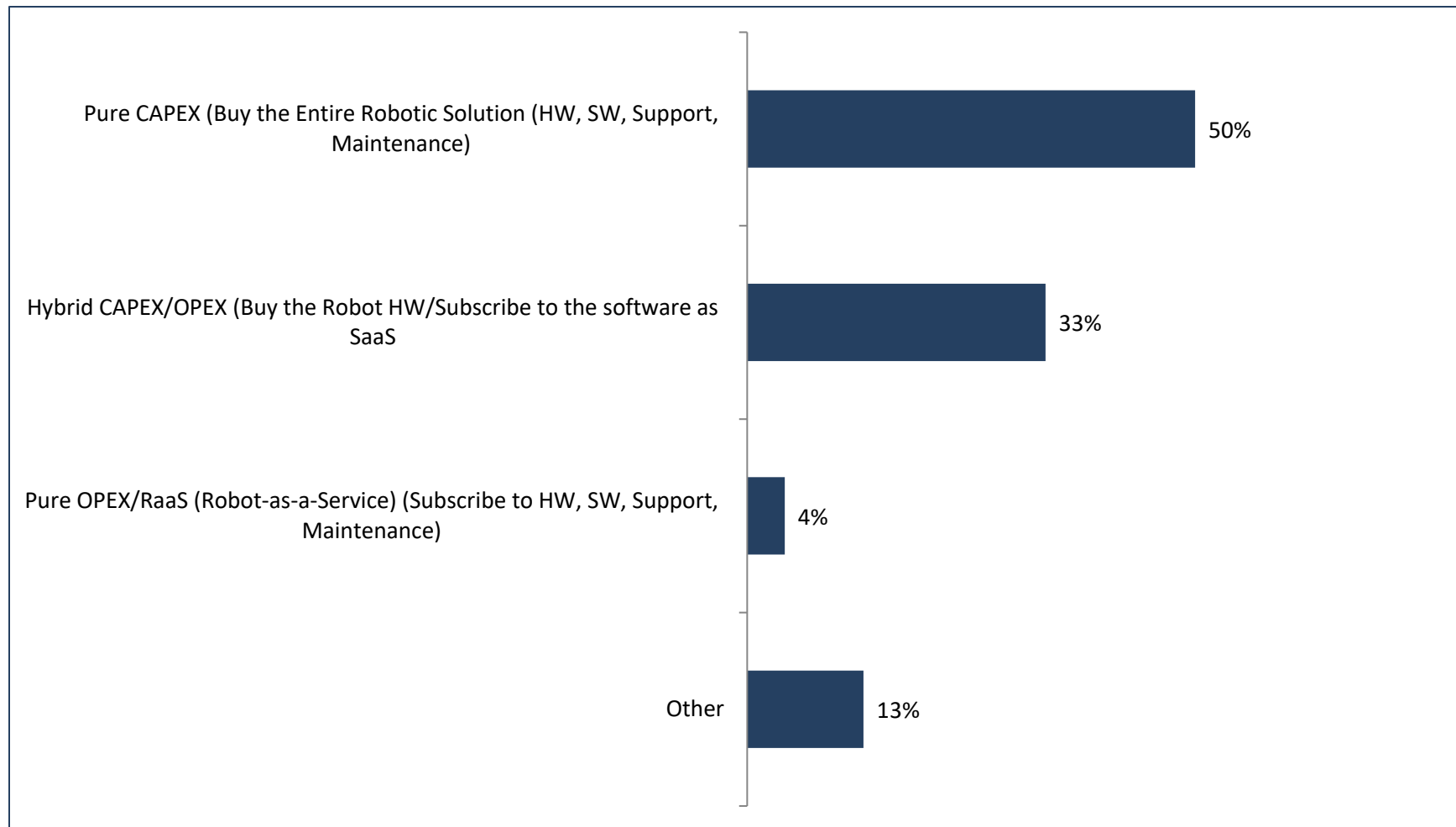


Note: Multiple answers accepted



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