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The Cost-Plus World of Supply Chains

The macroeconomic and geopolitical environment



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About this report

The 'Cost-Plus World of Supply Chains' is an Economist Impact report sponsored by GEP. It explores the evolving world of supply chain disruption and businesses' response. The report is based on a survey conducted between January 2023 and March 2023 of 400 executives in the US and Europe who were familiar with their organisation's supply chain strategy and operations.

Economist Impact is solely responsible for the views expressed in this report, and the content does not necessarily reflect the perspectives of the sponsor.

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- **Susan Johnson**, executive vice president and general manager at AT&T
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- **Paolo Montrone**, senior vice president Sea Logistics and head of global trade for Kuehne and Nagel
- **Thomas Newbigging**, senior procurement sustainability manager at GSK
- **Chris Rogers**, head of supply chain research, S&P Global Market Intelligence
- **Willy Shih**, professor of management practice in business administration at Harvard Business School
- **Tristan Smith**, director at the University Maritime Advisory Services

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Foreword

Macroeconomic shifts and geopolitical disruptions have posed several new challenges to enterprise supply chains in the past year. These challenges are expected to continue, with 63% of procurement and supply chain leaders, according to the latest survey by The Economist Impact, anticipating additional significant disruptions in 2023 compared with only 29% in 2022.

Trade protectionism and economic downturn remain the biggest concerns related to supply chain disruptions. Higher inflation and interest rates also pose a significant risk to business forecasts, with 85% of respondents expecting revenue drops.

To manage these challenges, enterprises must revisit their supply chains. In fact, 59% of respondents believed that they would have to make significant changes to their supply chain in the coming year.

From the impact of higher inflation and interest rates on consumer demand to the adoption of data and technology to increase supply chain visibility, this paper offers a thorough overview of the strategies businesses will need to face these challenges.

The study highlights the importance of a holistic approach to supply chain management that balances short-term issues and long-term factors when investing in technological innovation. By doing so, businesses can mitigate temporary disruptions and build resilient, adaptable supply chains.

This paper offers valuable advice for business leaders and supply chain professionals to navigate the complex and uncertain global environment. I would encourage readers to apply the recommendations it presents.

Krish Vengat N,
Vice President, Consulting
GEP

Executive summary

1. Geopolitical shifts and macroeconomic environment concerns have increased in the past year. These will considerably impact supply chains in 2023. Sixty-three per cent of respondents now forecast that they will cause significant disruptions in 2023, compared with only 29% in 2022. The uncertainty caused by the economic downturn was respondents' third biggest concern (58%) related to supply chain disruptions in 2023, behind trade protectionism (60%). This highlights the need to plan effectively in order to mitigate the effects of short-term shocks.
2. Higher inflation will create risk to business forecasts in 2023. The majority of respondents (55%) believed there to be a risk to target revenue within 5%. A further 43% forecast the risk to be within 15%.
3. Businesses expect consumer demand will fall due to higher interest rates. Fifty-seven per cent believe this fall will impact revenues by up to 5%, with an additional 20% of respondents forecasting a revenue drop between 6-10%. A further 7% believe their revenue will reduce by 11-15%. Only 15% of respondents believe there will be no impact on their revenue forecasts in 2023.
4. In response to significant disruptions and headwinds in 2023, businesses are restructuring their supply chains. Fifty-nine per cent of survey respondents believe that they will have to make changes to their supply chain to manage challenges in the coming year.
5. Higher inventories and just-in-case supply chains are still widespread. The lowest profitability product is the one you can't sell. Responses highlight the importance executives are placing on inventories in 2023, with 68% stating increasing inventories are a moderate or high priority, and 55% stating decreasing inventories as a low priority. Yet, although inventories can decrease certain risks, they require more capital investment. Sixty-eight per cent of respondents confirm there are additional costs associated with increasing inventories. This shows that executives are focused on factors beyond cost.
6. Substitutability is another supply chain strategy being adopted by businesses to weather short-term disruptions. Eighty-four per cent of respondents rated substitutability of moderate to high importance in managing procurement and supply chains disruptions in 2023. By employing input substitution, certain firms will be able to minimise inventory holdings whilst preserving output levels, as versatile inputs can be utilised across different products.



7. An almost universal supply chain strategy is businesses' adoption of data and technology. The highest priority for businesses to ease supply chain challenges in 2023 is adopting technology to increase supply chain visibility (63%), followed closely by digitally transforming supply chains (57%).
8. All technological enhancements require capital investment. How businesses balance this investment when battling strong economic headwinds and geopolitical disruptions requires tough decisions. They will need to look at process innovation and balance short and long-term factors when deciding on investment in technological innovation.
9. Confronted with new and unpredictable challenges, companies today require new and innovative approaches to supply chains. A solely just-in-case or just-in-time supply chain approach will not provide the best value for businesses. Instead, adopting a hybrid approach tailored to a company's distinct products, positions, and objectives can harness the advantages of both and therefore alleviate costs. To decide which mix of approaches to use, businesses need to be vision-based and take a holistic approach to their supply chains, merging geopolitical and economic insight with considerations such as lead times and supplier relationships in order to maintain efficiency and sharpen their competitive edge.

Geopolitics and economic headwinds remain considerable concerns for businesses in 2023

Geopolitical shifts and macroeconomic concerns have increased in the past year. Economist Impact conducted a survey of business executives across Europe and the United States (US) to better understand supply chain trends in 2023. Drawing on specific geopolitical concerns, 63% of respondents forecast that they will cause significant disruptions in 2023, compared to only 29% in 2022. This remarkable rise in executives forecasting significant disruptions highlights the importance of effective planning in order to mitigate the effects of geopolitical shocks.

Linked to geopolitical shocks is inflation which hit a 40-year high in 2022^{1,2} and is predicted to persist well into 2023-2024 as central banks struggle to tame it.³ It will continue to weigh on

consumer spending and impact on trade and supply chains.

Most notably, geopolitical risk increases the level of uncertainty, which weighs on economies and markets across the globe. This uncertainty leads businesses to delay decision-making, further impacting trade and supply chains. Maurice Schweitzer, professor of management at the University of Pennsylvania, confirms this by stating, “Uncertainty makes us drag out decisions and severely discount possible outcomes. In organisations, this negativity can cause us to miss opportunities.”⁴ Using Economist Intelligence Unit data, the trade uncertainty index shows an elevated level in recent years, corroborating these concerns.

Uncertainty caused by the economic downturn was respondents’ third biggest concern (58%) related to supply chain disruptions in 2023. Whilst difficult to quantify, research does show that geopolitical risks and economic downturns are inextricably linked in today’s context. Analysis by the ECB concludes that Russia’s invasion of Ukraine ‘revealed the existence of a negative geopolitical risk premium priced in

“Uncertainty makes us drag out decisions and severely discount possible outcomes. In organisations, this negativity can cause us to miss opportunities.”

