

APICS INSIGHTS AND INNOVATIONS

# SUPPLY CHAIN RISK CHALLENGES AND PRACTICES



**APICS**  
SUPPLY CHAIN  
COUNCIL

## ABOUT THIS REPORT

This report examines the role that supply chain risk management plays in organizations and how risk management will evolve. The overall goal of this supply chain risk survey was to determine current real-world practices in supply chain risk among APICS members and customers.

More than 9,000 professionals were invited to participate in the survey, which took place from June through July 2011. The survey results reflect an approximate 6 percent margin of error at a 95 percent confidence level.

This report was developed by APICS Supply Chain Council, an organization that advances supply chain and operations management and innovation through research, education and publications. APICS SCC maintains the Supply Chain Operations Reference (SCOR) model, the supply chain management community's most widely accepted framework for evaluating and comparing supply chain activities and performance. **For more information, visit [apicsscc.org](http://apicsscc.org).**

APICS research reports are based on practitioner surveys that explore trending topics in supply chain and operations management. They include survey results, analysis, tips and best practices to keep you and your organization informed of insights and innovations in supply chain and operations management.



# SUPPLY CHAIN RISK CHALLENGES AND PRACTICES

## TABLE OF CONTENTS

<b>Executive Summary</b>	<b>5</b>
Key findings	9
Respondent profile	23
<b>APICS Research</b>	<b>28</b>



# SUPPLY CHAIN RISK CHALLENGES AND PRACTICES

## Risk:

The APICS Dictionary, 14th edition, defines supply chain risk as decisions and activities that have outcomes that could negatively affect information or goods within a supply chain. According to the APICS Operations Management Body of Knowledge (OMBOK) Framework, risk management covers supply chain risks that can be categorized across two dimensions:

- **Coordination risks.** Risks associated with the day-to-day management of the supply chain, which are normally addressed using principles such as safety stock, safety lead time and overtime.
- **Disruption risks.** Risks caused by natural or manmade disasters such as earthquakes, hurricanes and terrorism.



## EXECUTIVE SUMMARY

As supply chains become more complex and risk occurrence becomes potentially more costly, the importance of risk management continues to increase. Yet according to a 2011 APICS study of supply chain professionals, risk management is still at an early stage of maturity, and there are gaps—both at the organizational management level and the supply chain and operations management level.

Survey respondents rated themselves an average of 5.27 on a scale of one to 10 in terms of overall supply chain risk readiness skill, knowledge and experience.

Seventy-two percent of survey respondents reported their organization did not have a formal risk management role or position, while 11 percent did not know if their organization had such a role. Fewer than 19 percent of survey respondents reported that their organization had practiced risk management for longer than 10 years. Almost a third of respondents reported their organizations had practiced risk management for no more than five years.

### Supply chain risk management is evolving

Increasingly, there are formal roles devoted to risk management, or risk management is becoming a formal responsibility of existing supply chains' material and operational management roles. This trend stems from the rising visibility of supply chain risk. The natural disasters the world has seen in recent years, as well as increasing information technology capability, has demonstrated to business management the rewards available through the practice of improved risk management.

Particularly in challenging economic times, risk management can help an organization endure and even benefit from risk at the expense of competitors that are not so well versed in risk management. Consider the industry and media attention given to risk management after the major natural disasters of the last decade, from Hurricane Katrina to the earthquake and tsunami in Japan. The visibility of risk management tends to rise and fall with reported disasters. However, formal ongoing roles and responsibilities help counter the reactive rising and falling levels of attention paid to risk management when risks occur.

# 72%

of survey respondents reported their organization did not have a formal risk management role or position.

### **Why is supply chain risk management important?**

Risk management stimulates many supply chain best practices. For example, risk management is a key factor in eliminating waste. The unnecessary use of resources or assets creates unnecessary risk burden because each deployed asset, fully utilized or not, requires its own risk protection overhead (such as insurance). This type of waste may additionally increase complexity and the inherent risk of unintended consequences.

Risk management generally improves supply chain partner relationships as information sharing improves. Trust also increases as the practice of risk management demonstrates commitment and capability the supply chain can count on.

The reality of soft risk—risk that is difficult to measure—often goes unaddressed without risk management. Constant awareness and vigilance regarding decisions, processes, practices and goals that may unintentionally increase or decrease risk in the supply chain is a difficult, non-intuitive task, but is well handled by risk management roles.

Every business faces the strategic balancing of risk and reward. Over the course of history, earning a greater reward generally has required enduring a greater risk. Risk management ensures that risk exposure is optimally minimized while the organization seeks the greatest rewards from its people, assets, capabilities and resources.

### **Gain competitive advantage through risk management**

Risk management delivers a strategic competitive advantage to organizations, allowing them to gain market share from poorly prepared competitors when a common risk strikes. In addition, risk management drives improvements in discovery, prevention and addressing smaller risks that nonetheless cost the organization effort, expense or time. These benefits increase when practiced across a supply chain.

A supply chain practicing risk management is faster to spot risk, faster to respond to it, and faster to claim advantages from these capabilities. Competitor supply chains' and organizations' risk management practices may not be as well developed. This becomes a key strategic competitive advantage, even for commodity product producers.

## Take the following five steps to improve risk management at your organization

- 1. Increase visibility and awareness.** Make sure risk management is a regular feature of discussions, reports, KPIs and decisions involving supply strategy and tactics, even when no risks are occurring.
- 2. Create or enhance risk management maps of the supply chain.** For example, map geographies, facilities, logistics, material flows, information flows, dependencies on systems or data, and alternatives or options at each point should a risk develop that degrades or eliminates a mapped location, capability or asset.
- 3. Improve supply chain partner relationships and information flow measures and metrics.**
- 4. Benefit from training and education, whether by formal classes or informally by conducting supply chain risk simulations or drills.** Education should help build skills in best practices, knowledge of probabilities of specific risks and their effective risk counter-measures, and the overall optimal balance in the supply chain of known risk prevention and post-risk exposure readiness and agility.
- 5. Capture and address hidden soft risks and previously unforeseen, unintended or unaccounted-for issues.** Decisions designed to increase the pace of production, for example, may increase hard or soft risk and should be analyzed and addressed in advance of practice.

### **Questions for discussion**

Whether supply chain risk management plays a formal role in your organization or not, consider the following questions going forward:

**When it comes to supply chain risk preparedness, where does your organization fall?**

**Does your organization resemble organizations with more or less maturity?**

**How might your competitors answer the same questions?**

**Where are the potential gaps in your supply chain risk management?**

**What rewards might you gain if you address those gaps now?**

**What might you lose if you don't address those risks?**



## KEY FINDINGS

### Supply chain risk challenges and practices

One of the goals of this study was to learn the function risk plays in supply chain and operations management. APICS invited more than 9,000 professionals to participate in a survey, which took place from June through July 2011.

