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Why the Future of Life Sciences Will Be Won Through Supply Chains, Not Factories

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Global life sciences competitiveness is shifting from manufacturing scale to supply chain resilience, agility, and intelligence. As geopolitical and logistical disruptions reshape global trade, companies are prioritising diversified sourcing, digital integration, and ecosystem-based operations. India and Ireland are well positioned to capitalise on this transformation by building resilient, end-to-end, globally connected life sciences supply chains.

Scale, efficiency, and cost optimisation were the deciding factors for competitiveness in the global life sciences industry for decades. However, in an era shaped by geopolitical tensions, trade disruptions, inflationary pressures, regulatory shifts, and hindrances to global logistics, competitiveness is increasingly determined by resilience, adaptability, and supply chain intelligence.

Recently, it has been evident that the global production network is vulnerable. From shipping bottlenecks and rising freight costs to shortages of critical raw materials, active pharmaceutical ingredients (APIs) and specialised components, the life sciences sector has had to navigate persistent uncertainty. Export controls, regional conflicts and fluctuating energy costs have further exposed the risks of overdependence on manufacturing hubs.

Along the way, there were a few major inflection points like the COVID-19 pandemic that showed the world its deep vulnerabilities in the global supply chains. Supplier delivery times hit record delays, air cargo capacity tightened as passenger travel collapsed, and nearly 80 countries imposed export restrictions on medical supplies.

The cost implications were equally bad. Industry estimates point towards pharmaceutical shipping costs surging over 200 per cent during the pandemic, reflecting a strain on the global logistics network. However, these challenges extended beyond logistics as well. Supply shortages affected critical inputs for APIs and vaccine components such as lipids and vials. Before the pandemic too, structural gaps were being noticed, with increasing shortage of drugs which were linked to supply chain issues between 2017 and 2021. The key takeaway here is that manufacturing capacity alone cannot guarantee delivery. If anything, it is the tenacity and intelligence of supply chains that define competitiveness.

From Producing Hubs to Integrated Ecosystems: Initially, the life sciences industry prioritised efficiency; centralised production, lean inventories, and globally concentrated supply chains. The industry currently is shifting towards a more even, ecosystem-led approach, where competition is determined by how effectively companies integrate research, manufacturing, logistics, regulatory alignment and digital capabilities. In this new model, value is no longer limited to just production but the entire lifecycle, from innovation to delivery.

Supply Chains as Strategic Differentiators: Supply chains have shifted from operational backbones to strategic assets. This shift is being led by four key factors:

- **Resilience Over Efficiency**: Supply chains before the pandemic were optimised for cost, often relying on singular geographies for APIs. Today, diversification is a pivotal operating principle. The industry too is increasingly adopting multi-sourcing strategies and “China + 1” methods. Based on this shift, 60 per cent of executives reported on the increased importance of supply chains in 2020, rising to 90 per cent of supply chain leaders recognising the impact on financial performance.
- **Speed and Agility:** Time-to-market has gradually become a key competitive differentiator, particularly in biologics and advanced therapies. The pandemic proved how volatile demand is and can rapidly shift, disrupting the medication usage models across markets.
- **Sustainability and ESG:** Sustainability is a lot more important to competitiveness than countries realise. Life sciences companies are under increasing pressure to mitigate emissions across their value chains; therefore, these companies

are committing to Science Based Targets increasing from just 7 in 2019 to 104 in 2022, implying a considerable shift in the industry.

Another significant shift in the life sciences industry is the growing importance of supply chain preparedness at the core of business strategy. Companies are increasingly looking to go beyond merely traditional measures of efficiency and focus on creating operating models that can adapt and respond to changing market dynamics. Such changes include enhancing the degree of coordination among various functional areas, developing effective decision-making systems, and gaining a more profound understanding of potential risks along the value chain.

Given the constantly changing environment in which the life sciences markets operate, supply chain management has become a critical element of any corporate strategy, alongside such components as innovation, internationalisation, and consistent access to medical products. It will be essential for organisations to create highly adaptable supply chains that allow them to operate effectively under uncertain market conditions.

With the evolving landscape, supply chain capabilities will play an important role in shaping the business strategy. In other words, organisations will need to strategically manage their supply chains in addition to production capabilities to maintain their competitiveness.

India's Strategic Opportunity in a Rewired Supply Chain Landscape

As global companies expand their supply chains, India is clearly showing a vantage point in this landscape. Known as the "pharmacy of the world", India is now moving beyond its strength in APIs to play an important role across global life sciences supply chains. Companies such as Dr. Reddy's Laboratories and Sun Pharmaceutical Industries have been actively expanding their global footprint, increasing supply resilience through diversified manufacturing, strategic sourcing and multi-geography operations.

Similarly, Cipla has established itself as an important member in the global supply chain, especially where the provision of critical medicines is concerned in both developed and emerging economies. Indian drug companies have increased backward integration in terms of APIs and other vital raw materials, along with investment in cold chain capabilities as well as technology, to bolster supply chain resilience.

India's scale reinforces its global importance supplying over 20 per cent of the world's generic medicines. The global shift in strategies has amplified India's role even further. However, the next phase of growth will depend on how effectively Indian companies transition into end-to-end supply chain partners, integrating R&D, manufacturing, logistics and global distribution.

Ireland and its Lead in Supply-Chain Competitiveness

Thirteen of the world's top 15 biopharma companies have significant operations in Ireland, many of which house Europe, the Middle East, and Africa (EMEA) or global mandates spanning supply chain management, Technical Operations, procurement, external manufacturing oversight, quality, and regulatory functions. This reflects Ireland's role in governing highly complex, regulated, and geographically diversified networks rather than solely producing within them.

Ireland's leadership is further reinforced by scale and operational depth. The country is one of the world's largest net exporters of pharmaceuticals, with exports exceeding €100 billion annually. Ireland is home to more than 90 pharmaceutical manufacturing plants, including over 50 FDA-approved facilities, alongside a mature supplier ecosystem that supports packaging, engineering, logistics, and specialist services.

Equally important is Ireland's talent advantage. Its strong Global Business Services sector supports European Union, EMEA, and global operations, enabling companies to centralise strategic decision-making, supply chain coordination, and value chain governance from a single location. Many multinational companies have initially established light-asset strategic hubs in Ireland before expanding into manufacturing and broader operational footprints—demonstrating the country's ability to anchor both control functions and production capabilities.

Combined with seamless access to the European Union market, a stable business environment, and a highly skilled workforce, Ireland offers life sciences companies a platform to build resilient, compliant, and future-ready global supply chains.

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