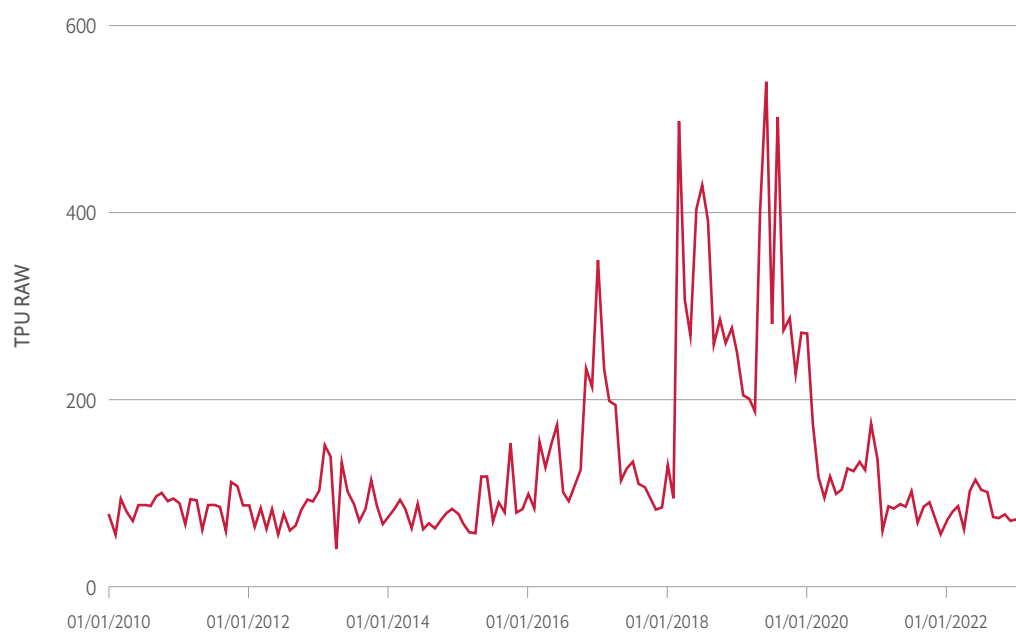
Maurice Schweitzer, professor of management at the University of Pennsylvania

¹ <https://www.bloomberg.com/news/articles/2022-10-13/core-us-inflation-rises-to-40-year-high-securing-big-fed-hike?leadSource=uverify%20wall>

² <https://www.ft.com/content/2fb6f361-a7bb-4b98-8100-6847b5df79b4>

³ Economist Intelligence Unit, One click report: World, accessed March 2023

⁴ <https://executiveeducation.wharton.upenn.edu/thought-leadership/wharton-at-work/2017/08/leadership-under-uncertainty/#:~:text=%2C%E2%80%9D%20says%20Schweitzer-,%E2%80%9CUncertainty%20makes%20us%20drag%20out%20decisions%20and%20severely%20discount%20possible,in%20terms%20of%20your%20team.>

Figure 1: Trade policy uncertainty index

Source: Trade policy uncertainty index, available at: <https://www.matteoiacoviello.com/tpu.htm#data>

by equity markets'.⁵ Further research found that geopolitical risks increased risk aversion, impacted stock markets negatively in advanced economies and affected capital flows.⁶

It is not only events that create adverse effects on economies but also the threat of geopolitical risks.⁷ This has caused policymakers and business executives to rethink their trade and economic strategies and to rewire relationships, to accommodate new and potential economic and geopolitical challenges.⁸

Geopolitical shocks and economic uncertainty through events such as the war in Ukraine, heightened US-China trade tensions and economic headwinds have led to a re-globalisation trend. Re-globalisation has seen a move away from the trade and supply chain trends of the past two decades (based almost exclusively on best

price). Instead, fragmentation between certain nations or blocs, coupled with new partnerships between others as a way to mitigate the cost burden and increase the security of supply, is becoming a mainstay of trade and supply chain policy decisions.

It is imperative that research shines a light on how businesses are able to mitigate the risks and headwinds they face. This paper endeavours to do this. Section one will delve more deeply into the impact of geopolitical and macroeconomic events. Section two will highlight specific supply chain decisions and strategies and how these impact on costs as well as examining the ways businesses can reduce those costs in a time of geopolitical and economic uncertainty. Section three analyses how supply chains are changing in response to events and what this means for the future.

⁵ <https://www.ecb.europa.eu/press/blog/date/2022/html/ecb.blog220928~a4845ecd8c.en.html>

⁶ <https://www.schroders.com/en-us/us/wealth-management/insights/measuring-the-impact-of-geopolitics-on-markets/>

⁷ <https://www.schroders.com/en-us/us/wealth-management/insights/measuring-the-impact-of-geopolitics-on-markets/>

⁸ <https://www.csis.org/analysis/building-resilient-global-supply-chains-geopolitics-indo-pacific-region>

Section One: The impacts of geopolitical disruptions and economic headwinds will cause multiple headaches for businesses

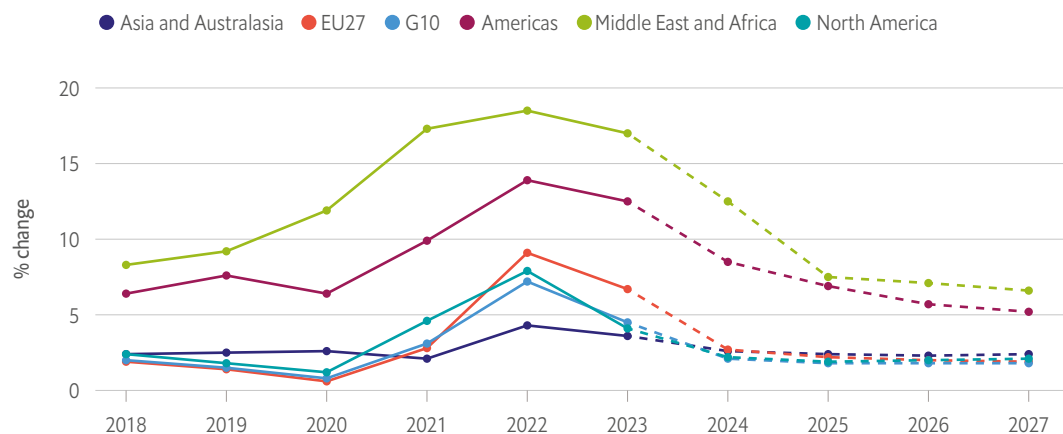
2023 will be a year plagued with higher inflation and interest rates posing major concerns for supply chains. Data indicates that global inflation rates will remain persistent in 2023, with The Economist Intelligence Unit (EIU) expecting it to subside only gradually to 7%, down from 9.3% in 2022, as of May 2023.

Survey respondents are acutely aware of the current downturn, as 58% rated economic uncertainty as having a significant impact on procurement and supply chain operations in 2023, whilst another 23% rated it as having a

moderate impact. Only 19% of respondents saw it as having no impact.

A similar trend can be seen when asked about higher costs of inputs, where 53% of respondents rated it as having a significant disruption, 29% as moderate disruption and only 19% as having no disruption to procurement and supply chains in 2023. Results are slightly higher from supply chain professionals (as seen in Figure 4) who have a more acute understanding of the issues facing supply chains.

