

**California Governor's Office of Business and Economic Development
Office of Supply Chain – California Containerized Ports Interoperability Program**

Grant Agreement # CPDIP2024-L08

1. This Agreement is entered into between the State Agency and the Grant Recipient named below:

STATE UNIT/AGENCY NAME
CALIFORNIA OFFICE OF SUPPLY CHAIN, GOVERNOR'S OFFICE OF BUSINESS AND
ECONOMIC DEVELOPMENT

GRANT RECIPIENT NAME
PORT OF LOS ANGELES (City of Los Angeles Harbor Department)
2. The term of this Agreement is:

October 3, 2024 – March 02, 2026
3. The maximum amount of this Agreement is:

\$1,320,000
4. The parties agree to comply with the terms and conditions of the following Agreement including
exhibits which are by this reference made a part of this Agreement.

IN WITNESS THEREOF, the parties have executed this AGREEMENT hereto.

GRANT RECIPIENT	
GRANT RECIPIENT'S NAME CITY OF LOS ANGELES HARBOR DEPARTMENT, By its Board of Harbor Commissioners	
BY (Authorized Signature)	DATE SIGNED
x.	
PRINTED NAME AND TITLE OF PERSON SIGNING EUGENE D. SEROKA, EXECUTIVE DIRECTOR	
ATTESTED BY	
x.	
PRINTED NAME AND TITLE OF PERSON SIGNING AMBER KLESGES, BOARD SECRETARY	
APPROVED TO FORM, LA CITY ATTORNEY'S OFFICE	
x. <i>Joy M. Crose</i> 9/25/24	
PRINTED NAME AND TITLE OF PERSON SIGNING JOY M. CROSE, ASST. GEN COUNSEL	
ADDRESS 425 S. PALOS VERDES STREET, SAN PEDRO, CA 90731	
STATE OF CALIFORNIA	
STATE UNIT/AGENCY NAME OFFICE OF SUPPLY CHAIN, GOVERNOR'S OFFICE OF BUSINESS AND ECONOMIC DEVELOPMENT	
BY (Authorized Signature)	DATE SIGNED
x.	
PRINTED NAME AND TITLE OF PERSON SIGNING	
ADDRESS 1325 J STREET, SUITE 1800, SACRAMENTO, CA 95814	

**CALIFORNIA GOVERNOR'S OFFICE OF BUSINESS AND ECONOMIC
DEVELOPMENT CALIFORNIA CONTAINERIZED PORT INTEROPERABILITY
PROGRAM GRANT AGREEMENT**

This Containerized Port Interoperability Program 2024/2025 (hereinafter referred to as the "PROGRAM") Grant Agreement (hereinafter referred to as the "AGREEMENT") dated October 3, 2024 is entered into by and between PORT OF LOS ANGELES (hereinafter "RECIPIENT"), and the Office of Supply Chain within the Governor's Office of Business and Economic Development (hereinafter, "GO-Biz"), hereafter jointly referred to as the "parties" or individually as the "party."

- A. **WHEREAS**, GO-Biz is the sponsor and the manager of this award issued to the RECIPIENT under Agreement Number CPDIP2024-L08 ("Award");
- B. **WHEREAS**, GO-Biz desires to retain RECIPIENT to perform and/or manage services as described in the 2024/25 Program Announcement and Exhibit A ("Scope of Work, Performance Metrics and Budget") to help containerized ports achieve efficient container movement, reduce greenhouse gas emissions, and increase operational efficiency through real time, cloud-based port data interoperability systems and;
- C. **WHEREAS**, RECIPIENT is leading development of their port interoperability data systems in California pursuant to the Memorandum of Understanding ("MOU") between five containerized ports of Hueneme, Oakland, Long Beach, Los Angeles and San Diego;
- D. **WHEREAS**, AUTHORIZED REPRESENTATIVE is the designated point of contact authorized to communicate with GO-Biz on behalf of the RECIPIENT and is responsible for reporting and invoicing requirements as described in the AGREEMENT;
- E. **WHEREAS**, all parties acknowledge that this AGREEMENT and the Award are only available to eligible containerized ports in the State of California;
- F. **WHEREAS**, GO-Biz desires to retain RECIPIENT to perform services as specified in Exhibit A and intends to compensate RECIPIENT for such services, as described in Exhibit A;
- G. **WHEREAS**, RECIPIENT desires to be retained by GO-Biz to perform and/or manage such services as described in Exhibit A and to be compensated as set forth in Exhibit A.

NOW, THEREFORE, in consideration of the mutual and reciprocal promises and subject to the terms and conditions set forth herein, the parties agree as follows:

1. **Scope of Work and Performance Metrics**. RECIPIENT shall be responsible for the results and progress described in the Scope of Work and Performance Metrics, and Project Deliverables which is attached and incorporated as Exhibit A.
2. **Term of Agreement**. The period of performance of this AGREEMENT shall be from August 30, 2024 – March 02, 2026.
3. **Delivery**. All materials, services and/or deliverables required under this AGREEMENT must be completed and delivered to GO-Biz on or before March 02, 2026.
4. **Termination of Agreement**. Either party may terminate this AGREEMENT upon ninety (90) calendar days advance written notice to the other party. Upon termination of this AGREEMENT, GO-Biz agrees to compensate RECIPIENT for all allowable, unavoidable, expenses reasonably incurred by RECIPIENT in the performance of its work under this AGREEMENT prior to the date of termination. RECIPIENT agrees to complete services and/or provide required deliverables through the date of termination. In the event of termination, the state is obligated to compensate the RECIPIENT only for all allowable and unavoidable expenses reasonably incurred by the RECIPIENT in the performance of its work under the AGREEMENT as of the effective date of the terminating event or otherwise agreed period to allow project closeout activities, as determined appropriate by GO-Biz Office of Supply Chain. In addition, if a RECIPIENT has received notification from its federal funding partner that its cooperative agreement is scheduled for termination or that its operations are placed under a probationary status, the recipient must notify the Office of Supply Chain via email at supplychain@gobiz.ca.gov -within 3 business days. Failure to notify the Office of Supply Chain may impact future eligibility.
5. **Material Breach** GO-Biz will assess each grant award based on achievements against goals and respective scope of work. GO-Biz reserves the right to terminate the AGREEMENT in the case of a material breach. A material breach for the purposes of the Program may include, but shall not be limited to:
 - a) Failure to comply with established deadlines including failure to file timely reports.
 - b) Deficient compliance with metric reporting requirements.
 - c) Deficient compliance with narrative reporting requirements.
 - d) Deficient compliance with financial reporting or record-keeping requirements.
 - e) Deficient compliance in carrying out the scope of work established in the AGREEMENT.

- f) Deficient compliance with the ports' MOU.
 - g) Failure to follow communication expectations set forth in this AGREEMENT, including meeting with the TAC (Technical Advisory Committee) for requested meetings. Meetings with the TAC will take place at least quarterly to review milestones, deliverables, and metrics reporting.
 - h) Failure to spend funds in a timely manner, in accordance with the AGREEMENT.
 - i) Termination of the Recipient's AGREEMENT.
 - j) Closure or termination of the AGREEMENT for any reason prior to completion.
6. **Waiver**. The waiver by one party of any breach of any term or condition of this AGREEMENT shall not be construed as a waiver of any other obligation by a party to perform pursuant to the terms and conditions of this AGREEMENT. Nor shall said waiver be construed as a continuing waiver of the original breach.
7. **Assignment**. No part of this AGREEMENT may be assigned by either party without the prior written consent of the other party.
8. **Amendments**. No part of this AGREEMENT shall be modified without the express written agreement of both parties.
9. **Compensation**. The RECIPIENT is entitled to the compensation as set forth in Exhibit B for the term of AGREEMENT.
10. **Allowable Costs and Fees**. Allowable costs and fees eligible for reimbursement to the RECIPIENT for performance of this AGREEMENT must be in accordance with the Exhibit A.
11. **Invoicing and Reporting Requirements**. RECIPIENT must provide the required reports to GO-Biz by the established deadlines. Failure to file timely reports will be tracked for grant performance and may result in withholding reimbursements GO-Biz will provide RECIPIENT with reporting and invoicing instructions by July 31, 2024.
- a. **Reporting and Monitoring Requirements**. The Authorized Representative must electronically submit performance reports quarterly during the 2024/25 Period of Performance. Quarterly performance reports are due within 15 business days following the end of the previous quarter. Performance reports will be used to monitor activities for compliance with work progress to ensure grant activities are performed according to the quality, quantity, objectives, timeframes and manner specified within the AGREEMENT. The RECIPIENT obligated to meet, at minimum, once a quarter with GO-Biz staff to share performance progress and discuss any barriers or opportunities including shared best practices. RECIPIENT will respond to requests for reporting revisions and clarifications within 15 business days of the request being sent from GO-Biz. If no revision or approved extension is received within that time, this could result in delayed payment by GO-Biz for the reporting period until requested revisions have been resolved.
 - b. **Invoicing Requirements**. The Authorized Representative must electronically submit a semiannual invoice to GO-Biz within forty-five (45) days after the completion of

the first six months and within sixty (60) days of the completion of the final semiannual period for the program. With the exception of the final invoice, any invoice submitted for less than \$1000 will be held for payment with the following semiannual invoice. GO-Biz will not process any payment request submitted more than ninety (90) calendar days after the end of the specified semiannual period, except for the initial semiannual invoice referenced in this subsection (b). Invoice backup documentation that includes more than three contractor invoices and/or general ledger or payroll documents exceeding four (4) pages must be accompanied by an invoice summary spreadsheet using a template and attached as Exhibit E provided by GO-Biz. RECIPIENT will respond to requests for invoicing revisions and clarifications within 15 business days of the request being sent from GO-Biz. If no revision or approved extension is received within that time, this could result in delayed payment by GO-Biz for the reporting period until requested revisions have been resolved.

12. **Payment.** GO-Biz agrees to pay approved invoices within forty-five (45) calendar days upon receipt in the form of a physical warrant issued from the State Controller's Office. In no event shall the RECIPIENT request reimbursement from GO-Biz for obligations entered into or for costs incurred prior to the commencement date or after the expiration of this AGREEMENT. Invoices shall be paid upon satisfactory completion of AGREEMENT work and submittal of all reports required in this AGREEMENT as described in the AGREEMENT and the Exhibits. "Satisfactory completion" as used in this AGREEMENT means that the RECIPIENT has complied with all terms, conditions, and performance requirements of this AGREEMENT. All Award Funds shall be used solely for the purpose of performing the work as set forth in this AGREEMENT. RECIPIENT is responsible for notifying GO-Biz of any changes to the payment remittance address and changes must be submitted to GO-Biz at least five (5) business days in advance of reporting deadlines. Payment remittance address changes submitted after a reporting deadline will not be guaranteed to be updated prior to the release of the payment warrant from the State Controller's Office. The remaining balance of an award that does not receive an extension and does not submit an approved final invoice within thirty (30) days of the final reporting deadline, will be considered unclaimed and returned to the State fund.
13. **Third-party contracts.** RECIPIENT acknowledges that additional third-party contracts related to the performance and duties of this AGREEMENT, in which RECIPIENT seeks to enter, beyond the scope of the original approved budget, must be approved by GO-Biz prior to execution.
14. **Publicity and Acknowledgement.** The RECIPIENT is required to include their own business name, mailing address, logo and disclosure on all materials produced in whole or in part with Project Funds:
 1. "Funded in part through a Grant with the California Governor's Office of Business and

Economic Development.”

