2023 Global Supply Chain Risk Report

Can supply chains withstand another global disruption crisis?

WTW Global Supply Chain Survey

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Introduction

Learning the lessons of disruption

For years, ever-expanding and more efficient supply chains were like magic oil lubricating the global economy. They kept delivering cheaper goods, wider choice and higher economic growth. Until the pandemic hit and many of the chains got stuck.

In 2023, many businesses are still recovering from that massive system shock. With the crisis in Ukraine and tensions in the China Sea adding new uncertainty, building more resilient supply chains has become a more difficult task.

How are industries adapting?

To find out how businesses are faring in this changed landscape, we surveyed risk and supply chain leaders in eight key sectors, from food and beverage to semiconductors. How are they rebuilding? What are the main challenges and risks they face? And what will the supply chains of the future look like?

Reviewing and rebuilding networks

We found that most businesses suffered larger than expected supply chain losses during the crisis. As a result, a large majority are reviewing their supply chains and considering a range of solutions to reduce complexity and risk, and boost resilience.

However, businesses face huge obstacles, including continuing shortages of labor and raw materials, external geopolitical and weather risks and a lack of alternative suppliers. For many, just getting full transparency of all the links and vulnerabilities in their supply chain is a difficult task.

But those who are tackling these issues and taking action to simplify and secure their systems are reaping a dividend through more robust supply chains that are likely to better withstand future shocks.

This report covers the survey's main global findings. We will follow this with further industry-specific reports detailing the results in each sector during Spring 2023.

About our survey

When:
November-December 2022.

Who:
800 senior decision makers, including risk managers, supply chain and logistics managers and CEOs.

Where:
Countries across Europe, North America, Asia-Pacific and Latin America.

Sectors:
Life science, semiconductors, food, beverage and agriculture, logistics, complex manufacturing, construction, energy and renewables.

Size:
All companies surveyed had annual revenues over $250 million.

Find full details of our sample and methodology on page 25. The survey contained all closed questions with different response options ranging from ranking questions and multi-select to single coded questions. In this report, we have included some of the findings from the survey. For the full results, including breakdowns by sector, region and job role, please contact us using the details on page 26.

Key findings

Losses higher than expected — but mainly short-term

Almost two thirds **(65%)** of business leaders said losses related to supply chain were higher or much higher than expected over the last two years as they continue to count the costs of the pandemic. But a majority **(58%)** are more concerned about disruption causing short-term loss of sales rather than long-term losses **(25%)**.

Businesses are taking action to increase resilience

65% have made improvements and a further **18%** have completely transformed their approach to supply chain management in response to the pandemic. **58%** plan to make significant changes in the next year. Working collaboratively with suppliers is a key focus: **53%** rated this among their greatest opportunities for improving supply chain management.

Poor data and transparency are roadblocks

73% agree or strongly agree that supplier concerns about proprietary knowledge or intellectual property make it difficult to get full transparency in their supply chain. This may help to explain why more than three quarters **(77%)** said they lacked the data and knowledge to understand their risks. Only **12%** said they had identified all the data they need to manage supply chain risks with robust processes to gather it.

Firms lack insurance solutions to manage risks

89% think insurance for supply chain risks is mission critical or that some cover is necessary. But almost as many **(80%)** said a lack of insurance solutions was among the greatest challenges to addressing their risks over the next 3-5 years. This may reflect the lack of cover for pure economic losses resulting from shortages and delays in most property and marine cargo policies.

Business interruption and climate risks not well covered

Only **17%** of respondents said they had specific insurance to cover business interruption risks in their supply chain, although **53%** thought it was covered by other insurance. Only **25%** feel confident they have sufficient cover for the impact of extreme weather on their supply chain.

Economy and cyber among the top risk factors

Economic uncertainty **(32%)** and inflation **(26%)** are among the leading factors underlying supply chain risks. Cyber risks are believed to have the deepest impact on supply chains rated by **34%** as a high impact and **54%** as medium. Meanwhile continuing shortages of raw materials **(39%)**, logistics and warehousing **(35%)** and components **(33%)** are all among the top supply chain factors that will impact businesses over the next two years.

Risks are within firms' influence but not control

Fewer than half of companies **(48%)** feel the root causes of supply chain risks are within their control. But **71%** do have some influence over the quality of supply chain risk management, perhaps because of the work they've been doing to improve resilience.

Key trends

Trends to watch in 2023

Deglobalization

Factors such as inflation, rising wage costs and labor shortages in Asia, and political instability, are reducing the benefits of globalization. More companies will rethink where they locate their production and source their materials to reduce risks, save cost and strengthen resilience.

Digitalization

As well as digitalizing their own operations, companies will make more use of digital tools such as telematics to keep track of assets in the supply chain. This will be enhanced by internet of things applications which can monitor the condition of goods and track them on the move.

Inflation

Although headline inflation may come down in 2023, supply chain costs including raw materials, labor, energy and transport are all continuing to rise, putting pressure on companies and their suppliers. Because the supply chain is interconnected, when prices go up in one area, there is a knock-on effect down the line.

Labor shortages

Factors such as aging populations, skills gaps and strikes will ensure that labor shortages continue to be an issue for supply chains through 2023. Many Ukrainians who used to work in shipping have left to fight, creating potential labor problems in that industry.

Sustainability

Extreme weather is making some raw materials harder to harvest or access. Floods, fires and storms are also impacting logistics chains, while companies are also under pressure to take more responsibility for environmental, social and governance factors in their supply chains.

COVID-19

While many businesses are back to near normal operations, COVID-19 is still a real threat. Any potential new variant could result in more lockdowns and restrictions that could threaten supply chains.

Losses spur action to improve supply chains

The pandemic was the greatest shock to global supply chains in living memory. A domino-effect of inter-related factors cascaded through production and logistics networks, from shortages of raw materials and components to shipping delays, port blockages and a lack of truck drivers.

Supply chain systems could not adjust to huge drops in consumer demand during lockdowns followed by sudden surges. Warehouses were already filled to capacity and could not accept new deliveries.

The gridlock was so widespread that contingency options such as switching suppliers or rerouting logistics became very difficult if not impossible.

Counting the cost of disruption

Against this backdrop, it's not surprising that almost two thirds of respondents (65%) in our survey say losses related to supply chain were higher or much higher than expected over the last two years.

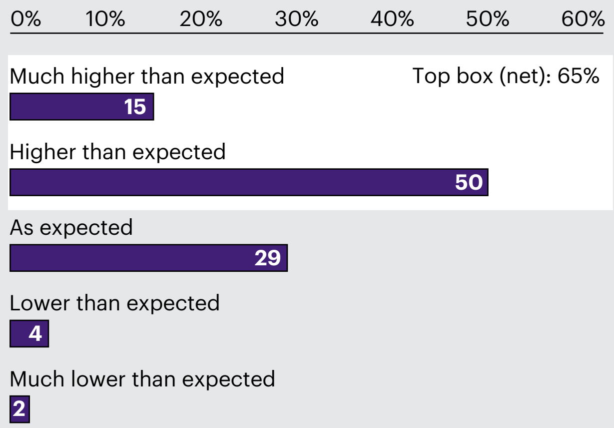
The extent of losses was greater in sectors with complex logistical needs, such as food and beverage (73%) which depends on delivery of perishable goods, and renewables (74%) with a need to build and move large and complex items such as wind turbines.

