Development and Application of Global Logistics Information System for Supporting Global Logistics Services

—Timely Response to Accelerating Globalization of Logistics and Introduction of SCM by Shippers—

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OVERVIEW: The globalization of logistics, which involves the transport and other handling of procured items and finished goods between different regions and markets has intensified, driven by the accelerating globalization of corporations. Meanwhile, Hitachi Transport System, Ltd. is embarking on ongoing measures, which include expanding its network of sites and offering a more extensive range of logistics services. The company's systems also continue to advance day by day due to proactive measures regarding customer needs and other requirements of the times, dating back to its forwarding system, which was introduced in 1985. To improve functions further, the company embarked in 2008 on a rebuild of its global logistics information systems. This succeeded in streamlining internal company operations while also strengthening customer SCM support functions (which include logistics tracking information) and gave the company a more comprehensive range of systems.

INTRODUCTION

AS corporate activity becomes increasingly global, competition on cost and the development of new markets are becoming more intense. For global corporations, centralized management of procurement, production, inventory status, the extent of progress through various processes, and other activities at production facilities spread around different parts of
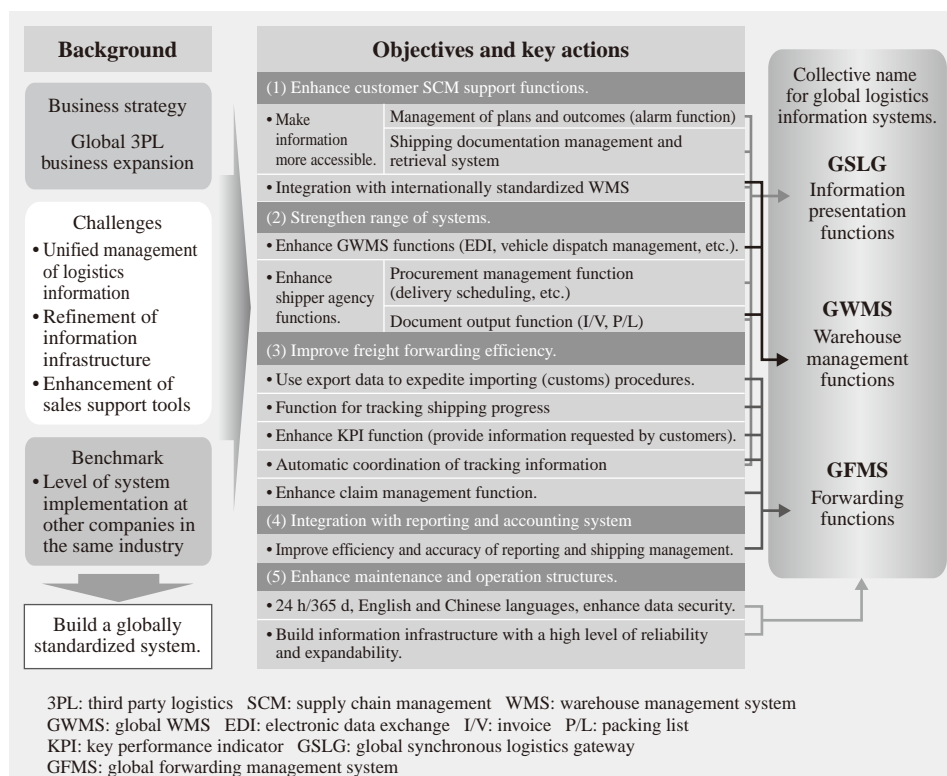
Fig. 1—Strategy for Undertaking Rebuild of Global Logistics Information Systems.
Based on reviewing the business strategies and issues and conducting benchmarking, the rebuild will be undertaken in accordance with these objectives.

