

Healthcare Logistics

Control towers are transforming supply chains



Pushing the limits

By Jan Wist, Head of
Solution Development,
Healthcare, based in NYC



Constant change is a defining feature of supply chains. In response, leaders recognise the value of control towers to navigate uncertainty and maintain continuity.

Advances in digitalisation are expanding those capabilities even further, turning control towers into powerful hubs of insight, coordination, and resilience.

A history of 4PL in healthcare

Coined by Accenture in 1996, the concept of fourth-party logistics (4PL) is managing an outsourced logistics network on behalf of a client and acting as an extension of their logistics department. The model was adopted by consultancies and large freight forwarders, who pioneered 4PL and Lead Logistics Provider (LLP) solutions.

Kuehne+Nagel was an early adopter in 2001, consolidating managed service contracts under the banner of Integrated Logistics. While regulatory and quality-related complexities led to slower adoption within the healthcare industry, our first partnership began in 2007.

In a sector known for its complexity, it's no surprise that control towers deliver increased value when supply chains are intricate. Today, the 4PL model is commonplace in healthcare, and Kuehne+Nagel is proud to be at the forefront of providers in this sector.



2026 and beyond: Healthcare supply chain trends

In addition to facing macro uncertainties, healthcare is undergoing a significant transformation. The impacts of this are ricocheting throughout the supply chain.

The demand for healthcare products increases alongside ageing populations. This has catalysed incredible innovations in large molecule and gene therapies, as well as med tech and diagnostic tools. However, with these new advancements is

added pressure for more stringent cold chain management.

Regulatory changes are affecting quality requirements and the traceability of products. Meanwhile, the large-scale divestment of consumer healthcare has altered the way supply chains operate. Supply chain efficiencies are key to future success, from rising raw materials and production costs to ensuring products remain affordable, both in terms of inventory and transportation.



Digitalisation and AI



The most effective way to manage external challenges and the evolving healthcare industry is to further leverage digitalisation and agentic AI.

We are already at the forefront with our visibility and collaboration platform, ControLOG. It integrates all transportation flows and supply chain stakeholders into a single global platform powered by more than 40 technology partners. Equally important is a cloud-based data hub and analytics layers, built

to drive our agentic AI roadmap. Since 2024, freight audit and ETA prediction models have been fuelled by AI, and three additional AI customer service agents will be deployed by the end of 2025.

By 2030, a dynamic 50+ multi-agent environment will be in place, managing logistics operations hand-in-hand with Kuehne+Nagel professionals. Our ambition is to bring together industry supply chain experts and AI to drive greater supply chain autonomy.



Our work in action

What does this all mean, and how does it make your life easier?

Let's start with quality, as it touches every point in the healthcare supply chain. Our mission is to make quality a differentiator by digitising lane and distribution risk assessments. This accelerates how we respond to changes—without compromising quality. Cold chain shipments are actively monitored 24/7, preventing product release delays or write-offs. The goal is to implement a device-agnostic, real-time monitoring platform by the end of 2026.

Supply chain resilience is currently managed in ControLOG. Based on geolocation and risk timing, it combines global supply chain risk information with specific shipments. AI agents help assess the predicted impact of these risks in real-time, and our digital twin capability enables us to model scenarios to mitigate those impacts. The ability to react quickly to unexpected, disruptive events will be a game-changer, offering customers a significant competitive advantage.

