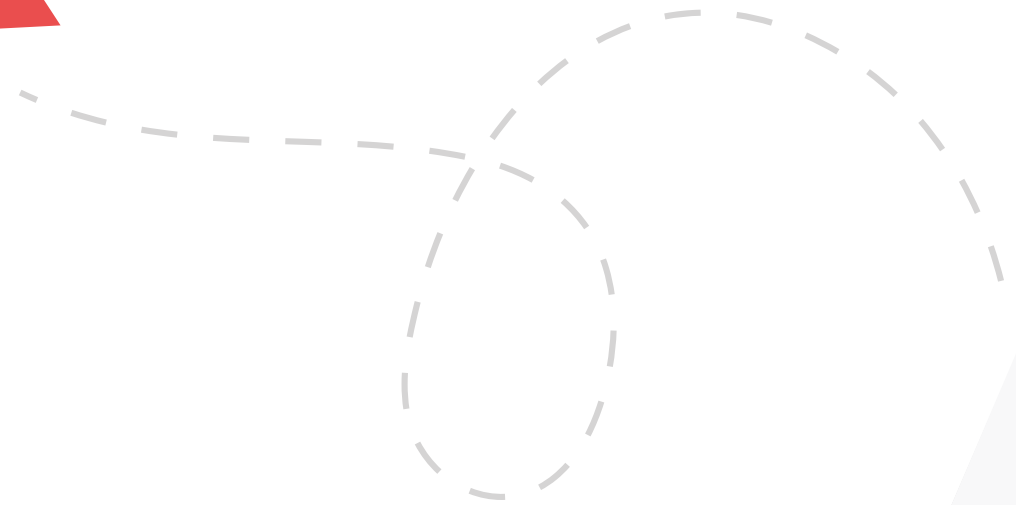
GEP INSIGHT DRIVES INNOVATION

THE BUSINESS COSTS OF SUPPLY CHAIN DISRUPTION



Written by The Economist INTELLIGENCE UNIT

ABOUT THIS REPORT

The Business Costs of Supply-Chain Disruption is a report written by The Economist Intelligence Unit and commissioned by GEP. It explores the impacts of recent instances of disruption to global supply chains, the measures that firms are taking to build resilience and weather future disruption, and the challenges that they are facing in doing so.

To better understand these issues, in November and December 2020 The Economist Intelligence Unit surveyed 400 senior supply-chain and procurement executives in five sectors (agriculture and food, industry,[1] consumer goods and retail, healthcare and pharmaceuticals, and energy and utilities). The respondents are based in eight countries across the US and Europe (Belgium, France, Germany, Ireland, Luxembourg, the Netherlands and the UK) and work in senior roles in their organisations, with 60% being C-level executives and the remainder being director-level or above. Half of them work in organisations with annual revenue of over US$1bn.

We supplemented the results with secondary research and in-depth interviews with experts.

We would like to thank participants for their time and insights. Those interviewed, in alphabetical order, were:

- Terrance Brick, VP Global Supply Chain, Boston Scientific
- Omera Khan, Professor of Supply Chain Management, Royal Holloway University
- Hau Lee, Thoma Professor of Operations, Information and Technology, Stanford Graduate School of Business
- David Paulson, VP Avnet United & Velocity, Avnet
- Lutz Quietmeyer, Head of Transport and Logistics Operations, Airbus
- Leigh-Ann Russell, SVP Procurement, BP
- Yossi Sheffi, Director of the MIT Center for Transportation & Logistics, Massachusetts Institute of Technology
- ManMohan Sodhi, Professor of Operations and Supply Chain Management, City, University of London
- Mourad Tamoud, Chief Supply Chain Officer, Schneider Electric
- Matthew Winterman, Head of Supply Chain, Roche

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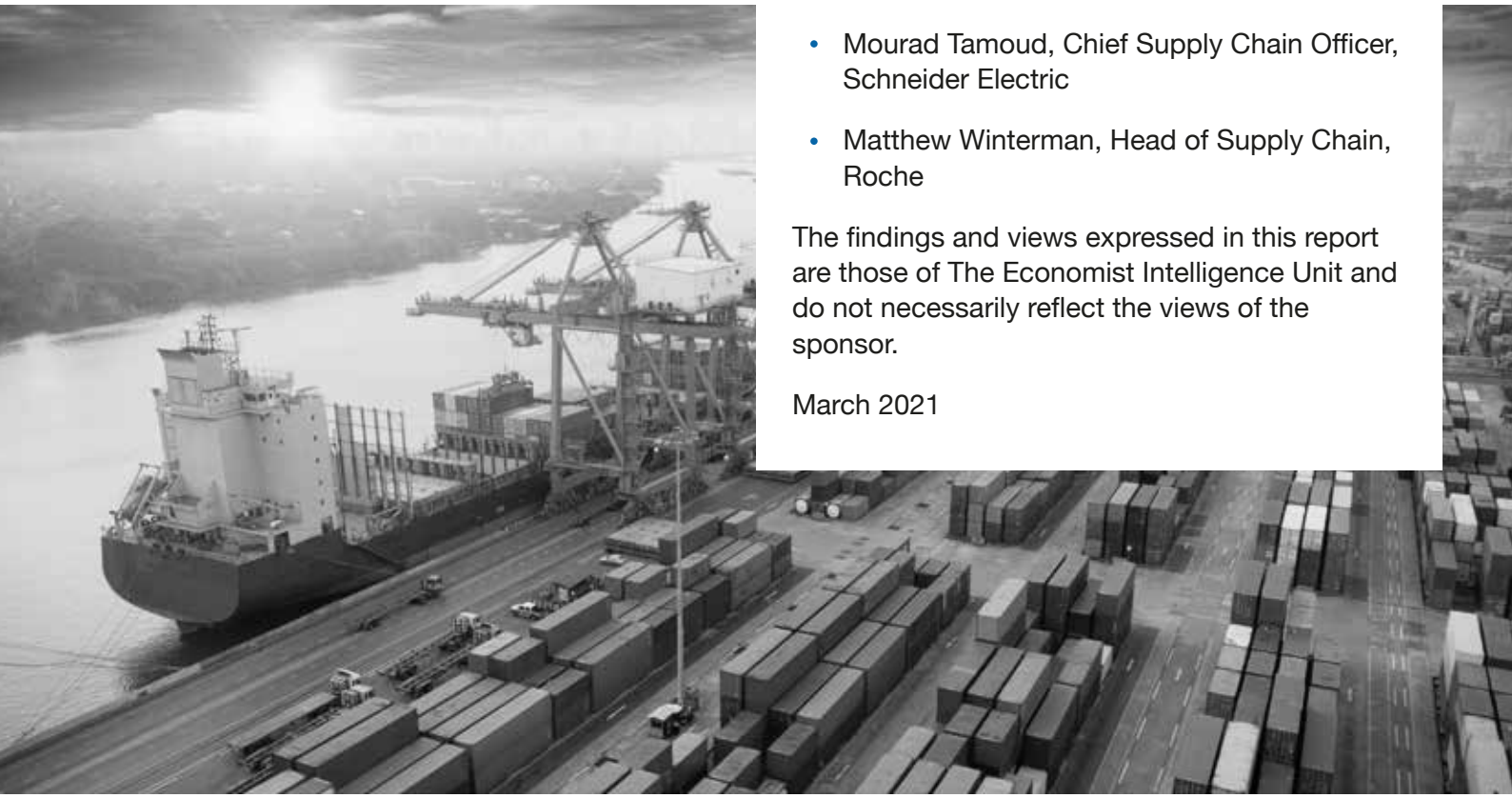
March 2021



[1] Includes automotive, machinery, chemicals, aerospace and telecommunications.

