



Supply Chain and Inventory Management Trends 2022-2023

A Grainger Report

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Introduction

Grainger customers across industries continue to adjust how they operate their businesses to both withstand supply chain instability and remain competitive by incorporating essential technologies. This report draws from a 2022 survey of Grainger customers to learn what kinds of supply chain and inventory management adjustments they have made in response to the worst of the pandemic, and what they consider to be the most important factors affecting their businesses in the immediate future.

When the COVID-19 pandemic hit in 2020, many companies scrambled to procure business-critical supplies and raw materials due to supply chain interruption, often by adding suppliers with product they could use, and by stockpiling supplies. Back in 2021, Grainger [released a report](#) based on customer survey data that confirms this.

Today our customers seem to be entering a new phase. They are dealing with labor disruptions extending from the pandemic and an aging workforce, facing inflationary pressures and trying to integrate technological advances into their operations. It's clear that success for many of our customers will look different moving forward.

Organizations are realizing, especially in the C-suites and the executive chairs, that the way we got here is not the way we're going to operate going forward.

– Kevin Hartler, Sr. Director, Grainger Consulting Services

Even after over three years since the beginning of COVID, many businesses are still trying to find ways to keep product in stock and manage their inventory, and so many are still continuing to take steps to ensure their access to products remains strong.

– Supplier Representative



Each section of this report identifies trends in supply chain and inventory management uncovered in our customer research, including how businesses are changing how they manage their inventories, emerging technologies that impact inventory management and how companies are training their employees to provide the skills they will need in the near future. Interviews with experts also uncovered some important supply chain considerations around cybersecurity and Environmental and Social Governance (ESG).

Research Methodology

This report details the findings from a customer survey and interviews designed to see how Grainger customers are managing today. Survey questions centered on the following topics:

- **Current Inventory Management Concerns**
- **Changes in the Supply Chain**
- **Emerging Technologies**
- **Industry Outlook**

Phase 1: Online survey conducted October 24-31, 2022. Survey data is based on 301 respondents. All respondents were required to answer every question to complete the survey and to confirm they are Grainger customers.

Phase 2: In January and February 2023, Grainger conducted qualitative interviews with supply chain and logistics experts from inside and outside Grainger.

CONTRIBUTING EXPERTS

Alan Amling Distinguished Fellow, Supply Chain Institute, Logistics Consultant

Supplier Representative/National Account Manager for a Global Manufacturer

Kevin Hartler Sr. Director, Grainger Consulting Services

Ben Nichols Group Vice President, Government and Healthcare Sales at Grainger

Rick Sigler Vice President, Onsite Services at Grainger



Survey Demographics






The 301 respondents to the survey portion of this research represent ages from 18 to over 70 with the largest representation in the 35-55 age group. All respondents are responsible for purchasing and procurement of MRO supplies.

SURVEY PARTICIPANT REQUIREMENTS

- Age 18+
- Fully Employed
- Currently Shop/Purchase MRO Products for their Organization
- Primary or Shared Decision Maker for Purchasing Decisions
- Familiar with Inventory Management

INDUSTRIES REPRESENTED AND NUMBER OF RESPONDENTS

CHART COLOR KEY

	Total (301)
	Manufacturing (74)
	Government/Education (50)
	Healthcare (58)
	Commercial (111)

(Numbers) represented here reflect the majority of respondents who fall into each of these industries. A small number of respondents did not fall into these categories, so in a few cases, the percentages will not add up to 100%.

See Appendix for more demographic information.



Executive Summary

The survey reveals that customer concerns mirror today's economic issues, with rising prices as the top supply chain concern and backorders and product availability as their greatest inventory management challenge.

The survey also uncovered that to respond to supply chain challenges brought on by the COVID-19 pandemic, Grainger customers have increased the number of suppliers they purchase from. This was true across all industry segments represented.

68% increased the number of suppliers they purchase from.

44% added buffer inventory to respond to supply chain challenges brought on by the COVID-19 pandemic.

Among the 68% of customers who increased their supplier base, the largest of companies (those who spend at least \$600,000 annually on MRO supplies) were more likely to add suppliers (85%) and buffer inventory (56%).

TECHNOLOGY AND SKILLS

Daily challenges brought on by the economy and supply chain backlogs have uncovered the need for heavier reliance on emerging technologies, specifically those designed to interpret real-time inventory data and logistics in the supply chain. As a result, MRO customers are making bigger commitments to continuing education for current employees to provide new skills for managing these technologies. And when hiring, our customers are looking for workers with skills in emerging technologies.

61% of companies will implement continuing education.

53% report there will be a change in the kinds of skills needed to adapt to these emerging technologies.

TOP TECHNOLOGIES

59% Real-Time Inventory Data
53% Logistics
35% Cloud Services
26% Machine Learning
21% Internet of Things (IoT)

NEW SKILLS IN THESE TECHNOLOGIES

24% Analytics
20% AI
11% Additive Manufacturing
11% Internet of Things (IoT)



Executive Summary

OUTLOOK

Despite economic recession concerns and rising prices, a significant majority of respondents expected an increase in demand for their products and services in the following 12 months. To keep pace with this growth, Grainger customers will change how they invest in the emerging technologies needed to manage their inventories, which will in turn impact how they hire and retain employees.

72% of Grainger customers expect an increase in demand for their products and services.

BREAKDOWN BY INDUSTRY

77% Manufacturing

50% Government/Education

86% Healthcare

73% Commercial



What were some of the biggest challenges resulting from the COVID-19 pandemic?

