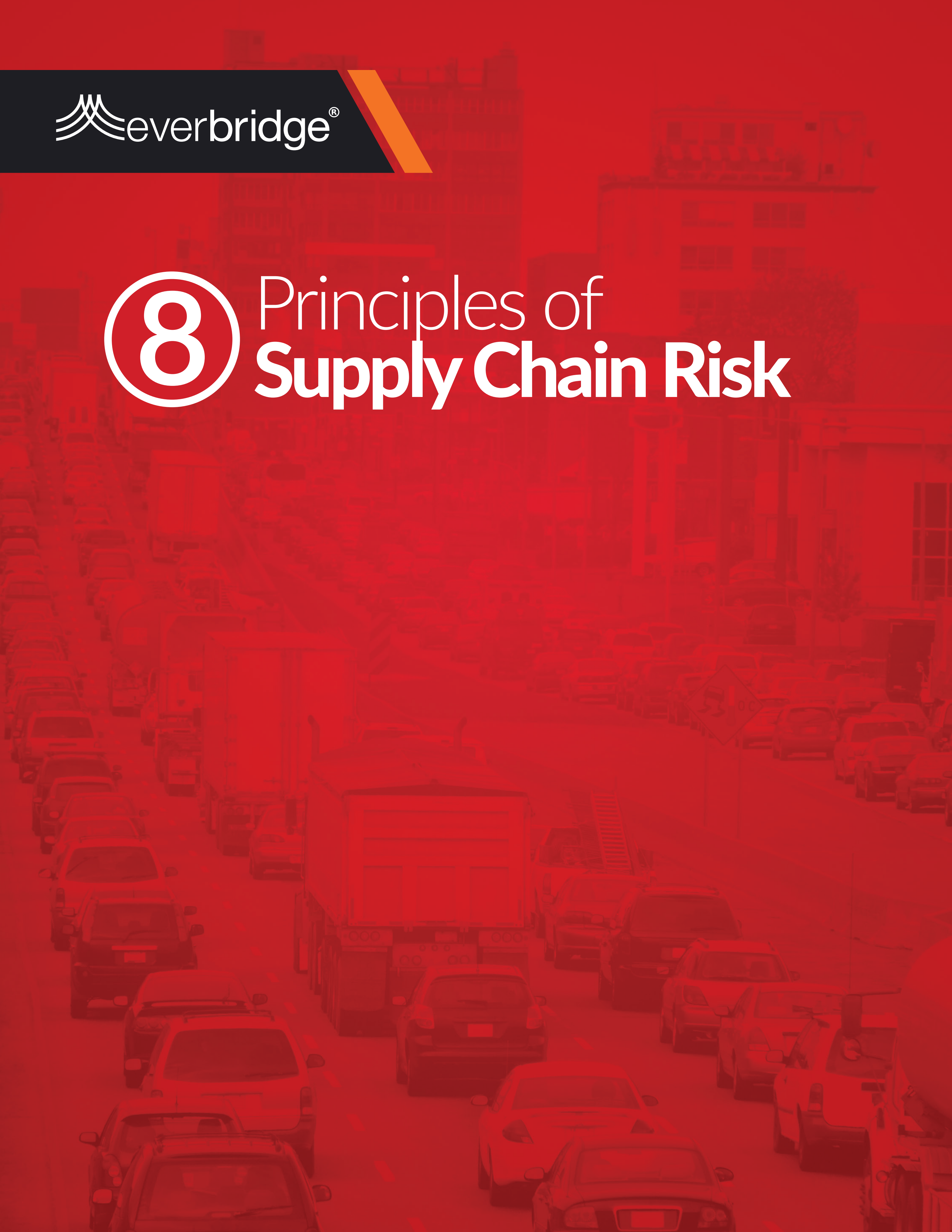

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8 Principles of Supply Chain Risk

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Operational risk is a strategic issue for all organizations. From employee safety to cyber threats to damage to reputation, risk events that threaten businesses are ongoing, and can occur anywhere and at any time. Nowhere is risk more evident than in the supply chain. Natural disasters, weather, civil unrest, terrorism, workforce strikes and even construction and traffic, all can impact your supply chain. These risks can delay or completely disrupt the supply chain, threatening on-time delivery, manufacturing processes and customer commitments.

It's impossible to completely eliminate risk from your supply chain. However, organizations can minimize exposure to risk and even eliminate the impact of certain risk events with careful planning, tools and processes to anticipate and manage risk more effectively.

