SUPPLY CHAIN RISK REPORT 2024

1ST **ANNUAL** REPORT ON SUPPLY CHAIN RISK

Table of contents

Introduction

We are pleased to introduce the inaugural Sphera Supply Chain Risk Report. This report explores the risks that threatened enterprises and suppliers the most in 2023, as well as their causes and consequences.

With this report, we aim to provide actionable insights into the state of supply chains today. We investigate the key trends that will shape the future, along with patterns in regional and corporate-level risk events. In addition, we illustrate how holistic supply chain risk management empowers businesses to build resilient, agile and sustainable supply chains to drive the company's competitive edge.

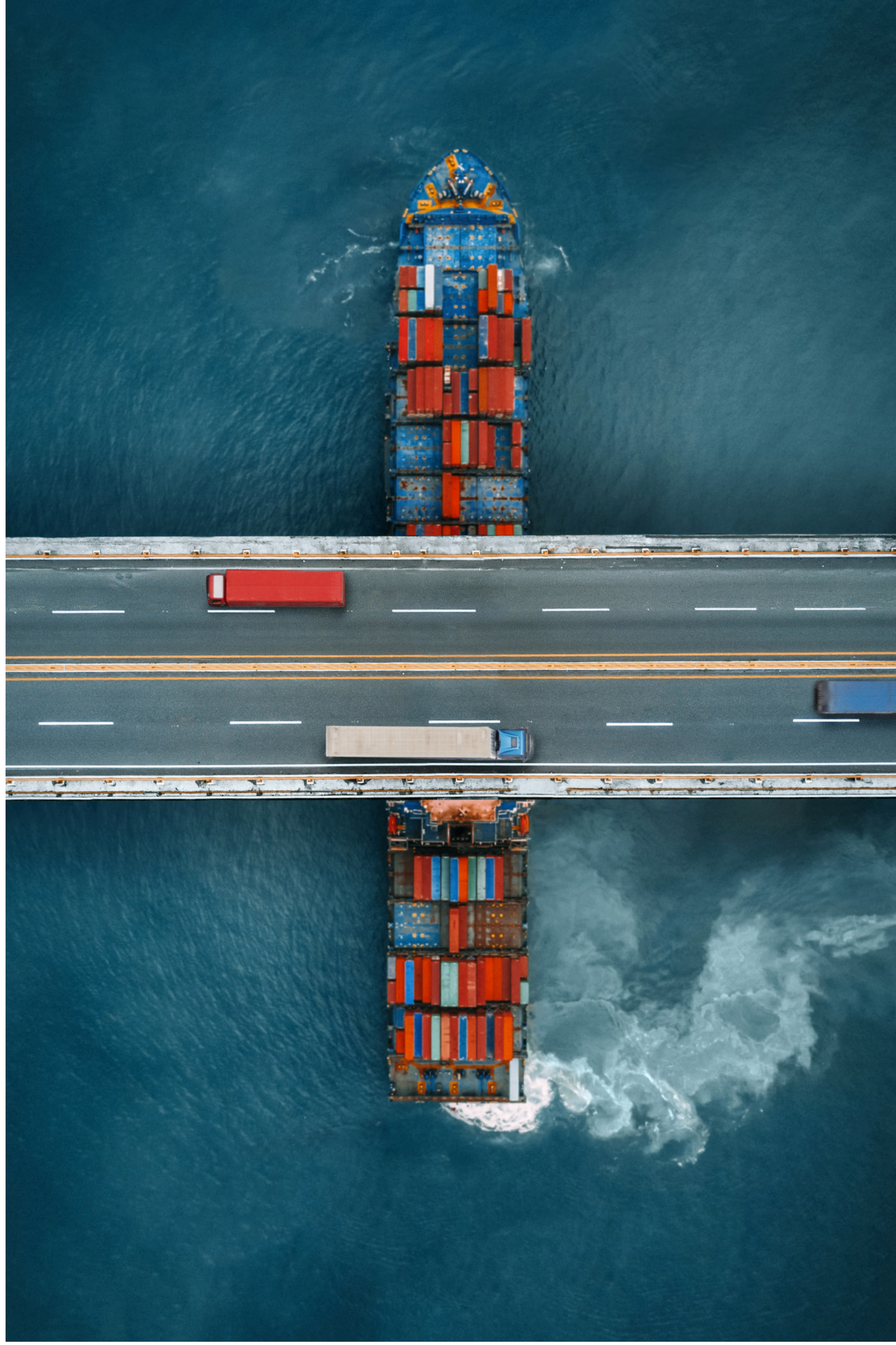
This report will aid you in identifying and adapting to future supply chain challenges by reviewing the trends and events that happened in 2023. Overall, our findings indicate major shifts in supply chain risk that include:

- Growing supplier viability challenges due to inflation and higher wages and interest rates.
- A massive rise in cyber threats.
- Greater impact from extreme weather events and natural hazards.
- Increasing pressure from ESG requirements.
- War and geopolitical disputes that led to re-shoring trends.

Different challenges will emerge in 2024 to be sure, but with insight into the causes and consequences of last year's challenges, companies will be better prepared for what may come.

Finally, to make the report more user-friendly, we use a hypothetical company (Company ASC), which is modeled after a typical business that relies on a complex supply chain. Company ASC helps us illustrate the various supply-chain-related risks experienced by an average mid-sized company in 2023. The section on Company ASC follows the page on key findings.

**This report's predecessors are the riskmethods Risk Reports published in 2020 and 2021. These reports investigated supply chain risks unleashed by the COVID-19 pandemic, subsequent shortages and ensuing disruption that led to a widespread supply chain crisis. Sphera acquired riskmethods in October 2022.*



ABOUT THE SUPPLY CHAIN RISK REPORT

About the Supply Chain Risk Report

The data for this report was provided by Sphera Supply Chain Risk Management (SCRM) software—specifically its AI-powered Risk Intelligence component, which provides real-time monitoring of events and developments that can affect supply chain operations. Each month, Sphera SCRM Risk Intelligence scans more than 15 billion reputable news articles, commercial and government data sources and 1 million customer and supplier sites around the world.