Materials that include editorial content must include the following alternate acknowledgement:

2. “Funded in part through a Grant with the California Governor’s Office of Business and Economic Development. All opinions, conclusions, and/or recommendations expressed herein are those of the author(s) and do not necessarily reflect the views of the California Governor’s Office of Business and Economic Development.”

The GO-Biz logo (to be provided by GO-Biz) may be placed in close proximity to the Recipient’s logo or placed in a prominent location elsewhere on the material. The GO-Biz logo may not be placed in close proximity to any third-party logo or used in such a way as to imply that a relationship exists between GO-Biz and any third party. Any use of the GO-Biz logo must be accompanied by one of the above disclosure statements within reasonable proximity to the logo. Neither the GO-Biz logo nor the acknowledgement statement may be used in connection with activities outside the scope of work. Similarly, the GO-Biz logo and acknowledgement statement may not be used on items used in conjunction with fundraising, lobbying, or the express or implied endorsement of any goods, service, entity, or individual. The GO-Biz logo and acknowledgement statement may not be used on social media sites without GO-Biz’s prior written approval. Failure to comply with the publicity and acknowledgement constitutes poor performance and may affect future funding opportunities from GO-Biz.

15. **Indemnification/Warranty Disclaimer/Limitation of Liability**. RECIPIENT agrees to indemnify, defend and hold harmless the GO-Biz, and the State of California, its officers, agents and employees from any and all claims and losses accruing or resulting to any and all Contractors, subcontractors, suppliers, laborers and any other person, firm, or corporation furnishing—or supplying work, services, materials or supplies in connection with the performance of this AGREEMENT, and from any and all claims and losses accruing or resulting to any person, firm or corporation which may be injured or damaged by RECIPIENT in the performance of this AGREEMENT.
16. **Force Majeure**. If by reason of Force Majeure the RECIPIENT’s performance hereunder is delayed, hampered or prevented, then the performance by the RECIPIENT may be extended for the amount of time of such delay or prevention. The term "Force Majeure" shall mean any fire, flood, earthquake, or public disaster, strike, labor dispute or unrest; embargo, riot, war, insurrection or civil unrest; any act of God; any act of legally constituted authority; or any other cause beyond RECIPIENT’s control which would excuse the RECIPIENT’s performance as a matter of law.
17. **Notice of Force Majeure**. RECIPIENT agrees to give GO-Biz written notice of an event of Force Majeure under this Paragraph within ten (10) days of the commencement of such event and within ten (10) days after the termination of such event, unless the Force Majeure

prohibits RECIPIENT from reasonably giving notice within this period. RECIPIENT will give such notice at the earliest possible time following the Force Majeure.

18. **Public Records.** RECIPIENT acknowledges that GO-Biz is subject to the California Public Records Act (PRA) (Government Code sections 7920.000 – 7930.215.). This AGREEMENT and materials submitted by RECIPIENT to GO-Biz may be subject to disclosure in response to a PRA request. In the event records of the RECIPIENT are requested through a PRA request, GO-Biz will notify the RECIPIENT, as soon as practicable that a PRA request for the RECIPIENT's information has been received, but not less than five (5) business days prior to the release of the requested information to allow the RECIPIENT to seek an injunction or otherwise prevent exempt, non-disclosable information from being disclosed. GO-Biz will work in good faith with the RECIPIENT to protect the information to the extent an exemption is provided by law.
19. **Nondiscrimination.** RECIPIENT shall comply with all applicable federal and state laws and statutes related to nondiscrimination, including those acts and amendments prohibiting discrimination on the basis of race, color, religion/creed, sex/gender (including pregnancy, childbirth, breastfeeding or related medical condition), sexual orientation or gender identity/expression, ancestry/national origin, age (40 or older) , marital status disability (mental and physical), medical condition, genetic information, military or veteran status.
20. **Retention of Records.** RECIPIENT agrees to maintain and preserve all records **related** to this AGREEMENT for three (3) years after termination of the AGREEMENT.
21. **Audit.** The books and accounts, files, and other records of the RECIPIENT, which are applicable to this AGREEMENT, shall be available for inspection, review, and audit during normal business hours by GO-Biz and its representatives to verify performance metrics and determine the proper application and use of all funds paid to or for the account or benefit of the RECIPIENT. The RECIPIENT, not GO-Biz, will retain possession and control of any and all reporting materials and backup documentation and will make them available to GO-Biz for inspection and audit upon request so that GO-Biz can verify that RECIPIENT has complied with PROGRAM terms and conditions and have executed the AGREEMENT and effectuated the PROGRAM consistent with the goals as described in the Program Announcement.
22. **Severability.** Should any part, term, or provision of this AGREEMENT be declared or determined by any court or other tribunal or appropriate jurisdiction to be invalid or unenforceable, any such invalid or unenforceable part, term, or provision shall be deemed stricken and severed from this AGREEMENT. Any and all other terms of this AGREEMENT shall remain in full force and effect.
23. **Applicable Law and Consent to Jurisdiction.** This AGREEMENT will be governed, construed, and enforced according to the laws of the State of California without regard to its conflict of laws rules. Each party hereby irrevocably consents to the exclusive jurisdiction and venue of any state court located within Sacramento County, State of California in connection with any matter arising out of this Agreement or the transactions contemplated under this Agreement.
24. **Attorneys' Fees.** In the event of any litigation between the parties concerning the terms and

provisions of this AGREEMENT, the party prevailing in such dispute shall be entitled to collect from the other party all costs incurred in such dispute, including reasonable attorneys' fees.

25. **Interpretation.** Each party has had the opportunity to seek the advice of counsel or has refused to seek the advice of counsel. Each party and its counsel, if appropriate, have participated fully in the review and revision of this AGREEMENT. Any rule of construction to the effect that ambiguities are to be resolved against the drafting party shall not apply in interpreting this AGREEMENT. The language in this AGREEMENT shall be interpreted as to its fair meaning and not strictly for or against any party.
26. **Days.** Any reference to days in this AGREEMENT, unless specifically stated to be business days (which shall be Monday through Friday and shall not include weekends or state holidays), shall mean calendar days.
27. **Notices.** Any notices required or permitted to be given under this AGREEMENT shall be given in writing and shall be delivered (a) in person, (b) by certified mail, (c) by facsimile with confirmed receipt required, electronic communication with confirmed receipt required, or (d) by commercial overnight courier that guarantees next day delivery and provides a receipt, and such notices shall be addressed writing.
28. **Representation on Authority of Parties/Signatories.** Each person signing this AGREEMENT represents and warrants that he or she is duly authorized and has legal capacity to execute and deliver this AGREEMENT. Each party represents and warrants to the other that the execution and delivery of the AGREEMENT and the performance of such party's obligations hereunder have been duly authorized and that the AGREEMENT is a valid and legal agreement binding on such party and enforceable in accordance with its terms.
29. **Integration.** This AGREEMENT, including any referenced attachments, exhibits, appendices and references, constitutes the entire AGREEMENT and supersedes any other written or oral representations, statements negotiations, or agreements with respect to the Award described herein.
30. **Recitals.** The parties acknowledge and agree that the recitals are true and accurate and are hereby incorporated by reference into this AGREEMENT. The language provided in the recitals shall take precedence over any conflicting language in the program announcement.
31. **Contents and Order of Precedence.** Included in this AGREEMENT are the following exhibits and all exhibits are hereby incorporated by reference into this AGREEMENT
 - a. Exhibit A – Scope of Work, Performance Metrics, Schedule and Budget
 - b. Exhibit B – 2024/25 California Containerized Port Interoperability Program Information
 - c. Exhibit C – MOU
 - d. Exhibit D – Quarterly Report Template
 - e. Exhibit E – Invoice Summary Spreadsheet
 - f. Exhibit F – Submitted Proposal

Exhibit A – Scope of Work, Performance Metrics, and Budget

This establishes the California Containerized Port Interoperability Program scope of work, metrics, special stipulations, and budget for the RECIPIENT during the 2024/25 Program.

Scope of Work

CalPorts (To be built as part of the Go-Biz proposal) is a mobile application that facilitates information sharing by California ports. The application, when developed, would serve as a dashboard, providing cargo visibility at the Port of Los Angeles and other participating ports (through standardized APIs). Enhanced visibility of container metrics would help cargo owners optimize the flow of goods and reduce the time and cost associated with moving cargo. The application would provide data on the status of cargo, which would help reduce the risk of delays and disruptions and enable public and private sector actors to better anticipate operational issues, thereby reducing congestion and improving the overall efficiency of the supply chain. The modules within CalPorts would be designed to be user-friendly and easy to navigate, with intuitive visualizations that would allow users to quickly identify trends and patterns. The application would also be highly customizable and allow users to tailor the dashboards to their specific needs. CalPorts would be designed to be responsive, so it can be accessed from any device, including smartphones, tablets, and desktop computers. The application would also be highly secure with robust encryption and authentication features to ensure the safety of sensitive data. The application would provide a platform for sharing information on environmental performance which would help promote sustainability and reduce emissions. Additionally, the application would be used to share information on port security, cyber security, and port safety helping to allow cargo to be transported securely, efficiently, and safely. Finally, the application would provide availability of Department of Transportation FLOW (Freight Logistics Operations Works) information for participating members through an access-controlled portal. CalPorts will provide several modules and features such as the following:

1. **Ports Control Tower:** Provides operational status and actionable insights into such areas as terminal operations, container dwell, and vessel status. It would also offer analytics & KPIs as a single pane of glass view for Ports-wide analytics.
2. **Ports Instrument Cluster:** Offers a mobile view of Ports congestion, Ports performance and health condition. Depending on data availability, this could also provide a general snapshot of a Port environmental index based on congestion and cargo flow.
3. **Bird's Eye View:** Offers a statewide view of equipment and movement of select assets, vehicles and fleets as enabled by the user to help visualize fleet assignment and distribution. This module would be applicable where GPS sharing is enabled and accessible to POLA and its technology partners.
4. **FLOW Link:** An access-controlled section of the application designed for participants in the DOT's Freight Logistics Operations Works (FLOW) program, including access to all enabled Federal-level data, including the ability to drill down for actionable insights. FLOW is Initiated by the Biden-Harris Administration in May 2022 to "...Speed Up Delivery Times and Reduce Consumer Costs" through data exchange. The program is a government/industry partnership to exchange information between supply chain stakeholders and is made possible by USDOT/Bureau of Transportation. POLA's objective is to integrate data leveraging the Bureau of Transportation Statistics (BTS) and FLOW participants. As of January 2024, FLOW participants consist of Beneficial Cargo Owner (BCO), Intermodal Equipment Provider (IEP), Logistics Real Estate, Marine Terminal Operator (MTO), Motor Carrier, Ocean Carrier, Rail Carrier, and Third-Party Logistics (3PL). This module aims at leveraging the maturity of other federal agencies such as the Federal Maritime Commission (FMC) and USDOT to provide an enhanced view of the US cargo movement.