Managing risk typically involves three key aspects: Risk Identification, Risk Assessment and Risk Mitigation. Together these form the tenets of risk management, and it is important to understand that these tenets work together and cannot be separated or eliminated. For example, you can identify a risk situation and understand its impact, but if action is required and is not taken, then the resulting impact still occurs. Similarly, if you identify a threat after it has occurred, then the value of assessment is only to understand how to avoid it in the future and the impact of that event is still felt. Therefore, any effective risk management solution must include these three elements.

Why is this valuable for your company? Because if you're better prepared to respond to risk events than your competitors, supply chain risk can become an opportunity for competitive advantage and differentiation. A recent PwC annual risk survey reveals that, "a comprehensive approach to risk management can deliver a competitive advantage by handling risk events more effectively and efficiently than competitors which results in an upsurge in performance and faster revenue growth."[1]

So how can companies better take command of risk in their supply chains and even leverage risk management as a competitive advantage? The following principles are an accumulation of experiences documented to help guide companies as they mature their supply chain risk management program and make changes to proactively respond to and minimize the impact of risk events.

1 What you don't know can hurt you!

You can't manage what you can't see, so it is critical to have a clear picture of your entire supply chain—turn by turn and stop by stop. You need to know where your raw materials originate from, what locations they will have to pass through, where your distributors are located and where your finished goods will travel.

> A SINGLE POINT OF FAILURE LEAVES YOUR SUPPLY CHAIN EXPOSED TO MAJOR DELAYS AND DISRUPTIONS FROM AN EVENT AS SMALL AS A MINOR FACTORY FIRE.

This includes mapping your suppliers from tier 1 to tier 2 and beyond – the area where most companies are in the dark and vulnerable to overreliance on single sources. "Executives surveyed are far more concerned about the extended value chain—where they have less control—than about risks to company-owned operations. Indeed, 63 percent of executives were highly concerned about risks within the extended value chain comprising vendors and customers, ranking it among their top two concerns"[2]. Do you know if your company's tier 1 suppliers rely on a single source for steel or precious metals that go into critical electronic components? A single point of failure like this leaves your supply chain exposed to major delays and disruptions from an event as small as a minor factory fire.

It is evident that OEMs and retailers (aka customers) have an over-reliance on carriers, freight forwarders, and third party logistics companies (aka service providers) to take their customers' orders and move the shipments through their network. Customers almost always have no knowledge of the routing but expect on-time, damage-free and complete delivery. They rely on the service providers to alert them to risk, sometimes to the detriment of production.

If you don't have your supply chain mapped, you should work on this immediately. This provides valuable visibility as you manage your supply chain on a day-to-day basis, and it also serves as the foundation for your risk management efforts. This will go far in supporting your other risk management efforts, however, supply chain mapping is only the first step.

[1] Risk in Review: Decoding uncertainty, delivering value, April 2015.
http://www.financierworldwide.com/fw-news/2015/4/30/effective-risk-management-enables-faster-revenue-growth-claims-new-survey

[2] The Ripple Effect: How manufacturing and retail executives view the growing challenge of supply chain risk, April 2013.
http://www2.deloitte.com/content/dam/Deloitte/global/Documents/Process-and-Operations/gx-operations-consulting-the-ripple-effect-041213.pdf

2 Identify weak links before there's a break.

Once you map your supply chain, put that map to immediate use to identify choke points, excessive reliance on particular infrastructure and other areas of concern—i.e., if something were to go wrong, there'd be a big problem. For example, a worker strike could hit a heavily-used port or an earthquake could disrupt several suppliers in a region. Create a risk profile that identifies where you are the most vulnerable and the severity of that risk: identify the likelihood of a problem occurring and understand your ability to implement a contingency plan.

Depending on your appetite for risk, you may need to make changes. For example, if you're saving $10,000 in transportation costs by consolidating your ocean shipments through the Port of Long Beach, but you determine you could lose $10 million if there's a problem there (i.e. port strike or congestion), it's time to consider your options to minimize that major vulnerability. Strategically sourcing other carriers and using alternative ports can lower your overall risk, or you can create mitigation plans. Negotiate alternate rates for rail and ocean shipments, or have your suppliers carry more stock on-hand that can move by air shipment in an emergency to make sure you're prepared. There are manageable alternatives without adding cost to your bottom line.