According to the APICS Operations Management Body of Knowledge (OMBOK) Framework, risk management involves a three-step process that includes the following:

- 1. Identify the sources of potential disruptions** and assess the types of vulnerability in the supply chain (sources of risk include natural disasters, capacity failures, infrastructure failures, terrorist attacks, supply failures, labor actions, equipment failures, price volatility and military and civil conflicts).
- 2. Assess the potential impact of the risk**, and quantify the probability and the potential impact of the risk. The assessment depends on a specific incident, but it can be based on factors such as finance, environment, business viability, brand image and reputation, and human lives.
- 3. Develop plans to mitigate the risk** and create a detailed strategy for minimizing the impact of the risk. Strategies can take different forms depending on the nature of the risk.

Note: For a more detailed description of risk management, refer to the APICS OMBOK Framework.

### Develop risk management measurements

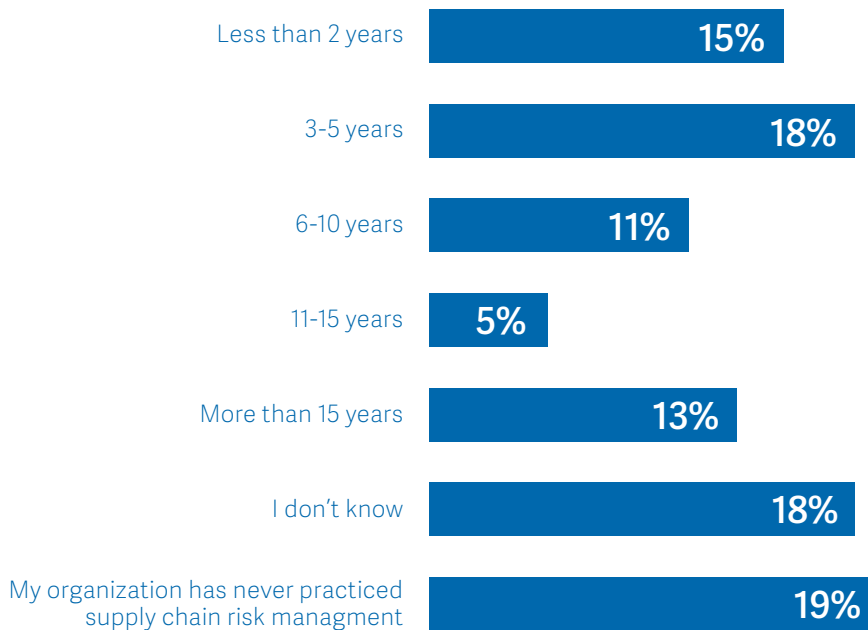
Compare survey results to your organization’s results from supply chain simulations or drills, and then develop metrics or measurements that illustrate potential causes for those differences.

Align previously dissimilar risk variables. For example, define in value how much “at risk” facilities, inventories and cargos are weighted in different portions of the supply chain. Create a ratio of that amount to a numerical score of risk management partner relationship, experience or responsibility. What is the right ratio across the supply chain?

Consider risk-reward metrics, measurements or ratios. If the supply chain seeks to add a new supplier, will the risk of a new supplier offset the reward gained by adding the new supplier in terms of geography, speed, quality and management oversight?

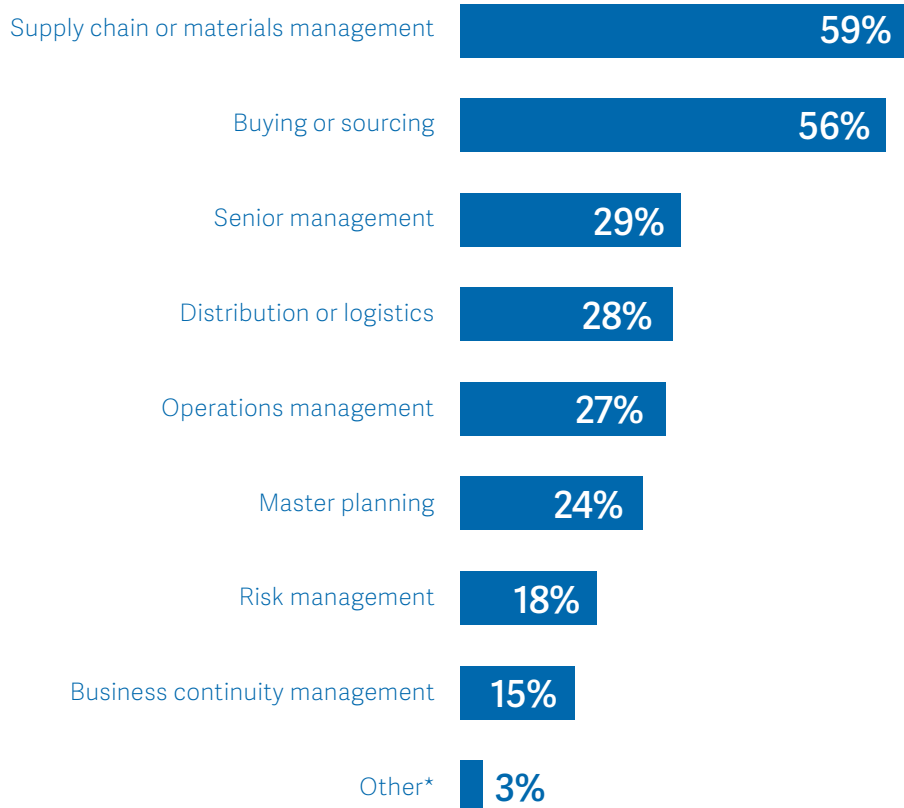
### Risk management maturity

Respondents were asked how long their organizations had practiced supply chain risk management.



## Supply chain familiarity

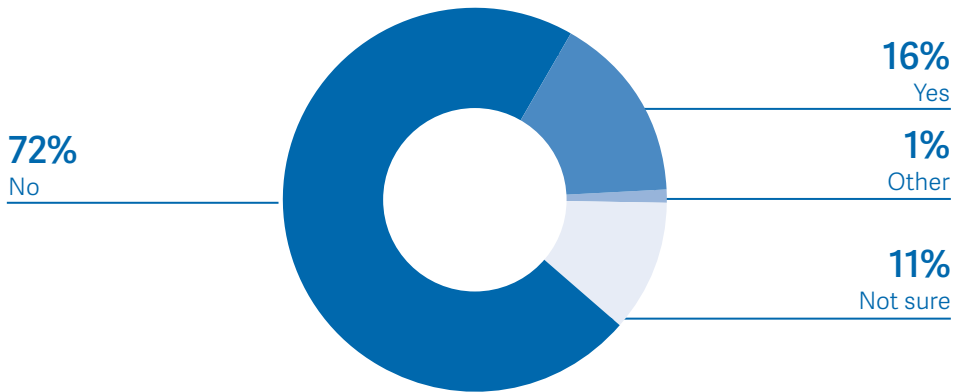
Respondents were asked to select all job role areas that have primary responsibility for supply chain risk.



