American Association of Port Authorities
Application for 2017 AAPA Information Technology Award
Improvements in Intermodal Freight Transportation Category

Digital Supply Chain
Information Portal
(Phase 1)

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PORT DESCRIPTION

The Port of Los Angeles (Port of LA), the busiest container port in the United States, is Southern California's gateway to international commerce. Located in San Pedro Bay, just 20 miles south of downtown Los Angeles, this seaport not only has impressive cargo operations, but is also known for progressive security measures, groundbreaking environmental initiatives, and diverse recreational and educational facilities.

The Port of LA encompasses 7,500 acres, 43 miles of waterfront, 270 berths, 15 marinas, and features 27 terminals, including dry and liquid bulk, container, breakbulk, automobile and omni facilities. The Port of LA has been the busiest container port in the United States since 2000. In 2016, the Port of LA moved 8.85 million TEUs, which was its best year ever and a record for any Western Hemisphere port. The Port of LA is a major economic engine, not just for Los Angeles, but for the nation. In addition to its approximately 1,000 employees, the Port of LA is related to 144,000 jobs in Los Angeles, 517,000 jobs in the five county Southern California region and 1.6 million jobs throughout the United States.   The value of trade through the Port of LA is approximately $300 billion per year. The Port of LA also serves a significant and growing role in the community. The Port of LA provides local residents and visitors with numerous parks, annual events with tens of thousands of attendees, shops and restaurants, public beaches, several museums, scenic bike paths, fanfare water fountains feature, and a historic trolley line.

INTRODUCTION – HIGHLIGHTS

With consumer spending on the rise, U.S. businesses need greater reliability and visibility from the supply chain to maintain their edge in an increasingly competitive marketplace. Given that 90 percent of global trade moves on the ocean, seaports are critical nodes of the supply chain. However, today's major ports face the growing challenge of serving a new generation of massive container ships and the complexity of handling cargo carried by vessel-sharing alliances – constantly shifting arrangements between cargo ship operators where they share space on ships as a cost-saving strategy. To keep cargo flowing efficiently through America's largest container port, the Port of Los Angeles and GE Transportation partnered to pilot a visionary port information portal, a unique approach to demonstrate the benefits of digitizing maritime shipping data and making it available to cargo owners and supply chain operators through secure, channeled access.

The project kicked-off in November 2016 with the strong support from Port of Los Angeles, GE Transportation and supply chain executives and partners (https://www.youtube.com/watch?v=TUJyTf9LyPM). After approximately five months of tremendous effort, the portal was operational, going live on schedule and within budget.

GOALS AND OBJECTIVES/BUSINESS PROBLEM

The highly competitive maritime shipping industry is facing harsh economic realities. Since the onset of the last recession, steamship lines have experienced unprecedented economic hardship. While the transition to ultra-large container vessels has yielded economies of scale, it has led to new operational challenges for supply chain partners. Steamship lines have also entered into cargo alliances whereby up to six companies can share space on a ship – similar to the way commercial airlines share passenger space under codeshare agreements – causing greater complexity in cargo sorting and handling. Another challenge is that supply chain information currently exists from numerous, separate sources – it is not uncommon for supply chain partners to access more than a dozen different websites for the information they need to manage their operations.

The Digital Supply Chain Information Portal (Phase 1) project, also referred to as Phase 1 or Pilot, set out to test the concept, functionality and benefits of a user information portal to address these challenges. The Portal aspired to acquire and present supply chain data through channeled access which discerned between users and provided only the information relevant to that supply chain partner while at the same time maintaining proprietary interests and necessary security safeguards. The primary objectives were to meet the objectives for:

- Enhanced Visibility: Provisioning of relevant, timely, complete, secure and integrated information that allows cargo owners to know the status of their cargo and truckers to know when cargo can be picked up;

- Greater Predictability: Providing advanced information that allows supply chain stakeholders to better plan for ship arrival and predict cargo availability for secondary conveyance purposes; and

- Greater Reliability: Providing better visibility and advance planning support for greater reliability and continuous improvement in the performance of the supply chain.