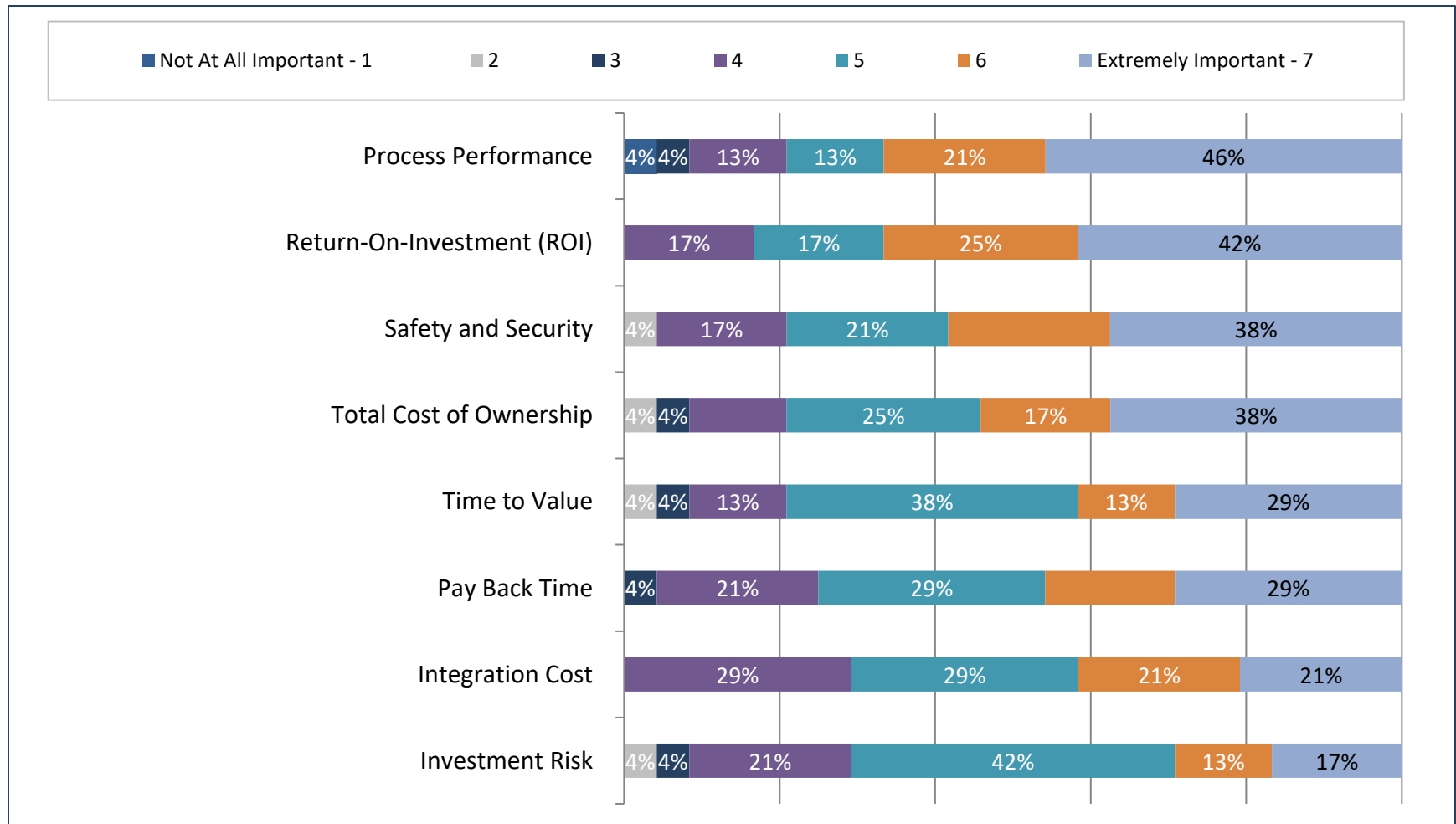
What was your preferred commercial model for your robotics initiatives?





