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ANALYTICS

2024 Risk Report

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Time for a reality check on your 2024 planning: Have you built contingencies for the year's most likely disruptions? If you're basing Plans B and C on best guesses, you're probably not prepared for what the data says is coming.

At Everstream Analytics, our supply chain risk experts capture, record, and analyze events to reveal insights and make risk predictions. Our 2024 outlook is based on our comprehensive database of supply chain disruptions and how those impact our clients. Our countdown includes risk scores for each of 2024's Top 5 most likely events.

Contents

CYBERCRIME

2023 Risk Remains

One risk that we highlighted in our 2023 report will continue to be a concern in 2024. Cyberattacks on supply chains rose sharply during 2023—202% year-over-year—with attacks on companies, sub-tier suppliers, and logistics providers. This is the highest level in the last five years, surpassing the previous record during the COVID-19 pandemic in 2020, and it's not slowing down.

Ransomware and data breaches will be an ongoing risk to supply chains in 2024, along with the five top new threats identified by Everstream.

Recorded Cyberattacks on Supply Chains, 2019—2023

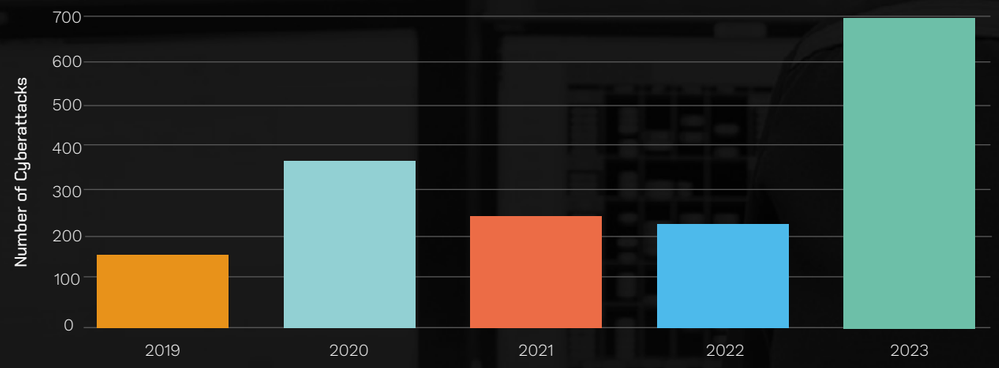


Figure 1: Cyberattacks on supply chains set new record highs in 2023 (source: Everstream Analytics).

Cyberattacks by Sector, 2023

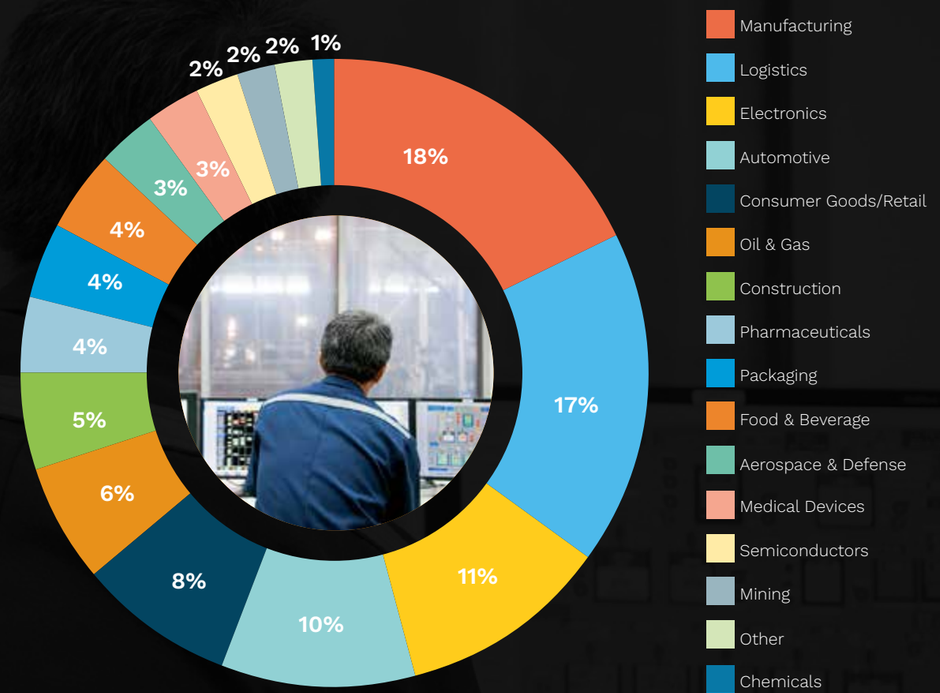
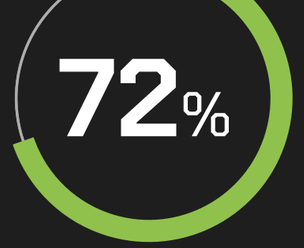


Figure 2: Attacks primarily hit the logistics industry (truck companies, ocean carriers, rail companies and airlines), general manufacturing, and automotive (source: Everstream Analytics).

RISK 5

Suppliers Run Out of Core Agricultural Items



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risk score

Commodity shortages will come to a head this year due to the culmination of many factors, including high input prices, farm profitability concerns, increasing protectionism, and extreme weather events.

In 2023, disruptions that most affected production involved agriculture commodities including raw sugar, natural rubber, rice, and soy. Many sugar refiners expect production halts to continue at least through the beginning of 2024, with further production dependent on weather conditions during the 2024–2025 growing seasons.