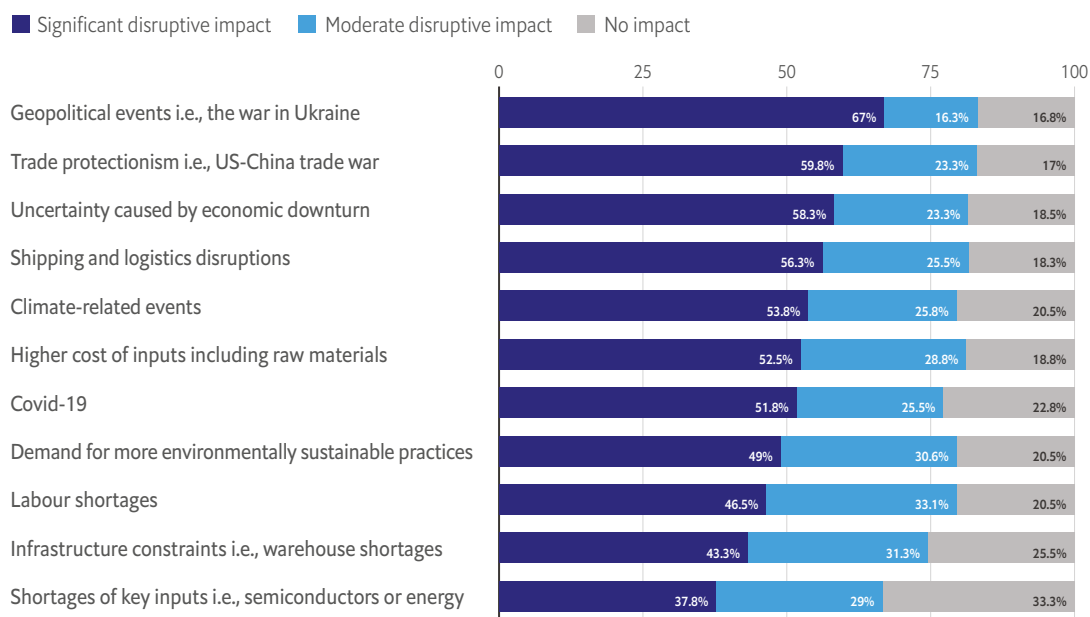
Figure 2: Inflation across the world



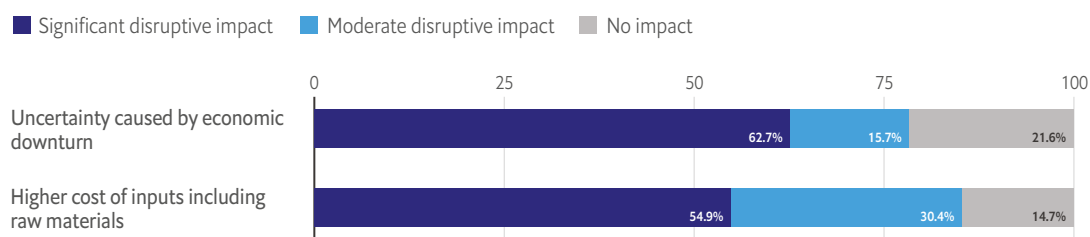
Source: Economist Intelligence Unit

Figure 3: Respondents reporting the impact of various issues

Question: How do you expect the following issues to impact your procurement and supply chain operations in 2023?



Source: Economist Impact survey 2023

Figure 4: Impact of economic downturn and higher cost of inputs, as perceived by supply chain functionQuestion: How do you expect the following issues to impact your procurement and supply chain operations in 2023?
Responses by supply chain function.

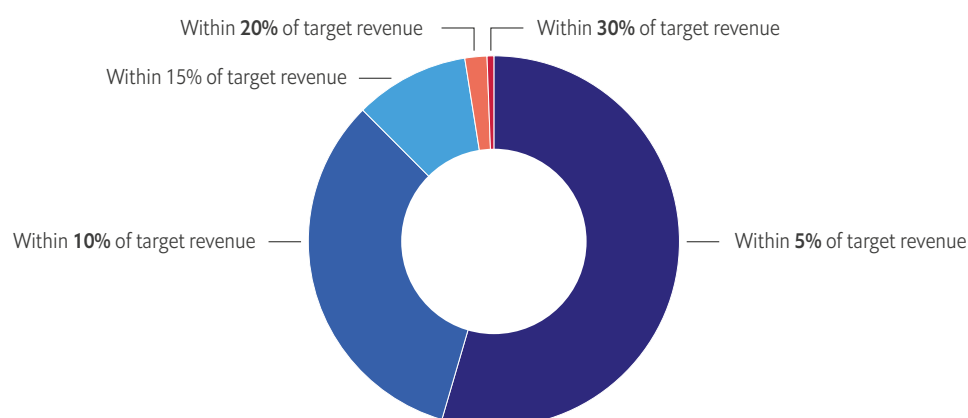
Source: Economist Impact survey 2023

In a time of increasing costs, businesses will be looking to maximise revenues and profit wherever possible. This will be challenging for them as those surveyed stated that inflation will create some risk to their forecasts in 2023

if it remains high. The majority of respondents (55%) believed there to be a 5% risk to target revenue. A further 43% believed the risk to be up to 15%. Supply chain managers must weigh these forecasts as they pursue cost minimisation.

Figure 5: Forecast risk to costs based on high inflation and input prices

Question: How much risk to your costs forecast is your organisation planning based on commodity/input price inflation remaining high in 2023?



Source: Economist Impact survey 2023

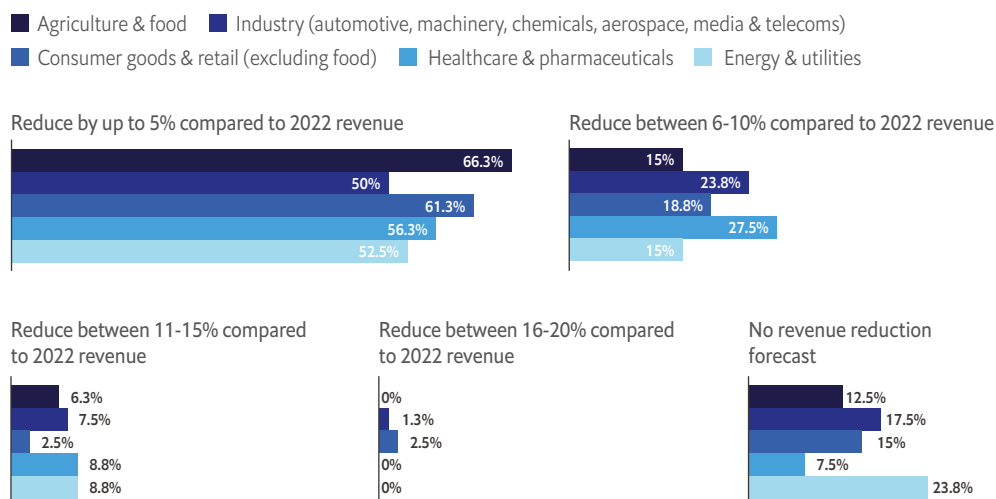
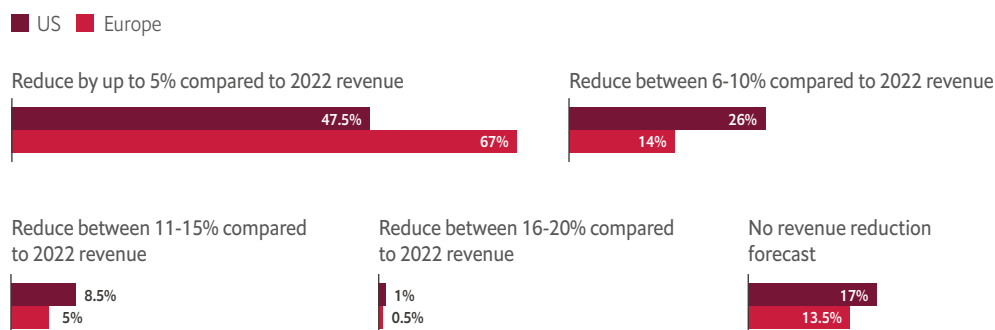
Lower consumer demand will reduce business revenues

Reduced consumer demand through rising interest rates will also hit business revenues in 2023. The International Monetary Fund (IMF) found that short-term interest rate hikes (two-year rates) had a significant impact on consumer

spending, with a lag of about six months.⁹ Fifty-seven per cent of businesses expect falling consumer demand to reduce their revenue up to 5%, while 20% believe a 6-10% reduction is possible. A significant 7% forecast an 11-15% hit to their revenue. Only 15% of respondents believe there will be no effect on revenue forecasts in 2023.



