SPARQ360

2024 Supply Chain Trends and Attitudes

A Summary of Findings from a Survey of Supply Chain Managers in the United States by SPARQ360 and Appalachian State University

Dear Supply Chain Leader,

I am pleased to introduce to you the 2024 Supply Chain Trends and Attitudes Report, a comprehensive analysis that sheds light on key trends, challenges, and opportunities facing today's supply chain professionals.

Managing supply chain and logistics operations in an increasingly globalized and fast-paced world is a complex undertaking. SPARQ360 partnered with Appalachian State University to survey supply chain managers across various industries and gather insights that will help guide you in making informed, strategic decisions.

The findings of this report reveal crucial insights into the technologies that are shaping the future of supply chain management, as well as the growing importance of sustainability. From the prioritization of Supply Chain Visibility Platforms and Predictive Analytics to the emerging pressures on companies to report on sustainability as part of RFQs, this report offers a roadmap for navigating the complexities of modern supply chains.

We believe that the data and analysis presented in this report will not only provide you with a deeper understanding of current trends but also equip you with actionable insights to optimize your supply chain operations. Our goal is to support you in achieving greater efficiency, resilience, and sustainability in your supply chain endeavors.

As you read through the report, I hope you will find the information both enlightening and useful. At SPARQ360, we are committed to partnering with you to build stronger, more sustainable supply chains that can withstand the challenges of today and tomorrow.

Please provide feedback, if you have thoughts or ideas for how we can make the survey more useful in the future. We look forward to supporting your success.

Sincerely,

Morgan Anderson
CEO, Americas
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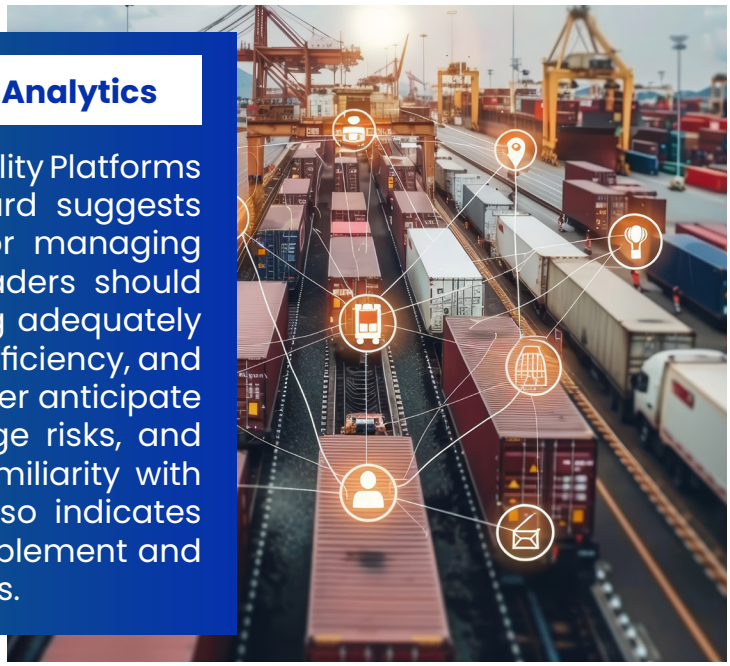
Implications for Supply Chain Leaders

The results of this survey provide some insights that can help companies prioritize their investments, improve their operations, and strengthen their sustainability efforts. Our team recommends supply chain managers consider the following aspects as they look to the near future:



1. Prioritize Investment in Visibility and Analytics

The strong emphasis on Supply Chain Visibility Platforms and Predictive Analytics across the board suggests that these technologies are essential for managing modern supply chains. Supply chain leaders should ensure that their companies are investing adequately in these areas to enhance transparency, efficiency, and responsiveness. By doing so, they can better anticipate and respond to market changes, manage risks, and optimize operations. The high level of familiarity with these technologies among managers also indicates that companies are well-positioned to implement and maximize the benefits of these investments.

2. Integrate Supply Chain Optimization & Sustainability Strategies

Less than 15% of those surveyed believe sustainability initiatives have payback periods under 1 year. Yet, particularly with small- and mid-size companies, these payback periods are typically achievable by seeking improvements in supply chain optimization and the implementation of LEAN practices. Many companies overlook how sustainability and supply chain initiatives can support each other – accelerating payback periods and delivering ongoing savings both in terms of cost and carbon footprint.

3. Bridge the Investment Gap in Sustainability

The significant gaps between anticipated and recommended spending on technologies related to sustainability—such as Renewable Energy, Green Technologies, and Circular Economy Solutions—highlight the need for a strategic reallocation of resources. Supply chain leaders should advocate for greater investment in these areas to align with long-term sustainability goals and regulatory requirements. The growing importance of sustainability in procurement processes further underscores the need for companies to strengthen their sustainability programs to remain competitive. By prioritizing investments in sustainability, companies can not only reduce their environmental impact but also enhance their reputation and appeal to increasingly eco-conscious consumers and business partners

4. Enhance Collaboration with Vendors

The high levels of collaboration on supply chain optimization and sustainability initiatives demonstrate the importance of strong supplier relationships. Supply chain leaders should focus on building and maintaining these partnerships to drive continuous improvement and align sustainability goals across the supply chain. For smaller companies, investing in tools and processes that facilitate better communication and collaboration with suppliers could help overcome some of the challenges they face in these areas. By working closely with their suppliers, companies can ensure that their supply chains are resilient, efficient, and aligned with their broader business objectives.