POLA intends to make this application easy for other ports to send data into through an API interface, and plans to cover the costs of hosting the application. The allocated funding for this project is intended to support the core data foundation work of creating an API-only layer to provide base-level FLOW data inputs. When the CalPorts application is completed, POLA will solicit its usage to other CA ports. Table 2 describes the project tasks, associated award amounts, and total project funding.

Task 0: Project Reporting

Task	Task Name	Task Goal	Milestones	Deliverables / Products
0.1	Progress Reports	Provide implementation status updates and report issues and accomplishments	-Baseline reporting -Ongoing evidence of progress	Ongoing quarterly reporting
0.2	Baseline Report	Provide information about the current state of project in order to measure progress.	-Documents summarizing initial state of work as well as metrics baselines provided within 2-3 months of start.	Baseline reporting documentation
0.3	Draft Final Report	Documentation of project development information consistent with quarterly reporting, including issues, solutions and best practices	-Draft report & updated metrics provided for review and comment	Draft Final Report document due 02/01/2026 (one month before project end date)
0.4	Final Report	Provide documentation of project development, implementation, issues, solutions and best practices	-Completed final report incorporating draft final report feedback	Final Report document due 03/02/2026

Tasks 1 – 3:

Task	Description	Milestones and Deliverables	Deliverables	Start Date	End Date
Task 1 Discovery Phase					
1.1	Discovery	Research, collect and analyze CalPorts project information and plans. Validate the scope of work, deadlines, and user experience expectations. Ensure necessary data in making technical and architectural decisions are available. Work with different stakeholders, including MTOs, Shipping Lines, BCOs, Dray Providers, Railroads, and others to ensure	Validation Report, including all research findings	Sep 24	Jan 25

		applicability of data and information.			
1.2	Documentation	Establish a repository for software engineers, UX designers and developers to store and maintain processes and functions to develop the application. Deliverables include planning, metrics, scheduling, estimation, and system documentation among others. Provide required project reporting to state agencies as required.	Repository Plan, Planning, metrics, scheduling, estimation, and system documentation among others. Provide required project reporting to state agencies as required.	Nov 24	Apr 25
Task 2 Data Ingestion and Integration					
2.1	Data Acquisition	Identifying data sources, from available stakeholders, acquire feeds converting data to a digital content and ensuring data feeds are complete and accurate.	Table of acquired feeds with detailed data dictionary, and feed details + characteristics	Oct 24	Mar 25
2.2	Data Implementation	Bringing data into the CalPorts data foundation, including normalization, and sequencing of data and ensuring that data is split into the proper component database sections.	Data normalization plans and data flows, software process diagrams, architecture diagrams.	Nov 24	Apr 25
2.4	API Development	API design and specification. Complete and test	API Design specs, Testing report	Oct 24	Apr 25

		API coding including error management.			
Task 3 Back-End Environment, Data modeling and Foundation					
3.1	Data Modeling	Creation of representation of data, relationship, structure, constraints and rules of organization and data storage. Completion of an Entity-Relationship Diagrams (ERDs).	Data flows diagram, Entity relationship diagrams, Data storage map and plans.	Nov 24	Apr 25
3.2	Data Foundation	Establishment of Database warehouse and Extract, Transform, Load (ETL) processes.	Software process diagrams, architecture diagrams	Oct 24	Apr 25
3.3	API Endpoints/Outputs	Define API endpoints and API data output in required format such as JSON and XML.	API documentation	Dec 24	May 25

Budget

Funding herein is allocated to the specific tasks below. If there is excess budget remaining from completing a task, it may be only reallocated to a different task below upon approval of a budget amendment request. Any task or tasks with remaining funds requested for reallocation must be determined completed by GO-Biz and ISC. Tasks with more than 20% of funds remaining will require GO-Biz Administration approval for reallocation.

Task Description	Award Amount
Discovery	\$120,000
Data Ingestion and Integration	\$400,000
Data Modeling and Foundation	\$800,000
Total	\$1,320,000

Performance Metrics

Metrics the port will report on include the below list, in addition to the success criteria listed in the project deliverables. If it's not possible to measure some of these metrics today in service of providing a comparison between the before-and-after state at the port, it must be justified. Metrics will be included in the quarterly report and in the final report. Additionally, the port will provide a baseline of these metrics within 3 months of the contract

initiation.

- **Container Volumes & TEUs:** Quarterly and annual comparison of container volume.
- **Port efficiency:** Captures KPIs such as turn time, queue time and empty container management. This can be measured monthly, quarterly, and annually.
- **Usage of the platform:** A metric showing the number of users and their engagement levels who are consistently using and benefiting from the platform as well as information on specific common use cases.
- **Collaboration:** Participation of stakeholders within CalPorts and participation with FLOW as measured by, at least, the number of participating ports and number of FLOW endpoints per port that have data reliably contributed to.

Special Considerations & Stipulations

- While the original proposal intends to build a mobile application for users to view and interact with data through, the TAC and State disagree that this is an ideal access format. A mobile application makes data less portable to be used in ways that stakeholders would likely need to achieve on a desktop computer. The TAC & GoBiz instead would like to see a web application built for users to interact with CalPorts through. They believe that a web application can be made responsive enough to support mobile phone use. Funding from this grant award is not to go towards development of a mobile application.
- Cloud Costs are only covered at 50% by state funds.
- The port will provide a written plan for how other ports will onboard onto the CalPorts system.

California Containerized Ports Interoperability Grant Program

Application Manual | December 2023

 Insight Softmax



CALIFORNIA
Governor's Office of Business
and Economic Development

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1. Introduction

The Governor’s Office of Business and Economic Development (GO-Biz) is mandated by Article 12 of SB-193: Economic Development: Grant Programs and Other Financial Assistance to establish the California Containerized Ports Interoperability Grant Program. This program aims to improve the supply chain interoperability of five California ports by strengthening the ports’ cloud-based data systems. This document provides Applicants with information regarding the California Containerized Ports Interoperability Grant Program and instructions to complete and submit the program application.

2. Background and Purpose

California is the preeminent global goods movement gateway in the United States, responsible for handling forty percent of all containerized imports and thirty percent of all containerized exports in the Nation. In June 2022, Governor Gavin Newsom signed the California Budget Act of 2022, which included a historic multi-billion-dollar state investment to support and enhance goods movement and the supply chain, including port and freight infrastructure, climate adaptation and resilience, workforce training, zero-emission vehicle deployment, grid support and grid reliability, and port data system development.

The Governor and the California Legislature are investing in strengthening the state’s supply chain following the COVID-19 pandemic and challenges shared by California industries. With supply chains becoming more complex, data systems, tracking software, and other technologies can help all parties that facilitate and do business with port complexes. Of the amount appropriated in the most recent budget, \$27,000,000 is available to provide direct grant support to containerized ports via the California Containerized Ports Interoperability Program (Program). Utilizing existing data from the U.S. Army Corps of Engineers and the Waterborne Commerce Statistics Center, GO-Biz has determined that five California ports are eligible applicants to the Program to develop cloud-based management systems: Port of Hueneme, Port of Long Beach, Port of Los Angeles, Port of Oakland, and Port of San Diego.

To fulfill the statute, GO-Biz contracted Build Momentum (Momentum), a grant management service provider, to administer the grant program and award funds to the specified Applicants to the Program. Momentum, in partnership with Insight Softmax Consulting (ISC), conducted research on existing data initiatives within this space at the state and federal levels to incorporate alignment into the structure of the grant program guidelines. Momentum and ISC established a Technical Advisory Committee (TAC) of industry experts—with representation from GO-Biz, ISC, DataCRT, Latacora, and Cloud303—to support the development of the proposal framework and scoring criteria. The TAC will review and score all applications to determine final awards and disbursement of funds.

2.1 California Port Data Partnership

As required, the five eligible California ports reached a Memorandum of Understanding (MOU) with all other ports on April 26, 2023, that defines how they will work together to help achieve real-time interoperability among the containerized ports in California. The MOU launched the “California Port Data Partnership” to support improved freight system resilience, goods

movement efficiency, emissions reductions, and economic competitiveness. This MOU is required for funding. GO-Biz shall report to the chairpersons of the committees in each house of the Legislature that consider appropriations and the Chairperson of the Joint Legislative Budget Committee that an MOU has been reached.

2.2 *Program Objectives*

The Program will support cloud-based port data system development at California's containerized ports and support emerging data aggregation and analysis to improve freight and supply chain efficiency. Increased interoperability will allow the ports to securely share information and expedite information exchange across port users and relevant transportation service providers. The Program will drive statewide economic, supply chain, and environmental benefits, supporting operational improvements, efficiency, and emissions reductions at California ports. The development of data management systems will provide a replicable model for other ports across the United States, incentivizing data system collaboration and improving efficiencies in goods movement. Key Program objectives include:

- **Federal Alignment:** Ensuring that port proposals and data systems align with Federal goals and initiatives related to goods movement, efficiency, and environmental benefits
- **Emissions Reductions:** Improving efficiencies through data management to drive emissions reductions, achieving regional, State, and Federal climate goals
- **Economic Competitiveness:** Addressing the economic competitiveness of California ports through comprehensive data management and organization
- **Stakeholder Engagement:** Facilitating broad community and port ecosystem stakeholder engagement to ensure equitable participation, knowledge sharing, and benefits

2.3 *Guiding Principles for Proposal Development and Funding Allocation*

The California Containerized Ports Interoperability Grant Program is supplying funding to the five containerized ports in California in support of building cloud-based data systems that enhance interoperability, support federal data initiatives, and advance the California climate goals as outlined in the MOU. Funding will be awarded based on several key factors:

- Individual port shares of TEU volume
- Key performance metrics:
 - Vessel dwell times
 - Container dwell times
 - Truck turn times
- Demonstrated data needs
- Interoperability improvements proposed
- The scoring rubric

The TAC will assess funding impact based on annual TEU volume and impacts on port operational efficiency. Efforts will be made to address demonstrated data needs, as each port has unique needs and different capabilities of existing data systems. The intention is to raise the floor of data systems within all ports to enable cohesive future data initiatives.

The primary goal of this funding is to support interoperability, which was identified as a primary challenge of the 2021-22 supply chain crisis. The grant administrators interpret data interoperability as making information readily available to port ecosystem stakeholders **uniformly**. Stakeholders must be able to interface with the ports to access information that increases the efficiency of cargo movements through the ports and general port operations.

While interoperability may also extend port-to-port data sharing, this should be a natural byproduct of uniform data interfaces to stakeholders. If port-to-port data sharing is a goal of a grant proposal, it should be done as part of a collaborative effort. Data sharing should ideally be structured around uniform interfaces rather than specific agreements between parties.

The intermediary supports the recommendations of the Federal Maritime Commission's (FMC) Maritime Transportation Data Initiative (MTDI)¹. Proposals should follow these recommendations whenever possible.

