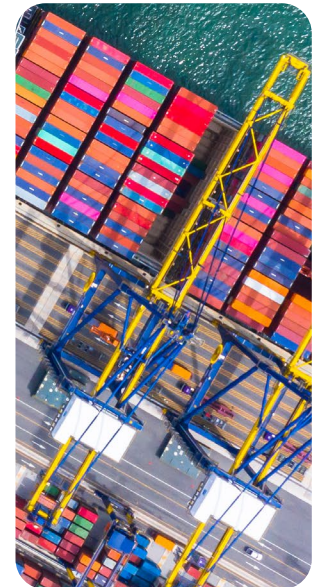
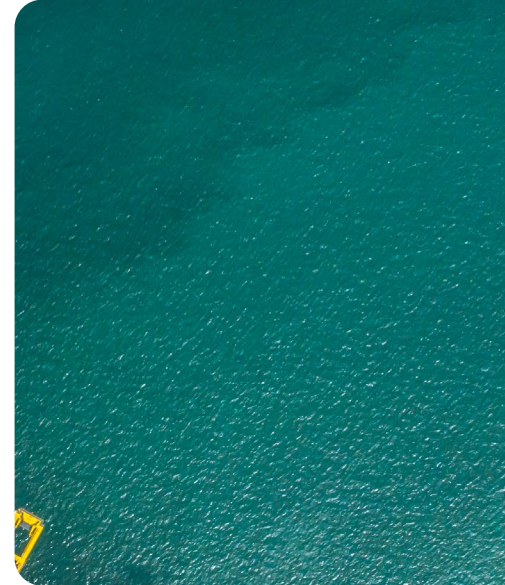


# Sentrisk<sup>TM</sup>

Take control of your  
supply chain risk

Sample diagnostic report





# Your Sentrisk Diagnostic Report

1 | Introduction to the Sentrisk capability

2 | Results: Our insights into your supply chain

- Exploring use cases on the platform
- Additional outcomes in our report

3 | Next steps

A | Appendix

# Executive summary

## Key takeaways

Sentrisk revealed a large ecosystem, with hidden structural vulnerabilities in SE Asia that need addressing

80%

**Increase in Ecosystem visibility.** Before Sentrisk, the client had visibility of 49 T0 and 185 T1 sites. From just these supplier addresses, Sentrisk found 929 additional sites: 2 T1, 115 T2, 812 T3, with 391 of these (i.e. 42% of total additional) in new countries.

23

**Bottleneck sites** causing **High Structural risk** (i.e. shared upstream supplier dependency): including a critical T3 electronics supplier in Vietnam. Recommended immediate mitigation actions such as inventory

8

Clusters of **geographic concentrations** causing **high concentration risk**, with largest 3 in China (24 sites), Vietnam (14 sites) and Japan (10 sites), all susceptible to high flood risk.

17

Sites on sanctions lists (mostly T3), mostly tied to state sanctions (sites with Russian facilities, Chinese state-owned companies) and forced labour.

## Purpose of document

- Introduces the methodology behind Sentrisk, an AI-based platform that gives you control of your business ecosystem and empowers you to proactively manage and mitigate supply chain risks
- Provides an overview of critical risks in your ecosystem with prioritised insights and actionable next steps
- Outlines options to access the Sentrisk insight in a live platform or to deep dive in specific intervention areas

Note: The data in this report is based on an example automotive client, using example site data, modelled on a real case study

1

# Introduction to the Sentrisk capability

Sentrisk™

A Marsh McLennan solution

# We built Sentrisk so it's easier to stop disruption

**Best data capabilities** ... infused with **150 years of our risk expertise**

## Third-party ecosystem

- Supply-chain mapping AI
- Geospatial intelligence
- Open-source intelligence
- Hazard data
- Real-time disruption alerts
- Climate hazard models



- World-class placement and advisory
- Risk mitigation and risk transfer
- Risk modelling experts



- Leading strategy and risk expertise
- Deep industry expertise
- Client-centric development

...and proprietary analytics into **ONE** powerful engine...

# Sentrisk™

Managing the risks you never knew you always had

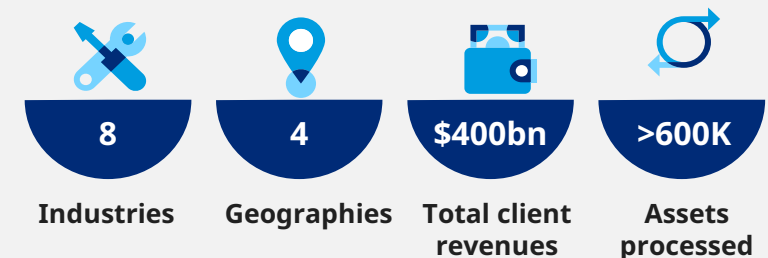
# And clients see the benefits



*There's nowhere else we could get this, we need this type of intelligence*  
Spanish energy company

*This is showing us things we never thought possible*  
Global packaging company

*"I see huge potential in Sentrisk it covers a broad range of capabilities and is easily customizable"*  
Global automotive company

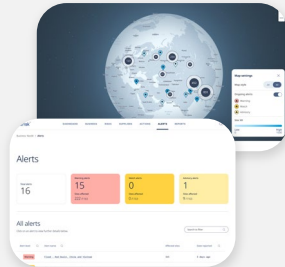


# Your Sentrisk journey starts with this personalized Diagnostic Report

**1 Diagnostic Report:** See the highest risks in your ecosystem, with curated and quantified insights you can take immediate action



**2 Full platform access:** Get 24/7 live access to the full power of Sentrisk. Interrogate data at any level and monitor disruption in real time



**3 Advisory Deep-Dive:** Pick one of four **Intervention Areas**, each supporting tangible business outcomes

**Brokerage Deep-Dive:** Enhance your property submission with better and verified T1 supplier information, or enhance T2 coverage

## How does this report help you?

### Uncover your business ecosystem



Sentrisk maps the supply chain to **tier-n** using supply chain mapping AI, and verifies and enriches outputs using satellite imagery