Production Halts Due to Raw Material Shortages by Commodity

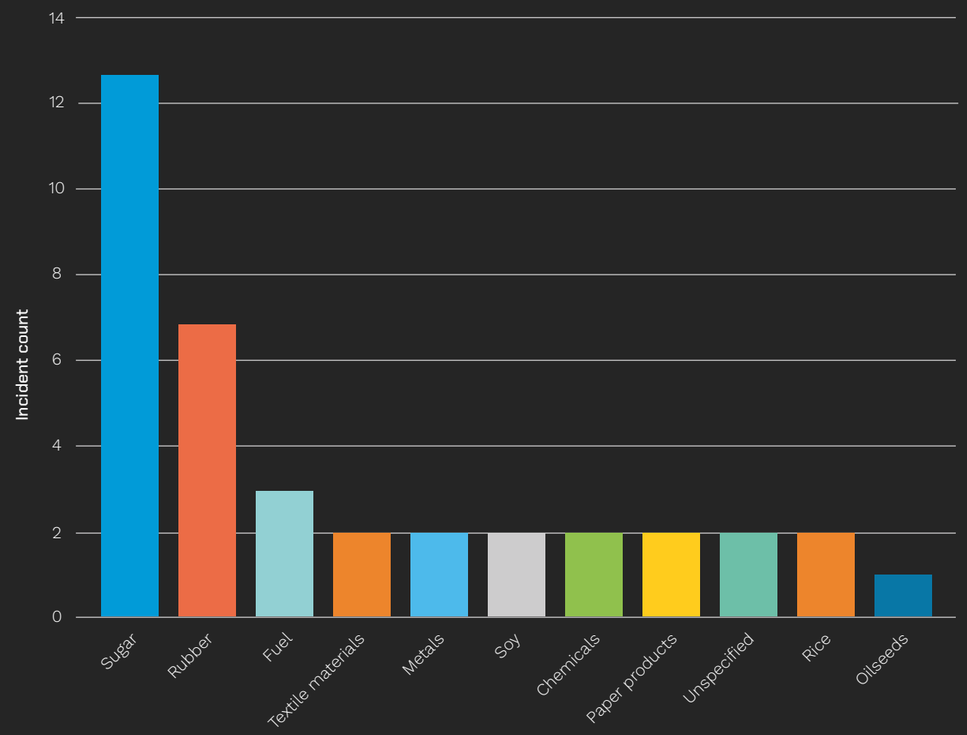


Figure 3: Agricultural products faced the most shortage-related production halts in 2023 (source: Everstream Analytics).

National governments addressed challenges to domestic supply by implementing nearly 35 new export bans and controls on key agriculture products. Restrictions are already in place from top suppliers of rice, sugar, and other agricultural commodities to protect domestic food security. For example, India, Thailand, and Pakistan collectively produce 28% of the global sugar supply and announced new export limits on sugar that crippled world markets.

New Export Control Measure by Month (2023)

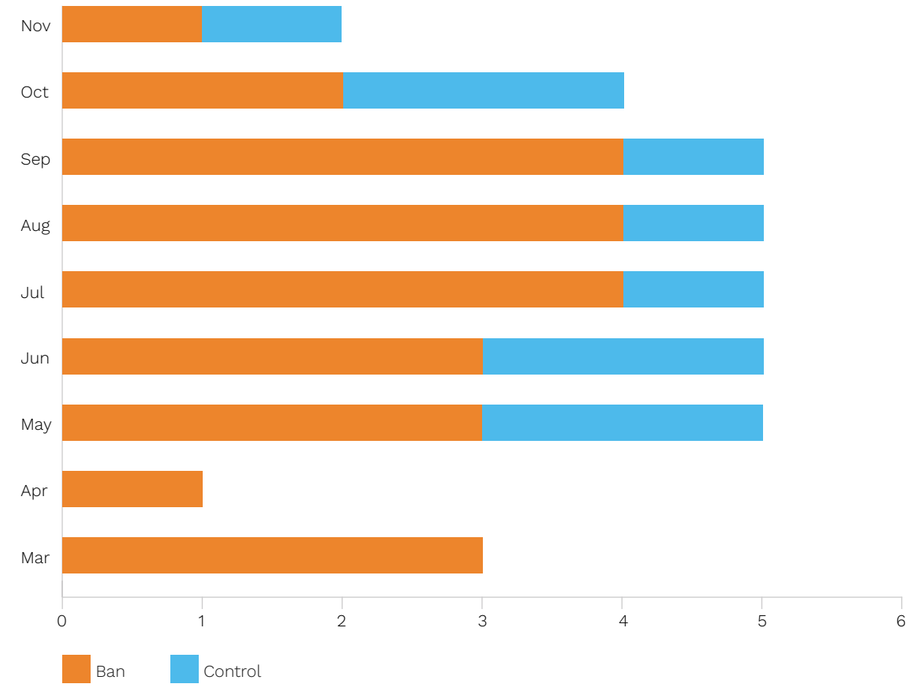


Figure 4: Worldwide export controls and bans continue, with more expected in 2024 (source: Everstream Analytics).

New measures are likely to be proposed or expanded in 2024, causing further disruptions with limited warning. Expect top commodity-producing countries to respond to smaller harvests by proposing or expanding protectionist measures for commodity exports.

