

# Special Feature –Employee Roundtable Discussion–

物流は新領域へ  
**LOGISTEED**



Back row  
Logistics Technology Department: **Xiaolin Fang**  
DX & Innovation Department: **Kosuke Murakami**  
Corporate Strategy Department: **Masahiro Itotani**

Front row  
Logistics Technology Department: **Takaharu Sakurada**  
Information & Communication Technology Strategy Headquarters: **Kazunori Azusawa**  
Hitachi Distribution Software: **Atsushi Yanagisawa**

## Logistics DX that the HTS Group Aims to Achieve

To deal with social issues surrounding the logistics industry including “labor shortages,” “efficiency improvement” and “sustainable transport services,” the HTS Group developed and offered “SSCV (transport digital platform)” and “SCDOS (Supply Chain Design & Optimization Services)” and, in 2019, developed “Resource Control System (RCS)” to achieve highly automated operation in logistics centers and started operation of a shared automated warehouse “Kasukabe EC Platform Center” for EC logistics.

The HTS Group aims to achieve automation/labor-saving through linkage of systems and machines, as well as improve working environment through DX in one of its priority measures “Evolve Smart Logistics” in the Mid-term Management Plan “LOGISTEED2024” (→ P30, P35). What was the HTS Group’s perception about the issues when it started working on Logistics DX? And what kind of Logistics DX should the Group aim to achieve in the future?

We held a roundtable discussion with members who work on the front line of Logistics DX to hear opinions from the perspectives of “strategy,” “technology,” “development” and “Gemba (site).”

### Attendees in the discussion

General Manager, Information & Communication Technology Strategy Headquarters

**Kazunori Azusawa**

Manager, Corporate Strategy Department, Corporate Strategy Office

**Masahiro Itotani**

Deputy Department Manager, Logistics Technology Department, Logistics Solution Business Development Headquarters

**Takaharu Sakurada**

Engineer, Logistics Technology Department, Logistics Solution Business Development Headquarters

**Xiaolin Fang**

Manager-Sales Office, Kasukabe EC Platform Center, DX & Innovation Department, Business Development Headquarters

**Kosuke Murakami**

Department Manager, Digital Solution Department, Digital Innovation Promotion Headquarters, Hitachi Distribution Software

**Atsushi Yanagisawa**

\*Names of organizations and positions are as of the date of the discussion

**First, please tell us about your background and areas of expertise and roles in DX.**

**Azusawa:** After I joined the Company, I was first assigned to IT Department where I developed a warehouse management system and liaised with customers about the development. After that, I was transferred to Smart Logistics Development Department and then to Corporate System Management & Integration Department in 2017 where I worked with Financial Strategy Office in the company-wide standardization and improvement activities of the corporate system. My area of expertise is IT in general, and my recent project was a major renewal of the internal core system. Since 2022, I’m in Information & Communication Technology Strategy Headquarters working on DX in the 3PL and freight forwarding businesses.

**Itotani:** After working for a system integrator company, I joined the Company in 2020. My area of expertise is marketing activities including research on DX-related market/technology trend and identifying social trend. The main task of Corporate Strategy Department is the development and promotion of the Mid-term Management Plan, and my job there is the development of DX strategy and promotion of individual DX projects. The Company was selected as a “DX Certified Operator” in May 2021 and as a “DX Stock 2022” in June 2022, and I was in charge of filing these applications.

**Sakurada:** For three years after I joined the Company, I worked on one of the largest projects of the Group to launch the 3PL business for a leading distribution-related customer, and for the next ten-odd years, I worked on the introduction and consideration of various equipment at the launch of a number of customers. Then, after working at Smart Logistics Development Department, I was transferred to Digital Business Development Department where I worked on the development of new solutions. I’m specializing in considering automated/labor-saving equipment and engaging in new fields. Now I’m in Logistics Technology Department and working to promote DX mainly through the introduction of automated/labor-saving equipment and the development of control tools for logistics.