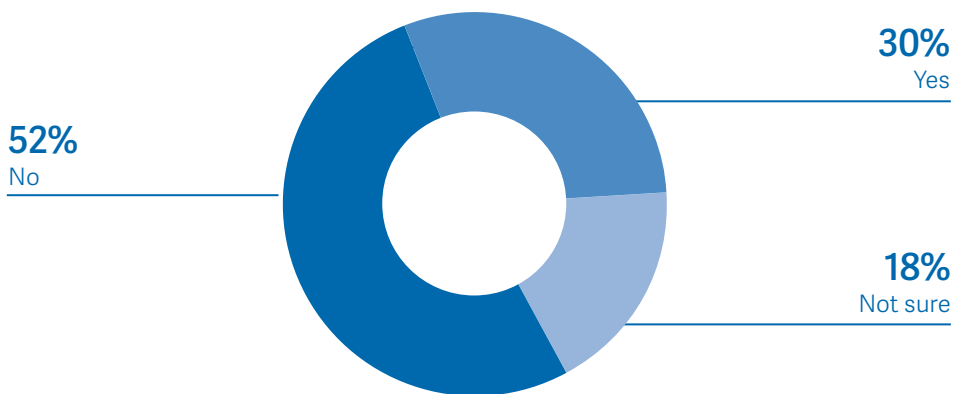
*\*Other job roles include consultant, human resources management, group or international marketing, enterprise resources planning (ERP), product management, commercial operations, regulatory affairs and corporate supply chain management.*

### Risk management job role

Respondents were asked if there is a supply chain risk management job role or position at their organizations.



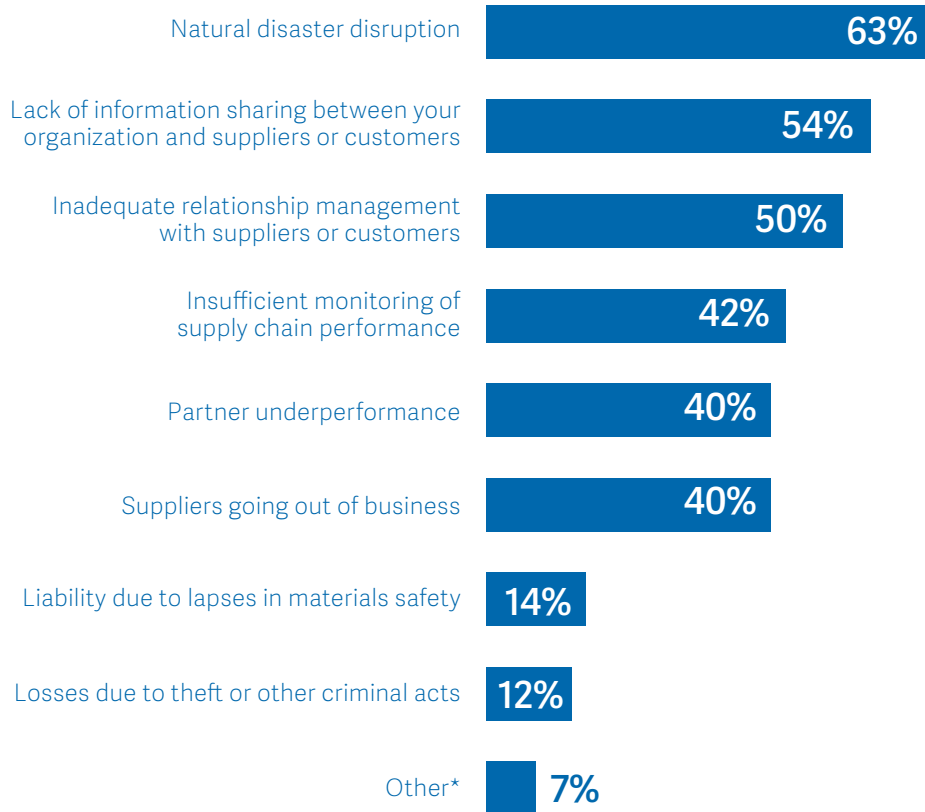
Respondents were asked whether their organizations simulate or role-play supply chain risk scenarios.





## Supply chain risks

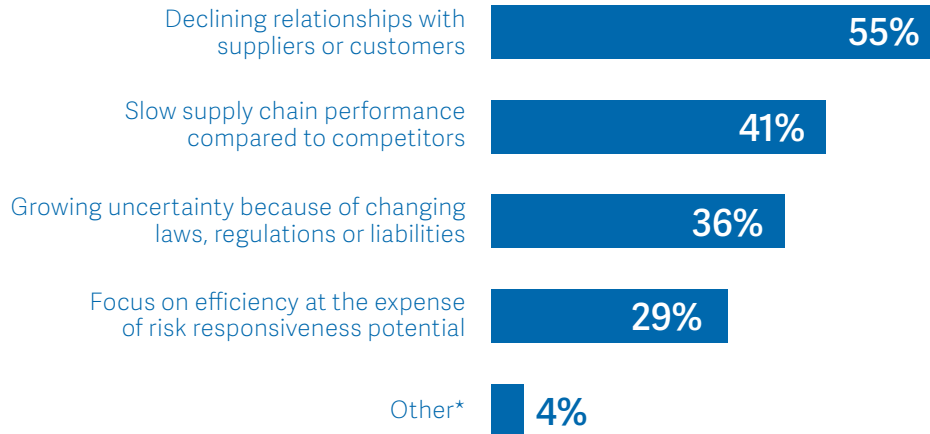
Respondents were asked which risks are most likely to affect their supply chains.



*\*Other risks specified by respondents include internal strikes, outdated internal tools, raw material availability, energy supply, avian influenza, mad cow disease, embargoes or acts of war, transportation systems breakdown, third-party labor disputes and recalls of goods.*

### Detecting soft risk

Respondents were asked whether they could detect any of the following soft risks—those that are not easily measurable—in their supply chains.

