

THE COMPUTERWORLD HONORS PROGRAM

CASE STUDY



LOCATION:
Hong Kong

YEAR:
2006

STATUS:
Laureate

CATEGORY:
Transportation

NOMINATING COMPANY:
EMC

ORGANIZATION:

Orient Overseas Container Line Ltd.

PROJECT NAME:

Information Life Cycle Management

Summary

In 2000, Orient Overseas Container Line (OOCL), one of the world's largest integrated international container transport, logistics and terminal companies, replaced its mainframe with open systems servers and simultaneously began implementing an information lifecycle management (ILM). Such an implementation was OOCL's timely response to customers' need for 24x7 shipping information availability, ridding them of the reliance on manual information retrieval by OOCL's staff.

By storing data across different tiers of storage according to the value that it has to the organization, OOCL's ILM strategy increased the company's disk utilization by more than 30% and significantly reduced overall storage costs while lowering total cost of ownership (TCO). Most importantly, these improvements in storage network performance have all been translated into benefits to customers, vendors, and other players in the global logistics industry.

OOCL has now given its customers a highly available, open and accessible shipping system dubbed CargoSmart that seamlessly integrates with all customers' and carriers' enterprise systems. Customers as a result have 24x7 access to real-time information for better shipment management. In addition, the ILM strategy allows terminals, depots and carriers to access OOCL's online depot network DepotSmart anytime, anywhere. It gives depots a secure online platform for depots to exchange electronic information with their customers and vendors and allows all parties in the logistic chain to save communications and administration costs.

Introductory Overview

Specific Context:

The earliest container ships revolutionized international trade, proving to be an extremely efficient, flexible and cost-effective way to move goods around the world. Containers allow for goods to be transported through multi-modes of transportation-- from ship to rail to truck. Initially, growth of this industry was slow as new ships, terminals and dockside equipment had to be constructed. But within the last 20 years, the world container fleet has grown rapidly and vessels have continued to get bigger and more efficient as the world's demand for raw materials



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and finished products keeps growing.

OOCL is helping facilitate this growth as one of the world's leading container transport and logistics service providers, with 160 offices in 50 countries and more than 4,000 employees.

Data increases at about 30 percent annually, making business continuity and manageability a growing challenge. In a typical month, CargoSmart adds 215,000 new shipment records to its system, sends 150,000 email milestone notifications and generates more than 15,000 reports. In addition, customer records must be stored in the system for up to two years, during which time customers and logistics partners expect 24x7 access.

Previously, CargoSmart was dispersed on a decentralized system that had significant downtime when application upgrades were made. Plus, there was a fair amount of risk to customer service and satisfaction if systems went down in the event of failure. The company understands the importance of using information technology to support its business objectives in the container transportation industry and has been a leader in the use and development of IT solutions for almost ten years. So when the company's data was growing at an exponential rate of 30 percent per year due to an increase in shipping orders and other operational online data, OOCL recognized that in order to keep its current and future customers satisfied, it needed a more powerful, flexible and scalable technology infrastructure.

Goal:

OOCL wanted to implement a system where customers, depot vendors and their partners could access 100 percent of their shipping information online without interruption anytime, anywhere.

Method:

After much research, OOCL decided to replace its mainframe system with an open systems environment and at the same time implement a data-classification initiative that organizes data according to the value it has to the organization. This was the company's first step toward fully deploying an information lifecycle management (ILM) strategy. OOCL also launched Web-based service portals—CargoSmart and DepotSmart—to facilitate online shipment and transactions and communications between parties in the logistics chain.

Scope:

OOCL deployed SAN enabled storage system and ILM to provide consolidated, networked storage for its production and development data centers, U.S. and Taiwan terminals, and CargoSmart and DepotSmart Web-based portals. The SAN infrastructure is comprised of high-end storage for production, mission-critical data; mid-tier storage for data warehousing, software development and testing; and another low end disk array for administrative data.

OOCL also implemented remote data mirroring for non-disruptive remote replication and fast backup and recovery. OOCL relies on this remote replication software to enable fast switchovers to its secondary site in Kowloon 19 kilometers away, ensuring critical data is available in minutes.