FOREWORD BY GEP

Without question, the disruptions experienced in 2020 and the start of 2021 have wrought havoc for business leaders and communities on an unprecedented scale. While the Covid-19 pandemic captured much of the spotlight, this period has also been marked by environmental catastrophes, trade disruptions and geopolitical tensions. Many supply chains bent or were broken, prompting many leaders to speculate on what the new normal will mean for their businesses.

GEP has sponsored this report by The Economist Intelligence Unit to shed more light on how leading firms around the world are responding to the supply shock.

This research elucidates the disruptive impact that the events of 2020 had on supply chains and the setbacks that many businesses faced. Many firms are now operating as a smaller or changed business as an outcome of these events. Notably, this research explores the trade-offs between resilience and efficiency that many firms are grappling with as they re-prioritize business resources for the future.

A new roadmap is emerging. Supply chain disruption has not ended; indeed, many firms now recognise that a new model is needed to accommodate the inevitability of disruption. This has profound implications on the choices business leaders will make on technology investments, network localisation strategies and more.

John Piatek
Vice President, Consulting
GEP

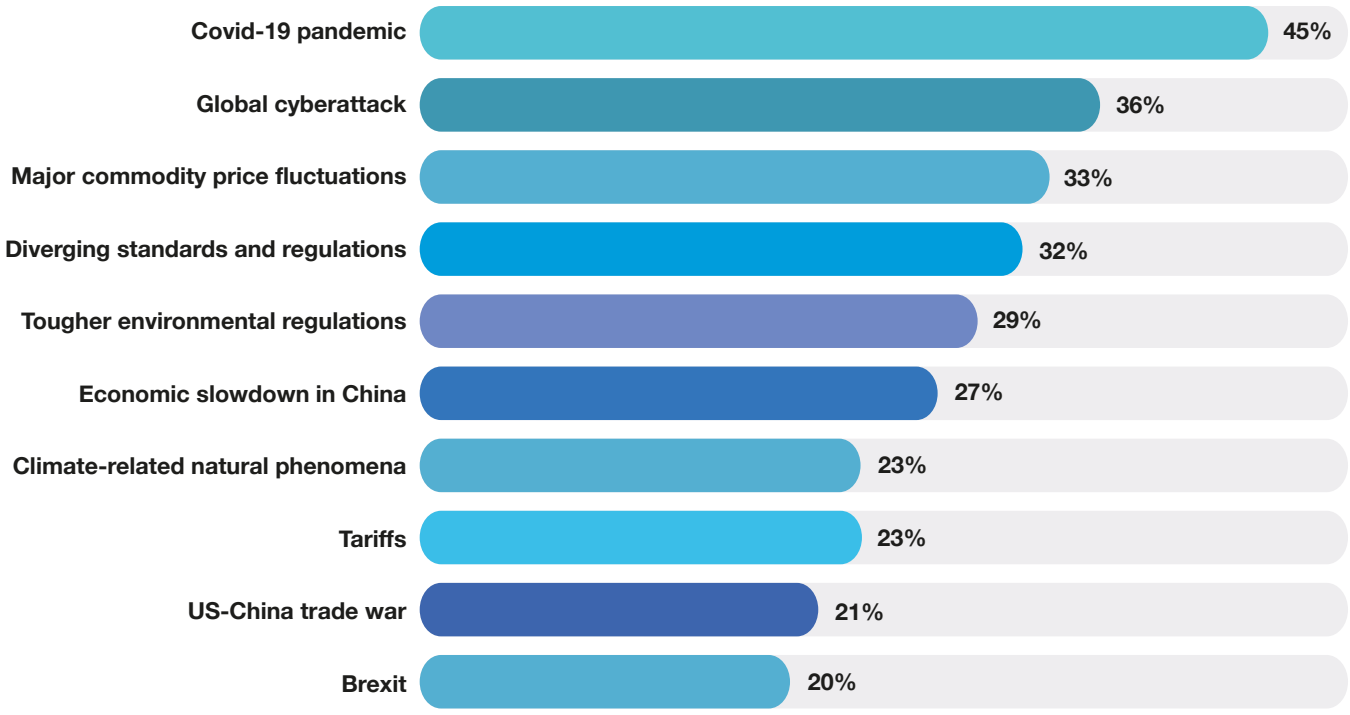
A SERIES OF STORMS

Although the havoc wrought by the Covid-19 pandemic caught most businesses by surprise in the early months of 2020, modern multinationals are by now no strangers to supply-chain shock and disruption. The concurrence of a number of disruptive forces, including trade disputes, cyberattacks, commodity price fluctuations and the increasing frequency and severity of natural disasters, are testing the complexity and interdependence of global supply chains that multinationals have built up over recent years. Executives anticipate that disruption is only set to increase in the coming decade.

To explore the business costs of such disruptions, and how firms are adapting to mitigate them, The Economist Intelligence Unit (EIU) undertook a survey of senior supply-chain and procurement executives from the US and Europe (see About This Report) and conducted in-depth interviews with experts from academia and industry.

Our research found that disruptions have incurred substantial financial costs (averaging 6-10% of annual revenues), as well as reputational costs—in terms of customer complaints and damage to brand reputation—as companies have struggled to maintain supplies of their goods. Indeed, firms were as likely to report damage to brand reputation as a consequence of supply-chain disruption as increased costs of operations.

