

# PD Interview

Program Director Interview  
12 Leading Experts Who Accelerate SIP

## Challenge to Overcome Logistics Crises with Smart Logistics Services Beyond Barriers

Exploit high-level achievements from the demonstration experiments at convenience stores and in local communities in the future

As it is called a logistics crisis, Japan's logistics industry is in need of reform, because needs are becoming more diverse and there is a workforce shortage. A "Smart logistics service" aims at building a logistics/commercial distribution data platform, improvement of productivity, and realization of Society 5.0. Achievements have been seen in such areas as a joint delivery demonstration experiment at convenience stores. We interviewed TANAKA Yorimasa about these efforts.



**TANAKA Yorimasa**

Executive Officer,  
Yamato Transport Company, Ltd.

### Responding to problems such as a shortage of drivers by building data platform

**Q:** Could you tell us about problems in the logistics industry and your efforts in the second phase of SIP briefly?

**PD:** With the diversifying needs for logistics including home delivery, the logistics crisis due to aging of drivers and serious shortage of human resources has become an issue to be overcome in the industry. According to a report by the Railway Freight Association, there will be a shortage of nearly 280,000 drivers in 2028.

So far, individual companies and organizations have tried to solve this issue. However, only partial optimization is achievable with this approach, and we need to aim for total optimization. So, we are aiming to realize Society 5.0 by building the logistics/commercial distribution data platform to allow it to deal with more sophisticated supply chain data from upstream to downstream sectors, resulting in fusing of physical and cyber systems. As R&D themes, we are working on "building a logistics/commercial distribution data platform" and "development of automated data collection technology contributing to laborsaving and automation".

**Q:** Are there any problems that have become apparent in the COVID-19 pandemic and their solutions?

**PD:** I think the conventional challenge of making the logistics infrastructure open while making data always available has become more apparent. When the COVID-19 pandemic started, there was a shortage of masks, and that caused confusion

throughout society.

If information had been gathered on one platform, it would have been easier to see what was where. We could have delivered masks to appropriate places. I believe that if we can visualize the situation with data, we can assume that we can quickly solve pressing issues. In normal conditions, it is difficult to disclose everything because it may affect the competitiveness of each company, but the data platform can play an important role, especially in the event of an abnormal situation.

The data platform is also effective in the event of a disaster such as an earthquake. The impact on logistics can be minimized by opening up information on roads that are disrupted, roads that are passable, and traffic jam information based on information obtained from vehicles. In fact, at the time of the Great East Japan Earthquake, traffic information was shared through private initiatives.

### Automatic conversion of data in different formats can reduce work manhours by 70%.

**Q:** We understand one of the basic elemental technologies "Individually managed data extraction and conversion technology" has already been established. Could you tell us about it and initiatives for its social implementation?

**PD:** We have five basic elemental technologies in addition to that technology: "Access right control technology," "Non-alternation guarantee technology," "Input/Output fast processing technology," and "Platform federation technology".



The issue on extracting and converting data controlled by different companies is that the same process is referred to differently by different companies, and the data format cannot be dealt with by the system though it can be recognized by human beings. Then, when data is brought in, PBE technology is applied to automatically convert the data to SIP standard data specifications. Using this new technology, we were able to confirm the effect of reducing manhours by 70% compared to conventional processes. We would like to develop a final product while finely tuning it through social implementation.

**Q:** What initiatives are you taking to ensure that data providers can provide their data comfortably to the system?

**PD:** We are especially committed to the safety and security of data providers. Previous platforms, which were made up by multiple companies, inevitably had the problem that only limited data items were collected as a result of discussions among stakeholders. On the other hand, it is commonly said in discussions on DX or big data that the greater the amount and type of data become, the more analysis can be done, and the more the potential for innovation increases.

We are developing “Access right control technology” to protect safety and security and to aggregate as much data as possible. For example, this technology allows the data provider to control the way the data is provided finely by setting rules such as showing it to people in the next step of the supply chain but not to the one after that, or making it open only for a week. We would like people to understand the significance of the data platform and collect the types and amount of data that can be used as big data.

### Joint delivery by 3 convenience store companies. Steady progress in demonstration experiment for regional logistics

**Q:** Could you tell us about joint delivery by convenience store companies and demonstration experiments in regional logistics?

**PD:** In July last year, we conducted a joint delivery demonstration experiment with three convenience store companies. As for the background, there is a shortage of logistics personnel and increasing logistics costs. Conventionally, each company has its own distribution center, aiming at each company’s optimization, but in order to deal with the present issue, they decided to aim at joint distribution across corporate boundaries with the goals of improvement of productivity and reduction of the number of delivery trucks.

First, one of the meaningful achievements of this demonstration experiment was that we were able to share these issues with three major companies and started working on smart logistics. Then, through consolidation of overlapping processes and creation of joint delivery routes, we were able to reduce the number of delivery trucks by 42% and the travel distance to stores by 14%.

In the regional logistics demonstration experiment, we aimed to visualize the supply and demand of logistics through an open platform and to improve the loading rate by joint trunk transport in the Gifu area. As the declining birthrate and aging population make it more difficult to maintain the local distribution network, a system that can increase the efficiency of truck loading is very important for maintaining local industries. Shippers and carriers basically look at the logistics/commercial distribution data platform every day and make adjustments to optimize the process while sharing information such as “these trucks are available now.” In this demonstration experiment, effects including improvement in the loading rate of main line trucks by 54% were confirmed.

**Q:** What are the issues that need to be resolved in addition to the technical aspects for the social implementation of smart logistics, such as normalization and standardization?

**PD:** Standardization of information is important, but in logistics, it is also very important to standardize the units that transport goods, i.e., boxes, pallets, trucks, marine containers, etc. They differ from company to company, especially the size and strength of the boxes. We believe that if we can promote various types of standardization in collaboration with the Ministry of Land, Infrastructure, Transport and Tourism, we will be able to improve the efficiency of logistics across industries and sectors.

In addition, the logistics industry has been slow to standardize information. We would like to promote the standardization of slips and code systems, and also utilize the automatic data collection technology that is being developed with the stage-gate method. For example, an application has been developed that can be linked to the cloud by reading the size, shape, handling caution mark, product barcode, etc., with a smartphone camera.

Although the second period of SIP is ending in fiscal 2022, the challenges of logistics will persist with further changes. We really would like to build the data platform in order to establish sustainable logistics and use it as a model.