3PL: third party logistics   SCM: supply chain management   WMS: warehouse management system
GWMS: global WMS   EDI: electronic data exchange   I/V: invoice   P/L: packing list
KPI: key performance indicator   GSLG: global synchronous logistics gateway
GFMS: global forwarding management system

the world, is an important consideration, as is making information about these easily available. Accordingly, for global corporations to be able to optimize their SCM (supply chain management), they need to identify the bottlenecks in the production life cycle, which includes things like production and sales data or delivery status information from overseas suppliers. Further, because the key to success is to reduce the cost of materials distribution (including materials storage and transport) and build a logistics network that can guarantee short lead times, a grasp of logistics information is essential.

In response to the challenges faced by customers who operate globally, Hitachi Transport System, Ltd. can, in a timely manner, supply the logistics information that these customers require to implement SCM through various logistics services and global logistics information systems developed and deployed in-house.

This article describes the features, configuration, available functions, logistics services, and example installations and applications of Hitachi Transport System's global logistics information systems.

GLOBAL LOGISTICS INFORMATION SYSTEMS
Background to Global Logistics Information System Rebuild

Since the mid-1980s, Hitachi Transport System has been developing and deploying its forwarding system and has been involved in the international logistics and shipping business. These have developed on a day-to-day basis in order to keep up with the customer requests and other requirements of the times, such as the addition of air freight functions, downsizing from a mainframe computer to a C/S (client/server) configuration, and freight tracking functions. However, because the company's overseas subsidiaries had each introduced their own systems, there was little interlinking of shipping information within the group, which made it difficult to supply customers with useful logistics information in a timely manner.

In response, Hitachi Transport System has been working on rebuilding its global logistics information systems since 2008 to resolve the various issues, which include a business strategy of expanding the company's global 3PL (third party logistics) operations and unification of logistics information, and implement a globally standardized logistics system for deployment to all overseas subsidiaries in order to eliminate the differences in service levels between subsidiaries (see Fig. 1).

As a result, Hitachi Transport System has been able to embark on developments such as enhancing customer SCM support functions, providing a more comprehensive range of systems, standardizing service levels across different countries and regions, improving operational efficiency, and unifying handling of logistics information.

Features

Hitachi Transport System has three global logistics information systems. GFMS (global forwarding management system), which is used to manage shipping and the preparation of the associated documentation; GWMS (global warehouse management system), which is a low-cost system for overseas offices and can be installed and brought into service quickly; and GSLG (global synchronous logistics gateway), which provides customers with Internet access to logistics information such as freight tracking, inventory, and inward and outward freight movements (see Fig. 2).

The GFMS forwarding function supports all aspects of Hitachi Transport System's shipping activities, and in addition to upgrading the existing functions, which included sea and air freight, reporting, and shipper agency functions, the system has been designed to expedite shipping and customs procedures by handling data exchange between exporting and importing countries and to use standardized master data formats
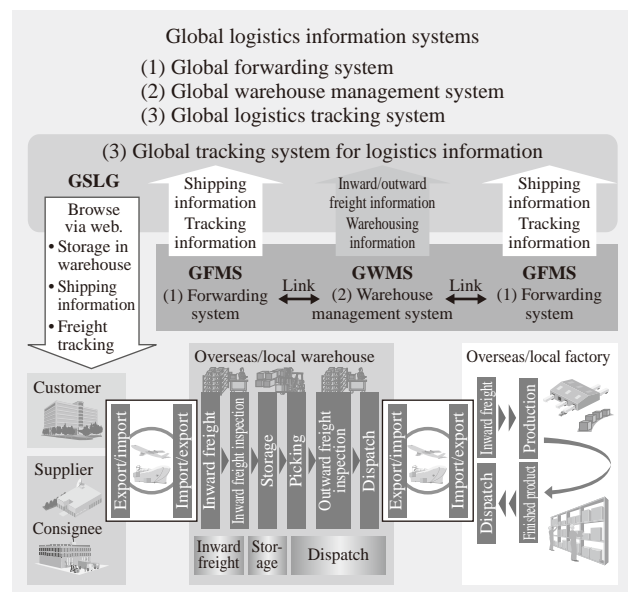

Fig. 2—Overview of Global Logistics Information Systems. Hitachi Transport System has three systems for global logistics. These are a forwarding system, warehouse management system, and tracking system.