⁹ <https://www.imf.org/en/Publications/WP/Issues/2022/12/16/Monetary-Policy-and-Credit-Card-Spending-527011>

Figure 6.1: The impact of falling consumer demand on revenue in 2023, by sectors**Figure 6.2: The impact of falling consumer demand on revenue in 2023, by regions**

Source: Economist Impact survey 2023

Respondents in the US believe that reduced consumer demand will affect their revenue more severely than their counterparts in Europe. This can be explained when consumption patterns in the two regions are examined. In December 2022 private consumption in the US accounted for 68.5% of nominal GDP¹⁰ compared with 58.1% in Europe.¹¹ Any reduction in consumer demand, therefore, will have a greater impact in the US than in Europe.

The rise of non-cash factors in supply chains

In this period of economic volatility and geopolitical uncertainty, companies are seeking to maximise the economic value added ahead of profits, by factoring in non-cash factors (for example, resilience and sustainability), states Chris Rogers, head of supply chain research at S&P Global Market Intelligence.

¹⁰ <https://www.ceicdata.com/en/indicator/united-states/private-consumption--of-nominal-gdp#:~:text=United%20States%20Private%20Consumption%20account-ed,an%20average%20share%20of%2063.3%20%25.>

¹¹ <https://www.ceicdata.com/en/indicator/european-union/private-consumption--of-nominal-gdp#:~:text=European%20Union%20Private%20Consumption%20account-ed,an%20average%20share%20of%2055.2%20%25.>

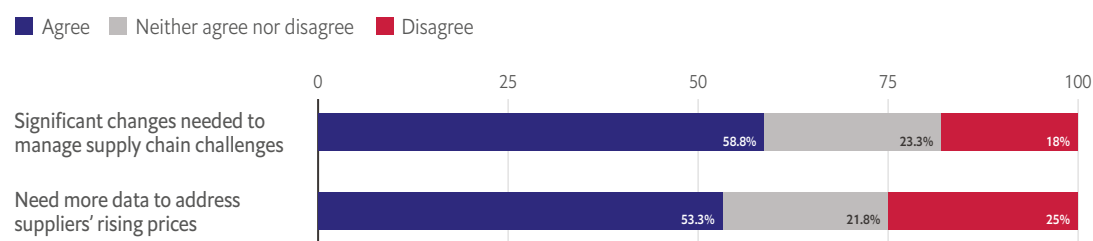
Traditionally, the return on invested capital was the primary driver of supply chain decisions. This trend can be seen with the offshoring of many industries to regions with lower labour costs. For today's companies, the decision isn't as simple. Investors will expect a higher investment return from those companies that have not built resilience into their supply chains than from those that have. In this period of increased geopolitical and economic risks, non-cost factors, such as security or resilience-building, are being taken into greater consideration when calculating the cost of capital in investing in different supply chain areas, be they regions or capabilities. Nowadays, the region with cheap labour may be a high-risk market, thereby decreasing the appeal of doing business there due to the potential lower value-add. Another set of considerations that businesses are increasingly having when reforming their supply chains is related to sustainability. In fact, 72% of

businesses we surveyed placed sustainability and wider ESG goals within their top three priorities when it comes to benchmarking supply chain success.¹²

This means that supply chains are coming under increasing strain as more elements need to be factored into decision-making. Survey results indicate that these additional factors are pushing many businesses to restructure their supply chains to account for such changes. Fifty-nine per cent of survey respondents believe that they will have to make changes to their supply chain to manage challenges in the coming year. Furthermore, 53% of respondents want more data on what materials and services cost to be able to address suppliers' rising prices. These findings reveal how crucial it becomes to examine the individual strategies that can help businesses overcome these developing challenges in supply chain management.

Figure 7: Sentiments on supply chain challenges and supplier prices in the next year

Question: To what extent do you agree or disagree with the following statements?



Source: Economist Impact survey 2023

¹² Resilience and sustainability are the central focus of briefing paper two which is due to be published in June 2023 titled 'Navigating the Cost-Plus World of Supply Chains: A Balance Between Resilience, Sustainability and Costs'

Section Two: Businesses can adopt multiple strategies to weather disruptions

There are a variety of strategies that businesses can implement to tackle the short-term challenges imposed on them. Doing so would help mitigate the impact of the immediate shocks respondents see as threatening their supply chain operations. Willy Shih, professor of management practice in business administration at Harvard Business School, stated that the price of disruption from geopolitical risks, in particular, has been ‘unpriced’ and because of this, it is quite often ignored by businesses. There is a lot that businesses cannot predict, and that unpredictability is likely to continue. Conversely, there is also more they can do to counter growing uncertainty and risk.

Trade agreements would be one way to reduce risk as commitments within them are binding, and they provide a way for governments to decrease the uncertainty businesses are faced with today. Oliver Zipse, chairman of BMW, stated at the 2023 Munich Security Conference that “FTAs are far more important to us than the WTO”.¹³ The more certainty in the trading environment, the more governments and businesses have to gain.¹⁴

While trade agreements are beneficial, businesses do not decide their final outcome nor with whom governments finally strike an agreement. Companies must therefore rely on other strategies to ensure they are achieving

“The price of disruption from geopolitical risks, in particular, has been ‘unpriced’ and because of this, it is quite often ignored by businesses. There is a lot that businesses cannot predict, and that unpredictability is likely to continue. Conversely, there is also more they can do to counter growing uncertainty and risk.”

Willy Shih, professor of management practice in business administration at Harvard Business School

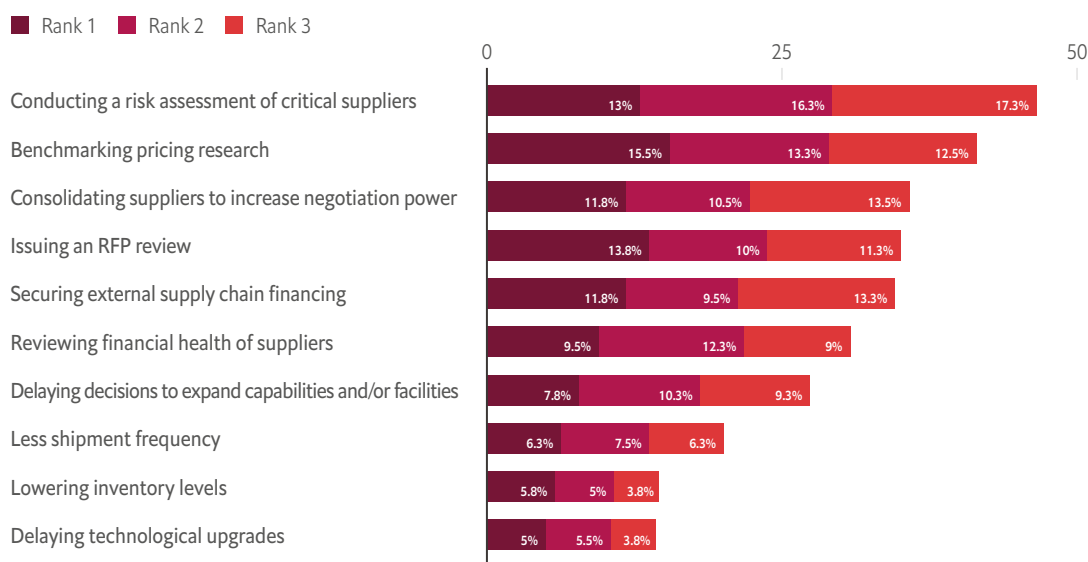


¹³ <https://www.youtube.com/watch?v=1CUlshujpuM>

¹⁴ https://www.nber.org/system/files/working_papers/w18703/w18703.pdf

Figure 8: Supply chain actions to mitigate rising prices

Question: What procurement and supply chain actions has your organisation mainly undertaken to mitigate against rising prices?