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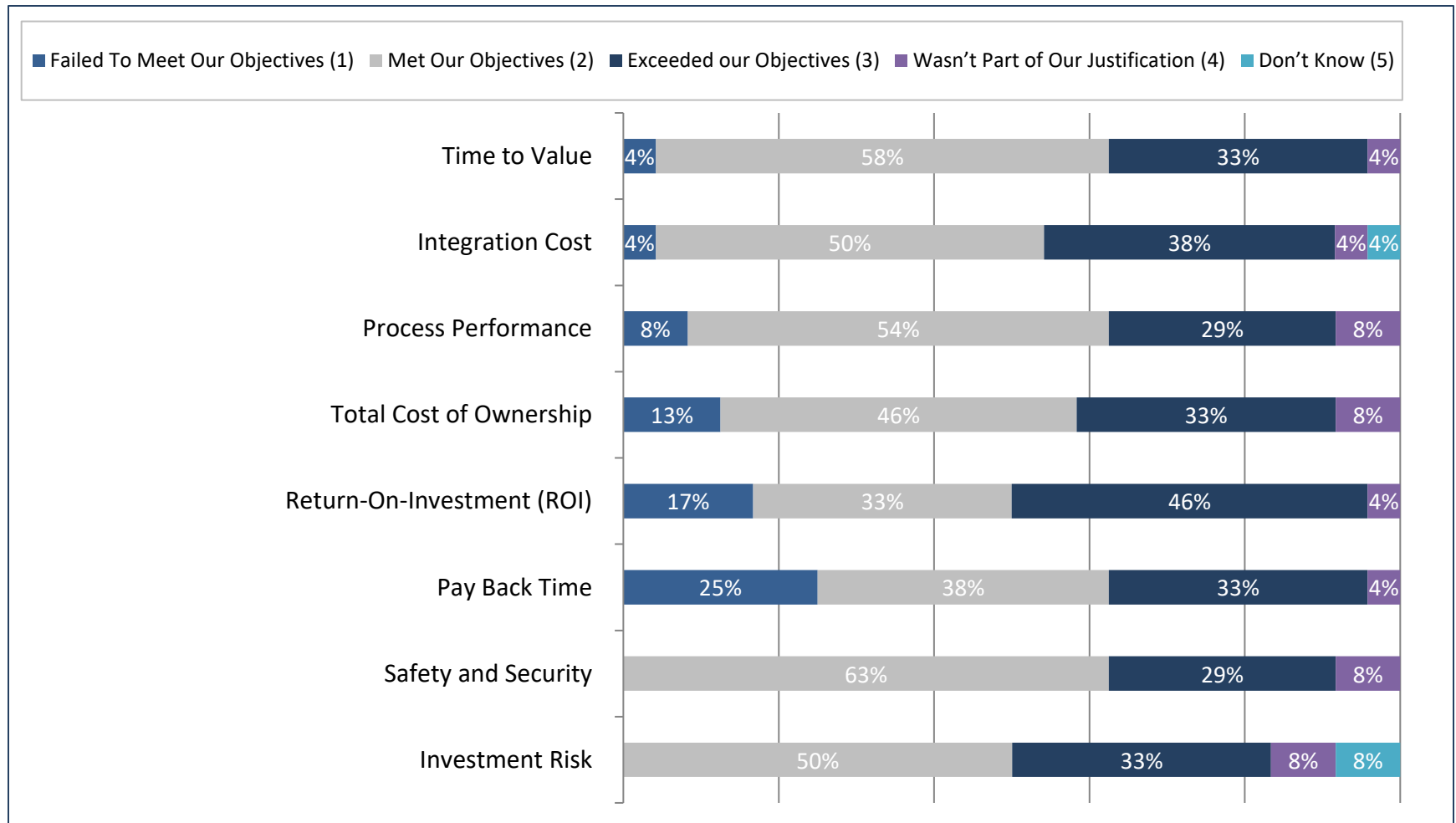
How important were the following business case factors when you were choosing your robotics solutions?





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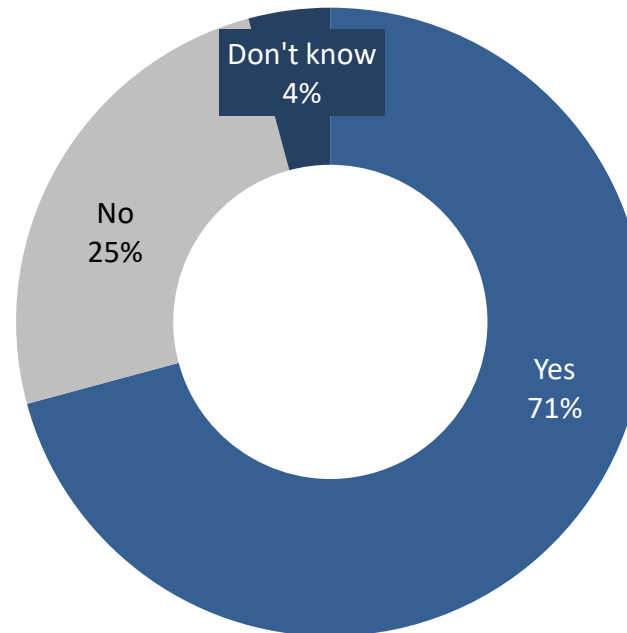
How well did your robotic automation investment(s) meet your business objectives?





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Did you achieve your overall business goals from your robotics investment?





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What were the top 3 challenges that impacted and influenced your investments in Robotics?