Countries and regions where GFMS (forwarding function) has been installed		Countries and regions where GFMS will be installed in the future
Europe	Asia	
UK Germany France Netherlands Italy	China (Shenzhen, Hong Kong, and Taiwan) South Korea Singapore Thailand Indonesia Philippines Malaysia India Japan	USA China (excluding Shenzhen, Hong Kong, and Taiwan)

Fig. 3—Countries and Regions where GFMS has been Installed. GFMS (forwarding function) had been installed in these countries and regions as of May 2011. Currently, shipping data is already exchanged with local subsidiaries in the USA and China (excluding Shenzhen, Hong Kong, and Taiwan).

for the entire world. The system is currently being rolled out to all of Hitachi Transport System's overseas subsidiaries and is quick to install and get up and running at new offices (see Fig. 3).

The GWMS warehouse management system, which first went into operation in 2005, provides real-time centralized management of warehousing throughout the world. The latest rebuild of the system has expanded the number of functions from 40 to 92, with standard features including functions for EDI (electronic data interchange) with customers' business systems, vehicle dispatch management, and inward and outward freight tracking using barcode scanners. This has made the process of installing the system at overseas sites even faster, and the system can be installed without major customization simply by changing the settings for the relationships between the various master data such as those for part numbers and customer data.

The GSLG tracking system takes data from the GFMS and GWMS systems and uses the Internet to give customers access to the logistics information that they require. Standard features include functions for presenting information about the movement of freight and their status during shipment or warehousing, producing shipping documentation such as invoices and packing lists, automatic updating of shipment tracking information by linking in to the GLN (global logistics network) run by Descartes Systems (Japan) Ltd., and procurement support and delivery date management. The system's functions have been further enhanced by the current rebuild.

EXAMPLE USES
SCM Support for Shipper
Better access to information on global logistics

This section describes an example of using global logistics to support customer SCM. It involves the import of clothing and general goods from China.

The customer, an importer of Chinese-made clothing into Japan, had established a new inspection center in China with the aim of transferring inspection, assorting, and price labeling work to that country along with warehouse management functions for reasons that included cutting costs and minimizing stock levels in Japan. However, information relating to the Chinese inspection center was managed manually by individual members of staff. This included the status of deliveries of freight from the factory; progress of inspection, assorting, and other work performed in the warehouse; and information about the number of defects and number of goods available for dispatch. The result was that it was difficult to obtain a timely understanding of what was going on, including a time lag in getting a reply to inquiries from Japan, and problems arose in areas such as instructions for the export of goods to Japan, providing accurate status updates to the ultimate recipient of the goods, and coordinating their delivery times (see Fig. 4).

After installing the global logistics information systems, GWMS was used to manage tasks at the
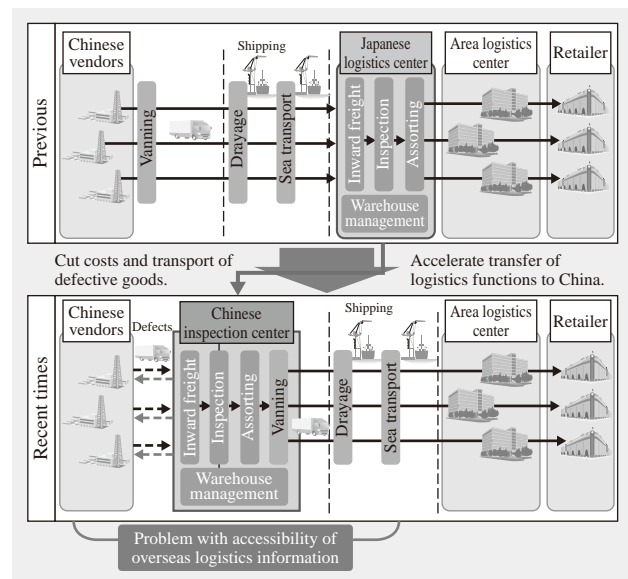