In many sectors, the pain was intensified as many losses were pure economic costs caused by delays and shortages, unconnected to property damage. This meant these losses were not covered by insurance as most property and marine cargo policies require physical loss or damage to trigger cover. Even where there was physical loss or damage, many claims fell foul of policy exclusions or qualifying supplier definitions, so few losses were covered.

But more companies (58%) are concerned about disruption causing short-term loss of sales rather than long-term losses (25%). This may indicate a degree of confidence returning as the world returns to more normal trading conditions and also the fact that the disruption did not affect competitive positions since everyone suffered the same problems

Figure 1: **Supply chain risk-related losses in last two years**

Q: Which of the following best describes the extent of your business's supply chain risk-related losses in the last two years?



Single code question
Base: All respondents (800)

Figure 2: **Greatest risks posed by supply chain disruptions**

Q: Which of the following potential impacts of supply chain disruption would pose the greatest risk to your business?

Rank top 3
Base: All respondents (800)

Adapting to increase robustness

Some of the shortages and delays that caused the supply chain crisis have now eased, for example in shipping, the container shortage has now turned into a global oversupply. But the Ukraine conflict, tensions in Asia and increasing extreme weather events highlight continuing global risks.

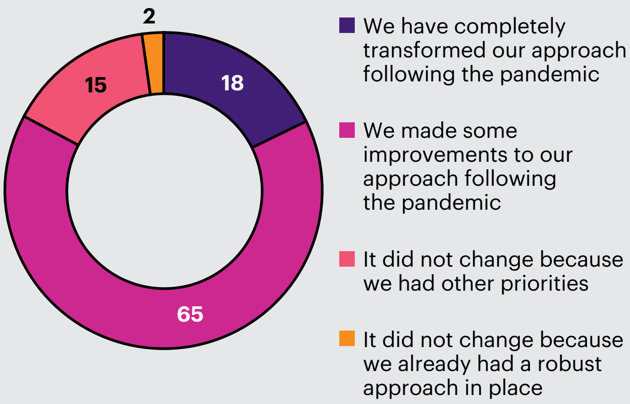
Our survey suggests that businesses have learned lessons and are adapting to increase the robustness and resilience of their supply chains against future shocks.

A large majority (65%) have made some improvements in their approach to supply chain management as a result of the pandemic, rising to 74% in Latin America. A further 18% say they have completely transformed their approach, rising to 20% in food and beverage, renewables and semiconductor manufacturing, and 25% in the non-renewables energy sector.

Looking ahead, 58% intend to make significant changes in 2023, while 36% say they will fine-tune supply chains.

Figure 3: **Impact of COVID-19 on approach to supply chain management**

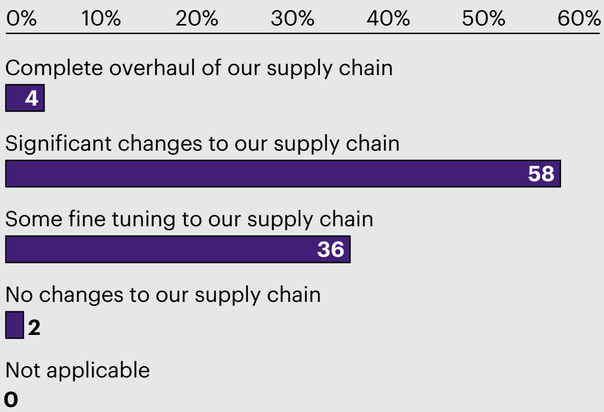
Q: Which of the following best describes what impact, if any, COVID-19 had on your organization's approach to supply chain management?



Single code question
Base: All respondents (800)

Figure 4: **Extent of changes businesses intend to make in next 12 months**

Q: Thinking about your supply chain, how would you describe the extent of any changes you intend to make to your supply chain in the next 12 months?



Single code question
Base: All respondents (800)

WTW insight: Marine cargo

The supply chain crisis was a wake-up call. Among other things, it showed that logistics is one of the most important parts of any business. If the flows of raw materials and finished goods become blocked, it can bring the whole operation grinding to a halt.

Supply chain and logistics planning should be a continuous process, not a response to major crisis events.

As well as multi-source supplier strategies, firms should think about sourcing through different geographies — for example being able to switch from west coast U.S. to east coast, or vice versa, when there is a blockage in one area. Onshoring and nearshoring can also shorten lead times and reduce logistical risks.

Marine cargo policies are evolving to offer more cover for physical loss and damage in transit — for example solutions based on better data quality and risk analytics that enable insurers to accept more cold chain risks and offer cheaper cover for perishable cargoes.

There are also more parametric solutions offering value for cover based on a pre-agreed measurement of loss.

Firms can also extend the reach of their policies by insuring cargoes for the sales price rather than the cost price valuation. This extra buffer can help them achieve a degree of cover in case of business interruption caused by losses in transit.

WTW insight: Property risks

Property damage in the supply chain can have a huge disruptive impact. If a key source of supply is disrupted it can ripple through the entire chain.

Where supply of raw materials or components is exclusive to one or two sources, a single event such as a fire or storm, can stop production for weeks at a time.

Companies with longer supply chains are most vulnerable as contingent business interruption insurance rarely covers losses from property damage beyond tier 1 or 2 suppliers — so business interruption caused by damage further along the chain may not be covered.

In an increasingly difficult market, insurers are reviewing their exposure and are likely to restrict cover further in the coming year.

Where a supplier works for many companies in a sector, insurers will also be concerned about minimizing the accumulated business interruption claims from those companies if the supplier's production goes down.

Whatever industry you are in, you are much more likely to get cover and achieve desired limits if you can identify all your key suppliers and provide information such as business details, location, type of construction and whether they have back-up sites.

You can also reduce the risk level and get better value cover by being proactive and carrying out site visits and inspections where a supplier permits this, or using risk analytics to measure and quantify risks at specific locations.

Similarly, if your business is dependent on one or two major customers, property damage at one of those sites would have a major effect on your profit and revenue — a customer that is out of action due to a major property damage occurrence may not be able to take your products.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Supply chain management and strategy

Firms aim to increase transparency and reduce complexity

Although it took the recent crisis to fully expose the hidden weaknesses in supply chains, those faults had been building in the system over many years. Through globalization, chains have grown longer and more complex, adding more links and potential points of vulnerability.

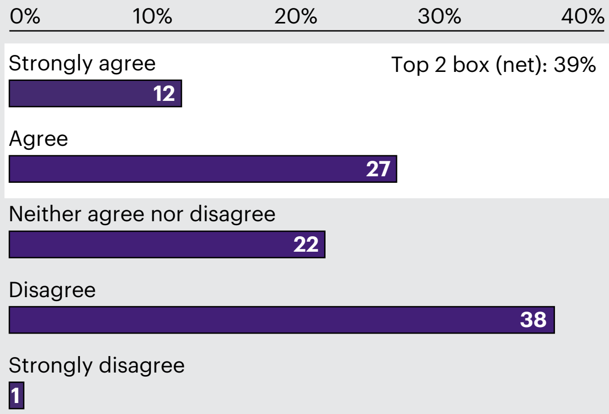
In our survey, 39% of respondents agreed or strongly agreed that their organization's supply chain risks were increasing even before COVID-19. Only 1% strongly disagreed.