Figure 1. Factors that have had a significant disruptive impact on supply chain operations over the past three years (% of respondents)



Businesses are responding to increased disruption by exchanging efficiency for greater resilience. Some are prioritising costlier suppliers in less risky markets. Such strategies come at a cost. But firms are working to mitigate these costs through investments in technology, simplified and regionalised supply chains, and, in some cases, simplifying the design of goods to make components easier to source, as this report discovers. Key findings include:

- The Covid-19 pandemic has had a significant disruptive impact on global supply chains, with 45% of firms surveyed by The EIU reporting a significant disruptive impact.
- Recent supply-chain disruptions have given rise to a variety of business costs, including both increased costs of operations and reputational costs—in terms of customer complaints and damage to brand reputation as companies have struggled to maintain supplies of their goods. Firms were as likely to report damage to brand reputation arising from supply-chain disruption as they were to report increased costs of operations.
- Sixty per cent of firms are satisfied with how their supply-chain operations have coped with recent disruptions. US-based executives were much more likely to express dissatisfaction than Europe-based counterparts (about one-third of US respondents did so, versus 7% of European ones). US firms have been beset by a wider variety of problems, and in particular with difficulties striking long-term supply deals with Chinese companies amid a US-China trade dispute.
- Sixty per cent of respondents agree that redundancy (meaning excess capacity) and resilience in their company's supply chain are more important than speed and efficiency (32% strongly agree), signalling a major shift in strategy.
- Supply-chain disruptions are expected to become more common. More than half of the executives surveyed (54%) say that organisations must make significant changes in order to effectively manage supply-chain disruptions in the next five years.
- Firms are pursuing a range of actions to mitigate the impacts of future disruptions, including strengthening relationships with existing suppliers, implementing permanent supply-chain risk-management teams and processes, and investing in technology.
- Some firms have regionalised or localised their supply chains to allow for rapid delivery of goods, and to avoid disruption from travel restrictions during a crisis. Regional supply chains are providing firms with a hedge against future shocks. A third of companies (31%) are simplifying their supply chains to make them easier to manage.

1. THE COSTS OF DISRUPTION

Ongoing supply-chain shocks have incurred a range of direct and indirect costs

When the Covid-19 pandemic forced countries around the world to impose national lockdown restrictions in early 2020, reports of supply problems—and fears of them—were quick to dominate headlines. Hospitals and care homes struggled to source essential personal protective equipment (PPE) as demand outstripped supply. Demand for consumer goods, whether pasta or toilet paper, shot up overnight as citizens sheltered at home and, in some cases, panic-bought—while equivalent supplies to the commercial market, servicing office blocks and restaurants languished unused. "The economic impacts of this near-global shutdown because of the pandemic has thrust supply chain into the public realm in a way we have never seen before," says David Paulson, global vice president at Avnet Inc.

Accompanying an unprecedented demand shock, manufacturing operations struggled to adapt to local lockdowns, rising absenteeism from quarantined and unwell staff, and social distancing restrictions on the factory floor. Manufacturing firms with just a handful of select suppliers and just-in-time operating models (leaving them light on stock) had to quickly look elsewhere for components—and many had little choice but to halt operations as supplies seized up. Car companies such as BMW and Toyota simply stopped production.

China's Wuhan region, where the novel coronavirus first emerged, is also the home of the country's fibre-optics industry and a growing memory-chip manufacturing base. More broadly, South-East Asia is the point of origin for components that underpin the digital economy, which has proven so vital in maintaining business operations amid the crisis. Disruption to manufacturing operations, caused partly by restrictions of movement affecting local workers, presented the risk of a ripple effect through the information technology (IT) supply chain that would cause long-term global economic harm.

Yet on the whole, companies fared better than expected during the pandemic. Suppliers adjusted their operations, firms found alternative suppliers, and supply and demand found a new equilibrium.

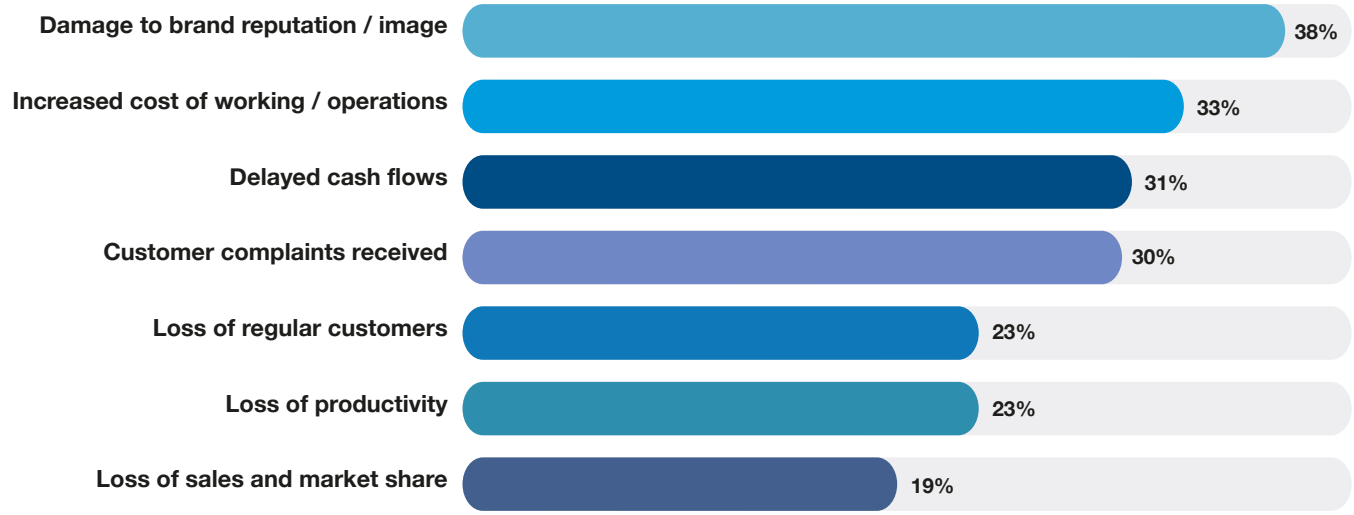
Matthew Winterman, head of supply at Roche, the Swiss healthcare giant, confirms that it managed to maintain production through the pandemic. "Throughout 2020, our teams overcame many organisational and logistical challenges and ultimately succeeded in keeping complex supply chains running—ensuring vital medicines continued to reach our patients," he says.

"Manufacturers had learnt the lessons from previous crises," says ManMohan Sodhi, professor of operations and supply-chain management at City, University of London. The disruption to supply chains as a result of Covid-19 is just the latest in a series of storms that executives have battled in recent years. In 2011 a major earthquake and resulting tsunami off the Pacific coast of Japan forced automakers such as Toyota and Honda to stop production for several weeks as crucial parts suppliers were forced by the subsequent flooding to remain closed. "Companies long ago learnt to have alternative suppliers in place in case of disaster, and to monitor suppliers for possible gaps that could stop production."

"There were a few examples of where companies simply couldn't source supplies for normal production," says Mr Sodhi of the impact of the Covid-19 pandemic. "The problems came from changing demand patterns."

Indeed, survey respondents reported demand forecasting and planning as one of the top challenges that their firms have faced as a result of recent supply-chain disruptions—a greater concern than that of supply forecasting and planning.