### Contextualise your risk...



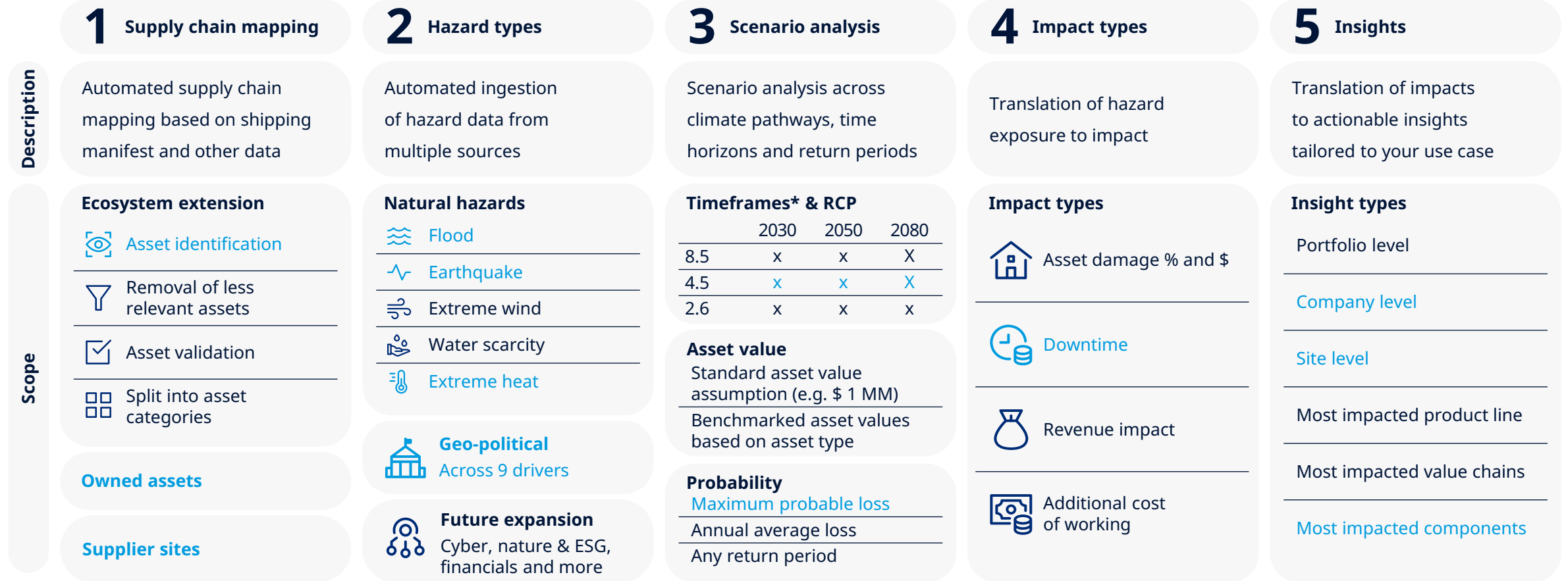
Drill into site-level natural hazard and geopolitical risk data and step back with our proprietary xR risk score which aggregates insights so you can compare risk at any level of your business

### ... and understand where to focus



Mitigate, transfer and report risk, continuing to de-risk the most vulnerable links in your ecosystem

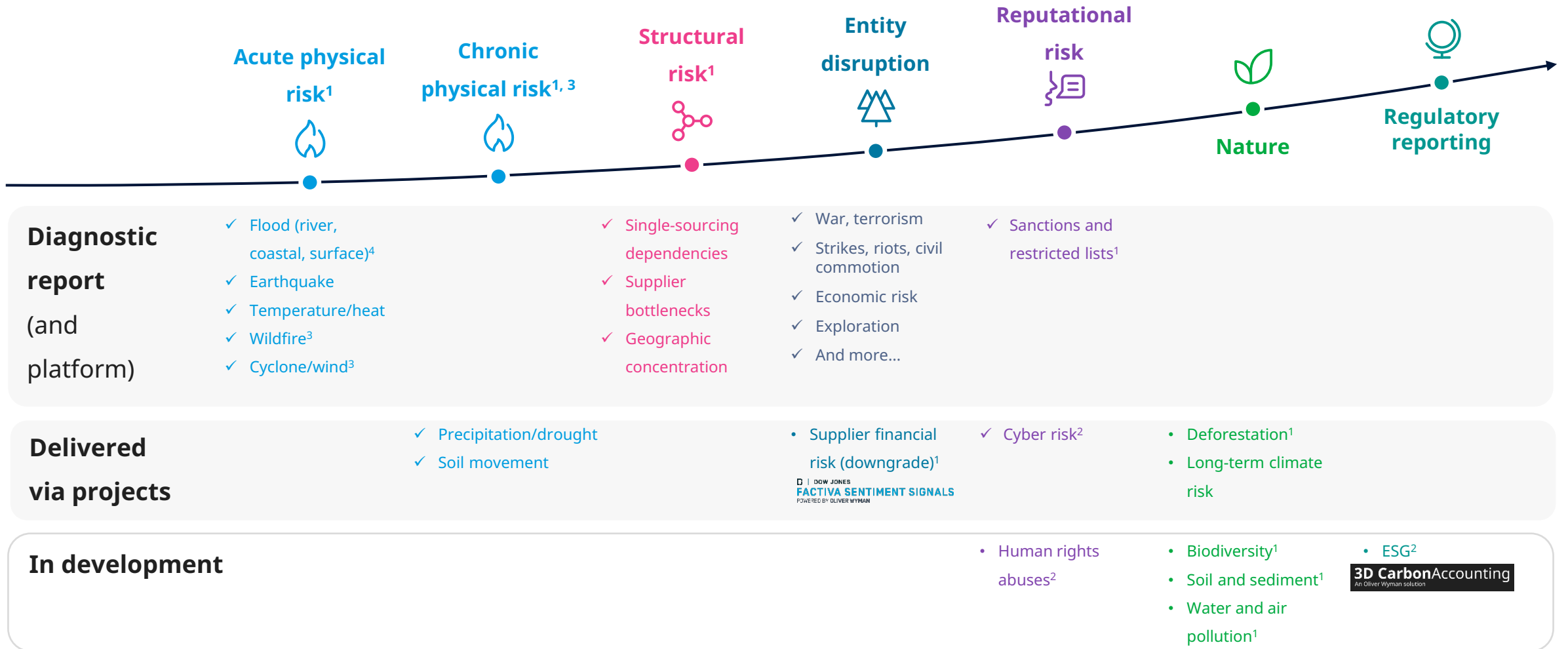
# Sentrisk is powered by a rigorous end-to-end methodology



XX – Covered in Diagnostic Report

XX – Available capability

# We are already covering a wide range of risks with more to come...



1. Site-level observation, not in live platform but available in diagnostic report 2. Regional or country-level scoring 3. Part of premium climate data package 4. Additional details available as part of premium climate data package

# 2

## Results

Our insights into your supply chain

Sentrisk™

A Marsh McLennan solution

# Sentrisk revealed 929 sites and found several risks factors across 4 areas

## Ecosystem breakdown

Key stats on your business ecosystem

Sentrisk revealed **929 sites** (+80%)

Products

**6**

Countries

**53**

Initial T0 & T1 site visibility

**234**

Total discovered sites

**1163**

## Overall risk breakdown<sup>1</sup> and largest risk drivers, as well as sanction flags

### System risks

#### Structural risk



23 sites create  
bottlenecks

#### Concentration risk



8 site cluster  
within <50km

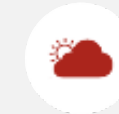
### Acute risks, included in demo

#### Geopolitical risk



6 sites in India  
at high risk

#### Natural hazard risk



117 sites at  
high pluvial flood risk

### Flags

#### Sanctions flag



17 sites flagged  
on sanction lists

1. Risk assessment overall and by risk driver of the whole identified value chain

# Three high risks and several actionable steps you can take today

We identified three priority risk areas for your attention: 8 concentration clusters, 23 bottlenecks and 17 sanction flags