> YOU'RE ONLY AS GOOD AS YOUR WORST SUPPLIER. WHEN YOU'VE GOT 8,000 PARTS IN AN ENGINE, ONE OF THOSE PARTS AREN'T THERE, YOU'RE NOT BUILDING AN ENGINE.
>
> **Greg Hayes**
> CEO, United Technologies Inc.[3]

In early 2015, with the looming threat of labor strikes on the West Coast, companies started hedging their bets and moving cargo to the East Coast of the United States. When there is early visibility to a risk event and changes can be made in advance of a deadline or over time, companies take action and pay higher rates to avoid that risk. Managing risk is much more effective when you are aware of the risks you're taking and the potential impact if there was a disruption.

The more devastating blows to your supply chain occur in an instant, and those vulnerabilities are much tougher to predict. Infrastructure in areas prone to earthquakes, hurricanes, typhoons, cyclones, and terror activity—just to name a few—should be considered in a comprehensive risk profile. Once you know what your weak links are, it will be clear that a contingency plan is urgently needed so you are ready to respond.

In the book *The Power of Resilience: How the Best Companies Manage the Unexpected*, Dr. Yossi Sheffi advocates a "weary watchfulness" stating, "detecting the onset of disruption before it hits gives a company time to prepare."

[3] "Jet-Engine Maker Pratt Shores Up Weak Link in Supply Chain", Wall Street Journal, Oct. 1, 2015. http://www.wsj.com/articles/jet-engine-maker-pratt-shores-up-weak-link-in-supply-chain-1443743464

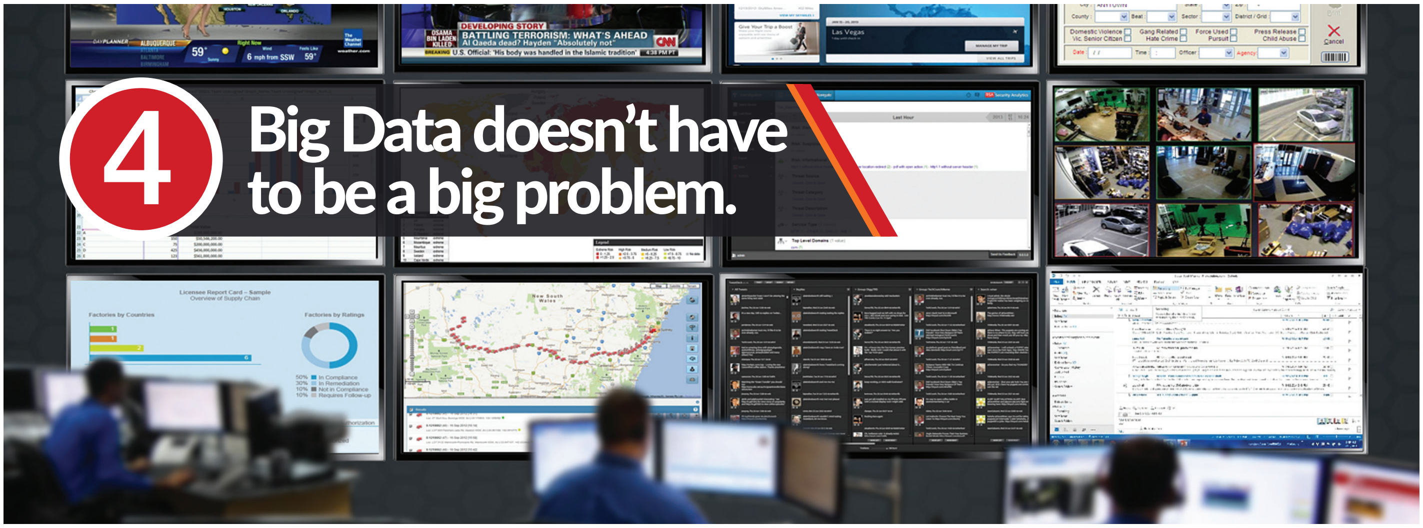
3 A map on the wall is décor, not a tool.

You may believe you have your supply chain map done, because you have one hanging on your wall with locations marked on paper. But, most supply chains are more fluid than that, constantly adjusting as needs and situations change. In nearly all cases, companies come up short in mapping the routes their shipments take from the origin supplier locations, through critical infrastructure, to destinations such as manufacturing plants, distribution centers, and retail stores. Inventory in transit is in its most vulnerable state, susceptible to far more risk than when it is stored at a static location. Inventory in transit is inventory at risk.

