# HARNESSING THE POWER OF DATA TO ADDRESS SUPPLY CHAIN CHALLENGES

"PORT OPTIMIZER AGGREGATES NON-PROPRIETARY MARITIME SHIPPING DATA, INTERPRETING THAT DATA IN RELEVANT WAYS AND MAKING IT USABLE BY PORT USERS AS SOON AS IT IS AVAILABLE."

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The COVID-19-impacted global supply chain was the first big test for port community systems at major international ports. L.A.'s Port Optimizer™ showed digitalisation's potential for improving ocean trade performance.

During the past two years, ports around the world have witnessed some of the biggest cargo congestion challenges in modern history. Supply chains on nearly every continent have been challenged by logistical disruptions, affecting billions of lives and livelihoods.

Operating some of the busiest trade lanes in the Western Hemisphere, Los Angeles and other US West Coast ports have been significantly impacted by unprecedented levels of consumer-driven imports since the summer of 2020. Even before COVID-19, however, trade policies enacted in 2018 began influencing shipper behavior, accelerating supply chain cycles as cargo owners rushed to ship their goods in advance of costly and escalating tariff deadlines. As a result, 2018 was a record year fueled by surges in import volume.

For the Port of Los Angeles, every possible solution has been on the table to manage these cargo surges since their emergence, including fast-tracking the development of its port community system, Port Optimizer™. From the time Port Optimizer was deployed in 2017, this cloud-based digital portal has continually added new features in response to these extraordinary supply chain conditions, providing port community stakeholders with forward-looking and real-time operational intelligence, and enabling Los Angeles to process record levels of monthly TEU volumes.
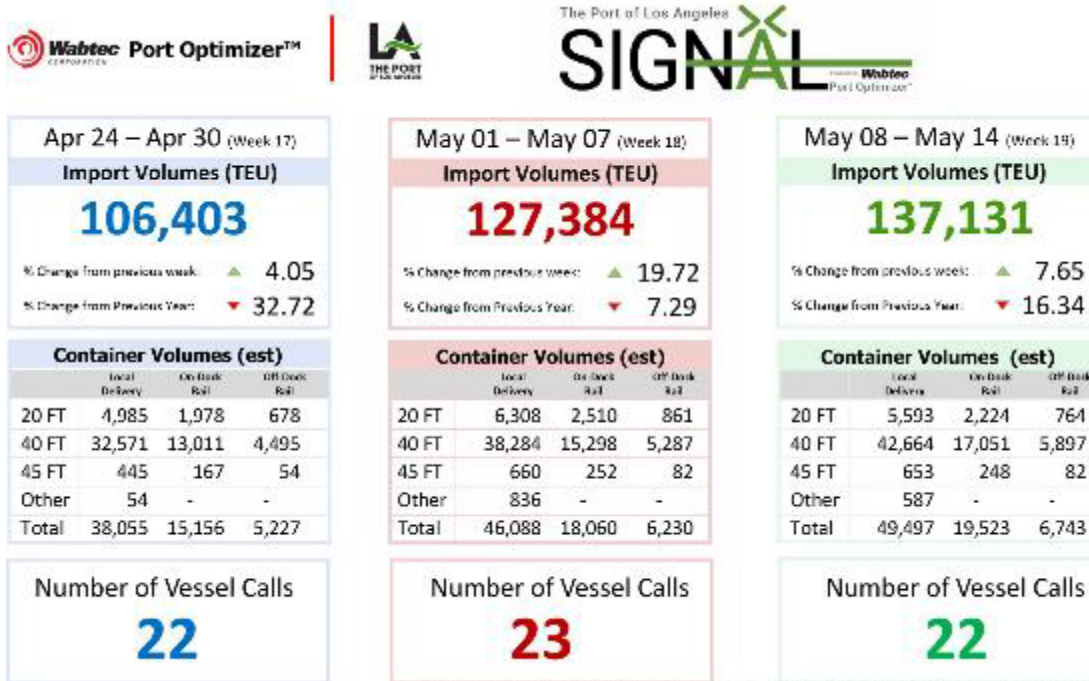
## PORT OPTIMIZER™ TECHNOLOGY

A collaboration between the Port of Los Angeles and Wabtec Corporation, Port Optimizer helps cargo owners and service providers — including terminal, drayage and rail operators — better predict, plan and track cargo flows through the San Pedro Bay.