5. Address Familiarity Gaps

The varying levels of familiarity with key supply chain technologies suggest that there is a need for targeted training and education, particularly in smaller companies. Supply chain leaders should invest in initiatives that improve their teams' understanding of advanced technologies, such as Artificial Intelligence, Robotics and Automation, and Circular Economy Solutions. By enhancing familiarity with these technologies, companies can make more informed investment decisions and better leverage these tools to achieve their strategic objectives. This will be particularly important as supply chains become increasingly digital and data driven.

6. Respond to Increasing Sustainability Demand

The growing prevalence of sustainability requirements in procurement processes highlights the need for companies to strengthen their sustainability programs. Supply chain leaders should work closely with their customers and suppliers to ensure that their sustainability initiatives meet or exceed industry standards. This may involve adopting new technologies, revising procurement practices, and setting more ambitious sustainability goals. As sustainability continues to rise in importance, companies that fail to adapt may find themselves at a competitive disadvantage. By proactively addressing sustainability demands, companies can not only meet customer expectations but also differentiate themselves in the market.

Overview

In today's increasingly complex and interconnected world, supply chain management has become a critical area of focus for businesses aiming to maintain competitive advantage. The advent of new technologies and the growing emphasis on sustainability have fundamentally reshaped how companies approach their supply chains.

This report, a summary of the findings of the 2024 survey by SPARQ360 and Appalachian State University, seeks to illuminate key trends, challenges, and opportunities that will define the future of supply chains. By analyzing data collected from 293 supply chain managers, this report provides a nuanced understanding of the priorities, investments, and collaborations that are shaping the landscape. It offers valuable insights that can guide supply chain leaders as they navigate this evolving terrain, emphasizing both technological innovation and sustainability.

Methodology

SPARQ360 partnered with Appalachian State University to survey 293 supply chain managers in the United States - spanning various industries, company sizes, and levels of experience. The survey was meticulously designed to capture a comprehensive picture of the current state of supply chain management, focusing on critical areas such as technological investments, familiarity with emerging technologies, sustainability initiatives, and collaboration with vendors. The survey included questions that gauged both the anticipated and recommended levels of spending on key supply chain technologies over the next three to five years. It also assessed the extent of collaboration between companies and their suppliers, particularly in the areas of supply chain optimization and sustainability. Statistical significance was evaluated using paired sample t-tests, with attention paid to areas where p-values were below 0.1, indicating meaningful differences or trends.

Anticipated and Ideal Technology Investment Levels

As companies increasingly rely on digital tools to manage their supply chains, the survey data reveals a strong consensus around the importance of investing in **Supply Chain Visibility Platforms**. With an average rating of 3.60 (on a scale of 5), these platforms are prioritized by companies of all sizes as essential for providing real-time visibility into supply chain operations. The ability to monitor shipments, track inventory, and manage logistics in real-time is critical for maintaining efficiency and agility in today's fast-paced market environment. This emphasis on visibility reflects a broader industry trend towards greater transparency and control, which are seen as vital for mitigating risks and optimizing supply chain performance.

Predictive Analytics and Demand Planning emerged as the second most important area of investment, with an average rating of 3.54. The ability to accurately forecast demand and optimize inventory levels is becoming increasingly important as companies seek to avoid the costly pitfalls of overstocking or understocking. Predictive analytics tools enable supply chain managers to anticipate market fluctuations, adjust production schedules, and make data-driven decisions that enhance efficiency and reduce costs. This technology is particularly valuable in industries where demand can be volatile, such as retail and manufacturing, where even slight inaccuracies in demand forecasting can lead to significant financial losses.

Artificial Intelligence (AI) also ranks highly, with an average rating of 3.46, indicating that companies are recognizing the transformative potential of AI in automating and optimizing various aspects of supply chain management. AI-driven tools can analyze vast amounts of data in real-time, identifying patterns and insights that human analysts might miss. These tools can be applied to a wide range of supply chain processes, from demand forecasting and inventory management to supplier selection and risk assessment. The growing interest in AI reflects a broader trend towards automation and digitalization in supply chains, as companies seek to improve efficiency, reduce costs, and enhance decision-making.

However, the data reveals some divergence when comparing anticipated and recommended spending across different technologies. While **Renewable Energy** (3.32) and **Green Technologies** (3.27) are prioritized to a lesser extent in anticipated spending, they receive higher prioritization in recommended investments, with scores of 3.56 and 3.45, respectively. This shift suggests that while companies understand the long-term importance of sustainability, they may face challenges related to the immediate costs, complexity, or uncertain return on investment associated with these technologies. The fact that managers believe more should be spent on these areas than is currently planned underscores the growing recognition of sustainability as not just a regulatory requirement but a competitive advantage in the global marketplace.

Upward Pressure on Spending

The study provides further insight into the gaps between what companies plan to spend on various technologies and what managers believe they should be spending (Fig 1). The most significant discrepancies are observed in **Robotics** and **Automation, Renewable Energy, Green Technologies, Circular Economy Solutions, Remote Work** and **Teleoperation,** and **Decarbonization**. In each of these categories, managers believe more should be invested than is planned.

For example, the study revealed a significant difference in spending expectations for **Robotics** and **Automation**. While companies recognize the importance of automating repetitive tasks and improving operational efficiency, the data suggests that there is hesitation in committing the necessary resources. This reluctance may stem from concerns about the upfront costs of automation technologies, the complexity of integrating them into existing processes, or the potential impact on the workforce. Nevertheless, the long-term benefits of robotics and automation—including reduced labor costs, increased precision, and enhanced scalability—make this an area that companies cannot afford to overlook.

