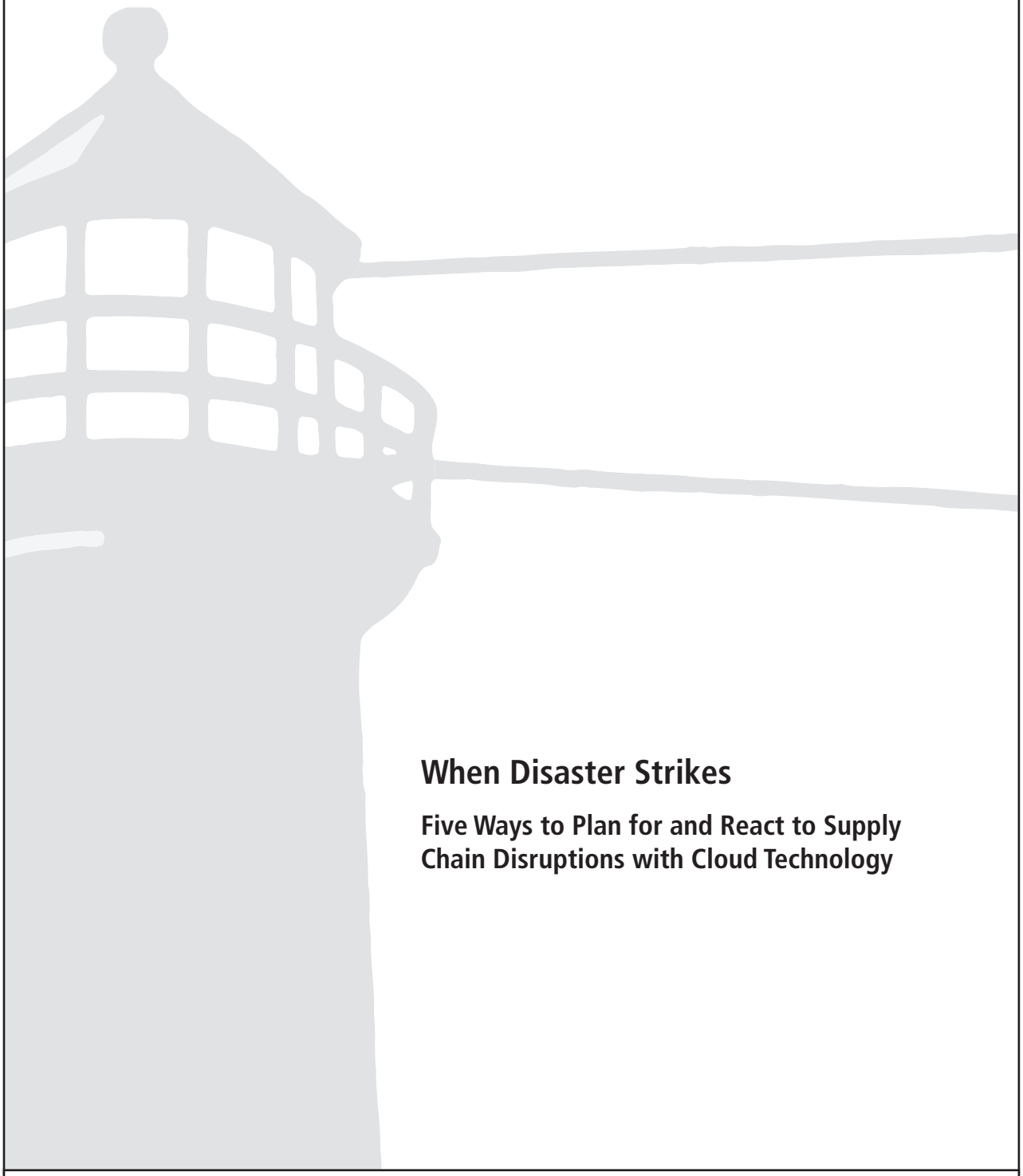


When Disaster Strikes

Five Ways to Plan for and React to Supply Chain Disruptions with Cloud Technology

GT NEXUS™

A GT Nexus White Paper

Navigating an Unpredictable World

In 2008, some risky betting on high-risk mortgage securities upended the financial industry and changed the business landscape forever. A laundry list of safely-rated companies went bankrupt overnight. Markets entered a downward spiral and major economies across the globe went into crisis mode.

