Is the Swing also Coming to Germany?

Centrally Controlled Logistics for Covid-19 Vaccines

The elimination of the mask requirement is the most visible sign: The Corona pandemic has entered a new phase in Europe. And this should not least change the logistics of Corona vaccines. Countries like Germany, where vaccine logistics have so far been organized at the federal state level, should switch to a centralized solution. This is the only way to simultaneously solve two challenges. On the one hand, sufficient availability of the vaccines must be guaranteed. On the other hand, the overall logistics effort and the associated costs must decrease.

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Examples of national logistics solutions in the UK, the Netherlands and Belgium show how high availability and low costs can be brought down to a common denominator. Before that, however, the question must be answered as to why the decentralized solution of Corona vaccine logistics was and is less efficient and more expensive. There are three main reasons for this.

First, the previous concept in Germany, in which 16 federal states each sought and found their own solution for the storage and distribution of Corona vaccines, multiplied the administrative burden. And not only at the logistical level, but also for the contracting authorities. Instead of a central contracting office, teams in 16 states dealt with the contracting of the regional solution. Sixteen times, an IT connection had to be developed and implemented so that the orders could be processed and controlled securely and transparently.

Secondly, compared to a central solution, no economies of scale or at least significantly lower economies of scale could be realized. The law of large numbers is clear here: the cost of storing a given quantity of vaccine doses at 16 different sites is higher than storing the same quantity at a central site.

Third, the total stockpile quantity must be higher for 16 decentralized solutions than for centralized storage. This is because the centralized storage solution can compensate for fluctuations in demand from the individual states and the necessary safety reserve is required only once rather than 16 times.

On the other hand, decentralized storage cannot achieve significant savings due to the advantages of the shorter distance between the warehouse and the recipient. This is because the largest cost block in transportation is always the one for the so-called last mile. And they are the same for a centralized as for a decentralized solution. Finally, the availability of vaccines the day after they are ordered is not an argument for a state-level solution. After all, from a central warehouse, a next-day rate of more than 99% can be achieved nationwide in Germany. The pharmaceutical logistics specialist Movianto, among others, proves this for its customers on a daily basis.

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Experience from Great Britain

And this is also shown by experience from other countries, such as Great Britain. The British were among the first to consider centralized control of logistics for Corona vaccines. As early as August 2020, Public Health England (PHE — now the "UK Health Security Agency") and, in September, National Health Service Scotland (NHS) approached Movianto to support the distribution of Covid-19 vaccines and associated consumables in England, Wales, Scotland, Northern

Ireland, the Crown Dependencies and Overseas Territories. The subsidiary of Walden Group was selected because it had already been responsible for routine childhood vaccinations and large portions of the seasonal influenza vaccination program in the UK since 2005.

Due to the unique nature of the Covid-19 vaccines, logistics specialists developed a customized and highly secure vaccine warehouse. The individual vaccines are stored and distributed under different conditions. Pfizer-BioNTech, e.g., is stored at -75 °C, while Moderna is stored at -20 °C. More than a hundred ultra-low temperature freezers (ULT) had to be procured specifically for Pfizer-BioNTech vaccines. In addition, thousands of validated cold boxes, gel packs for a temperature of -21 °C and tons of dry ice are needed. For dry ice, the total so far has been around 360 t. Normal Movianto operations run six days a week. In the meantime, at the request of the government, work was also carried out on Sundays.

For distribution, the company procured a new fleet of refrigerated vehicles to reach all sites in the NHS vaccine network. So far, that's 267 hospital centers, 204 pharmacy-run centers, 1,036 GP-run sites and 117 mass vaccination centers. Three phone calls took place daily between team leaders from Movianto, NHS Supply Chain and UK Health Security Agency. By November 2022, the logistics service provider had received, stored, and distributed more than 169 million doses of Covid-19 vaccine in the United Kingdom. The next-day delivery rate for Covid-19 vaccine is 99.84%.

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In UK Movianto built a dedicated warehouse for the storage of Covid-19 vaccines. Ultra-low temperature freezers in which the material is stored at minus 75°C are building a central part of the logistics solution.