A tenet of achieving interoperability is the adoption of standards. The FMC **strongly** recommends adopting the [standards developed by the Digital Shipping Container Association \(DCSA\)](#). Any new system or improvements to existing systems need to adopt these standards. Automatic interoperability will be achieved by adopting these standards in lexicon, definitions, format, and Application Programming Interfaces (APIs). It also creates a foundation for future systems that can be developed faster and in the same language.

Ports are highly encouraged to collaborate to attain these goals where their current statuses and goals align to maximize the funds' efficacy and further the interoperability goals. Interoperability will best be achieved through mutual efforts during pre-planning and execution. The intermediary will award extra points to projects that include two or more ports collaborating on shared systems.

In the spirit of collaboration and shared systems (where appropriate), open-source development is encouraged. By publishing non-sensitive software components or integrations you develop, other ports can leverage these investments. Benefits of this arise when others build upon the solution and add features or fix defects. One area the TAC has identified for open sourcing is the ingestion and normalization of data from stakeholders such as carriers, Beneficial Cargo Owners (BCOs), or Marine Terminal Operators (MTOs) via Electronic Data Interchanges (EDIs), APIs, and other available means. Proposals that include this open-source roadmap will further interoperability for everyone and will be evaluated favorably.

The grant administrators are aware that each port has unique cargo profiles and stakeholders; they will consider this when evaluating proposals. Additionally, the administrators are available to collaborate with the ports during the proposal writing process. They come with rich expertise in building data systems and avail themselves with the intention of helping each port build the proper technical infrastructure and catalyzing port-to-port collaboration. They wish to see the

¹ *Recommendations on the Maritime Transportation Data System Requirements, 2023*
<https://www.fmc.gov/wp-content/uploads/2023/04/MTDIReportandViews.pdf>

entire cargo shipping industry leap forward. The partnership between the TAC and the ports will continue during the implementation phase to ensure everyone’s success. Please take advantage of this opportunity.

The proposal guidelines in Section 8.2 are extensive and should encourage thoughtful consideration. The intention is to ensure projects maximize future success for the State of California. Proposals must address technical requirements and cover system and process integration, stakeholder engagement, and ecosystem impacts.

2.4 Program Coordinator

Application development, scoring, award decisions, and program communications are coordinated by Mike Mansour, Lead Data Scientist at ISC.

Contact Information - Project Lead: mike@insightsoftmax.com

3. Timeline

Date	Deliverable/Milestone
December 12, 2023	Application Manual and FAQs Released
December 12, 2023- February 8, 2024	Application Acceptance Window
January 10, 2024	Deadline to submit optional first drafts for TAC feedback
January 24, 2024	Deadline for TAC to return drafts with feedback/questions
February 8, 2024	Final Applications Due
March, 2024	Funds Awarded
April, 2024	Public Announcement of Awards
18 months	Period of Performance

4. Funding

Total funding available to Applicants: \$27,000,000

Funding for the Program comes from Schedule (1) of AB-178, of which \$30,000,000 has been appropriated for the support of the Program. Of the \$30,000,000, \$27,000,000 will be awarded directly to the ports. There is no award minimum or maximum, and there is no required cost share.

5. Eligible Applicants

Utilizing existing data from the U.S. Army Corps of Engineers and the Waterborne Commerce Statistics Center, GO-Biz determined that five California ports are eligible applicants to the Program: Port of Hueneme, Port of Long Beach, Port of Los Angeles, Port of Oakland, and Port of San Diego.

5.1 Collaborative Applications

Applicants are permitted to submit collaborative applications, with up to all five ports as partners. Collaborative proposals must include a budget breakdown that designates the amount of funding allocated to each port and for which purposes.

While the TAC expects individual proposals from each port, ports may share the writing on sections relevant to collaboration. Due to potential necessary approvals by Boards of Harbor Commissioners, the governance of shared projects may take longer to finalize than the allotted proposal development timeline. In this case, ports should provide a template for the ideal and realistic collaborative project structure and a roadmap to achieve it.

6. Eligible Uses of Funding

California is seeking competitive proposals that support cloud-based data system development to securely share information and expedite information exchange across port users and relevant transportation service providers. Projects must support operational improvement, efficiency, and emissions reductions, advancing interoperability among other ports or public sector-based, computerized, and cloud-based cargo data systems. All costs must be explicitly justified in the proposal.

7. Definitions

Term	Definition
Applicants	The five specific ports in California with container terminals that specialize in handling goods transported in intermodal shipping containers. GO-Biz has utilized data from the U.S. Army Corps of Engineers to determine that only the ports of Hueneme, Long Beach, Los Angeles, Oakland, and San Diego are eligible applicants.
Interoperability	The ability for a port’s computerized and cloud-based data systems to securely share information and expedite information exchange across port users and relevant transportation service providers, including other port or public sector-based, computerized, and cloud-based cargo data systems as needed, in support of operational improvement, efficiency, and emissions reduction. The grant administrators primarily interpret data interoperability as making information easily available to port ecosystem stakeholders uniformly . Stakeholders must be able to interface with the ports to access information that increases the efficiency of cargo movements through the ports and general port operations.
Program	The California Containerized Ports Interoperability Program created by SB-193. Funding for the program comes from Schedule (1) of AB-178, of which \$30,000,000 has been appropriated for the support of the Program. Of the \$30,000,000, \$27,000,000 will be awarded directly to the ports.

8. Application Submission Process

8.1 Application Limit

Applicants are permitted to submit multiple applications for discrete projects. However, each lead applicant may submit **no more than three applications**. Unrelated project components should not be bundled in a single application for the purpose of adhering to the limit.

8.2 Application Components

Applicants must submit a single Word document containing the Proposal Narrative per application. Proposal Narratives may not exceed 25 pages, not including the Cover Page, Table of Contents, and Appendices. Appendices may include supplemental information that supports the Narrative, including relevant figures, architectural diagrams, and process flow charts. Proposals must be written in Calibri, Arial, or Times New Roman, 11 or 12 pt with 1” margins, single-spaced with a single line in between paragraphs. Text in tables, captions, and footnotes may be 10 pt. Proposals must include headers and page numbers.

Proposals must include a Cover Page containing the following information:

Cover Page	
Port Name	
Address	
Project Name	
Technical Point of Contact <ul style="list-style-type: none"> ● Name ● Title ● Email ● Phone 	
Business Point of Contact <ul style="list-style-type: none"> ● Name ● Title ● Email ● Phone 	
Total Project Cost	
Requested Funding Amount	
Cost Share	
Project Summary (500 words max)	

The proposal document must include a Table of Contents and address the following prompts in narrative format, utilizing the headers provided. Cross-reference sections where necessary and applicable; many sections include overlapping content that may be relevant in multiple places.

Proposal Narrative

1. Introduction

- *The Introduction section should provide a high-level summary of the project and should not exceed one page.*

1.1. Vision

- Describe the full vision for future data interoperability. This vision can span across multiple individual project proposals. The vision should be big-picture and demonstrate where the proposal fits into the port's business vision, where it pertains to data usage and interoperability.
 - Demonstrate the connection between the overall business vision, the goals in the Memorandum of Understanding (MOU), and the proposal vision.
- 1.2. Current State**
- Explain the current state of the systems and processes relevant to the proposal scope.
 - Describe pain points, demonstrating why change is necessary.
 - Clearly explain the reason for action and the cost of inaction.
- 1.3. Proposed Future State**
- Briefly describe the scope of the actual proposal.
 - Describe how and to what degree the identified pain points are addressed.
- 2. Scope**
- 2.1. Problem Statement**
- What business problems/needs does the proposed solution address?
 - What are the economic costs of inaction?
 - Describe the affected processes and up/downstream stakeholders. Describe the extent of the impacts in a measurable way.
- 2.2. Current Data Systems and Processes**
- Describe the current processes, systems, and workarounds used to solve the business need.
- 2.3. Proposed Solution**
- Describe the proposed solution.
 - How and to what extent does it solve the problem?
 - Describe the expected economic impact.
 - What are the time horizons of impact (immediate, one year, and five years)?
 - Describe expected impacts on business processes and the workforce.
 - What is the expected cost of building and implementing the solution? This may reference the Project Budget.
 - How does the solution support the big-picture vision?
 - How will the proposed data system address the challenges faced during the 2021-22 supply chain crisis?
- 2.4. Scope of Work**
- *The tasks described in the Scope of Work must correspond to the Project Timeline and Budget.*
 - Describe the technical work to be performed under this agreement. The work effort should be divided into a series of logical, discrete, and sequential tasks. Each task must be numbered and contain the following components:
 - Task Name
 - Goal of the task
 - Milestones: individual activities related to the task
 - Deliverables/products

3. Software Development and System Architecture

3.1. Software Development and Technical Collaboration

- Show the system and data architecture of current systems and proposed solutions (showing the environment holistically). Highlight any areas that are undergoing change.

3.1.1. Custom Solutions

- Are interface changes needed? If so, how will change be managed and tested?
- Include software architecture diagrams of the system(s).
- If the proposal calls for in-house software development, what is the proposed software management approach (i.e., Agile, Waterfall, Kanban)?
- How will version control be managed?
 - If the proposal calls for in-house software development, what will the culture of Code Reviews be?
- Describe Unit Test Coverage goals, if applicable.
- How will Dev, Staging, and Production environments be established and maintained?
- What software language(s) and services (i.e., cloud services, open-source software frameworks) will be used, and how will this impact maintainability?
- What are the standards for documentation? Will Interface Control Documents (ICDs) be established?
 - *An ICD determines the format of various subcomponents of the system that will communicate with each other and the schemas of database records.*
 - *The Digital Container Shipping Association ([DCSA](#)) defines some interfaces for resources and data structures. These are recommended to be followed where applicable. Link: [Track & Trace Standards](#).*
- If choosing an external implementation vendor, explain the vendor selection process. If applicable, describe the request for proposals (RFP) process.
- Who retains ownership of the software and intellectual property (IP)?
 - Identify any risks of vendor lock-in associated with the vendor agreement. Describe how these risks will be mitigated.
- Describe any open-source software components.
 - Will any parts of the system be made open source for the benefit of the state port community? If yes, describe the release roadmap and planned governance structure.
- Is the solution based on any proprietary software components?

3.1.2. Off-the-Shelf Software Proposals

- Explain the software/vendor selection criteria and comparison process. Describe how needs were identified and compared against a suite of solutions.
 - How will the solution be integrated into existing data systems at the port?
 - Identify any risks of vendor lock-in associated with the vendor agreement. Describe how these risks will be mitigated.
 - Describe the degree of data portability or extractability from the solution and how it can be used in future projects and initiatives.
 - Does the solution provide open interfaces for stakeholder access?
- 3.1.3. Scalability**
- How are storage and compute patterns optimized for the use case?
 - For off-the-shelf solutions, are there limitations to how much the product can scale that might be an issue with the amount of data to be generated?
 - Describe the monitoring and alerting systems in place to alert maintainers before problems with scale arise.
 - *For off-the-shelf solutions, this also applies to possible disconnections between the product and data sources.*
- 3.1.4. Reliability and Resiliency**
- Can the system be rebuilt easily, both from a data backup and infrastructure standpoint?
 - This might be useful for a Disaster Recovery scenario, as well as for establishing dev/staging environments.
 - If processes are disrupted, or an incorrect processing step occurs, how difficult is recovery?
 - Describe any systems in place to monitor whether the structure of the data, or the data itself, adheres to standards and rules.
- 3.2. Usability and Downstream Stakeholder Engagement**
- *The system should not only streamline operations within the ports but also empower downstream stakeholders to understand where their cargo is and optimize their systems.*
 - Describe the needs of your port stakeholders. How do these differ from the other ports?
 - How will downstream stakeholders have input to the data endpoints of the system? Describe opportunities for stakeholders to voice feedback during development.
 - How will you work directly with stakeholders to integrate into their systems and APIs?
 - Break this down for each of the different types of stakeholders (i.e., BCOs, truckers, rail, ocean carriers, and MTOs)
 - Describe how you will manage relationships with on-port stakeholders (i.e., terminal operators) to make integration and data sharing successful.