## Concentration

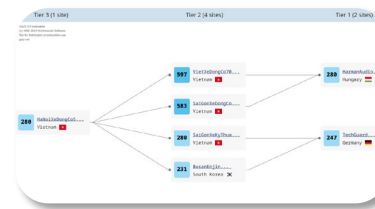
**8 clusters** of sites found. **24 sites** in the largest cluster



- A severe physical risk event in China hits over 24 sites at the same time, **potentially impacting 6 T1 sites**
- **Can result in significant downtime** for the client

## Bottlenecks

**23 high risk bottlenecks** identified



- A Tier 3 electrical supplier in Vietnam **revealed key dependencies for 2 Tier 1 direct suppliers**
- Overdependence **may lead to substantial delays**

## Reputational

**17 sites** flagged on global sanctions lists



- Multiple Tier 2 and 3 suppliers are directly **listed on high-risk sanctions lists like the UFLPA**
- This risks **legal and reputational issues for client**

## Mitigating actions Sentrisk enables

- Investigate **CBI insurance options** for key T2 suppliers. Include highest risk T1 in **BI policy**
- Search for **alternative T1 suppliers with less geographic concentration at upper tiers**

- Search for **alternative suppliers for top bottlenecks**
- **Scenario planning** to address potential disruption scenarios

- **Implement thorough due diligence** to screen out high-risk entities from the supplier network
- Monitoring of lower-tier suppliers to **proactively identify reputational risks**

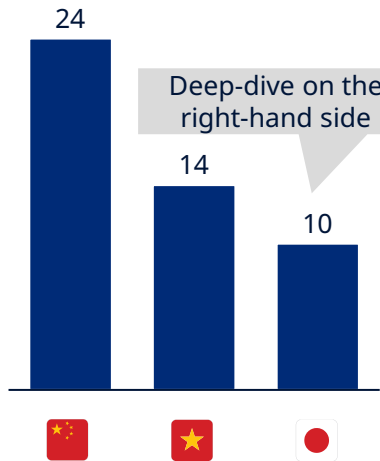
# 8 clusters of geographic concentration (135 sites), with largest 3 in Asia

Concentration risk occurs when suppliers in the value chain are clustered within a 50 km geographic radius. If there is an event in such concentrated area, it can simultaneously impact multiple suppliers, leading to production delays and consequently increased operational costs.

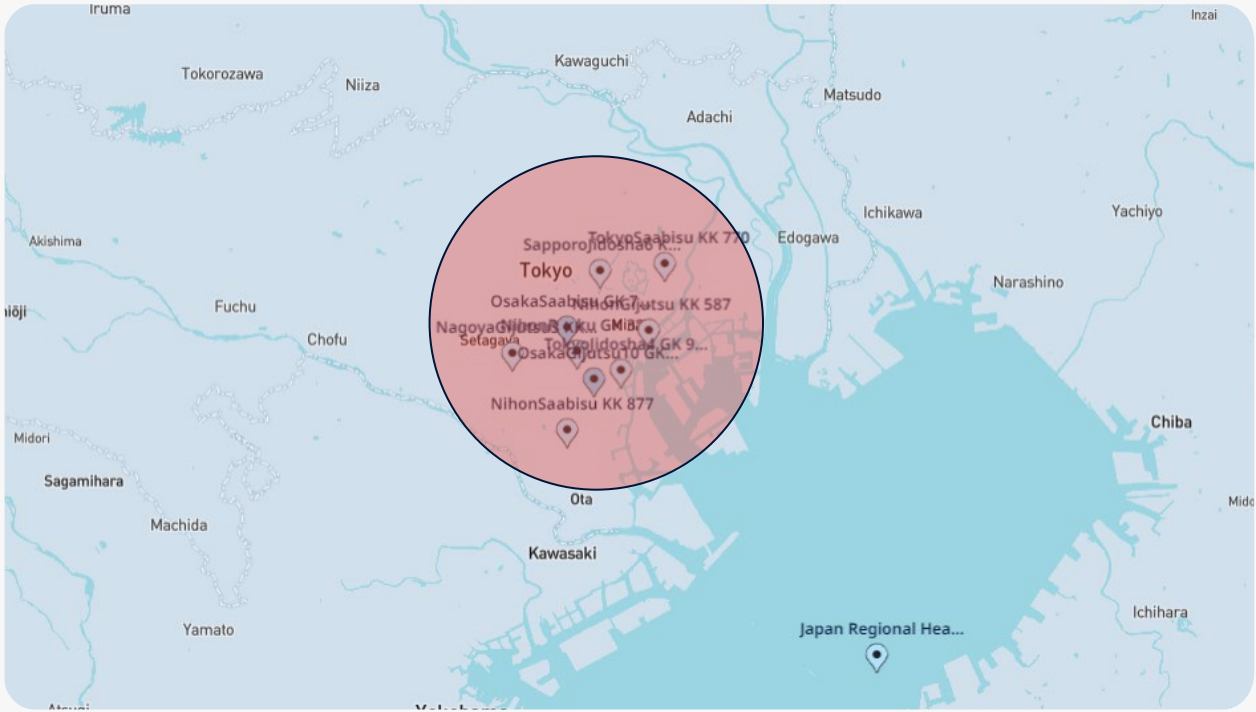
8

Clusters of sites causing concentration risk<sup>1</sup> (135 sites)

Largest concentrations<sup>2</sup>



## Concentration of 10 sites in Japan, potentially impacting 3 T1 sites



What can you do about this **today**?

- ✓ Build up a 3-month **inventory** for key materials linked to top geographic concentration clusters

Long term **mitigation**

- ✓ Investigate contingent business interruption (CBI) **insurance** options for risky T2 and T3 suppliers