Will be Spending and Should be Spending on Technologies in the Next 3-5 years

Scale: 1-None, 2-A little, 3-A Moderate Amount, 4-A Lot, 5-Very Much

Should be Spending (Avg. Score) - Will be Spending (Avg. Score)

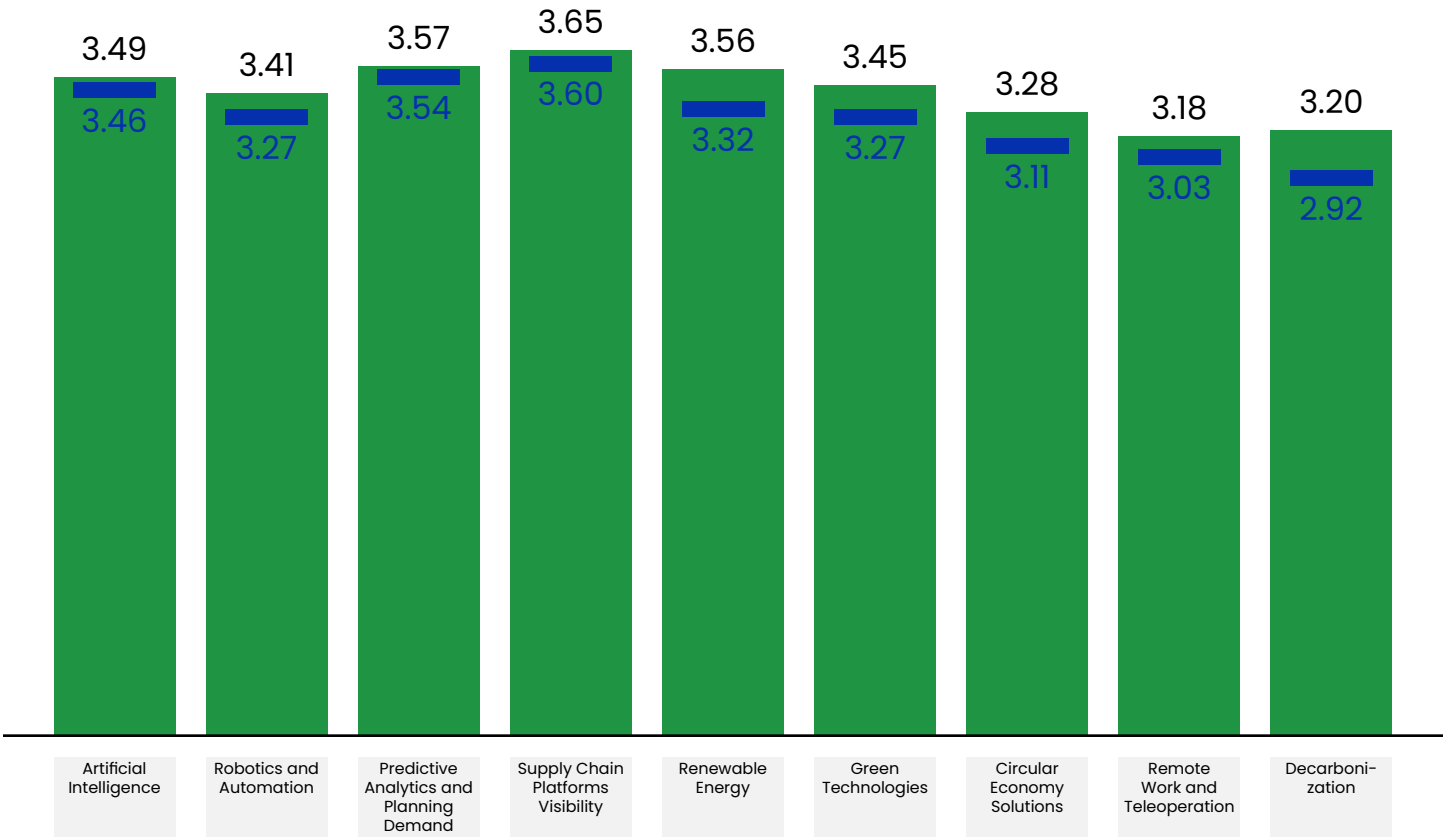


Figure 1: Relative "will be" versus "should be" spending levels across technologies

Similarly, **Renewable Energy** and **Green Technologies** also showed significant gaps between anticipated and recommended spending. These findings suggest that while companies are aware of the need to transition to more sustainable energy sources and adopt environmentally friendly practices, there may be barriers preventing them from fully committing to these investments. These barriers could include the high initial costs of renewable energy infrastructure, the perceived risks associated with new technologies, or a lack of internal expertise.

The significant gap in spending on **Circular Economy Solutions** and **Decarbonization** further highlights the challenges companies face in adopting sustainable practices. Circular economy solutions, which aim to minimize waste and make the most of resources, require a fundamental shift in how companies design, produce, and manage their products. Similarly, decarbonization efforts, which involve reducing carbon emissions across the supply chain, require substantial investments in new technologies and processes. The fact that managers believe more should be spent in these areas suggests a growing awareness of the long-term benefits of sustainability, even if the short-term costs seem daunting.

As regulatory pressures increase and customer demand for sustainable products grows, companies that fail to invest in these areas may find themselves at a competitive disadvantage.