The damage from the global financial crisis was pervasive, completely wiping out some companies and causing others to cut back drastically on costs and salaries. It hit the supply chain with force. Buyers found their suppliers could no longer produce. The credit market shriveled up, leaving all but cash-heavy companies unable to make payments and fund inventory. Consumer demand for many products dropped off. Ocean container rates plummeted, leaving many shippers with too much capacity and not enough revenue. And as major buyers in the west struggled and went bankrupt, suppliers grew concerned about their customers' ability to pay. Some of the companies that survived the crisis are more prepared for disaster today — some, however, still lack the technology to guard themselves against another major setback.



Companies can prepare for threats to the supply chain by using agile and adaptable strategies, better data sharing platforms, and partnerships.

Recently, the World Economic Forum (WEF) released a two-phase project on supply chains. The first report, *New Models for Addressing Supply Chain and Transport Risk,* gives several recommendations on how to effectively manage the supply chain through multistakeholder action and collaboration. The second, called *Building Resilience in Supply Chains*, provides further insights into managing risk. It provides a look at various threats to the supply chain and how companies can prepare for them through the use of agile and adaptable strategies, better data sharing platforms, and partnerships.

This paper will tie the WEF findings to specific steps and technologies essential to preparing and handling disasters in the supply chain, while preserving order fulfillment and customer service and keeping costs under control.

The Bottom Line? Supply Chain Partners are Not on the Same Information Page

In the WEF Supply Chain Risk Survey, the second largest area of vulnerability (according to supply chain executives) is the availability of shared data/information. 64% of the respondents replied that this aspect of the supply chain was not effectively managed. That's 64% of major, global companies that don't have visibility into activity along the supply chain — and don't have a way to share the data across their entire trading network. Furthermore, "three of the top five vulnerabilities deal with managing multiple players in the ecosystem." Clearly, companies are having trouble communicating with their partners.

Source: http://www3.weforum.org/docs/WEF_SCT_RRN_NewModelsAddressingSupplyChainTransportRisk_IndustryAgenda_2012.pdf

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A New Approach to Supply Chain Risk and Disruption

When a disaster touches global trade and commerce, companies launch into crisis mode. If a company only has an ERP system, its managers will struggle to find data on the status of current inventory, production, or availability of alternative transportation providers and suppliers. They'll resort to shuffling through paper, looking through Excel spreadsheets, and calling their trading partners one by one. Budgets will be pushed aside in order to make any moves necessary to protect the company against stopped production, late inventory, and lost sales.

This scenario does not end well. The costs from a reactive approach to disaster can be even greater than the potential lost revenue, as last-minute freight and haphazard sourcing eat up profit margins. To protect against large losses from supply chain disruptions, companies must adopt a new kind of technology.

Today's companies must operate not as single enterprises, but as networked business orchestrators. They must approach disaster planning with a cloud-based solution — one that's agile and collaborative. With cloud, all of the stakeholders in a global supply chain gain visibility that helps them make quick decisions when the pressure is on.



STRATEGY #1

Develop Trusted Networks

When disaster strikes, companies must rely on their partners and supply chain stakeholders for support. Those who operate on the most well-connected and informed network will have the best contingency plan and lose the least from the disruption.

Cloud technology can leverage a vast, international network of supply chain participants by pooling their data and updating every user in real time. A company on a cloud platform is able to handle supply chain disasters by knowing Plan B, then seamlessly executing it with the help of others on the network.

What's Needed

- ✓ A multi-tenant, networked platform
- ✓ Participation of suppliers, transportation providers, and partners
- ✓ A single place where information is instantly posted at the center of the network, instead of the outer edges or nodes
- ✓ Standardized data across the network, a single version of truth
- ✓ Local presence to support and onboard trading partners

Disruption: High-Tech Companies Navigate the Thai Floods

In 2011, the monsoon season in Thailand brought on more rain than the region could handle. Flooding spread through the country and left over a thousand factories across Central Thailand incapacitated. The high-tech industry was one of the most affected, as companies like Western Digital attempted to save their computer and hardware components.