- How will you ensure stakeholder participation in the contribution of data (i.e., incentives, mandates, tariffs, MOUs)?
 - If applicable, how will you ensure that each terminal operator contributes data?
 - Downstream stakeholders are diverse in technical capabilities. How will this system serve both technical and non-technical consumers?
 - Describe any additional planned interfaces outside of an API and Direct-Data-Download that will be implemented.
 - Describe access to both open-facing and closed-facing data (i.e., free, by subscription, or pay-per-access).
- 3.3. Sustainability and Maintenance**
- Explain how the system will be sustained and maintained after initial deployment for security patches, scalability, and bugs. How will possible system downtime be managed during upgrades?
 - For off-the-shelf solutions, describe vendor commitment to delivering upgrades. Do they have a service-level-agreement (SLA) for providing support?
 - How often will schemas change? Is the system set up to handle changes?
 - Will a maintainer know how to make necessary changes? Will each change require extensive knowledge of the system?
 - Is there documentation embedded in the data system to allow maintainers to understand how the system works (e.g., lineage)?
 - For off-the-shelf solutions, how will you document the solution's implementation and integration into your system?
 - Describe the ongoing cost of maintenance and the budget source. This may reference the Project Budget.
 - Describe staffing requirements for the ongoing operation of the system.
 - If choosing an external vendor for implementation, what is the plan for software/technology asset handoff?
- 3.4. System Testing Plan**
- Discuss plans for Quality Assurance (QA) Regression testing and unit testing. If you are still deciding on a product or vendor, please address these questions by setting up a general approach that will be followed.
 - How will you test the integration of the solution into your overall architecture?
 - Will tests cover all interfaces?
 - Describe the process of end-user testing.
- 3.4.1. Custom Solutions**
- Describe how the system was built to be “testable” in the architecture. How will this pattern be enforced during development?
 - When and how will you define and document test cases? Identify the chosen QA Testing platform, if applicable.
 - How will QA be managed and staffed? If you plan to continue feature development, how will this process be maintained?

3.4.2. Off-the-Shelf Solutions

- Outline the project plan for established and documented test cases to be carried out once implementation and integration are complete. Describe the execution process and associated timeframe.
- If the solution has a variable price or component of pricing, how will utilization and data inputs be tested to avoid incurring large and unexpected costs?
- How will you be alerted to changes in data schema or data processing logic within the solution?

4. Data

4.1. Standardization

- *To achieve interoperability and uniformity, systems should be using a standardized lexicon and open API definitions, particularly from the [DCSA standards](#), which are recommended by the Federal Maritime Commission (FMC)². If the proposal has a plan to implement a track-and-trace methodology, please describe how the [DCSA's Track & Trace Standards](#) will be incorporated.*
- Explain the chosen standard. How will it be incorporated and enforced in the design and implementation of the system?
- Describe other procedures to be implemented to align your port with the other ports in uniformity.
- How will the project support uniformity in the ingestion of data from the ecosystem?
- Describe any existing MOUs related to standardization with the other ports in California and the United States.
- Considering that ocean carriers are committing to using electronic bills of lading by 2030, how will the proposed system be modular and ready to incorporate this standardization deployment?
- While the DCSA standards have a particular focus on containerized cargo, many of the standards are applicable to vessel operations in general or to other cargo types (e.g., [Operational Vessel Schedules](#), [Electronic Bill of Lading](#), and others). If standards do not yet exist for your case, explain how you will either choose a standards paradigm or develop your own in coordination with others in the CA shipping ecosystem. It is also acceptable to advance a standards paradigm that is in development.

4.2. Data Culture and Change Management

- *Implementing a marine transportation data system is part of a broader process. An adoption plan by the port, ocean vessel carriers, marine terminal operators, intermodal carriers, and others must be established.*
- How will you **motivate your internal organization** (i.e., the Port Authority) to adopt and participate in the new data system?
- How will you **encourage external stakeholders** within and outside of the terminal gates to integrate into the data system?

² (Recommendations on the Maritime Transportation Data System Requirements, 2023)

- How will you **ease the transition** for internal and external stakeholders to integrate and adapt into the system?
- What data culture and **internal processes** will support this effort?
- 4.3. Data Journey**
 - Describe the journey that data will take as it passes through the proposed system. Organize the steps of this journey according to your actual architecture. At minimum, address the following:
 - Acquisition and ingestion
 - Normalization and transformation
 - Movements between systems
 - Exposure to end users
 - At each stage, address the following points as applicable:
 - Format of data
 - Processing type (batch or streaming)
 - Expected data quality concerns and methods to monitor and improve data quality
 - Volume of data to be handled by the solution (both as a total and per unit time)
 - Data volume variability and scaling requirements
 - How metadata will be captured
- 4.4. Governance**
 - Discuss how the port and the proposed system will govern the data that it utilizes. Describe how this governance will integrate with existing systems and any components unique or isolated to the proposed system. Address the following key points:
 - Documentation
 - Data tests (note: this refers to tests for the compliance of data to expected behavior, not unit or integration tests for software)
 - Data classification and policies
 - Cost monitoring and controls
- 4.5. Data Privacy**
 - Describe the data privacy management plan and policies for the proposed system, including integration points.
 - Can the port document what types of data the application stores?
 - Where is each type of data stored?
 - How sensitive is each type of data?
 - Does the solution access/store legally protected information (PII, PCI, HIPAA, etc.)?
 - Does the solution need to be able to handle non-US PII and be EU General Data Protection Regulation (GDPR) (or other countries' laws) compliant?
 - What protections are in place for storing sensitive data?
 - Will the port track who has access to sensitive data?
 - How is sensitive data access managed?

- Will the port handle financial transactions directly within the application?

5. Cloud Infrastructure

5.1. Operations

- Include system diagrams of the proposed infrastructure architecture.
 - If an existing solution exists (off-the-shelf product), include the reference architecture for self-hosting the product in the cloud. In this case, “self-hosting” means rather than paying for a third party to manage and own the backend infrastructure, the port can reduce your operating costs by deploying the software and managing/owning the infrastructure itself.
 - If a custom solution is to be developed, describe its necessary functions and features.
- Describe the cloud vendor selection process. If applicable, identify the chosen vendor.
- Describe required compliance, including [FedRAMP compliance](#).
- Identify data and metrics to be made publicly accessible (with appropriate authentication) and data and metrics that must not be externally accessible.
- What is the expected frequency of data ingestion into the cloud? If known, include the expected size of each data ingestion.

5.2. Availability and Resiliency

- What are your recovery requirements? How long can different functionalities be unavailable (i.e., interfaces, visualization tools, access to infrastructure, etc.)?
- Is a multi-cloud deployment required? Are on-premise components required to function with newly provisioned infrastructure and systems?
- How frequently should restorable backups (data, databases, computation images, etc.) be created and referenced/tested? Who will be managing the backup configurations and tests?
- Who will be managing the cloud environments (e.g., internal team of engineers or a third-party/managed service agreement)?

6. System Security

- *This section covers a wide array of topics relevant to most organizations when developing a product or system. Address each section that is applicable to your project. Consult with vendors or outside development teams as necessary to answer any questions if you are planning to purchase software.*

6.1. Application Security

- Authentication
 - What type of users will access your system?
 - How are those users authenticated?
 - Will different types of users have different authentication requirements?
- Authorization
 - What kind of permissions model will be used?
 - Which part of the system enforces those permissions?
 - Who has access to modify permissions for users and groups?
- Audit Logging

- What kind of sensitive activity do you log?
 - Where are those logs stored?
 - How are logs protected from modification after they have been written?
 - Internal Administration Interface
 - Do internal users have an administrative interface to your data?
 - How do you identify internal users?
 - Does this interface have different authentication requirements from the main application?
 - How will you manage access to this interface?
 - Implementation Verification (if developing software in-house)
 - How will you verify that your system was implemented as planned?
 - Who will perform this verification?
 - Will you have any automated verification (e.g., software test suites)?
 - Secure Development
 - What training does the development team receive for secure coding practices?
 - Do developers have a process for reviewing code with security implications?
 - How is that process enforced?
- 6.2. Cloud Security**
- *The following sections may not be applicable if a third party owns the cloud environment: Preferred Environment, Resource Organization, Network Configuration, Secrets Management, Infrastructure as Code.*
 - Preferred Environment
 - Is the environment one of the “big 3” (AWS, GCP, Azure)? These are generally preferred as they are considered the services that are most mature security-wise.
 - Note: Using multiple services for infrastructure may be necessary (some vendors may require a specific service to be used), but it increases complexity and attack surface.
 - Resource Organization
 - Can resources be deployed to different environments (development, production, sandbox, etc.)? This is valuable to allow developers a chance to test new features in non-production environments, allowing production to maintain uptime.
 - Identity Management
 - Who will own the accounts/environments in the cloud? Who requires access keys/hard credentials? Who requires temporary access?
 - How will users be audited? For example, how will you remove users that are no longer employees?
 - Access Management
 - How will your team access the environment (single-sign-on, role-based access, programmatic access, user-based access)?

- How will your team audit access controls (e.g., removing permissions from users who no longer need access to certain controls/features)?
- Logging Requirements
 - *Note: Many cloud services will be able to facilitate comprehensive logging. Focus on who has access to those logs, where the logs should be stored, and what value can be derived from the captured logs.*
 - Do your logs need to be centralized for auditing purposes?
 - Are there specific infrastructure metrics that *must* be captured?
 - How long should logs be retained (consider any legal requirements to maintain logs for a certain amount of time)?
- Data Ingress and Manipulation
 - What are the requirements for data at rest and in transit?
 - Does your data require transformation/standardization?
 - Are there multiple points of data ingress into the cloud environment?
- Network Configuration
 - Are there specific requirements for infrastructure accessibility (Virtual Private Network (VPN) connection required for remote access, isolating databases/storage solutions from the internet, etc.)?
 - Are there any requirements for asset distribution?
 - Will the environment be hosting data/content that will be public?
- Secrets Management
 - How will secrets be protected in your infrastructure (e.g., encryption keys, parameterization, etc.)?
 - Describe the process for rotation. This is valuable in the event that a secret is leaked, such as through accidental upload to public source code.
- Infrastructure as Code
 - If the infrastructure will be managed internally, will a robust/replicable solution like Terraform be desired, or a cloud-specific Software Development Kit (SDK)?
 - If managed by a third-party/managed services team, this is not applicable.
 - If IaC is being utilized:
 - How is security built into the pipeline (e.g., source code analysis tools)?
 - Is extra scrutiny given to security-relevant changes (e.g., terraform being updated that provides a certain user group administrator-level permissions)?
 - How is drift detected (e.g., identify where alerts go when a certain user group obtains administrator-level permissions despite IaC only providing them a small subset of permissions)?
- Automated Threat Detection

- Is automated or AI-powered threat or vulnerability detection a desired component of the environment?