We saw so many unpredictable swings and spikes in demand. And because of that unpredictability, we had to adapt and change how we plan our inventory. So, understanding what's happening in the market, and how to predict what's going to happen as best as we can, has been a big challenge.

– Supplier Representative

It's now more about who has a big enough and strong enough supply chain, including making the investments in inventory that will give me priority when priority becomes important in terms of who does or doesn't get product.

– Rick Sigler, Vice President, Grainger Onsite Services



Developing a Tech-Savvy Workforce

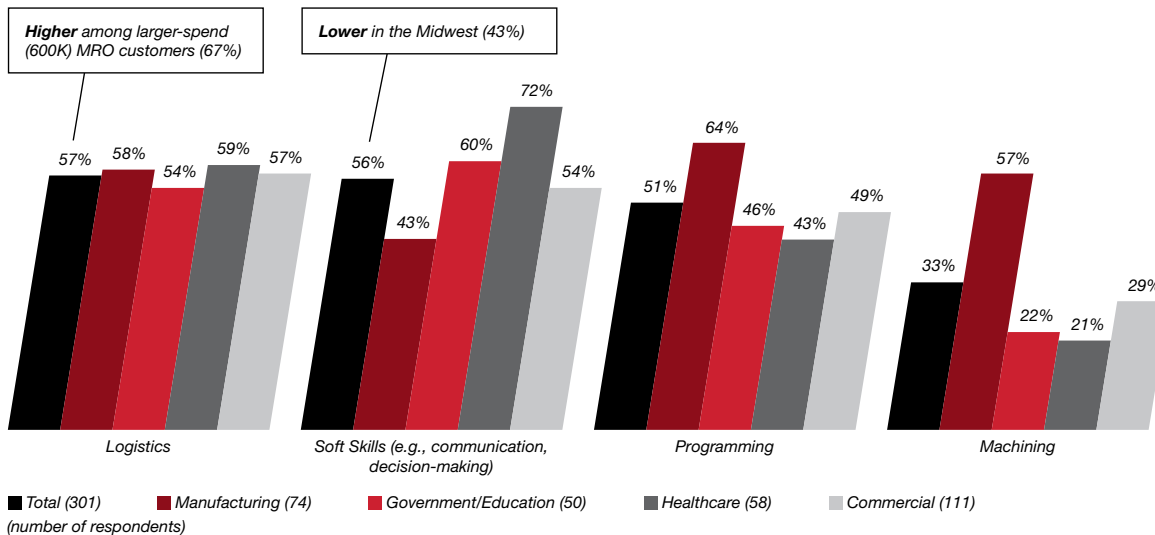
Grainger customers are faced with incorporating a range of [inventory management technologies](#), such as analytics and real-time data, artificial intelligence (AI), and the Internet of Things (IoT). Our experts agree that over the coming years, it won't be enough to know the potential benefit these systems offer, how they work or even to have access to the real-time data they provide. Companies will need to take the next important step and develop actionable plans to incorporate these systems, interpret the data, and use that intelligence to make better inventory predictions, better business decisions and appropriate adjustments throughout their operations.

But who will lead this work? Labor challenges exist across industries, and the changing nature of work complicates that issue.

Logistics, soft skills and programming are needed to adapt to emerging inventory management technology; soft skills are more necessary in healthcare, and programming and machining have a larger impact in manufacturing.



What kind of skills are you in need of on your team to adapt to emerging IM technology?



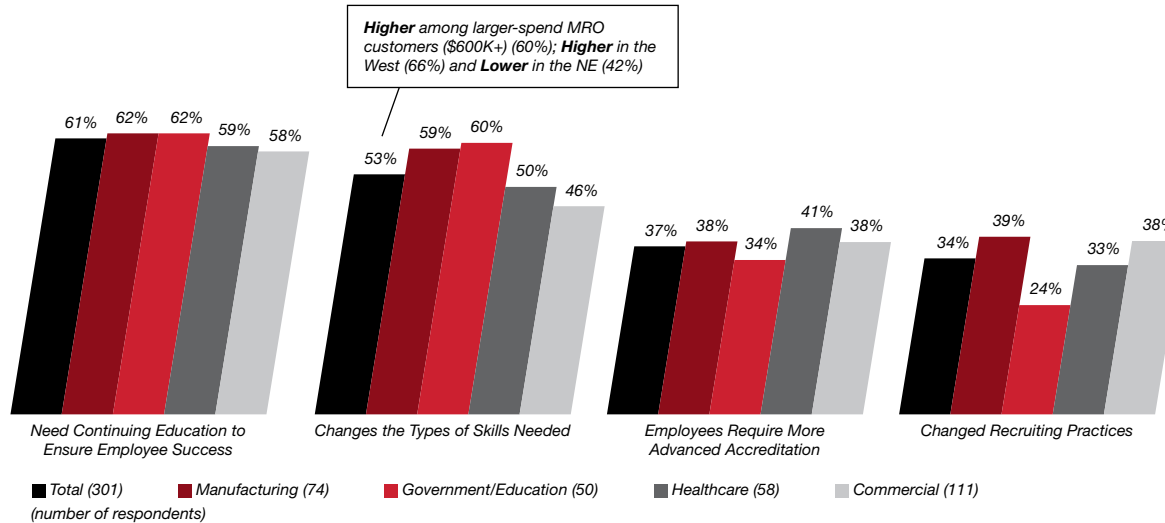
People are retiring and the new people coming in don't have a lot of the same knowledge, skills and experience. They may be thinking, if my tool crib attendant who's been here for 30 years has all this knowledge in their head about how we manage and buy material, what do I do when they retire? Do I bring a supplier in? Do I leverage technology more so I'm not dependent on the next person?

