



A&M INSIGHTS

# Five Actions to Improve Supply Chain Resilience in Unprecedented Times

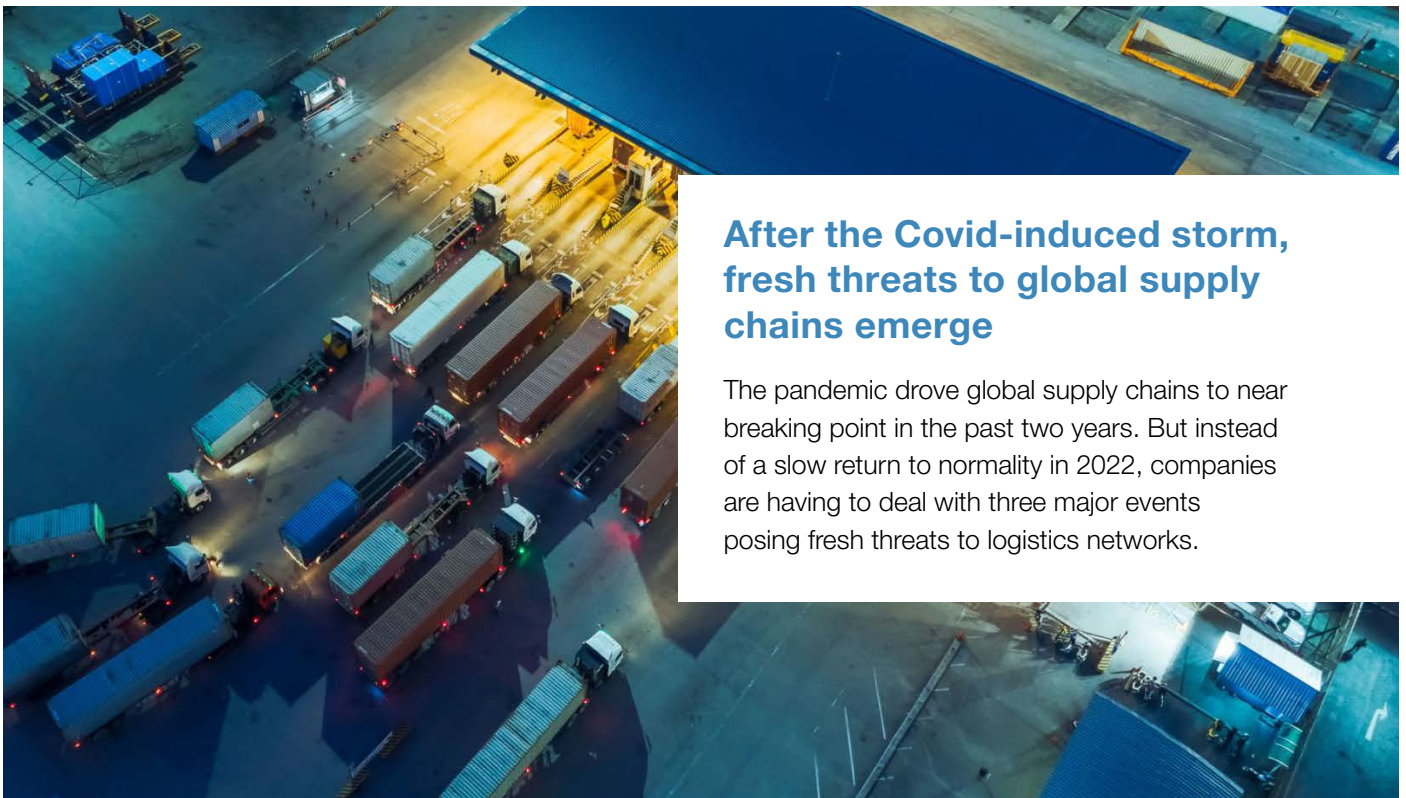


## Introduction

Shocks to global supply chains are increasing in frequency and severity. Over the past 15 years, the financial crash, the Icelandic Volcano eruption, Brexit, US/China Trade War and Covid-19 have caused severe disruptions to businesses across industries and geographies.

Now, new major events – Russian's invasion of Ukraine, new Covid outbreaks in China and [rising interest](#) rates in the US – are all occurring at once, seriously challenging companies' supply chains and forcing them to rethink any return to a pre-pandemic status quo.