**Murakami:** After engaging mainly in the launch of the 3PL business with manufacturing customers and the improvement of customers’ sites in Logistics Technology Department, I spent the next around seven years in China and gained experience in a wide range of fields, including sales, logistics center management, and labor management. From 2018, I am in DX & Innovation Department engaging in operation and management of Kasukabe EC Platform Center and initiatives aimed at expansion in the future. My area of expertise is center operation and management with DX, and I am currently working on the introduction of the first automated/labor-saving equipment in the Group and the creation of workplaces with a combination of physical and digital measures.

**Fang:** Since I joined the Company, I’ve been with Logistics Technology Department, and for the first five years, I worked on the launch of the 3PL business and the site improvement. After that, drawing on my experience in site improvement, I worked on developing the optimization tool and creating simulations, which is my area of expertise. Simulation is a necessary and important means to verify the arrangement/setting/appropriate operation of equipment, and my current mission is to consider how to use simulation in a more useful way and develop human resources.

**Yanagisawa:** After I joined Hitachi Distribution Software, I worked on the development of a warehouse management system such as automated warehouse in the 3PL business, including material handling equipment linkage, and my area of specialty is system building by industry and business type. From 2015, I participated in the system design project for Smart Warehouse aimed at promoting automation of logistics centers from the stage of designing Resource Control System (RCS). Since 2020, I’ve been with Digital Solution Department and supporting the HTS Group’s DX from the IT perspective.

**I see that each of you has different skills and area of expertise. Now, please tell us why the HTS Group has been promoting Logistics DX.**

**Azusawa:** The environment surrounding the logistics industry has been drastically changing in recently years, and in Japan, it has become vital that we address labor shortages and reform working style. Also, due to the expansion of EC market and technological innovation, there is a growing move toward the transformation in logistics. Meanwhile, implementing initiatives toward the realization of sustainable society such as SDGs and ESG management is also another pressing matter of importance. Amid such circumstances, the first thing the Group should do is to create a safe and secure environment for its employees and at the same time provide its customers and business partners with high value-added services, while establishing a system capable of quickly responding to drastic structural changes. The Group also needs to enhance its

sustainability and strengthen its responses to environmental issues and the governance. All these tasks can't be achieved without using digital technologies, and that is why the Group has decided to work on DX.

**Itotani:** As we are facing issues such as labor shortages as well as aging population, it's also necessary to make good use of digitalization to make it easier to share operation expertise. Also, because customers' supply chains are becoming larger and more complicated, the level of demand from customers including EC is also becoming increasingly challenging. To meet it, we need to make full use of digital technology and aim to become a company that can solve customers' supply chain issues and take a lead in DX.

**Azusawa:** In overseas, especially in Asia, an increase in the middle class led to an increased burden in logistics and a higher level of demand, raising concern over the resource shortages to meet it. It means that "people" is no longer our option for solutions in Japan and overseas. The logistics industry, especially in Japan, has depended on workers and individual skills so far, and DX is vital to break away from it.

**Please tell us about the background of the development of Resource Control System (RCS) and Warehouse Control System (WCS), the recent major achievements in DX.**

**Sakurada:** Even before the term "DX" began to attract attention in the world, the Group started working on initiatives called Smart Logistics, which gave rise to the idea of Smart Warehouse. The term "Smart Warehouse" referred to the development of various optimization technologies and the introduction of automated/labor-saving technologies at that time. Particularly with regard to the optimization technology, we

aimed to let computers replicate and sophisticate adjustments and judgments made by work managers or experienced workers based on their experience/expertise. In some cases at the development stage, we were able to achieve efficiency improvement that cannot be achieved by human work, but in most cases, the computer only produced almost the same level of results as competent workers, which advanced the development of a system that enables everyone to produce the same level of results without depending on individual skills. The Smart Warehouse project back then progressed in individual optimization technologies such as considering optimal picking line and order assignment, but there was a limit in terms of total optimization that takes into account overall conditions of the whole center. Also, various optimization systems operating with different modules made it difficult to introduce/install them at sites, which made us realize that we needed a large platform to integrate all systems. So, as we worked on individual issues, the concept of Resource Control System (RCS) that enables an optimal control of the whole center and Warehouse Control System (WCS) that controls automated/labor-saving equipment was gradually formed.