Many of the companies producing high-tech parts in Thailand had trouble because their supply source was concentrated in the area. According to the New York Times, "a single facility in Bang Pa-In owned by Western Digital produced one-quarter of the world's supply of 'sliders,' an integral part of hard-disk drives."[1] This impacted Western Digital's customers, who were waiting on production until the affected parts arrived.

[1] http://www.nytimes.com/2011/11/07/business/global/07iht-floods07.html?pagewanted=all

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Cloud technology allows companies to plan for this type of disaster by having several suppliers available to replace those unable to meet demand requirements. Today, many of the high-tech companies with a concentrated supply of goods in Thailand have embraced diversification and cloud to ensure they have a backup source for parts. By creating an agile supply network, they can assess inventory in the supply chain and expedite and re-route as necessary.



STRATEGY #2

Improve Risk Visibility with Collaborative Data Sharing

In the past, companies have relied on in-house legacy software to store information about their supply chains. However, these systems were not designed to manage data outside the four walls of a single company. One of the most important factors today in dealing with supply chain risk is the ability to share information collaboratively with outside partners. The changing needs in supply chain management call for new technology: a cloud-based platform where all of the stakeholders of a supply chain can share a common, unified source of information and view activity as it happens.

The WEF makes recommendations for improving risk visibility and collaboration in its report. "Two specific actions were suggested by the expert group: establishing reliable dashboards for macro-level flows and disruptions through key infrastructure; and increasing the flow of information across end-to-end networks to improve transparency at all tiers of the supply chain."[2] Cloud technology can enable these things where ERP cannot — the quality and relevance of data needed to make dashboards reliable can only be achieved in a networked, real-time environment.

What's Needed

- ✓ Cloud-based network of partners
- ✓ Real-time, customizable dashboards
- ✓ Single source of supply chain data
- ✓ Extra-enterprise connectivity and collaboration

Disruption: Chemical Giant Thrives Amidst Arab Spring

A major specialty chemicals player operating in 25 countries used its cloud-based supply chain platform to proactively plan for disaster in 2011, when growing civil unrest ignited a string of revolutions in the Middle East. In Egypt, protests near the heavily-used Suez Canal threatened to close the trade route that carried 1.4 million tons of cargo last year.[3] The closure of the Suez would have blocked ocean shipments from passing from Europe to Asia through the Mediterranean and Red Seas. Using data from carriers around the world on their cloud-based supply chain platform, the company quickly developed an alternate key raw material transport route that rerouted key materials from the Indian subcontinent east to California. They monitored their supply flows in real time and kept response plans up to date in the event that the political situation threatened their supply chains.

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[2] http://www3.weforum.org/docs/WEF_SCT_RRN_NewModelsAddressingSupplyChainTransportRisk_IndustryAgenda_2012.pdf

[3] http://www.suezcanal.gov.eg/TRstat.aspx?reportId=1

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STRATEGY #3

Improve Pre- and Post-Event Communication

Supply chain risk mitigation starts well before disaster hits. Prepared companies know this, and communicate with their supply chain partners on potential risks and contingency plans. A company looking to strengthen its planning process should begin by assessing its environment and addressing possible threats to supply chain excellence. After a disaster, it must review the success of its reaction and make appropriate changes.

Pre-Event: Disaster Planning Essentials

- Identify possible supply chain risks: consider natural and man-made disasters, political unrest, strikes, and production failures as possible threats.
- Gain visibility to sourcing execution against strategy: analyze current sourcing reality compared to plans to ensure realistic expectations.
- Build transportation scenarios: run analysis by lane for each region. For example, if a product from Shenzhen cannot be shipped, is it easy to order from Bangladesh to cover demand? Which carriers will be the best value? How much will it cost to expedite or reroute goods? Are all potential carriers on a network and easy to reach?
- Build production scenarios: what are alternative sources to facilitate sampling, replace production, perform product testing or site inspections, support product liability reviews, or create back up plans for other activities (floor readiness, managed services, etc.)?
- Identify exceptions: set up rules and alerts that will identify possible disruptions.
- Understand where financial hits will happen: will late shipments lead to lost sales? Will longer lead times from suppliers slow production? How can the losses be offset?
- Assign key roles and document the plan: make it easy for people to execute when disaster hits by having a plan and necessary resources accessible in the cloud to all trading partners.