— Ben Nichols, Group Vice President, Government and Healthcare Sales at Grainger

Developing a Tech-Savvy Workforce



How does emerging technology impact your organization's workforce?



Are there any specific skills you are looking for?

Just off the top of my head, and in speaking with some of our leaders in manufacturing, a data analyst is an important role to analyze the flow of product and measuring our production efficiency, the amount of time the machine is running, the amount of time savings that we're able to capture.

—Supplier Representative

Automating the manufacturing and supply chain process creates opportunities for our company to invest in re-skilling our workforce in areas like robotics, maintenance techs, and data analysts. And our business is definitely committed to doing that. The goal for us actually with automation would be to create more jobs and not fewer. So, it's really more of a pivot from the traditional way of doing things in our own supply chain to the new way.

—Supplier Representative

One of the big changes is that when I would talk to companies pre-pandemic about autonomous mobile robots or other pieces of technology that can help supplement labor, or cobots, it was always a cost-benefit issue. 'Do I have enough throughput to justify automation of this?' That whole narrative is beginning to change, because it's not just a question of cost, it's a question of being able to stay in business, being able to get the work done. Because even if it's higher cost, if you can't find the labor, then where are you?

—Alan Amling, Supply Chain Expert, Consultant

Supply Chain Concerns

Adding alternate suppliers and stocking up with buffer inventory are two significant adjustments most of our respondents are making in response to the COVID-19 pandemic, with larger customers more likely to add both suppliers and surplus inventory. These companies are also looking for better supply chain visibility and seek deeper relationships with existing suppliers while adding new ones. The 23% minority who report having reduced their supplier base over the past 12 months state streamlining sourcing and reducing costs as their primary goals.

Companies with a larger MRO spend (600K+) respond that they are more likely to add suppliers (82%) and inventory (56%).

ADJUSTMENTS DUE TO COVID

- 68%** Added Alternate Suppliers
- 44%** Added Buffer Inventory
- 42%** Better Visibility of Supply Chain Health
- 41%** Deeper Relationships with Partners

CHANGES IN SUPPLIERS OVER THE PAST 12 MONTHS

- 48%** **Increased** To Ensure I Can Get What I Want When I Need It
- 29%** **No Change**
- 23%** **Reduced** To Reduce Costs and Streamline Sourcing and Reporting (Mostly Manufacturing)

Diversifying your supplier base is good, but everything in moderation. The challenge is you won't get volume discounts if you diversify your spend too much, and people aren't talking about that.

— Alan Amling, Supply Chain Expert, Consultant



How are you addressing supply chain challenges with customers?

I think the last couple years has shown customers not necessarily that they need more suppliers in all cases, but it made them ask if they have the right suppliers, and do these suppliers have enough purchasing power? Do they have enough to ensure their supply even in a constrained supply environment?

— Rick Sigler, Vice President, Grainger Onsite Services

What we're helping organizations do today is, if you run out of your primary choice, what's your backup? Your secondary, your third? And let's lock that in now. And if we lock that in today, then it isn't as much adding more suppliers. It's just thinking about how to satisfy the need of something that is critical to your business. Then we're not in the moment trying to find a replacement when everybody else is probably trying to do the same thing. We're ready to go.

— Kevin Hartler, Sr. Director, Grainger Consulting Services

Supply Chain Concerns

CYBERSECURITY

An area that ranked lower in the survey in terms of perceived risk is cybersecurity, which somewhat surprised the experts. The proprietary data companies rely on to understand their customers and how best to serve them is an asset that must be continually managed and protected. As these customer databases become more data-rich and sophisticated, the more valuable they become.

Adding suppliers to help prevent business disruption has benefits. However, it's important to understand what cybersecurity measures those suppliers are taking. Without it, supply chain transparency could be compromised.

“As the economy and supply chain in particular continues to digitize, more of the operations rely on information that is generated in real time from customers,” Amling said. “When shipping companies determine their routing, all of that information is generated from customers. They supply that information at their discretion. If there were a large-scale interruption in that system or some kind of breach, customers could decide, OK we're not sharing that level of detailed information anymore.”

[NFTs and blockchain technology](#) could have supply chain applications, including product authentication and information security. However, it's not yet a high priority for customers. There's still a perceived complexity behind NFT and blockchain technology, and while entry to this technology is relatively easy and inexpensive, interest in adoption is still a barrier.

When vetting suppliers, cybersecurity is huge. Chances are that cyber criminals aren't going to attack a large company directly. They would likely get in through a supplier.

— Alan Amling, Supply Chain Expert, Consultant

I have data. You're connecting to my server. Are you giving me dirty data or are you getting unsecured lines that could in some way affect my manufacturing or the security of my personal data?

— Ben Nichols, Group Vice President, Government and Healthcare Sales at Grainger

The level of sophistication around connected devices continues to go up as more incidents happen where bad people can get into people's networks. They're trying to make sure they have visibility into every place that could be vulnerable.