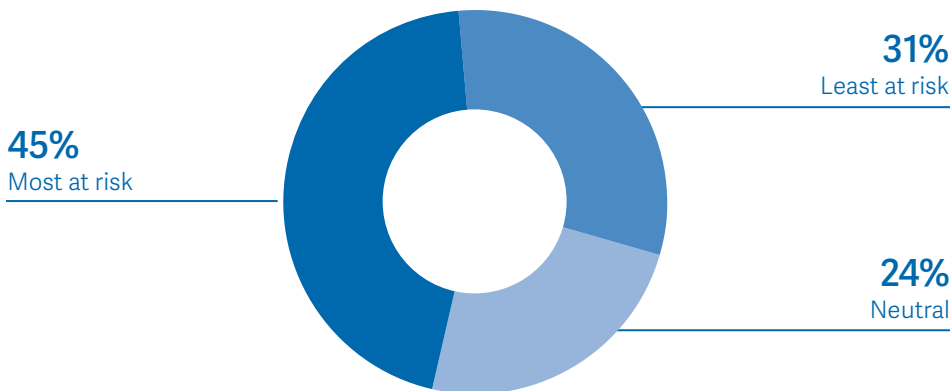


\*Other specified risks include “banana slip” from competitors, power shortages in China, uncertain economy, financial stability of partners and staff trained on supply chain issues.

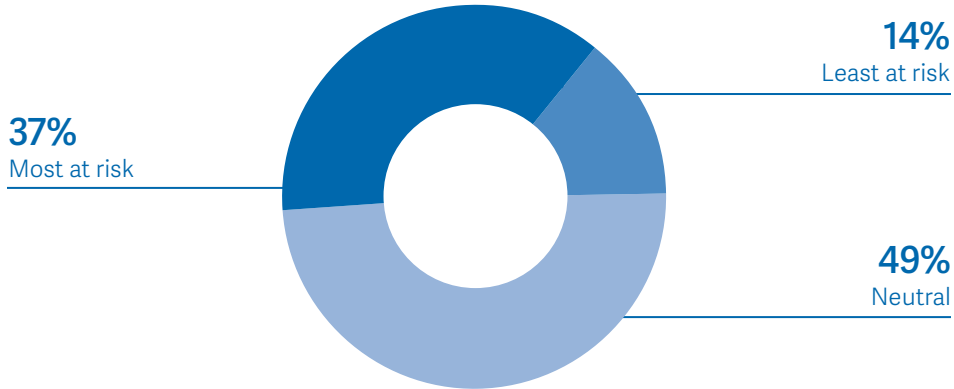
### Risk vulnerability

Respondents were asked which supply chain areas they perceive as the most or least vulnerable to risk or disruption.