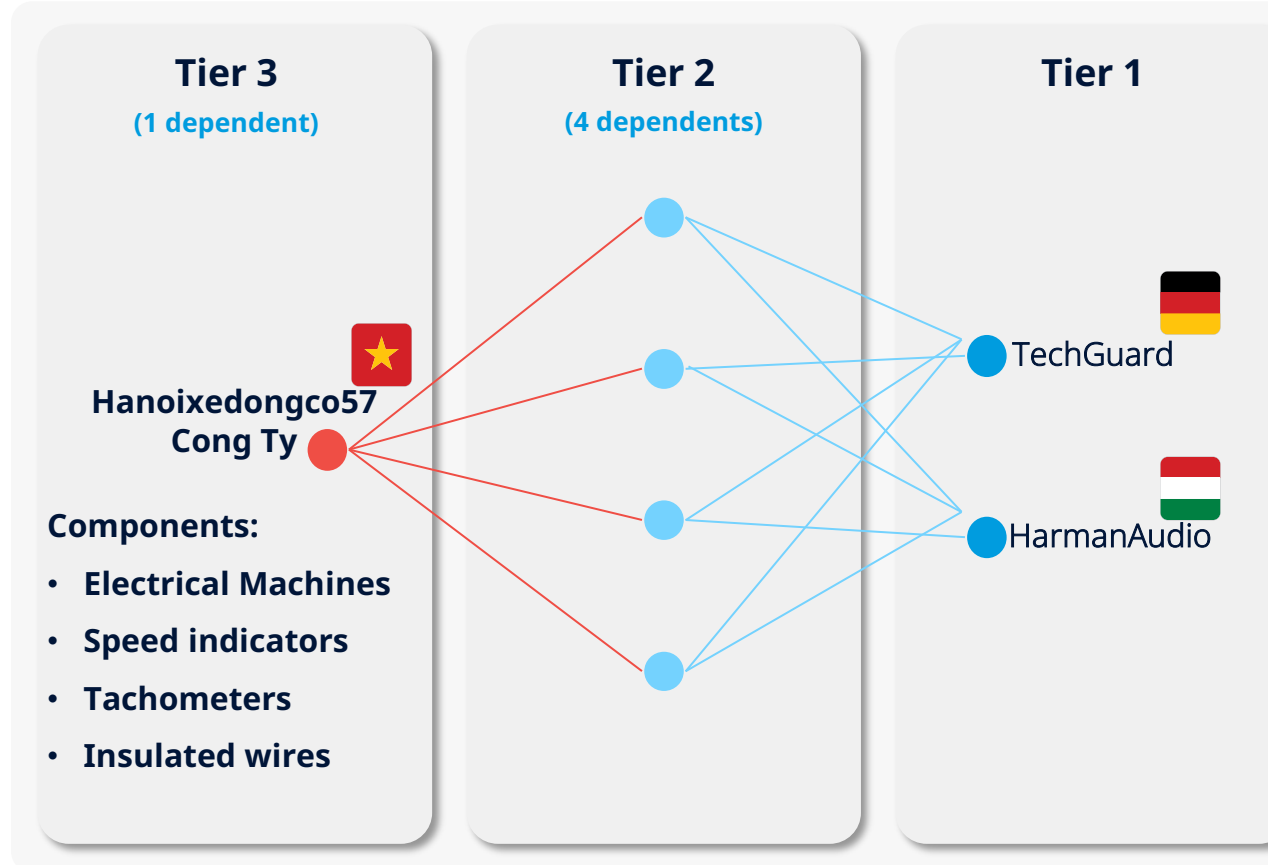
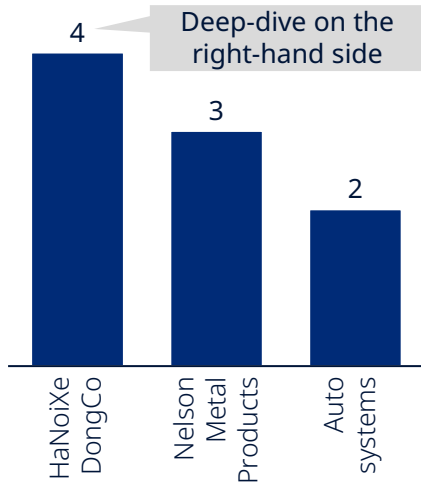
1. A cluster of sites is classified as a concentration if there are 10 or more sites located within a 50 km radius; 2. By total number of sites located within concentration

# 23 bottlenecks cause structural risk incl. critical T3 electronics site in Vietnam

Structural risk occurs when a supplier delivers goods to more than one downstream supplier in your relevant ecosystem – creating shared dependency. If there is an event with such a bottleneck supplier, it can simultaneously impact multiple suppliers, leading to production delays, and increased operational costs.

23

Sites causing structural risk (bottleneck)<sup>1</sup>



## What can you do about this today?

- ✓ Mandate minimum offsite inventory at T2 and T1 suppliers (e.g. maintaining an additional buffer of 4 weeks safety stock)

## Long term mitigation

- ✓ Ask T1 suppliers for a plan to multi-source components

1. A site is classified as a bottleneck site if it has two or more downstream dependencies; 2. By number of direct downstream dependencies

# 17 sites on sanctions lists, primarily tied to state sanctions and forced labor

We identified which suppliers in the value chain are directly listed on sanction lists. A dependency on a listed supplier can harm brand reputation, customer trust, and investor confidence, leading to various operational and legal challenges.

## Details

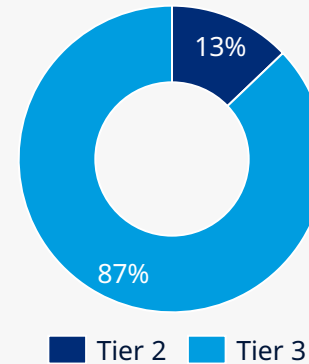
- Sanction flag indicates given supplier entity appears on one of 153 lists that we scan
- We cannot track linkage of individual parts from suppliers – just that all parts are relevant to your industry and relationship exists
- Direct sanctions indicate that the supplier is subject to those specific sanctions; we do not encompass indirect sanctioning which implies that a supplier within that ownership structure is subjected to those sanctions

## Distribution of sites on sanction lists

By tier in %

Total # of identified sites on sanction lists<sup>1</sup>

**17**



## Exposure to sanction lists

Top 4 sanction lists

Sanction list	# suppliers on lists
Companies with Russian facilities	11
UFLPA-Geofence	3
Chinese State-Owned Companies and Entities	4
Military End User List	1

## What can you do about this today?

- ✓ Notify T1s of risk and ask them to monitor and take action (e.g. find alternative suppliers)

## Long term mitigation

- ✓ Search for alternative T1 suppliers (e.g. near-sourcing), reducing potential reputational damage

1. Number of sites listed on one or more sanction lists since beginning of 2023

# Deep-dive: Supply flow of T3 site listed on UFLPA-geofence<sup>1</sup> sanction list

For suppliers on sanctions list, we were able to follow the flow of goods downstream to T2 and T1 suppliers

## List of sites named on sanction lists (non-exhaustive), and deep-dive

Site name	Tier	Country	Supplied component	Last shipment	Sanctions lists
<b>DigiKey</b>	2	United States	Hand Toold, Electrical Insulators, Tubes, Pipes and Hoses etc.	2023-07-17	Companies with Russian Facilities
	3	Vietnam	Metal Surface Preparations, Prepared Glues, Electrical Apparatus	2023-09-24	UFLPA-Geofence
	3	China	Circuits	2023-06-28	Department of State, China



**T3** **HaNoiXeBoPhan12<sup>2</sup>**  
 Location: Vietnam  
 Component(s): Metal surface preparation etc.  
 Last shipment: 2023-09-24

**T2** **Digikey Corporation 444**  
 Location: United States  
 Component(s): Electronic Integrated Circuits  
 Last shipment: 2023-10-01

**T1** **San Xuat Va Kinh Cong Ty**  
 Location: Vietnam  
 Component(s): Electric Water, Integrated Circuits  
 Last shipment: 2023-11-03