With billions of data feeds providing extensive coverage of supply chains and their entire ecosystems, including logistics locations and country-specific risks, among others, Sphera has the most highly representative supply chain risk insights on the market.

Efficient monitoring of global risk events involves filtering out irrelevant or duplicate messages. Risk Intelligence cancels the “noise,” achieving a relevancy score of 99.98% for the indicator messages sent to companies. This empowers enterprises to proactively monitor, identify, assess and mitigate supply chain risk based on highly relevant information.

For the Sphera Supply Chain Risk Report 2024, we compiled the risk indicator messages sent from January 2023 through November 2023. We then compared these messages to those sent during the same time period in 2022.

Each month, Risk Intelligence scans more than 15 billion reputable news articles, commercial and government data sources and 1 million customer and supplier sites around the world.

KEY FINDINGS

Key findings

First the good news: Supply chains put COVID-19 disruption behind them in 2023. Pandemic-related impacts dropped to nearly zero. Most of the secondary effects of lockdowns were also resolved. Yet supply chains remained vulnerable to a range of risks. We list the top five below based on the number of indicator messages sent by Risk Intelligence between January 2023 and November 2023.

1

ECONOMIC TRENDS STRESSED THE FINANCIAL HEALTH OF SUPPLIERS.

Financial viability represented the most vulnerable risk area in 2023. Pressure from economic cycles, inflation and rising interest rates caused financial distress among suppliers and partners. More than one-third **(36%)** of the financial risk notifications warned of worsening revenue and growth outlook.

2

CYBER INCIDENTS GREW IN SCOPE AND FREQUENCY.

Every year, the number and impact of cyber-related issues continue to accelerate. In 2023, we observed a **62%** rise in cyber-related supply chain issues compared with 2022. Cyber incidents typically cause delays, loss of confidential data and factory shutdowns. They are also associated with high recovery costs.

3

NATURAL HAZARD EVENTS HIT SUPPLY CHAINS HARD.

The risk of certain extreme weather events increased, correlating with the global warming trend. For example, indicator messages for tornadoes increased by **45%**, hailstorm messages increased by **26%** and tropical cyclone messages increased by **6%**. Also, February's earthquake in Turkey and northern Syria caused earthquake-related indicator messages to rise by **25%** from 2022.

4

ESG-RELATED RISKS CONTINUED TO RISE.

Indicator messages related to ESG risks rose by **6%** overall in 2023. The number of risk warnings on specific topics within ESG rose noticeably. Notifications of possible human rights violations increased by **12%** and labor practices by **13%**. This indicates that regulators, investors and customers are shining a brighter spotlight on these topics.

5

EXCEPTIONAL CIRCUMSTANCES CHALLENGED SUPPLY CHAINS.

In a supply chain context, out-of-the-ordinary incidents threatened suppliers, which can lead to significant supply chain disruption. In 2023, three situations in particular tested supply chain agility and resilience:

- **War in Ukraine:** In 2022, warnings of geopolitical risk increased **87%**, with a further rise of **7%** in 2023. Niger's military coup in July contributed to the rise in indicator messages.
- **Panama Canal restrictions:** Beginning in April, ship transits were cut due to low water levels, resulting in backlogs and inflated prices.
- **Red Sea attacks:** Starting in November, attacks by Yemen's Houthi rebels on vessels in the Red Sea caused many shipping companies to reroute their vessels to avoid the Suez Canal.

Disrupters experienced by the average company

The following illustrates the frequency of supply chain risk events that a fictional company, **Company ASC**, experienced from January to November 2023. Based on a typical profile of a Sphera Supply Chain Risk Management customer, Company ASC is a manufacturing firm that employs 5,000 people and is headquartered in Europe. It has multiple international sites, a globally distributed purchasing volume and leverages best-cost country sourcing opportunities. It operates a supply network with 2,000 suppliers, along with relevant sub-suppliers, warehouses and distribution centers.

ECONOMIC TRENDS

58 Supplier financial health events

- 16 Key employee stability (C-suite)
- 15 Revenue / growth outlook
- 15 Mergers and acquisitions
- 9 Product release delays
- 1 Site closure
- 1 Bankruptcy
- 1 Patents issue

EXTREME WEATHER

3 Severe weather events

- 2 Extratropical storms
- 1 Tropical cyclone

2 Weather-related events

- 2 Flash floods

ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG)

18 ESG-related warnings

- 8 Business partner fines
- 5 Industrial disputes
- 3 Human rights issues
- 2 Environment issues

CYBER INCIDENTS

2 Cyberattacks

EXCEPTIONAL CIRCUMSTANCES

2 Out-of-the-ordinary events

- 1 War (Ukraine)
- 1 Disaster at location (Panama Canal)

As of November 2023, attacks by Houthis on cargo ships in the Red Sea were beginning to disrupt global maritime trade.

ECONOMIC TRENDS

Economic trends stressed the financial health of suppliers

Our risk monitoring insights underlined the evidence of growing financial vulnerability, which may increase in 2024. The following economic factors stressed the financial viability of supply chain partners in 2023:

	Factor	Impact
Economic cycles:	Numerous economies faced the risk of recession. And there was an 8% increase in executive departures.	Economic downturns can lead to reduced consumer spending and lower corporate profits. Suppliers may struggle to maintain revenue and profitability.
Increased interest rates:	The rise in interest rates in 2022 and 2023 impacted financing costs. The volume of notifications indicating worsening revenue and growth outlook remained near the pandemic-induced peak.	Higher interest rates typically increase debt-servicing expenses, reduce profitability and potentially hinder investment in growth opportunities.
High inflation:	The high inflation rates in the EU and U.S. eroded suppliers' purchasing power. A dramatic increase in financial struggles began in 2022, when insolvency under self-administration skyrocketed 193%; these went up another 23% in 2023. Bankruptcies dipped 6% in 2022, but rose 42% in 2023. On average, there were three bankruptcies for every insolvency.	The rising costs of raw materials and energy can squeeze profit margins unless companies have the pricing power to pass these cost increases on to customers. Financially weaker companies are likely to face declining revenues paired with increased costs.
Ownership structure:	Mergers and acquisitions (M&A) can change the supplier landscape. Sometimes the category strategy becomes obsolete overnight. In 2023, M&A activity slowed through mid-year, yet it remained at a high level.	Changes in ownership structure do not always represent financial stress; however, they can affect existing agreements negatively. For example: + An acquisition could turn a business partner into a rival. When U.S. electric vehicle manufacturer Tesla acquired one of its German suppliers, Grohmann Engineering, Grohmann then severed its ties with other automakers such as BMW and Daimler. + A merger of key products could turn negotiating positions upside down and alter the leverage within business relations. + A business unit could be divested to a private equity firm that focuses on increasing profitability. It could streamline the portfolio and discontinue products essential to the purchasing enterprise.
Site relocations or site closures:	Site relocations or closures increased by 26% in 2023. The war in Ukraine, sanctions on Russian businesses and tensions in Taiwan encouraged reshoring in order to reduce risk.	Businesses may relocate or close sites because of quality issues or to save costs. Geopolitical issues can also contribute to an increase in relocations and closures. Such consolidation often increases the risk of having to rely on fewer, bigger suppliers elsewhere.
Structural labor shortages:	In the Western Hemisphere, demographic changes and strikes caused a shortage of labor, such as IT experts, truck drivers and craftsmen, which put pressure on companies.	Typically, labor issues challenge on-time delivery, supplier profitability and financial health.

How Sphera can help

Companies that leverage real-time monitoring available through Sphera Supply Chain Risk Management learn of breaking news ahead of the market. With ongoing monitoring available through Risk Intelligence, companies can recognize patterns and signals before situations become critical. The risk-aware company benefits from being the first to reallocate capacities at reasonable cost—a true competitive advantage even in a risky situation.

Awareness of financial and economic risks is important, as financial distress, insolvency or bankruptcy do not happen overnight. Through ongoing monitoring, companies are quickly made aware of supplier site relocations or closures. With Sphera SCRM Supply Chain Risk Assessment for preventive mitigation, businesses can avoid surprises. Organizations can evaluate dependencies on the supplier and the implications for the overall category.

To withstand economic fluctuations and uncertainties, businesses need to adapt their category and sourcing strategies to build resilience. Analyzing portfolio risk provides insights on what kind of preventive mitigation is required. With Sphera SCRM Impact Analyzer, companies gain insights on whether maintaining a qualified back-up supplier is an appropriate strategy if the main supplier shuts down operations.

Financial effects of labor disputes

REAL-LIFE EXAMPLE: U.S. AUTOMOTIVE INDUSTRY STRIKES

Industrial disputes typically hit suppliers hard, triggering loss of revenue and key talent, thus weakening financial viability.

In September 2023, the U.S. trade union United Auto Workers (UAW) demanded a 40% pay hike, including an immediate 20% increase and improvements in benefits. Automakers Ford, GM and Stellantis—the parent company of Chrysler, Dodge, Jeep and Ram—offered pay raises of approximately 20%, Reuters reported. Union members rejected the offer and walked off the job.

During the six-week strike, losses to the Big Three automakers reached $4.3 billion, while their suppliers lost wages and earnings of $3.3 billion, according to Anderson Economic Group. Production delays from strikes may be compounded by assembly line downtime if parts become unavailable due to supplier bankruptcy.

Recognizing financial health warning signs

REAL-LIFE EXAMPLE: DIEBOLD NIXDORF

Maker of ATMs and point-of-sale systems in more than 100 countries, Diebold Nixdorf was experiencing a decline in sales for some time. Events that included a cyberattack sent the financial health of Diebold Nixdorf on a slow downward spiral.

Since 2020, indicator messages about the company included:

JUNE/JULY 2020
Diebold Nixdorf ATM system hit by hackers and its IT by ransomware *(Cyberattacks)*

NOVEMBER 2020
Moves headquarters to smaller facilities in Ohio *(Site relocation or closure)*

OCTOBER 2021
Sells retail services area of reverse vending machines *(Acquisitions)*

OCTOBER 2022
Announces new CEO *(Key employee stability)*

OCTOBER 2022
Announces lower revenue forecast *(Revenue and growth outlook)*

NOVEMBER 2022
Experiences wage disputes and warning strikes *(Industrial dispute at business partner site)*

MAY 2023
Diebold Nixdorf files for Chapter 11 restructuring *(Insolvency under self-administration)*

Changes in ownership structure, relocation and key employee fluctuations all signaled impending financial distress. Business partners that recognized the trend could act accordingly. In August 2023, Diebold Nixdorf completed restructuring.

CYBER INCIDENTS

Cyber incidents grew in scope and frequency

Cyber risk in supply chains is a multifaceted challenge that can lead to operational disruptions, financial losses, regulatory issues and reputational damage.

For years, the number of cyber incidents and their impact on supply networks have been accelerating. In 2023, we observed a 62% increase over 2022 in cyber-related supply chain issues.

A 2022 report by KPMG shows that more than 7 in 10 organizations have experienced at least one significant IT disruption arising from a third party and that the risk of being the victim of a third-party data breach is rising.

Why? Organizations might fortify their own infrastructure, but often do not have full visibility into the sub-tiers of their supply network. Business partners, vendors or suppliers might not have the capacity to protect their networks, might not make the significant effort of reporting cyber risk or they simply put a low priority on cybersecurity.

However, suppliers are often connected to enterprises, for example, through bidding portals. Threat actors or bots identify and attack the supplier with the weakest cybersecurity in the network. This way, criminals, industrial spies or hackers gain access to the enterprise's infrastructure, where they can disrupt services, steal information or demand ransom for data assets.

A data breach is defined as unauthorized access to sensitive or confidential data. The consequences of cyber incidents within supply chains include:

- **Data breaches and theft:** Supply chains involve the exchange of sensitive information, including product designs, pricing and customer data. Intellectual property theft or data breaches can compromise a company's competitive advantage and reputation.
- **Disruption of operations:** Cyberattacks can severely disrupt supply chain operations. Attackers may target suppliers, manufacturers or logistics partners, leading to production disturbances, inventory shortages and delivery delays.
- **Financial consequences:** Incidents and attacks can lead to direct financial losses, including the costs of mitigating the attack, data recovery and legal liabilities. Reputational damage and reduced customer trust can also have financial consequences.
- **Regulatory issues:** The improper handling of customer data could have legal consequences. Companies or their suppliers could violate the General Data Protection Regulation (GDPR), which lays down strict rules for data transfer, protection and privacy.