Vaccine Handling in the Netherlands

The Netherlands received its first shipment of Corona vaccines on Dec. 26, 2020. Since then, they have been delivered and temporarily stored at a Movianto warehouse in Oss on behalf of the Dutch Ministry of Health before being distributed nationwide. On site 26 special ultra-low temperature freezers for the Pfizer-BioNTech vaccine are used, where the vaccine is stored at about -75 °C. Moderna and Johnson & Johnson vaccines are stored at -20 °C in a walk-in freezer that holds 700 pallets. AstraZeneca and Novavax vaccines are stored at +2 to +8 °C in a cold storage facility that can hold up to 7,000 pallets.

Since the second quarter of 2022, another new site in Weert has served as a backup warehouse as part of a BCP (business continuity plan to compensate for downtime risks) strategy. This site was also equipped with 22 ultra-low freezers, among other things.

The ministry of health gives daily electronic notification of how many doses of which vaccine are to be delivered to which addresses the next day. The frozen vaccines are then taken out of the freezer the night before delivery and picked together with the other vaccines at +2 to +8 °C. This ensures that all vaccines are thawed before they are loaded the next morning.

Distribution is handled by Movianto's sister company Eurotranspharma. It supplies all vaccination centers, hospitals and nursing homes nationwide. All vaccines are transported in refrigerated vehicles at 2 to 8 °C.

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The Concept in Belgium

Since the end of October 2022, Movianto has also been responsible for storage and nationwide distribution of Covid-19 vaccines in Belgium. The concept is very much the same like in the UK and the Netherlands. The entire vaccine stock is stored in a warehouse in Aalst, which covers the same four different temperature ranges. Investment has been made in 40 ultra-low temperature (ULT) freezers. This is enough for more than eight million cans, which is more than the capacity tendered by the government. However, Movianto sees an increasing demand for ultra-low temperature refrigeration in the biotechnology sector and wants to be prepared for it. Around 40 employees work in the logistics center itself, which also stores goods from other customers. Another 30 work in the adjacent office wing in administration, sales and development.

Conclusions for Germany

All three examples show how a centralized national logistics solution for storage and distribution of Covid-19 vaccines can succeed. In view of the plans for this in Germany, attention should still be drawn here to one bottleneck factor in this logistics strategy. If plans are indeed being made in Germany with a vaccine reserve between 100 and 200 million doses of the Pfizer-BioNTech vaccine alone, as appears to be the case, then more than 800 ULT units would be needed. In the current procurement situation, it could easily take one year before all these special refrigerators are delivered.

Dennis Spamer, Managing Director, Movianto Deutschland, Ginsheim-Gustavsburg, Germany

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Addressing Existing Labeling and Supply Chain Challenges

Nearly three quarters (71%) of companies believe the cloud or a hybrid solution will be their preferred deployment method for labeling within the next three years, according to an annual report published recently by Loftware, a global software company specializing in enterprise labeling and artwork management solutions.

The survey, which draws on insights from almost 500 professionals across industries in 55 countries, found a shift in attitudes toward cloud technology. Driven by the need to insulate operations from ongoing supply chain disruptions, product shortages, cost pressures, process inefficiencies, and manual errors, the report revealed that 50% of businesses already deploy important business applications in the cloud. This compares to just under 40% of companies embracing cloud-first strategies for enterprise applications a year ago.

Most participants (80%) reported that supply chain challenges had directly impacted their business. Furthermore, 93% said that it's important to have a business model that supports speed and agility in today's evolving business climate, while 62% of respondents believe that extending labeling to partners and suppliers enables them to avoid re-labeling, thereby saving time, money, and resources.

Facilitating transparency is a vital step in creating resilient supply chains, with 70% of respondents flagging global traceability as a priority for their business in the coming 12 months. This is because companies need to ensure quality, safeguard products, protect patients, streamline the location of inventory, and guarantee on-time delivery to market.

As a result, businesses are using cloud technology to provide faster reaction times when managing potential recalls, avert risks presented by counterfeit goods, ensure customer safety, and protect brand reputation.

Digital traceability can also help companies to deliver on their corporate social responsibility goals. Of those surveyed, 76% reported already having a sustainability initiative within their company. Being able to trace products both upstream and downstream will become important for managing the product lifecycle and sustainable sourcing. Intelligent supply chains can track, trace, and authenticate goods at every stage of the journey.

Industry 4.0 will also have a significant impact on companies and their manufacturing operations in 2023 and beyond, the report predicts. When it comes to printing on the production line, the survey illustrates that far too many businesses still rely on closed-loop systems that have disconnected, purpose-built software for different devices, resulting in manual and error-prone marking and coding operations. (rk)