At the time of writing, the ESG rules proposed by the SEC are in litigation. Yet multiple states – including California, New York, and Illinois – have passed ESG reporting requirements for larger companies. Furthermore, data from this survey indicates market-driven pressure from customers is high (see Fig 6, page 13), with over 92% of respondents reporting they encounter sustainability initiatives as requirements of RFP processes.

Familiarity with Supply Chain Sustainability Technologies

The survey explored the level of familiarity that supply chain managers have with various technologies, revealing significant variations that may influence their investment decisions. **Supply Chain Visibility Platforms** are the most familiar technology among the managers surveyed, with an average familiarity score of 3.66 on a scale of 1 to 5 (Fig 2). This high level of familiarity likely correlates with the widespread adoption of visibility solutions in recent years as companies seek to gain better control over their supply chains. The importance of visibility in ensuring timely deliveries, optimizing inventory, and responding to disruptions has made these platforms a staple in modern supply chain management.

Remote Work and **Teleoperation** and **Renewable Energy** also show high levels of familiarity, with average scores of 3.59 and 3.56, respectively. The COVID-19 pandemic has accelerated the adoption of remote work technologies, and many companies have continued to rely on these tools even as the immediate crisis has subsided. This familiarity with remote work and teleoperation reflects the broader trend towards flexible, decentralized work environments that allow companies to maintain productivity and continuity in the face of unexpected disruptions.

However, there is a noticeable gap in familiarity with **Circular Economy Solutions (3.21)** and **Decarbonization** (3.14). These areas, which are critical for building sustainable supply chains, are less familiar to many managers, which may explain the lower levels of anticipated spending in these categories. The lack of familiarity could be due to the relatively recent emergence of these concepts in the mainstream business discourse, as well as the complexity of implementing such solutions. This gap in familiarity highlights the need for targeted education and training to help managers understand the benefits and challenges of adopting circular economy and decarbonization practices.

The statistical analysis further underscores the differences in familiarity across company sizes. Managers from larger companies tend to be more familiar with advanced technologies such as **Artificial Intelligence, Robotics** and **Automation, Predictive Analytics,** and **Supply Chain Visibility Platforms**. This trend is likely due to larger companies having greater access to resources, including advanced training programs, technology infrastructure, and expert consultants. In contrast, managers from smaller companies reported lower levels of familiarity with these technologies, suggesting a need for more accessible educational resources and support to help smaller firms adopt these tools.

For instance, familiarity with **Artificial Intelligence** was significantly higher in companies with revenues between $450M and $649M (average score of 3.82) compared to companies with revenues below $50M (average score of 3.24). This difference highlights the disparity in access to advanced technologies and the potential competitive disadvantage that smaller companies may face.

Familiarity With Technologies

Scale: 1-Not Familiar, 2-Slightly Familiar, 3-Moderately Familiar,
4-Very Familiar, 5-Extremely Familiar

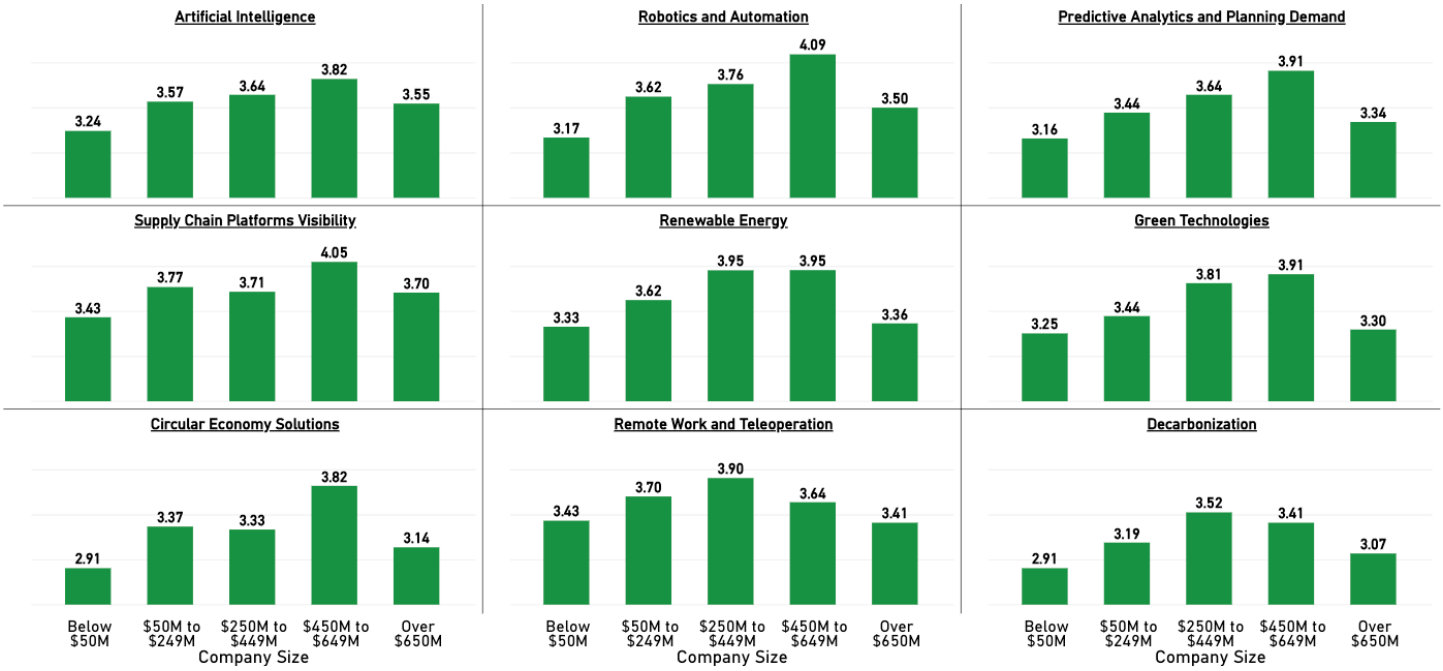
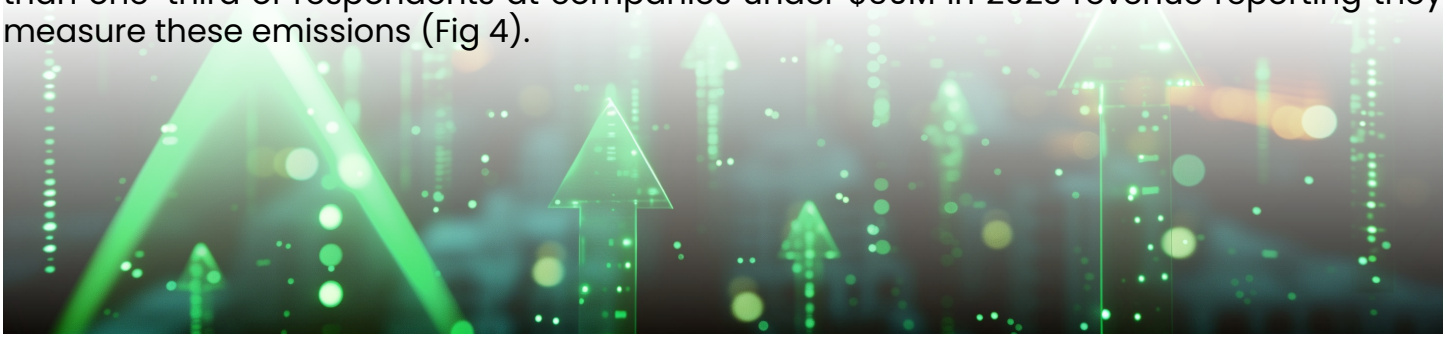