The average cost of a data breach is **$4.45 million**, according to a 2023 IBM survey of more than 550 global organizations affected by such an incident.

Hackers infiltrate infrastructure through supplier software

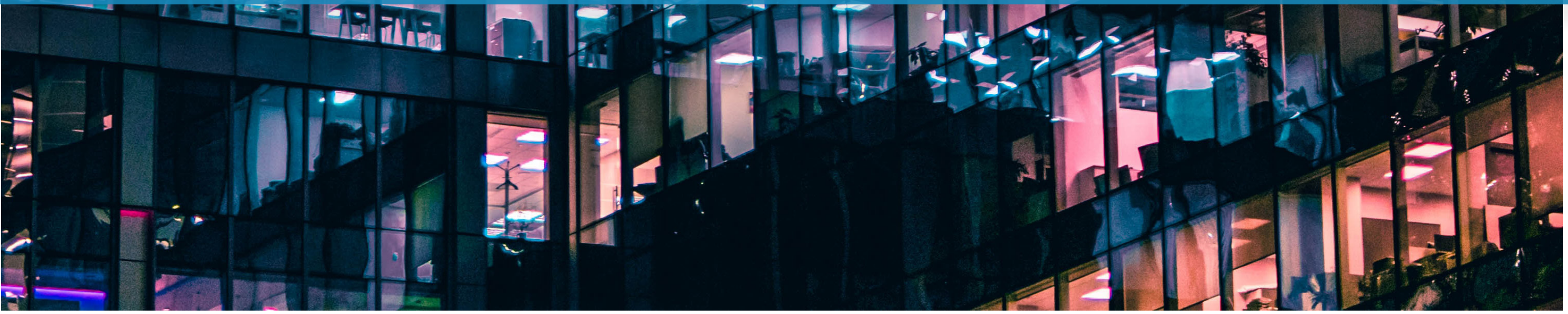
REAL-LIFE EXAMPLE: MOVEIT TRANSFER

In June 2023, the ransomware gang CLOP exploited a critical security vulnerability of a file-sharing solution, MOVEit Transfer. The attack targeted companies including the BBC, Aer Lingus, British Airways, DHL and Schneider Electric. The scale of incidents came to light over the following months, revealing hundreds of victims: U.S. and U.K. government agencies, banks, accounting firms, universities, health care institutions and insurance companies, among others.

In many cases, the hackers exploited supplier software and third-party services. The data breach of British Airways and the BBC, for example, was linked to Zellis, a payroll provider. Cybercriminals thus gained unauthorized access to numerous companies simultaneously. Hardware and services supplier Extreme Networks also warned its downstream customers that they were potentially at risk.

The ransomware gang threatened to publicize sensitive information online, including consumers' names, financial details or health data, if the organizations did not pay up. By late October, the data of more than 2,500 organizations and 67 million individuals had been compromised. CLOP, also written cl0p, is said to come from the Russian word "klop," which translates to "bedbug."

On May 31, Sphera Supply Chain Risk Management users were alerted to a "critical zero-day vulnerability" issued by Progress Software, the parent company of MOVEit. The company warned that a temporary gap in security had been discovered.



How Sphera can help

Organizations must proactively address cyber risks through a combination of technology and strategy. Using the AI-based technology of Sphera Supply Chain Risk Management along with a robust cybersecurity program will enable organizations to:

Understand the vulnerabilities and impact of cyber risk in the supply chain. Risk-aware companies gain transparency on the cybersecurity of all partners. With Impact Analyzer, procurement teams can analyze the potential impact of a cyber incident and consider alternative supply sources.

Evaluate the cybersecurity of suppliers, vendors and third parties. Organizations should include cybersecurity ratings in supplier evaluations and when awarding contracts. They can use Supply Chain Risk Assessment to make sure partners' infrastructure is up to date and secure.

Actively monitor for cyber threats. Risk Intelligence provides continuous, non-intrusive detection of risks to partners' cybersecurity. Our cyber risk management partner BitSight provides indicators for cyber events that cover security diligence, compromised systems and user behavior, among others.

Secure their own infrastructure. Risk-aware enterprises have security software to prevent unauthorized infiltration. They educate all employees on data security and privacy laws. They also ensure that executives understand the consequences of cyber risk exposure.

