

# Understanding Supply Chain Risk



## Lightning strike has lasting impact

A lightning bolt at a single-source supplier's manufacturing site brought devastating consequences to a multinational computer microchip manufacturer thousands of miles (kilometers) away.

Though the fire created by the strike at the supplier's plant was relatively small, the smoke damage resulted in a substantial inventory loss of a critical chip used in cell phone manufacturing.

The situation was exacerbated by the enormous demand for the chip at the time, leaving the microchip manufacturer with few, if any, options.

As a result, the company estimated a negative sales impact of US\$400 million to US\$500 million followed by a 13-percent stock price drop on the day the problem was made public. The non-insurable consequences included lost sales, lost market share and damaged reputation.

## The Impact of Supply Chain Disruption

A growing number of businesses today are outsourcing their manufacturing, and purchasing parts and services from outside companies, using techniques such as just-in-time inventory strategies and relying on sole- or single-source vendors. While the financial benefits of outsourcing are obvious, the consequences and risks associated with today's supply chains are often overlooked. When transferring a significant portion of the day-to-day operating risk to an outside supplier, your business is vulnerable to the financial consequences of a major supplier disruption.

According to a study commissioned by FM Global in 2006, supply chain disruption is one of the biggest risks to corporate revenue. Conducted by Opinion Research Corporation, the study included interviews with 500 financial executives from companies with at least US\$500 million in revenue.

A failure to assess and manage suppliers' property and business interruption risk can have a negative impact on product quality and reliability, as well as your company's market share, reputation, and even shareholder value. As a result, more companies today are asking themselves:

- *Are our suppliers managing risk as carefully as we do?*
- *Will a disruption at one of my supplier locations impact our customers or our reputation in the marketplace?*
- *Are they committed to being a reliable supplier, and to the success of our business?*
- *Have they taken reasonable steps to protect their ability to meet their business obligations?*

Identifying key suppliers is the first step toward understanding your exposure to supply chain risk. The next step is to develop an awareness of the fundamental threats to those key suppliers and manage the associated risk.



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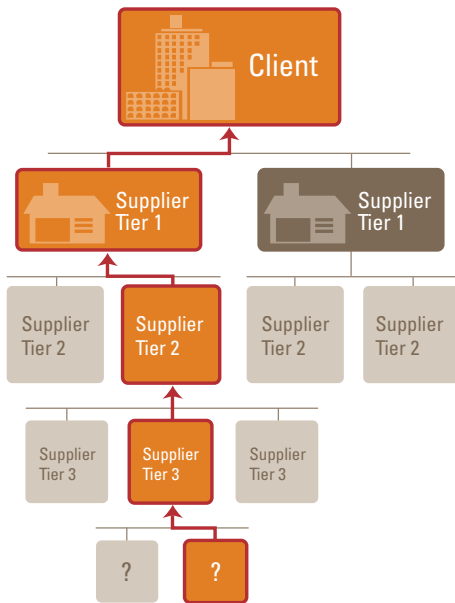


Fig. 1 The orange path represents one possible supply chain.



Fig. 2 The four risk factors shown here are universal, and should be assessed for all your suppliers.

## Identifying Suppliers

Understanding your supplier network provides the basis for knowing your potential vulnerabilities (see Fig. 1). Your company may have only a few suppliers or—like some of our clients—perhaps hundreds, or even thousands, of suppliers. Your organization may also be the supplier in another company’s supply chain. How will a disruption along that chain impact the profitability of your business?

Each supplier has a unique connection to your operations and to each other. No two may be alike. You may have a good understanding of the suppliers at Tier 1 and be aware of your vulnerabilities to disruption. However, what do you know about the next tier and beyond? There may be a weak link that can spell disaster to your bottom line.

## Risk Factors Vital to Your Supplier and You

Risk factors affecting your suppliers may ultimately affect you. Once you’ve identified your key suppliers, the next step is to conduct an accurate risk assessment. The risk factors (see Fig. 2) apply to virtually any company. The risks are described here as they relate to a supplier:

- **Environment** – These risks are typically related to economic, social, governmental and climate factors. Recently, there has been no shortage of these issues, as witnessed by terrorist attacks, tsunamis, hurricanes and earthquakes.
- **Market Influence** – Is your supplier resilient under adverse conditions? If not, disturbances to the supply of product within your supply chain could have a devastating impact to your bottom line. And, what do your suppliers know about the market resilience of their suppliers? Their exposures could be your exposures.
- **Business Practices** – The supplier’s financial and management stability, as well as its internal processes and corporate governance practices, should be understood for the risk they represent. Specifically:
  - » Disruptions to internal operations of a supplier can easily ripple through to your organization if not mitigated properly.
  - » Changes in key personnel, management and business processes within a supplier’s organization can have a negative impact on your organization if not fully understood by you.
  - » If your suppliers do not have appropriate programs in place to address major threats to their activities, you may reasonably assume your interests have not been fully considered.
- **Physical Plant** – Loss prevention measures are as critical to your supplier’s facilities as they are to your own. The difference is you don’t manage your supplier’s facilities. Issues such as natural hazards, construction materials, automatic sprinkler protection, and general interest in property loss prevention are often overlooked, yet can be major contributing factors in a possible disruption scenario.