Over time, some product owners have become distanced from the further reaches of their chains and may not have a direct relationship with suppliers beyond tier 1.

In the most complex chains, they may not even have visibility of all the suppliers, sub-contractors and logistics partners involved. This can make it very difficult to identify, assess and manage risks.

Figure 5: **My organization's supply chain risks were increasing even before COVID-19**

Q: To what extent do you agree or disagree with the above statement?



Single code question
Base: All respondents (800)

Taking a proactive approach

As we've discussed in our market overview, there's now an appetite for change. More than 8 in 10 respondents to our survey (82%) have a strategic or proactive approach to supply chain management, rising to 89% in energy and 88% in food, beverage and agriculture.

When asked about the greatest opportunities to improve, respondents cited a mix of internal and external factors, including better strategic planning within the organization (56%) and increased collaboration with suppliers (53%) and customers (52%).

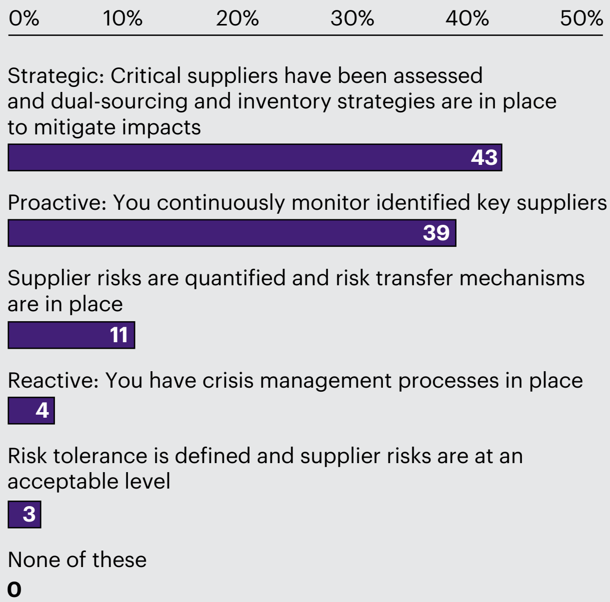
Better intelligence, such as more sophisticated modeling (38%) and availability of higher quality data (36%) also featured strongly.

Tackling sourcing and visibility issues

However, many businesses face significant challenges in achieving their supply chain management goals. In our survey, 70% agreed or strongly agreed that a lack of suitable alternative suppliers impeded their ability to implement an effective dual or multi-source strategy.

Figure 6: **Organizations' approach to supply chain management**

Q: How would you describe your organization's approach to supply chain management?



Single code question
Base: All respondents (800)

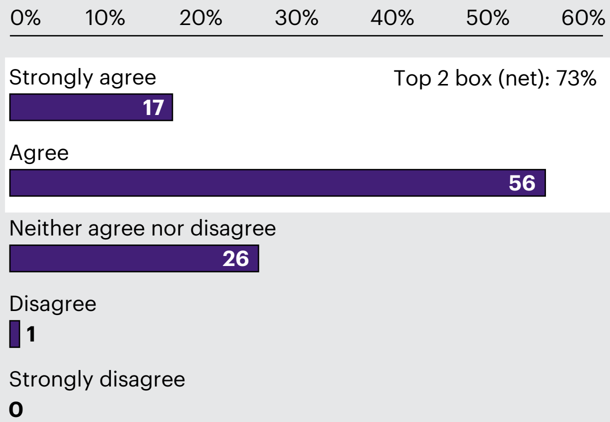
This figure was higher in renewable energy (80%), complex manufacturing (78%) and semiconductors (76%).

More than half (56%) agreed and 17% strongly agreed that supplier concerns about protecting intellectual property and trade secrets made it difficult to achieve full transparency through the supply chain.

The sentiment was strongest in energy (81%), renewables (76%) and food and beverage (76%).

Figure 7: **Supplier concerns about proprietary knowledge and intellectual property impede supply chain transparency**

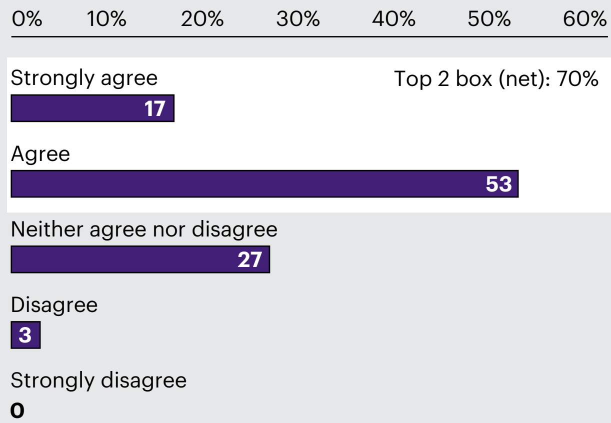
Q: To what extent do you agree or disagree with the above statement?



Single code question
Base: All respondents (800)

Figure 8: **The lack of suitable alternative suppliers restricts my organization's ability to implement an effective dual- or multi-source strategy**

Q: To what extent do you agree or disagree with the above statement?



Single code question
Base: All respondents (800)

WTW insight: Supply chain diagnostics

When supply chains are working well, there's a natural tendency to focus more on optimizing efficiency and improving profitability, and to worry less about what happens when things go wrong.

That changed with the pandemic and the succession of geopolitical, energy and economic issues that have followed.

Now there's an increased awareness of supply chain risks and attention to supply chain resilience in most sectors.

However, with hundreds or thousands of moving parts in many modern supply chains, it can be difficult to visualize them and to understand the risks involved.

Often, information on the supply chain is locked in spreadsheets that don't offer much insight or direction.

Diagnostic tools such as WTW's Supply Chain Risk Diagnostic, enable companies to map the location of all the links and assets in the chain and assess how they connect and interact with each other.

This transparency can give organizations a panoramic overview of dependencies and risk factors to enable better decision making. For example, if mapping identifies a concentration of critical suppliers next to a cyclone hot spot, this can prompt decisions on whether to relocate production or adjust insurance cover.

Risk landscape

Global uncertainty is increasing supply chain risks

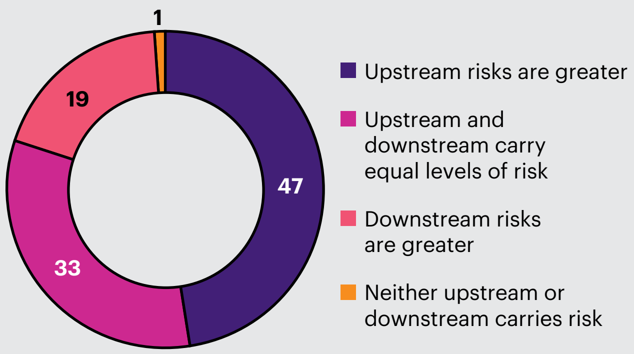
In complex supply chains, with hundreds or even thousands of moving parts, risks can come anywhere along the chain. That starts upstream with the sources of raw materials. Even the loss of one ingredient or key component can have a major disruptive impact if an alternative is not readily available.