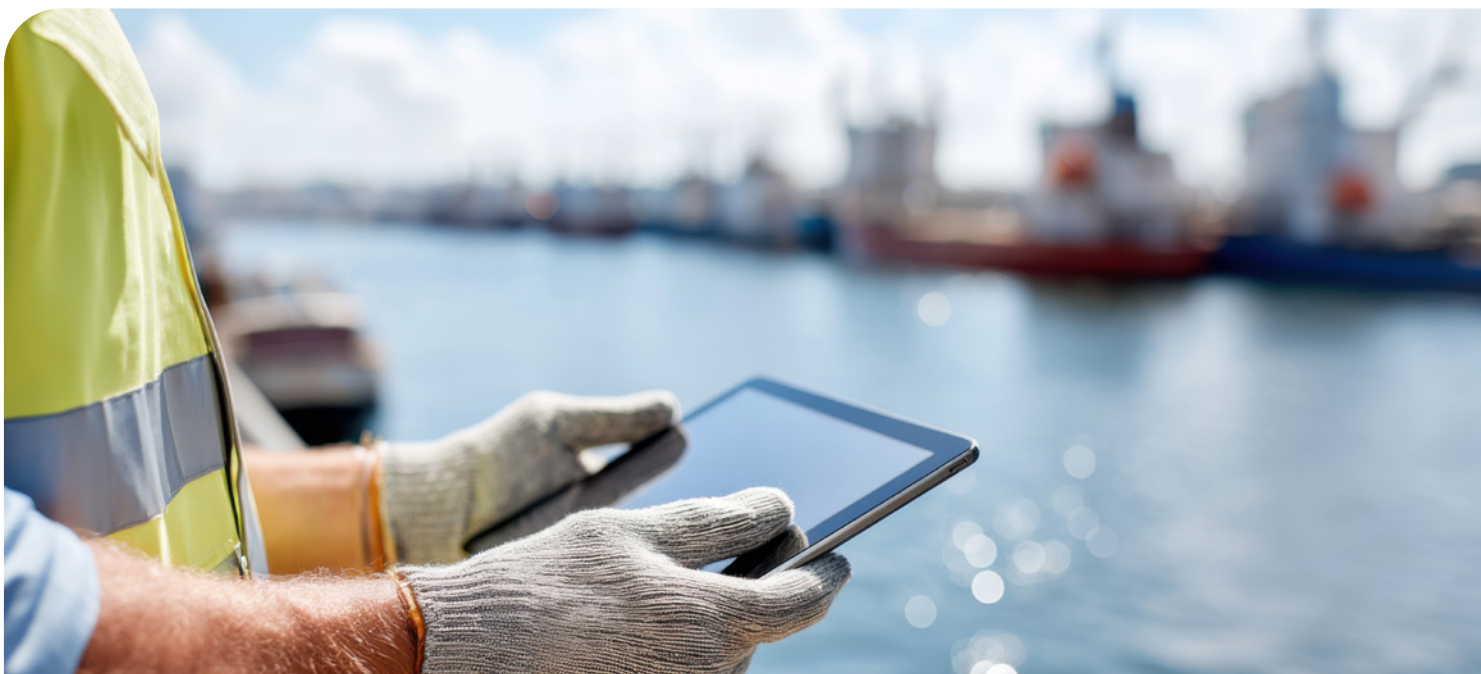
Sustainability is essential to success from an environmental and cost perspective. Within Integrated Logistics, our proven continuous improvement methodology focuses on both. For one customer, we implemented a sea freight hub in Europe that supports consolidation and mode conversion from air to sea. The result is a total savings of \$3 million and a 4,200-ton decrease in carbon emissions. Across our client base, we successfully reduced logistics spend by \$100 million in 2024.

Historically, 4PL within healthcare has focused on internal and external manufacturing to affiliates and markets. Today, efforts are directed at optimising in-market distribution and the inbound-to-manufacturing process. We are also delivering the first 4PL control tower solution for R&D and clinical trials to support a valued pharma client.

As our supply chain scope expands, so does our attention on inventory. Throughout 2026, we will roll out inventory modelling and an ‘available-to-promise’ dashboard to help us and our customers make better-informed supply chain decisions.

With more than 15 healthcare customers in Integrated Logistics, we gain a unique market transparency. Our peer benchmarking tool, InDex, is now live—enabling customers to seamlessly compare their performance with both industry peers and providers, not only within their sector but also across different industries.

In partnership with our clients, we are optimising healthcare supply chains. Above and beyond being a strong driver for performance improvement, these powerful insights demonstrate to supply chain leadership what the future looks like.



Conclusion

Complexity and uncertainty are not conditions to accept—they are challenges to manage proactively. Through digital and modular solutions, we can manage these challenges for large and small healthcare companies.

Our experts continue to adapt to the ever-evolving needs of healthcare supply chains and push boundaries from an AI and human perspective. The only constant is change, and with our expertise, we are the ideal partner to help you navigate every transition with confidence.



About us

With close to 85,000 employees at almost 1,300 sites in nearly 100 countries, the Kuehne+Nagel Group is one of the world's leading logistics providers. Headquartered in Switzerland, Kuehne+Nagel is listed in the Swiss blue-chip stock market index, the SMI. The Group is the global number one in air and sea logistics and has strong market positions in road and contract logistics.

Kuehne+Nagel is the logistics partner of choice for 400,000 customers worldwide. Using its global network, logistics expertise and data-based insights, the Group provides end-to-end supply chain solutions for global companies and industries.

→ [kuehne-nagel.com](https://www.kuehne-nagel.com)