— Rick Sigler, Vice President, Grainger Onsite Services

Supply Chain Concerns

ENVIRONMENTAL AND SOCIAL GOVERNANCE (ESG)

In the context of inventory management and supply chain, one topic of growing importance is ESG, or [Environmental and Social Governance](#) practices. ESG has some specific implications for supply chains that shouldn't be ignored over the next few years.

“In the U.S., every request for quote or request for purchase has some environmental language in it now,” said Alan Amling. “You're starting to see choices made around purchase and environmental records. More companies are reporting their carbon emissions, and now there's more talk about Scope 3 emissions, which are the emissions companies don't directly put out, but their partners and suppliers put out.”

Environmental criteria include how your company uses energy and other resources, and the waste created as a result, for example, carbon emissions. Environmental impact can be measured by a company's environmental footprint, which can change from year to year, depending on how well the company manages its operations as well as the kinds of companies with which it conducts business. Social criteria include policies related to labor, diversity and inclusion, the company's reputation and how it interacts with the institutions in its broader community. And governance refers to the policies and practices a company uses to govern its own operations responsibly and to ensure the company is complying with all applicable laws.



Supply Chain Concerns

So how does ESG apply in the context of inventory management and the supply chain? If your company is re-evaluating its supply chain, consider incorporating ESG language into those decisions and contracts. The companies you engage with should be able to demonstrate responsible ESG practices, including their environmental impact, labor practices and whether they are operating in compliance with local laws. The degree to which they are or are not following these criteria can have a significant impact on your own company's ESG goals.



How does ESG impact smaller companies?

What they need to understand is that what they sell to large companies is a component of their output. To the extent that they are using environmentally friendly practices, they need to start letting their large customers know because that's a competitive advantage. The ones that move in that direction sooner are going to have a first-mover advantage with large companies.

– Alan Amling, Supply Chain Expert, Consultant

More and more we're hearing about packaging and waste associated with packaging. And we're looking at order frequency. Can we do fewer orders so there's less packaging? How do we think about supplies in vending machines? Do they always have to be shrink wrapped or couldn't there be other ways of doing that without having something you have to throw away every time you use something?

– Rick Sigler, Vice President, Grainger Onsite Services



The Pinch of Rising Prices

The risk most often cited by our customer respondents with respect to the supply chain is the economic environment, more specifically inflation. This was true across almost every company size and industry (led by 84% of healthcare respondents) and region of the country.

“What I hear more is just concerns with, ‘How do I continue to operate my business effectively given the price environment?’” said Grainger’s Rick Sigler. “And ‘What are things I can be doing to take cost out of my business to try to make up for some of the price increases that I’m getting across the board?’”

In an inflationary environment, the impact of higher prices on customers’ supply chains can be significant. Core inflation, which excludes volatile food and energy costs, [was up 4.7% year-over-year in January 2023](#), versus a 4.6% year-over-year uptick in December of 2022. Direct costs for the raw material, energy and labor needed to manufacture product all go up, which then drives up the costs to manufacture, store and ship products. Further, inflation drives up interest rates, making it more expensive to borrow cash. Higher borrowing costs in turn make inventory planning more challenging. All these factors working together make a strong case for getting better at planning and forecasting for changes in demand. To respond, Grainger customers understand the benefits of implementing technologies that can help them do just that.



What near-term potential risk events are you most concerned about for your supply chain?



Rising Prices 79%

- Concern is lower among those with larger MRO budgets 73%



Demand Reduction/Recession 46%

- Extra-large companies (by employee size) are less concerned 31%



Hiring and Retention 35%

- Government/Education are more concerned 52%



Cybersecurity 23%

- Extra-large companies (by employee size) are more concerned 31%

“We need to have a really strong, accurate forecast in order to maintain strong service levels. We’ve invested in and implemented different reporting platforms to help unify our teams and how we look at the business and provide real-time information as to what our inventory levels are, what our forecast is and what the market is telling us.”

— Supplier Representative

“They’re using real-time customer information to be more proactive and doing predictive analytics around what products need to be stored in what areas.”

— Alan Amling, Supply Chain Expert, Consultant

The Pinch of Rising Prices

JUST-IN-CASE INVENTORY MANAGEMENT

Customers' inventory management challenges are mostly focused on product availability, delivery times and backorders. Not surprisingly, some customers respond to these challenges the same way they respond to their supply chain challenges; by adding buffer inventory just in case.

"It's interesting how many customers used a brand-new phrase for inventory," said Grainger's Rick Sigler. "It was always about just-in-time inventory. The new term people are using is just-in-case inventory. And I think it's just a little bit of a hangover from the pandemic. The question is, OK, how long will that feeling exist out there where they're actually wanting and willing to stock more on the shelf because they don't want to get burned again like they did a couple years ago?"

But the practice of storing something on the shelf just in case comes with a cost. This is especially true in a high-inflation environment when it's least affordable to borrow cash and therefore more expensive to tie up capital in excess inventory.



What is your greatest day-to-day challenge when it comes to inventory management?