6.3. Corporate Security

- *These questions refer to the existing environment in which the proposed system will be used.*
- Software and Asset Inventory
 - Do you track what hardware is used by your staff?
 - Do you have a policy on how that hardware should be used?
 - Do you maintain a list of approved software on staff computers?
 - Is this enforced by any automated systems?
- Account Management
 - Where are account credentials managed?
 - Do staff use a password manager?
 - Do you perform periodic audits of account access to ensure that only the right people have the access they need?
- Access Control Management
 - Do you have an organization-wide single-sign-on (SSO) provider?
 - How widely is SSO utilized for services your staff uses regularly?
 - Will your proposed system be connected to SSO?
 - Do you require multi-factor authentication for staff?
- Vulnerability Management
 - Describe any policies for keeping software up to date, particularly regarding security updates. Is this enforced by software?
 - Do you maintain an inventory of devices on local networks?
 - How often is it updated?
 - How often is it audited for accuracy?
- Security Awareness and Skills Training
 - Do you provide security awareness training for staff?
 - Describe any training specific to certain roles.
- Service Provider Management
 - Do you maintain a list of third-party services that you use?
 - What process do you use to gauge the security practices of those services?
 - Do you identify any third-party services as a higher security risk than others?
- Incident Response Management
 - Do you have an incident response process?
 - Describe any recent instances in which this process has been used.
 - Do you run incident simulations to test the process?
 - Do you refine the policy based on incident responses?

7. Legal and Regulatory

7.1. Integration and Support of State and Federal Data Initiatives

- *As mandated by SB-193, systems built with this funding must directly support relevant state and federal data initiatives by providing data and reporting.*
 - Federal program examples include:
 - United States Department of Transportation (USDOT) FLOW Program
 - Ocean Shipping Reform Act of 2022
 - US EPA's Clean Ports Initiative
 - USDOT and Federal Highway Administration's Port Cooperative Driving Automation Drayage Truck Development program, implemented by Leidos
 - Additional relevant programs administered by Leidos
 - State agency and program examples include:
 - CARB
 - CalSTA
 - California Freight Mobility Plan
 - California Sustainable Freight Action Plan
 - CalTrans Port and Freight Infrastructure Program
 - Senate Bill 671/CTC
- Explain how the proposal supports any listed initiatives. Include other state and federal initiatives as applicable and relevant. If the proposal does not directly include effort to send data to a program, explain how the proposal will address and reduce existing gaps.

7.2. Environmental Data and Emissions Reductions

- What specific dimensions of emissions reporting will be collected?
- How will this system improve the accuracy of reporting and estimates of emissions impacts from the ports and their stakeholders?
- Will emissions or environmental data be publicly accessible?
- What is the expected impact on emissions you believe you will achieve through monitoring?

7.3. Labor Protections

- The California Port Data Partnership MOU & SB-193 state that any data or information cannot be collected or used in a manner that will hurt labor collective bargaining rights. Describe how system design and implementation will safeguard these interests.

8. Project Structure

8.1. Project Timeline

- *Utilizing the template below, provide a project development timeline that includes all Tasks and Milestones described in the Scope of Work and Budget. The timeline should include the vendor identification and stakeholder outreach processes. The timeline should represent a high-level project plan with clear milestones. Tasks lasting longer than three months should be broken down into more granular sub-tasks.*

- *The performance period ends May 2025. Ports may submit POs to vendors and the State no later than June 2025, which affords an extra year of development time. However, POs cannot be modified after June 2025.*

Task #	Description	Milestones and Deliverables	Start Date	End Date
Task 1				
1.1				
1.2				
1.3				
Task 2				
2.1				
2.2				
2.3				

8.2. Project Team

- Describe the project management structure. Identify the team members responsible for managing and implementing the project. Describe their experience managing similar projects. Include resumes for all key personnel in the Appendix.
 - What is the size of the internal implementation team?
 - Who will be the project sponsor?
 - Who will be responsible for change management?
 - Who will be responsible for stakeholder relationship management?
- If applicable, which vendors have been identified to execute the project? Describe their qualifications.
 - If an implementation vendor has not been selected, what are the criteria for your RFP?
 - What is the staff count they will provide on the project?

8.3. Collaboration

- If you are working with other ports on a common solution, purchase, or system, describe project team structure:
 - Identify partner ports
 - Describe high-level goals that will be attained by working together that would not be possible individually.
 - Distinguish the components of the effort that are explicitly owned by your port, other ports, or a joint body.

- Describe the governance system for establishing consensus on standards, design decisions, and ongoing maintenance and expenses after project implementation.
- If you are not working with another port to solve a shared data gap, justify why collaboration is impossible.

8.4. Project Risks

- *Identify the risks to the success of your project. Utilize the following guiding questions to structure the approach to risk identification. Consider your project's risk holistically and add any necessary project-specific risks and mitigation measures. For each risk identified, explain the steps to mitigate those risks (before or during the project). We encourage you to use the [ROAM Framework](#).*
- Stakeholder risks
 - Who needs to contribute data to the solution? How likely are they to do so?
 - Who needs to utilize the solution? How likely are they to adopt it? What barriers to adoption are anticipated?
- Personnel risks
 - Are there key personnel on your team or on vendor teams who hold critical and unique knowledge?
 - Are there vendor relationships where the vendor has disproportionate leverage or lock-in?
 - Are there any ambiguities in your definition of “done” that could lead to misalignment between project goals and implementation expectations?
- Implementation risks
 - Will aspects of the system involve new technologies?
 - Will the system be required to process data at a larger scale than your current systems?
 - Does the completeness or format of the data itself present any significant challenges?
 - Which parts of the proposal are most likely to run over budget (time or cost)?
- Collaboration risks
 - If you are collaborating with another port, what challenges might arise in gathering consensus on decisions? What processes will you set up to resolve those?
- Risks to standardization and interoperability
 - Are there any datasets involved in your proposal that do not have a clear standard already available? If so, how do you plan to keep your implementation aligned with what other ports or stakeholders in the ecosystem will build?

8.5. Project Budget

- Describe the project budget, addressing the questions below. Provide a budget table and budget justification. Example templates are provided below. The budget items should be organized according to their respective tasks in alignment with the Scope of Work.
 - Break down the project budget according to the tasks and milestones described in the Scope of Work. Show how the overall cost number for the project has been derived. Break down the budget by type of spend (e.g., internal labor, contractor, material, etc.). Outline if and how buffers are used and who has authority to access them.
 - Describe project financial reporting processes.
 - What measures are planned if the project is likely to run over budget (e.g., reduce scope by specific items, use other funding sources)?
 - Describe how the proposed budget is cost-effective.
 - Describe how the project costs are reasonable, whether match is committed and adequate to support the project, and how administrative costs have been minimized.
- Example Budget Template:

Task 1 [NAME]			
Cost Category	Grant Funds	Outside Funds	Total
Budget Item A			
Budget Item B			
Budget Item C			
Etc.			
Cost Category			
Budget Item A			
Budget Item B			
Budget Item C			
Etc.			
Task 2 [NAME]			
Cost Category			
Budget Item A			
Budget Item B			
Budget Item C			
Etc.			

Cost Category			
Budget Item A			
Budget Item B			
Budget Item C			
Etc.			
TOTAL			

- Example Budget Justification Template:

1. Personnel Salaries, Wages, and Fringe Benefits

Staff Position	Annual Salary	Annual Fringe	% of Time on Project	Year 1	Year 2	Etc.	Total

2. Travel

Description	Total Cost

3. Equipment

Item	Description	Quantity	Cost Per Item	Total Cost

4. Supplies

Item	Description	Quantity	Cost Per Item	Total Cost

5. Contractual Costs

Partner	Role	Funding Allocated

6. Indirect Costs

Description	Total Cost

7. Matching Funds and Additional Funding Sources

Funding Source	Description	Total

8.6. Additional Funding Resources

- If the Port is planning to supplement this funding with additional federal funding opportunities, please enumerate those funding sources and the risks to the project if those are not attained:
 - State the project funding amount
 - Describe the funding criteria, including any overlap with the criteria of the California Containerized Ports Interoperability Grant Program.
 - Are there any restrictions associated with supplemental funding?
 - Describe the process for securing ongoing funding for the system once built. Will the port seek continued federal/state funding, or will the port institute a fee (pre-existing or new)?
- Looking into the future, how will you leverage this funding opportunity in the pursuit of other funding opportunities (e.g., Clean Ports Initiative, Port Infrastructure Development Program, Port Security Grant Program)? Address the following:
 - Identify and describe future opportunities that may be enabled by the implementation of your data system.
 - If there is a gap between the results of this project and needs for future funding, how will you address those gaps?

8.7. Project Metrics

- How will the success of the project be measured both during and after system deployment? Metrics should be specific, measurable, and time-bound. For example:
 - Do you expect this system to increase TEU volumes over a period of time, and by how much?
 - What environmental and climate-related metrics will be tracked, and how will this system impact your ability to improve those metrics?
 - How will you measure the efficiency of the system before and after implementation? How do you reasonably forecast key performance metrics to change?

8.3 Required/Supporting Documents

Applications must be submitted via an email consisting of the following attachments:

- Proposal Narrative

If an applicant is submitting multiple applications, each application should be submitted in a separate email.

8.4 *Submission Process and Deadlines*

Applications are due **February 8, 2024, at 11:59 PM (Pacific Standard Time)**. Proposals must be submitted to the TAC in a Word document via email with the subject line “Ports Grant Submission – [PORT NAME] – Project[PROJECT NUMBER] – V[VERSION NUMBER]” to Ports-Grant-Submission@buildmomentum.io.

Applicants must follow the proposal document naming convention:

PortsGrantProposal_[PORT NAME]_Project[PROJECT NUMBER]_V[VERSION NUMBER]_YYYYMMDD

Example: PortsGrantProposal_PortofHueneme_Project1_V1_20230109

Optionally, applicants may submit a draft proposal by January 10, 2024 to receive feedback from the TAC. Feedback will be returned by January 24, 2024 to allow applicants time to revise and resubmit by February 8, 2024. Applicants may submit one draft proposal per application (maximum three proposals).

8.5 *Communications*

Communications for project submission, tracking, and reporting will primarily take place via email. Applicants may submit questions to the TAC via email at ports-tac@insightsoftmax.com. Questions relevant to all applicants will be addressed in the Frequently Asked Questions document, updated on a weekly basis. Questions containing confidential information and those specific to an individual proposal will be answered directly.