Achievements:

As of early 2006, over 35,000 customers and more than 560 depot vendors worldwide are benefiting from the new system. It has provided customers, depots, and other carriers a highly



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available, open and accessible system that seamlessly integrates with all customers' and carriers' enterprise systems. As a result, customers experience and satisfaction have dramatically improved. Besides, it has helped raise the standard of customer service in the entire industry.

Benefits

The project has helped the customers and suppliers it was designed to help. By embracing ILM, OOCL successfully implemented a new system called IRIS-2(Integrated Regional Information System Version 2) to coordinate all facets of its core business from the initial order placement to moving goods and reconciling accounting.

With IRIS-2 in place, OOCL was able to improve its customer-facing and depot-facing Web portals by synchronizing information among CargoSmart, DepotSmart, and IRIS-2. As a result, the company has achieved 24x7 availability of real-time information, which means enhanced customer service, simplified shipment management, and improved communications for the entire value chain.

Customers:

Through OOCL's Web portal CargoSmart (<http://www.cargosmart.com>), customers can manage their shipments with multiple carriers throughout the transportation cycle in a more efficient manner. Previously they needed to make phone calls or fax their shipment-related inquiries to OOCL's offices. The company's staff would then retrieve the necessary information manually. This was a time-consuming, inefficient process that was commonly experienced by customers of all carriers worldwide.

Employees:

OOCL has happier employees because the processes have been streamlined and their tasks simplified. Employee efficiency has also risen 20% since the implementation of IRIS-2, as measured by shipping tonnage per headcount.

Depot Vendors:

DepotSmart(<http://www.depotsmart.com>), a online depot operations network, links terminals, depots, container owners and equipment operators. The Web portal provides a secure online platform for depots to exchange electronic information with their customers and vendors, thus raising visibility in the logistics chain.

There are more than 560 depot vendors who have registered to be members of DepotSmart. They are using DepotSmart to handle daily operations online with their business partners: reefer (refrigerated container) pre-trip inspection report, equipment repair estimates as well as garmentainer (containers equipped with hanger rails) and bar accessories reports.

OOCL also provides a full-service support team, training tools, extranet Web site, and an online customer service application to help participating carriers use CargoSmart to meet their customers' demand for automation and high service levels. Their customers as a result enjoy the benefits of easier and cost-effective shipment management.

The Entire Industry:

OOCL's system has raised the industry's awareness of the importance of customer service pow-



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ered by the latest information technology. By extending CargoSmart and IRIS-2 to other carriers, OOCL has facilitated the improvement of customer service and logistics process visibility and efficiency in the industry.

The 35,000 registered users of CargoSmart have improved efficiency of their shipment management by using OOCL's customer self-service portal. OOCL's customers report increased productivity, cost savings, and improved customer relationships after utilizing CargoSmart.

Depot Vendors:

By relying on the DepotSmart platform, depot vendors enjoy new advantage such as:

- Communications cost savings;
- Reduction in administration workload;
- Zero database development and maintenance cost;
- Improved management of in-house technicians and/or contractors;
- 24x7 operations;
- Enhanced ecommerce images;
- Integration between business partners, customers, and employees;
- Accurate billing records for multiple customers;
- Convenient and reliable information access and retrieval
- Environment-friendly process;
- Assurance for quality of work;
- Readily available technical support;
- Readily available standard forms; and
- Convenient and reliable feature customization

Peer in the industry

CargoSmart not only benefits OOCL's customers, but also other carriers. OOCL has extended CargoSmart to more than 10 participating carriers, which are now powered to improve their customer service by allowing customers to manage shipments online. In addition, these carriers have saved the huge cost of building a feature-rich portal like CargoSmart.

This project has introduced business processes transformation. Previous manual processing of information such as input and retrieval has been automated. For instance, customers can rely on self-service for shipment inquiry and management, without the need to call, fax, or email OOCL's staff.

Depot vendors are now able to carry out their daily operations online. DepotSmart allows depot vendors to exchange information in a timely manner with their customers and vendors online, rather than relying on the traditional devices such as phones and fax machines which increased communications cost and brought minimal efficiency.

