

APICS 2011 SUPPLY CHAIN RISK CHALLENGES AND PRACTICES



*Key findings and insights of top operations
management professionals*

APICS 2011 SUPPLY CHAIN RISK EXECUTIVE SUMMARY

APICS sought to examine the role that supply chain risk management currently plays in organizations and how risk management will evolve. The overall goal of the supply chain risk survey was to determine the current real-world practice of supply chain risk at the level of 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.

In comparison to lean manufacturing for example, the survey results reveal that supply chain risk management is still at an early stage of maturity and that there are gaps at the organizational-management level and the supply chain and operations management level. Seventy-two percent of 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 greater than ten years. Almost a third of respondents reported their organizations practiced risk management for no more than five years. As supply chains become more complex, and as risk occurrence becomes potentially more costly, the importance of risk management increases.

The *APICS Dictionary*, 13th 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 man-made disasters such as earthquakes, hurricanes, and terrorism.

SUPPLY CHAIN RISK MANAGEMENT IS EVOLVING

Increasingly, there are formal roles devoted to risk management, or risk management becomes a formal responsibility of existing supply chains, materials, and operational management roles. This trend stems from the rising visibility of supply chain risk. The natural disasters the globe has seen over the last several years, as well as increasing information technology capability, have 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 its competition 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 5 to 10 years, from Hurricane Katrina to the earthquake and tsunami in Japan. Visibility of risk management tends to rise and fall with reported disasters. However, formal ongoing roles and responsibilities help counter the cyclical rising and falling attention given to risk management only as risks occur.

WHY IS SUPPLY CHAIN RISK MANAGEMENT IMPORTANT?

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

- Risk management generally improves supply chain partner relationships as joint risk sharing and risk information improve, and through increasing trust as risk management practice demonstrates commitment and capability the supply chain can count on.
- The reality of soft risk—risk that is difficult to measure—often goes unattended without risk management. Constant awareness and vigilance toward 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 suited to risk management roles.
- Every business faces strategically balancing risk and reward. Over the course of history earning a greater reward generally requires enduring a greater risk. Risk management ensures that risk exposure is optimally minimized while the organization seeks its greatest reward from its people, assets, capabilities, and resources.

GAIN COMPETITIVE ADVANTAGE THROUGH RISK MANAGEMENT

Risk management delivers a strategic competitive advantage to organizations to take 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 effort, expense, or time to the organization. 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 may not have as well developed risk management practices. This becomes a key strategic competitive advantage even for commodity product producers.

APICS 2011 SUPPLY CHAIN RISK CHALLENGES AND PRACTICES

One of the goals of APICS is to advance the educational mission and to serve APICS members by learning more about supply chain strategy and the function it plays in operations management. APICS invited over 9,000 professionals to participate in a survey, which took place from June through July, 2011.

RESPONDENT PROFILE

- 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.
- 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), distribution and logistics (33 percent), and demand planning (42 percent).
- The majority of respondents work at organizations that employ 250 or more employees. Thirteen percent of respondents work at organizations with 25,000 or more employees.
- Seventy-two percent of respondents indicated that there is not a supply chain risk management role or position at their organizations.

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

Sixty-one percent of respondents indicated that supply chain risk management and experience are essential and that it is a critical element of the future of operations management.

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

- **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, military and civil conflicts, and more).
- **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.
- **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*.

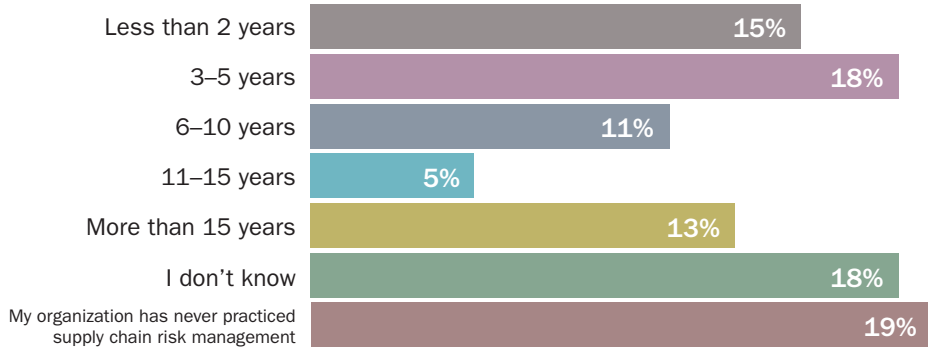
TAKE THE FOLLOWING STEPS TO DEVELOP RISK MANAGEMENT-IMPROVED MEASUREMENTS:

- 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, cargos, are weighted in different portions of the supply chain for example. 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 practiced supply chain risk management.



SUPPLY CHAIN FAMILIARITY

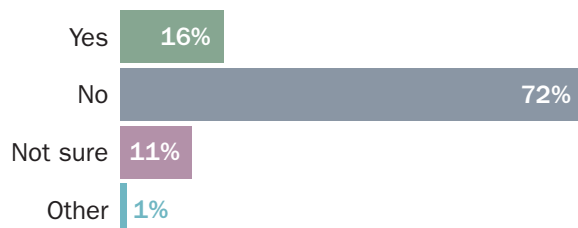
Respondents were asked to select all job role areas that are primarily responsible for supply chain risk.

- Supply chain or materials management (59 percent)
- Buying or sourcing (56 percent)
- Senior management (29 percent)
- Distribution or logistics (28 percent)
- Operations management (27 percent)
- Master planning (24 percent)
- Risk management (18 percent)
- Business continuity management (15 percent)
- Other (3 percent)*

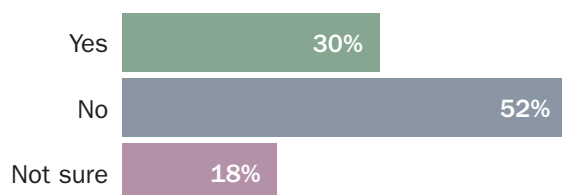
*Other job roles include consultant, human resources management, group or international marketing, enterprise resources planning (ERP) product management, commercial operations, regulatory affairs, corporate supply chain management.

RISK MANAGEMENT JOB ROLE

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

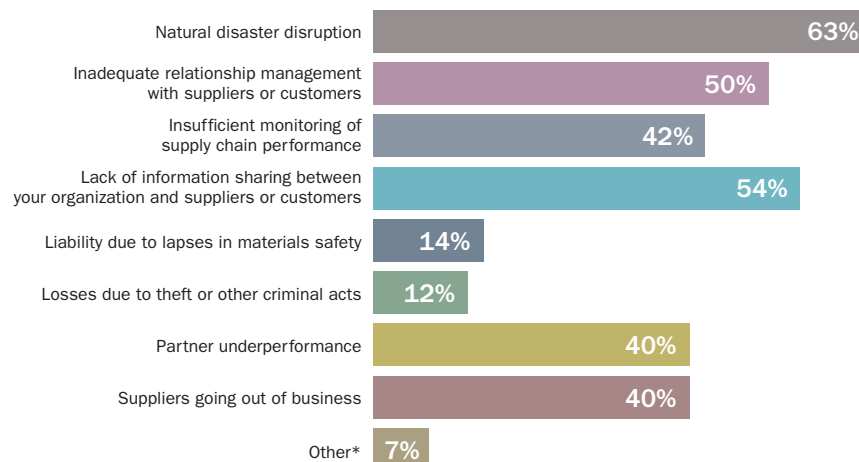


Respondents were asked whether their organizations simulate or role play supply chain risk scenarios.



