NIPPON EXPRESS

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Fulfilling the Vision of Sekai-Nittsu (Global Nippon Express) Platform Strategy for Pharmaceutical Logistics

Delivering pharmaceuticals from the factory without affecting quality along the way. Given growing demands for safe and secure pharmaceuticals around the world, Nippon Express has begun building a supply network for pharmaceutical logistics, with the vision to become a platformer in pharmaceutical logistics and distribution.

The company's dedicated pharmaceuticals centers currently under construction will feature indoor truck loading and unloading berths, along with a number of innovations for maintaining quality.

Pharma 2020

The worldwide pharmaceuticals market is valued at around 909 billion dollars, while Japan's market size is valued at around 90.9 billion dollars, making it the third largest in the world.

In recent years, a growing number of specialty pharmaceuticals and bio pharmaceuticals targeting rare diseases or intractable diseases have hit the market. The safety and security of these products demand even stricter quality controls.

In December 2018, Japan's Ministry of Health, Labor and Welfare released a Japanese version of Good Distribution Practices (GDP). These guidelines define the same standardized quality control practices as the manufacturing processes for the distribution stage. The ministry is now considering legalizing these guidelines in the future. This indicates that pharmaceutical distribution is now facing a major turning point.

With this timing in mind, Nippon Express decided to embark on a full-fledged entry into pharmaceutical logistics. The company has established this segment as one of its focus areas in its new management plan beginning this fiscal year called *Nippon Express Group Management Plan 2023 – Dynamic Growth*. It has also begun company-wide efforts spearheaded by a special project team called Pharma 2020.

As part of the project, the company will build new pharma logistics facilities in four locations across Japan; one each in Saitama Prefecture, Osaka Prefecture, Fukuoka Prefecture and Toyama Prefecture. It will also develop vehicles designed specifically for transporting pharmaceuticals in compliance with GDP standards, and establish a supply network for pharmaceuticals covering the entire country. Nippon Express' initial investment alone will total around 590.9 million dollars. The company expects to commit more than 909.1 million dollars in total, including future investments. This amount underpins just how serious Nippon Express is toward this project. Through these measures, the company will aim to more than double its sales in the pharmaceuticals industry from around 145.5 million dollars in fiscal 2018 to around 327.3 million dollars by fiscal 2023.

This project is led by Executive Vice President Takaaki Ishii. "The project allocates executive officers to head up the six categories of warehousing, IT, operations, quality, sales and company vehicles. We have made a commitment to our customers to launch full-fledged operations from January 2021," he says.

Cooperative Logistics Using an Open Platform

The design and specifications of the four dedicated pharmaceutical centers across Japan currently undergoing rapid construction closely follow the GDP guidelines. For example, the facilities will feature indoor truck loading and unloading berths completely isolated from the outside air, ensuring thorough temperature controls, while giant air showers will remove any possible contaminants or insects from the outside packaging boxes. In this manner, the centers feature a number of innovations for maintaining quality.

In addition, in terms of development of vehicles specifically for transporting pharmaceuticals, Nippon Express has adopted the same standard specifications across all vehicles to eliminate differences in performance between vehicles, and the fleet will be equipped with various functions for temperature controls and other requirements. Vehicles used for long-distance transport will be equipped with a sub-engine to reduce temperature deviation risk in case of engine trouble during transport.

Instead of modifying existing logistics centers or fleet vehicles, Nippon Express will create all new ones from scratch following the GDP guide-

Takaaki Ishii
Executive Vice President, Chief Operating Officer and Representative Director
Nippon Express Co., Ltd.

lines because the company has identified the advantages therein.

Nippon Express is also calling on pharmaceutical companies to take part in cooperative logistics utilizing this logistics infrastructure. "Conventionally, pharmaceutical companies have built standalone operational systems through tie-ups with individual logistics companies. As management standards in distribution become stricter, it has become cost prohibitive when going at distribution alone. By creating an open platform that ensures uniform quality conforming to GDP, and having pharmaceutical companies take part in it, Nippon Express can return the benefits of cooperative logistics to each pharmaceutical company," says Ishii.

Nippon Express envisions a service covering deliveries to pharmaceutical wholesalers accounting for 97% of Japan's pharmaceutical distribution. In the future, Nippon Express is looking at a structure where it will store the inventory of pharmaceutical wholesalers at its own dedicated centers. Ishii says, "If the shift of ownership rights from pharmaceutical companies to wholesalers can take place within the same facility, unnecessary transportation can be eliminated, and the logistics process made even more efficient. This is one of the benefits of operations that conform to industry-wide management standards."

Joint development of individual article management device with a partner company

Nippon Express' strategies do not just stop there. The highlight of the project is Global Cargo Watcher Advance (GCWA), commercialized by utilizing technology from Intel, a global leader in semiconductors. This tool enables real-time visualization of temperature control, which is the greatest single requirement in the distribution process.

"Until now, temperature control referred to management within the confines of the warehouse or trucks. However, using GCWA, we are able to zero in our management from spaces to individual articles. This ensures higher precision management of each individual article by monitoring their movements from temperature to humidity and impacts," says Ishii.