New Raw Material Export Controls by Industry Sector (2023)

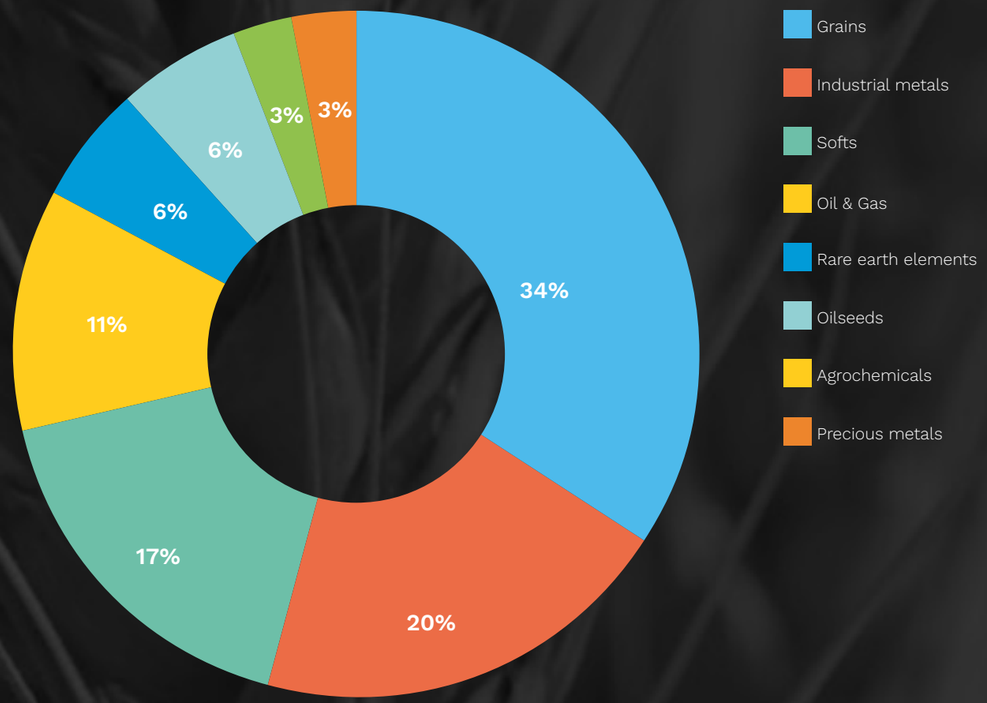
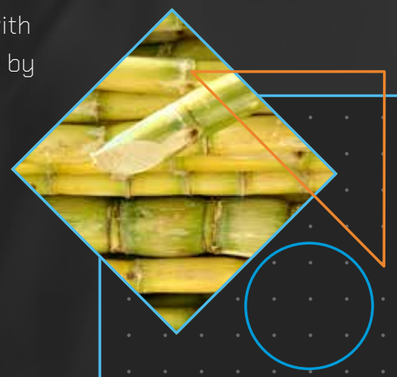


Figure 5: Grains and metals face the highest number of new export controls (source: Everstream Analytics).

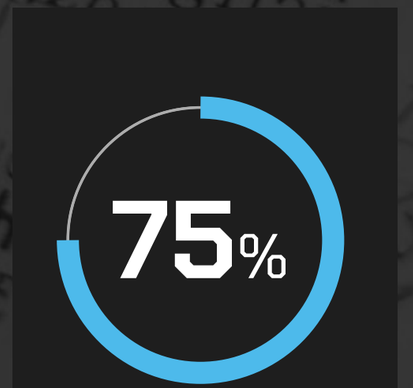


2024 Strategy

Fix prices as much as possible now while building a multinational sourcing strategy per commodity. As the year unfolds, closely monitor the market for opportunities to drive down costs.

RISK 4

Tensions Escalate in Taiwan



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risk score

Rising geopolitical instability threatens supply chains more than ever, and Taiwan will be the primary conflict hot spot in 2024. Tensions and regulatory friction are rising amid Taiwan's January presidential election. Additional policies are lined up to limit exports for semiconductor, agriculture, aerospace, and IT sectors, restricting investments, labor, operations, and transfers of key technologies to the mainland.

Any escalation—whether cyberattacks, a naval blockade, military drills, or a full-scale invasion—would prove devastating to global supply chains.

A Chinese blockade would lower global economic output by $2.7 trillion (€2.48 trillion), or 2.8%, in the first year alone, with 60% of this economic loss in China and Taiwan. It would also decrease China's global trade by 20% or more, impacting electronics, textiles, plastic, rubber, chemicals, and base metal exports. Disruption in the Taiwan Strait would impact the estimated half of all the world's container ships that pass through it.

In an invasion scenario, infrastructure damage alone would impact production of integrated circuits (ICs), electronic components, and petrochemical products. Taiwan is the leading producer of semiconductors, and it would cost an estimated $350 billion (€320.9 billion) over three years to replace its semiconductor capacity.

HS CODE	PRODUCT	EXPORT VALUE (USD)	SHARE (%)
8542	Electronic integrated circuits	138,223,710,047	38.926
8471	Automatic data processing machines and units thereof; magnetic or optical readers, machines for transcribing data onto data media in coded form and machines for processing such data, not elsewhere specified or included	27,574,225,082	7.765
8473	Parts and accessories (other than covers, carrying cases, and the like) suitable for use solely or principally with machines of headings 84.70 to 84.72	11,850,206,887	3.337
2710	Petroleum oils and oils obtained from bituminous minerals, other than crude; preparations not elsewhere specified or included, containing by weight 70% or more of petroleum oils or of oils obtained from bituminous minerals, these oils being the basic constituents of the preparations; waste oils	10,858,021,747	3.058
8517	Smartphones and other telephones, including telephones for cellular networks or for other wireless networks; other apparatus for the transmission or reception of voice, images or other data, including apparatus for communication in a wired or wireless network (such as a local or wide area network), other than transmission or reception apparatus of heading 84.43, 85.25, 85.27 or 85.28	10,631,997,988	2.994