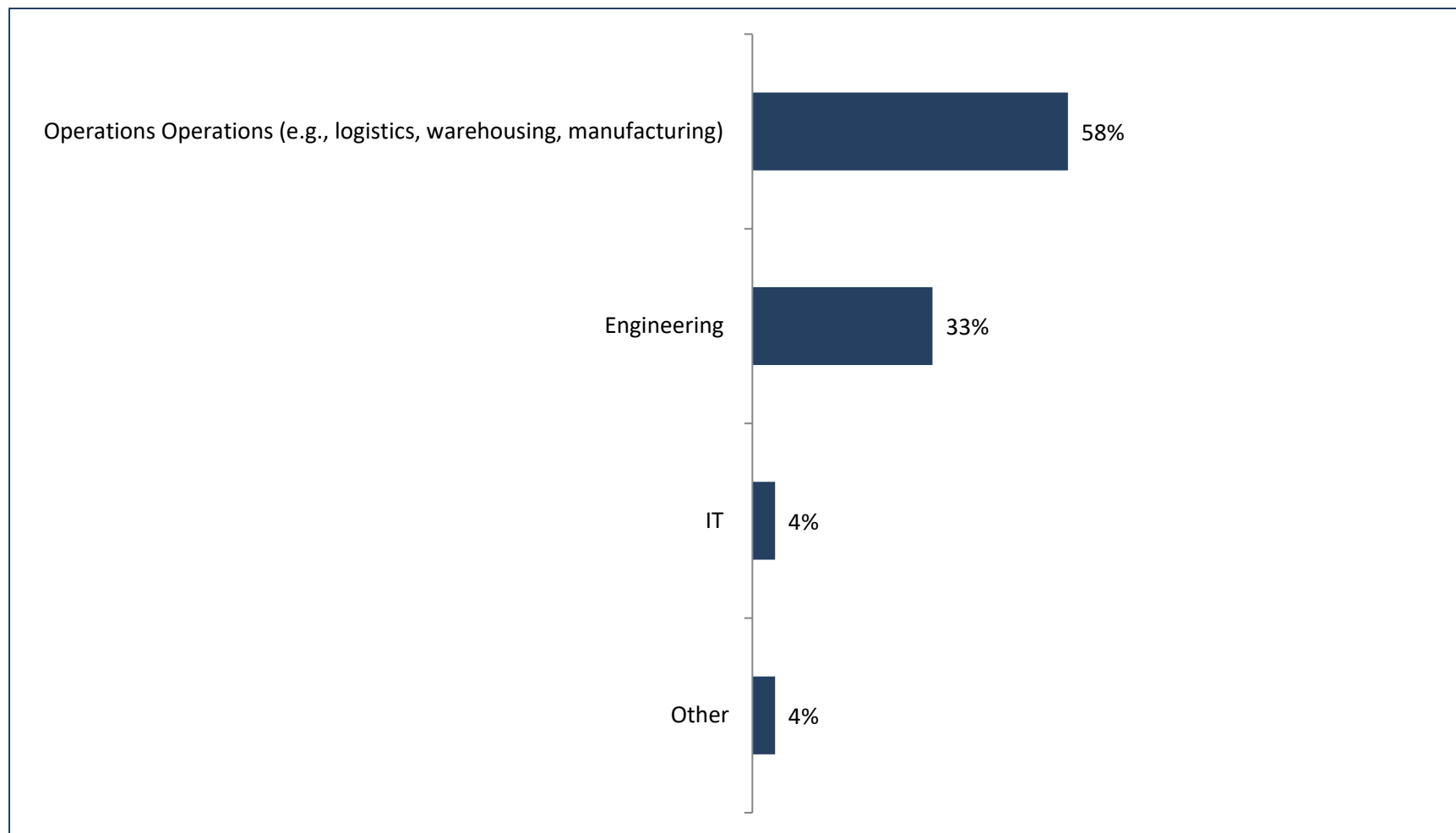
Item	Overall Rank	Rank Distribution	Score
Identifying and Achieving Return On Investment (ROI)	1		22
Potential Disruption of Operations/Down Time	2		21
Building A Realistic Business Case and Justifying the Investment	3		20
Having the Right People/Skills Gaps	4		19
Long Lead Time from Initial Concept to Final Project Delivery	5		16
Internal Robotics Experience and Expertise	6		14
Robotics Technology Maturity	7		11
Securing Project Funding	8		11
Project Risk	9		9