Figure 2. Consequences suffered as a result of supply-chain disruptions over the past three years (% of respondents, firms with revenues in excess of US$1bn)



Rapidly fluctuating demand amid the pandemic came at a substantial cost to firms in terms of inefficiency and waste. "It makes forecasting difficult, with algorithms based on historical data not being able to handle unexpected future events," says Hau Lee, professor of operations, information and technology, at the Stanford Graduate School of Business. Around 40% of companies said that they had problems changing their sales and pricing strategies and adapting to evolving consumer preferences amid the Covid-19 pandemic.

Get the sums wrong and firms soon face the ire of customers who do not receive their orders. Indeed, such disruption during the pandemic resulted in clear reputational costs in terms of customer complaints and damage to brand reputation as companies struggled to maintain supplies of their goods. Firms were as likely to report damage to brand reputation as a consequence of supply-chain disruption as they were to report increased costs of operations; larger firms (those with revenues in excess of US$1bn) were more likely to report this outcome (see Figure 2). For healthcare and pharmaceutical firms, damage to the firm's image and customer complaints have been the greatest consequences of supply-chain disruptions over the past three years, according to our survey.

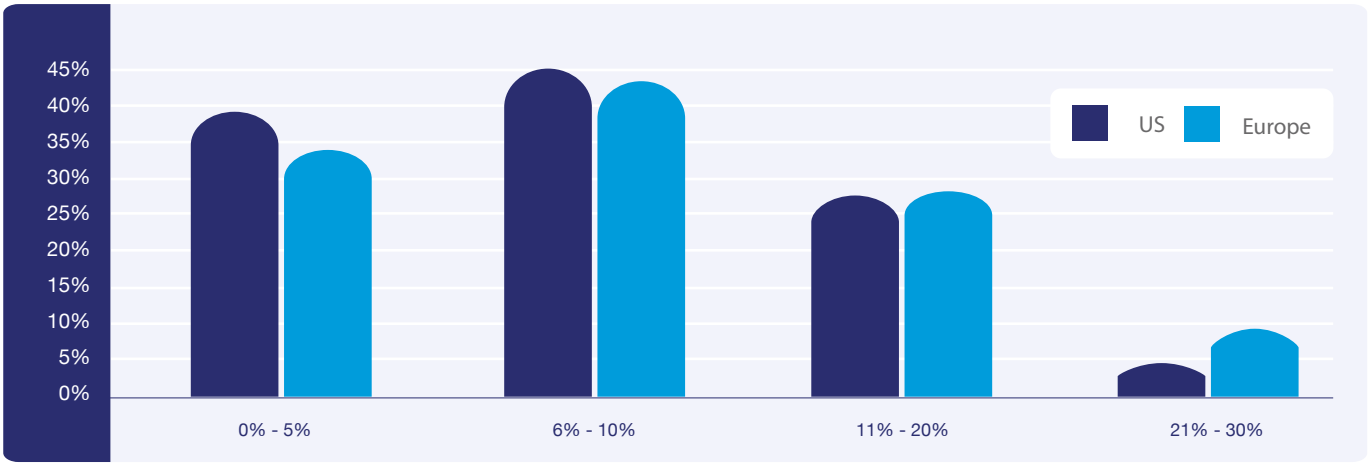
REVENUES HIT

Nearly all the executives that we surveyed said that their firms' supply-chain operations have been disrupted by the Covid-19 pandemic. Two-thirds of survey respondents reported revenue hits of between 6% and 20% over the past year, with European firms more likely to report greater losses (see Figure 3).

Costs of operations have increased as companies have scrambled to find new suppliers to plug gaps and spent more on technology to increase supplier visibility. A third of companies say that costs have risen, making this the top consequence of supply-chain disruptions, according to our survey.

Meanwhile, firms that have not made such investments in technology have ended up spending more. "They have to spend a lot of time and money manually investigating the problems," says Yossi Sheffi, director of the Massachusetts Institute of Technology's Centre for Transportation and Logistics.

Figure 3. What do you estimate to be the total loss to your organisation's annual revenues as a result of supply-chain disruptions experienced in the past year?



THE COSTS OF RESILIENCE

Mr Lee speaks of a "new normal" for supply-chain managers of more frequent trade disruptions and rapidly shifting consumer demand. He points out that the number of regional trade agreements has been rising steadily, from below 200 in 2008 to more than 300 in 2020. This threatens trade tariffs and increases the amount of paperwork for companies sourcing from countries in a different trade zone. "Companies need to think in terms of the total cost of supplies, including the cost of using some developing countries that require a lot of paperwork and monitoring, which costs time and money," says Mr Lee.

Firms are mindful that geopolitical risks may prove to be the costliest of all. An escalating US-China trade war risks fracturing the global economy: at the extreme, multinationals would be forced to realign their supply chains or, in some instances, operate two supply chains with different technological standards. Neither a mass exodus from China nor significant reshoring to expensive Western economies remain the most likely outcome. Nonetheless, discussions about nearshoring—with supply chains becoming more regionalised—will become more frequent in coming years. A shift to more stable and, in some cases, less cost-competitive markets, an investment in resilience over efficiency, and longer-term investments in technology will incur costs for business. But they may prove wise investments against risks of ongoing and costly disruption.

2. JUST-IN-TIME OR JUST-IN-CASE?

Firms are increasingly prioritising resilience over efficiency—as well as finding new ways to achieve both at once

It is a constant balancing act. On the one hand, managers have long known how to mitigate the risk of supply-chain disruption by ensuring that there are duplicate suppliers for essential goods, supplies are sourced from multiple locations and stock is kept in reserve. But companies also want efficiency and cheap supplies—and such risk mitigation costs money. Until now, companies have emphasised efficiency. But this is changing, with firms recognising a need to prioritise supply-chain resilience.

"We've learnt that you have to have duplication to ensure continued supplies," says Mourad Tamoud, chief supply-chain officer of Schneider Electric, adding that the company was able to switch between countries and regions to avoid problems as the Covid-19 pandemic hurt transport routes. "In our case we can cut back on the number of suppliers while still ensuring duplication, but that sort of resilience is of central importance."

In our survey, six in ten respondents agreed that redundancy and resilience in their company's supply chain are more important than speed and efficiency—a third (32%) strongly agreed. Some 44% of respondents said that their firms had become too reliant on suppliers in certain countries, nearly double the number who disagreed, suggesting that companies will look to secure supplies from a wider range of countries in future—something truer for European companies than their US-based counterparts.