**Automated/labor-saving equipment, including Resource Control System (RCS) and Warehouse Control System (WCS), were introduced in Kasukabe EC Platform Center in September 2019. Please tell us what kind of advantages they brought to the center.**

**Murakami:** Kasukabe EC Platform Center was opened with the concept of providing space/various equipment/systems in the center for multiple EC business operators to share, and is currently used by many customers. Compared to conventional logistics centers, this center has a lot more automated/labor-

saving equipment enabling to unify work method and maintain a certain level of quality and therefore achieves stable service quality and efficiency improvement. As automation/labor-saving enables extended operation for long time, one customer can now handle 1.5 to 2 times more of shipping compared to the time when it entrusted the operation to another logistics company, so it is now considering expanding its sales channels. We can also use the work result data to facilitate the site management and offer various proposals to customers.

**From the perspective of system development in site, what do you think triggered the development of Resource Control System (RCS)?**

**Yanagisawa:** In developing the idea of a warehouse automation system, we figured that if "machines" replace "humans" to do work, the system should also replace humans in giving instructions and managing work processes. In giving such instructions, the number of resources and their individual capabilities must be taken into account, and when to start each work must also be controlled, in the same way that humans have always done. In order to achieve that, we needed a system that breaks down each work process, predicts process time based on the capability of resources in each process and controls when to give work instructions. That's why we started the development of Resource Control System (RCS).

**I hear it took a considerable amount of time and effort to develop the system. Please tell us in detail how you did it.**

**Sakurada:** The concept of Resource Control System (RCS) and Warehouse Control System (WCS) first came up in late 2010s.

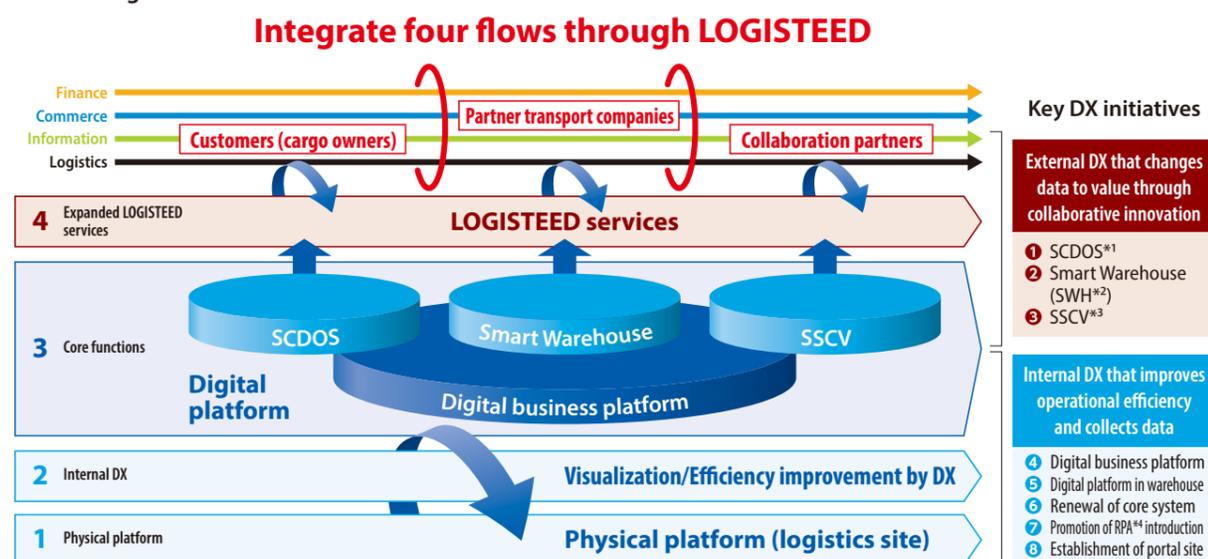
**Yanagisawa:** To realize a comprehensive operation system