Figure 2: Familiarity of supply chain managers of various technologies by company size

Sustainability Initiatives

Sustainability is increasingly becoming a critical focus in supply chain management, as companies face growing pressure from regulators, consumers, and investors to reduce their environmental impact. The survey reveals that approximately 50.2% of companies are currently measuring their greenhouse gas emissions (Fig 3). However, a significant portion of companies—nearly 40%—still do not measure their emissions, and 10% are unsure, indicating that many companies have yet to embrace sustainability practices. There also exists substantial discrepancies in measurement based on company size, with less than one-third of respondents at companies under $50M in 2023 revenue reporting they measure these emissions (Fig 4).



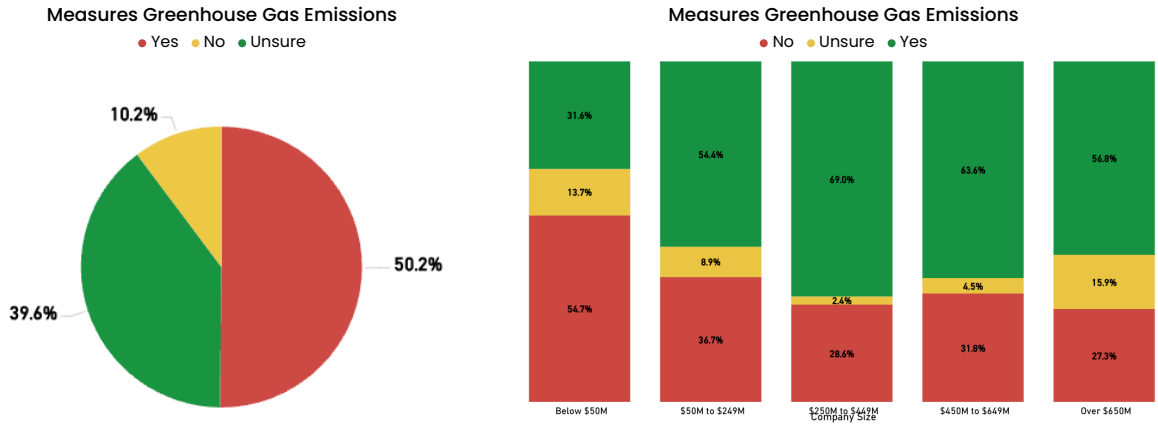


Figure 3 & 4: Percentage of companies measuring greenhouse gases

The comprehensiveness of sustainability programs varies significantly across the sample. While 34% of companies report having very or extremely comprehensive sustainability programs, a considerable portion—21.8%—indicate that their programs are either non-existent or only slightly comprehensive. This disparity is particularly evident among smaller companies, where resource constraints and a lack of expertise may hinder the development and implementation of robust sustainability initiatives (Fig 5). These findings suggest that while sustainability is on the agenda for many companies, there is still much work to be done to integrate these practices fully into their operations.

21.8% of companies reported either non-existant or only slightly comprehensive sustainability programs.