**T0** **Production site of Headquarters**

Listed on UFLPA-Geofence sanction list

1. Uyghur Forced Labor Prevention Act (UFLPA) ; 2. Site listed on UFLPA-Geofence sanction list

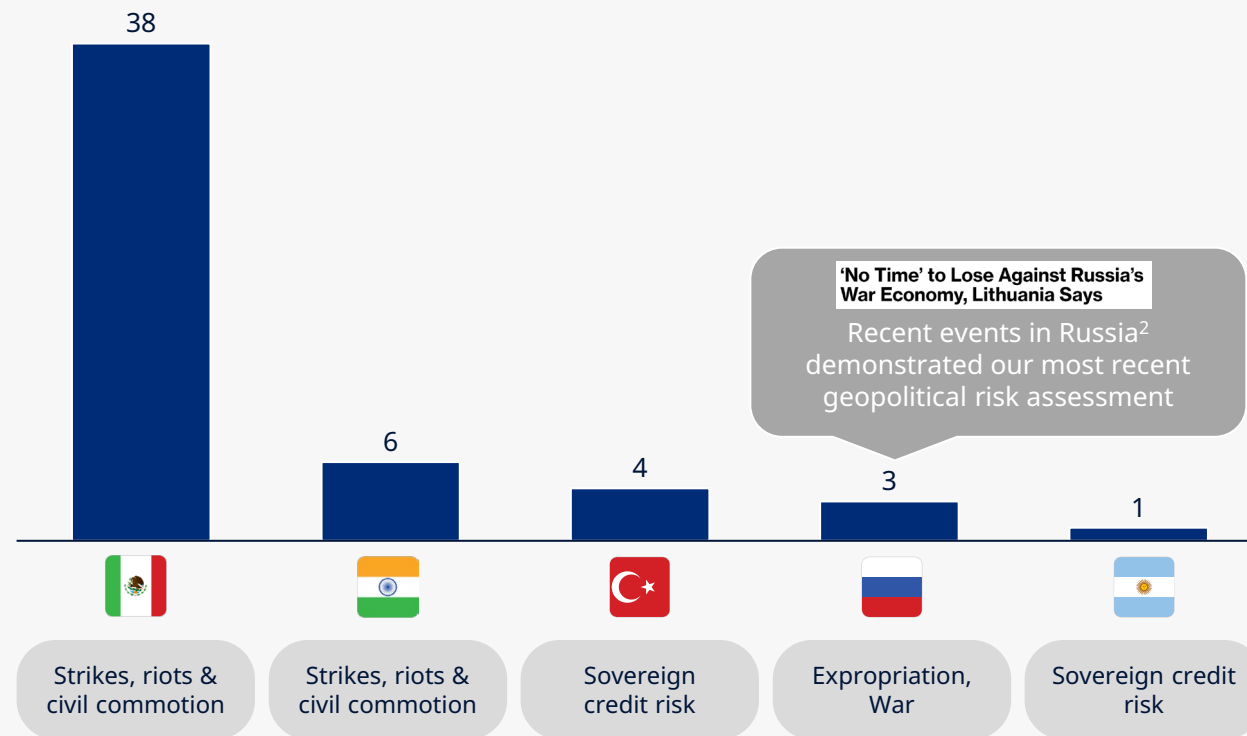
# 52 sites with high geopolitical risk, mostly civil unrest in Mexico and India

Geopolitical risk is based on 9 unique factors and looks at the likelihood of these events in the coming month. We consider a country and its suppliers to have high geopolitical risk when one of these 9 factors is marked as high. This can simultaneously impact multiple suppliers, leading to business instability.

## Details

- Geopolitical risk insights rely on assessments of country-level political risks, signalling potential disruptions in the coming month
- The covered risks include:
  - Strikes, riots & civil commotion
  - Terrorism
  - War & civil war
  - Sovereign credit risk
  - Currency Inconvertibility & Transfer risk
  - Country economic risk
  - Legal & regulatory risk
  - Contractual agreement repudiation
  - Expropriation

## Geopolitical high-risk countries<sup>1</sup> with most affected sites



## What can you do about this **today**?

- ✓ Request T1 suppliers to provide risk assessments and carry out stress testing for specific events

## Long term mitigation

- ✓ Establish feasibility of moving manufacturing equipment to an alternative supplier / nearshore

1. Geopolitical risk severity assessment of 7 or higher (out of 10)

# 117 sites exposed to earthquake, 89 to river flood

Natural hazard risk occurs when suppliers in the value chain are located in geographic areas that are affected by natural hazard risks. If there is an event with a supplier, it leads to downtime for them and connected suppliers, leading to production delays, and increased operational costs.

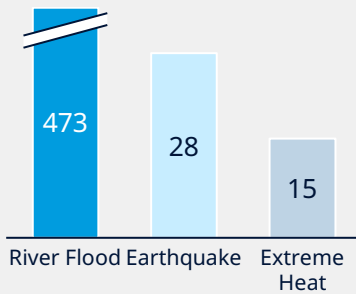
## Details

- Natural hazards risk insights are derived from assessments of maximum potential downtime resulting from anticipated natural hazards in specific geographic areas
- The covered risks include:
  - Flood (pluvial, river, coastal)
  - Earthquake
  - Extreme wind
  - Extreme heat
  - Water scarcity
  - ...

### Site-level physical risk assessment

Site: Saigonxekey cong ty TNHH  
Vietnam, Tier 3

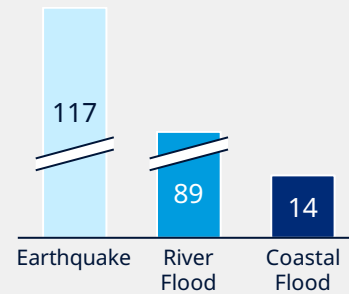
Maximum probable downtime per hazard type



Understand MPD attributed to each natural hazard for all sites

### Aggregated exposure by hazard

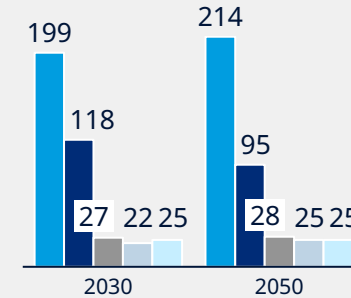
Natural hazards with most sites at high risk<sup>1</sup>



Contextualise exposure for disclosures and required mitigations

### Evolution of exposure<sup>2</sup>

Downtime or productivity loss in days



Evolution of exposure to understand future footprint considerations

### What can you do about this today?

- ✓ Mandate minimum offsite inventory for critical T2 and T1 suppliers

### Long term mitigation

- ✓ Request business continuity planning measures from most exposed T1 suppliers (i.e. in the event of downtime of one of their suppliers)

River Flood Coastal Flood Pluvial Flood Extreme Heat Earthquake

1. Expected downtime due to natural hazard of 100 days or more; 2. Climate risk insights look at the risk exposure evolution of natural hazard risks across different time horizons (2030, 2050 and 2080)