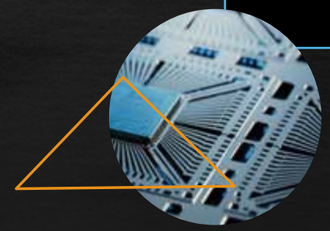
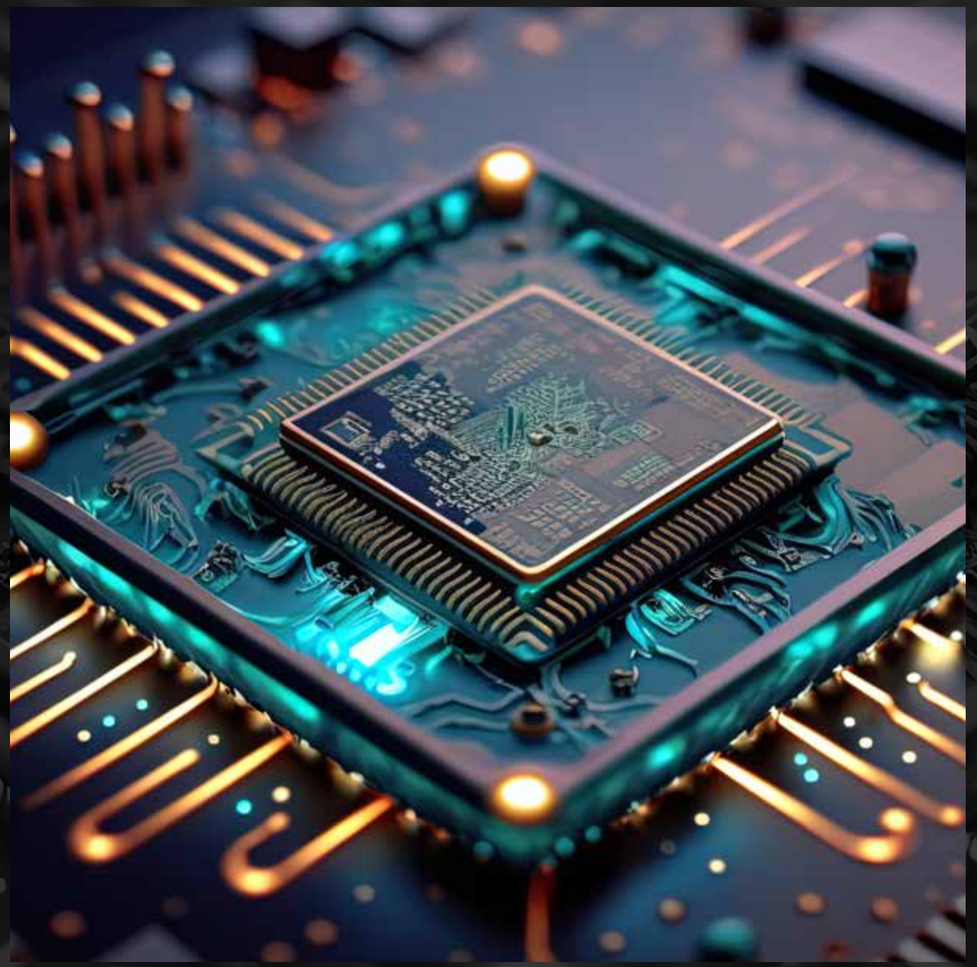


Table 1: Electronics and other high-tech products are Taiwan's top exports into the world's supply chain (source: International Trade Administration of Taiwan).

2024 Strategy

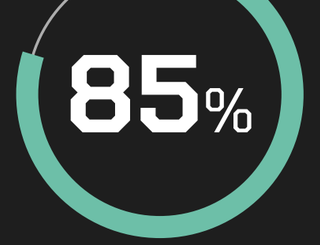
Analyze supply chains to uncover Taiwanese and regional dependencies. Managers should be mindful that supplier diversification in Tier 1 may not carry over into Tier 2 since many Tier 1 suppliers could be sourcing from the same region or supplier.

CHINA'S ACTION	IMPACTS	LIKELY DURATION	STRATEGIES
TRADE RESTRICTIONS	Export restrictions to Taiwan; sanctions on Taiwanese companies	6–24 months	Build up alternative suppliers outside of the region that would be unaffected
MILITARY DRILL	No-go zones in the Taiwan Strait	1–7 days	Adjust the level of buffer inventory Secure air cargo capacity
	No-fly zones in airspace above Taiwan		
ATTEMPTED INVASION	Waterway blockade; Damage to port infrastructure	0–5 years	Stockpile critical components Build up alternative suppliers in the region and beyond
	Disruptions to airspace above Taiwan; Damage to airport infrastructure		



RISK 3

Protectionist Measures Block Technology



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risk score

More commodities and products are caught up in heightening trade wars, particularly between the U.S. and China. Growing export controls and sanctions will force companies to search for new technology suppliers to avoid disruptions.

Restrictions from the U.S. to China now include export controls on special nuclear material out of the U.S., and semiconductor production equipment out of the Netherlands and Japan. China placed export controls on drones, gallium, germanium, and graphite, and threatens restrictions on rare-earth elements for high-performance magnets. China accounts for 60% of rare earth mining production, and 85%–90% of processed rare earth and magnet output.