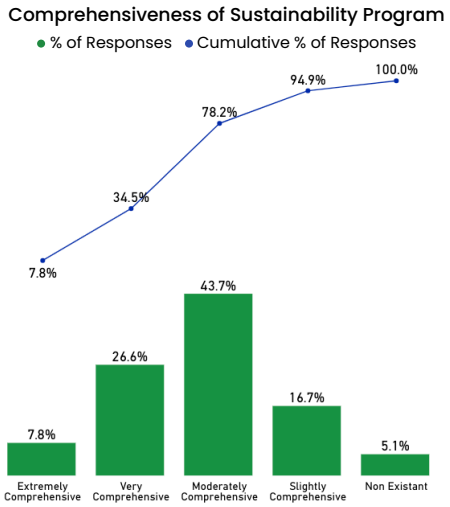
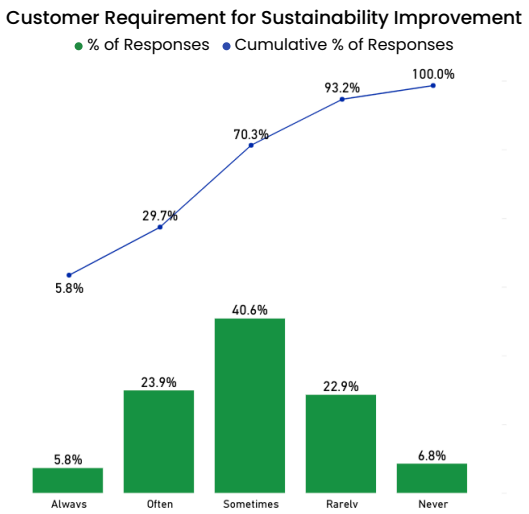


Figure 5: Comprehensiveness of sustainability programs by respondents

The increased attention on sustainability is also reflected in how often companies are required to make sustainability improvements as part of their procurement processes with survey data demonstrating that sustainability is increasingly becoming a critical factor in procurement decisions. Approximately 40.6% of managers report that their customers sometimes require sustainability improvements, while 23.9% state that such requirements are often present, and 5.8% report that they are always included in RFPs (Fig 6).



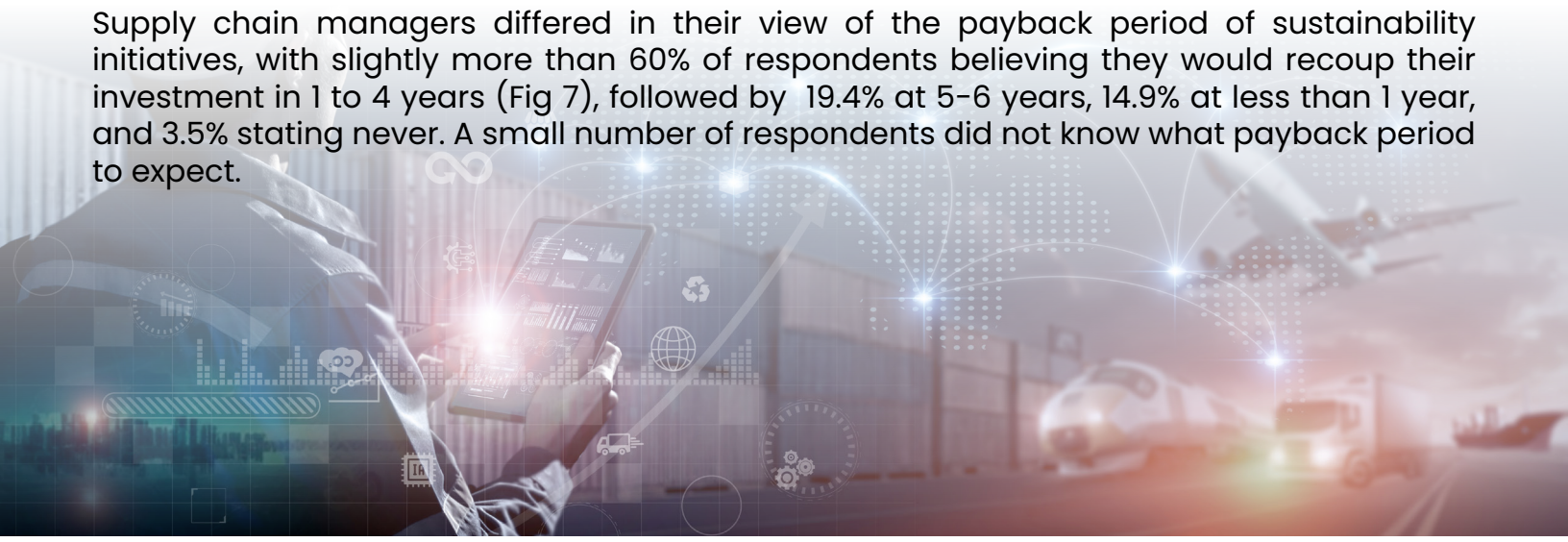
Over 93% report seeing sustainability requirements in RFPs, with more than one-third reporting often or always.

Figure 6: Frequency of sustainability improvements bring present in RFPs

The significant differences in the frequency of sustainability requirements across company sizes are particularly telling. Mid-sized companies, specifically those with revenues between $250M and $649M, report a higher frequency of sustainability requirements in their procurement processes compared to both smaller and larger companies. This trend suggests that mid-sized companies may operate in sectors where sustainability is more immediately critical or are more agile in responding to customer demands. The increased focus on sustainability in these companies could also be driven by the need to comply with stricter industry standards or to differentiate themselves in a competitive marketplace.

This data points to a growing recognition among customers that sustainability is not just a desirable attribute but a necessary criterion for doing business. As more companies include sustainability requirements in their RFPs, supply chain managers must ensure that their companies are equipped to meet these demands. Failure to do so could result in lost business opportunities and damage to their reputation in an increasingly sustainability-conscious market.