# 3

## Next steps

Sentrisk™

A Marsh McLennan solution

# What's next? The complete Sentrisk journey

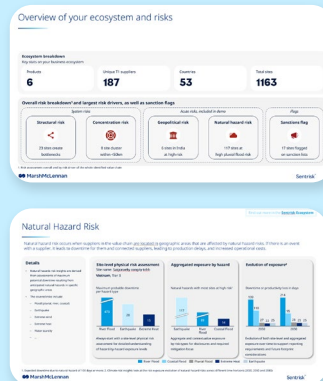
## 1 Diagnostic report

- ✓ Get your data cleaned, validated, ingested and uploaded, starting from just a list of suppliers and own site address<sup>1</sup>
- ✓ See outputs with clear **critical focus areas**
- ✓ Discuss next steps and **mitigation options** with our experts in a **workshop** so you can **take action**

### Includes:

- ✓ 100 assets (supplier or own sites) to run through the Sentrisk platform
- ✓ Tailored report indicating critical focus areas
- ✓ 6 risk types
- ✓ Reveal workshop with experts
- ✓ **Qualifies for bursary funding**

One-off **\$25k**



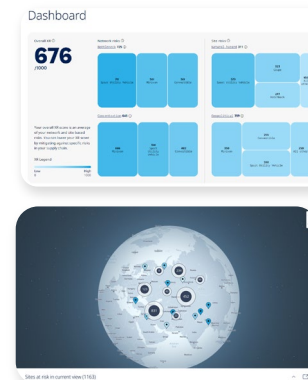
## Sign-up

## 2 Full platform access

- ✓ See your **full ecosystem**
- ✓ 24/7 platform access for 12 months
- ✓ Interrogate your data and risk at any level (site, supplier, business unit)
- ✓ Live alerts so you can monitor your risk in real time
- ✓ Free upgrade to any new risk type added to the platform
- ✓ Option to engage with our advisors on consulting-basis

Level	No. assets submitted <sup>2</sup>	License fee (USD)
Lite	Up to 250	50k
<b>Base</b>	<b>Up to 1000</b>	<b>100k</b>
Plus	Up to 2,000	150k

+ One-off onboarding cost of **USD 50k**



## 3 Deep Dives

**Advisory Deep-Dives:** Deep dive into one of four **Intervention Areas**, each supporting tangible business outcomes (e.g. BCP, Network resilience, Stress Testing, Sanctions Screening, Regulatory Reporting)

**Brokerage Deep-Dives:** Enhance your property submission with better and verified T1 supplier information, or enhance T2 coverage

1. Additional data will provide higher output accuracy; 2. Includes owned assets and supplier names. The statement of work will determine timeframe for submitting names.

# Detailed pricing grid

		# Suppliers				Outcomes supported			
Sentrisk offerings		100	250	1,000	2,000	Insurance renewal	Diagnostic report	Expert workshop	Platform access
① Application to your insurance transaction	T1 suppliers only	\$10K	\$20K	\$50K	-	✓	✗	✗	✗
	Incl. Upstream suppliers	\$20K	\$30K	\$75K	-	✓	✗	✗	✗
② Generation of Risk Insights: Diagnostic report		\$25k	-	-	-	✓	✓	✓	✗
③ Full platform access <sup>1</sup>		-	\$50K	\$100K	\$150K	✓	✓	✓	✓

1. Includes \$50K onboarding cost and free access to all new risk types

# Why full access?



Map your full supply chain in **weeks** not years



Understand **where the highest risk is** in your full ecosystem



Get **live early warnings** so you can avoid disruption and prevent \$ MM in losses



Show your insurer you understand your risk so you can get **better insurance coverage**



Be **compliant** with new regulations

# How is Sentrisk different?

Made for risk professionals, by risk professionals

## Why we are better...



### Infused with 150+ years of risk expertise

We are leading **risk and industry experts** – our expertise differentiates us from other providers who do not have our breadth and depth of knowledge



### Taking you from data to intelligence to outcomes

We **solve your problems**, instead of just selling data or tech, and can adapt to **solve your specific needs**



### Scaled ecosystem with best-of-breed capabilities

We have already integrated the **best-of-breed capabilities and providers** (from a list of 50), making their combined features **available to you at an accessible cost**



### Trust – we have the best of Oliver Wyman and Marsh

We value our relationship **as a risk partner above all else** – we are in this business because our clients are not satisfied with existing solutions and are turning to us

## ... and why it matters

Because you need guidance to cut through the data noise

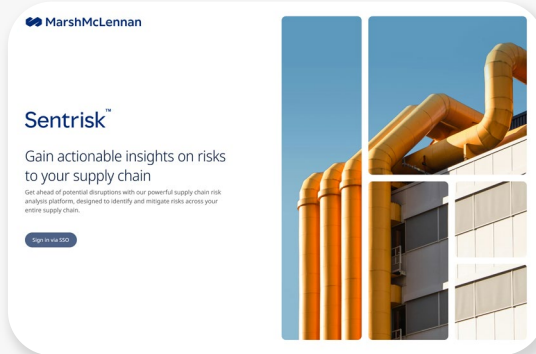
Because your business needs more than one-size-fits all software

So you don't spend years finding, testing and working with tens suppliers at high cost

You can trust us with your data, for the long term

# Want to learn more? Get in touch today for a platform demo.

## Our software platform: Sentrisk



- Sentrisk is **our cloud-native platform** that supports clients in uncovering and managing risks in their business ecosystem
- Sentrisk combines modern technologies such as **LLM and AI**, network graphs and our **proprietary risk modelling** and forecasting expertise

**Contact us now**

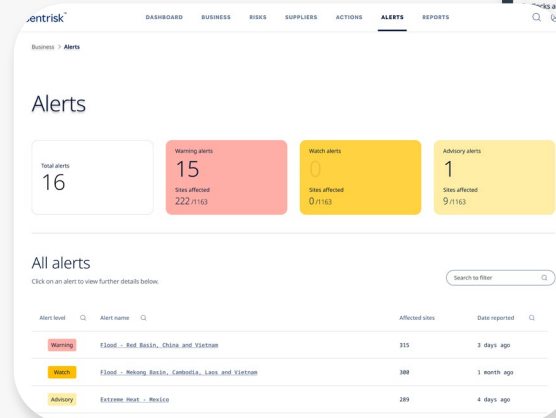
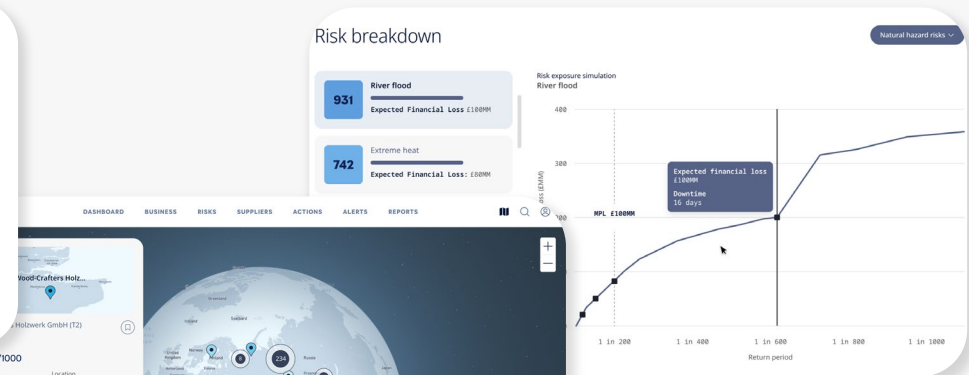
- ✉ [sentrisk.support@mmc.com](mailto:sentrisk.support@mmc.com)
- ✉ [john.h.davies@marsh.com](mailto:john.h.davies@marsh.com)

