Shoring Up the Supply Chain: The Benefits of Improving Supply Chain Resiliency

Supply chains are an integral part of getting a product to market and therapies to patients. Sumit Vakil at Resilinc discusses with *EPC* the role that resiliency plays in limiting disruptions to supply chains

***EPC*: What are some of the most significant risks facing pharma supply chains at the moment, and how can these be mitigated?**

Sumit Vakil (SV): Let's begin by talking about active pharmaceutical ingredients (APIs) and their origin: whether it is European or US-based pharma manufacturing, a significant proportion of APIs come from China or India. China has faced several supply chain disruptions and manufacturing shutdowns because of their past zero-COVID-19 policy. Now that the policy is gone, there has been a spike in their infection rate, which has caused an increasing amount of factory shutdowns. Certainly, shipping data from China is starting to slow – but it remains to be seen whether that's because of the zero-COVID-19 policy ending or because of an overall economic slowdown.

Similarly, India is another major source of APIs. However, Indian API manufacturers are also dependent on Chinese manufacturers for raw materials, creating a second level of dependency. Any disruption to Chinese suppliers can disrupt Indian manufacturers, in turn impacting European and US organisations.

The other significant risk is a result of the pandemic. Due to the lockdowns that have occurred over the last few years, it's becoming increasingly noticeable that the necessary maintenance and inspection of facilities have been delayed, or even missed.

For example, there has been an astonishing 85% year-over-year increase in factory fires from 2021 to 2022. Already for a number of years factory fires have been the main reason for supply chain disruptions. The last noticeable risk is labour-related disruption. These also increased at a dramatic rate – by 92% in the same time frame.

Multi-tier supply chain visibility can help overcome these risks. The first step would be to map out the supply chain beyond direct suppliers – knowing who supplied who with what, and who then manufactured it. Once this has been understood, the different dimensions of risks can begin to be layered on top, including everything from geographic and geopolitical risks, financial and economic risks, and labour or ESG risks. This allows the dangers to be laid out, and what needs to be mitigated when and how. These strategies could include alternate suppliers, diversification of locations, or analysing and adjusting safety stock.

Technology can also be a way to overcome these risks, but there should be no religion when it comes to technologies. It's best to look at problems and use what's necessary to solve them, which might involve a plurality of technologies being used together. The ability to capture and synthesise large volumes of data from many different sources, connect them together and extract business intelligence out of it can form an integral part of making international supply chains resilient.

AI certainly has a part to play in collecting this data – but AI is going to create a noisy, high-volume data set. Getting high quality data directly from the source can help overcome this. Sifting through the billions of data points is not a task for humans.

Natural-language-processing-based AI algorithms can be trained on different specific data, and taught to understand and identify from all this news what is actually going to impact supply chains. Now, we have a system that is able to sift through all the noise, find what's important and discard unnecessary information flagged by the AI systems.

That's just one example of where using technology can provide important coverage and timely notification of supply chain disruptions.

***EPC*: ESG and CSR issues are often a top priority for companies. How can these considerations remain in focus when organising supply chains?**

SV: It again starts with knowing who's in the supply chain beyond just the direct suppliers. But in many cases there will be outsourcing occurring, and even the involvement of sub-tier suppliers who may not have been included in the initial plan. These are areas where a lot of risk can be introduced to supply chains in general, but especially so for ESG and CSR issues as well.

So again, the starting point has to be mapping out the multi-tier supply chain and then building on top of it, with the intelligence and information required to understand how the supply phase deals with ESG and CSR issues.

First, the problem needs to be quantified, which involves collecting data from suppliers, specifically on ESG and CSR issues. Having a uniform way of judging suppliers, past what they publish on their websites, creates a baseline on how they are performing on ESG and CSR parameters compared to what is expected. Once these measurements are in place, the risks will be made obvious.

The next step is mitigation. This could involve creating a 'common sense' set of policies to work on with these suppliers to help them improve. In the pharmaceutical world, it can be very difficult to switch suppliers, so the primary goal has to be to work with current suppliers.

Additionally, and on an ongoing basis, high-risk suppliers or those operating in high-risk regions and industries should be monitored for things like health and safety issues, unpaid wages, underage labour, illegal overtime, pollution violations, bans, warnings, government investigations and so on.

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When it comes to risk management – be it financial, geopolitical, or ESG and CSR risks – there needs to be a willingness to adjust the thinking. This allows for the protection of revenue by ensuring that there is not a service disruption caused by a supply disruption. That mindset needs to change for companies to start building resilient supply chains.

***EPC*: Will reshoring become as common in the pharma industry as other industries?**

SV: The short answer is 'yes, we will see similar trends.' The longer answer is that the pharma industry is certainly behind, especially compared to the tech industry, because of the regulatory barriers to making changes quickly in the industry.

Using Europe as an example, there are a multitude of rules and regulations both within and between countries to deal with that can hamper any attempts at reshoring or nearshoring any part of the supply chain. Similarly, a recent report found that, when looking at APIs and raw materials, companies based in Asia account for nearly two-thirds of the approval certificates needed to produce APIs in Europe, and there are 93 different active ingredients that no European company holds certificates for.[1]

As much as there are discussions about reshoring and moving things out of China, what is instead likely to happen will be more of a rebalancing, and of developing alternative suppliers in other locations. There is no way to exit China completely – it's not possible to get that combination of energy costs, labour costs and infrastructure elsewhere.

But, everybody recognises the need to diversify beyond China. Europe is nicely placed in this regard, as it has this mix of economics and labour costs, ranging from established countries like Germany and Poland to more emerging countries like Romania and Bulgaria. Europe poses this incredible opportunity, because there is this vast mix of cost structures available and the infrastructure is great. This creates the long-term potential for restructuring needed for nearshoring or for ensuring.

***EPC*: In what ways can companies make sure that the patient experience remains a focus in supply chain management?**

SV: Patients are at the end of our supply chains and everything that the pharma industry produces and distributes could save a life, but that level of patient experience can only be delivered if companies invest in building resilient supply chains.

Every pharma company has to ensure that its suppliers meet the required quality and regulatory standards.

Building resilience in that context involves having backup site options or having alternative suppliers available that can comply with multiple regulatory regimes across multiple countries.

This investment needs to occur ahead of time, and should be left until the drug is on the market. Integrating these insights into a multiyear supply chain, understanding the risks and mitigating those risks proactively can minimise any disruptions. If organisations evolve from reactive issue management to proactive supply chain resiliency then the patient will always benefit.

References:

1. *Visit: tevapharm.com/globalassets/tevapharm-vision-files/manufacturing-report-final_31_10.pdf*

Sumit Vakil is the chief product officer and co-founder of **Resilinc**. He leads the R&D organisation, which includes engineering data science and product management.

He has a background in the technology industry, having worked in a variety of different start-ups and major organisations over the last 27 years.

Prior to Resilinc, he ran the wireless business aspects of Brocade, and before that at Cisco Systems. From an education perspective, he has a Master's in Electrical Engineering from Purdue University and an MBA from the Wharton School of the University of Pennsylvania, both US.