Lowest Rank Highest Rank



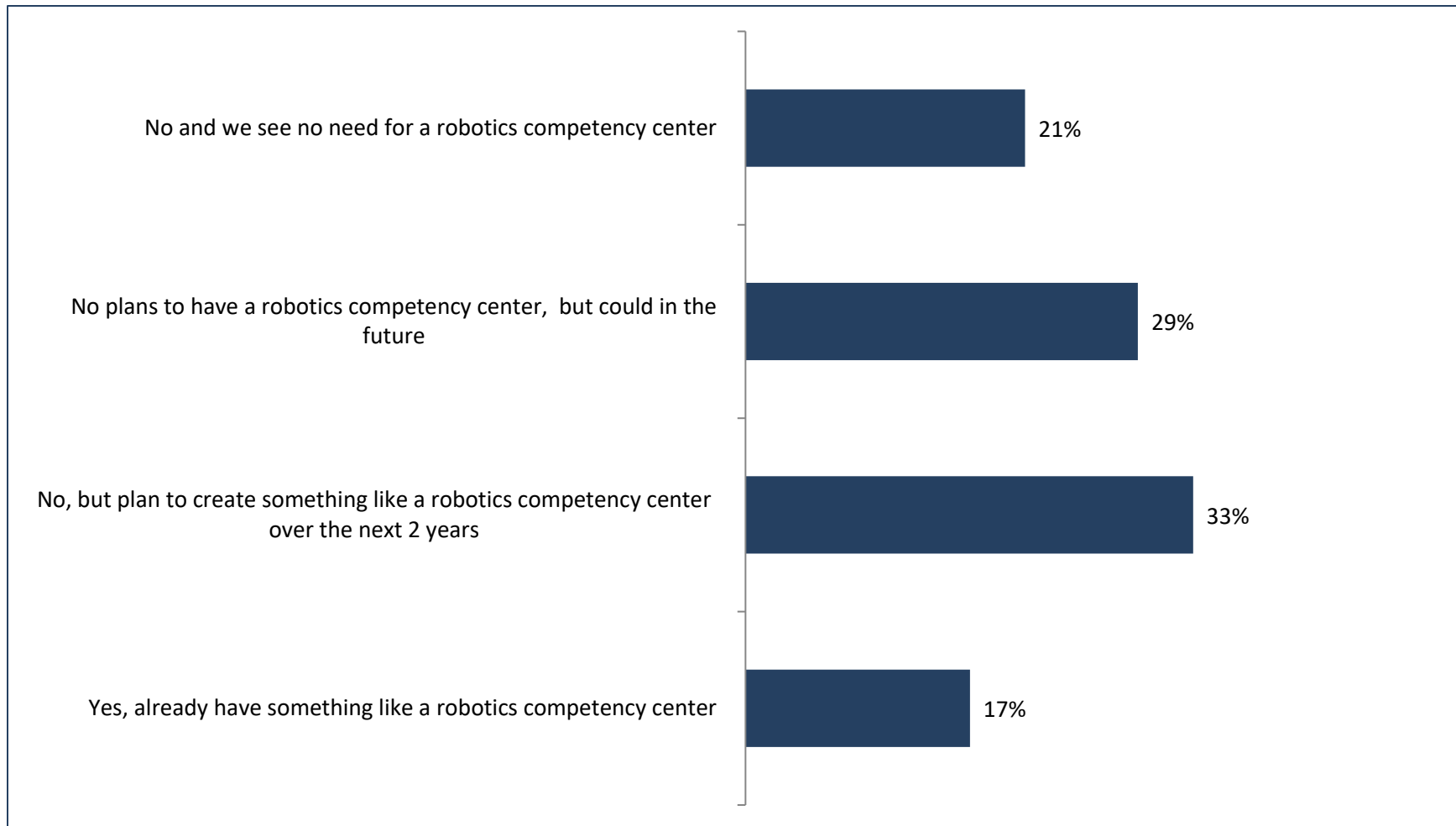
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In your organization, who owns the Robots?



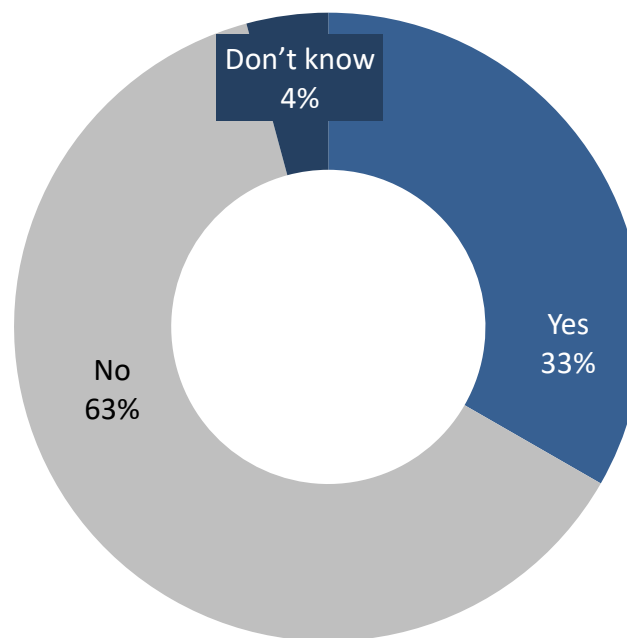


Does your organization have an automation or robotics competency center (RCC) or equivalent, dedicated internal robotics team?





Does your organization have a robotics partner?