Upstream vs downstream risks

In highly specialized sectors, companies can sometimes be dependent on a single supplier for an ingredient that's critical to production. This may explain why almost half (48%) of respondents said that upstream risks were a greater threat to their business than downstream risks (19%), such as logistics and shipping. This sentiment was particularly high in the semi-conductor (54%) and renewables (53%) sectors.

Figure 9: **Upstream vs. downstream risks**

Q: Do the greater risks to your organization come from your upstream or downstream supply chain?



Single code question
Base: All respondents (800)

5%

Of organizations in a UK Government survey had carried out a review of potential cyber risks in their wider supply chain.[1]

Economic risks

With consumer demand wavering and energy and other costs rising, economic uncertainty emerged as the leading factor underlying supply chain risks, ranked by 32% as being among their top concerns. Inflation was also named among the leading contributors at 26%. Economic and financial instability is expected to put pressure on supply chains throughout 2023.

Pandemics

Even though we may be past the acute disruptive impacts of COVID-19, in many countries its legacy continues to haunt the supply chain. A majority (60%) put pandemics among the top global trends affecting their supply chain risks (68% in semiconductors, 66% in renewables). Legacy issues, including continuing shortages of raw materials (39%), logistics and warehousing (35%), components (33%), and drivers (28%) were all among the top supply chain factors that will impact businesses over the next two years.

Cyber risks

Growing digitalization and automation of production and processes increases the risks of cyber-attacks on suppliers. This can have knock-on impacts, including delays in ordering and delivery, and consequent business interruption for client businesses. Respondents to our survey believed these risks to have the most profound effect on supply chains, rated by 34% as a high impact and 54% as medium.

[1]Department for Culture, Media and Sport Cyber Breaches Survey 2021 https://www.gov.uk/government/statistics/cyber-security-breaches-survey-2021

Figure 10: **Factors playing greatest role in supply chain risks**

Q: Which of the following underlying factors do you believe to play the greatest role in your supply chain risks?

Rank top 4
Base: All respondents (800)

Climate

With extreme weather events increasing in frequency and severity, and tightening regulation of carbon emissions in production, logistics and shipping, it's not surprising that more than half (54%) place climate change and environment among the top global trends affecting their supply chain risks (58% in construction, 57% life science).

Sustainability

When asked about leading environmental risks, 71% ranked supply of natural resources among their top risks (74% in complex manufacturing). Pollution, waste and recycling is a high risk for the food and beverage and agriculture sectors (68% compared to 63% overall). An impressive 83% of companies we surveyed agreed that sustainability of supply chain is a key goal in risk management.

Reputation

As companies are increasingly held responsible for sustainability and potential in their supply chains, a large number are concerned about the related reputational risks. Overall, 6 in 10 companies feel the reputational risks are higher for them compared to other sectors (69% in energy, 66% renewables). Energy companies also feel more exposed to reputational risks (69% vs 61% overall).

Geopolitics

More than a third (35%) said geopolitical factors were among the top global trends affecting their supply chain risks (40% in complex manufacturing). Conflicts in Ukraine and tensions in the China Sea look set to loom even larger in the coming year. Potential problems could include trade restrictions, increasing sanctions and port blockages.

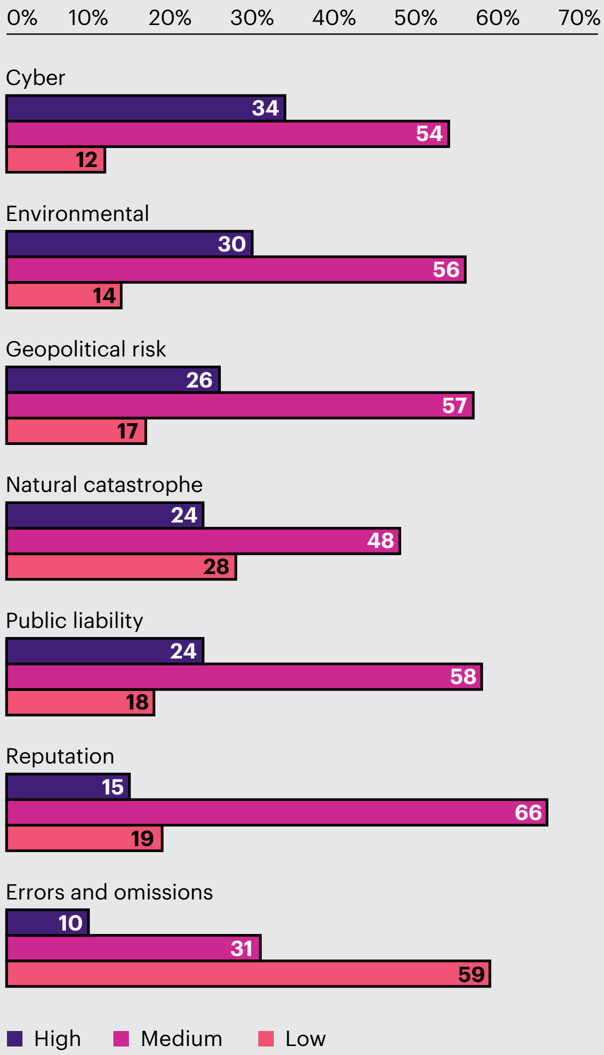
378%

Increase in geopolitical-related disruptions to supply chains from 2021 to 2022.[2]

[2]Resilinc EventWatch monitoring database https://finance.yahoo.com/news/factory-fires-rank-1-supply-142800457.html

Figure 11: **Potential impact of following risks on the supply chain**

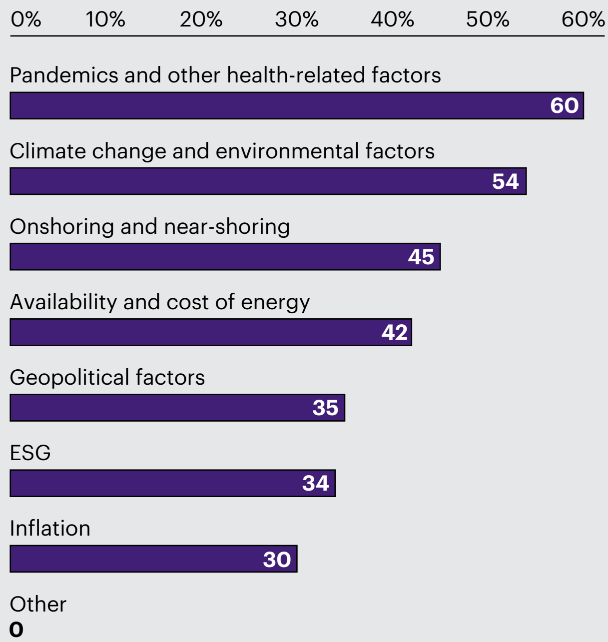
Q: How would you describe the potential impact of the following risks on the supply chain risks faced by your organization?