## Once **your data** is loaded into our platform, you get...

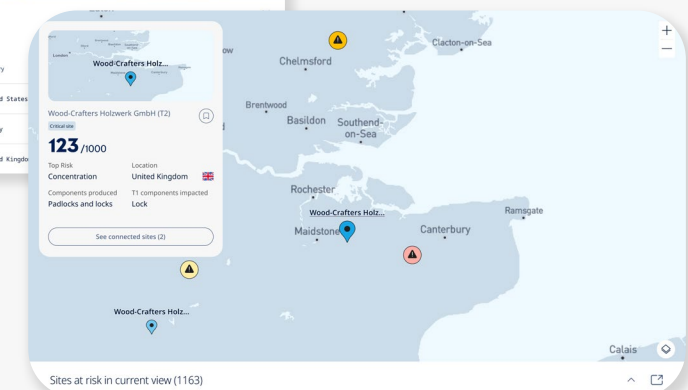
### Product line visibility



### Risk forecasting and quantification



Real-time severe event alerts



at aggregate...

...and site level

# A



# Appendix




Sentrisk background

Sentrisk™

A Marsh McLennan solution

# We've identified risk... now what?

We support our clients to not only uncover but to manage your risk

	Resistance ←				→ Recovery			
Risk drivers	Multi-sourcing	Build up inventory	In-source/ near shoring	Demand-side management	Financial support	Adjust operational/ quality processes	Alternative suppliers	Check insurance
 <b>Structural risk</b>	✓	✗	✓	✗	✗	✗	✓	✗
 <b>Concentration and geopolitical risk</b>	✗	✗	✓	✗	✗	✓	✓	✓
 <b>Natural hazard risk flood risk</b>	✓	✓	✓	✓	✓	✓	✓	✓

# Informed with where your risk sits, you can dig deeper into one of four Intervention Areas, each powering an Advisory Solution

## Sentrisk powers 4 Advisory Solutions<sup>1</sup>...

### 1 Risk and Resilience

- **BCP**
- **Network resilience**
- Global supply risk
- Scenario modelling
- Asset-level risk

### 2 Regulatory and Reporting (C&S)

- **Long-term climate scenario analysis**
- Regulatory compliance (e.g., EU DORA, TCFD)
- Regulatory reporting

### 3 Reputation

- **Sanctions & restricted list screening**
- Crisis management and ESG

### 4 Due diligence

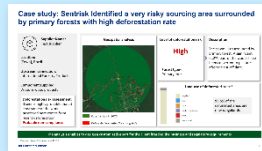
- **Detailed analysis and stress testing** (supplier, customer, target)
- Portfolio stress testing

## ...through actionable deliverables...

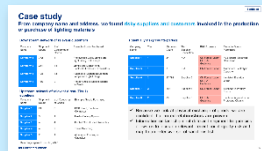
### Selected examples



- **List of suppliers and criticality to add to BCP**
- **Network resilience report:** Deep dive into 25 riskiest concentrations and bottlenecks in your ecosystem



- **Climate report: Asset level analysis** in 2-4 long term climate scenarios
- **Nature risk report:** Identify high-risk areas (e.g., deforestation, TCFD etc.)



- **Sanctions report:** Flag top 15 suppliers on 150 sanctions lists
- **Crisis management:** Understand ESG responsibilities and identify human rights infringements



- **Supplier due diligence report** (supply chain risk)
- **Alternative supplier report:** Analysis to identify alternatives for high-risk suppliers

## ...supporting tangible outcomes



- Reduce facility downtime
- Prevent losses due to supply chain disruption



- Achieve ESG targets
- Prepare for long term climate impact



- Ensure regulatory compliance
- Maintain positive customer reputation



- Minimise third party risk
- Price in the full risk when you negotiate with your suppliers

1. Most popular in bold

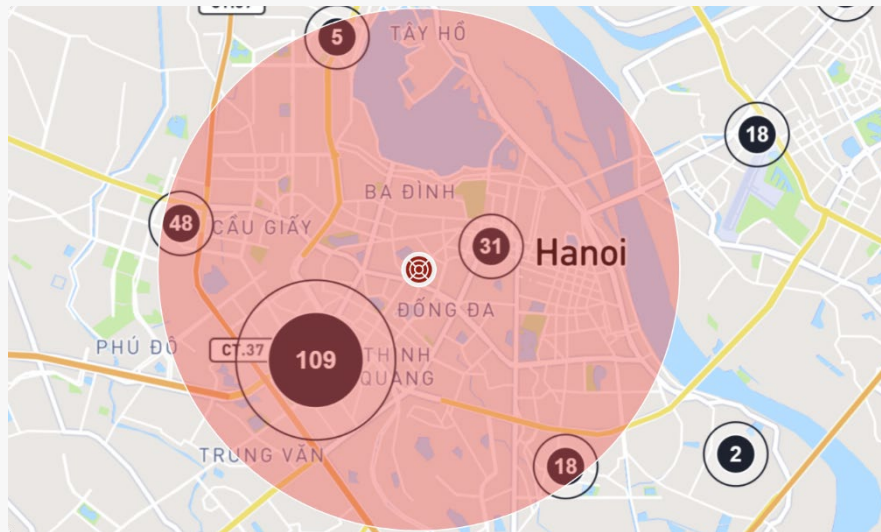
# Case study

A luxury car manufacturer utilized Sentrisk to identify critical risk concentrations and bottlenecks and plan mitigation actions