### Supplier fire loss brings auto production to a halt

A Japanese auto manufacturer, widely regarded as a well-run company, found itself in an extremely challenging situation. Having developed one of the most efficient manufacturing organizations in the world, the company used a single source for 90 percent of its brake valves and relied on a just-in-time inventory management system that was measured in hours and minutes, not days. Its supplier suffered a devastating fire loss, which resulted in the loss of critical equipment (hundreds of machines and tools). The supplier provided brake proportioning valves—a low-cost part—for all but two of the manufacturer's models. As a result, the incident halted production across 18 of the company's automotive plants within hours.

The impact was widespread, with hundreds of suppliers—including utilities and trucking companies—affected. Ultimately, it caused an estimated one-percent per-day loss to the country's industrial output, with an overall loss estimated at US\$195 million and 70,000 units of production.

## Helping You Manage Your Supply Chain Risks

A disruption at a single key supplier location can affect a client's financial performance, market share and stakeholder value. FM Global provides insurance coverage that addresses supply chain risk, but insurance alone is not enough.

By focusing on property-related risk factors, our area of expertise for more than 170 years, we can help you manage supply chain risk, using an approach that is both unique to FM Global, yet familiar to our clients.

As your supplier network increases in importance to overall business success, taking reasonable steps to identify, assess and control risk within the extended enterprise becomes even more important. By evaluating facility interdependencies, vendor relationships and critical processes, we can help you determine where you are vulnerable. Our products and services are designed to help you manage your supply chain risks:

### Risk Identification and Assessment

- FM Global has established a process to help you identify critical locations that may require further risk analysis.
- Through the expertise of our own business risk consultants, FM Global has the ability to conduct a comprehensive Business Impact Analysis to safeguard your business by providing recommendations to address key exposures—especially related to external suppliers.
- A questionnaire has been developed to help you gather specific product flow and location information directly from your critical suppliers. This will help you make informed decisions regarding the risks associated with your suppliers.
- FM Global offers engineering visits to help determine how well-protected your critical suppliers are from fire, windstorm, flood, earthquake, etc.

### Risk Avoidance and Reduction

- Once key supplier locations are identified, cost-effective risk management strategies—including property protection solutions and practical business continuity plans—can be developed and implemented.

### Risk Acceptance and Transfer

- A number of insurance companies provide some level of coverage for the business interruption you can suffer as a result of a loss at a direct supplier's location. FM Global, however, is the only carrier that provides coverage (Contingent Time Element Extended and Logistics Extra Cost) that doesn't stop at your direct suppliers. Our coverage extends to any location in your supply or customer chain, including:
  - » Any direct or indirect customer, supplier, contract manufacturer or contract service provider to your business
  - » Any company under a royalty, licensing fee or commission agreement with your company



### Power loss shuts down industry

Are your utilities and power supply reliable? Or, do you take these services for granted, assuming they will always be available? The following example is illustrative of what can happen when a vital supplier becomes unavailable. What started as a typical night in Taichung, Taiwan, turned into massive chaos and catastrophe when an earthquake measuring 7.6 on the Richter Scale struck close to the city, toppling high-rise apartments and businesses.

A major disruption to the world's semiconductor chip industry resulted, not necessarily due to earthquake damage at semiconductor plants, but due to the loss of power. The impact was felt worldwide by companies with computer-related products, with loss estimates in the US\$1 billion to US\$2 billion range in Taiwan, and as much as another US\$1 billion in the United States alone.

## Taking the Next Steps

What can you do right now? If possible, broaden your risk management process with a formal supplier assessment. Prior to selecting suppliers and signing contractual agreements, potential suppliers could be asked to respond to a survey aimed at evaluating risk, reliability and contingency plans, etc. To that end, FM Global has developed a survey that asks questions about the construction of the supplier's facility or if automatic sprinkler protection is provided, for example.

FM Global can help you with the risk assessment process, especially as it relates to property and financial impacts. By assisting you with understanding your supply chain exposure, FM Global offers you peace of mind, knowing threats to your supply chain are being identified and addressed as effectively and economically as possible.

To learn more about FM Global products and services that can help you manage your supply chain risk, contact your FM Global client service team. To find the FM Global office closest to you, call +1 (1)401 275 3000, or visit our Web site at [www.fmglobal.com/contact](http://www.fmglobal.com/contact).

### FM Global has a variety of resources available to help you manage your supply chain risk, including:

- *The New Supply Chain Challenge: Risk Management in a Global Economy* (P0667)
- *FM Global's Business Risk Consulting Group* marketing brochure (P0375)
- *Managing Business Risk Through 2009 and Beyond* (P07078)
- *Is It Time to Manage Your Supply Chain?* (P08156)
- *Choosing a Supplier* (P07239)
- *FM Global: Helping You Manage Supply Chain Risk* (video – P08196bCD)

*To obtain a copy of any of the material listed above, please contact a member of your FM Global client service team.*



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