EXTREME WEATHER EVENTS

Extreme weather events hit supply chains hard

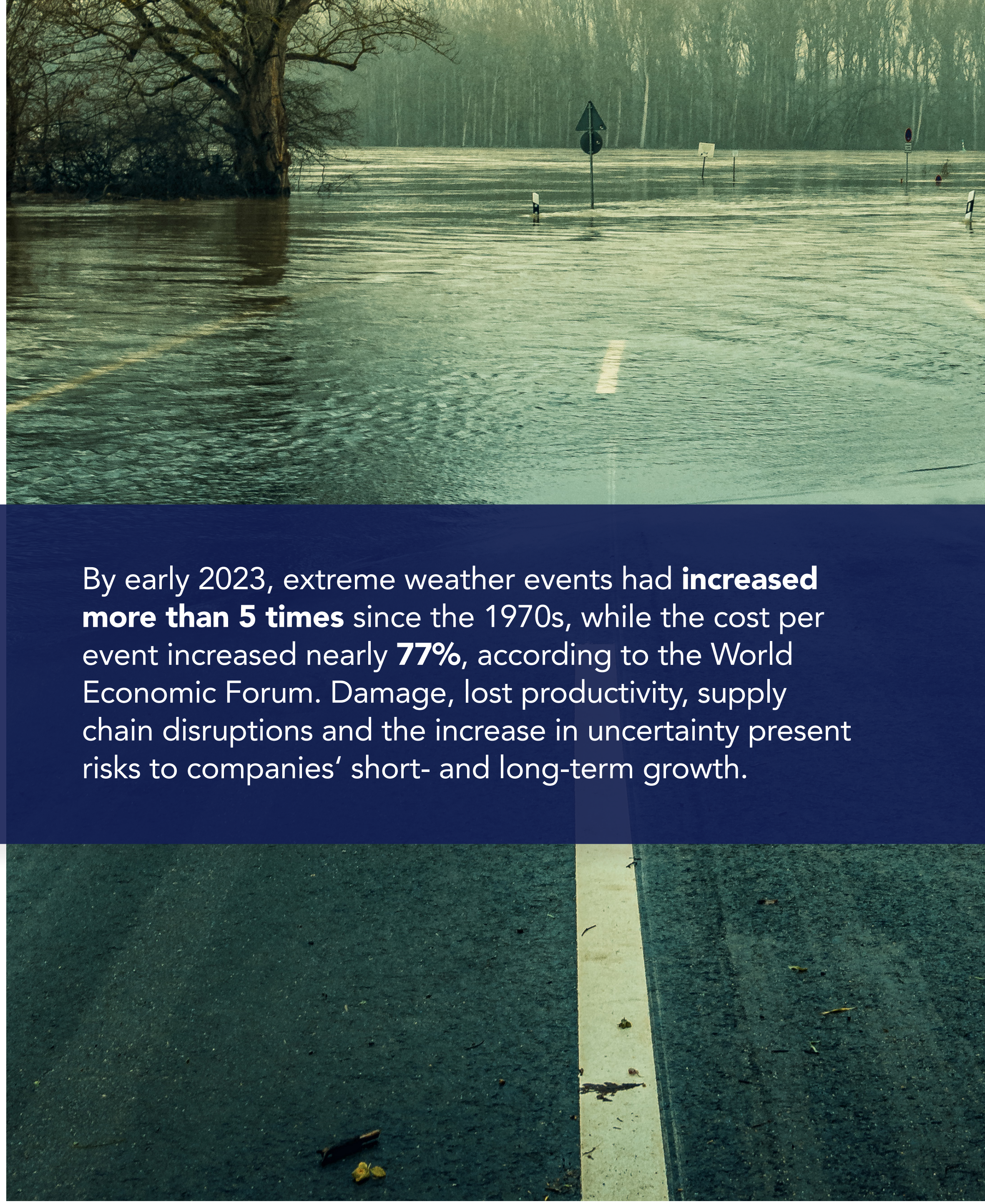
Two-thirds of the global economy is affected directly or indirectly by weather conditions, particularly industries such as agriculture, energy and transportation. This means that weather risks have a substantial financial impact on business.

The raging winds of tropical cyclones and hurricanes are usually accompanied by pounding rain. Extratropical storms such as blizzards also generate high winds and precipitation. Based on the number of indicator messages in 2023, the following extreme weather events were most likely to hit supply chains. The corresponding percentages represent the increase in indicator messages for these events over the 2022 figures.

Sphera SCRM Indicator Messages			
Extratropical storms	**Tropical cyclones**	**Tornadoes**	**Hailstorms**
1%	6%	45%	26%

Flooding typically accompanies intense storms and causes extensive destruction. In 2023, river flood notifications shot up 74%. Beginning in July, powerful downpours in Brazil, the U.S. and Australia produced the worst flooding in decades. In September, Storm Daniel hit Greece, Bulgaria and Turkey with unprecedented rain. The tropical-like cyclone then moved to Libya, where the volume of rain burst two dams, causing catastrophic flooding. September also saw historic typhoons in Hong Kong and Taiwan.

Scientific evidence from the Intergovernmental Panel on Climate Change (IPCC) supports the connection between climate change and weather extremes, such as the severe thunderstorms with hail in North America and Europe in 2023. As such events become more frequent, specific mitigation measures must be enacted, or losses and supply disruptions will escalate.



By early 2023, extreme weather events had **increased more than 5 times** since the 1970s, while the cost per event increased nearly **77%**, according to the World Economic Forum. Damage, lost productivity, supply chain disruptions and the increase in uncertainty present risks to companies' short- and long-term growth.

Heat waves, drought and wildfires

Similarly, the World Resources Institute (WRI) points to the connection between climate change and the wildfires in Canada, California, Hawaii and the Mediterranean amid regional heat waves and droughts. Globally, heat waves are now five times more likely than 150 years ago, according to WRI data. Less precipitation and hotter temperatures dry out the landscape. Drought conditions create the ideal environment for large, frequent forest fires, commonly spread by high winds. The emissions from fires exacerbate climate change and contribute to a “fire-climate feedback loop” of more fires, says the WRI.

Based on the number of Sphera SCRM indicator messages, the risk of wildfires increased 21% in 2022 and another 10% in 2023. Although supply chain exposure to wildfires tends to be lower, the impact of a fire can be extremely high—for example, when a supplier site burns down.