Source: Economist Impact survey 2023

the greatest return on investment, taking into account both economic and non-economic factors pertinent to supply chains today.

There is no single, coherent supply chain strategy that businesses can adopt to face the challenges posed in 2023 (as seen in Figure 8). This is not surprising. Every product has its own supply chain, and every company has its singular position within them through which, over time, it has developed management strategies. Each company, even those manufacturing the same part or product as others, may take a different approach to supply chain management dictated by its own particular concerns, influence and analysis. Despite this, some commonalities do emerge from the research.

Economic volatility sees pricing and purchasing strategies come to the fore

Businesses need to work out how they are going to cope with higher costs and reduced revenues. Pricing and purchasing strategies are one solution they are adopting.

In periods of relative stability most companies prefer to alter their pricing only once or twice a year. The current uncertainty and volatility are forcing this to change. While it is expensive to alter their prices, survey results indicate that companies are doing so because of its advantages. When asked what other actions their organisation has taken against inflationary pressures and rising input prices, the fourth most important action cited by respondents was issuing a request for proposal (RFP)¹⁵ review, whilst benchmarking pricing research rated as the second most important approach (seen in Figure 8). Both actions indicate that pricing strategy is critical to limiting the increased costs businesses face, but its effectiveness is reduced unless coupled with a developed company purchasing strategy as well.

When there is uncertainty about inflation rates, fixing costs through signing longer-term contracts provides stability and helps businesses plan more effectively. If their inflation expectations are that it will abate in the medium term, however, businesses may

¹⁵ A document that an organisation posts to potential suppliers to procure a commodity, service, or asset.

hedge and negotiate shorter-term contracts to take advantage of future lower prices. It is imperative that businesses are attuned to economic forecasts and use these as part of their overarching strategies to minimise avoidable expense.

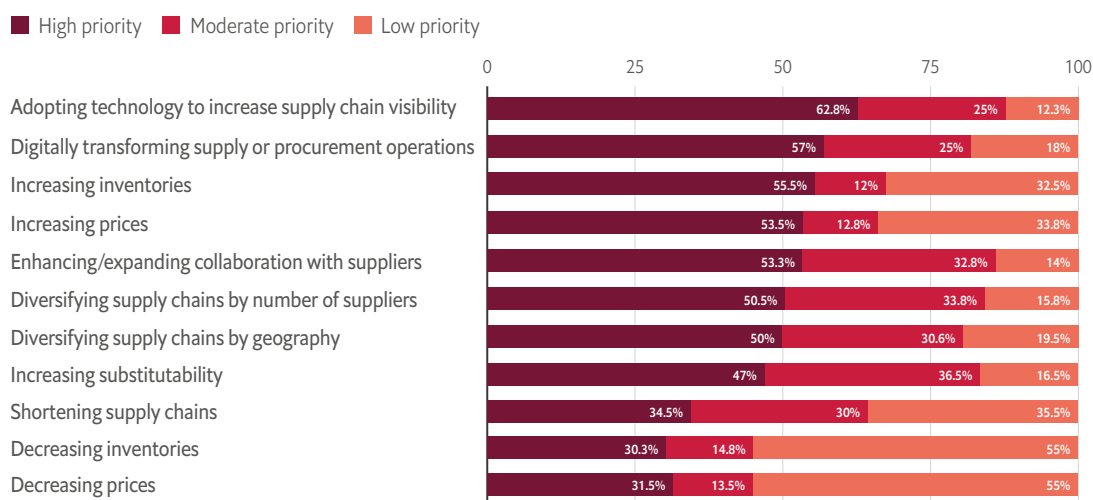
Higher inventories are still the priority of the day

Higher inventories, or the adoption of just-in-case (JIC) supply chains, are still widespread. Mr Rogers of S&P Global Market Intelligence stated that “the lowest profitability product you can sell is the product that you can’t sell”.

Businesses lose money when production is stymied by supply-chain problems. Survey respondents note the importance of inventories in such uncertain times. Fifty-six per cent stated that they will stockpile inventory to provide a buffer against supply chain disruptions in 2023. When asked what is a priority to reduce supply chain and procurement disruptions in 2023, 68% stated increasing inventories as a moderate or high priority; while 55% stated decreasing inventories was a low priority. Susan Johnson, executive vice president and general manager at AT&T, confirms this stating that “inventories are way up across the globe”.

Figure 9: Metrics to benchmark supply chain success

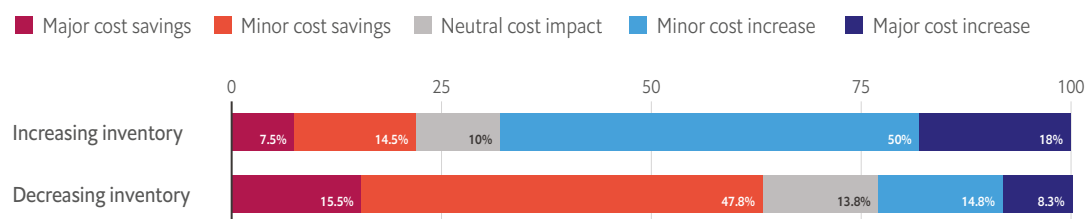
Business priorities to mitigate supply chain disruptions in 2023



Source: Economist Impact survey 2023

Figure 10: Costs associated with increasing and decreasing inventories

Question: How would you rate the cost implications of the following business steps your organisation is taking to mitigate supply chain disruption? Please select one in each row.



Source: Economist Impact survey 2023



Supply-chain disruption also carries serious brand reputation risks. If businesses do not stockpile enough inventory in specific sectors, there could be political repercussions, as was witnessed in the US infant formula shortage.¹⁶ Such misjudgements can lead to government intervention, thereby causing further uncertainties for industry.^{17,18}

While higher inventories do decrease certain risks, they require more capital investment as survey respondents confirmed. Sixty-eight per cent reported potentially significant cost implications through increasing inventories. A further 63% believed that corresponding levels of savings could be made if inventories were to be decreased. With higher costs forecast to

continue in 2023, businesses need to remain vigilant about the continuing impact of higher interest rates and inflation on their bottom line.

The significant costs associated with stockpiling have now led businesses to make non-cost factors, such as security, central to their supply chain planning. Despite this, businesses remain subject to pressure from stakeholders to return to a 'best price' focused strategy.

When discussing the new supply chain model that includes non-cost factors, Mr. Rogers states, "it's whether their shareholders will let them or whether they will turn around and ask for higher dividends and return of capital instead".

Businesses require flexibility in supply chain management. There is a need to balance internal and external stakeholders while also dealing with market uncertainty. It may become sound practice to hold around 50-60% of the inventory levels common in more normal times with subsequent purchases as and when required. In other words, develop and operate a hybrid approach of just-in-time (JIT) and just-in-case (JIC) supply chains.