Number of Chinese Companies Banned by the U.S. BIS Entity List

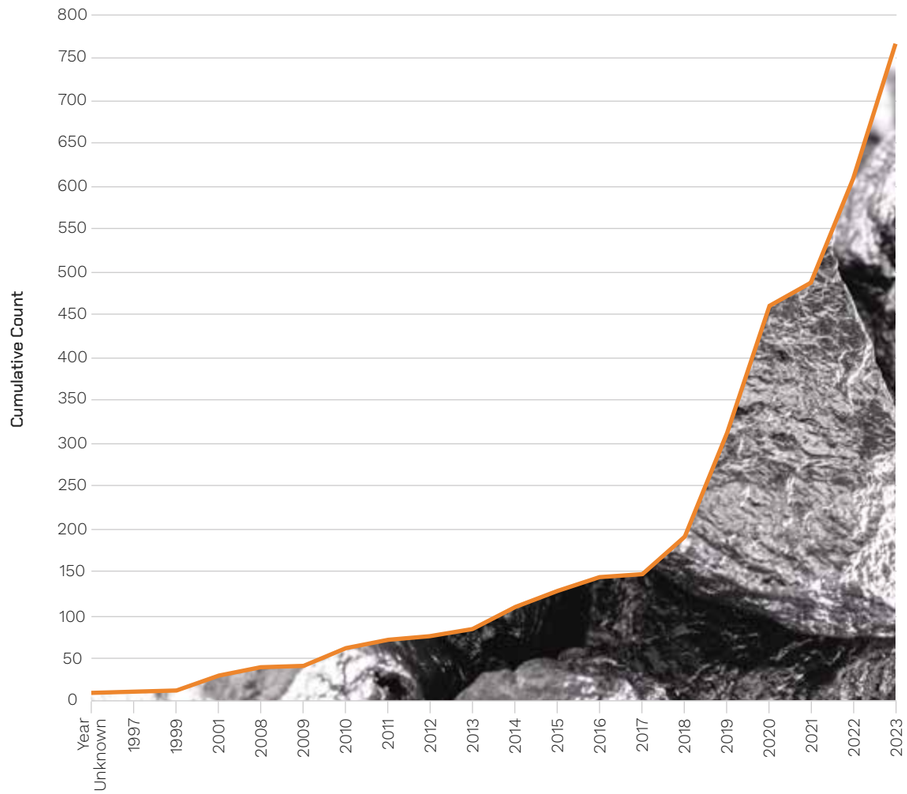


Figure 6: A rising number of Chinese companies over the past five years have been banned by the U.S. (source: Everstream Analytics).

Global technology companies and fabrication plants are increasingly shifting to a "China plus one" strategy, with dependencies on China minimized via diversified sourcing. Companies are opting for suppliers in Vietnam, Singapore, and India. Meanwhile, countries are investing in domestic capacity to expand semiconductor manufacturing capacity.

Apple Supplier Base by Manufacturing Locations (2016–2022)

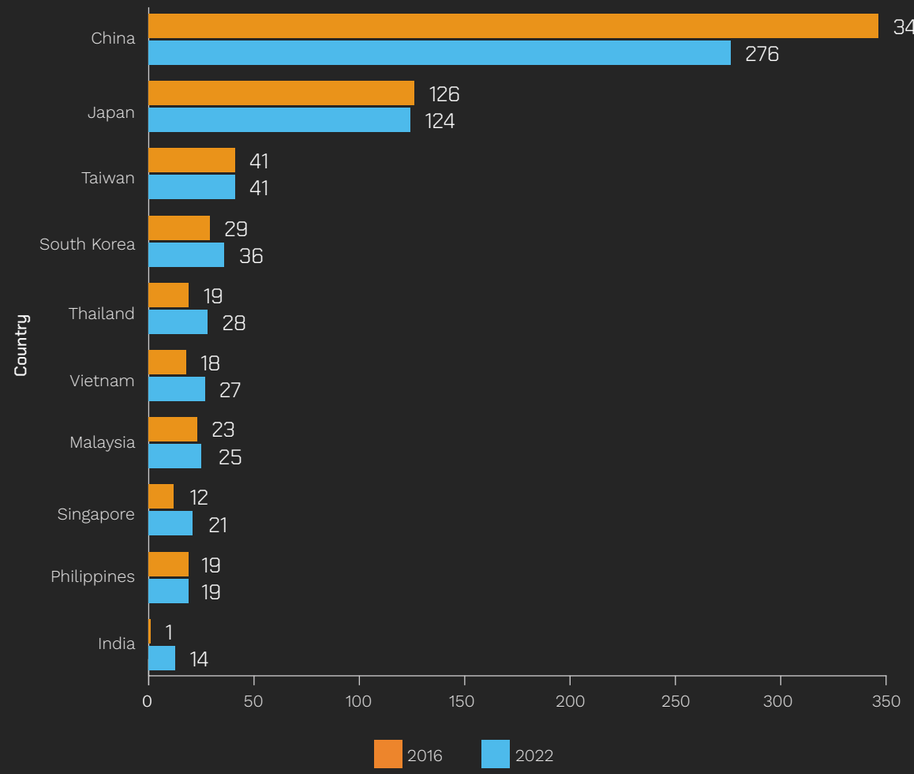


Figure 7: Apple has led the diversification away from Chinese suppliers over the past six years (source: Everstream Analytics).