But the ongoing turbulence could, and should, also act as a springboard to build businesses' supply chain resilience, prepare for a new normal and seize the market opportunities created by disruption such as e-commerce growth and digitalisation. In this article, we will recommend five actions that companies can implement to achieve that.



## After the Covid-induced storm, fresh threats to global supply chains emerge

The pandemic drove global supply chains to near breaking point in the past two years. But instead of a slow return to normality in 2022, companies are having to deal with three major events posing fresh threats to logistics networks.





## Ukraine conflict

Ukraine is a major supplier of neon gas which is needed to make semiconductors, while Russia is the leading exporter of palladium which is used in catalytic converters. German car factories have cut production due to a shortage of parts made in Ukraine, with the Chief Executive

of Volkswagen saying that the war in Ukraine risked being 'much worse' for the European economy than the pandemic. Goldman Sachs estimates that an EU ban on Russian energy imports would cause a 2.2 percent hit to production and trigger a eurozone recession.<sup>1</sup>

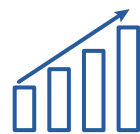
## Covid resurgence in China

In March, China imposed a full lockdown in the north-eastern province of Jilin amid a surge in Covid-19 infections, while partial lockdowns have been introduced in Shanghai and Shenzhen, two cities that account for 16 percent of Chinese exports. Shenzhen is also home

to one of the world's busiest ports, Yantian, which had to operate at 30 percent of capacity in May in response to another Covid outbreak. Similar restrictions may lead to long queues of ships at sea and across the world with significant negative impact on supply chains.<sup>2</sup>

## Rising US inflation rates

US inflation reached a 40-year high in February, with consumer prices rising 7.9 percent from a year ago<sup>1</sup>. The Fed lifted interest rates in March and signalled that more hikes could follow this year to help slow the overheating economy, with rates reaching 2.8 percent by the end of 2023<sup>3</sup>. A slow response from the Fed could result in entrenched inflation and lower living standards, while moving too fast could negatively impact growth in the US and abroad<sup>4</sup>.



Either way, supply chains will need to anticipate and adjust supply to potentially significant changes in demand.

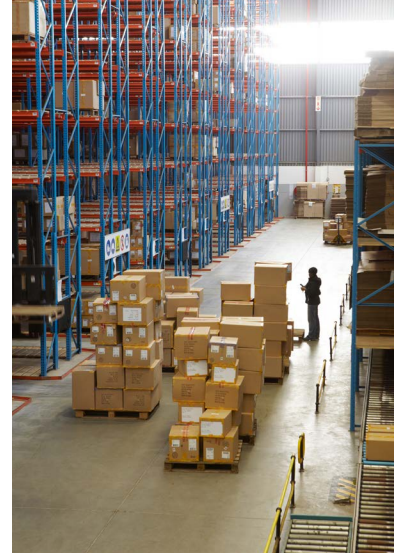
<sup>1</sup> 'FT Big Read, World Economy', Financial Times, Chris Giles and Martin Arnold, 19 March 2022

<sup>2</sup> 'Covid-19 in China, A deep ditch', Economist, 19th – 25th March, 2022

<sup>3</sup> <https://www.reuters.com/world/us/fed-hawks-say-more-dramatic-rate-moves-may-be-needed-tame-inflation-2022-03-18/>

<sup>4</sup> <https://www.bbc.co.uk/news/business-60768818>

In the era of globalisation, supply chains have been designed to maximise cost efficiency in response to market forces. However, while this has increased short-term business profitability, managing the many inter-connected nodes of a geographically dispersed value chain has become more complex. This complexity has also augmented the risk of exposure to unforeseen hazards.



## In light of this, A&M has defined five key actions to improve supply chain resilience:



### 1. Forecasting

- Crisis events like a pandemic makes accurate forecasting of consumer demand more challenging
- One measure to address that is to shift the focus from forecasts based purely on historical trends, move towards those looking at other variables which better anticipate changes in demand and base demand information as close as possible to the end customer
- While the attention to customer or consumer behaviour is undoubtedly merited, wider supply market dynamics should be also prioritised
- This includes using robust scenario planning that accounts for competitor behaviour, trends or demand in other/related industries which may impact companies' own supply chains and financial stability, and adjusting forecasts correspondingly
- Events such as Covid-19 drive all competitors to replenish at the same point in time. A scenario plan and forecast which has accounted for this risk would call for build stock and instigate earlier replenishment. This in turn would preserve customer service and revenue generation during market shortages