Mr Sodhi points out that many companies have begun to take a hybrid approach, combining diversity of supply chain with mass sourcing from large plants to keep costs down. For example, Zara, a Spanish fast-fashion brand with stores across the world, continues to source around a third of its clothes from primary factories in Spain and Turkey, while sourcing other goods more locally to cut back on delivery times. Amazon stores popular items in a series of local distribution centres, allowing for rapid delivery, while slower-moving items are kept in a larger centralised warehouse, cutting storage costs. "Companies recognise they concentrated too heavily on efficiency in the 1980s-90s," says Mr Sodhi. "Since then, they have been looking for an improved balance with risk."

Mr Lee points to the example of Hewlett-Packard, which a decade ago split its computer hardware supplies between a large, cost-efficient site used to produce components in volume, and a second site emphasising flexibility so that the company could react to fluctuations in demand. "Mixed sourcing isn't a new idea; if companies choose to use it, they can minimise the extra costs," he says.

The results of our survey fit with these comments, finding that some—but by no means all—companies are looking at adopting established methods for increasing supply-chain resilience. Just under a third are looking at making their supply chains more local, for example. Volkswagen had set up regional supply chains in production hubs such as China and Europe, so that local companies could quickly supply their local plants. This helped with just-in-time production, avoiding the need to

warehouse large stocks of supplies from companies in distant countries. When the pandemic initially made it hard for Volkswagen to source supplies in China for its plants in the country, it turned to its European suppliers and then switched back to China when Europe shut down.

Regionalisation is becoming more common as a means of building resilience and adaptability.[2] Mr Sodhi notes the further examples of drinks maker Diageo, which is abandoning its global sourcing model in favour of regional, often national, suppliers, and Polaris, a US vehicle manufacturer, which decided to locate its factory in Mexico rather than China to allow for greater speed and flexibility over deliveries.

"We pooled suppliers to our main European plants to ensure resilience," says Lutz Quietmeyer, Airbus's head of logistics and transport operations. Before the pandemic the company's different plants would often source specialist components separately. By pooling suppliers it could ensure continued supplies if one plant's suppliers hit problems.

Furthermore, Mr Paulson of Avnet contends that building buffers in inventory alone will not deliver the supply chain resiliency that companies need. "Redundancy can help with assurance of supply, but supply chain resiliency also requires the agility to move products around the globe and the transparency to make informed decisions." We explore this in more detail later in this section.

> **"Companies recognise they concentrated too heavily on efficiency in the 1980s-90s. Since then, they have been looking for an improved balance with risk."**
>
> *— ManMohan Sodhi, City, University of London*

60%

of respondents agree that redundancy and resilience in their company's supply chain are more important than speed and efficiency (32% strongly agree).

[2] https://www.eiu.com/n/campaigns/the-great-unwinding-covid-19-supply-chains-and-regional-blocs/

CHANGE THE SUPPLY

Our survey found that close to a third of companies have gone so far as to redesign products in the interest of simplifying their supply chains. Auto companies have started to share components more widely between models, from small things such as bolts to large ones such as engines and gearboxes. Typically up to 70% of components can now be shared between models.[3]

Novel manufacturing techniques, such as 3D printing, are increasingly being used by firms to make new components on-site and on demand—rather than being stockpiled or shipped. In industries such as automotive and aerospace, such technologies are simplifying supply chains.[4]

"It's an expensive way to make things," says Mr Lee, "but can still be the cheapest solution when you factor in other costs such as transportation. The emphasis now is on reliable suppliers that can be accessed despite catastrophes." He expects much wider uptake of in-house solutions such as 3D printing over the coming years.

TECHNOLOGIES FOR RESILIENCE

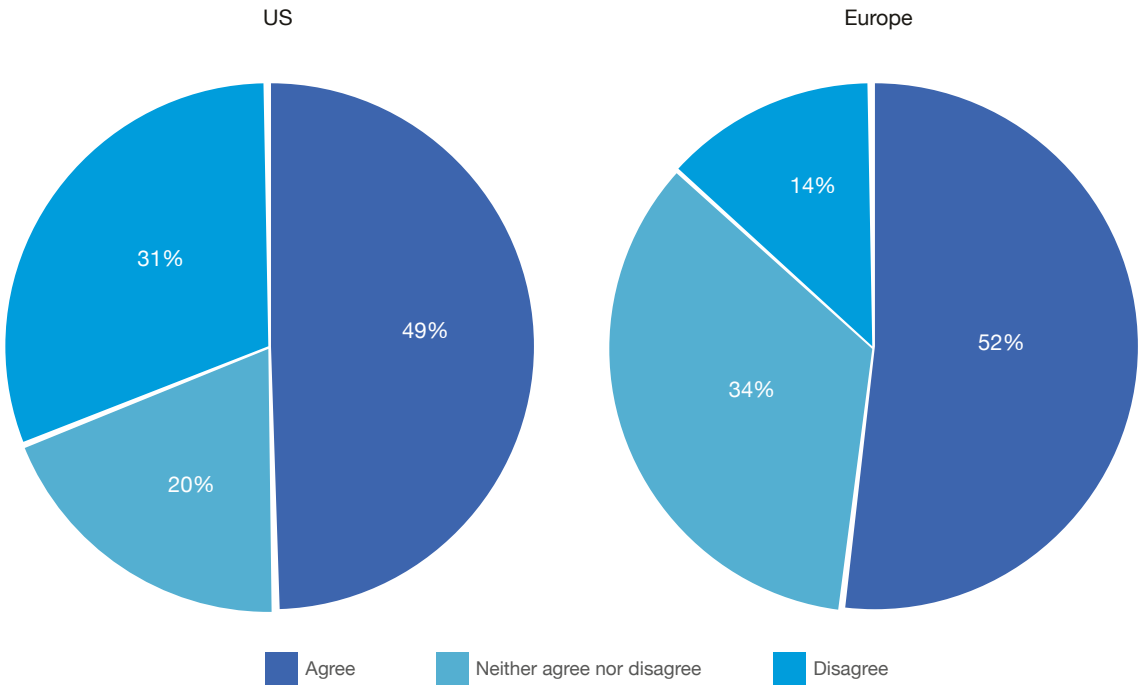
The digitalisation of supply chains allows firms to better balance this trade-off of efficiency against resilience. Technologies based on the cloud, artificial intelligence (AI) and blockchain allow firms to monitor their suppliers more quickly and in more detail, says Mr Lee, and are proving vital to pre-empt and manage disruption. "We're seeing accelerated adoption of technologies that were already there."

AI can help firms to better predict demand, and optimise sourcing and distribution strategies. AI-based demand sensing can be a more reliable and effective method than traditional methods rooted in historical data. Blockchain technology—not yet widely adopted—can be used to create a trusted and tamper-proof record of goods' provenance and journey through a supply chain.