The focus of this project was making 24x7 online information availability to customers and depot vendors. As we have already reached such level of availability, we manage to benefit different parties in various ways.

For customers:

- Greatly reduced errors in customer inquiries;
- Highly efficient customer inquiry process and shipment management;
- Anytime, anywhere customer inquiries. No need to worry about service availability when there



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are public holidays;

For depot vendors:

- Lower communication cost by moving information exchange online;
- Simplified depot operation and vendor management by moving them online;
- Greater visibility for all parties in the logistics chain;

For the global logistics industry:

- Raised customer service standard in the increasingly competitive global logistics industry

The Importance of Technology

OOCL has long recognized the growing importance of IT in the containerized transport industry. Today, OOCL leads the industry in the development of new customer-focused applications and the amount of resources it pours into IT research and development, reflecting the importance of advanced technology for the company.

The technology that OOCL chose for this project was particularly important because it supports the company's ILM strategy. Ultimately, ILM provides the company with a clear competitive advantage by establishing a tiered storage infrastructure for storing diverse applications and information in according to business value. This approach greatly benefits the organization, employees, customers, depots, and other parties in the logistics chain by saving time and costs and improving efficiencies and customer satisfaction.

OOCL has five dedicated information technology development centers located in San Jose, Zhuhai, Shanghai, Manila and Hong Kong. These centers are dedicated to the development of unparalleled enterprise-scale business applications. The centers also support OOCL's client/server IT network, the company-wide Intranet, email and customer-facing Web-based applications.

OOCL deployed SANs at its U.S., Taiwan terminals and its Web-based service portals, CargoSmart and DepotSmart. High End Storage supports the most business-critical applications, such as CargoSmart and IRIS-2 (Integrated Regional Information System), OOCL's groundbreaking customer service and business operations software. Data stored on the High End Storage is replicated between two sites located several 19 kilometers apart using EMC Symmetrix Remote Data Facility/Synchronous (SRDF/S) software. OOCL also relies on EMC TimeFinder software to create non-disruptive, point-in-time copies for automated backup.

At the mid-tier, OOCL stores its tier-two applications, such as its DepotSmart, on a mid-range SAN Fibre Channel storage. For this tier, OOCL backs up data with short-term retention requirements to less expensive storage. For tier-three data, pool's reports and testing information, the company uses another mid-range storage to simplify storage consolidation. And finally, for archiving of tier-four data, its uses low-cost SAN solution with ATA disk.

By implementing an ILM strategy, OOCL was able to better utilize storage space and costs and deliver more targeted levels of protection across a diverse information environment. All these improvements result in business process transformation that powers enhanced customer service and communications in the logistics chain.



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Originality

There are four 'firsts' about this project.

- OOCL is First to adopt ILM to support value-added customer service and service to depots
- OOCL is the successful pioneer of IRIS-2 – the largest object-oriented data network behind CargoSmart and DepotSmart. The object-oriented network now stores two billion objects, or pieces of information to facilitate 24x7 access to information by customers, employees, and depot vendors.
- CargoSmart is one of the First portals allowing customers to have control and manage their shipments. Compared with many other shipment portals, CargoSmart offers detailed shipment tracking and information. On CargoSmart, users can track over 21 milestones.
- DepotSmart is the First and the only portal dedicated to serve depots.

Success

OOCL is excited to have exceeded its goals. Besides enhanced service to our customers, improved communications, and cost savings to depots and their partners, we have also extended CargoSmart and IRIS-2 to other carriers, thus raising the customer service standard in the entire industry.

Is it fully operational? Absolutely. After ILM has been achieved, our IRIS-2, enhanced CargoSmart and DepotSmart have all gone live to support customers, vendors, OOCL's 160 offices in 50 countries and 4,000 employees, and help peers achieve their own goals as well.

How many people benefit from it? If possible, include an example of how the project has benefited a specific individual, enterprise or organization. Please include personal quotes from individuals who have directly benefited from your work.