for automated/labor-saving equipment, we needed two "new ideas." First, we needed an idea of how to create a system capable of making flexible decisions depending on the situation just as work managers and experienced workers do. Second, we needed an idea of how to operate equipment efficiently while pursuing the total optimization after replacing humans with automated/labor-saving equipment. We worked to develop the system based on these ideas under the notion that we could probably develop a better system if we developed an original one by ourselves as we knew the sites quite well.

**Please tell us what kind of advantages the HTS Group as a whole got by realizing the perfect mix of equipment, IT system, and human work.**

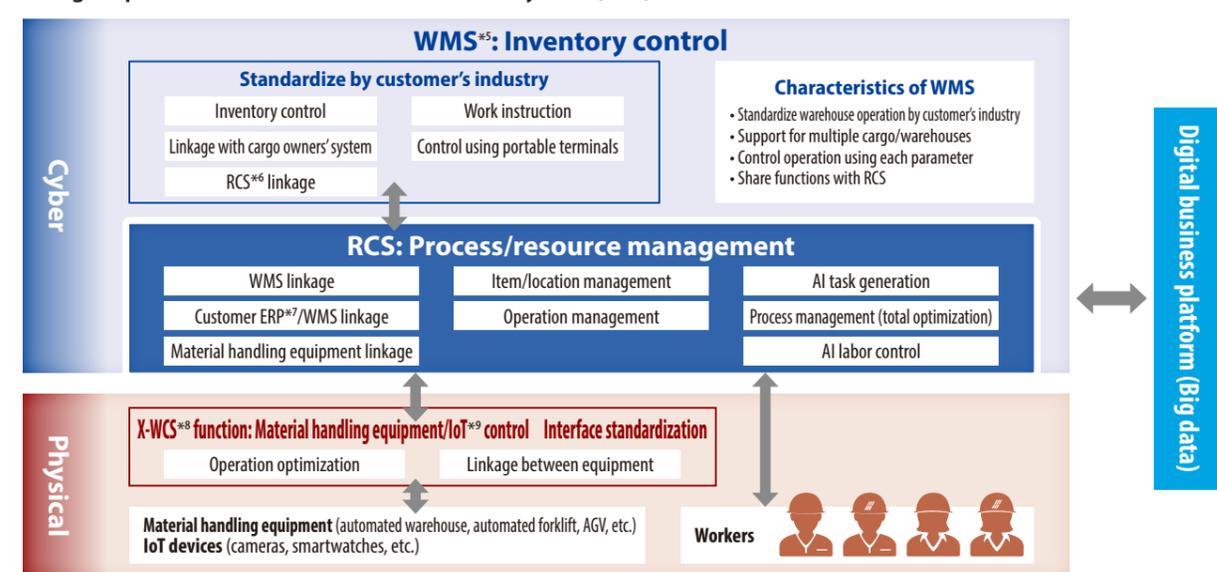
**Yanagisawa:** I think that would be that we realized a platform for an automated operation system integrating various automated/labor-saving equipment. Resource Control System (RCS) controls when to give work instructions based on each equipment's capability and volume aiming to maximize overall throughput. Resource Control System (RCS) is also capable of comprehensively managing the operation of the entire logistics center and realizing efficient operation through a close link with the Warehouse Management System (WMS). Having created a framework for them has brought a significant advantage to the Group. We believe an important notion applicable to all sites promoting automation is the combination of a series of functions we considered in the process of realizing the automated operation system i.e. process planning/task generation/optimization of resource allocation/prioritization/smoothing. We filed an application for and obtained a patent for the idea itself.