The Program Guidelines and FAQs are both available on the following websites:

- <https://buildmomentum.io/ca-port-data-interoperability-grant-program/#>
- <https://business.ca.gov/about/publications/>

Proposal drafts and final proposals must be submitted to the TAC via email at Ports-Grant-Submission@buildmomentum.io.

8.6 *Confidentiality*

Proposals submitted to the TAC are confidential and will not be disseminated publicly.

9. **Application Evaluation**

9.1 *Application Review and Award Process*

The TAC will accept proposal submissions from December 12, 2023 until February 8, 2024. The TAC will review and provide feedback to proposals submitted by January 10, 2024 (Applicants limited to one draft per application). The TAC will review final submissions and score applications using the Scoring Criteria (Section 9.2). Final awards will be announced on February 26, 2024. Awardees will be publicly announced, and the TAC will provide award details via email.

9.2 *Scoring Criteria*

Refer to Section 8.1 for detailed guiding questions for the Narrative. Narrative documents shall not exceed 25 pages (not including Cover Page, Table of Contents, and Appendices) and must be written in Calibri, Arial, or Times New Roman, 11 or 12 pt with 1” margins, single-spaced with a single line in between paragraphs. Text in tables, captions, and footnotes may be 10 pt. Narratives must utilize the headers provided in the proposal framework and address all questions and prompts provided.

The TAC will incorporate equity in decision-making, scoring, and fund disbursement, evaluating ports according to their needs and ensuring that benefits are shared across the port ecosystem and broader supply chain.

Proposals may earn up to 100 points: 60 points for Program Alignment and 40 points for Technical Review. The following scoring scale will be applied to all **subsections** within Program Alignment and Technical Review. The percentage score will determine the number of points eligible to win from each subsection.

The TAC expects that all ports should have a passing score, considering the availability of the TAC to provide feedback on drafts. The TAC reserves the right to veto or disqualify proposals if any section is deemed incomplete, unsatisfactory, or ineligible.

Percent	Interpretation	Explanation
0%	Not Passing	Response minimally addresses the requirements being scored. The omissions, flaws, or defects are significant and unacceptable.
40%	Adequate	Response addresses the requirements being scored, but there are one or more omissions, flaws, or defects or the requirements are addressed in such a limited way that it results in a slightly lower degree of confidence in the proposed solution.
60%	Good	Response fully addresses the requirements being scored with a good degree of confidence in the Applicant’s response or proposed solution. No identified omissions, flaws, or defects. Any identified weaknesses are minimal, inconsequential, and acceptable.
80%	Excellent	Response fully addresses the requirements being scored with a high degree of confidence in the Applicant’s response or proposed solution. Applicant offers one or more enhancing features, methods, or approaches exceeding basic expectations.
100%	Exceptional	All requirements are addressed with the highest degree of confidence in the Applicant’s response or proposed solution. The response exceeds the requirements in providing multiple

		enhancing features, a creative approach, or an exceptional solution.
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Program Alignment

Program Alignment reviews the proposal as a whole body, evaluating the proposal’s potential impact considering the port’s current data interoperability state and the project’s contribution to the California cargo shipping ecosystem. This scoring section is subjective in comparison to the Technical Review.

This section is eligible for **60 total points**, giving it a 60/40 ratio to the Technical Review. Subsections will be scored according to the scoring scale provided above. The Program Alignment subsections and their relative values are described below.

Impact - 30%

The TAC will consider the overall impact of the proposed project under the goals of the statute. Impact will be assessed in terms of the value gained by funding the proposal, economic competitiveness, operational efficiency, stakeholder engagement, and environmental impact.

Questions that will be evaluated here include:

- If this proposal were funded, would the value gained be worth the money spent?
- Does the project support current and future market demands?
- Does the project support future growth in cargo volume?
- Will the project enable the port(s) to respond to problems more quickly?
- Will the project enable the port(s) to supply data to stakeholders more quickly or easily?
- How will the project affect key performance metrics?
- Does the project address the needs of all stakeholders, including shippers, carriers, BCOs, MTOs, labor, and the local community?
- Does the project support regional, state, and federal emissions reductions goals?
- What, if any, impact will the project have on the local ecosystem?

Interoperability - 30%

The TAC will evaluate the interoperability of the proposal in terms of standardization and accessibility. In an interoperable system, data can be sent and received in a uniform manner.

Questions that will be evaluated here include:

- Does the proposal adopt recommended standards for software interfaces and/or data models?
- Will data be available to relevant stakeholders?
- Will data be shared with federal programs (FLOW)?
- Will data be transferred via open, standard interfaces (e.g., the DCSA OpenAPI standards)?

- Will the project involve development of (or contribution to) any open-source software components?

Demonstrated Data Need - 20%

The TAC will consider the port's current overall data system and its current ability to have their data accessed by internal and external stakeholders. The cargo shipping system in California will be able to move faster into the future if all ports advance towards a more equitable foundation.

Questions that will be evaluated here include:

- What is the port's current data system implementation?
- Is the port able to interoperate easily with other ports and/or other modes of freight (rail, trucking)?
- How are they hampered from participating in or providing interoperable data to stakeholders
- Does the proposal actually address the port's pain points?
- Data quality needs
- Data accessibility needs
- Data interface needs

Future Funding Leveragability / Extensibility - 10%

An intention of this program is to treat this funding opportunity as a "seed funding." It should make it easier for ports to pursue other federal funding opportunities and become more competitive.

Questions that will be evaluated here include:

- How does this solution lay a foundation for future work?
 - Is there a clear roadmap for improvements targeting other funding opportunities?
 - Are there any factors that may *limit* avenues for future work (e.g. vendor lock-in)?

Collaboration - 10%

Collaboration on shared systems is a path to achieving interoperability as a port ecosystem. However, the proposal window may not leave adequate time for finding agreement on implementing complex data systems, and each port has its own set of unique needs. Theoretically, collaboration would be a multiplier of impact or interoperability. Here, it is structured as an optional collection of points that a port may score.

Questions that will be evaluated here include:

- What is the plan for cross-stakeholder communication during the implementation to ensure that the vision is achieved?

- Has governance on shared systems been considered, and to what extent? Will the governance system last a sufficient time and also be amenable to changes or additions of new members?
- If this is an individual proposal that solves shared data gaps between ports, justify why collaboration was not pursued.

Technical Review

The Technical Review evaluates the claims made in each section of the Proposal Narrative for completeness and overall quality. Importantly, the Tasks and Milestones in the Scope of Work, Project Timeline, and Budget must be consistent throughout the document; the TAC will evaluate proposals for consistency and clarity throughout. Sections 1.1 and 1.2 of the Project Narrative (Vision and Current State) are not considered in the scoring rubric.

This section is eligible for **40 total points**. Subsections will be scored according to the scoring scale, and their relative values are described below.

Section	Points
Data	25%
Project	25%
Software	15%
Cloud	15%
Legal + Regulatory	10%
Security	10%

Overall Scoring

After all subsections have been scored, a final score will be calculated. The TAC will use the following table as a *guideline* for making decisions.

Percent	Interpretation
0-40%	A proposal with this percent of the overall points will not receive funding
40-60%	The proposal may be subject to funding adjustments and could be eligible for winning grant funding if there are funds remaining
60+%	A Proposal with this percent of the overall points should receive funding within a stack-ranking of all other proposals as long as funding is available.

Funding Adjustments

Acting in the interest of the State of California, the TAC reserves the right to amend elements of the proposal, including the budget and the requested funds.

Though not an exhaustive list, the TAC may adjust the budget for the following reasons:

- TEU Container Volume: These are the “guiding light” for the total amount that can be awarded to a port as a proportion of the five containerized California ports. If the requested amount for a single port is not proportional to 2022 TEU container volume compared to the other ports, an adjustment *may* be warranted.
- Demonstrated Data Need: The TAC will consider if the proposed budget is appropriate to the actual needs of the port and in line with the overall needs of the California cargo shipping ecosystem. A higher demonstrated data need in comparison to other ports *may* increase the total awarded amount in order to ensure success of the project and aid adoption.
- Budget and Estimated Cost Disconnect: If the TAC sees a disconnect between the budget and their best estimate of the expected cost, TAC *may* amend the award amount.

Note: This is not explicitly part of the scoring process but will be considered at the end of the evaluations.

Draft Evaluations

In the spirit of efficiency and to discourage the overfitting of proposals to the scoring system, the TAC will not provide scores when providing feedback on early draft submissions. The TAC will provide a written summary covering positive highlights, red flags, and areas that need additional development. Further, the TAC may provide constructive feedback on implementation details if requested to ensure the best design decisions are made.

Disclaimer

Proposals may be disqualified if deemed inconsistent with the statutory or programmatic requirements of the California Containerized Ports Interoperability Grant Program. GO-Biz and the TAC reserve the right to score and fund proposals at their discretion. GO-Biz and the TAC reserve the ability to modify budgets if included costs are deemed unreasonable, unnecessary, or ineligible.

10. Program Administration

10.1 Reporting Requirements

The period of performance for this program is 18 months. Grantees must adhere to the program reporting requirements, including attending monthly update meetings facilitated by ISC. Grantees shall submit quarterly progress reports to determine if the grantee is adequately progressing in accordance with the terms and conditions of the grant agreement, provide interim findings, and prompt occasions for airing difficulties or special problems encountered so that the program administration team may better assist grantees in finding solutions to such problems. Progress reports are also an opportunity for grantees to highlight their successes and accomplishments.

The quarterly progress reports shall include all activities, program implementation, and evaluation efforts and must adhere to a template that GO-Biz and the TAC will provide. Grantees are to use the following procedures to prepare and submit a progress report:

- Progress reports must be submitted in the format required and should address all related topics.
- The report should describe the overall progress, including results to date, a comparison of the actual progress with the proposed goals and schedule for the period, any current problems or favorable or unusual developments, and the work to be performed during the succeeding period.
- The report shall include all supporting documents that reflect the completion of activities.

Grantees will also be required to submit a final report at the end of the grant period.

Exhibit C - 2023 Memorandum of Understanding

CALIFORNIA PORT DATA PARTNERSHIP

MEMORANDUM OF UNDERSTANDING BETWEEN THE PORT OF HUENEME AND THE PORT OF LONG BEACH AND THE PORT OF LOS ANGELES AND THE PORT OF OAKLAND AND THE PORT OF SAN DIEGO

WHEREAS, in June of 2022, Governor Gavin Newsom signed the California Budget Act of 2022, which included an unprecedented and historic multi-billion-dollar state investment to support and enhance goods movement and the supply chain, including port and freight infrastructure, climate adaptation and resiliency, workforce training, zero-emission vehicle deployment, grid support and grid reliability, and port data system development.

WHEREAS, this budget includes a one-time state investment of thirty million dollars (\$30,000,000) that will support direct cloud-based port data system development at California's containerized ports and support emerging data aggregation and analysis to support freight and supply chain efficiency.

WHEREAS, California is the Nation's preeminent global goods movement gateway: California's twelve ports are responsible for handling forty percent of all containerized imports and thirty percent of all containerized exports in the United States.