A myriad of organizations around the globe, including 35,000 customers, more than 560 depots, and users of IRIS-2, benefits from our ILM implementation and build-out of different networks.,

Customers:

One of our customers OfficeMax (www.officemax.com) relies on CargoSmart's Customized Reports and Relationship Manager feature to provide its entire logistics team with system-generated status reports containing real-time, inbound freight status information.

OfficeMax offers a variety of office supplies, office furniture, and technology products for small and medium-size businesses, home office customers, and consumers. It sells its products through about 1,000 superstores and delivery centers, the Web, catalogs, and a sales force.

Using CargoSmart's flexible reporting tool, OfficeMax's CargoSmart administrator created several report templates to have one report automatically generated twice a week and several others to be generated when necessary. To give its three distribution centers access to the headquarters' Customized Reports and relevant shipment details on CargoSmart, the administrator assigned access through Relationship Manager.

Kenny Spevak, Director of International Logistics, OfficeMax remarked: "We used to spend more than 15 hours a week manually creating and updating shipment status reports for our distribution centers. Now, with CargoSmart's Customized Reports, we automate our reporting



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process, save our logistics team time, have greater shipment visibility, and spend more time on planning for our just-in-time deliveries.”

Peers in the industry:

OOCL has also successfully extended CargoSmart to carriers in the industry. Some of the participating carriers include COSCO Container Lines (COSCON), and MISC.

“What attracted us to working with CargoSmart is the customer service enhancements we can offer to our shippers combined with up-to-the-minute tracking information,” said Abdul Aziz Meor Ngah, Senior General Manager, Liner Logistic Business Unit at MISC. “Making shipping information visible to our customers at the click of a button will provide us with a competitive edge.”

COSCO, the parent company of COSCON, is a licensed user of IRIS-2. The carrier deployed the system to manage cargo bookings and back office functions including container management, and a fleet management capability that includes safety and sailing parameters previously left solely to captain discretion. Now, over 4,500 end-users in 160 offices in 41 countries use IRIS-2 daily at COSCON. By 2005, 70% of user queries were resolved without recourse to the second level of support in Shanghai.

IRIS-2 allowed COSCO to know the profit and loss earned on each container on each segment of its voyage in advance. In addition, it enabled the company to plot the most cost effective means of returning empty containers.

As each ship carries up to 8,500 containers and each container carries its own bill of lading and manifest, it is extraordinary time-consuming to process all the related paperwork manually. According to COSCO, IRIS-2 has a positive impact on documentation, production, management, and cost control.

Depot Vendors:

DepotSmart fosters the industry standardization so to enhance the industry operational and communication efficiency. The portal has a weekly hit count of more than two million from depot vendors.

How quickly has your targeted audience of users embraced your innovation? Or, how rapidly do you predict they will?

OOCL's targeted users have quickly adopted the innovation. CargoSmart already have more than 35,000 registered users while over 560 depots rely on DepotSmart to link with their business partners.

Difficulty

1. The first was figuring out the best way to classify OOCL's data to support the different storage tiers and data flow.
2. It was also a challenge to identify and execute all the possible test cases to support the environment. This included supportability, compatibility, failure, performance functional tests across a large number of systems, hardware and software suppliers.
3. IRIS-2 is the largest and most complex object-oriented shipment information and manage-



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ment network in the industry. The establishment of such a network requires enormous dedicated effort and rigorous testing, to ensure it is able to store enormous amount of information, operate efficiently, and is easily scalable to accommodate future change in services. Though difficult to develop, IRIS-2 is of critical importance to our future because object-oriented technology allows us to rapid develop new services to meet changing customer requirements. We had very experienced object-oriented network developers in San Jose participating in this large-scale project.

4. The entire ILM implementation and the build-out of IRIS-2 plus CargoSmart and DepotSmart are not merely about technology. The entire ILM-powered integrated system brings a complete paradigm shift in business process. As business process involve people from different teams, we needed to make sure they were knowledgeable about what the changes were. Given our staff size and the huge scale of the system, we spent massive effort in ensuring employees were well-trained to work with the new system.

Our efforts were worthy. OOCL, our employees, our customers, other parties in the logistics chain, and even the entire industry have already experienced the unparalleled benefits.