**HTS's Logistics DX**



\*1 Supply Chain Design & Optimization Services \*2 Smart Warehouse \*3 Smart & Safety Connected Vehicle \*4 Robotic Process Automation

**Digital platform based on Resource Control System (RCS)**



\*5 Warehouse Management System \*6 Resource Control System \*7 Enterprise Resource Planning \*8 Warehouse Control System \*9 Internet of Things

**One of the DX keywords of the HTS Group is "Simulation." Please tell us how you use "simulation" in developing the system and work plan.**

**Fang:** Simulation is a process of simulating movements of people and products in chronological order and useful in understanding "when," "where," and "how" people and products are moving. Using simulation in the system development and operation allows us to quantify and visualize the status of the equipment and optimal allocation of workers. We can predict and verify something we couldn't find out until we actually did it before. The Group has accumulated expertise in site operation such as how to instruct people and use equipment, which gives us a unique advantage in doing a precise simulation efficiently. However, about 10 years ago, we used to do simulations to prepare a work plan in advance based on average value using a general-purpose spreadsheet software, and there were some cases where problems occurred after the work actually started and we suddenly had to examine the response. Now, IT technology has advanced since then, which enables us to do simulations of every possible patterns, analyze any potential issues and take measures when preparing the work plan.

**Azusawa:** One of the characteristics of the logistics business is that cargo owners manufacture and sell products based on market forecasts. The Group makes logistics plans based on such forecast information, but in most cases, cargo owners only provide us with the information at the last minute of the shipping deadline. Previously, work managers and experienced workers dealt with it using their long years of experience and individual expertise, but the recent drastic changes in environment are causing an increase in cases where forecasts differ from actual results, and the simulation technology is also expected to reduce the gap.

**Sakurada:** For example, when we need to determine the most efficient picking method for an order received, if we "can't

know until we try it," it will cause a significant loss. If we use the simulation technology, we can estimate the time required for each method and verify it in advance. This is a typical example to show the need for simulation. Meanwhile, from the perspective of Cyber Physical System (CPS) and digital twin\*10, the basic concept of the Group's DX, the simulation technology is the fundamental technology. Both collect the information of what is actually happening in the physical space as digital data and recreate it in the cyber space. By setting various conditions and parameters in the cyber space, we can estimate and verify work time.

\*10 A technology that recreates the environment of a physical space in a virtual space using technologies such as IoT and AI to conduct various simulations as well as estimate the future outcome

**Please tell us about actual cases where the implementation of DX in sites contributed to efficiency and quality improvement.**

**Murakami:** Kasukabe EC Platform Center uses Business Intelligence (BI) tools and Warehouse Management System (WMS) to visualize the progress and labor shortage in each process, allowing work managers to assign appropriate number of workers based on the work volume in each process and equalize work at the logistics center.

**Please tell us what you all think about the Logistics DX in the future in terms of what kind of customer and social issues you are going to address.**

**Itotani:** In hopes to further enhance "Gemba" Power, we will try to provide useful information to work managers by digitalizing "Gemba" information in real time and visualizing it as well as adding forecasts and simulation. Also, in light of the fire at a logistics center of our group company in 2021, we started considering the potential use of DX technology as the core of disaster prevention measures such as to enhance security and firefighting activities at early stage using robots and drones, in addition to early detection of danger using cameras and sensor technology.

**Sakurada:** DX has been promoted not only by us but also our peer companies and many companies in other industries. Amid such situation, implementing DX initiatives in limited areas only produces limited results. So, we need to work with a larger number of companies and realize optimization in larger areas. In recent years, we have been witnessing a number of disruptions/divisions in supply chains caused by various risks including climate change/infection/ geopolitical risks, etc. Considering how we will find solutions to various social issues and realize more efficient and better society, one of the important roles of the industrial circles is to improve efficiency of the supply chain as a whole. The role of logistics industry in such challenge is quite important, and I think that the logistics industry is expected to implement DX in society as a whole,

not just in limited areas by individual companies. The Group has worked on many projects with influential customers in various industries. Based on the trust relationships with them built over the years, we hope to pursue DX standard accepted by the entire industry and then DX that can be implemented beyond the industry.