Fungibility can help to alleviate business costs

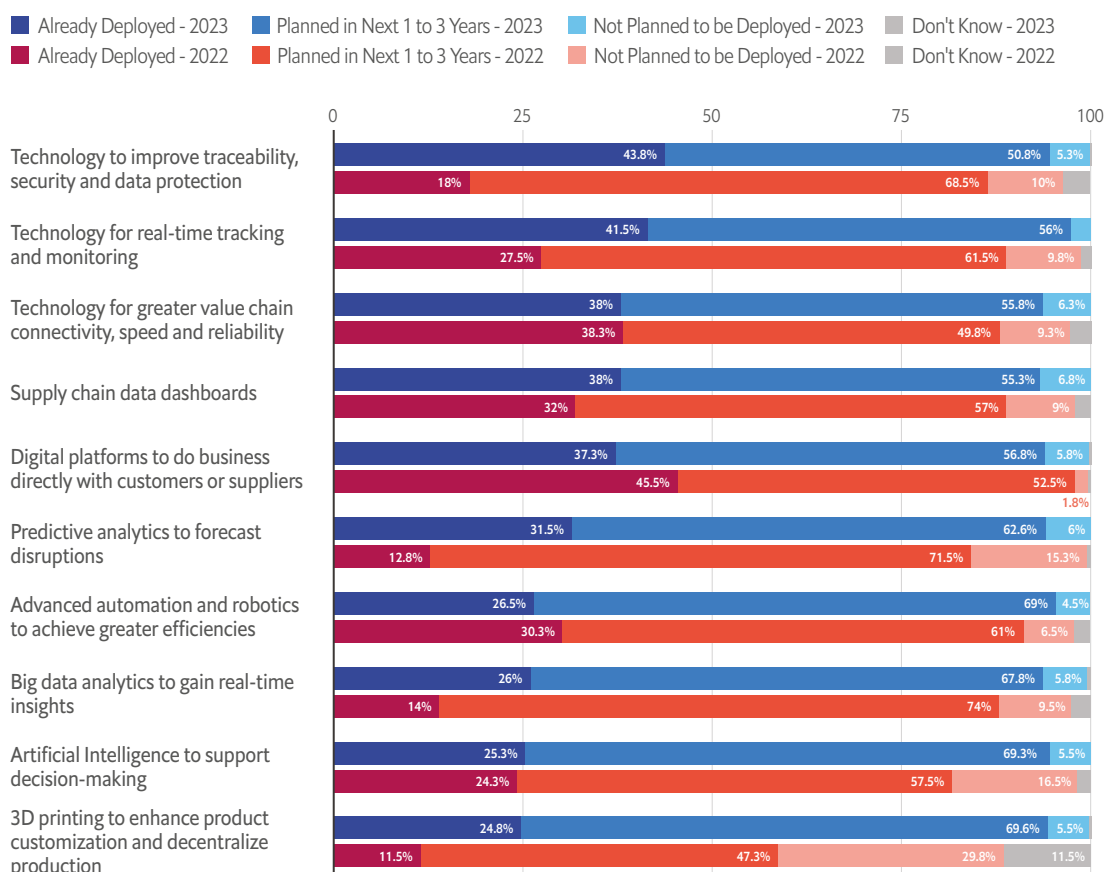
Working as a separate strategy from inventories or in parallel with it, fungibility of supplies is another important consideration for businesses in times of uncertainty. In the context of supply chains, it is necessary to think about the bifurcation of fungibility. The first branch is the fungibility of suppliers, and the second is the fungibility of inputs.

The fungibility of inputs (also known as substitutability), is also an important mechanism in reducing costs. The first branch, the fungibility of suppliers, will be discussed in more depth in an accompanying paper as part of the 'Cost-plus

¹⁶ <https://www.theatlantic.com/ideas/archive/2022/05/baby-formula-shortage-abbott-recall/629828/>

¹⁷ <https://www.whitehouse.gov/formula/>

¹⁸ <https://www.ft.com/content/68c69fad-85bb-4fa6-946d-f314a0c15119>

Figure 11: Deployment of technological applications in 2023 vs 2022

Source: Economist Impact survey 2023 & 2022

World of Supply Chains' research programme, which focuses on building business resilience.

Figure 9 highlights the importance of substitutability for businesses in 2023. Eighty-four per cent of respondents rated it as being of moderate or high importance in reducing disruptions to procurement and supply chains in 2023. Inputs that can be substituted for others helps to reduce inventory levels while maintaining output. Substitution or 'flexible products' is also shown to provide monetary

benefits to companies that adopt this strategy.¹⁹ Consequently, substitution serves to balance cost with non-economic factors such as risk and security.

Increased technological adoption and digitalisation of supply chains are top of the agenda

Above pricing strategies, inventories and substitutability, an almost universal supply chain strategy is businesses' adoption of data

¹⁹ https://www.researchgate.net/publication/261139639_Revenue_management_with_flexible_products_The_value_of_flexibility_and_its_incorporation_into_DLP-based_approaches

and technology. The most distinguishing factor evident in the survey results is the desire of businesses to increase the use of data, digitalisation and technology in their supply chains.

As seen in Figure 9 the highest priority for businesses in mitigating supply chain challenges in 2023 is adopting technology to increase supply chain visibility (63%), followed closely by digitally transforming supply chains (57%).

Businesses have been prioritising technological upgrades to their supply chain and procurement functions for a few years now. A comparison with the previous year's 'Cost-plus World of Supply Chains' research programme²⁰ (as seen in Figure 11) indicates that businesses are allocating significant resources to developing their capabilities in this space. This trend is not slowing down, despite cost increases. Fifty-five per cent of survey respondents stated that there are potentially significant cost increases associated with digitally transforming supply chains. Despite this, only 14% of executives are delaying technological upgrades to avoid the associated cost increases. Many more executives see technological innovation as a route, ultimately, to reducing costs.

Ms Johnson of AT&T, comments that "there is a pivot in the supply chain where cash is becoming a premium. So how we optimise our working capital is becoming more important." Companies have a vision to digitise information in the supply chain, with a view to holding less inventory to bring down costs. Ms Johnson states that when discussing the reliability of their suppliers, "I do think we'll use the technology to get back down to information flow and better reliability. And we will not have every single step of the supply chain buffering their supply. And I think that'll get us to better optimization."

Technology's central role in reducing production planning costs

Technology and the use of data are intrinsically linked to more efficient production planning by developing a digital supply chain platform. Businesses can feed data gathered from artificial intelligence (AI) or sensors into this tool to support optimisation. This would allow the real-time tracking of production, leading to businesses being able to operate with leaner inventories, thereby reducing overall costs and balancing the needs of internal and external stakeholders.

In the US, inventories are growing at double the rate of sales—on a yearly basis, wholesale inventories rose by 12.0% in February of 2023²¹ and, in the same period, retail sales increased by 5.9%.²²

In October 2022, the Wall Street Journal reported that the share price of Target (a retail corporation) fell more than 34%, predominantly because of inventory concerns.²³ Similar trends were seen at Nike and Amazon, among other retailers, leading them to discount items significantly in an effort to get rid of surplus inventory, particularly because of concerns about economic conditions.^{24,25} Greater effort needs to be made by businesses to align inventory levels with customer demand.

Digitalising all processes or phases of manufacturing can help businesses remain flexible to changing circumstances whilst ensuring that capital isn't unnecessarily tied up. Fifty-seven per cent of survey respondents rated digital transformation of their supply chains in 2023 as a high priority, with a further 25% rating it as a moderate priority (see Figure 9). Without digitalisation, businesses will forfeit data accuracy and market agility.