Fabrication Plant Investment by Country (2021–2030)

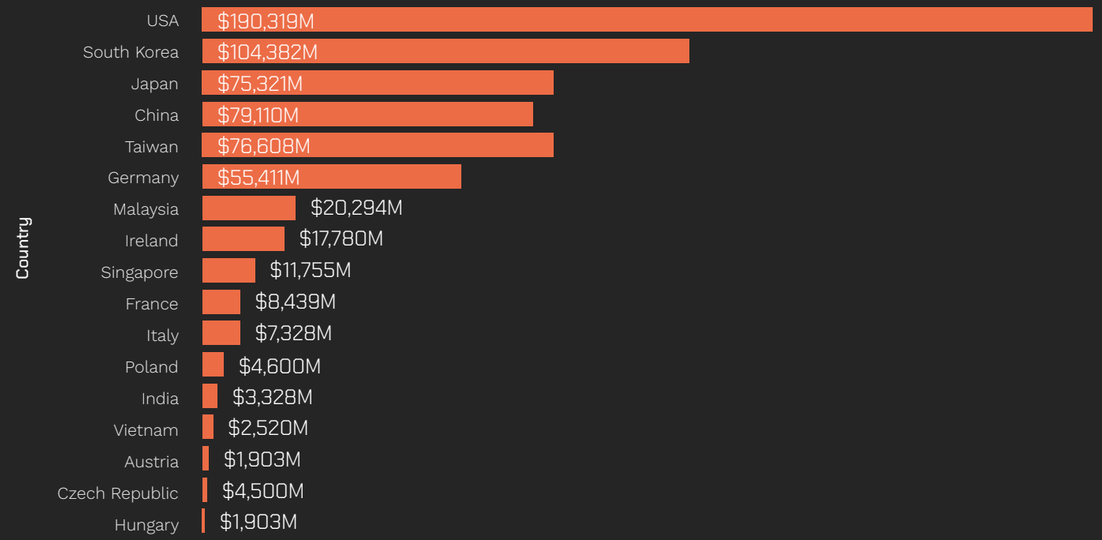


Figure 8: Predicted investment in semiconductor facilities will shift toward the U.S. this decade (source: Everstream Analytics).

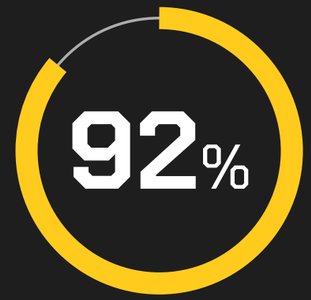
The coming year will highlight a gap between increasing trade war restrictions and shifting technology investments. Since it will take up to three years for new semiconductor plants to come online, many companies will face sourcing problems for high-tech components previously available from Chinese suppliers.

2024 Strategy

Focus on product innovation regionally where possible and analyze supply networks to uncover potential sub-tier bottlenecks where sanctions can completely shut down your supply chain. Check for single-source suppliers at the Tier 2 level, where multiple Tier 1 suppliers are dependent on the same Tier 2 supplier.

RISK 2

Environmental Regulations Overwhelm Operations



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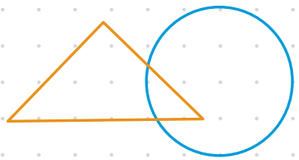
Even companies with existing environmental, social, and governance (ESG) policies will feel disruption from growing environmental regulations. From 1972–2019, there was a 38-times increase in environmental laws. There are more on the way as countries rush to meet looming net-zero emissions goals and protect increasingly scarce natural resources.



Pending mandates tackle deforestation, packaging, and chemicals use. For example, ethylene oxide is a chemical critical for the sterilization of roughly half of all medical devices sold in the U.S. Manufacturers and users will struggle to update facilities, and smaller sterilizers that are unable to front the costs of equipment upgrades may be forced to drop out of the market, further reducing available sterilizing capacity.

Litigation over per- and polyfluoroalkyl substances (PFAS) has been increasing year-over-year and will continue to grow. The PFAS-related bankruptcy of manufacturer Kidde-Fenwal and other recent settlements point toward more crippling resolutions and possible insolvencies in the coming year.

New Net-Zero Policies by Type

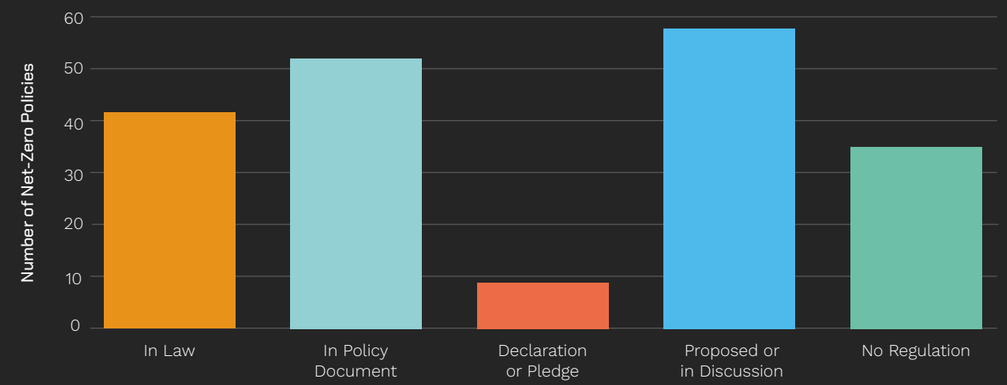


Figure 7: Of the world's 195 countries, the majority have enacted net-zero policies (source: Energy & Climate Intelligence Unit, 2023).