Supply chain managers differed in their view of the payback period of sustainability initiatives, with slightly more than 60% of respondents believing they would recoup their investment in 1 to 4 years (Fig 7), followed by 19.4% at 5-6 years, 14.9% at less than 1 year, and 3.5% stating never. A small number of respondents did not know what payback period to expect.



More than 60% believe they can achieve payback within 4 years.

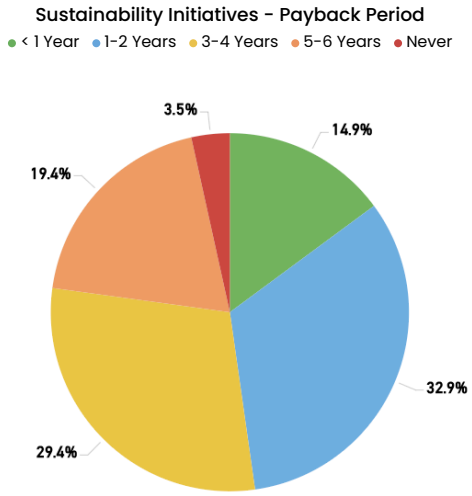


Figure 7: Expected payback period of sustainability initiatives

The great variety in payback period responses is likely due to the scale and type of investment in question as well as the ability of companies to integrate their sustainability investments as part of their overall supply chain optimization strategy.

Despite the varying opinions on payback timelines, there has been a clear shift in attitudes in the United States towards prioritizing sustainability in supply chain management. Remarkably, for all six identified drivers of sustainability—ranging from government regulations to customer demand and brand reputation—the majority of respondents rated every factor as either "Extremely Important" or "Very Important" (Fig 8).

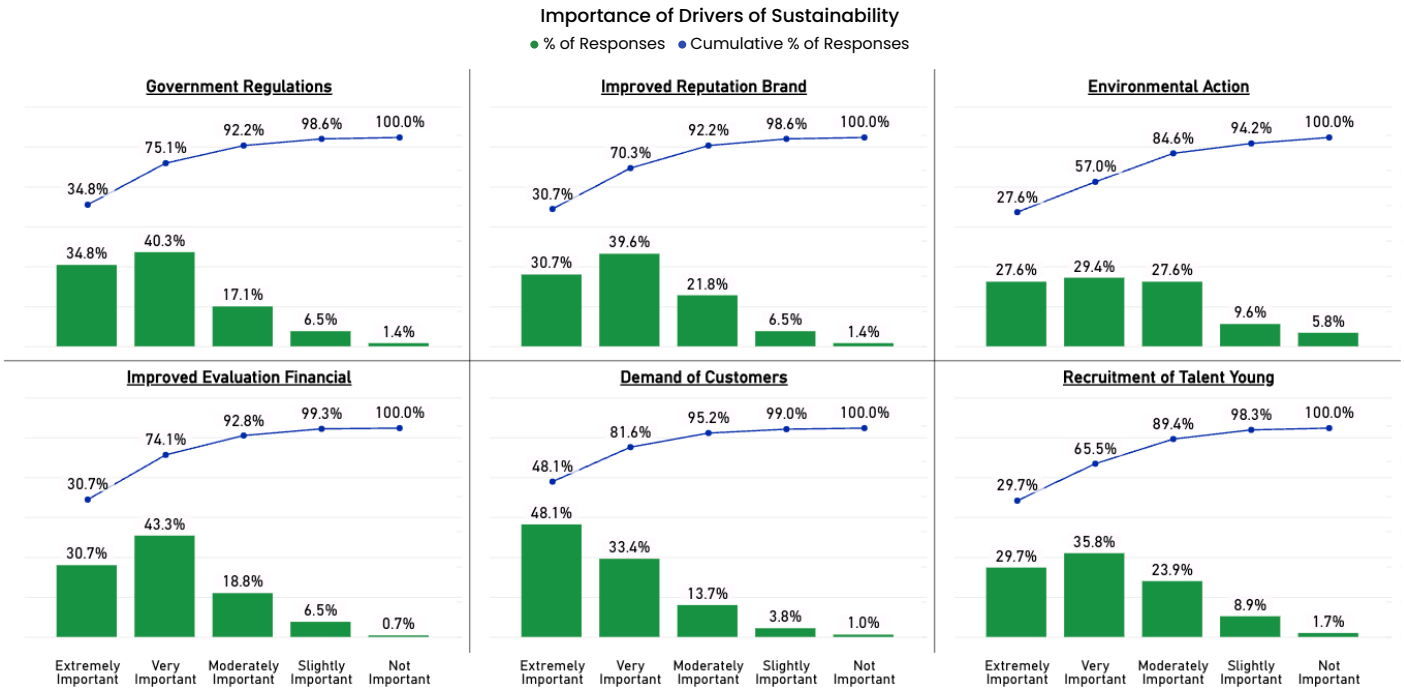


Figure 8: Importance level of drivers of sustainability

In fact, these top two categories combined accounted for over half of the responses across all drivers, signaling a broad recognition among supply chain managers of the critical role that sustainability now plays in business strategy. With the traditionally weaker government regulation framework in the United States, the fact over 75% of respondents viewed compliance with government regulations as either extremely important or very important likely demonstrates the influence foreign regulations are having on the US market. The widespread acknowledgment beyond this factor suggests that U.S. companies are increasingly viewing sustainability not just as a regulatory requirement, but as a key driver of competitive advantage, customer satisfaction, and long-term financial performance.