²⁰ <https://impact.economist.com/projects/the-cost-plus-world-of-supply-chains/img/resilience-and-sustainability-in-the-cost-plus-world.pdf>

²¹ <https://tradingeconomics.com/united-states/wholesale-inventories>, using data from U.S. Census Bureau

²² <https://tradingeconomics.com/united-states/retail-sales-annual>

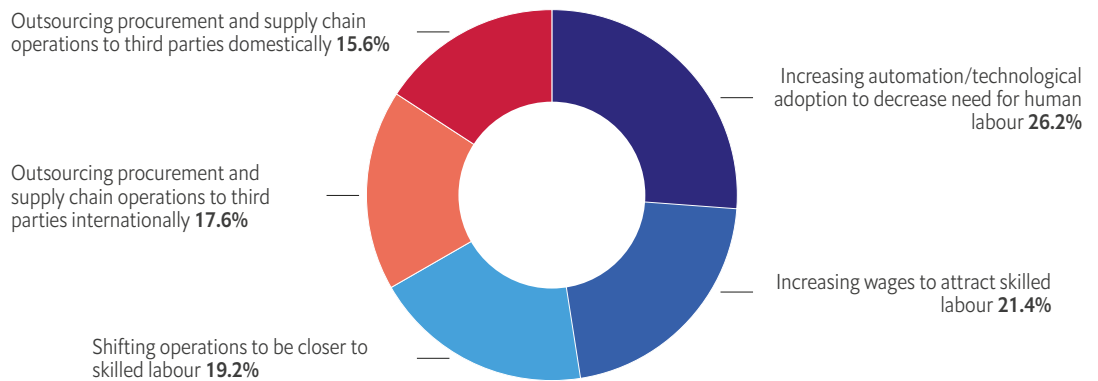
²³ <https://www.washingtonpost.com/business/2022/10/10/discounts-inventory-excess-retailers-economy/>

²⁴ <https://www.businessinsider.com/nike-to-ramp-up-discount-products-to-clear-out-inventory-2022-9?r=US&IR=T>

²⁵ <https://www.latimes.com/business/story/2022-09-26/a-second-prime-sale-shows-amazon-is-nervous-about-the-economy-too>

Figure 12: Strategies for overcoming labour shortages

Question: How is your organisation mainly dealing with labour shortages in the procurement and supply chain function?



Source: Economist Impact survey 2023

Beyond reducing inventory levels and increasing supplier security, technologies can also help lower market entry costs, as is the case, for instance, with cloud computing.²⁶ The Internet of Things can also optimise cost efficiencies by increasing performance, through information and data gathering.²⁷ Paolo Montrone, senior vice president of Sea Logistics and head of global trade for Kuehne and Nagel, believes robotics, AI and an enhanced digital echo system in global logistics will become increasingly vital to supply chains. He also comments that technology adoption is also speeding up because of the lessons learned from China and the impact on supply chains during Covid-19 lockdowns.

All technological enhancements require capital investment. How businesses balance investing in technology with battling economic and geopolitical disruption is difficult. Mr Shih of Harvard Business School comments, "It's very tough. You could go to the government and ask for subsidies, which we are seeing in the semiconductor industry." This option, he highlights, isn't sustainable long term nor

possible for all industries. As he points out, there are no shortcuts. Companies need to look at process innovation.²⁸ Businesses will need to balance short and long-term considerations when deciding which technological innovations to invest in.

The human element to technology and supply chains

Supply chains underpin much of the trading system, but they need constant work and revision, especially now as trust is starting to fail. One way to rebuild trust is through enhanced data sharing between businesses. This can significantly increase visibility and reduce costs across the supply chain. As Figure 9 shows, in order to mitigate supply chain disruptions in 2023, the third highest priority, behind increased digitalisation and technology adoption, is expanding collaboration with suppliers. Fifty-three per cent of respondents rated this as being a high priority, and a further 33% rated it as a moderate priority. Sharing data would increase the efficiency of the overall supply chain.

²⁶ <https://link.springer.com/article/10.1007/s10479-022-04749-6>

²⁷ <https://link.springer.com/article/10.1007/s10479-022-04749-6>

²⁸ The implementation of a new or improved production or delivery method



“There is a pivot in the supply chain where cash is becoming a premium. So how we optimise our working capital is becoming more important.”

Susan Johnson, executive vice president and general manager at AT&T

Building or fostering relationships with suppliers can help to enhance problem-solving, contingency planning and competition of businesses.^{29,30} Ms Johnson of AT&T stated that “we’re starting to more closely monitor many of our suppliers because we’ve had a few bankruptcies already.” Technology and the sharing of data and information can help with such monitoring, as is the case with AT&T, as they “have a requirement that all of our suppliers have to give us data”. Mr Shih of Harvard Business School, also confirms the necessity of having strategic partnerships with suppliers rather than purely transactional ones. The fusion of human and technological capabilities would help to ensure that businesses are best placed to deal with increased costs and geopolitical shocks in 2023.

Technology is also being used to overcome labour shortages in the supply chain and procurement functions. With labour costs increasing in places

like China and companies moving production closer to home markets, businesses need to factor this in. Mr Shih comments that with labour costs going up businesses need to generate more productivity. He states that it can come from automation or process innovations, the two most likely solutions.

Furthermore, candidate shortages continue to limit new hires for procurement and supply chain jobs.³¹ Executives surveyed (51%) also see the identification, development and maintenance of people and skills within their business as having cost implications. Businesses mindful of this are turning to technology as a longer-term solution, as seen in Figure x.

Another aspect in which technology is crucial relates to the long-term goal of making supply chains more sustainable.³² Indeed, as Thomas Newbigging, Senior Procurement Sustainability Manager at GSK, says: “One of

²⁹ <https://www.sciencedirect.com/science/article/pii/S0970389617300782>

³⁰ <https://reader.elsevier.com/reader/sd/pii/S0970389622001008?token=6D36C2ACF0B6DD656852AAC2DD4BD691BECBE006D9FBC05E3BEF16A2E2B7F771B5C2422F-7BF7A3B7375AC4D537833F80&originRegion=eu-west-1&originCreation=20230316160101>

³¹ https://www.beselect.co.uk/cm/news/2022/jul_2022/uk_procurement_and_supply_chain_recruitment_market_update_august_2022

³² Read further on the role of sustainability in supply chains management in our comprehensive report on the subject, titled ‘Navigating the Cost-Plus World of Supply Chains: A Balance Between Resilience, Sustainability and Costs’



the biggest challenges in sustainability is data and transparency” and “Technology has a huge role to play in providing transparency and data on supply chain sustainability.” To this end, the integration of technologies, such as advanced analytics and machine learning, the Internet of Things, and blockchain can be transformative to a supply chain in allowing traceability and accountability of its environmental impacts.³³ As companies increasingly embrace technology and digitalisation across their supply chains, the potential for significant reductions in waste, energy consumption, and greenhouse gas emissions becomes more tangible.

In tandem with their own technological advancements, however, businesses must also carefully assess their suppliers’ progress towards greater technological adoption and digitalisation. Pamela Mar, director at the Digital Standards Initiative of the International Chamber of Commerce, states that “unless your suppliers and your intermediaries, your logistics companies and your buyers are moving at the same pace and have the same capability, the move to digital could be very challenging. Businesses will then question why they have invested so much and gotten so little back.” There needs to be a whole supply chain approach to investing in technology and digitalisation in order to mitigate costs effectively.

³³ <https://research.aimultiple.com/supply-chain-sustainability-technology/>

Section Three: A hybrid approach to supply chains is required to minimise costs

Globally, there is a transition to a more hybrid approach to supply chains, regardless of a company's sector. Much of this is to account for geopolitical risks and economic uncertainty, yet some is due to the increasingly reactive nature of consumer demand.