## 21

Clusters of sites causing concentration risk<sup>1</sup>

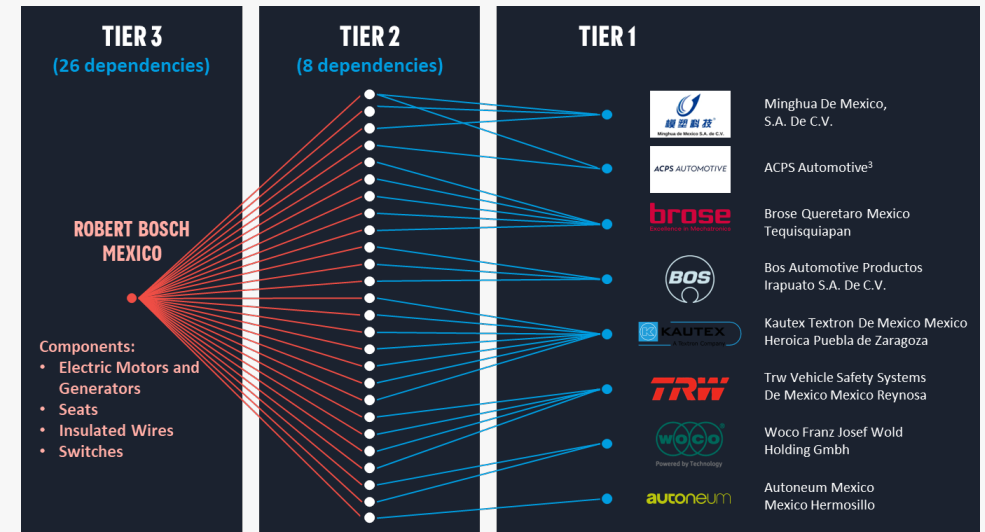
In Hanoi, Sentrisk found over 21 clusters of important, previously unknown sites all at a high flood risk. Armed with this knowledge, client was able to ask suppliers for specific flood contingency plans.



## 2039

Sites causing structural risk (bottleneck)

Unknown supplier upstream concentration –where seemingly independent suppliers rely on a single shared supplier bottleneck



1. A cluster of sites is classified as a concentration if there are 10 or more sites located within a 50 km radius

# A



# Appendix

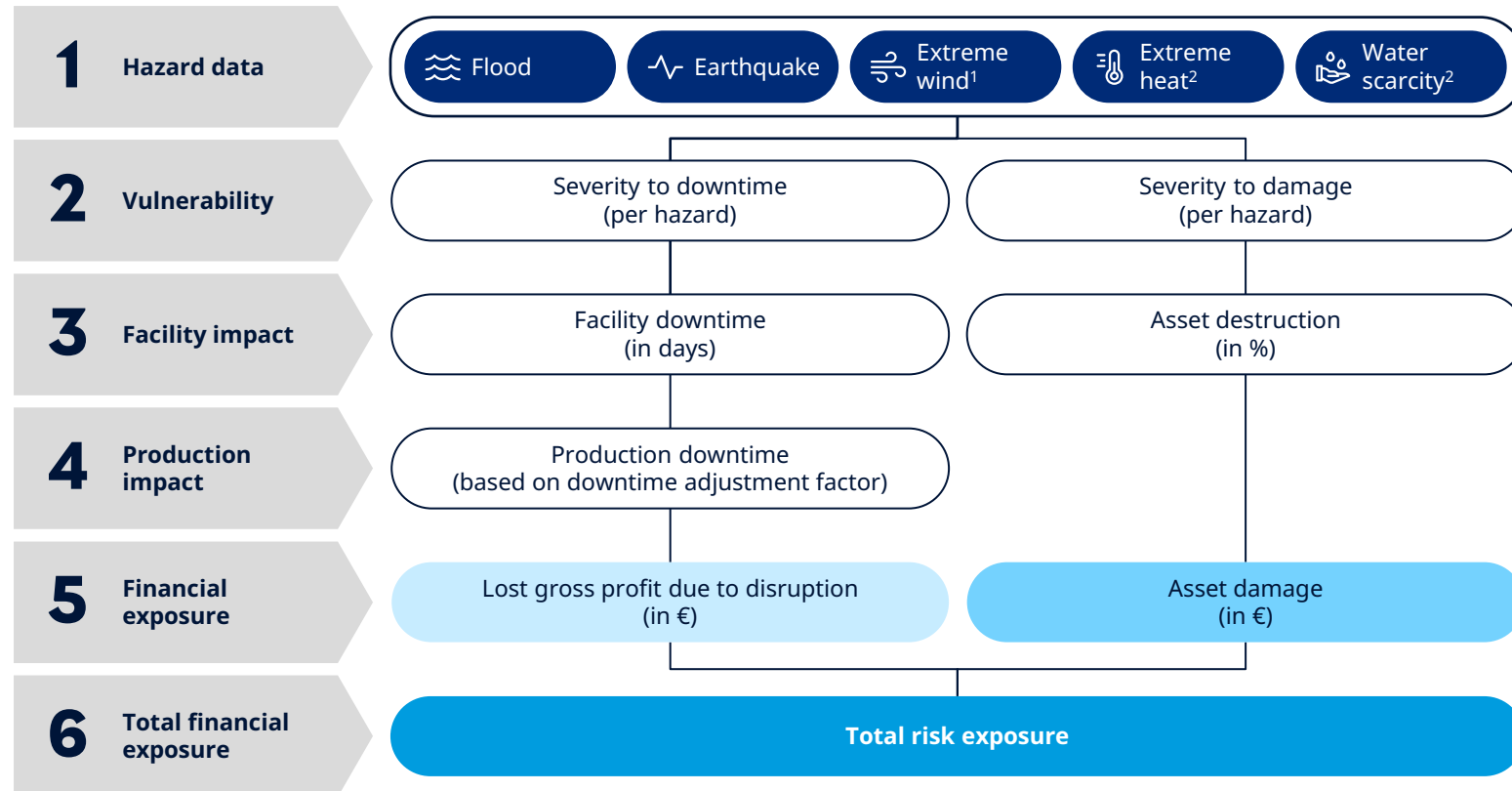
Methodology

Sentrisk™

A Marsh McLennan solution

# We leverage an in-depth methodology that allows us to arrive at a holistic and comparable total risk exposure for your company

## Overview of methodology for quantifiable risks



1. Including cyclone; 2. Only downtime, no asset damage

## Commentary

- We source **hazard data** for **each location** in your **supply chain**
- Proprietary **vulnerability curves** allow us to **convert** the hazard severities to either
  - facility downtime (in days);
  - or asset damage
- A **downtime adjustment factor** based on **mitigation factors** in the supply chain is applied to translate the downtime at a facility to your **production downtime**
- Production downtime and asset destruction is then **quantified** in terms of **lost gross profit and asset damage**
- Summing asset damage and lost gross profit** across **all hazard types** and all supply chain facilities leads to the **total risk exposure**

# We combine this holistic natural catastrophe related exposure with geopolitical risk scores across your supply chain

## Overview of flag-based geopolitical risk assessment

Sourcing of Marsh proprietary geopolitical risk assessment



### Geopolitical risk exposure across your supply chain facilities

Individual risk score – per driver

Composite score – across drivers

## Key advantages

- Comparable risk metric across all suppliers and wide scope of geopolitical risks
- Connection to your business value – not only generic risk metrics
- Actionable: compare and assess existing insurance coverage and needed policy wording for more risk types (e.g., non-damage)

We are leaders in risk, strategy and people. One company, with four global businesses, united by a shared purpose to make a difference in the moments that matter.

**Marsh GuyCarpenter Mercer OliverWyman**