Single code per option
Base: All respondents (800)

Figure 12: **Global trends with greatest influence on supply chain risks**

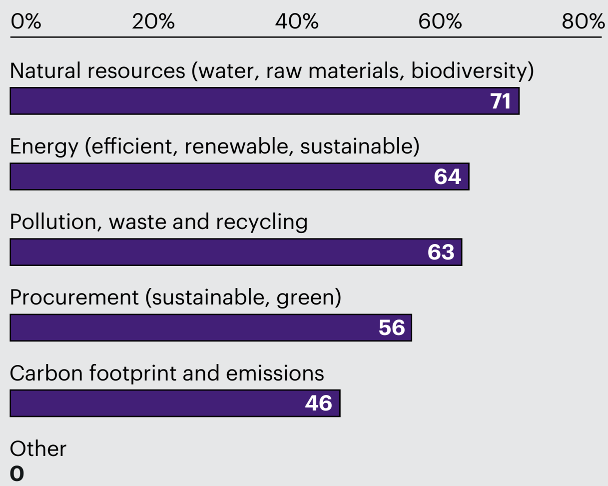
Q: Which of the following global trends do you believe have the greatest influence on your organization's supply chain risks?



Rank top 3
Base: All respondents (800)

Figure 13: **Environmental factors posing greatest risk**

Q: Which of the following environmental factors pose the greatest supply chain risks to your business?



Select and rank top 3
Base: All respondents (800)

WTW insight: Cyber risk

There was a time when cyber risks in the supply chain were mainly associated with external providers of IT services. In today's increasingly interconnected and digitalized world, there's a much wider range of potential threats.

Automation of supplier production and administration systems, and digitalization of outsourced business functions mean there are more points of potential vulnerability for cyber criminals to attack.

If one of your suppliers is forced to close because of a cyber-attack, that can cause serious knock-on impacts on your business if you can't easily switch sources.

For example, in life science, delays could cause firms to breach their indemnity obligations to provide timely drugs and services or even leave them facing a regulatory fine.

It's vital to think beyond the immediate cyber risks and to focus on the consequential losses that could ensue.

Make sure that your key suppliers have good technical controls in place to minimize cyber risks. Also consider asking for a level of indemnity so that the supplier's insurance covers you for losses resulting from a cyber-attack caused by their negligence.

Make sure your business continuity plans detail how you would recover in such an event.

Know what's covered by insurance. Many insurers have curtailed cover for contingent business interruption resulting from a cyber-attack in their property policies.

In cyber insurance, terms vary widely. Some policies limit contingent business interruption cover to third party IT suppliers, others may exclude certain types of cyber event or have varying definitions of the kinds of suppliers covered.

WTW insight: Geopolitical risk

Looking at where many critical raw materials and components come from, it's not hard to see why businesses need to be aware of geopolitical risks in their supply chain — for example, food commodities from Ukraine and semiconductors from Taiwan.

The conflicts and tensions affecting these countries are causing real disruption to supply chains for companies in sectors such as food production, life science and manufacturing.

Meanwhile, tech wars mean restrictions on the components and technologies that companies trading in the U.S. can buy from China.

Environmental, social and governance (ESG) concerns are also increasing risks. The EU carbon border tax is forcing companies to consider relocating production to inside the EU to avoid being penalized for carbon intensive imports from outside.

Businesses in the West are also under strong social and political pressure to cut all ties with Russia.

These are complex issues, posing difficult questions that need a board level response: do we still need to be globalized or should we be sourcing more close to home?; do we need to outsource this or could we do it in-house?; can we diversify supply in multiple locations to reduce vulnerabilities?

To answer questions such as these, companies need to move from considering supply chain on an operational level to a more strategic, proactive approach based on a more detailed understanding of their supply chains using mapping and analytics.

Many causes of supply chain risk are preventable

While global events and trends such as pandemics, conflicts and raw material shortages are major contributory factors in supply chain risk, some of the leading causes of disruption are actually man-made and preventable.

According to Resilinc[3], a leading provider of supply chain monitoring and resilience solutions, the most frequent single cause of disruption globally in 2022 was factory fires, followed by internal events such as mergers and leadership changes. Labor issues, cyber attack and port disruption are also among the top 10 most frequent causes.

The five most disrupted industries in 2022 were life science, healthcare, general manufacturing, technology and automotive, while North America experienced the most disruptions regionally, followed by Europe and then Asia.

[3]Resilinc EventWatch monitoring database https://finance.yahoo.com/news/factory-fires-rank-1-supply-142800457.html

Risk management

Knowledge is the key to addressing risks

It's clear from our survey that people want to know more about their suppliers and to have as clear visibility as possible right through to the outer tiers of the chain. Many see filling the gaps in their knowledge as the key to managing their supply chain risks.

When asked which measures would have the greatest impact on managing their risks, 59% said developing a detailed understanding of our supplier networks, 54% improving relationships with suppliers and customers and 51% developing a detailed understanding of our supply chain.

Data need to unlock transparency

The next most popular answer also underlines a thirst for deeper knowledge — 43% said improving data and data sharing, rising to 52% in complex manufacturing. But getting hold of the data they need is not an easy task. As we've discussed, a large majority of respondents cite supplier unwillingness to share commercial information as a block to transparency.

When asked about the greatest challenges to addressing risks, 77% said they lacked the data and knowledge to understand their risks (85% in renewables, 81% semiconductors). When we look at their approach to gathering and interpreting data about their supply chain, while 72% said they had identified the data they need to have, only 12% had robust processes to gather it.

Insurance solutions are lacking

The vast majority of business leaders we surveyed (89%) think insurance for supply chain risks is mission critical or necessary. However, 80% said a lack of insurance solutions was among the greatest challenges to addressing their risks.

The pandemic highlighted the gaps in insurance cover, with pure economic losses resulting from shortages and delays not covered by property and marine cargo policies. Managing these exposures is a major issue for companies, especially in a market that is likely to harden further in difficult economic conditions over the year or two.

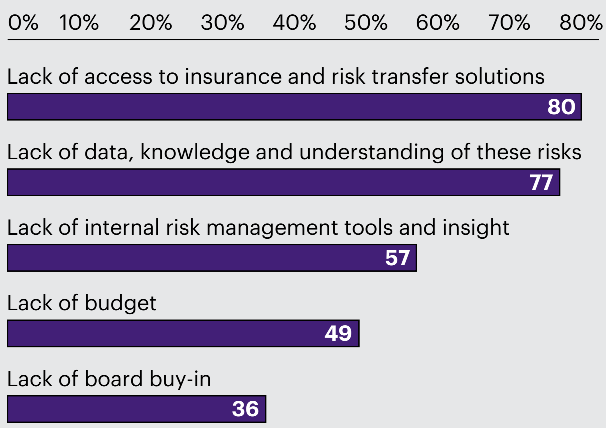
Figure 14: **Measures with greatest influence on supply chain risks**

Q: Which of the following measures do, or would have, the greatest impact on managing your supply chain risks?