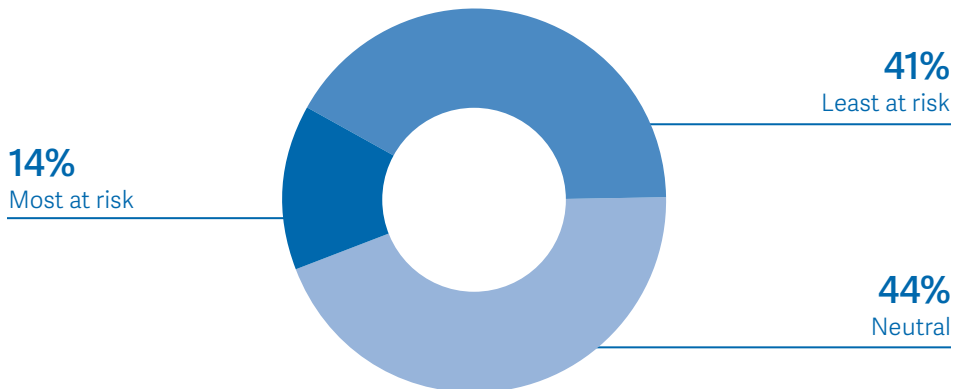
#### Primary suppliers



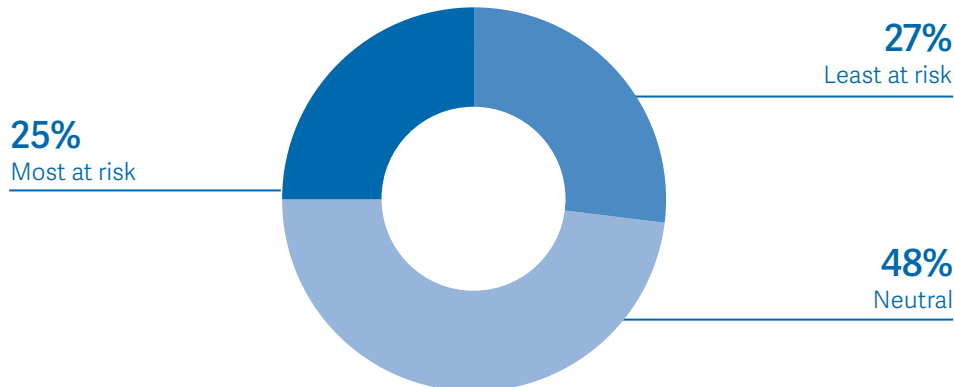
### Secondary suppliers



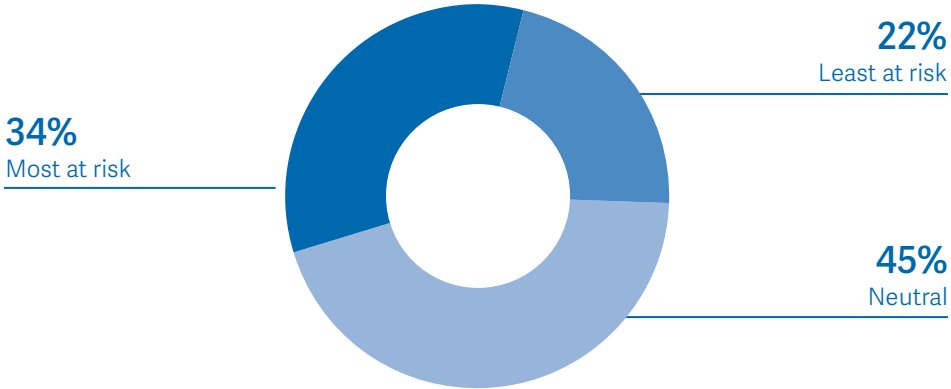
### Distribution or warehousing



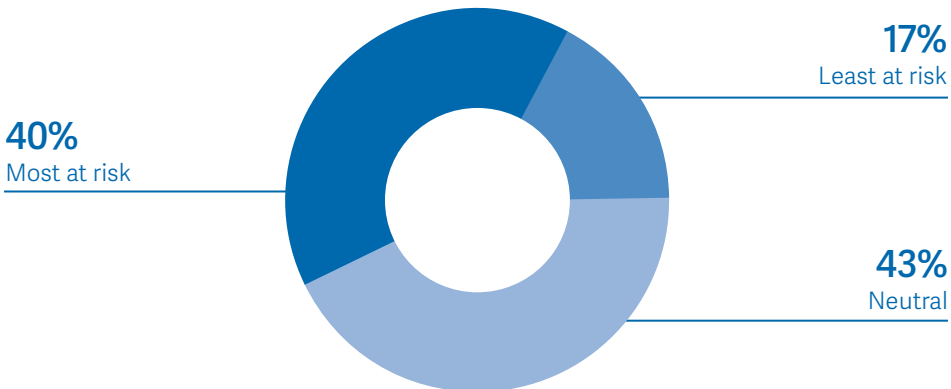
### Logistics



### Production

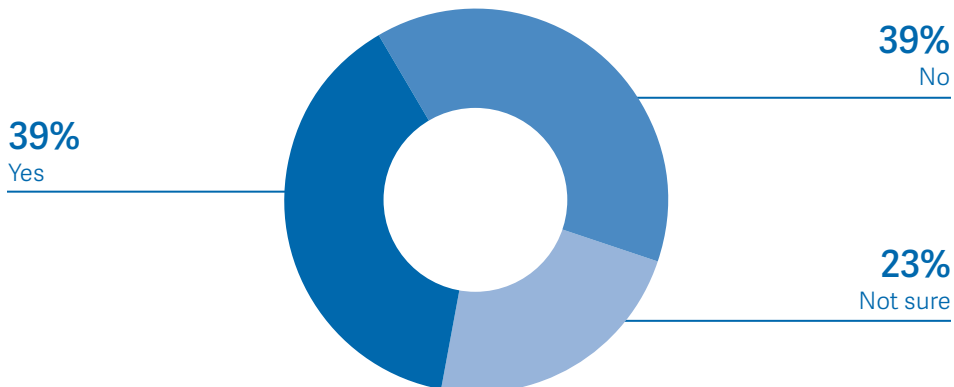


### Customers



### Do you have a risk mitigation plan in place?

Respondents were asked: "If a crisis were to disrupt your supply chain at this moment, do you have a mitigation plan in place to react immediately?"





## Risk management maturity

Respondents were asked what statement best describes the maturity level of supply chain risk management at their organizations.

**53%** We formally or informally will engage in some supply chain risk management practices when a threat appears, but these efforts fade as the threat disappears

**18%** We do not practice supply chain risk management

**13%** We have a formal cross-department team or group to address supply chain risk. Its scope is the entire supply chain. It successfully maintains visibility and awareness across the organization. Supply chain risk management is generally acknowledged as a strategic competitive advantage

**12%** We have a formal supply chain risk management job role. Most effort is tactical and focused only on specific areas of the supply chain. Visibility is not what it should be with the rest of the organization. Supply chain risk management is generally not seen as a strategic competitive advantage

**3%** Other

## Level of risk awareness

Participants were asked which statement best describes their organization's level of awareness of supply chain risk.

Awareness increases when a crisis strikes, but awareness falls when the crisis passes **45%**

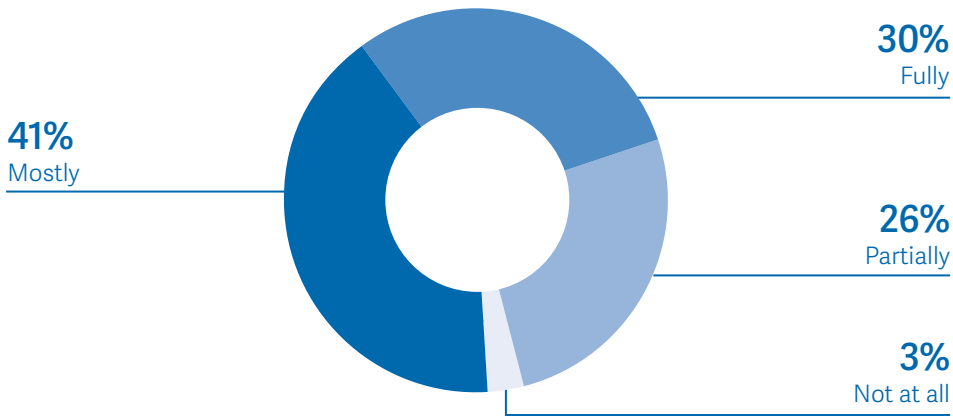
Some groups are aware but others are not **29%**

We are always aware of supply chain risk **18%**

Almost no one is aware of supply chain risk **9%**

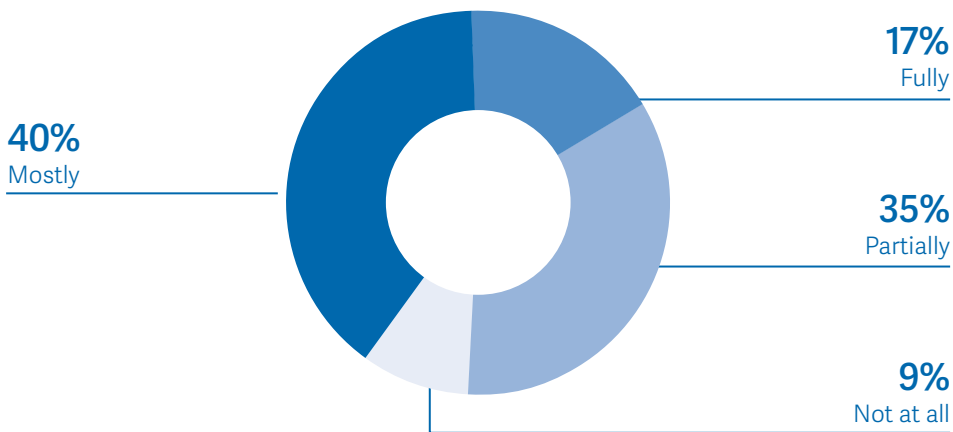
### How well do you know your end-to-end supply chain?

Respondents were asked to rate their level of agreement with this statement: "I understand my company's supply chain from end to end, including the flow of material into and out of our facilities from each node in the chain."