Your map needs to be a tool that is part of your everyday routine. As things shift, you need to make adjustments in real-time to ensure you are always monitoring the appropriate regions and routes for risk events.

For example, if you source a new supplier or reroute your shipments to avoid a port strike or major road construction, you need to be sure you're monitoring the new routes and areas for new risks. This could be a very real possibility as new legislation expands trade with developing economies, which could lead you to source from new countries or cause different demands on infrastructure you currently rely on.

Changing your supply chain may lead to delays you're not accustomed to—so you need to be prepared to quickly act to keep your supply chain in motion.



4 Big Data doesn't have to be a big problem.

Overlaying your supply chain map with real-time risk data is the next logical step when you are managing a global supply chain. That way, when a major storm or other risk event has the potential to impact your supply chain, you can know early and make appropriate decisions to mitigate the impact.

When a typhoon is bearing down on mainland China with the Shanghai ports right in the middle of the bullseye, the very first question you will be asked is "what's at risk?" To answer that question, you'll need a list of the locations, shipments, and inventory by part number that will be impacted. If you have a manufacturing company with a plant in Pudong, you likely have raw material coming in by ocean from global suppliers, finished goods coming out of the plant and going to customers by ocean shipments, and truck deliveries in the area. While it might be easy to assemble a list of goods in the warehouse, inventory spread out through several different areas can be tougher to gather quickly and with accuracy.

This is also the time to take stock of the risk data you're using to detect threats to your supply chain. Not everything you care about is going to end up on the news, so it is valuable to your organization to find sources of news that will alert you when the things you care about are at risk. Make sure you have a comprehensive selection of risk information sources and that you're keeping your eye on new sources on the horizon.

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It's also important that you are cautious as you integrate risk information to your supply chain picture. Adding more data feeds can actually cause more harm than good if you're not equipped to quickly understand what the data means in relation to the things you care about that are both internal and external to your organization—employees, facilities, supply routes, ports, highways and more.

Evaluate where you are today with big data and create a roadmap to guide you as you add additional information sources. Sources of information that are relevant to you may not be typical supply chain news sources. For example, if you manage logistics for a national restaurant chain, you should look for sources on food safety recalls to incorporate into your risk picture.

A note of caution: adding just any new sources of risk will increase the time it takes to understand it – and potentially increase your vulnerability to missing something. Be deliberate on what you add and why. Add to your roadmap plans for leveraging technology that can do the monitoring for you, so your people can focus on more important matters. The tool you use to monitor and respond to supply chain risk needs to be adaptable to meet your specific needs, not a one-size fits none solution.

5 Learn from mistakes when the stakes are low.

As you improve your risk preparedness, begin integrating regular rehearsals of failures in the supply chain with your team. From a transportation delay at an ocean port to a catastrophic “Black Swan” event, practice how your organization will gather information, assess the impact of the event and make critical decisions during a specific risk event.

I recommend companies run tabletop exercises, where you bring your team together to run through the steps you’d take if a storm crippled your supply base or some other critical risk event occurred. Spend time talking about what each of you would do, with the goal of identifying problems in your risk management strategy before it really counts. Learn from your mistakes and adjust your strategy after these drills to make sure your team is prepared when something actually happens.

Supply chain failures often happen at inopportune moments. When you practice, use plausible emergencies based on your risk assessment and test your team. If your company has manufacturing plants in the United States and a strong supply base in Mexico, then there is a strong reliance on the border. Rehearse issues such as an explosion at the border between the U.S. and Mexico that lead to the closure of all crossing sites. Then turn to your team and ask “what do you do next?”

> SPEND TIME TALKING ABOUT WHAT EACH OF YOU WOULD DO, WITH THE GOAL OF IDENTIFYING PROBLEMS IN YOUR RISK MANAGEMENT STRATEGY BEFORE IT REALLY COUNTS.

Think about the catastrophic possibilities that could disrupt your supply chain when planning drills and tabletop exercises. Make sure you rehearse the common risks you face every year, but also get out of your comfort zone and think about the types of risks you haven’t faced before.

6 Bad news does not get better with time.

If you're responsible for managing risks to your global supply chain, you need to ensure that prompt and effective communication is one of your top priorities. You need to be communicating before a crisis occurs, and throughout the response effort when something does hit.

Before a crisis, you should be sharing your company's supply chain risk assessment frequently across the organization. Ensure that information is in the hands of those communicating to customers.