Backorders or Product Availability 44%



Budget Constraints 20%



Delivery Time Promise to Actual 19%

"I think the better companies realize, 'I can't keep spending money to put stuff on the shelf when half of it doesn't turn, and I've already lost 50 cents on every dollar I put on the shelf,'"

— Rick Sigler, Vice President, Grainger Onsite Services



Industry Outlook

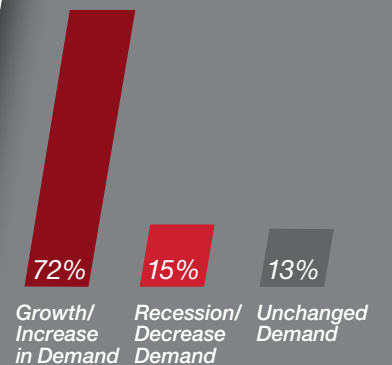
Despite economic recession concerns and rising prices, most industries represented in the survey predict significant growth over the next year. Almost three-fourths of all customers surveyed shared that outlook, with those in the highest category of MRO spend the most optimistic at 82%. Healthcare is the industry with the most positive view.

Over that same 12-month period, Grainger customers predict that real-time inventory data followed by logistics will have the greatest impact on how they manage inventory and their supply chains. This is consistent across all industries.

	MANUFACTURING	GOVERNMENT/EDU	HEALTHCARE	COMMERCIAL
What IM technologies will be most important to your company in the next 2 years?	24% Artificial Intelligence 22% Additive Manufacturing 16% Analytics	32% Analytics 22% Mobile 16% Additive Manufacturing & Virtual Reality	26% Analytics 26% Artificial Intelligence 16% Robotics	24% Analytics 19% Artificial Intelligence 15% Mobile
What skills will you most need to adapt to emerging IM technology?	64% Programming 58% Logistics 57% Machining	60% Soft Skills 54% Logistics 46% Programming	72% Soft Skills 59% Logistics 43% Programming	57% Logistics 54% Soft Skills 49% Programming

Respondents selected all choices that applied.

Which best describes your organization's expectations for the next 12 months with regard to demand for its products/services?



Closing

This year's survey indicates that implications from the COVID-19 pandemic beginning in March 2020 are still being felt by Grainger customers. Unexpected shifts in demand, fluctuating product availability, inconsistent delivery times, budget constraints, inflation and labor shortages have created uncertainty for businesses in every industry. Managing operations responsibly moving forward may require investment in the technology and tools needed for better predictive analytics, along with bigger investments in the people with the skills to interpret and apply that data. This could take the form of reskilling and continuing education for existing employees, and a new approach to hiring.

Grainger KeepStock® Inventory Management solutions give you the confidence of knowing the stuff you need is there when you need it. No matter how big or small your inventory challenge, let us show you how.

Learn more about Grainger's [KeepStock Inventory Management Solutions](#).