**Thank you. Please tell us how Logistics DX can contribute, for example, to decarbonization, one of the major social issues.**

**Azusawa:** From the Group's point of view, decarbonization means reduction of CO<sub>2</sub> emissions from transportation and logistics centers. To achieve that goal, we have started with effectively measuring the volume of CO<sub>2</sub> emitted by the Group and our partner companies with DX and are now working to reduce it systematically toward the reduction target. These initiatives will include the use of renewable energy as well as activities to improve work efficiency with DX.

**Itotani:** Based on various data provided by our customers, we perform a simulation in cyber space of the methods to reduce CO<sub>2</sub> emissions from transportation and logistics centers to propose them as solutions. So, by creating solutions based on our own initiatives toward decarbonization, I think we can contribute to decarbonization of our customers and industry and, furthermore, society as a whole.

**Please tell us about the internal DX, another pillar of the HTS Group's DX strategy.**

**Azusawa:** We have been using Robotic Process Automation (RPA) as part of VC activities aimed at operational improvement through company-wide bottom-up initiatives. The introduction of RPA not only improved operation but also fostered improvement mindset, which led to the development of literacy regarding a fundamental reform. On the other hand, the core of the internal DX is promotion of Enterprise Resource Planning (ERP) and renewal of the core system. All business activities are ultimately linked to the core system, and the Group is currently replacing the legacy core system with a next generation system adaptable to changes. So, once it is completed, we will introduce the latest DX across the Group and reinforce the efforts to meet global standard.

**Lastly, please tell us about your future plans in DX.**

**Azusawa:** We will continue to respond to environmental changes in society including customers and strive to enhance our services to become a "more accommodating" company that can support decisions of customers in the entire supply chain. In terms of ESG initiatives, we aim to increase corporate value through efforts to further quantify and visualize non-financial value with internal DX and let our stakeholders know about our social value creation.

**Itotani:** I think the Group was selected as a "DX Certified Operator" and "DX Stock 2022" because the successful practical applications in society of "SSCV" and "SCDOS" were recognized and gained attention. DX initiatives are precisely what we should do, and we hope to spread them until DX becomes a "standard" for everyone. And then, we will also work to link such initiatives to the creation of customer and social values.

**Sakurada:** As I mentioned earlier, I don't want DX to end in sporadic initiatives by individual companies, so I hope to see DX improving efficiency of the entire supply chain in real sense through social implementation. To that end, we first need to promote a full-scale DX in the Group. Specifically, we will incorporate all of our accumulated expertise on sites in RCS, establish a model through collaborative innovation with material handling manufacturers, and offer it to more customers and cargo owners.

**Murakami:** As I'm working closely with sites, I hope to spread DX initiatives including optimization technology and automated/labor-saving equipment, to group companies in Japan and overseas and make "Gemba" Power even stronger. At the same time, I also hope to achieve the center operation not dependent on humans, always keeping in mind to create safe and secure logistics centers for employees who actually work there, and create customer and social values.

**Fang:** I think there will be more opportunities to use the simulation technology in the future, so I will increase human resources capable of using it. Also, the simulation technology is now used as a stand-alone function, but I hope to spread it by installing it in Resource Control System (RCS) as a standard function and make it a tool that is accessible to workers at sites and offers better logistics services to various customers.

**Yanagisawa:** My plans and visions about DX are the same as others. Our department will provide cross-organizational support to the Group's DX from the IT perspective. Various DX initiatives are currently underway within the Group, and I hope to contribute to the Group's growth by continuing to accumulate expertise and insights on site operation through cross-organizational support and provide higher value-added services.

**Cyber Physical System (CPS)**