SUPPLY CHAIN RISKS

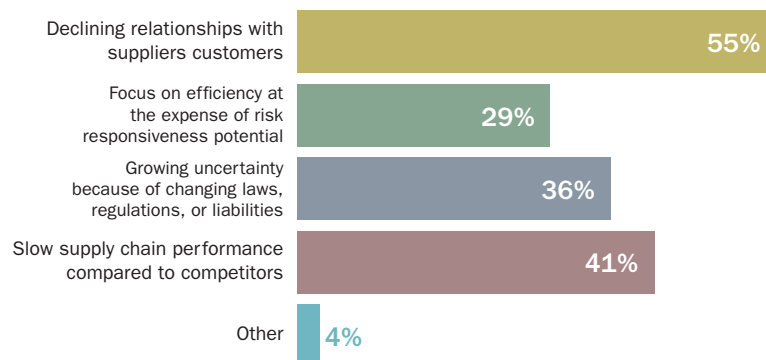
Respondents were asked which risks are most likely to affect their supply chains.



*Other risks specified by respondents include internal strikes, outdated internal tools, raw material availability, energy supply, natural disasters, Avian influenza, Mad Cow disease, embargo or acts of war, transportation systems breakdown, third-party labor dispute, recalls of goods, and more.

DETECTING SOFT RISK

Respondents were asked whether they could detect any of the following soft risks—risks 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, staff trained on supply chain issues, and more.

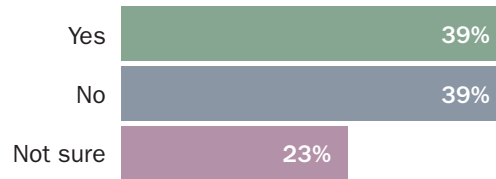
RISK VULNERABILITY

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

	Least at risk	Neutral	Most at risk
Primary suppliers	31%	24%	45%
Secondary suppliers	14%	49%	37%
Distribution or warehousing	41%	44%	14%
Logistics	27%	48%	25%
Production	22%	45%	34%
Customers	17%	43%	40%

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?"



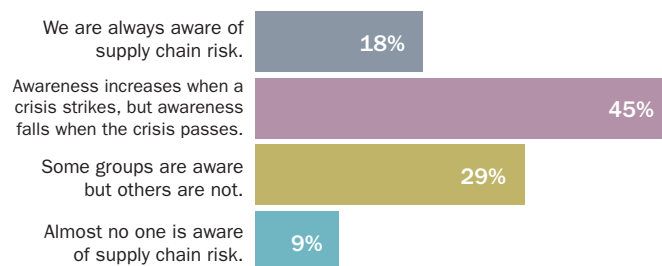
RISK MANAGEMENT MATURITY

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

- We do not practice supply chain risk management (18 percent).
- 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 (53 percent).
- 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 (12 percent).
- 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 (13 percent).
- Other (3 percent).

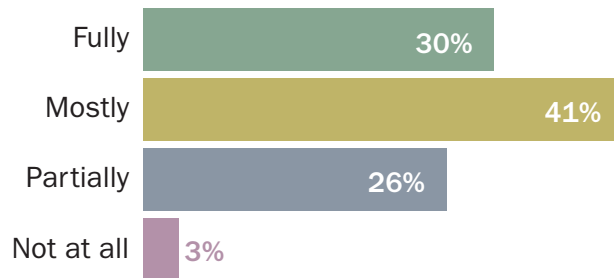
LEVEL OF RISK AWARENESS

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



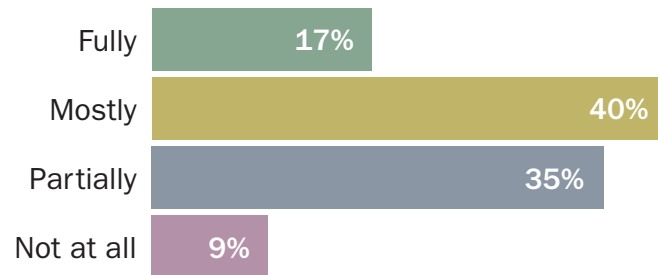
HOW WELL DO YOU KNOW YOUR END-TO-END SUPPLY CHAIN?

Respondents were asked to rate their level of agreement to 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 to 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?”