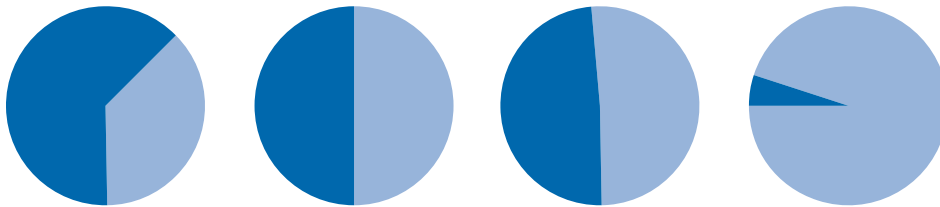
### Map your physical supply chain

Respondents were asked to select their levels of agreement with this statement: "I can map the physical flow of materials from our suppliers, including the location of supplier production facilities, freight facilities and transportation methods used by each supplier."



## Supply chain risk challenges

Respondents were asked to select all that apply to the following question: "If your employer assigned you to serve in a supply chain risk role, what challenges do you foresee?"



**63%**

Lack of resources, useful tools, data or platforms to capture, analyze and integrate supply chain risk into the existing supply chain management processes

**50%**

Difficulty ensuring that senior management provides follow-up and leadership to promote the success of risk efforts among all stakeholders

**49%**

Lack of understanding of supply chain risks and concerns among stakeholders

**5%**

Other

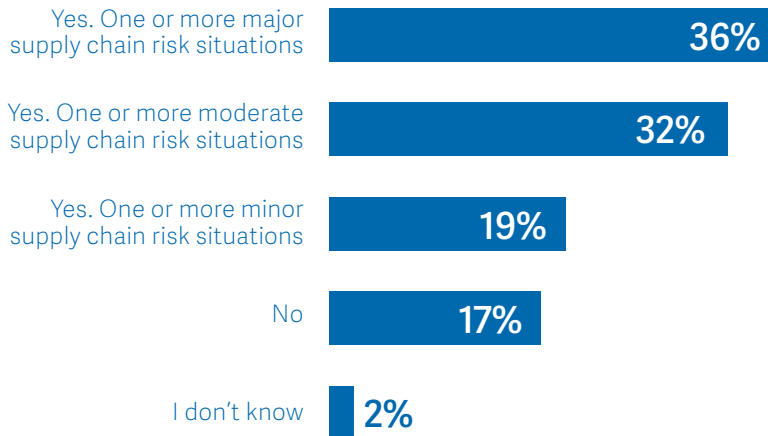
## Rate your risk readiness

Participants were asked: "If tasked with evaluating or updating supply chain risk management plans, how would you rate your current state of readiness in terms of related skill, knowledge and experience?" (The average rating was 5.27 on a scale of 1 to 10.)

Very low readiness	2	3	4	Moderate readiness	6	7	8	9	Very high readiness
5%	6%	8%	12%	24%	14%	16%	10%	2%	2%

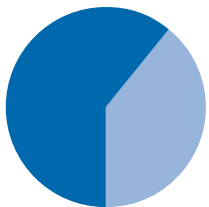
## Do you have experience with risk?

Respondents were asked whether they personally had worked through any supply chain risk situations.



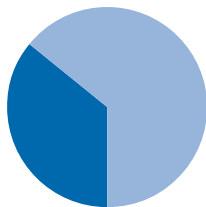
## The importance of risk management skill and experience

Respondents were asked which statement best describes their opinions about supply chain risk management skill and experience.



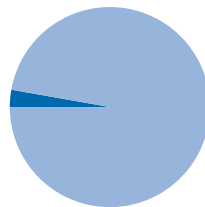
**61%**

Supply chain risk management skill and experience are essential. They are critical elements of the future of operations management



**36%**

Supply chain risk management skill and experience are important but not essential at this time. I expect my organization will eventually increase its supply chain risk management efforts



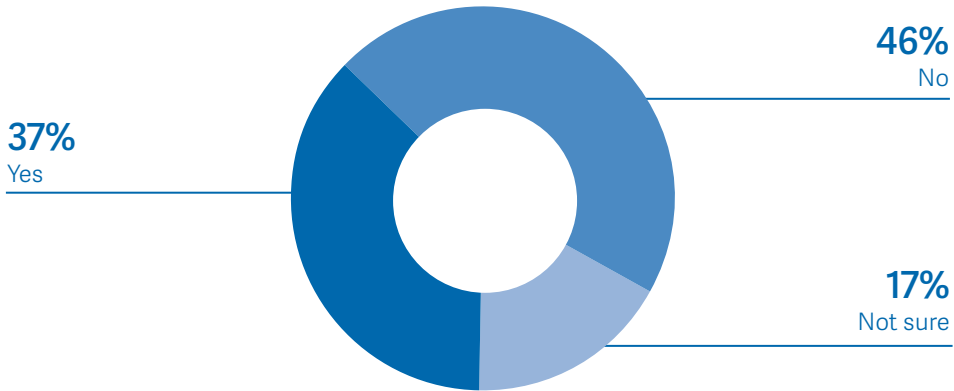
**3%**

I doubt supply chain risk management skill will be valuable to my career. Supply chain risk management skill or experience would not help me where I work now



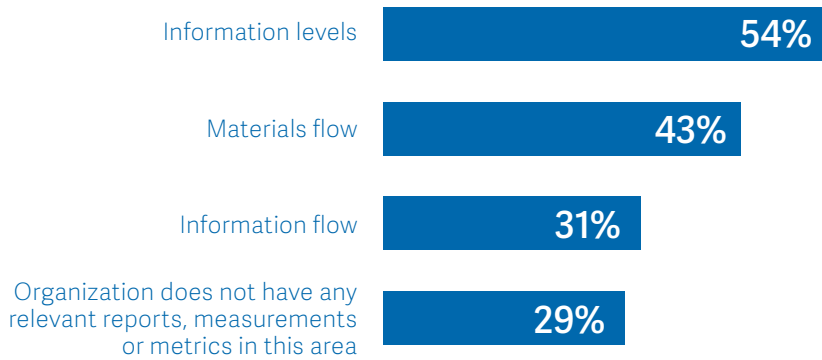
### Supply chain partner trust

Respondents were asked: "From your perspective, does your organization spend enough time developing trust relationships with supply chain partners?"