Rank top 4
Base: All respondents (800)

Figure 15: **Greatest challenges to addressing risks over next 3-5 years**

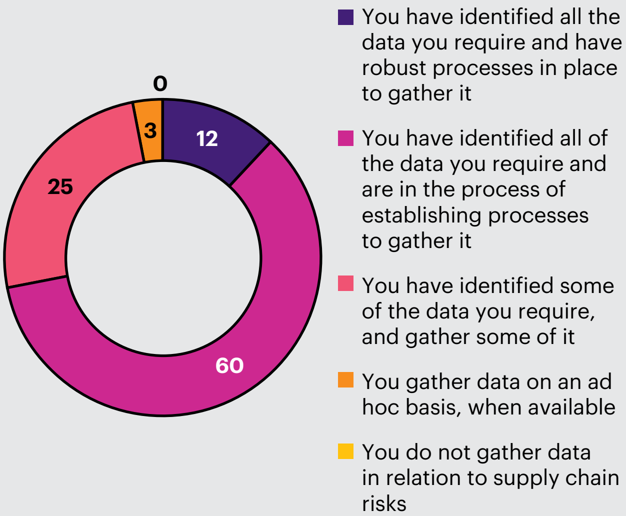
Q: Which of the following will pose the greatest challenge to addressing your risks over the next 3 to 5 years?



Rank top 3
Base: All respondents (800)

Figure 16: **Businesses' approach to gathering and interpreting supply chain risk data**

Q: How would you describe your organization's approach to gathering and interpreting data in relation to supply chain risks?



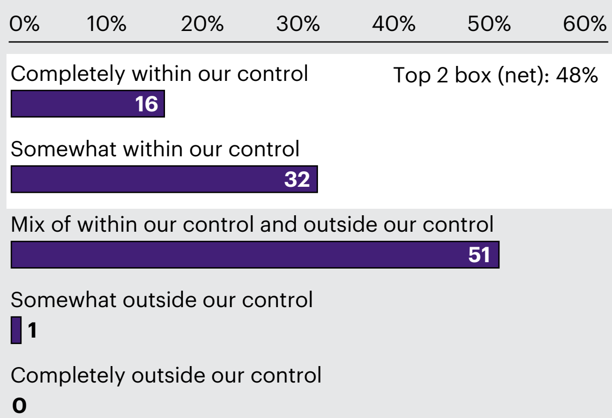
Single code question
Base: All respondents (800)

Firms have influence over risk management

Given the challenges, it's encouraging that almost half of companies (48%) feel the root causes of supply chain risks are somewhat within or completely within their control. A higher number (71%) feel they have some influence over the quality of supply chain risk management. This optimism could be a sign of a resilience dividend emerging from the work they've been doing to strengthen supply chains.

Figure 17: **Level of control businesses have over root causes of supply chain risks**

Q: How would you describe the level of control your business has over the root causes of the supply chain risks it faces?



Single code question
Base: All respondents (800)

Covering economic losses: trade credit and trade disruption insurance

As many companies discovered during the pandemic, economic losses resulting from problems in the supply chain are not covered by property or marine cargo policies unless there is physical loss or damage. Trade credit and trade disruption insurance can help to fill some of those gaps.

Trade credit insurance covers non-payment by customers for goods they've received. This can include customers at any stage of the supply chain. For example, if a distributor defaults so your goods can't make it to the end customer, trade credit could cover the financial loss.

It can provide the financial confidence needed to maintain cash flow and keep supply chains running even in difficult circumstances. It can also help drive sales and growth by enabling businesses to offer higher levels of credit to customers,as well as supporting trade financing and working capital needs.

Bespoke trade credit cover can be written to cover upstream supplier defaults. In this case it would cover non-repayment where the supplier has been prepaid. This can be useful, for example where suppliers are located in higher risk countries where prepayment is required.

WTW also offers a trade credit quantified tool, which can help businesses to calculate potential losses using real data and inform decisions on the best way to manage risks.

Trade disruption insurance provides protection for lost profits, costs, expenses and contractual penalties if goods are late or aren't delivered. Triggers include embargoes, trade sanctions, strikes, riots, or war.

Trade disruption can also cover damage to general infrastructure caused by extreme weather or natural disaster. This can be particularly helpful, for example, where a storm does not damage the supplier's property but takes down power and transportation networks causing severe disruption to logistics.

Building supply chain resilience

Building back better to improve resilience

As we've discussed, businesses across all sectors have been working to make their supply chains more robust and less susceptible to disruption and future global shocks. Most believe that this is helping to increase their resilience.

When asked about the impact of these investments so far, almost two thirds (64%) say they have somewhat improved the robustness of their supply chain, while 28% said robustness has greatly improved as a result, rising to 37% in the energy sector.

The vast majority (90%) have a formal process for business continuity planning in relation to supply chain risks, with 38% saying this is linked to business key performance indicators (KPIs), rising to 43% in semiconductors.

Significant exposures remain

However, companies still face significant exposures which they need to address if they are to move towards true resilience. For example, only 25% feel confident they have sufficient insurance to cover the impact of extreme weather on their supply chain. Businesses in food, beverage and agriculture feel most protected — 30% compared to only 18% in semiconductors.

A total of 17% said they had specific insurance to cover business interruption risks related to supply chain, although 53% thought it was covered by other insurance. The lack of certainty about cover in these areas is concerning as exposures are increasing through ongoing supply chain disruption and the impact of climate change.

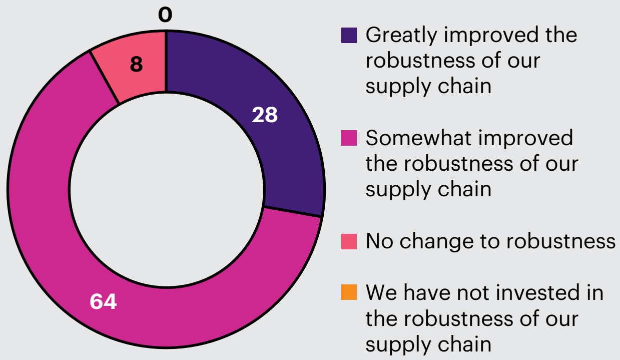
Mapping and visualizing the supply chain

The sheer scope and scale of supply chain risks can be intimidating. As we've seen, even gaining visibility of all the links in the supply chain can be difficult, while working out the probability and severity of many risks is even harder.

However, using tools that help to map the supply chain can help businesses start to understand where the gaps are and begin to fill them. A total of 41% said using supply chain mapping software was among the measures that would have an impact in managing risks.

Figure 18: **Impact of previous investment to improve robustness in supply chain**

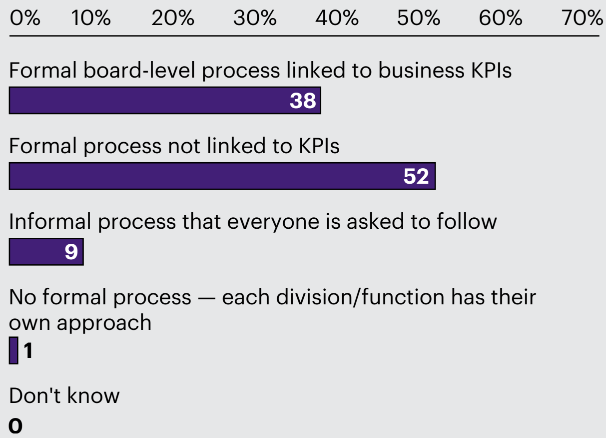
Q: How would you describe the impact of any previous investment you have made in improving the robustness of your supply chain?