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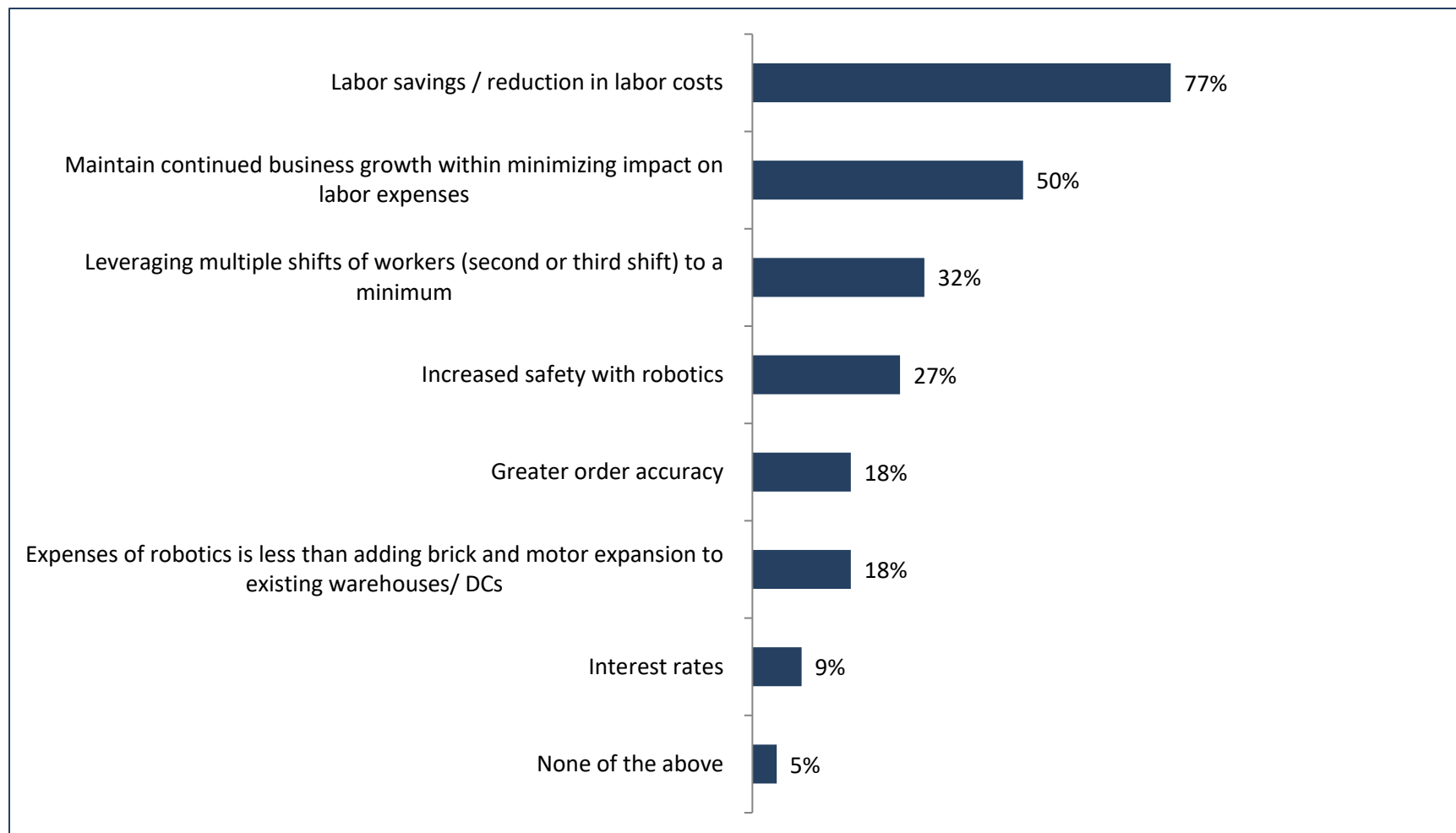
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IF YES – Who is your organization's robotics partner?