Fig. 4—Example of Importing from China (Clothing and General Goods).
Accelerating the transfer of logistics functions to China made it difficult to obtain status information from the Chinese operations.
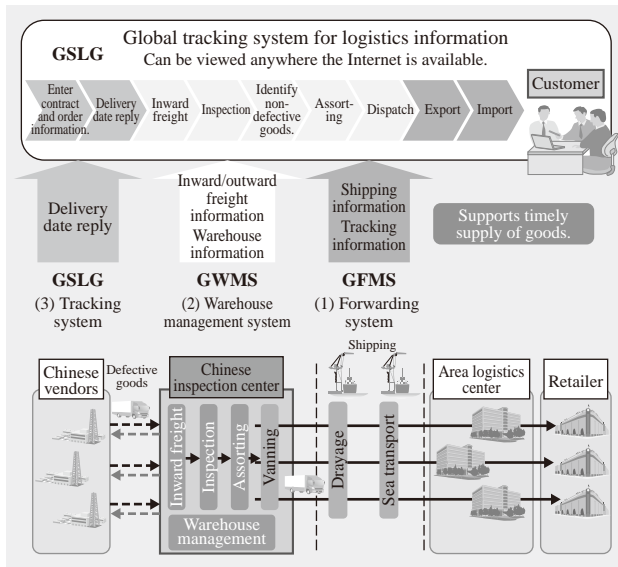
Fig. 5—Example of Installing Hitachi Transport System's Global Logistics Information Systems to Track Global Logistics Information.
The system supports the timely delivery of goods by giving access to overseas logistics information that had been a problem in the past.

Fig. 6—Overview of Procurement Support and Delivery Scheduling.
Procured goods are tracked by synchronizing ordering and logistics information with suppliers.

Chinese inspection center such as inventory status (which includes inward and outward freight and also returns) and the progress of inspection, as sorting, and other work performed in the warehouse. By using GSLG to provide access to various logistics information, status information could be obtained immediately via an Internet search instead of the half-day or more that was previously required to get a reply from the Chinese site. Meanwhile, using GFMS to provide comprehensive support for exporting and importing from China helped get products to their ultimate destination in a timely manner by unifying management of logistics information including freight tracking (see Fig. 5).

Procurement support and delivery scheduling

The next section looks at an example installation that the customer uses for procurement.

There is considerable scope for operational problems to arise if e-mail communication is used for ordering when procuring goods from overseas suppliers due to e-mail issues such as sending errors, the recipient being out of the office, or critical e-mails being deleted. Many problems also occur because the information about the status of freight during the time between dispatch from the supplier and their delivery is spread across different regions, organizations, and so on. An example is production planning being unable to obtain real-time freight tracking information for parts and materials.
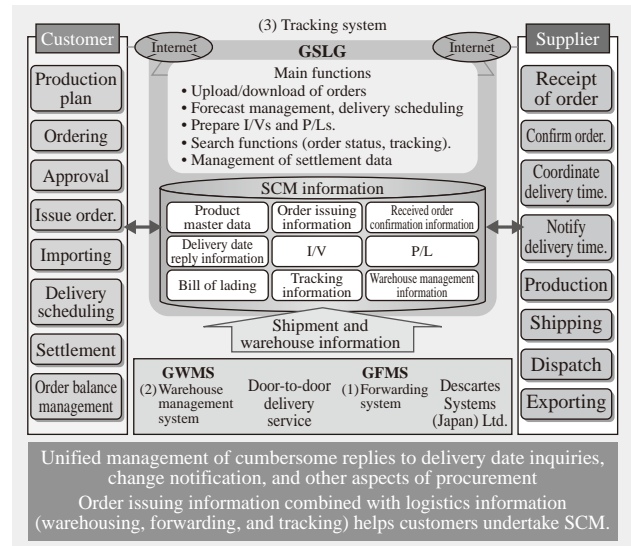
However, when the customer installed the global logistics information systems and started using the procurement support and delivery scheduling functions of GSLG to perform unified management of order handling between customers and suppliers (including delivery date and change notifications), it became possible to share data such as the latest ordering information or records of past changes. This significantly reduced operational mistakes and other problems.