How Sphera can help

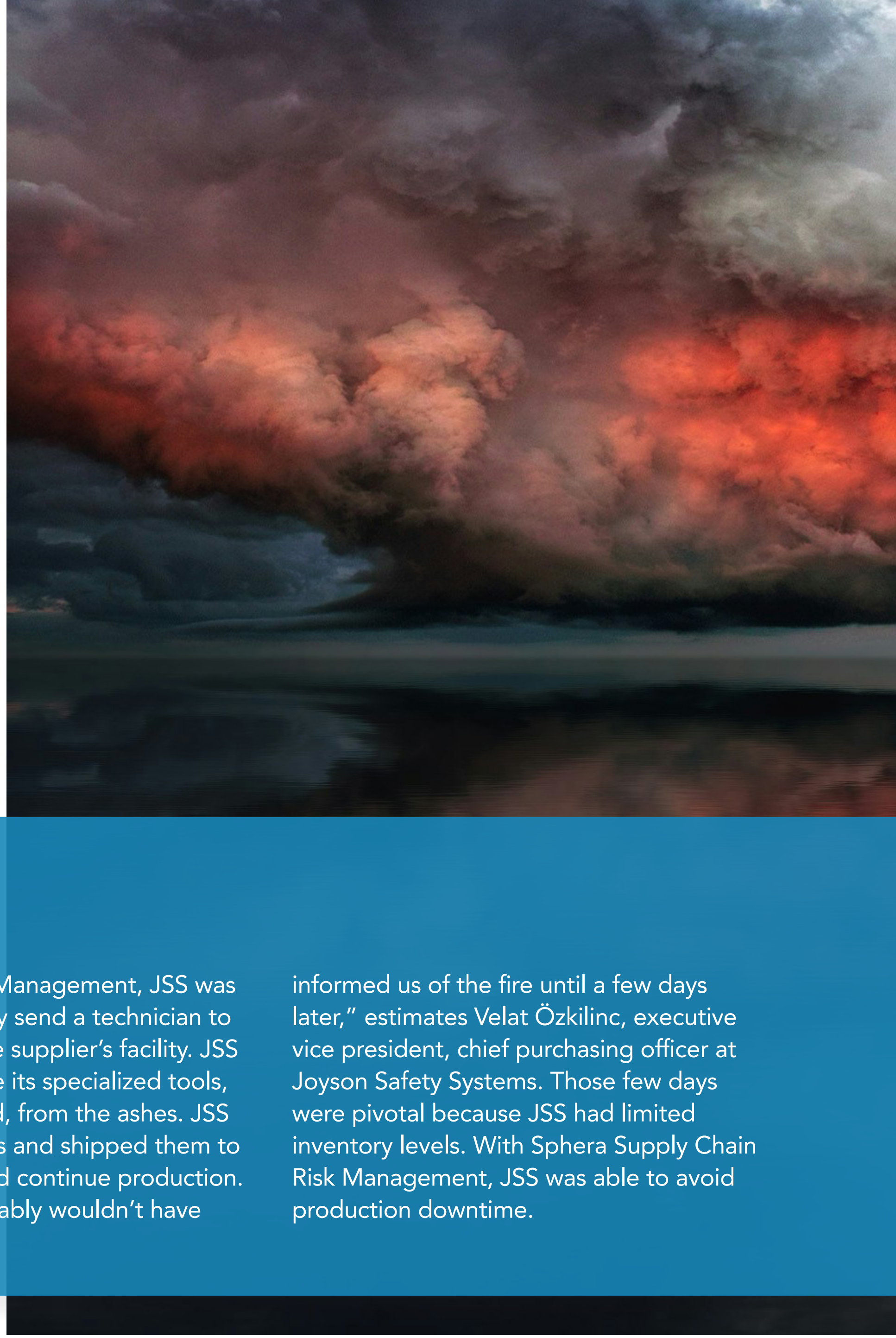
With Sphera Supply Chain Risk Management’s real-time insights, businesses of any size are better prepared, can take steps to mitigate threats and can react quickly to a natural hazard event.

The module Risk Radar can provide visualizations and the statistical likelihood of a natural hazard event. By gaining risk transparency through Sphera SCRM Sub-tier Visibility and Supply Risk Network, organizations can uncover natural hazard risk through to critical suppliers in the n-tiers. Such insights enable businesses to prevent risk through proactive measures such as re-designing supply chains; requesting suppliers to set up protective measures; and securing back-up suppliers in other regions.

The probability of a major earthquake hitting an individual supply network is low. However, the risk of earthquakes and tsunamis is higher in regions including California, Mexico, Turkey, Italy, Japan, India, Indonesia and Taiwan. Supply chain managers also need to consider the potential damage to communication infrastructures, roads, railways or ports.

In high-risk regions, companies can motivate exposed business partners to invest in earthquake-proof architecture or adhere to stricter land-use guidelines when erecting facilities. Relevant insurance coverage, for example, insuring non-mitigatable exposure with contingent business interruption (CBI) insurance, is also an earthquake precaution.

Indeed, corporate and public entities have long used insurance to mitigate the risk of catastrophic weather events. In areas prone to specific risks, such as hurricanes or flooding in coastal areas, insurance coverage is increasingly difficult to obtain. In some cases, companies can get insurance coverage at reasonable terms if they are able to prove they have risk visibility, such as that provided by Sphera Supply Chain Risk Management.



Supplier fire in the automotive parts industry

REAL-LIFE EXAMPLE: JOYSON SAFETY SYSTEMS

Whether through a wildfire, explosion or other causes, a fire at a supplier’s facility can have devastating consequences. Joyson Safety Systems (JSS) is a manufacturer of automotive safety systems. When one of JSS’s suppliers in Latin America burned down completely, reaction time was critical. Alerted by Sphera Supply Chain Risk Management, JSS was able to immediately send a technician to what was left of the supplier’s facility. JSS was able to retrieve its specialized tools, minimally damaged, from the ashes. JSS refurbished its tools and shipped them to a partner who could continue production. “The supplier probably wouldn’t have informed us of the fire until a few days later,” estimates Velat Özkilinc, executive vice president, chief purchasing officer at Joyson Safety Systems. Those few days were pivotal because JSS had limited inventory levels. With Sphera Supply Chain Risk Management, JSS was able to avoid production downtime.

ESG-RELATED RISKS

ESG-related risks continued to rise

Regulatory changes and supply chain complexities translated into greater risk of noncompliance, potentially accompanied by reputational damage. Stakeholders increasingly expect enterprises to operate sustainably and ethically throughout their supply chains.

Companies recognized the need to integrate ESG considerations into their supply chain strategies to mitigate these risks and capitalize on emerging opportunities.

In 2023, indicator messages for the entire category of ESG-related risks rose 6% in volume. The ESG aspects with relevance to the supply chain chiefly include, but are not limited to, the following:

- Human rights
- Labor practices
- Environmental and sustainable practices

Since 2022, specific indicator messages within the ESG space increased: Human rights notifications rose 12% and labor practice issues went up 13%. The number of messages relating to violations of environmental guidelines or regulations increased 1%.

Reasons for increases in ESG-related risks

Several interconnected factors contribute to the general rise in ESG-related risks in supply chains:

Increased globalization: Supply chains have become more global and complex. Companies source materials and components from countries that vary in their ESG standards. This complexity makes it harder to monitor and manage ESG-related risks effectively.

Regulatory pressures: Governments and international bodies are increasingly imposing regulations and standards related to ESG issues. This includes environmental regulations, labor standards and corporate governance requirements. Companies that fail to comply face legal and reputational risks.