Port Optimizer aggregates non-proprietary maritime shipping data, interpreting that data in relevant ways and making it usable by port users as soon as it is available. Data specific to a particular company's cargo flow is also available through secure, channeled access, and can be integrated through Application Programming Interfaces (API) into the company's own system.

Port Optimizer and the insights it provides help port users operate more efficiently and move their cargo through the port in a more predictable and timely manner. It provides greater visibility and line-of-sight planning capability from port of origin, through Los Angeles and on to the final destination.

The system collects diverse cargo data flows from a number of sources, including U.S.

| Wabtec Port Optimizer™ | LA THE PORT | The Port of Los Angeles SIGNAL Wabtec Port Optimizer |
|---|---|---|

### Apr 24 – Apr 30 (Week 17)
**Import Volumes (TEU)**

## 106,403

| % Change from previous week: | ▲ 4.05 |
|---|---|
| % Change from Previous Year: | ▼ 32.72 |

**Container Volumes (est)**

| | Local Delivery | On Dock Rail | Off Dock Rail |
|---|---|---|---|
| 20 FT | 4,985 | 1,978 | 678 |
| 40 FT | 32,571 | 13,011 | 4,495 |
| 45 FT | 445 | 167 | 54 |
| Other | 54 | - | - |
| Total | 38,055 | 15,156 | 5,227 |

**Number of Vessel Calls**

## 22

### May 01 – May 07 (Week 18)
**Import Volumes (TEU)**

## 127,384

| % Change from previous week: | ▲ 19.72 |
|---|---|
| % Change from Previous Year: | ▼ 7.29 |

**Container Volumes (est)**

| | Local Delivery | On Dock Rail | Off Dock Rail |
|---|---|---|---|
| 20 FT | 6,308 | 2,510 | 861 |
| 40 FT | 38,284 | 15,298 | 5,287 |
| 45 FT | 660 | 252 | 82 |
| Other | 836 | - | - |
| Total | 46,088 | 18,060 | 6,230 |

**Number of Vessel Calls**

## 23

### May 08 – May 14 (Week 19)
**Import Volumes (TEU)**

## 137,131

| % Change from previous week: | ▲ 7.65 |
|---|---|
| % Change from Previous Year: | ▼ 16.34 |

**Container Volumes (est)**

| | Local Delivery | On Dock Rail | Off Dock Rail |
|---|---|---|---|
| 20 FT | 5,593 | 2,224 | 764 |
| 40 FT | 42,664 | 17,051 | 5,897 |
| 45 FT | 653 | 248 | 82 |
| Other | 587 | - | - |
| Total | 49,497 | 19,523 | 6,743 |

**Number of Vessel Calls**

## 22

*Data based on ocean carrier manifest records into the Port of Los Angeles received through 04/26/2022 and is subject to change

**LEFT**
Signal dashboard is one of several Port Optimizer data tools the Port of Los Angeles has made available to its freight community, giving cargo owners and service providers a view of incoming cargo volumes up to three weeks in advance of arrival.

# "CARGO FLOW DYNAMICS DURING COVID-19 HAS PUT PORT OPTIMIZER TO THE TEST AND, IN SOME RESPECTS, ACCELERATED ITS EVOLUTION."

Customs and Border Protection, ocean carriers, marine terminals, railroads, drayage and other port stakeholders. This multi-sourced data then feeds into Port Optimizer, which is able to receive, process and make sense of data in varying formats, whether a spreadsheet, email, BAyPLan Including Empties (BAPLIE), Electronic Data Interface (EDI), API or other nonstandard data feeds. The data is then synthesised through the system into an easy-to-use, visualised interface.

**IMPROVED PLANNING AND VISIBILITY IN A PANDEMIC**

Port Optimizer has continued to evolve over the years, with new features added based on user feedback and changing conditions in the supply chain. Cargo flow dynamics during COVID-19 has put Port Optimizer to the test and, in some respects, accelerated its evolution.