Post-Event: Action, Assessment, and Improvement

As a disaster unfolds, companies need to make swift decisions to mitigate the damage. By having all partners on a cloud-based network, they can act on contingency plans with confidence. After the fact, they must evaluate the effectiveness of the plan and look for ways to improve in the future.

After the event, some important questions to ask include:

- Have circumstances in the region improved? Has the current disaster brought about a new risk?
- How did backup suppliers perform against scenarios? Was there a better option?
- Is this region still a good fit for sourcing?
- How did competitors react? Were they more successful?

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It's impossible to guess what the next supply chain disaster will be, but it is possible — and smart — to have a realistic view of the future with back-up plans ready to go.

FIGURE 1: With a good contingency plan, companies can reroute goods without incurring major costs at the last minute.



Disruption: Planning for the 2012 Port Strike Threat

At the end of 2012 — right before the retail holiday rush — the union representing nearly 15,000 workers at U.S. Atlantic and Gulf Coast seaports threatened a massive strike. Retailers everywhere were on guard for a big disruption in their supply chains.

Some retailers were less panicked than others. Those were the companies that had a contingency plan in place and could easily change routes, switch providers, and order from alternative suppliers to get products to their stores on time. They had a network, hosted in the cloud, where they could quickly run the best backup scenario, talk to suppliers, and book alternative shipments. While the strike ultimately was avoided, many retailers had a good scare before their busiest season and were forced to reevaluate their agility and preparedness.

STRATEGY #4

Assess Supply Chain and Transport Risk from End to End

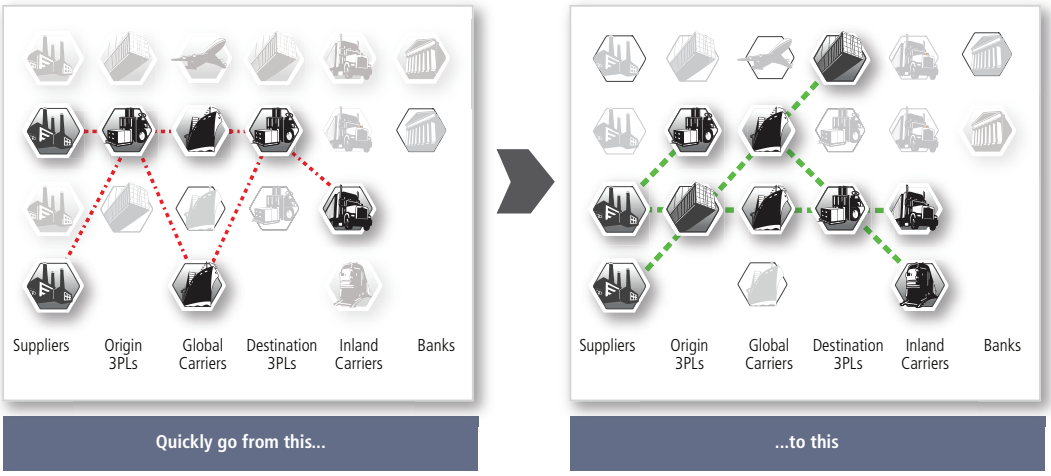
During the procurement phase, companies have a chance to evaluate possible providers based on different scenarios. They may assess pricing and routes in the case of a major disruption before choosing a carrier or supplier. While a bid typically asks for prices from carriers based on estimated demand and allocation, those numbers won't be sufficient to create a contingency plan for possible disasters. Companies that run complex what-if scenarios can decide if a seemingly low-cost carrier is worth it under more precarious circumstances.

What's Needed

- ✓ What-if scenario analysis
- ✓ Electronic bidding
- ✓ Standardized data
- ✓ Network of carriers and 3PLs

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FIGURE 2: When potential suppliers and carriers are in the cloud, complex scenarios can be run to identify contingency plans.



After procurement and throughout the life of a supply or transportation contract, partner performance levels should be monitored and evaluated. The current trade environment of each region should be taken into account, and carrier allocations should be updated as needed. This allows for a continually improved supply chain and a strong network of vetted partners to provide support when it's needed the most.

Disruption: Manufacturer Reacts to the Japan Earthquake and Tsunami

A large manufacturing company got the news in the middle of the night: a 9.03 magnitude earthquake off the coast of Japan had caused a 128 foot wave to flood the streets and wreck havoc on industry and infrastructure along the way.