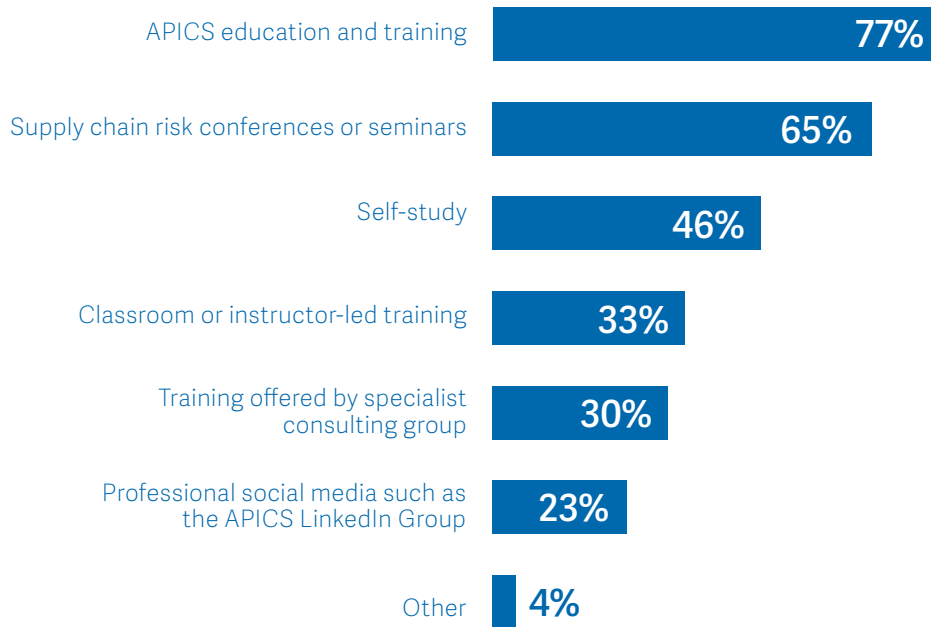
### Measuring risk

Respondents were asked the following questions: "Do you use any reports, measurements or metrics that reveal supply chain risk from a supply chain flow perspective? Which areas?"



## Increasing supply chain risk knowledge

Respondents were asked to select sources they would consider to increase personal skill or knowledge about supply chain risk management.



## Risk management experience

Respondents were asked how many years of experience they have implementing or practicing supply chain risk management.

No experience	0-1 years	2-3 years	4-5 years	6-8 years	9-11 years	12-15 years	More than 16 years
24%	15%	15%	14%	12%	6%	4%	11%

## RESPONDENT PROFILE

≈70%

Almost 70 percent of respondents indicated that production and manufacturing is the primary activity of their organizations. Thirty-one percent of respondents have 21 or more years of supply chain and operations industry experience.

>50%

More than half of the respondents have responsibilities in supply chain management. Other responsibilities include procurement (41 percent), demand planning (42 percent), master planning (33 percent), and distribution and logistics (33 percent).

72%

Seventy-two percent of respondents indicated that there is no supply chain risk management role or position at their organizations. The majority of respondents work at organizations that employ 250 or more employees, and 13 percent of respondents work at organizations with 25,000 or more employees.

39%

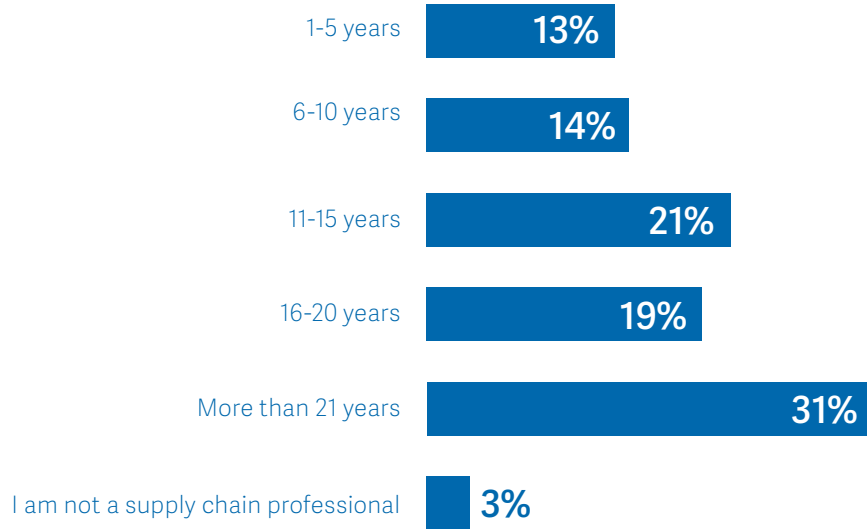
Thirty-nine percent of respondents indicated that their organizations do not have a risk mitigation plan in place, while 39% said they do have a plan in place, and 23% were not sure if there is a plan in place.

61%

Sixty-one percent of respondents indicated that supply chain risk management and experience are essential and that they are critical elements of the future of operations management.