Consumer and investor demand: Companies face rising expectations to demonstrate their commitment to ESG values. Without this commitment, they may lose customers or face stakeholder pressure.

Climate change concerns: As the urgency of addressing climate change escalates, environmental risks in supply chains are under heightened scrutiny. As a result, companies need to assess the carbon footprint of their supply chains, reduce emissions and adapt to climate-related disruptions.

Reputation and brand risk: Negative ESG events or controversies related to a company's supply chain can damage its reputation and brand. In the age of social media and instant communication, such damage can occur rapidly and have long-lasting effects.

Raise awareness, recognize risk and mitigate consequences

Regulations such as the U.S. Uyghur Forced Labor Prevention Act, U.K. Modern Slavery Act, German Supply Chain Act and the upcoming EU Corporate Sustainability Due Diligence Directive require enterprises to gain visibility into their multi-tier supply networks.

Enterprises must increase their focus on identifying any harmful treatment of workers in their supply chains, particularly in poorly regulated regions. Companies are expected to verify equal pay and adequate wages throughout the supply chain.

Regulatory pressure is also driving enterprises to prevent soil damage, water and air pollution and excessive water consumption. Many corporations have enhanced their ESG compliance monitoring to identify conflict minerals and banned materials such as mercury, as well as to uncover improper hazardous waste management.

Along with environmental and social aspects, governance issues in the supply chain can include bribery, corruption, price-fixing and other forms of misconduct. These indicate poor business ethics and can lead to fines and penalties. Such violations can also lead to imprisonment of key employees or product sanctions, which can affect supply.

With so many image and compliance risks potentially arising from business partners, companies are advised to take ESG risk seriously. Just one incident is enough to ruin a company’s reputation.

Loss of reputation and revenue

REAL-LIFE EXAMPLE: ENDO

The Ireland-domiciled U.S. generics and specialty-branded pharmaceutical company Endo was driven to bankruptcy by the claims and settlements related to the opioid crisis in the United States.

The timeline of indicator messages from Sphera Supply Chain Risk Management included:

MARCH 2022
Endo held liable in U.S. opioid case *(Business partner fines or penalties)*

→

MAY 2022
Announced 9% drop in Q1 sales *(Revenue and growth outlook)*

→

AUGUST 2022
$450 million settlement on charges it falsely marketed opioids *(Business partner fines or penalties)*

→

AUGUST 2022
Filed restructuring support agreement *(Insolvency under self-administration)*

As Endo entered Chapter 11 bankruptcy protection, the company had amassed approximately $8 billion in debt. It put itself up for sale to fund opioid settlements. The U.S. government opposed the sale, which would satisfy some claimants, yet leave out other creditors—including federal agencies. In November 2023, lenders to Endo International proposed paying part of the settlement that was delaying the restructuring.

Indicator messages in the risk area of image and compliance indicate serious corporate governance issues. Fines and penalties can damage a company's reputation and affect their financial health, as well as the reputation of partners. By assessing suppliers' litigation risk early and quickly learning of violations, companies can protect themselves.

How Sphera can help

Organizations can mitigate the consequences of ESG-related risk through holistic supply chain risk management powered by Sphera Supply Chain Risk Management software, which allows them to:

- Use automated surveys to assess suppliers' ESG profile through Supply Chain Risk Assessment.
- Monitor suppliers to identify ongoing changes or deviations from the profile with AI-driven Risk Radar.
- Collaborate with business partners to establish preventive measures and mitigation action with Supply Risk Network.
- Prepare for possible violations using Action Planner.
- Consolidate compliance efforts with Sphera SCRM ESG Bundle.

With Sphera SCRM Compliance Incident Management, companies can monitor their supply networks for compliance risk. Using this approach enables companies to address risks systematically and helps them to break down silos. The module is scalable and flexible to adapt to upcoming requirements and future regulations.

Additionally, organizations must increasingly ensure that raw materials and components are produced fairly and sustainably. Gaining visibility in supply chains through the commodity level becomes possible through Sphera SCRM Commodity Risk Tracker. Users of the module receive notifications of potential risk events including human rights violations, price fluctuations and disruptions in supply. By using a technology-based solution, businesses can more effectively manage commodity risk before competitors even hear about incidents.

Through Sphera Supply Chain Sustainability buyers and suppliers can connect in one unified platform that enables responsible sourcing and emissions tracking, sharpens ESG risk detection and elevates sustainability reporting.

EXCEPTIONAL CIRCUMSTANCES

Exceptional circumstances challenged supply chains

A single event can cause significant disruption at any time. Although such anomalies may occur at a local or regional level, they typically have broader implications. Specifically, exceptional circumstances relating to war and geopolitical conflict, as well as restrictions in Panama Canal transits, challenged supply chains in 2023.

In recent years, the risk to supply chains from war or geopolitical conflict rose significantly - by 87% in 2022, with a further 7% rise in 2023. Most indicator messages focused on the war in Ukraine, followed by Niger, which experienced a military coup in July. The conflicts continued to impact supply chains through the risks of inflation and higher prices for commodities.

Then, in early October, the attack on Israel by Hamas, with its potential for escalation, resulted in oil price hikes and supply uncertainty. Concerns about global political stability also pushed up the price of gold.

In November, attacks by Yemen's Houthi rebels on vessels in the Red Sea caused shipping companies to reroute their vessels to avoid the Suez Canal. The longer routes around Africa increased shipping times and forced shipping companies to spend more on fuel.

Additionally, tensions between China and Taiwan remained. Through ongoing monitoring, Sphera Supply Chain Risk Management kept companies up to date on geopolitical risk in this region and across the globe.

COVID-19 impacts disappear

Beginning in early 2020, the COVID-19 pandemic surpassed other events in its impact and reach. Yet by 2023, the number of pandemic events related to COVID-19 had decreased 99%. However, disease can spread quickly, so monitoring for pandemic outbreaks of any kind remains essential. Notifications of force majeure—nonfulfillment of contract due to events beyond human control—had risen sharply during COVID-19, then plummeted 65% in 2022 and another 46% in 2023.