"Things like blockchain and AI allow companies to monitor not just their tier-1 suppliers but also their secondary suppliers and subcontractors," says Mr Lee, explaining that the chief benefit of these technologies is to increase supplier visibility. "That's important when you have a crisis, because it means you can see if a subcontractor in say, Indonesia, will be hit by travel or export restrictions, and switch quickly to one in an unaffected country." The increased visibility over supply chains allows switches to be made much more quickly using technology that is now well established, if not necessarily widely used, Mr Lee says.

[3] https://www.automotivelogistics.media/are-shared-components-the-right-answer/7684.article
[4] https://eiuperspectives.economist.com/sites/default/files/Addingitup_WebVersion.pdf

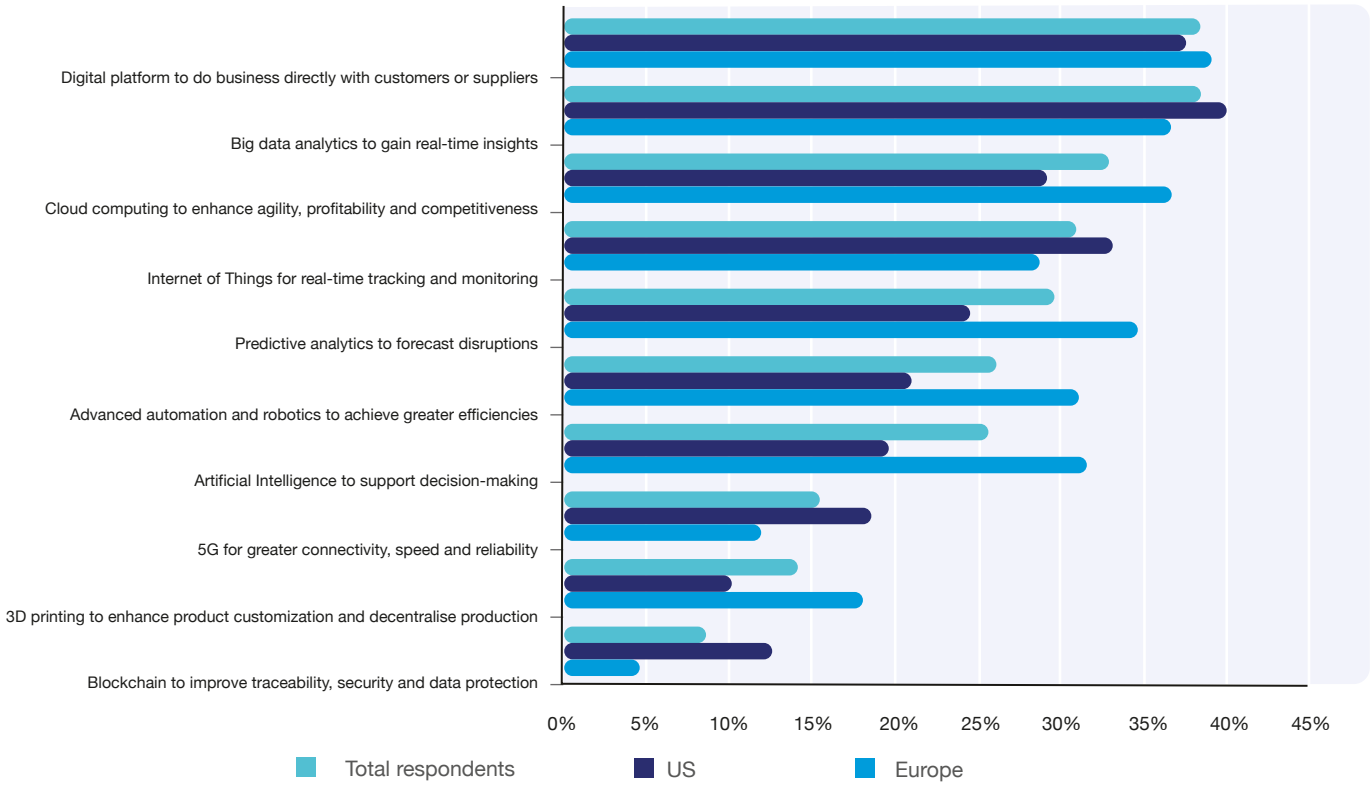
Figure 4. US- and Europe-based executives who agree and disagree that they need greater visibility and control over their supply chains



Our survey found that only a minority of companies had digitised their supply chains. Less than 40% have introduced digital platforms and data analytics over the past three years, with less than a third using cloud computing and the Internet of Things. Less than 10% use blockchain technology, and most of these are large US companies with revenues over US$1bn. However, European companies appear to be looking to technology to safeguard their supply chains more heavily than their American counterparts: more than a third say that they are using software to enhance supply-chain visibility, twice the proportion in the US, and European firms are also using AI more heavily.

"We've worked hard to introduce a digital platform for our suppliers over recent years," says Leigh-Ann Russell, BP's senior vice president in charge of procurement. She explains that BP is working more closely with its major suppliers and going digital allows it to spot any problems quickly.

Figure 5. Technologies implemented by organisations over the past three years to minimise the impacts of supply-chain disruptions



Technology can be a boon for supply-chain agility and resilience, but a costly one for businesses hurt by the pandemic. “The trouble is that this can be a major investment, which companies would need to pass on to their customers at higher prices. They might not be willing to do that, especially with the pandemic hitting their finances,” says Omera Khan, professor of supply-chain management at Royal Holloway University. Nonetheless, the evidence suggests that firms are expediting investments in digital transformation, regarding it as a necessary long-term infrastructure investment. “More than three quarters of our purchases are of small items,” says Ms Russell. “Using technology to centralising procurement allows us to buy things much more efficiently.

CASE STUDY
SCHNEIDER ELECTRIC

For Schneider Electric, a specialist in energy-management kit, technology is the key to balancing the need for a robust supply chain with the need for efficiency. Even before the pandemic hit, the company had launched programmes to reduce its number of suppliers, switch towards a regional rather than global supplier network (to safeguard supplies during crises and reduce pollution)—and join the whole network together through an advanced digital platform, allowing it to monitor suppliers closely, and work with them more closely. "Tech is the key" to balancing supply-chain resilience and efficiency, says Schneider Electric's chief supply-chain officer Mourad Tamoud.

Schneider Electric wants to work more closely with core suppliers so that they work more in partnership to satisfy customer demands. Closer working means everything from closer collaboration over product design to working together to spot and plug possible gaps in the supply chain, says Mr Tamoud. A first step is to whittle down the number of suppliers from around 12,000 to 5,000 by 2022-23, allowing for close relationships with existing suppliers. "We expanded relentlessly through acquisition, leading to some overlap between suppliers," says Mr Tamoud, adding that the company could reduce its supplier number while still ensuring that it had replacement suppliers in place if something disrupted production at its usual suppliers.

Over the past decade Schneider Electric has also shifted away from its lean global supply and production model towards a more regional approach. More local suppliers allow it to react more quickly to events, says Mr Tamoud, as well as allowing for supplier duplication to safeguard against production of key components being disrupted by a catastrophe.