Synchronizing management of ordering and logistics information and implementing tracking made it possible to do things like determining the delivery progress of parts or materials based on their order number or view the status of production plans so that prompt action can be taken if transport delays or other problems occur (see Fig. 6).

Examples Applications within Hitachi Transport System

Adoption of globally standardized masters

The latest rebuild of the system adopted globally standardized "masters" (data formats and definitions) for important data such as the codes used for customers, vendors, shippers, consignees, and invoice items in GFMS to allow for unified management of logistics information throughout the world.

A master management department was established to create and revise these standardized masters, and users were obliged to request this department to

define any masters they required. To achieve both convenience for users and global standardization, the master management department undertook its activities in compliance with rules that were defined in accordance with internal control procedures. This included reviewing these requests to prevent the creation of duplicate masters and approving them within one hour.

This adoption of standardized masters meant that shipping information prepared for exporting could be reused at the importing end without having to perform code conversion. This improved the efficiency of shipping and customs clearance by, for example, eliminating double entry of data and allowing use of the Harmonized Commodity Description and Coding System (HS codes). Code standardization also facilitated enhancements to the functions for generating KPI (key performance indicator) data and helped improve the accuracy of tasks such as the management of freight status and work progress (see Fig. 7).

Enhanced efficiency of cross-group credit and debt management

Installing and deploying the globally standardized GFMS at local subsidiaries around the world, including Japan, has made possible the instantaneous sharing of credit and debt information that in the past was not available until the invoices were received. This resulted in considerable savings being made in credit and debt management workloads through improvements such as automating the reconciliation of accounts receivable amounts and eliminating communication errors in the complex handling of invoicing with overseas subsidiaries.

CONCLUSIONS

This article has described the features, configuration, available functions, logistics services, and example installations and applications of Hitachi Transport System's global logistics information systems.

In addition to taking account of new customer needs in the future, Hitachi Transport System intends to make active use of new technology to further upgrade its systems. In particular, regarding the e-AWBs (electronic air waybills) promoted by the International Air Transport Association (IATA), Hitachi Transport System will ready itself in a timely manner to use these in various countries and regions as well as with different airlines. At the same time, Hitachi Transport System also intends to utilize its network of overseas subsidiaries to improve further
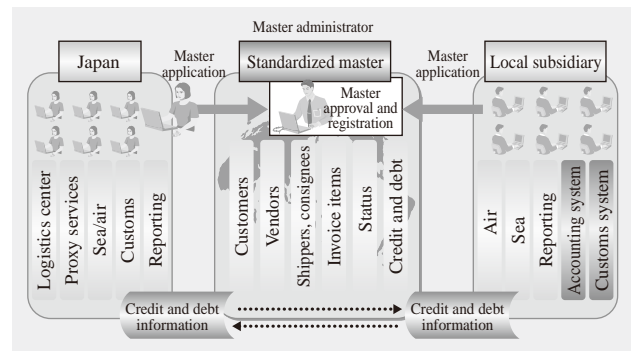

Fig. 7—Adoption of Globally Standardized Master Data.
A master administrator was appointed to assess and approve applications and improve the accuracy of master data administration by, for example, preventing data duplication.

the level of services it is able to provide in terms of both hardware and software and also to assist its customers to operate globally through initiatives such as unifying its handling of information and providing one-stop services. In this way, not only customers, but Hitachi Transport System also aims to expand further its global 3PL activities, which are one of its core businesses.

REFERENCE
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