PFAS Product Liability Cases per Year

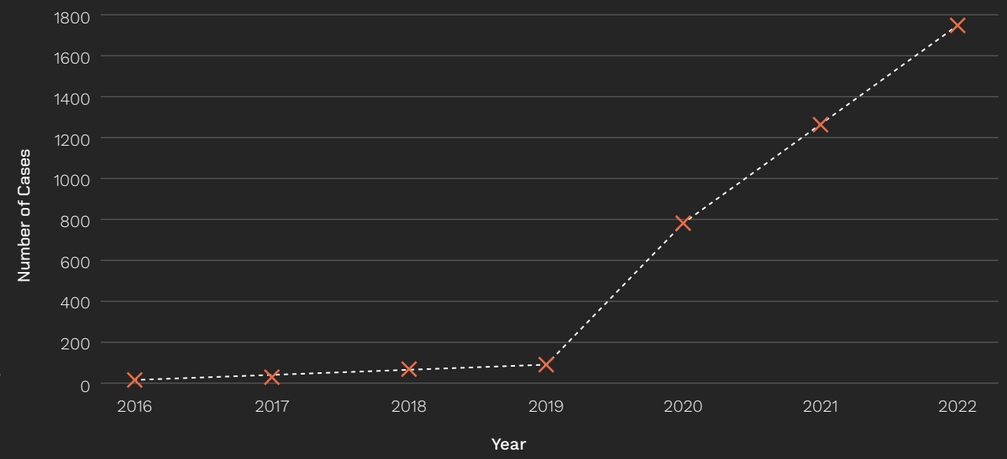


Figure 8: PFAS product liability cases rose dramatically over the past four years (source: Lex Machina).

Production stoppages and litigation due to environmental violations are particularly strong in the U.S., where nearly half of such incidents in 2023 occurred.

Supply chain managers will face more administrative burdens, operational costs, research and development challenges, raised prices, and other disruptions as they shift production practices to meet compliance goals.

Environmental Regulation Incidents by Country

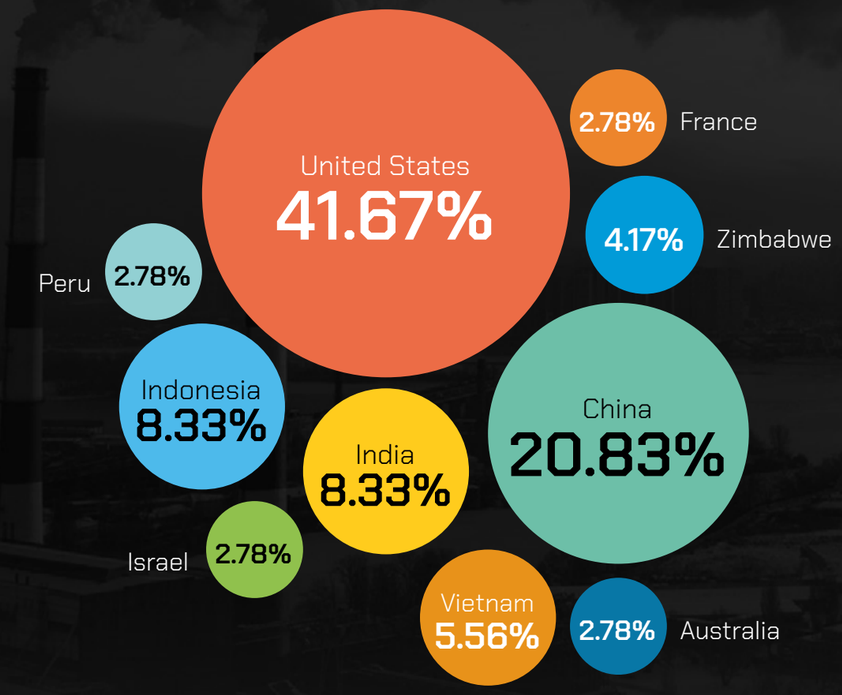


Figure 9: Incidents related to environmental violations include fines, litigation, production stoppages, and plant closures (source: Everstream Analytics).

2024 Strategy

Use digital supply chain risk management tools to simplify both monitoring and compliance. Digital platforms can incorporate compliance risk into a company's overall risk management strategy, reflecting the level of importance to operations and alerting managers to potential disruption.

RISK 1

Extreme Weather Wrecks Delivery Dates

100%

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risk score

In the 1980s, the U.S. experienced a billion-dollar weather event (costing $1 billion or €917.1 million in damages) every four months (inflation-adjusted). Today, a billion-dollar event occurs every three weeks. Weather events are the top logistics disruptor for supply chains, and that impact will increase as the Era of Extremes persists into 2024.

For example, the Panama Canal is experiencing its worst drought since records began in 1950, and the late December dry season means improvement isn't likely in the first four to five months of 2024. As a result, draft height restrictions and daily vessel transit limits are growing.