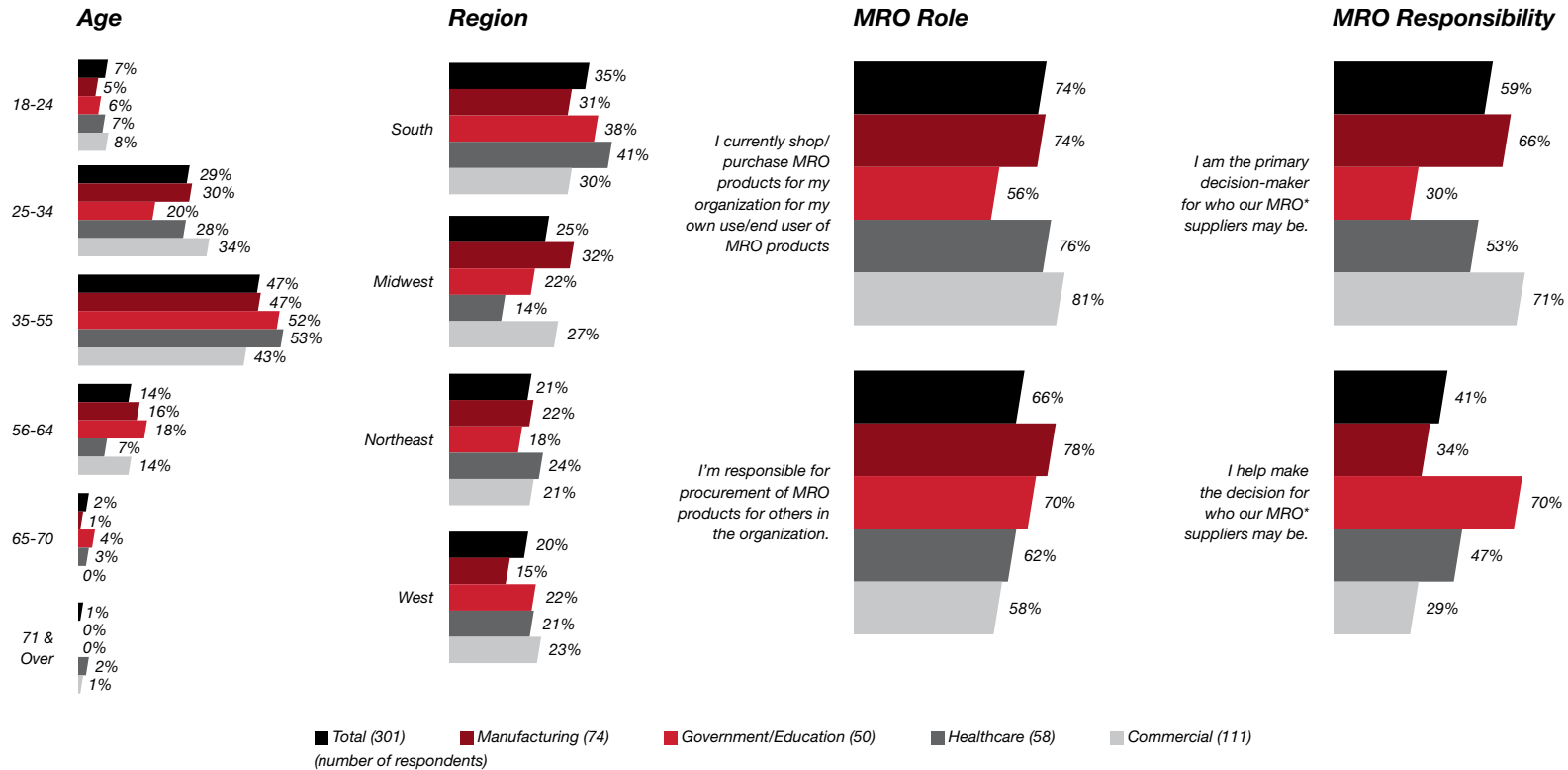


Grainger KeepStock® solutions are subject to customer eligibility and agreements.

Appendix: Dig Deeper into the Data

DEMOGRAPHICS

Here's a closer look at the how the survey respondents break down by age, region, role and responsibilities.



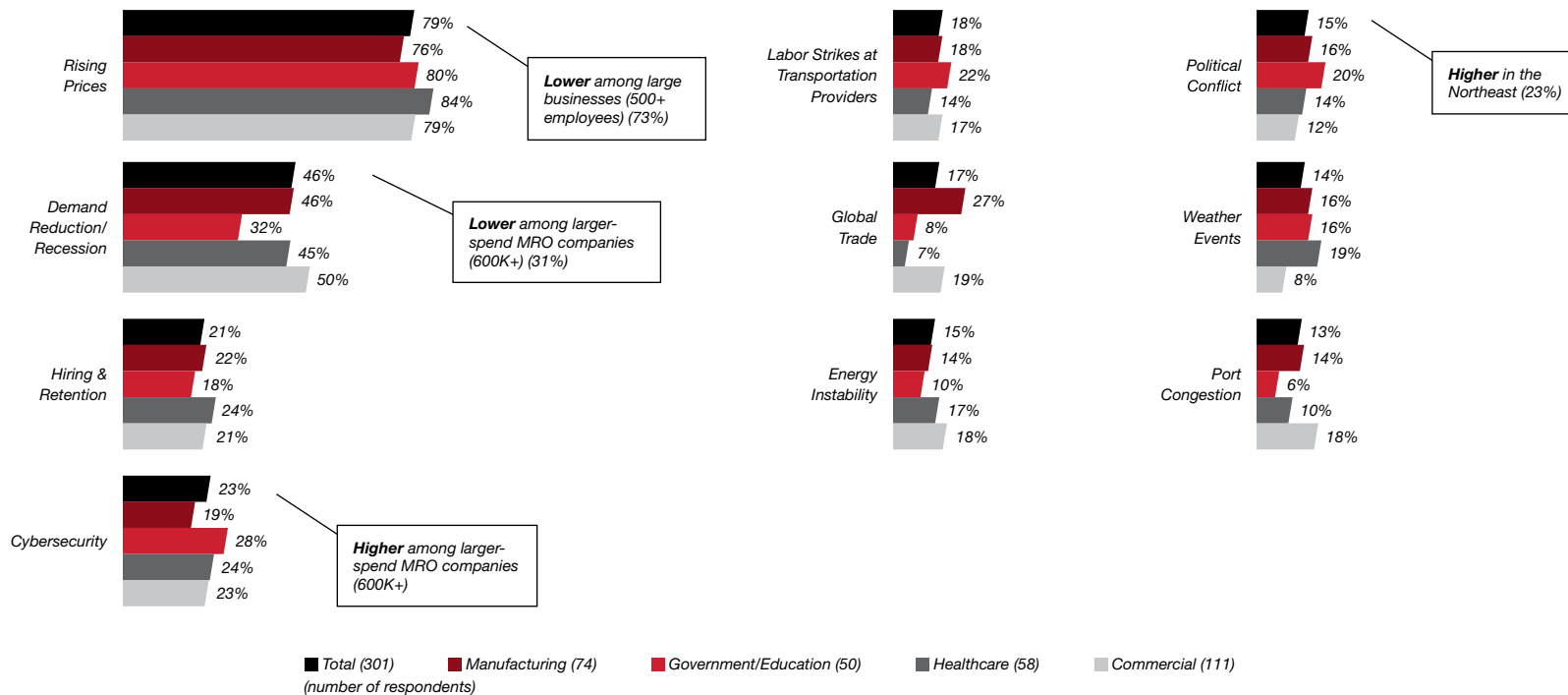
Appendix: Dig Deeper into the Data

WHAT DID WE ASK?

Customers were first asked a series of screening questions related to their demographics regarding industry, company size and location. We then asked specific questions to help identify trends in emerging technologies for inventory management, how our customers are looking at skills and hiring and their outlook on their supply chains. The following questions comprise the key findings from the survey.