Single code questions
Base: All respondents (800)

Figure 19: **Approach to business continuity planning in relation to supply chain risks**

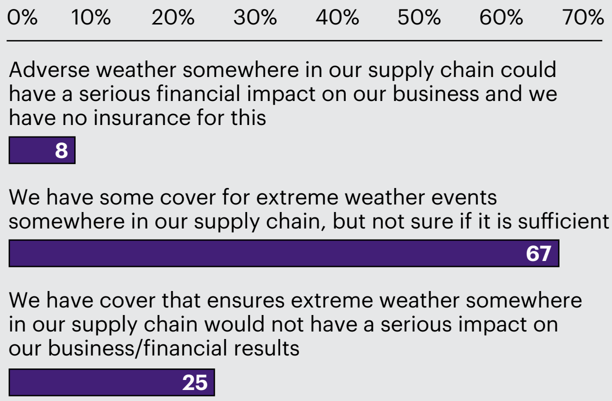
Q: How would you describe your approach to business continuity planning in relation to supply chain risks?



Single code questions
Base: All respondents (800)

Figure 20: **Insurance for impact of extreme weather events**

Q: What best describes your insurance for the impact of extreme weather events somewhere in your supply chain?



Single code questions
Base: All respondents (800)

Six steps to build your supply chain resilience

1. Make resilience a boardroom priority

Embed it in strategic planning and execution, with structured governance to ensure that decisions are made and acted on at the correct level and the right time. This can be associated with existing business risk assessments.

2. Reduce reliance on single suppliers and locations

Relying on a single source for critical components and raw materials creates vulnerability. So can using multiple suppliers in the same geographic area. Wherever possible, expand your network of suppliers and locations.

3. Develop closer working relationships

Working more closely with suppliers, especially at tier 1, can help you gain a better understanding of the wider chain and increase resilience. Being a partner rather than just a client can help overcome barriers to disclosing proprietary data.

4. Reconsider just-in-time models

Firms should develop a balance between just-in-time and just-in-case inventory levels to build contingency and strengthen physical assets to withstand climate events, and to provide support to distressed essential suppliers.

5. Aim for end-to-end visibility and transparency

Supply chain mapping software tools allow businesses to get a more complete picture of all the relationships and flows in the supply chain, with live event-tracking to support proactive risk assessment and decision making.

6. Stress test your response

Use scenario planning and simulation modeling, such as digital twinning, to quantify the impacts and mitigate the effects of risks. Also consider red teaming to get an outside challenger view on policies and processes.

WTW insight: Climate and extreme weather

Extreme weather has caused problems for the sourcing and transportation of goods since the birth of trade. But today events such as storms, floods and wildfires are more frequent and severe, while supply chains are more complex and globalized, adding vulnerabilities.

As climate change accelerates, it will create deeper long-term impacts, affecting how and where we source raw materials and components. For example, climate change may reduce the land suitable for growing major crops. One study showed rising temperatures would reduce prime coffee growing areas by 50% by 2050.[3]

Climate and weather risks are often very site specific. Risks may be much greater in one place than another in the same country or region, so the actions needed to adapt or manage these risks may be unique to each part of the supply chain.

Weather conditions in the past are unlikely to provide a reliable estimate for the future. Make sure that your risk assessments include robust and reliable modeling of likely impacts in a changing climate.

Embed climate into how you think about risks and your approach to supply chain management at the highest level, so it becomes part of every discussion and evaluation, rather than just a software exercise.

WTW's Climate Resilience team supports businesses on this journey, helping them to identify, assess and mitigate both near term weather risks and longer-term climate impacts through advanced risk analytics and consultancy.

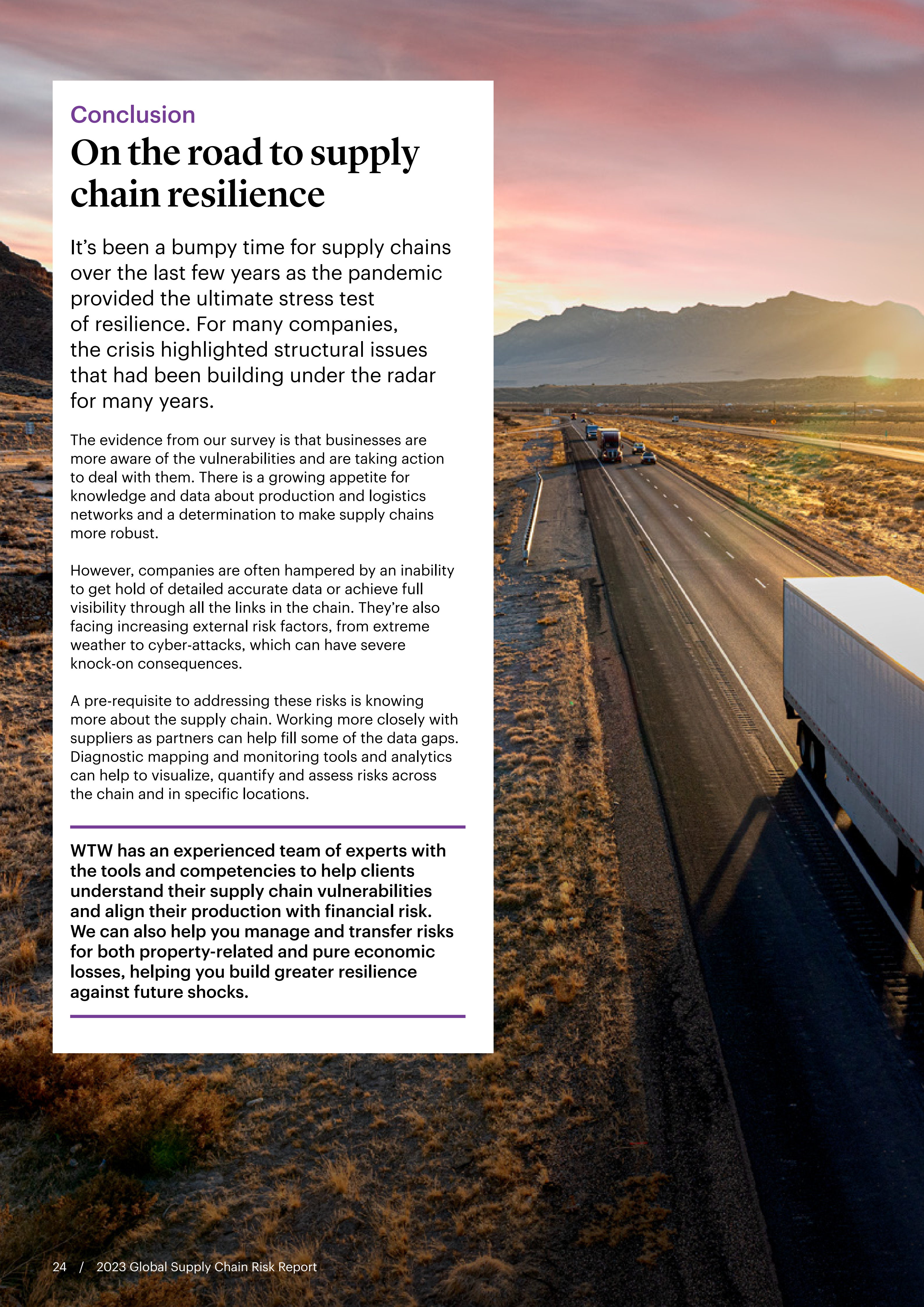
[3]Bunn et al A bitter cup: climate change profile of global production of Arabica and Robusta coffee https://link.springer.com/article/10.1007/s10584-014-1306-x

WTW resilience research: the supply chain ripple effect

It's a risk scenario that many businesses fear, but one that is very hard to quantify. What would happen if you take one or more links out of the supply chain? How would the impact ripple out through the chain? What would it do to profit and revenues? Would your company overcome a major supplier failure, or could a relatively small third-tier supplier bring your production to a grinding halt? And how would your business continuity planning influence the disruption and losses?