When you are responding to a risk event, it is key that you keep the executive team informed of the situation and its impact on your supply chain. Remember to ensure leadership has a clear understanding of status and next steps, and that any of their pressing questions are answered in a timely manner.

When there is a problem—either you uncovered a critical weakness in your risk assessment or an event is likely to cause a major disruption—it's always best to make sure your organization is aware of it as quickly as possible. To facilitate this, make sure your supply chain risk management tools support comprehensive and efficient reporting and communication.

As your risk preparedness efforts mature, organize your team's structure so that there is always someone focused on finding the "next" risk event. I recommend taking your best supply chain firefighter, and moving them from handling what just happened to trying to determine what could happen next. This work should be part of regular staff discussions and drills where you rehearse supply chain failures.

Support them by proactively pursuing a strategy that focuses on identifying potential threats before they actually occur and use assessment tools to understand the potential impact. Enterprise risk visualization tools can be an effective way of seeing risk earlier and assessing the impact.

As you look for risk information sources on the horizon (Principle #4), look for sources that can support proactive awareness and response. Social media is one of the top things our customers ask about, as companies integrate unfiltered, real-time updates from people experiencing a storm, strike, traffic disruption or other incident into their understanding of an event.

> "NO MATTER HOW YOU MITIGATE RISK, YOU ARE ALWAYS GOING TO BE MEASURED ON YOUR REACTION TIME WHEN SOMETHING OCCURS, BECAUSE GENERALLY SPEAKING, IT'S THE SPEED OF YOUR REACTION TIME THAT MATTERS."
> **Tom Linton**
> Chief Procurement and Supply Chain Officer at Flextronics[4]

[4] *The Power of Resilience: How the Best Companies Manage the Unexpected*, Dr. Yossi Sheffi, 2015.

8 Risk can easily become an opportunity.

Supply chain risk can become an opportunity for competitive advantage and differentiation if you're able to see the big picture and stay a step ahead of the challenges caused by a risk event. When an event impacts an industry as a whole, the most informed and prepared organizations will recover faster and potentially grab market share from others. One frequently cited example is the 2011 floods in Thailand that impacted hard drive suppliers in the region. One company, Seagate, was better prepared to handle it and the company was able to claim 38 percent of HDD market share and regained market leadership[5].

Who is going to emerge as the best-prepared company when an earthquake causes major disruptions in the West Coast, or the upcoming El Niño leads to supply chain snarls across the globe? The company that is prepared to see these challenges earlier than its competitors, and take quick action to put its risk mitigation plans in motion will likely gain competitive advantage. As you address a risk event—or rehearse responses to potential events—assess your potential responses and consider which options may provide a "profitable response."

[5] http://www.computerworld.com/article/2501937/data-storage-solutions/thai-floods-catapult-seagate-into-hard-drive-market-lead.html

CONCLUSION

Risk is an unavoidable part of doing business, but your preparation will be the key difference between you and your competitors. Use these principles to guide you as you improve your visibility to your supply chain and the risks that threaten it.

As you implement the advice from these principles, it is likely that you'll find room for improvement in your efforts to prepare for and respond to risk. Take steps today to position yourself to avoid tomorrow's costly delay or shut-down.

More and more global organizations are using critical event management software to minimize risk in their supply chain and to achieve a competitive advantage in their markets. Critical event management software is an actionable, integrated approach to risk management, now made feasible with the integration of risk event data for early detection, with tools for risk assessment and location of key stakeholders and assets. These platforms are powered by advanced data visualization and collaboration tools for workflow-based action which significantly reduces time, empowering organizations to move beyond simply reacting to threats to anticipating, mitigating and event preventing the impact of critical events.

Everbridge Critical Event Management for Supply Chain enables organizations to protect their supply chain assets, including routes, suppliers, cross-docks, ports and more, so that they can minimize delays and disruptions, ensure continuity of operations and leverage supply chain resiliency as a competitive advantage.   Everbridge empowers your organization to know about situations early, know who or what could be impacted and take quick action to minimize the impact of a critical event.

Keeping People Safe and Businesses Running. Faster.

ABOUT THE AUTHOR

Scott Morrison, Vice President of Product Marketing at Everbridge, helps drive the supply chain strategy at Everbridge. With more than 30 years of experience in enterprise software and technology, Morrison has worked with some of the largest organizations in the world helping apply technology to solve business problems.

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