Data shows that most of the pandemic's secondary effects, including lockdowns, border closings and quarantined workers, also disappeared. Supply chains have mostly recovered from seaport congestion and misallocation. We observed a 19% reduction in major product release delays, which indicates that supply networks are generally back to their usual performance.

In recent years, **the risk to supply chains from war or geopolitical conflict rose significantly.** Notifications rose 87% in 2022, with a further 7% rise in 2023.

Disaster at location

Incidents such as explosions, fires or strikes can have disastrous business consequences and costs. Although taking place at a single location such as at a port, such incidents usually affect a large number of companies and disrupt global supply chain operations.

Location-based incidents are covered under the Sphera Supply Chain Risk Management risk indicator “disaster at location.” Such events decreased 27% in early 2023. However, in April, Panama Canal authorities announced transit restrictions for the largest ships due to low water levels resulting from a persistent drought. An unusually strong El Nino pattern contributed to the hot, dry conditions.

By August, a 200-ship bottleneck had generated major delays and higher costs for shippers. Carriers faced weeks of waiting. Quotas were introduced, and authorities even auctioned off transit slots as the drought continued.

How Sphera can help

For risk-aware supply chain managers, the Panama Canal traffic jam was not as surprising as the 2021 Suez Canal blockage, when a container ship obstructed the passageway for six days. In Panama, the trend was evident months before the backlog. Thanks to ongoing monitoring provided by Risk Radar, customers of Sphera Supply Chain Risk Management were alerted in April 2023 when the first restrictions were announced.

With holistic supply chain risk management, companies have the know-how to assess the impact of potential risk events. They can evaluate crisis response options or identify alternative modes of transport or shipping routes.

Out-of-the-ordinary incidents can happen at any time. With Action Planner, companies can develop measures in advance or use ready-made plans, so they are prepared for all kinds of risk events.

Faced with exceptional circumstances, risk-aware companies have strategies to manage various risk scenarios. For example, they understand how to reallocate demand to suppliers who can deliver the quality and volume needed. Or they achieve status as a priority customer with their key partners, so their needs come first. Also, having backup supplier sites—perhaps in a different geographical region—enables companies to reestablish suppl y faster than the competition.

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CONCLUSION

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As witnessed in 2023, inflation and high interest rates strongly contributed to financial distress. Cyberattacks accelerated. Weather extremes proved their potential for devastation. As ESG-related risks grew, companies increasingly focused on ensuring ethical and sustainable supply chains. The ongoing war in Ukraine, as well as a backlog of container ships waiting to enter the Panama Canal, demonstrated that exceptional circumstances had the power to severely disrupt supply chain operations.

No matter what events lie ahead, one thing is certain: Risk exposure is dynamic. Supply chain risks and priorities will continue to evolve—and 2024 will be no exception. Yet incidents and accidents do not happen in a void. One shock typically triggers cascading risks and consequences. Optimizing the composition of the supply chain and diversifying suppliers help businesses manage uncertainty.

With proactive strategies, enterprises can address risk before it disrupts their operations. Sphera Supply Chain Risk Management provides ongoing monitoring, early warnings and indicator messages, so companies can uncover patterns and prepare for the next supply chain challenge. Data-based insights can help companies foster risk awareness and enrich decision-making.

Finally, how can organizations future-proof their supply chains and protect themselves from ever-changing risk? They can build resilient supply chains that are able to withstand impacts and recover quickly. Companies can create agile supply chains that can adapt faster to evolving situations. And by making supply chain operations sustainable, businesses ensure viability over the long haul.

Sphera's new Supply Chain Transparency solution brings together Supply Chain Risk Management and Supply Chain Sustainability product offerings to offer an unparalleled approach to supply chain risk.

Empowering procurement teams, our comprehensive solution provides multifaceted insights, real-time risk monitoring, compliance management and proactive supplier performance improvement. With advanced AI tools and expert analyst teams, we enable an approach that balances ESG goals against broader supply chain pressures and complexities.

By harnessing the power of Sphera's Supply Chain Transparency solutions, clients gain critical visibility into risk hot spots; engage with vital suppliers in Tier 1 and beyond; and ensure compliance with legislation. Our solutions empower companies of any size to drive efficient and sustainable supply chain risk management.

Sphera Supply Chain Risk Management (SCRM) is a cloud-based, modularized and integrated solution to support the end-to-end supply chain risk management process.

Risk Intelligence
is the technology-driven service at the core of Sphera SCRM that monitors the entire supply network and identifies risk in real time and at scale. Risk Intelligence normalizes risk data from multiple sources and notifies organizations of risk events.

Risk Radar
uses an interactive world map to reveal supply chain risk uncovered by Risk Intelligence. Risk scorecards, analytics and dashboards show risk patterns to aid decision-making.

Impact Analyzer
assesses suppliers' criticality and detects vulnerabilities at the category level. Businesses can analyze the impact that a supplier failure could have on their supply chain.

Action Planner
simplifies communication across the organization and with suppliers. This module enables proactive risk management through preconfigured mitigation measures and action plans.

Risk Assessment
automates supplier and third-party assessment processes and integrates the survey results into business partners' risk profiles.

Sub-Tier Visibility
visualizes risk monitoring across the n-tier of supply chains. Companies can uncover threats in the sub-tiers when their suppliers join Supply Risk Network, a collaborative hub.

SCRM ESG Bundle
enables companies to proactively identify, manage and mitigate ESG-related risks in the supply chain and collect compliance-ready data to support reporting.

Compliance Incident Management
monitors all relevant incident data and provides a holistic overview of relevant supply chain laws. It includes tracking, dashboard and reporting capabilities.

Commodity Risk Tracker
enables companies to monitor their most critical commodities to optimize sourcing results and ensure that raw materials and components are produced fairly and sustainably.

About Sphera

Sphera is the leading global provider of integrated sustainability, risk & performance management software, data and services, focusing on Environment, Health, Safety & Sustainability (EHS&S), Operational Risk Management (ORM), Product Stewardship and Supply Chain Risk Management (SCRM).

For more information, contact us at: sphera.com/contact-us

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Supply Chain Risk Management solutions ›