### 2. Supply Planning

- On the supply side, building risk factors into the Sales and Operations Planning (S&OP) process is key to establishing an ongoing culture of resilience
- This begins with a strong grasp of the operational constraints in the base supply plan and, crucially, translating the impact of these into financial values across revenue and profit
- These insights form the basis to build trade-offs whereby the opportunity cost of different options can be assessed, enabling planners to highlight key levers for optimising the supply plan. Regular review of the previous period should be conducted to ensure that forward-looking supply plans are aligned to demonstrated performance across the supply base
- Collaborative scenario planning with supply partners can help challenge internal bias and enable decision makers to consider a wider selection of potential events
- Gaining additional insight from the outside can raise visibility of relevant data points which may not be apparent internally and drive a robust understanding of risks and opportunities more quickly





### 3. Portfolio Management

- An approach which differentiates between the strategic significance of your assorted product portfolio and highlights areas of risk should be put in place to create the necessary focus on business continuity
- The first step is performing an initial segmentation to determine where the priority areas lie. This segmentation should be aligned to the overall business objectives and strategy – commonly this includes evaluating product contribution by revenue, profit and channel
- While this process will establish priority portfolio or ‘A’ SKUs, levels of risk are unlikely to be homogenous across the group. To establish specific weaknesses and appropriate mitigations, a granular Bill of Material (BOM) level assessment will reveal where components or materials cannot be substituted, replenishment lead times are a constraint or require sourcing from high-risk locations
- Linking these findings to distinct risk factors will help to determine the right course of action which may range from simplifying specifications and increasing common components across product families to putting in place appropriate levels of buffer stock
- As degrees of risk are rarely static, a formalised review cadence should be implemented to manage ongoing mitigations and variable buffer stock levels, i.e. the removal of trade tariffs in relevant markets eases supply risk reducing the level of buffer stock required



### 4. Sourcing

- When carrying out a risk-based portfolio review with a view to increasing supply chain resilience, sourcing is an area which is often put in the spotlight
- While trade-offs based on Total Cost of Ownership (TCOs) are frequently applied in sourcing decision making, these are not always triangulated with ‘what-if’ scenario planning. Once the cost of specific risk factors and their likelihood of occurring are overlaid, it may be the case that what had initially appeared to be the most cost-efficient option is no longer the right one for the business
- Contingency planning should be deployed to reduce the impact of potential supply disruptions. Components or materials which have been identified as single-source are obvious targets for de-risking. Where it is straightforward to do so, bringing in alternative suppliers is a priority. If not, existing suppliers should be challenged to diversify their footprint and capability
- Again, embedding a regular review process should be used to highlight where temporary challenges have become structural and, for example, shifting to a local supplier may become more appropriate than a far shore solution,
- In addition, high-value contracts and those for critical components or materials should be reviewed to ensure that adequate protection is provided in the case of force majeure events



## 5. Responsiveness

- Companies which mobilise dedicated teams to monitor supply chain risks and enact clear mitigation actions in periods of disruption frequently outperform competitors who have not taken the same steps
- Businesses should establish an early warning system which captures data to identify events which can disrupt the supply chain and enable data-driven decision making. This includes external sources such as news reports and social media as well as internal data points including shipment data, stock levels, purchase orders and price
- Machine learning algorithms, predictive analytics and artificial intelligence can be applied to isolate relevant information, assess the potential impact of an event and suggest contingency plans – from recommending alternative suppliers to navigating price fluctuation
- This can generate regular reporting and heatmapping of developing situations in real-time to allow stakeholders to evaluate event forecasts ahead of impact and take proactive decisions
- By creating the capability to be more agile and react quicker, companies can stay ahead of the competition. This minimises the impact of adverse events on revenue generation, customer service and trust, and helps to keep a tight grip on the bottom line and working capital requirements

# Pharmaceutical Industry Spotlight

There are three key supply chain risks pharma manufacturers must consider when building resilient supply chains: regional exposure, energy usage and cyberattacks.