These are some of the questions being asked in an ambitious research project by the WTW Research Network jointly with academic research partners. The project will use advanced data analytics to calculate the financial and operational impact of scenarios with single and multi-supplier failure through every node in a supply chain. The research team has finalized the framework as well as the models, and will start testing in a wide range of scenarios through 2023 in collaboration with WTW clients.

The project aims to develop a sophisticated tool that can enable faster modeling and more accurate quantification of risks than is currently available. In turn, this will help insurers and clients understand risks better and make them easier to mitigate and cheaper to insure. The tool will be able to easily scale up or down to calculate the impact for large and smaller companies.



Conclusion

On the road to supply chain resilience

It's been a bumpy time for supply chains over the last few years as the pandemic provided the ultimate stress test of resilience. For many companies, the crisis highlighted structural issues that had been building under the radar for many years.

The evidence from our survey is that businesses are more aware of the vulnerabilities and are taking action to deal with them. There is a growing appetite for knowledge and data about production and logistics networks and a determination to make supply chains more robust.

However, companies are often hampered by an inability to get hold of detailed accurate data or achieve full visibility through all the links in the chain. They're also facing increasing external risk factors, from extreme weather to cyber-attacks, which can have severe knock-on consequences.

A pre-requisite to addressing these risks is knowing more about the supply chain. Working more closely with suppliers as partners can help fill some of the data gaps. Diagnostic mapping and monitoring tools and analytics can help to visualize, quantify and assess risks across the chain and in specific locations.

WTW has an experienced team of experts with the tools and competencies to help clients understand their supply chain vulnerabilities and align their production with financial risk. We can also help you manage and transfer risks for both property-related and pure economic losses, helping you build greater resilience against future shocks.

Survey sample and methodology

Our survey was carried out by our partner Coleman Parkes research in November and December 2022, using a mixture of phone interviews and web-based survey forms. We received 800 responses from senior decision makers in a range of industry sectors, based in Europe, North America, Asia-Pacific and Latin America.

Study detail

Methodology
Phone to web

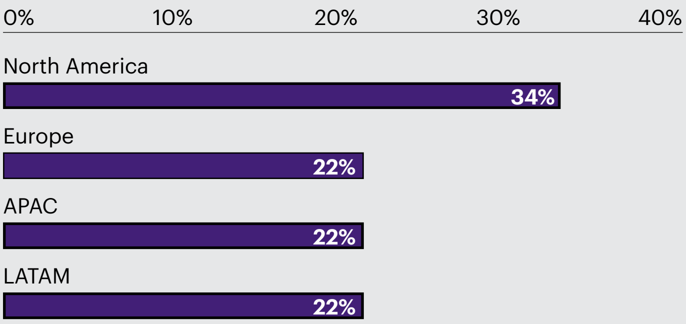
Sample size
800 Globally:

- North America (275)
- Europe (175)
- APAC (175)
- LATAM (175)

Audience profile
Senior decision makers of supply chain risk management in leading companies across different sectors with over $250m annual revenues.

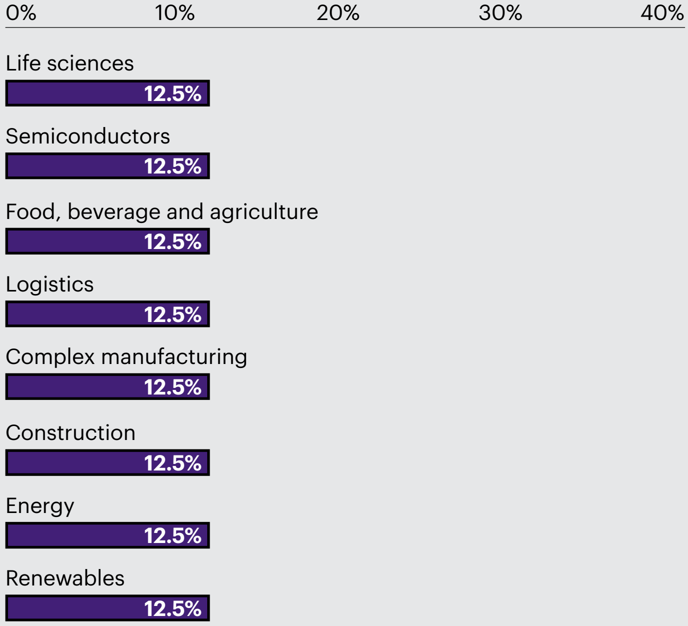
Fieldwork dates
November to December 2022

Geography

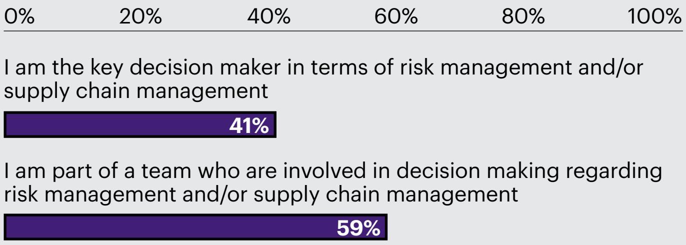


Audience profile

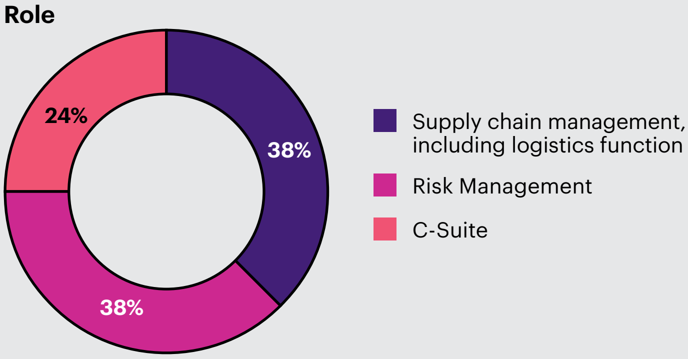
Industry



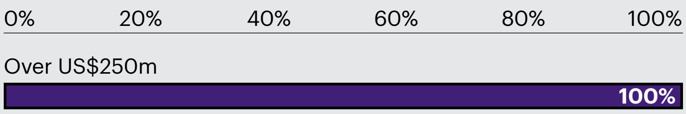
Decision-making



Role



Company revenue



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