New Port Optimizer features that the port makes available on its website daily at no cost to users include:

- **Control Tower:** As the primary dashboard to access all new publicly available Port Optimizer features, the Control Tower lets users view historical containerised volumes by terminal, shipping line and vessel, in addition to trending volumes by terminal, service and vessel. It offers a real-time port-level view of truck turn times by terminal, as well as real-time totals of the number of containers discharged from vessels and currently on the terminal.
- **Signal:** This feature provides a daily view of current containerised import volumes, projected container arrivals and current vessels at anchorage. The data is broken down by container type and includes details on the mode of transportation, whether rail or truck, once a container arrives in Los Angeles.

- **Return Signal:** Key to improving drayage efficiency, this application informs a user when and where truckers can return empty containers to cargo terminals accepting empties throughout the port complex.
- **Horizon:** This feature forecasts cargo movement up to six months in advance, and gauges movement of containers, including imports, exports and empty containers.

These latest enhancements provide visibility into operating conditions at all 12 terminals at the Port of Los Angeles and captures 70 per cent of the import data for the entire San Pedro Bay port complex.

## LOOKING AHEAD

COVID-19 supply chain disruptions have underscored the need for port communities that provide awareness of upstream and downstream cargo flow, and the ability to provide visibility on all aspects of the supply chain that impact port cargo operations.

The power of digitisation has brought to surface three key factors in addressing recent supply chain challenges: visibility, analytics and exception management.

Visibility of the data helps the port and other Port Optimizer users diagnose system conditions that could create bottlenecks in cargo flows. This allows users to dive further into the analytics that can be critical in identifying and enabling corrective action. Taken together these data sets provide the ability to address exception management for key customer pain points, and pivot quickly to other possible options. Overall, the ability to see around corners of daily operations helps each operational link in the supply chain perform at more optimal levels.

This is why Port Optimizer has been a game changer for the Port of Los Angeles.

By enhancing supply chain performance through real-time, data-driven insights in a single portal, Port Optimizer has helped marine terminal customers, labour, rail, drayage and cargo owners served at the port to work in a lockstep fashion and identify supply chain issues before they evolve into more challenging operational circumstances. It has provided insights that can be developed into actionable solutions. It has also given the port the ability to effectively disseminate critical and accurate information to cargo stakeholders more quickly, an added value to Port of Los Angeles users during the COVID-19 pandemic.

Challenges of the supply chain related to the pandemic are far from over, and will take time to resolve. However, we now know — regardless of the operating conditions — that effective data collection, data sharing and information exchange across a port ecosystem delivers operational

**MAIN**
Port of Los Angeles

advantages, maximising line-of-sight visibility, predictability and throughput for all nodes in the supply chain.

Port Optimizer is a solid start to what's possible for the digital transformation of the maritime industry here in the US. It's a strong technology foundation that the Port of Los Angeles and Wabtec will continue to build upon and evolve in the years ahead.

The Port of Los Angeles, however, is just one trade US gateway among dozens here in the US. Establishing port community systems at every major US port — systems capable of exchanging common sets of key data — could go a long way toward building

**BELOW**
Vincent Thomas Bridge in San Pedro, California. The bridge crosses Los Angeles Harbor linking San Pedro with Terminal Island.

a nationwide system capable of providing real-time operational intelligence across the entire ocean supply chain. The development of this 'system of systems' would be another game changer with enormous potential.

**ABOUT THE AUTHOR:**
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**ABOUT THE ORGANISATION:**
The Port of Los Angeles is America's Port, the nation's premier gateway for international commerce and the busiest seaport in the Western Hemisphere. Located in San Pedro Bay, 25 miles south of downtown Los Angeles, the Port encompasses 7,500 acres of land and water along 43 miles of waterfront.

Jointly developed by the Port of Los Angeles and Wabtec, Port Optimizer is a dynamic cloud-based information portal that digitises maritime shipping data for supply chain stakeholders. First introduced by the Port of Los Angeles in 2017, the digital platform has continually added new application features.

**"BY ENHANCING SUPPLY CHAIN PERFORMANCE THROUGH REAL-TIME, DATA-DRIVEN INSIGHTS IN A SINGLE PORTAL, PORT OPTIMIZER HAS HELPED MARINE TERMINAL CUSTOMERS, LABOUR, RAIL, DRAYAGE AND CARGO OWNERS SERVED AT THE PORT TO WORK IN A LOCKSTEP FASHION."**