Collaboration with Vendors on Optimization and Sustainability

Collaboration with vendors is a crucial aspect of supply chain management, particularly in the areas of supply chain optimization and sustainability. The report reveals that collaboration on supply chain optimization initiatives is widespread, with 92.8% of companies engaging with their suppliers at least sometimes, and nearly half (48.8%) doing so often or always (Fig 9). This high level of collaboration underscores the importance of working closely with suppliers to improve efficiency, reduce costs, and enhance overall supply chain performance.

Collaboration on sustainability initiatives, while slightly less common, is still significant. About 88.4% of companies report collaborating with their suppliers on sustainability issues at least sometimes, with 47.4% doing so often or always. The slightly lower rate of collaboration on sustainability compared to optimization may reflect the relative novelty of sustainability as a core business concern and the complexity of aligning sustainability goals across multiple organizations.

There are important differences in the frequency of collaboration based on company size. Larger companies, particularly those with revenues exceeding $450M, are more likely to collaborate frequently with their suppliers on both optimization and sustainability initiatives. This trend likely reflects the greater resources and influence that larger companies can leverage to drive change throughout their supply chains. These companies may also have more established relationships with their suppliers, allowing for more effective collaboration on complex initiatives.

In contrast, smaller companies report lower levels of collaboration, which could be due to several factors, including limited resources, less established supplier relationships, and lower leverage in negotiations. For these companies, building stronger partnerships with suppliers could be a key strategy for improving both supply chain efficiency and sustainability outcomes. Investing in tools and processes that facilitate better communication and collaboration with suppliers could help smaller companies overcome some of the challenges they face in these areas.

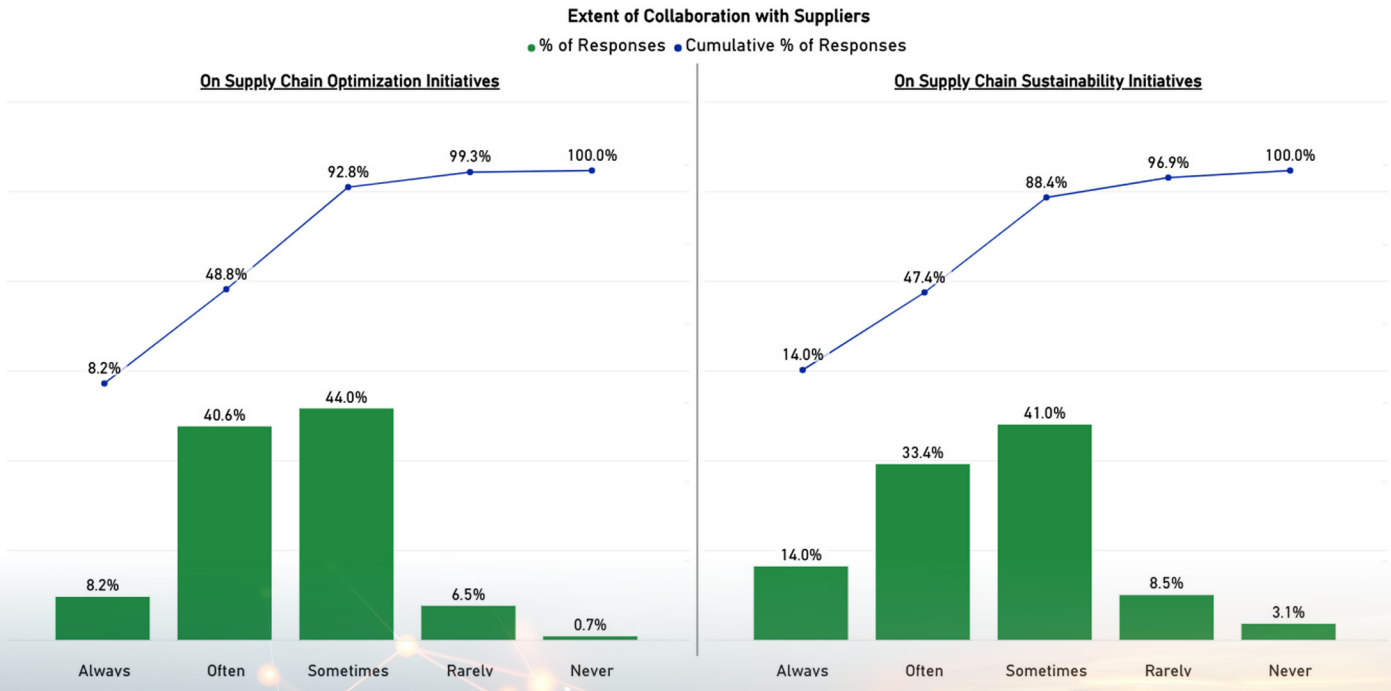


Figure 9: Frequency of collaboration with suppliers

Conclusion

This study provides an overview of the current trends and future directions in supply chain management. The data reveals clear priorities in technology investments, with a strong focus on visibility, analytics, and sustainability. However, it also highlights areas where more attention and resources are needed, particularly in the adoption of sustainable practices and the development of stronger supplier collaborations.

For supply chain leaders, this report offers valuable insights that can guide strategic planning and decision-making. By aligning their investments with industry best practices and addressing the gaps identified in the report, companies can enhance their operational efficiency, improve sustainability, and position themselves for long-term success in an increasingly competitive and environmentally conscious market.

If you would like to discuss how SPARQ360 can support you in gaining competitive advantages growing your business by solving supply chain or sustainability challenges, please contact us.

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For more information,

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