- Difficulty ensuring that senior management provides follow-up and leadership to promote the success of risk efforts among all stakeholders (50 percent)
- Lack of understanding of supply chain risks and concerns among stakeholders (49 percent)
- Lack of resources, useful tools, data, or platforms to capture, analyze, and integrate supply chain risk into the existing supply chain management processes (63 percent)
- Other (5 percent)

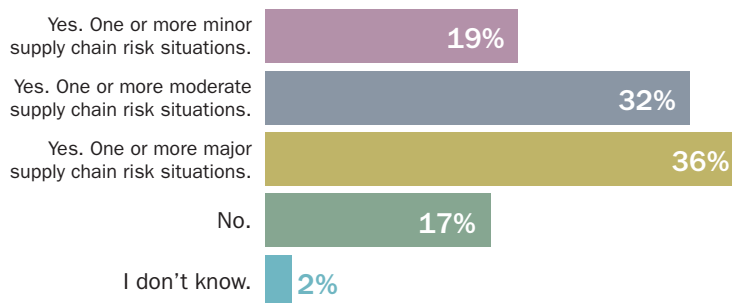
RATE YOUR RISK READINESS

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.**

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

DO YOU HAVE EXPERIENCE WITH RISK?

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



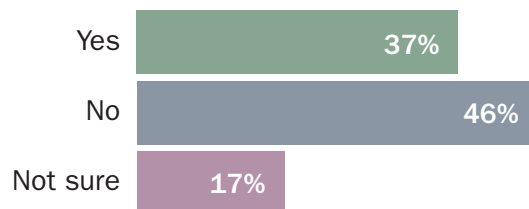
YEARS IN THE SUPPLY CHAIN INDUSTRY

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

- Supply chain risk management skill and experience are essential. It is a critical element of the future of operations management (61 percent).
- 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 someday (36 percent).
- 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 (3 percent).

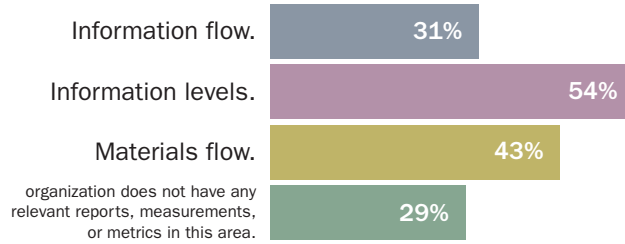
SUPPLY CHAIN PARTNER TRUST

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



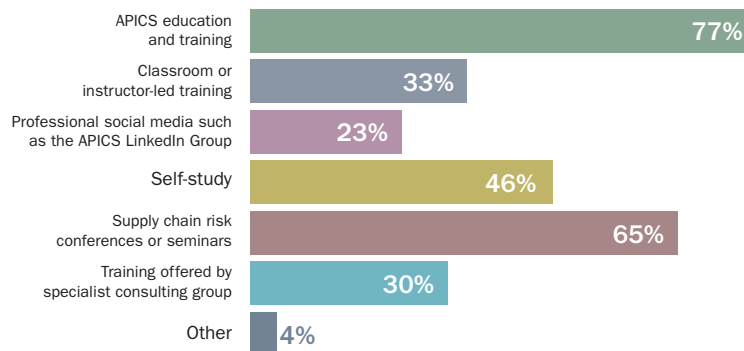
MEASURING RISK

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?”



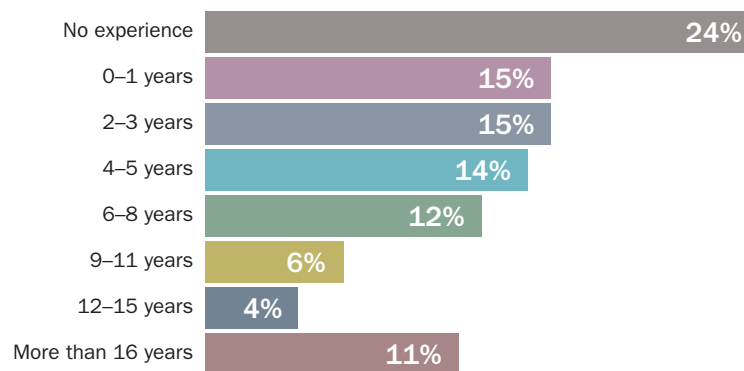
INCREASING SUPPLY CHAIN RISK KNOWLEDGE

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.