These objectives have resonated with many supply chain partners and attracted significant interest in our industry in the U.S. and also worldwide, including being mentioned countless times in the media, topics at numerous conferences, and featured through other avenues such as below.

- AAPA Seaports Magazine article titled "A Digital Vision of Leadership: Using Technology to Improve the Supply Chain in Los Angeles" http://www.nxtbook.com/naylor/AAPQ/AAPQ0117/index.php?startid=24.

- GE In the Wild video titled "Behind the Digitization of Shipping Logistics" https://www.youtube.com/watch?v=-VWIQAx1Cnc.

The Pilot is intended to be that first step and critical milestone towards developing digital tools to support the Port of Los Angeles' strategic direction toward digitization and becoming an enabler of the supply chain.

DISCUSSION

Background

On December 26, 2015, the Port of Los Angeles was honored to become the first North American port to receive an ultra-large container vessel, the 18,000-container CMA-CGM Benjamin Franklin. The Port of Los Angeles was able to work with CMA-CGM and APM Terminals to use advance data to optimize the conveyance of the cargo and turn the ship around 13 hours in advance. This experience has encouraged the Port of Los Angeles to further explore this approach by digitizing information sharing through a common portal.

Objectives and Methodology

The approach was for the creation of a user Portal to test the concept and benefits of a single window for access to timely maritime supply chain information. The Portal would be the first known application to directly integrate with the United States Customs and Border Protection (US CBP) database for supply chain information. The Portal would seek to enable enhanced supply chain performance by providing supply chain partners with timely access to relevant information from multiple sources through a single window. The Portal would provision the information through a common user interface, with channeled access by user type, to enhance visibility, predictability, and reliability of the maritime supply chain. The Portal would provide secure access to the information from the Internet and be available 24x7 to pilot participants.
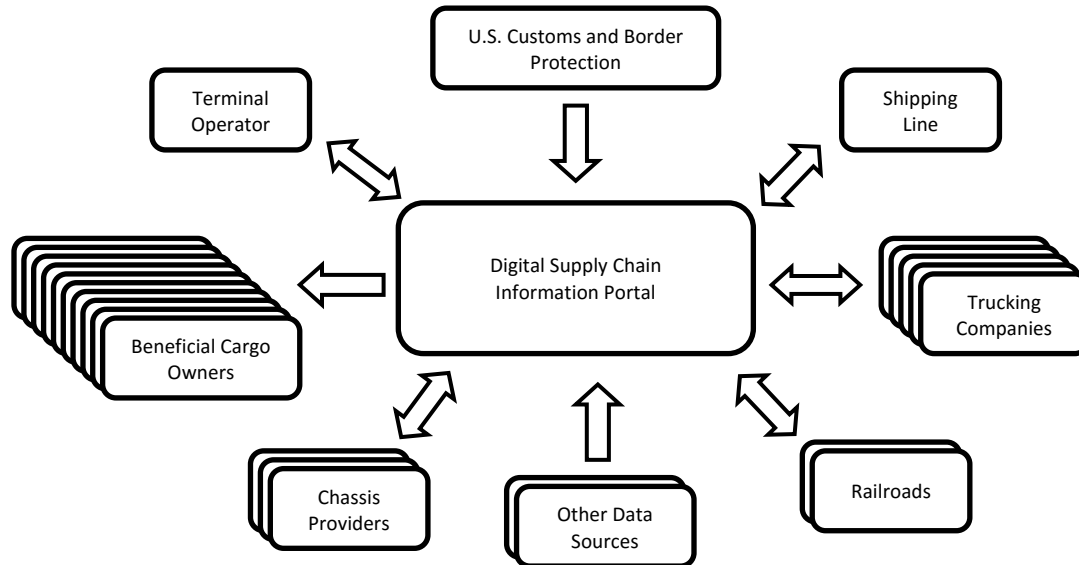
Phase 1 included the following supply chain partners:

- U.S. Customs and Border Protection (Los Angeles is the largest U.S. Customs District by cargo value)

- APMT Terminal (the Port of Los Angeles' largest terminal)

- Maersk (the world's largest shipping line)

- MSC (the world's second largest shipping line)

- Beneficial Cargo Owners (limited group)

- Chassis Providers (limited group)

- Truckers / Drayage (limited group)

Hardware and Software

The Portal does not include on-premise hardware. It is hosted on a government cloud platform. This provides the benefits of a cloud platform (e.g. – scalability, faster deployment time, anywhere/anytime access, etc.) and the security to meet government requirements.

The Portal software is a custom-developed application. As expected, there is no commercial-of-the-shelf software available. A standard web browser is used to provide access to Pilot participants with secure log-in.

Project Cost

The project's contract cost was for an amount not to exceed $1,319,050, which included the base portal, enhancements, hosting and support, and contingency.

- Base Portal: This included the design, development and implementation of the Portal with core capabilities, including integration with the US CBP database.

- Enhancements: This included enhancements, such as additional data sources, data field visibility, additional user views, and data curation.

- Hosting and Support: This was for a secure platform to install and operate the Portal and provide 24x7 support.

- Contingency: This was used for additional work that was either unforeseen or greater than anticipated, such as additional data cleansing and greater integration.

In addition to the contract costs mentioned above, the Port of Los Angeles invested significant internal staff resources toward this high priority project.

Performance Measures

The Portal was completed on schedule and within budget. The Portal has been operational since it went live with a limited soft-launch on April 17, 2017. This soft-

launch included a functioning portal with live data, but with a limited number of participants to gather initial feedback, test stability, and make adjustments. The Portal was launched to all participants on May 17, 2017.

How the Project Fulfills Award Criteria

BENEFITS:

- Integrated Real-Time Data – Data from the multiple sources are consumed, processed and redistributed though the Portal when the data are available in the source systems.

- More Complete Data – Data from the different sources were often incomplete, in different formats and from different platforms. The Portal technology cleanses and "stitches" together these data sources for more complete data sets in a unified interface.

- Advance Data – Data are now available more than 2 weeks in advance, whereas previously it was typically 2 or 3 days in advance without the Portal.

- Security – Data access is through secure and channeled access only to Pilot participants. Each participant can see only the data they are authorized to see (e.g. – competitors cannot see their data).

- More Reliable Data – Data validation technology provides more reliable data.

CREATIVITY:

- While many different container tracking and supply chain websites, apps and databases exist, this Portal is unique in many ways, including but not limited

to, the integration, validation, security and access to a greater collection of the disparate data through a single window.

- In addition, the foundation has been created for value-add enhancements and Portal derivatives, such as related tools and analytics.

RESULTS:

- The Pilot successfully tested the concept and theories of a single window of digitized supply chain information.
- The feedback from stakeholders has been very positive.
- The team learned lessons and received additional feedback/suggestions from users that could "touch and feel" an operational portal.
- The success of the Pilot has led to support to expand the Portal, for which plans are now underway.

COST-EFFECTIVENESS:

- The pricing was based on a competitive procurement process, and the actual cost came in within budget.

TRANSFERABILITY:

- The Portal is transferrable to other ports. Supply chain by its nature involves multiple ports, and supply chain optimization is a common goal that we all have.

CONCLUSION

The Digital Supply Chain Information Portal (Phase 1) project was a visionary approach to test the concept and benefits of a single window for access to timely maritime supply chain information. The success of Phase 1 was an important milestone toward the aspiration of digital supply chain transformation. Its success was that all-important first step that enabled the continuation of this effort, which now include plans for expanded scale, functionality, analytics and more.

The Port of Los Angeles appreciates the opportunity to submit this project for consideration of the 2017 AAPA Information Technology Award, and would be happy to discuss it further with other ports.