The company sprang into action. Within a few hours of the tsunami hitting, the logistics team had run global materials management reports to tell their facilities exactly which products originating from Japan had made it out and which were still stuck at the ports. They were able to launch their contingency plan with alternative suppliers already vetted and on their network, saving what would have been much greater losses without access to a trusted network of supply chain partners.

Without cloud technology, the company would have resorted to frantic phone calls, email chains, and out-of-date data to come up with a plan. Instead, they rallied and handled the disaster with poise and effectiveness. While some competitors were stuck on defense — in a reactive mode — this manufacturer was able to quickly shift to offense due to its cloud-enabled supply chain.

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STRATEGY #5

Keep Improving: Building a More Resilient Supply Chain

In the second installment of the project, the WEF lists some top disruption triggers from the past two years. Among them are natural disasters, extreme weather, political conflict, terrorism, sudden demand shocks, and export/import restrictions. The report elaborates on how to counter these threats by making supply chains more resilient to risk.

Below are "several business innovations…that have succeeded in reducing higher probability, profit-sapping risks", from the report, next to how they translate into a cloud-based supply chain platform.[4]

WEF-IDENTIFIED INNOVATIONS	HOW IT WORKS IN THE CLOUD
Lean supply chains, by design, lay bare the causes of frequent failures, forcing organizations to learn and design reliability into their processes	• Inventory visibility tracks in-transit inventory, allowing companies to hold less buffer stock along the supply chain and pay less for expedited air freight. • Better supplier collaboration means more visibility into second tier parts and lead times, allowing for leaner production.
Globalization provides opportunities for diversification of supply	• Suppliers from all over the world communicate on one platform. • It's easy to switch suppliers or source from multiple locations without needing new hardwired connections. • Buyers can run complex scenarios to aid in sourcing decisions.
Specialized production and scale accelerate learning and the ironing-out of risks	• Companies can segment production of specialized products across as many suppliers as they like. • Collaborative planning lowers risk and puts every participant on the same page.
IT-enabled visibility gives advance warning of problems and enables decentralized solutions	• Supply chain stakeholders receive exception-based alerts based on chosen performance indicators, warning everyone of potential delays and disasters.

Building More Meaningful, Integrated Partnerships

Supply chain managers can use cloud technology to build up partnerships in each region and communicate on a single platform. In a true multi-tenant, networked environment, thousands of suppliers are already using the technology. This makes it easy for companies to go out to bid, make decisions based on standardized data, and bring on new suppliers of a product. This is especially helpful in tackling a new market, when it otherwise may be hard to find trusted suppliers in the area.

[4] http://www3.weforum.org/docs/WEF_RRN_MO_BuildingResilienceSupplyChains_Report_2013.pdf

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Developing a Tested Strategy to Prepare for Disruptions

Technology will be the deciding factor that separates the prepared and the unprepared for supply chain risk. While many companies are still using traditional ERP software to manage their supply chain data, more and more are adopting cloud technology to vastly improve visibility, quality of data, and disaster planning. There are many solutions available, but in order to properly equip a company to deal with supply chain risk they must have several key features.

Key features to look for that indicate a true cloud solution:

- **Short implementation time** — ramp up shouldn't be more than a few months or much less.
- **Low up-front investment** — traditional software costs a lot up front, cloud does not. A clear indicator that it's a true visibility solution? Low up-front plus monthly subscription fees.
- **Ability to plug in to new providers instantly** — multi-tenancy can still be EDI-based. Look for the ability to go from one supplier and partner configuration to another without major switching costs.
- **Single source of data** — dashboards must pull data from the cloud in a standardized format. If there's no single source of truth, it's not a pure cloud solution.
- **Elasticity** — when more power is needed to support business surges, it's available.

Adapting to Any Challenge with an Agile Supply Chain

Supply chain disruptions will never be avoidable — but the operational and financial havoc created by them can be. Globalization and the concept of a lean supply chain exposes companies to more risk from major disasters than ever, and companies need a way to plan for and act on them in a way that preserves their reputations and bottom lines.

The ability to adapt to a rapidly changing environment is the key to survival in global commerce. In the cloud, with all of its trading partners, and armed with a solid contingency plan, a company can shine in tough times and emerge as a leader — an example of an agile global supply chain.

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