ABB
Afinomax
Brightpick
Dematic
Ozark Automation
Siemens
We don't divulge



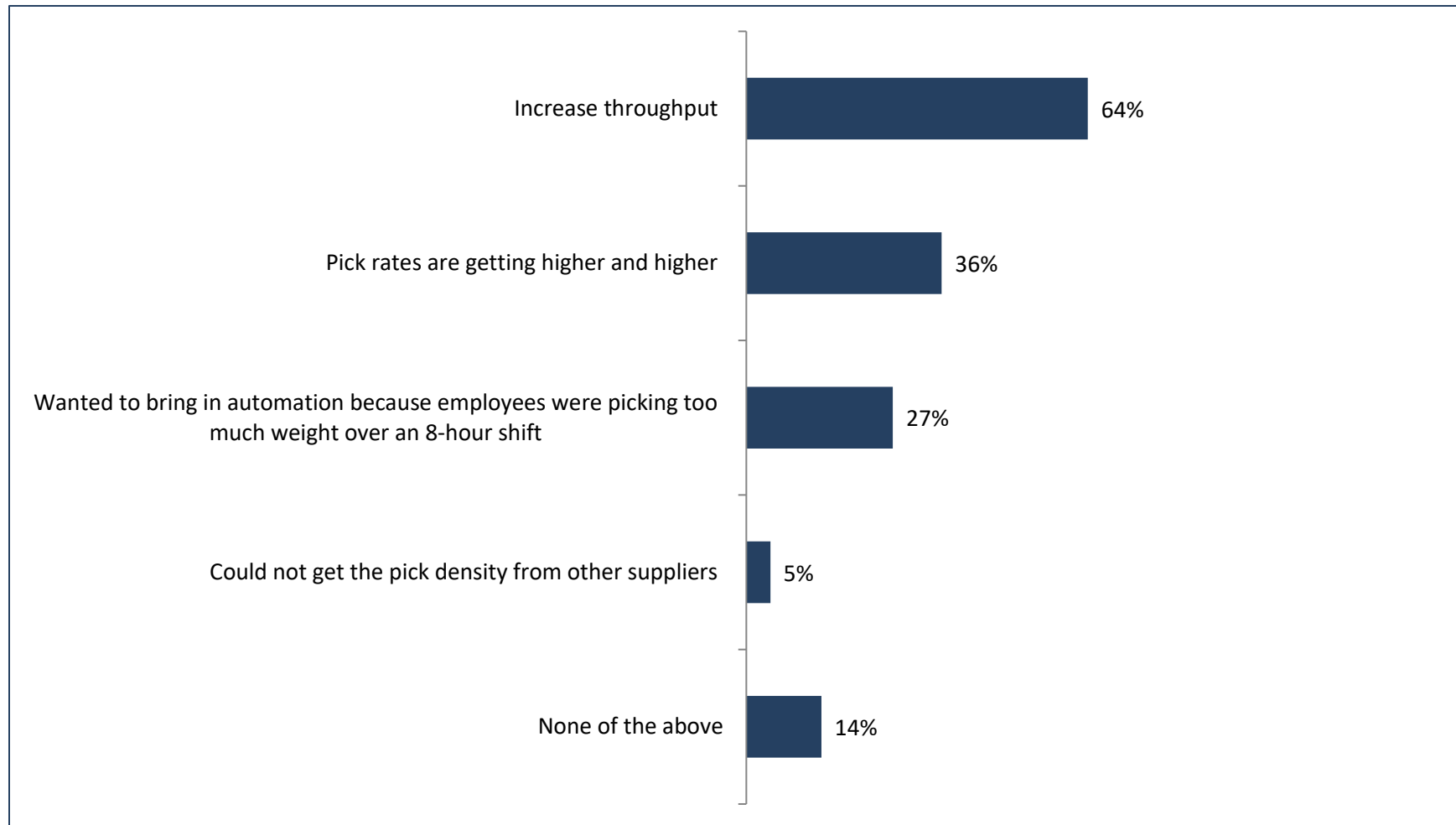
Which of the following business case reasons have an impact on your organization investing in robotics?



Note: Multiple answers accepted



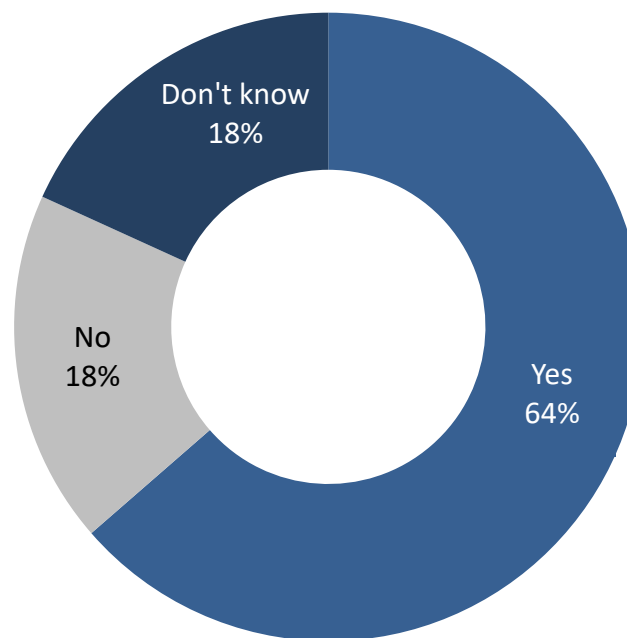
With respect to labor in the workplace environment, which of the following were reason(s) for adopting robotics in the workplace?