## Regional exposure

- Pharmaceutical supply chains are concentrated in several particular regions. For instance, in 2019, 72 percent of API suppliers to the US were based overseas; 18 percent being from India and 13 percent from China, where the number of API plants more than doubled from 2010 to 2019
- Such concentrations leave businesses exposed to potential shocks, for example those arising from geopolitical sanctions or further Covid-19 restrictions
- There are several potential actions pharmaceutical manufacturers can take to reduce risk:
  - Dual source API production. The US makes around 28 percent of APIs for its domestic market, while Europe produces 26 percent of APIs for the US so there is potential source outside of China and India depending on products and availability
  - Standardise ingredients and processes to improve flexibility should products need to be transferred and ramped up in different facilities during crisis
  - Set the optimal balance of 'just-in-time' to 'just-in-case stocks', where strategic inventories can lessen the impact of potential shocks
  - Postponement models should also be considered to give flexibility across markets, where a few locations of semi-finished stocks can be rapidly configured for specific markets in line with demand



## Energy usage

- The pharmaceutical industry is energy intensive, emitting more greenhouse gases than the automotive industry.<sup>5</sup> The rise in wholesale gas prices due to Russia's invasion of Ukraine could have a dramatic impact on profitability and could accelerate efforts to reduce greenhouse-gas emissions
- For example, continuous manufacturing reduces energy usage due to its smaller scale, while cutting chemicals and water used in cleaning. Sanofi's continuous manufacturing plant in Framingham, Massachusetts, produces 80 percent less carbon dioxide emissions compared to the company's first-generation facility
- Manufacturers should review contracts with CDMOs to understand how price pass-throughs will impact profitability. An A&M review shows a range of situations, including cases where price increases are allowed over 3 percent while being capped at 20 percent, price rises that could be passed on at any time, and agreements that only allow increases after 4-5 years of signing
- Finally, manufacturers should target energy saving initiatives. Sixty-five percent of energy consumption typically relates to HVAC (Heating, Ventilation, Air Conditioning), while bulk manufacturing processes accounts for significant energy use<sup>6</sup>. Controlling energy usage, including with latest monitoring and analytical technologies, and switching to alternative sources can help reduce costs



## Cyberattacks

- Pharmaceutical and biotech companies suffer more cybersecurity breaches than those in any other industry, with 53 percent of them resulting from malicious activity, according to the 2020 Cost of a Data Breach Report from IBM and the Ponemon Institute<sup>7</sup>
- Cyberattacks are a key risk in the pharmaceutical industry as a consequence of valuable proprietary knowledge, global supply chains and potential weaknesses in IT systems, that may have not been fully integrated and safeguarded post-acquisitions
- A Russian cyberattack against Ukraine in 2017, called 'NotPetya', infected Merck and spread across the organisation causing around \$870 million-worth of damage. It disrupted production of Gardasil 9, the HPV vaccine, resulting in lost potential sales of \$410m – and insurers wouldn't pay out as they didn't cover against 'acts of war'
- During the pandemic, the UK's National Cyber Security Centre (NCSC) reported on over 200 attacks specifically related to the pandemic, including an attack on vaccine research 'almost certainly' from Russian intelligence services
- Measures organisations to reduce risk from cyberattacks include scenario planning to determine potential responses, review of external cyber attack threats, and review of potential system weaknesses. Tight management of identities and permissions is also important, as well as strengthening developer environments including secure authentication practices. Finally training to improve awareness and responses to attacks should be prioritised

<sup>5</sup> <https://www.pharmaceutical-technology.com/features/cutting-carbon-footprint-pharma-supply-chain/>

<sup>6</sup> <https://www.centricabusinesssolutions.com/us/blogpost/pharma-companies-cutting-energy-consumption-gain-competitive-advantage>

<sup>7</sup> <https://www.forbes.com/sites/forbesbusinesscouncil/2021/03/18/how-the-pharmaceutical-industry-can-secure-networks-to-avoid-cyberattacks/?sh=6310bc721eb3>





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Our professionals have both operational and advisory experience together with a proven track record in leading businesses through tough, complex situations. To speak to us about our experience delivering transformations and performance improvement initiatives related to supply chain resilience, please visit our website or speak to one of our contacts below.

### KEY CONTACTS



**Steve Barron**

Managing Director

[sbarron@alvarezandmarsal.com](mailto:sbarron@alvarezandmarsal.com)



**Irvinder Goodhew**

Managing Director

[igoodhew@alvarezandmarsal.com](mailto:igoodhew@alvarezandmarsal.com)



**Lee Feander**

Senior Director

[lfeander@alvarezandmarsal.com](mailto:lfeander@alvarezandmarsal.com)



**Jan Diederichsen**

Senior Director

[jdiederichsen@alvarezandmarsal.com](mailto:jdiederichsen@alvarezandmarsal.com)

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