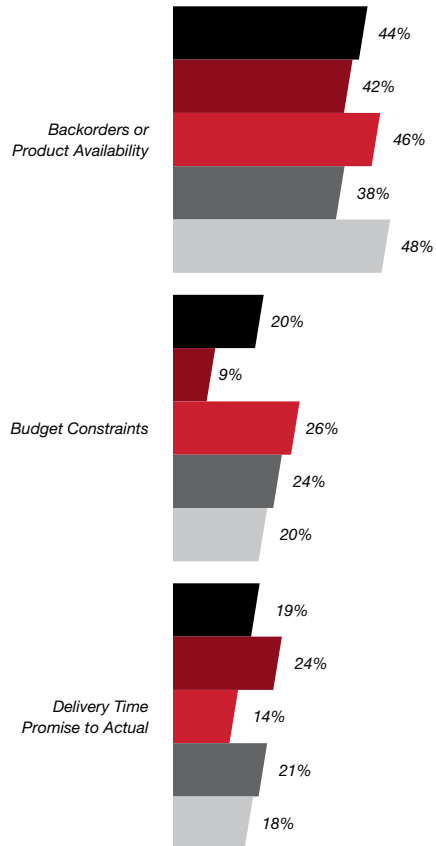
What near-term potential risk events are you most concerned about for your supply chain?



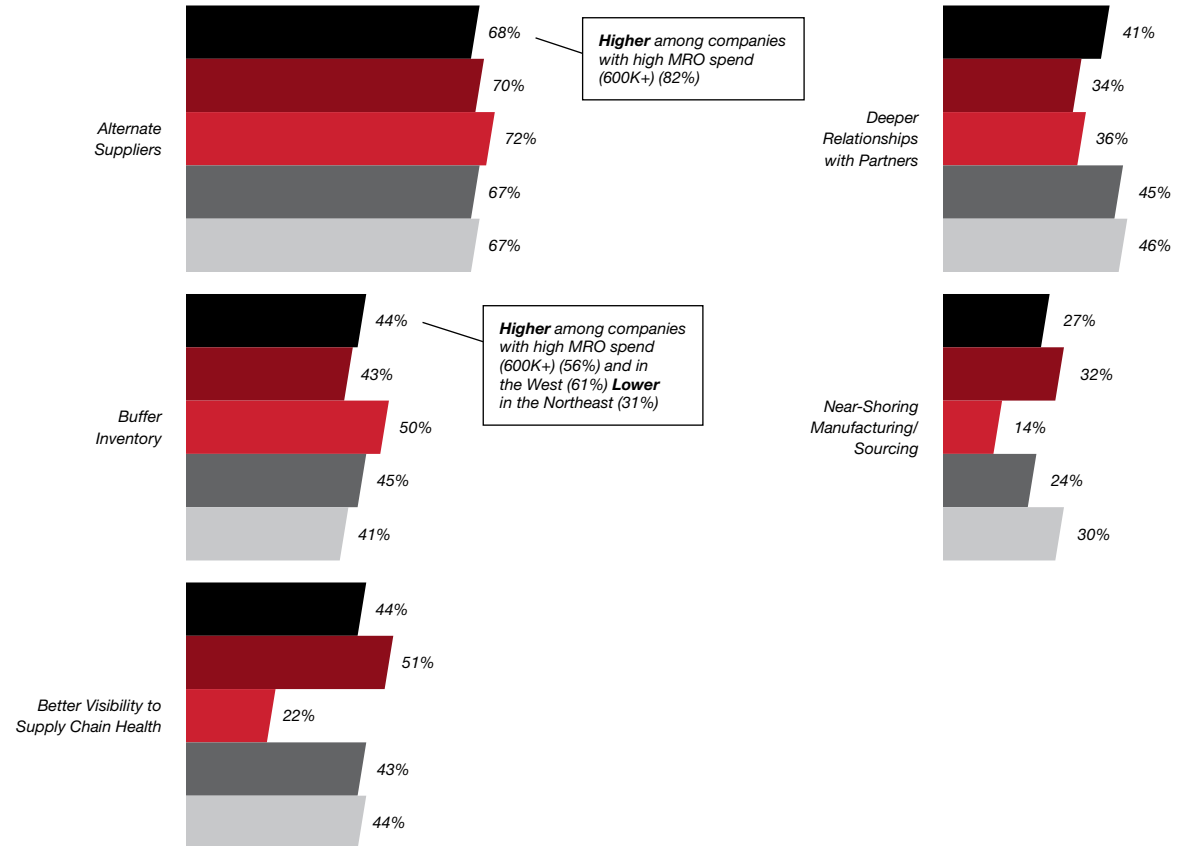
Appendix: Dig Deeper into the Data



2 What is your greatest day-to-day challenge when it comes to inventory management?



3 In what areas of the business have you added resiliency/preparation into your supply chain due to COVID?



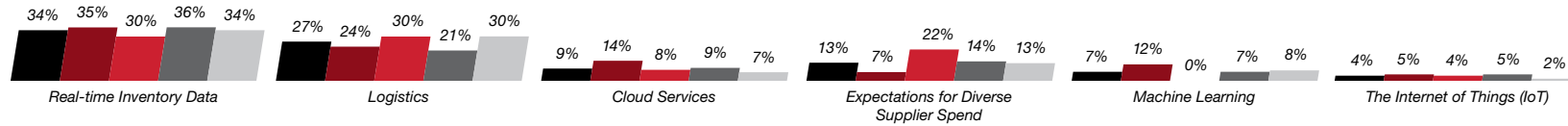
Total (301)
 Manufacturing (74)
 Government/Education (50)
 Healthcare (58)
 Commercial (111)

(number of respondents)