YEARS OF INDUSTRY EXPERIENCE

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

- 1–5 years (13 percent).
- 6–10 years ago (14 percent).
- 11–15 years (21 percent).
- 16–20 years (19 percent).
- More than 21 years (31 percent).
- I am not a supply chain professional (3 percent).

SUPPLY CHAIN AREAS OF RESPONSIBILITY

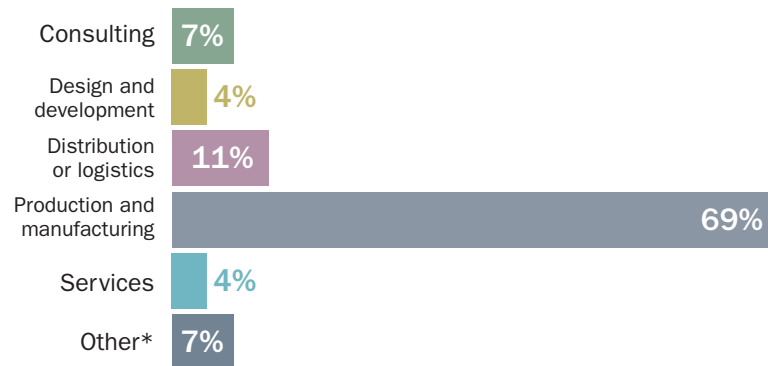
Respondents were asked to check all areas that fall under their responsibility.

- Supply chain management (51 percent)
- Demand planning (42 percent)
- Procurement (41 percent)
- Distribution and logistics (33 percent)
- Master planning (33 percent)
- Master scheduling (31 percent)
- Forecasting (27 percent)
- Production (23 percent)
- Risk management (22 percent)
- Business continuity (14 percent)
- Consulting (10 percent)
- Product design and development (7 percent)
- Finance (5 percent)
- Sales (2 percent)
- Marketing (1 percent)
- Other* (11 percent)

*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, teaching, and more.

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?

- Fewer than 25 (7 percent)
- 25–99 (9 percent)
- 100–249 (13 percent)
- 250–499 (11 percent)
- 500–999 (11 percent)
- 1000–2,499 (11 percent)
- 2,500–4,999 (8 percent)
- 5,000–9,999 (9 percent)
- 10,000–24,999 (8 percent)
- More than 25,000 (13 percent)

TAKE THE FOLLOWING FIVE STEPS TO IMPROVE RISK MANAGEMENT AT YOUR ORGANIZATION:

- Increase visibility and awareness. Make sure risk management is a regular feature of discussions, reports, KPIs, decisions involving supply strategy and tactics, even when no risks are occurring.
- 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 to degrade or eliminate a mapped location, capability, or asset.
- Improve supply chain partner relationships and information flow measures and metrics.
- Benefit from training and education, whether by formal classes or informally by conducting supply chain risk simulations or drills. Education should help build skill in best practices, knowledge of probabilities of specific risks as well as 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.
- Capture and address hidden soft risks and previously unforeseen, unintended or unaccounted issues. Decisions designed to increase the pace of production for example may increase hard or soft risk that should be analyzed and addressed in advance of practice.

QUESTIONS FOR DISCUSSION

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

- Where does your organization or our supply chain fall?
- Does my 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?

ABOUT APICS

APICS The Association for Operations Management is the global leader and premier source of the body of knowledge in supply chain and operations management, including production, inventory, materials management, purchasing, and logistics. Since 1957, individuals and companies have relied on APICS for its superior training, internationally recognized certifications, comprehensive resources, and worldwide network of accomplished industry professionals.

APICS certification, education, and membership helps operations and supply chain management professionals build knowledge and skills to enhance and validate abilities and accelerate careers. APICS helps its members and their organizations successfully compete and build a stronger global economy.

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APICS The Association for Operations Management
8430 West Bryn Mawr Avenue
Suite 1000
Chicago, IL 60631 USA
Phone: 1-800-444-2742 or +1-773-867-1777
service@apics.org



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