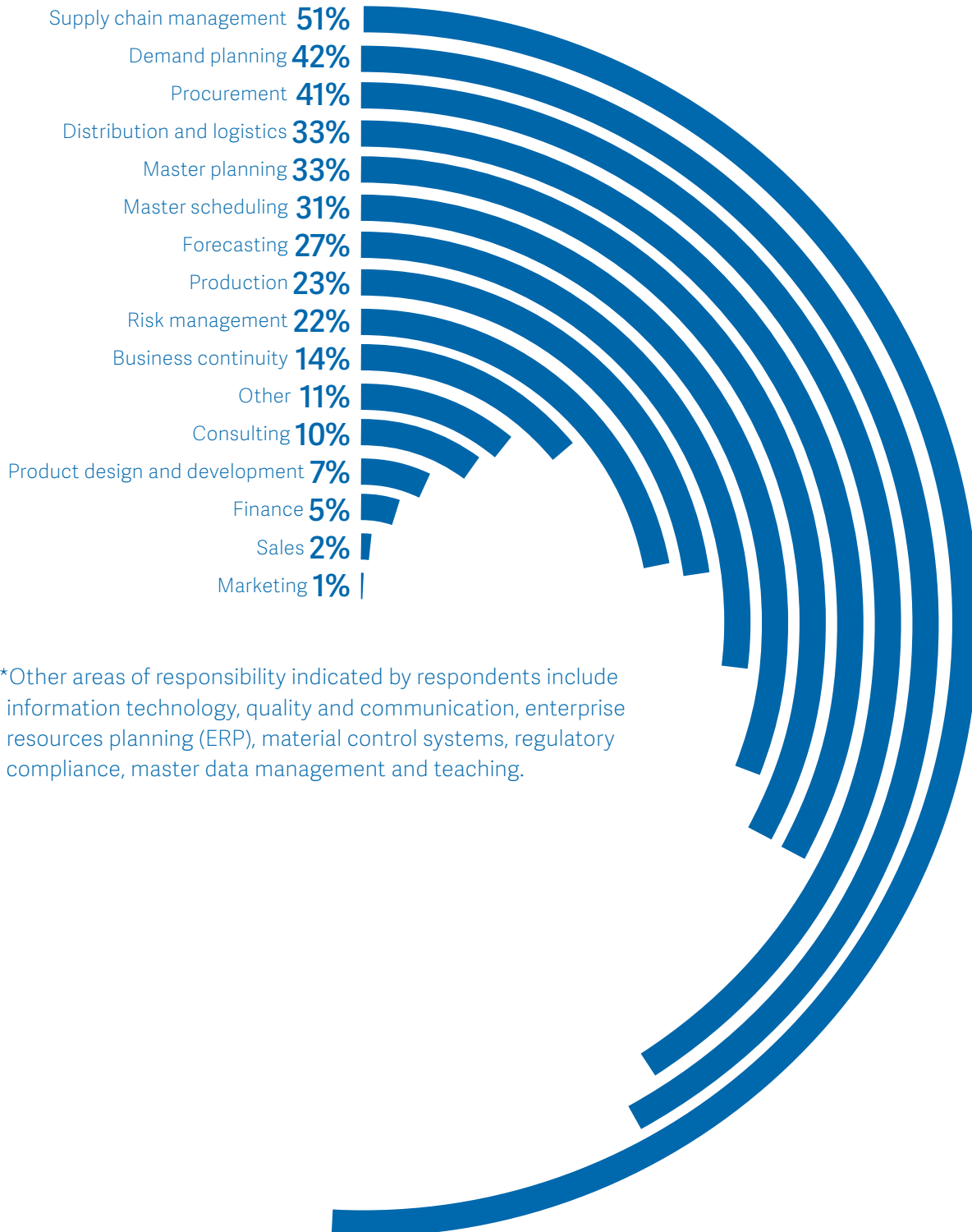
## Years of industry experience

Respondents were asked how long they have been an operations or supply chain professional.



## Supply chain areas of responsibility

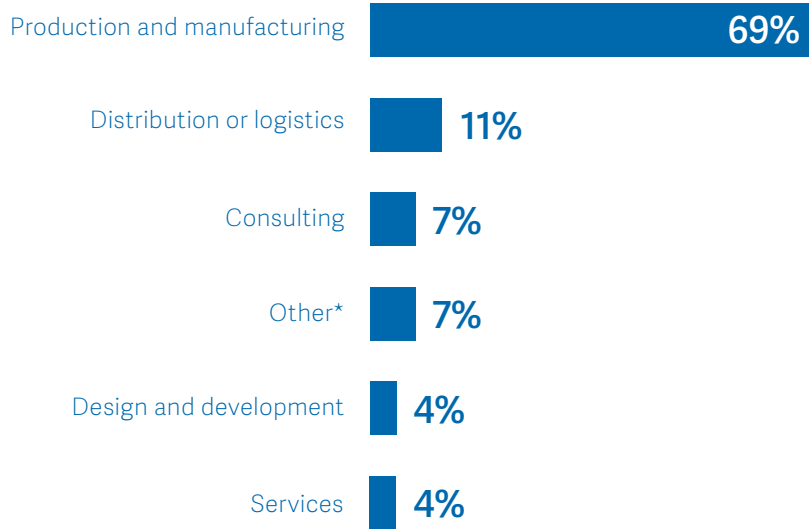
Respondents were asked to check all areas that fall under their responsibility.



\*Other areas of responsibility indicated by respondents include information technology, quality and communication, enterprise resources planning (ERP), material control systems, regulatory compliance, master data management and teaching.

## Supply chain primary areas

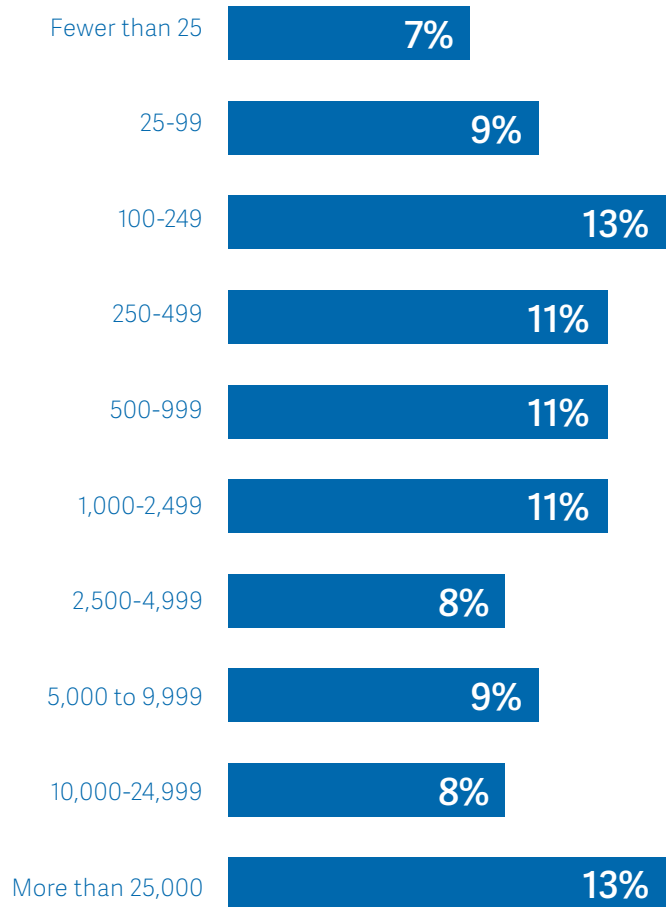
Respondents were asked which of the following choices best describe the primary activity of their companies.



\*Other primary areas respondents indicated include telecommunications, educational activities, operations management, mining and transportation.

## Supply chain organizations

How many employees does your company have?



# APICS SUPPLY CHAIN COUNCIL RESEARCH





For more inside information explore APICS research topics at [apicsscc.org](http://apicsscc.org).

**Reports are available on:**

- Chronic disruption
- Project management
- Remanufacturing
- Supply chain strategy
- Sustainability
- And other topics

If you have comments or questions, contact [askapics@apics.org](mailto:askapics@apics.org).

## ABOUT APICS SUPPLY CHAIN COUNCIL

APICS SCC is a nonprofit organization that advances supply chains through unbiased research, benchmarking and publications. APICS SCC maintains the Supply Chain Operations Reference (SCOR) model, the supply chain management community's most widely accepted framework for evaluating and comparing supply chain activities and performance. APICS SCC enables corporations, academic institutions and public sector organizations to address the ever-changing challenges of managing a global supply chain to elevate supply chain performance. APICS SCC is part of APICS, the premier professional association for supply chain and operations management.

Visit [apicsscc.org](http://apicsscc.org) to learn more.