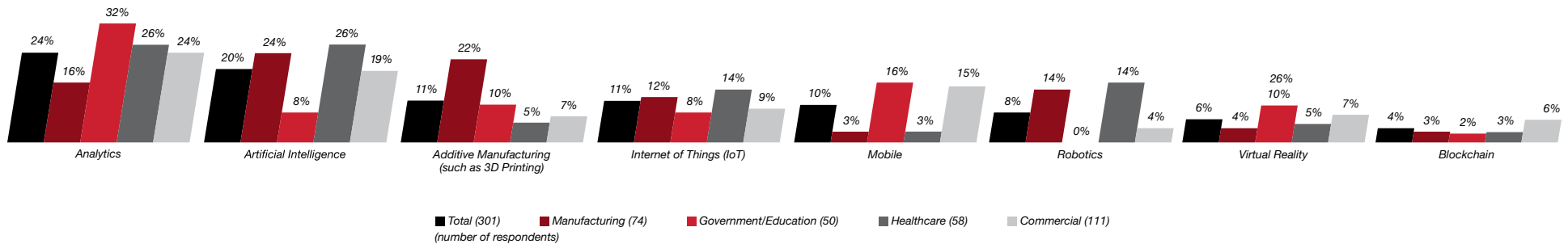
Appendix: Dig Deeper into the Data



4 What is the one technology trend you see impacting inventory management/ supply chain at your company the most in the next 12 months?



5 If you had to predict, what specific inventory management technology do you think will be most important to your company in the next two years?



6 How has the number of suppliers you purchase from changed in the last 12 months?

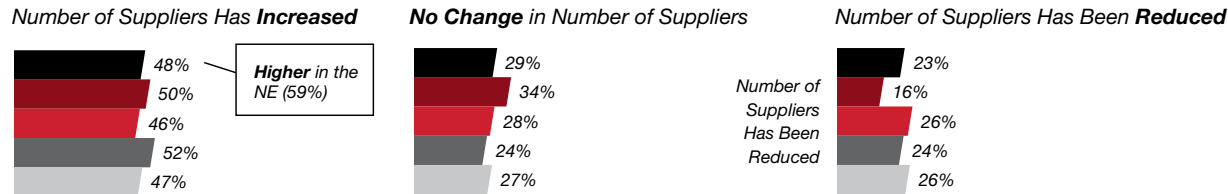


- Change in # Suppliers Past 12 Months**
- MANUFACTURING** • Increased—to ensure I get what I want when I want
 - GOVERNMENT/EDU** • Increased—to ensure I get what I want when I want
 - HEALTHCARE** • Increased—to ensure I get what I want when I want
 - COMMERCIAL** • Increased—to ensure I get what I want when I want

Appendix: Dig Deeper into the Data

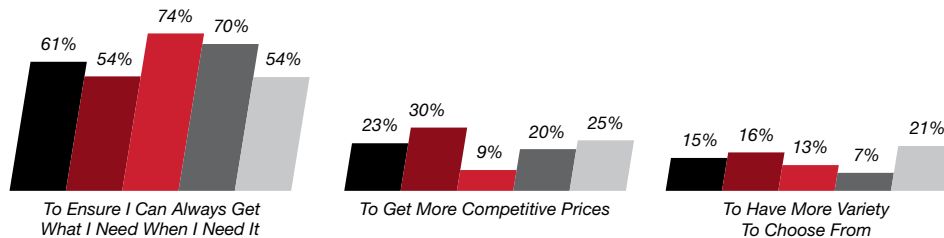


How has the number of suppliers you purchase from changed in the past 12 months?

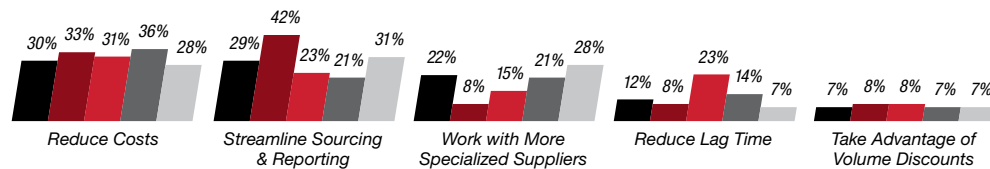


What is the primary reason you increased/reduced the number of suppliers you purchased from in the past 12 months?

Primary Reason for Increased Suppliers



Primary Reason for Reduced Suppliers



Total (301)
 Manufacturing (74)
 Government/Education (50)
 Healthcare (58)
 Commercial (111)



ABOUT GRAINGER

Grainger is a broad line, business-to-business distributor of maintenance, repair and operating (MRO) supplies, and other related products and services. More than 4.5 million businesses and institutions worldwide rely on Grainger for products in categories such as safety, material handling, and HVAC, plumbing and metalworking, along with services like inventory management and technical support.

Supplies and Solutions for Every Industry®

No matter what you need or when you need it, we're here for the ones who get it done. Choose from over 1.5 million products and a host of solutions to help keep your operations running and people safe. Need a hand managing your inventory or implementing a new safety initiative? We're here to help—online, over the phone and at local branches.

WE CAN HELP YOU:

- Gain more visibility into your spend to understand savings opportunities
- Reduce complexity in purchasing, managing and using your inventory
- Reduce costs and operational expenses by streamlining processes
- Manage compliance to both internal policies and external regulations
- Contribute to your diversity requirements or goals through access to our Distributor Alliance Program
- Gain expertise without adding headcount through our specialist network

Actual results and savings will vary based on many factors, including but not limited to size of company, number of locations and employees, scope and nature of company's needs, and extent of company's recognition and implementation of recommendations made by Grainger.

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