It's not a shift away from globalisation, says Mr Tamoud, pointing out the continued global reach of Schneider's supply chain.

However, it does cut the risks of disruption from long supply chains in a time of volatile geopolitics and trade tensions. It also cuts the environmental damage from transporting goods along distance, with sustainability another key driver of Schneider's supply-chain management.

With a more regionalised supply base and a need to work more closely with suppliers, the company has turned to technology to link everything together. In 2019 it adopted a new digital platform, designating some of its plants as "smart factories", using Internet of Things technology to constantly monitor production. This has helped to yield energy savings of 30% at the plants, as well as making it easier to predict production bottlenecks.

In total, the company has around 300 connected factories and distribution centres, a third of them using smart tech. "Tech allows us to fully integrate our suppliers," says Mr Tamoud. "It changes our relationship with them."

LOOKING AHEAD

Uncertainty, disruption and shock are inevitable. Firms recognise the need to make big changes to their supply-chain operations over the next few years to weather storms ahead

Supply-chain disruption can be hard to predict in its quality, kind, locus and timing—but supply-chain executives are certain that more looms. "Companies know there will be future supply-chain disruptions," says Mr Sheffi.

Looking to the next five years, the executives that took part in our survey reported the greatest levels of concern over geopolitical risks, followed by the continuation of disruption as a result of the pandemic. Trade remains volatile, with lingering uncertainty over US-China trading relations, particularly over technology, and the fallout of Brexit in Europe. Mr Sodhi notes that risks emerge not just in frosty trading relations between particular countries in regions, but also because of new trading blocs that will encourage regional supply chains. For example, the 2018 trade deal between the US, Canada and Mexico makes it harder for those countries to strike individual trade deals with countries like China, a key supplier to some of the region's car plants.

But there are several other forces of disruption on the agenda: from the disruption wrought by changing and diverging regulations, to cyberattacks. Just under a third of survey respondents cited regulatory and legal changes as a primary concern. Partly, this reflects

> **"Companies know there will be future supply-chain disruptions."**
>
> *— Yossi Sheffi, MIT Center for Transportation & Logistics*

changing trade regulations as regional blocs form and reconfigure (as with Brexit, for example), leading to diverging standards and regulation that could prompt firms to switch suppliers or localise.

Global efforts to cut pollution levels are accelerating too, with environmental regulations requiring shorter supply chains to lessen the environmental impact. One measure is to impose carbon taxes based on a country's levels of emissions, but these vary widely. Seventeen European countries have introduced carbon taxes since 1990, ranging from €1 (US$1.20) per metric ton of carbon emissions in Ukraine and Poland to over €100 (US$120) in Sweden[5]. As these rates change and more countries start charging for emissions, so the sums change for supply managers juggling the costs of importing from different countries.

In response, supply-chain executives expect to work more closely with other parts of their business—collaborating more with strategy teams, marketing, finance and IT.

[5] https://www.statista.com/statistics/1104622/monthly-car-registrations-europe/

Figure 6. Factors considered most likely to impact supply chains in the next five years (% of respondents)

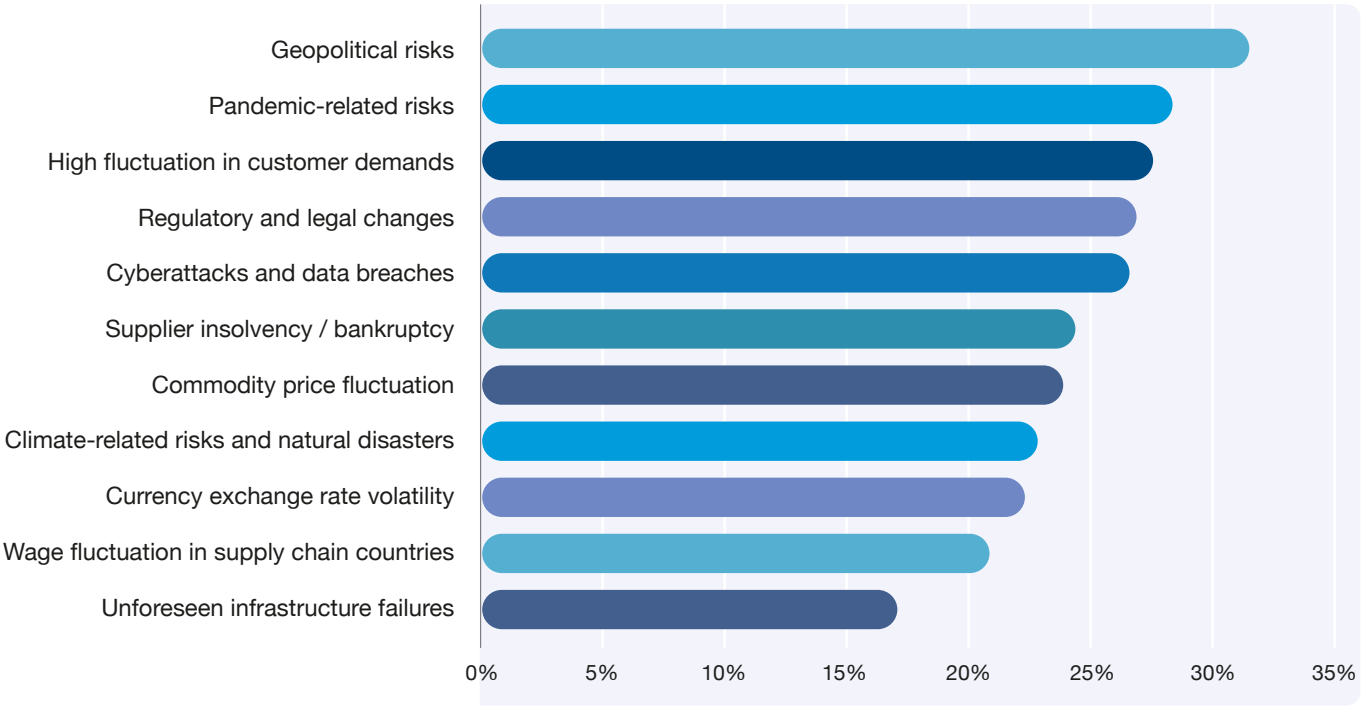
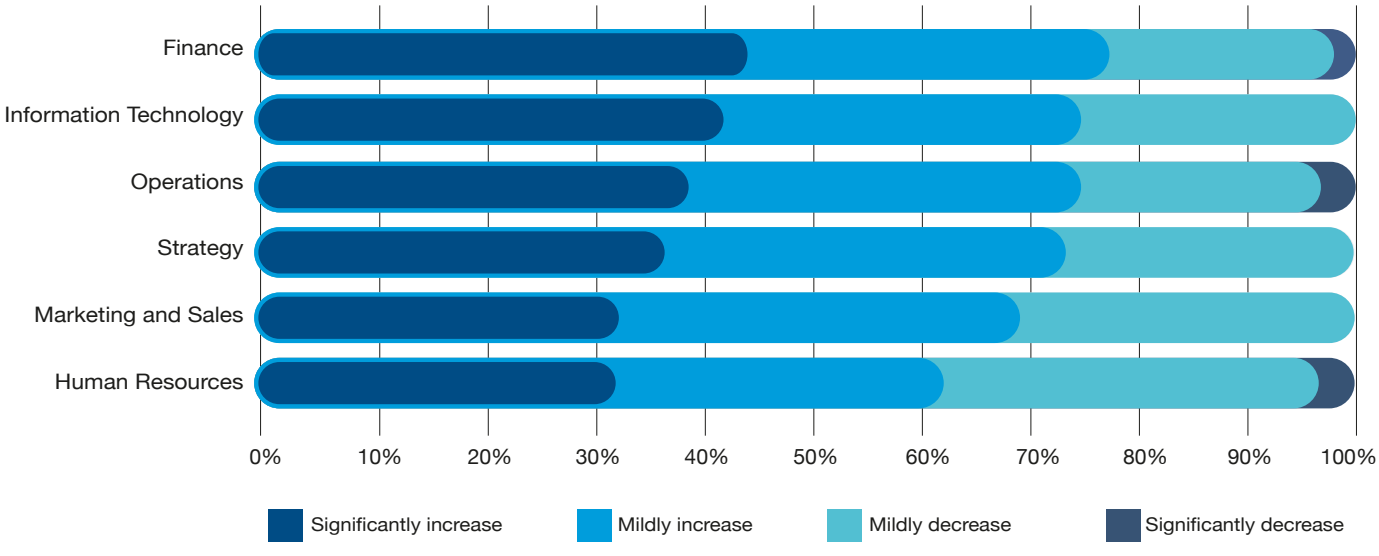