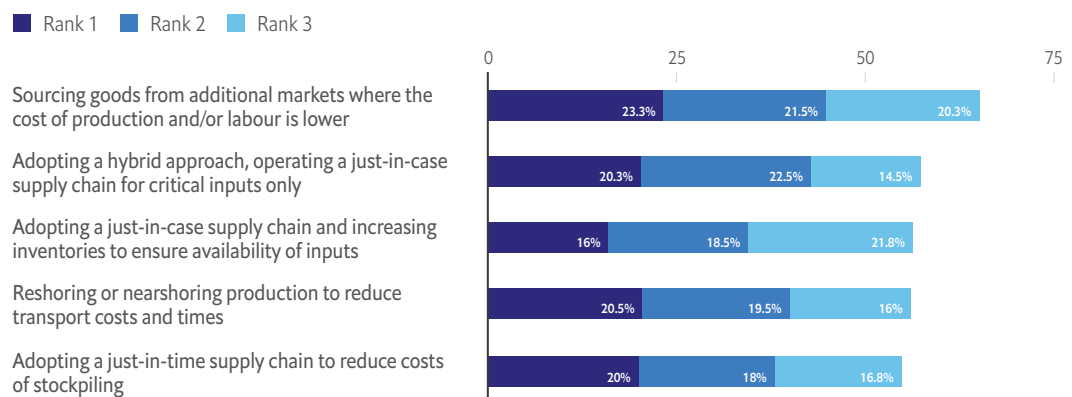
Supply chain debates in the last couple of years have centred on JIT or JIC; reshoring and diversification; and continuous-flow or batch manufacturing. However, the supply chain operating strategy is not a binary choice. Companies are adopting hybrid approaches to supply chains to reduce costs depending on their unique products, supply chain position and strategy.

Flexibility stemming from a hybrid approach can deal with economic and consumer demand volatility

To determine which mix of approaches to combine and operate a business first needs to determine the situation of market economies and the direction they are heading. This requires vision and a holistic approach to the supply chain to be integral disciplines in the company culture. Only when executives have developed their own view of the geopolitical and economic situation in combination with factors such as lead times and supplier relationships will they succeed in making their supply chain as efficient and cost-competitive as possible.

Figure 13: Strategies to reduce supply chain costs

Question: What is the most effective operations strategy to reduce supply chain costs?



Source: Economist Impact survey 2023

A hybrid approach to supply chains isn't only necessary to account for the risks and uncertainty posed above, but also to account for consumer demand.

Today, the consumer has access to a greater bank of information than in the past. Before the rise of the internet, retailers had a captive audience as they largely controlled what information was available. Now, because of more price transparency, for example, consumers can and do change their preferences more quickly. Businesses need to account for this as consumer confidence in them and the wider economic situation are important drivers of their behaviour.³⁴

Ms Mar of the International Chamber of Commerce commented that “a huge cost to retailers is actually the cost of a markdown or offloading goods that can't be sold because of poor production planning or inability to read and change with consumer demand.” To be more effective in times of uncertainty, businesses need to shrink the time taken for products to be produced in the supply chain due to the dual risk of economic uncertainty and changing (more reactive and immediate) consumer preferences.

“A huge cost to retailers is actually the cost of a markdown or offloading goods that can't be sold because of poor production planning or inability to read and change with consumer demand.”

Pamela Mar, director at the Digital Standards Initiative of the International Chamber of Commerce

Survey responses indicate that lead times which account for economic uncertainty and consumer preferences are a factor in supply chain planning. Thirty-five per cent of respondents prefer to prioritise supply chain location on its proximity to adjacent steps in the supply chain, 27% opt for operational locations based on geopolitical risks, whilst 39% stated that they prioritise both equally.

These results indicate that a hybrid approach to supply chains is necessary to account for the various factors. Location in relation to the consumer market is critical, incentivising reshoring or nearshoring. Such approaches help to shrink lead times, allowing companies to build in more agility, a necessary factor when accounting for changing consumer demand.

Location to hedge against risk is also important, and multi-sourcing or diversification is used as the primary strategy for this. So the stage within a supply chain could be a predictor of whether companies are likely to opt for nearshoring or reshoring or whether to go for diversification.

The stage within the supply chain and the products being manufactured, along with many other factors, will also influence business supply chain decisions. Instead of thinking about reshoring vs diversification or JIT vs JIC, or continuous-flow manufacturing and batch manufacturing, executives should adopt a hybrid supply chain approach that is grounded in a vision of the direction of the global economy. Paolo Montrone, of Kuehne and Nagel, commented that those businesses that fared best when faced with disruptions were those with flexibility and contingency built into their supply chain arrangements.

³⁴ <https://data.europa.eu/en/publications/datastories/covid-19/shedding-light-changing-consumer-behaviour-economic-data>

Many disruptions but even more solutions



There is no single supply chain strategy for how businesses respond to increasing geopolitical risks and economic uncertainty. However, the use of data and technology underpins almost all strategic approaches.

While no common strategy exists, there are several trends that have emerged. These are the use of inventories and fungibility, among others, to mitigate the short-term risks businesses are facing in 2023. While higher inventories do help businesses manage geopolitical risks and macroeconomic uncertainty, there are costs attached to this supply chain strategy that businesses need to be aware of.

Creating a hybrid approach to supply chain management, whether it be to account for risks or consumer preferences, is also a necessity in today's unstable environment. Again, the use of technology can help to ensure that the hybrid approaches to supply chains are adapted for specific businesses and become a success.

While such strategies help to deal with shorter-term risks, namely for those in 2023, there are longer-term risks to supply chains that also exist. A second paper as part of the 'Cost-plus World of Supply Chains' programme will examine this, looking more closely at the non-economic factors in supply chains that have become a priority for supply chain professionals, namely resilience and sustainability.

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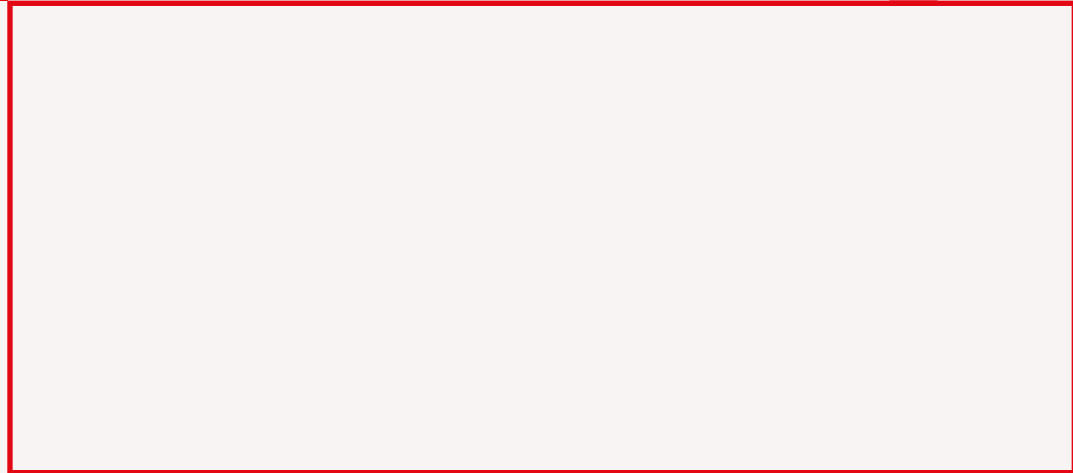
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