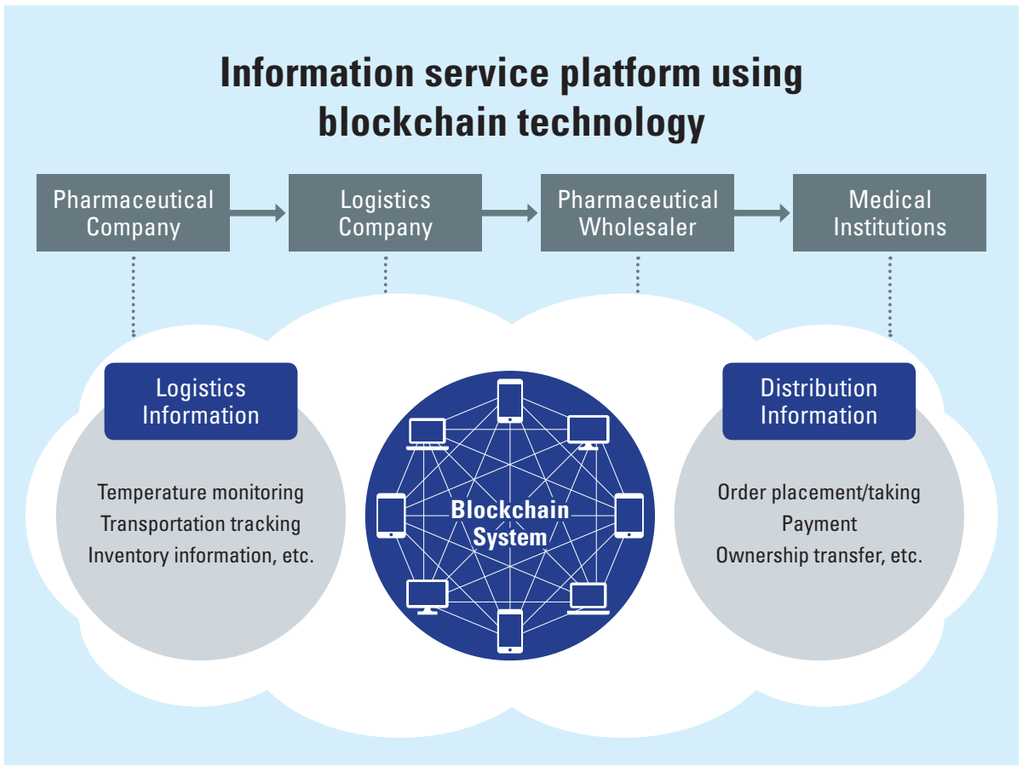
Conventionally, the temperature control device (logger) was used to perform a post-deliver confirmation by extracting its data upon its return. GCWA, however, is capable of real time online uploads of measurement data and sharing this information with all parties concerned, making it possible to quickly detect and address issues such as temperature deviation.

"Intel's semiconductors are extremely precise, so they are very careful in terms of temperature changes and vibrations during transport, and developed dedicated devices for this purpose. We got Intel interested in using these devices for other industries, which led to our collaboration," says Ishii.

Furthermore, Nippon Express also plans to develop a central information service platform that will consolidate distribution tracking management beyond logistics information to include order taking/placement, payment and transfer of ownership. In other words, it will be an integrated platform of pharmaceutical product information that combines logistics and commercial distribution information.

In building a platform, Nippon Express will look at creating an open platform using blockchain technology that can be equally accessed by the entire pharmaceutical supply chain including pharmaceutical companies, logistics companies, wholesalers and medical institutions.

"The distributed ledger technology of blockchain makes it possible to not only further clarify history and traceability, but it also gives everyone involved access to information through the entire process. In case a situation arises, we can also take immediate action to address the issue at the right stage," says Ishii.



Rolling out Japanese systems globally

Going forward, Nippon Express will gradually roll out these systems globally. First, the company is planning to build its pharmaceuticals dedicated gateway facilities in the Europe, Americas, and South Asian blocks, and in the future connect them to its global logistics network in 47 countries around the world.

"To achieve this goal, we will first refine technologies for safety and security, such as temperature control, and establish specifications to be applied globally," Ishii says.

The research and development of pharmaceuticals from new drugs to generic drugs and biopharmaceuticals is taking place at an ever-accelerating speed. The supply chain of pharmaceutical products will continue to see increased globalization going forward.

"The management standard for pharmaceuticals will be standardized on a global scale in the near future. As the manufacturing and consumption of these products are now borderless, it is inevitable that a system to account for the history of where a drug comes from will become necessary. For this reason, high quality logistics and an information platform on distribution and logistics channels is needed," says Ishii, emphasizing the importance of an open platform.

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1 Inside, the facility is equipped with temperature controls and specialty facilities to avoid risks such as insects and dust

2 Protecting products from temperature fluctuation during transport

3 Indoor truck loading and unloading berth; the whole truck enters the warehouse allowing for safe and secure loading