Note: Multiple answers accepted

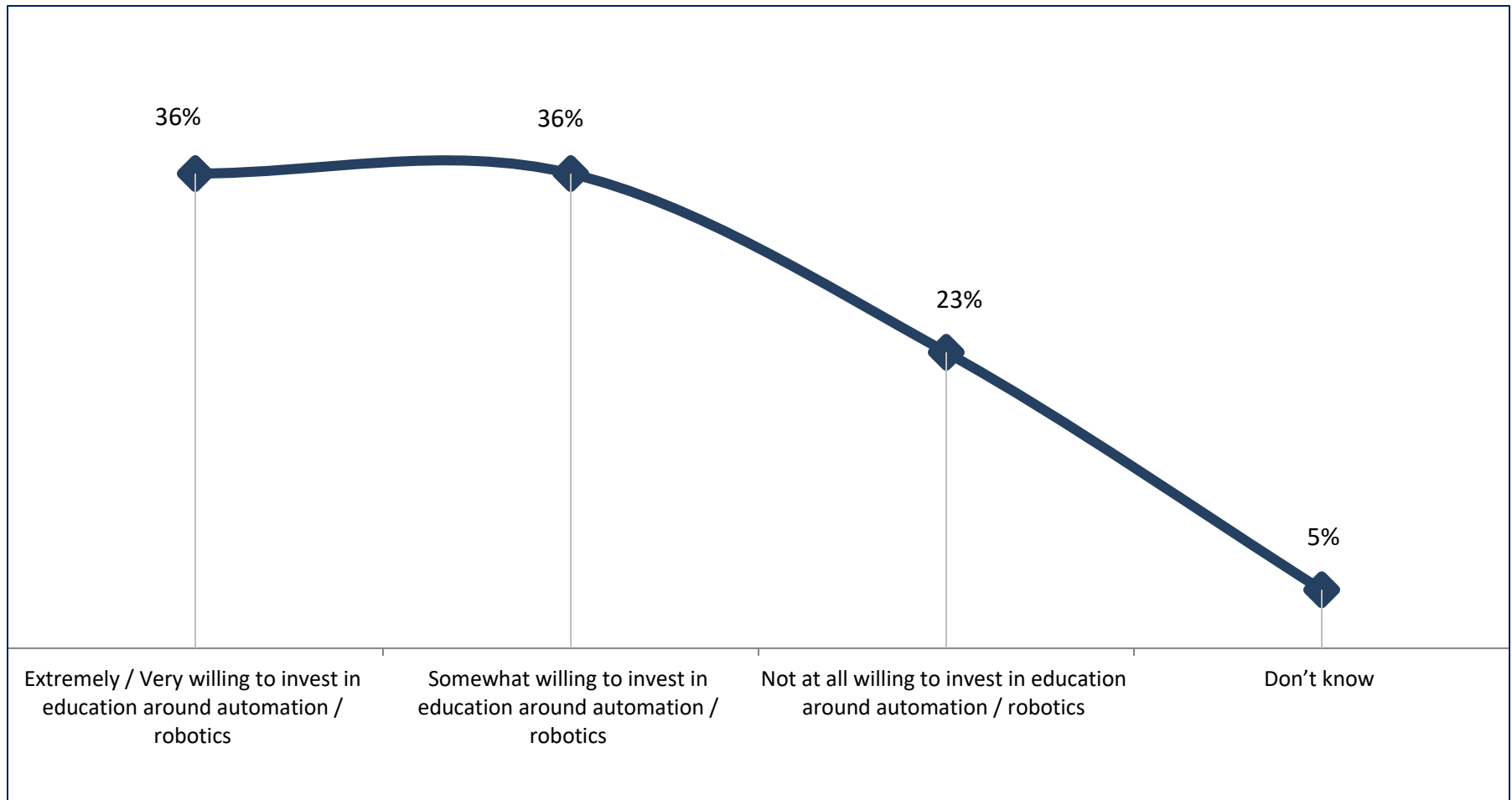


Is your organization considering / having discussions around leveraging multiple robotic suppliers within your warehouses / DCs?





How willing is your company to invest in education around automation / robotics?





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There are many tools in the “automation toolbox” that all work to provide benefits. Considering that your organization has adopted robotics, what other solutions / technology, did you consider as an alternative to robotics?

3PL the business so they can run that business for us
Hybrid solution
Large scale in place palletizers
More labor
More traditional automation
MTM Analysis Six sigma Projects CAD /CAM Software Update
Other automation
Pick put to light, RFID tech
Strong partnership for uptime & reliability.
Vision systems



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Respondent Demographics

Nature of your business	
Manufacturing	32%
Wholesale Trade	7%
Retail Trade	14%
3rd Party Logistics Provider	12%
Transportation/Warehousing Services	15%
Other Non-Manufacturing	21%

Of MANUFACTURING What is the primary product or service at your location?	
Automotive & Transportation Equipment	10%
Chemicals/Pharmaceuticals	18%
Computers & Electronics	2%
Electrical Equipment	6%
Fabricated Metals	2%
Food, Beverage & Tobacco	6%
Furniture	2%
Industrial Machinery	18%
Paper/Printing	4%
Plastics & Rubber	4%
Textiles/Apparel	2%
Other Manufacturing	25%



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Respondent Demographics [Continued]

Job Title/Function	
Corporate Management (President, CEO, GMs, VPs, etc.)	28%
Plant Management (Operations, Plant, Production, Maintenance, etc.)	12%
Distribution Center/Warehouse Director/Manager	7%
Material Handling Director/Manager	7%
Logistics Director/Manager	16%
Purchasing/Procurement	7%
Industrial Engineer	2%
Other	22%

Company Revenues - 2024	
Less than \$50 million	40%
\$50 million - \$99.9 million	9%
\$100 million - \$249.9 million	8%
\$250 million - \$499.9 million	5%
\$500 million - \$999.9 million	3%
\$1 billion \$2.49 billion	7%
\$2.5 billion or more	13%
Cannot disclose	15%