Figure 7. The ways in which supply-chain and procurement executives expect their level of collaboration with other functions to change over the next three years



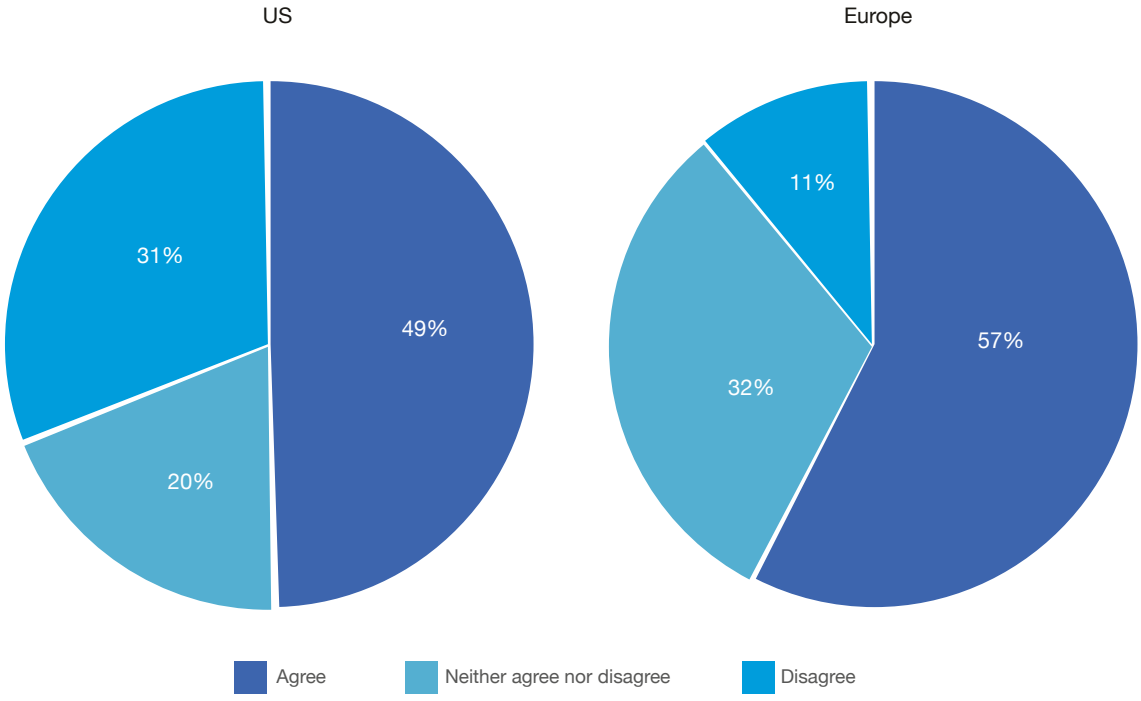
Firms are mindful of internal risks, too. The greatest concern among respondents to our survey relates to the potential of an incident of compromised business ethics. Complex networks of far-flung suppliers, and a litany of sub-contractors, can make it challenging for firms to remain aware and on top of the goings-on in their supply chains. Yet reports of poor working conditions and exploitation, corruption, or poor environmental practices can clobber firms' reputation and sales. These incidents are a bigger concern for smaller firms in our survey. The next biggest concerns cited by companies over internal risks are over supplier relationship and quality management, suggesting that companies feel the need to work more closely with suppliers, as well as monitor them, to avoid problems.

SUSTAINABLY AND LOCALLY

We are seeing an extraordinary impact on global supply chains," says Ms Khan. "To really change the way they tackle these disruptions, companies need to change the way they work and think. Companies need to think more sustainably and more locally." These watchwords go hand in hand. Greater localisation, shorter supply chains and more transparency provides firms with benefits in terms of their ability to monitor and lessen their environmental impact, as well as to achieve more resilient supply chains that will better weather future shocks.

More than half of the executives that we surveyed said that their organisations will need to make big changes to their supply-chain operations over the next few years. European firms are more likely to hold this view than those in the US, as are smaller firms in comparison to larger ones.

Figure 8. US- and Europe-based executives who agree and disagree that their organisations need to make significant changes in order to effectively manage supply-chain disruptions in the next five years



Looking to the future is a question of accelerated evolution, rather than of revolution. As this report has found, companies have learnt lessons from recent catastrophes and built more resilient supply chains—but not without cost. The years ahead will see firms better balance resilience with efficiency—through a combination of mixed sourcing, investments in technology, stronger supplier relationships, regionalised supply chains and simplified product design. These attributes ought to leave firms better prepared to weather storms that lie ahead.

GEP delivers transformative supply chain solutions that help global enterprises become more agile and resilient, operate more efficiently and effectively, gain competitive advantage, boost profitability and increase shareholder value.

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