Lake Gatun Levels Year Over Year

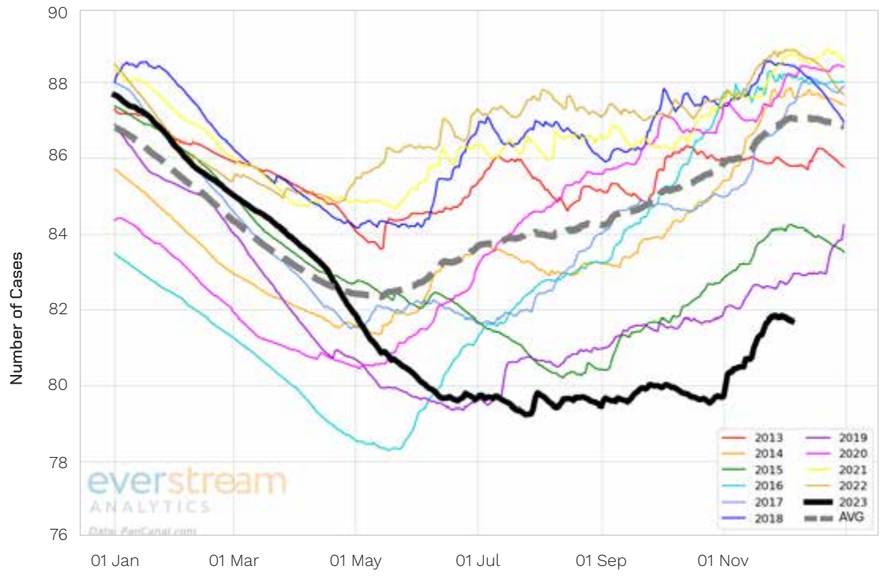

Figure 10: The Panama Canal's primary feeder lake is at a record low level compared to the past 10-year average (source: Everstream Analytics).

More restrictions mean longer waiting times, with bulk carriers, freighters, and tankers bearing the brunt. From 2024 onwards, very large tanker carriers (VLTC) may avoid the Panama Canal altogether due to increased waiting times. Other shipping operators will reroute cargo via the Suez Canal or the Cape of Good Hope.

Worldwide Water Tracker

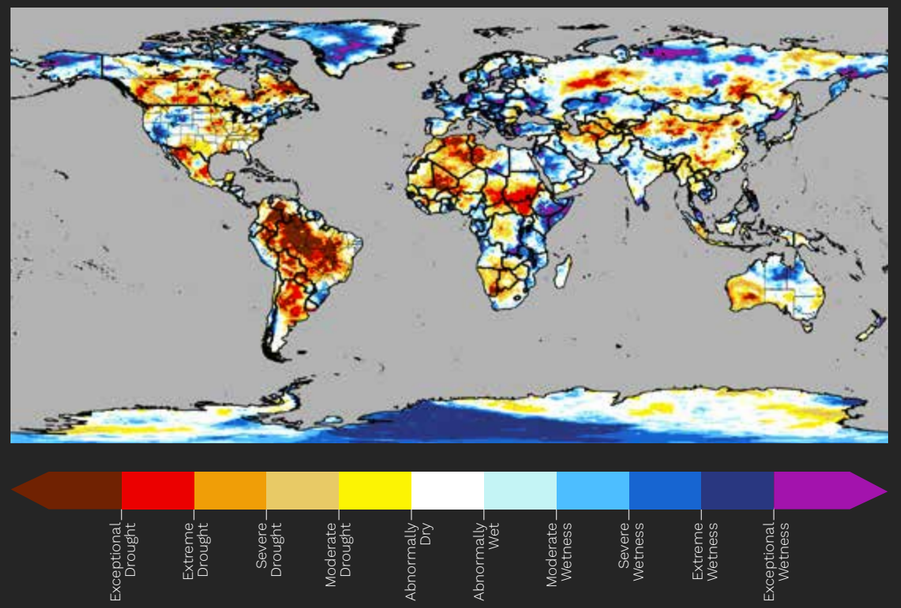

Figure 11: Current worldwide moisture conditions are monitored by Everstream's Water Risk Tracker (source: Everstream Analytics).

Winter storms will also worsen delays and cancellations. Global ocean temperatures begin 2024 at record highs, and, combined with a rising trend in disruptive winter weather (snow, ice, wind), this elevates the risk of more impactful storms. Changes in precipitation distribution patterns will also create increased drought and flooding. The wide range of extremes (tails of the distribution) are expected to continue in 2024.

The Cost of Exteme Weather

HURRICANES

Hurricane Ian's first landfall on the Florida coast was one of the most disruptive weather events of 2022. From Sept. 28–30, the storm resulted in a 75% drop in shipments compared to previous weeks. Deliveries that did make it saw an average increase in shipping times of 2.5 days.

WINTER STORMS

The widespread deep freeze across Texas from Feb. 11–20, 2021, resulted in an average delivery delay of almost two days. And in Buffalo, NY, the Christmas freeze of Dec. 21–26, 2022, caused a 40% decrease in shipments from previous weeks.

WILDFIRES

During the Canadian wildfires in June 2023, both Chicago and New York City struggled with poor air quality and low visibility. Deliveries in Chicago from June 26–28 and in New York City from June 5–7 were delayed by up to two days. Reduced visibility due to wildfire smoke caused decreases in the number of shipments in different areas from 50%–75%.

FLOODING

Flooding and heavy rains in California, Nevada, and Utah in the spring of 2023 interrupted transportation across the entire region. The ongoing disruption caused a 20%–30% decrease in shipments in the impacted areas.

Figure 12: Worsening weather events increasingly cost companies in delays and cancellations (source: Everstream Analytics).

2024 Strategy

Minimize extreme weather risk by closely monitoring routes and shipments enroute for approaching disruption. When in the planning phase, leverage predictive weather forecasts and disruptions alerts, along with predictive ETAs.

Everstream's annual outlook is based on historic, present, and future risk across more than 30 major categories. Our analysts work across three continents in seven time zones, providing round-the-clock incident monitoring coverage. Using artificial intelligence and human expertise, Everstream predicts overall risk exposure, probability, severity, and relevance for our clients and end users to help them avoid disruption.

Keep current on the supply chain insights you need:

* For weekly reports on these and other supply chain disruptions follow our Risk Center.
* Join our email list to receive updates via our blogs, webinars, white papers, and special reports on supply chain risk.

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Get in touch:

Website: everstream.ai | Email: info@everstream.ai | Phone: +1 (800) 261 7947

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