WHEREAS, of these twelve ports, the five ports that handle containerized cargo are the Port of Hueneme, the Port of Long Beach, the Port of Los Angeles, the Port of Oakland, and the Port of San Diego.

WHEREAS, the Port of Hueneme is a vital hub for global maritime trade, and significantly contributes to the economic health of Ventura County and

Southern California. The Port of Hueneme generates \$14.9 billion in annual trade value, provides \$2.2 billion in overall economic impact, and provides more than 20,032 direct, indirect, induced and influenced jobs regionally.

WHEREAS, the Port of Long Beach is recognized as one of the world's busiest seaports providing nearly 7,600 acres of wharves, state-of-the-art cargo terminals, roadways, rail yards, and shipping channels. As a public landlord port, it is tasked with managing a variety of environmental conditions while emphasizing sustainability to ensure that shipping terminal services by private operators continue uninterrupted; and to serve as a good partner to neighboring property owners and communities while remaining a favored port within the shipping industry.

WHEREAS, the Port of Los Angeles is among the busiest seaports in the world and a global model for security, sustainability, and social responsibility. It delivers value by providing superior infrastructure and promoting sustainable and efficient operations that maintain its essential role in the national and state economy. Consistent with the State Tidelands Trust, the Port of Los Angeles is committed to managing resources and conducting developments and operations in both an environmentally and fiscally responsible manner.

WHEREAS, the Port of Oakland, a public landlord port, oversees 20 miles of waterfront and loads and discharges 99% of containerized goods moving through Northern California, and leads U.S. ports in the value of agriculture products exported (\$6.7 billion). The Port of Oakland generates 98,000 jobs in the region and is responsible for \$1.5 billion of local purchases.

WHEREAS, the San Diego Unified Port District (Port of San Diego) is a vital economic engine for the San Diego region and the State of California, providing maritime commerce, trade, recreational opportunities, tourism, and environmental protection on behalf of the citizens of California. The Port of San Diego, through its diversified activities, generates \$24.6B in overall economic impact, and provides more than 37,000 Direct Jobs regionally. The Port of San Diego is also a federally designated Strategic Port, providing facilities and services for vital logistical movements of the US military and national security.

WHEREAS, this Memorandum of Understanding (MOU) by and between the Port of Hueneme, the Port of Long Beach, the Port of Los Angeles, the Port of Oakland, and the Port of San Diego, hereinafter referred to collectively as "the Participants" is entered into so as to cooperatively advance computerized and

cloud-based port data system development with the aim of achieving Interoperability.

WHEREAS, Interoperability is defined as the ability for a port's computerized and cloud-based data systems to securely share information and expedite information across port users and relevant transportation providers, including other port or public sector-based, computerized, and cloud-based cargo data systems as needed, in support of operational improvement, and efficiency, and emissions reductions.

WHEREAS, the Participants recognize that supply chain data sharing is critical to enhancing goods movement efficiency, to growing the economic competitiveness of California's goods movement sector, to increasing system capacity, and improving freight system resilience.

WHEREAS, the Participants recognize the importance of direct collaboration with all partners in goods movement across the supply chain in advancing cloud-based data system development, including truckers, rail, labor, importers and exporters, warehousing, terminal operators, ocean carriers, and government agencies.

WHEREAS, the Participants recognize the importance of direct collaboration with industries in California across the supply chain in advancing cloud-based data system development, including but not limited to: agriculture, retail, manufacturing, energy, building and construction, transportation, aerospace and defense, technology, entertainment, tourism, biotechnology, logistics and warehousing, utilities, and natural resource management.

WHEREAS, the Participants recognize that systems developed under the terms of this Agreement shall not, in any way, track or monitor labor, including, but not limited to, productivity metrics, or systems that would infringe on a collective bargaining agreement or workers' right to collectively bargain.

WHEREAS, the Participants recognize that systems developed under the terms of this Agreement shall be computerized, cloud-based, and should aim to achieve interoperability.

NOW, THEREFORE:

SECTION I

PURPOSE

This MOU is to confirm the intent of all Participants to work towards interoperability, as defined, of their respective cloud-based data systems with a common goal of supporting improved freight system resilience, goods movement efficiency, emissions reduction, and economic competitiveness.

SECTION II

AREAS OF COOPERATION

The Participants will confer, discuss, cooperate, and exchange information, to the extent each Participant in its sole discretion deems appropriate, on subjects focused on strengthening interoperability between the Participants' data sharing systems, including but not limited to:

- A. Development of use cases and applications that support operational improvement, efficiency, and emissions reductions;
- B. Outlining of key alignment points in order to achieve resultant interoperability with other container ports;
- C. Ensuring equitable access to data for users;
- D. Identification of data elements and data sources;
- E. Identification of external entities in the supply chain for data sharing;
- F. Development of common definitions and standards for identified data elements;
- G. Ensuring data security and privacy;
- H. User discovery and stakeholder engagement;
- I. Identification of public and private funding resources to support port data system development;
- J. Increasing public and industry awareness on port data system development; and
- K. Connecting and liaising with other local, state, and federal entities of government, private industry partners, and other interested parties to support interoperability and port data system development.

SECTION III

EFFECTIVE DATE AND TERM

This MOU is effective from the date of its signature and shall continue in effect until the earlier of the following occurs:

- A. Three (3) years have lapsed from the effective date of the MOU; or
- B. The Participants agree to extend the term of the MOU through written amendment.

SECTION IV

PARTICIPANTS POINTS OF CONTACT

The Participants designate their respective points of contact for communication and information exchange, as well as any notice required to be submitted under this MOU, as follows:

Points of Contact:

Port of Hueneme:

Aaron Valance
IT Services Manager

Port of Long Beach:

Randall Smith
Assistant Director, Business Development.

Port of Los Angeles:

Sheeba Varughese
Director of Information Technology/Chief Information Officer

Port of Oakland:

Pia Franzese
Senior Maritime Projects Administrator

Port of San Diego:

Renée Yarmy
Program Director, Maritime Sustainable Development

SECTION V

AVAILABILITY OF PERSONNEL AND RESOURCES

This MOU does not create any legally binding rights or obligations on any Participant.

This MOU does not involve the exchange of funds, nor does it represent any obligation of funds by any Participant. All costs that may arise from activities covered by, mentioned in, or pursuant to this MOU will be assumed by the Participant who incurs them, unless otherwise stipulated and decided pursuant to a future written arrangement. All activities undertaken pursuant to this MOU are subject to the availability of funds, personnel, and other resources of each Participant.

The personnel designated by a Participant for the execution of this MOU will work under the orders and authorization of the Participant and any other organization or institution to which the Participant belongs. The personnel's work will not create an employer-employee relationship with another Participant or any other organization or institution. Under no circumstances, will any other Participant, or other organization or institution, be considered as a substitute or joint employer of the designated personnel.

SECTION VI

COMPLIANCE WITH APPLICABLE LAWS

All activities undertaken pursuant to this MOU, and all personnel designated by the Participants for the execution of those activities undertaken pursuant to this MOU are subject to all applicable laws, including all laws applicable in the jurisdiction where the activities are performed. Such personnel, if visiting the other Participant to participate in an activity pursuant to this Memorandum of Understanding, will not engage in any activity detrimental to this MOU.

SECTION VII

INTERPRETATION AND APPLICATION

Any difference or disagreement that may arise in relation to the interpretation or application of this MOU will be resolved through consultations between the Participants, who will endeavor in good faith to resolve such differences.

SECTION VIII

NO LEGAL RIGHTS OR REMEDIES

Nothing in this MOU creates any legally cognizable or enforceable rights or remedies as to any Participant. In no event will any disagreement arising under this MOU—including, but not limited to, any alleged breach of, or nonperformance under, this MOU—give rise to any cause of action, or any legal or equitable remedy, in any forum whatsoever. Nothing in this MOU waives any sovereign immunity, or any other applicable immunity or defense, that any Participant may otherwise enjoy.

SECTION IX

FINAL PROVISIONS

This MOU is not transferable except with the written consent of all the Participants.

This MOU may be modified only by written agreement of all Participants specifying the date on which such modification is to become effective.

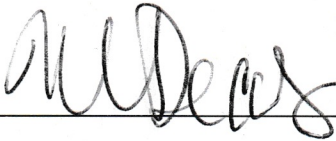
If any provision of this MOU is held by a court of competent jurisdiction to be invalid, void, or unenforceable for whatever reason, the remaining section or provision not so declared shall, nevertheless, continue in full force and effect, without being impaired in any manner whatsoever.

The termination of this MOU shall not affect the conclusion of the cooperation activities that may have been initiated during the time this MOU is in effect, unless the Participants mutually agree otherwise.

It is expressly understood and agreed that this MOU embodies the entire understanding between the Participants regarding the MOU's subject matter.


IN WITNESS WHEREOF, this MOU is signed by the Participants below.

FOR THE PORT OF HUENEME

 Date: 04-26-2023

Kristin Decas, CEO and Port Director

FOR THE PORT OF LONG BEACH

 Date: 04-26-2023


Mario Cordero, Executive Director

FOR THE PORT OF LOS ANGELES

 Date: 04-26-2023

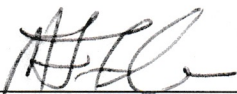
David Libatique, Deputy Executive Director

FOR THE PORT OF OAKLAND

 Date: 04-26-2023

Bryan Brandes, Maritime Director

FOR THE PORT OF SAN DIEGO

 Date: 04-26-2023

Mike LaFleur, Vice President of Maritime

Exhibit D – Quarterly Report Template and Instructions

QUARTERLY PROGRESS REPORT

[Project Name]

[Month, Year]

[Port Name]

[Recipient Project Manager]

Overall Project Status

[Summarize the current status of the project.]

Milestones and Deliverables Planned for this Quarter

[Include a bulleted list of planned project activities and milestones for this quarter. Relate these activities and accomplishments to a deliverable or task listed in the Scope of Work and describe why it is valuable to that deliverable or task.]

Milestones and Deliverables Accomplished during this Quarter

[Include a bulleted list of significant project activities and/or accomplishments. Relate these activities and accomplishments to a deliverable or task listed in the Scope of Work (SOW) and describe why it is valuable to that deliverable or task. Include the project personnel involved in each activity or accomplishment.]

Challenges and Potential Agreement Changes

[Describe any challenges facing the project and how you plan to address the challenges. Identify any potential agreement changes (e.g., no-cost time extensions, budget updates, or schedule changes) that may be required to address the challenge. Identify any assistance GO-Biz or the TAC may be able to provide to assist in resolving the challenge. Identify any potential scope changes and/or technology changes.]

Expected Accomplishments for the Next Period

[Include a list of significant project activities and/or accomplishments you expect to accomplish in the next quarter. Relate these activities and accomplishments to a deliverable or task listed in the Scope of Work.]

Status of Milestones and Deliverables

[Provide the complete list of deliverables as contained in the current Scope of Work using the table format below. Highlight in blue the deliverables that are due in the next quarter. Please use **BOLD text** to indicate when actual dates differ from the associated planned dates.]

Deliverable name	Start Date		Due Date		Status (% Complete)
	Planned	Actual	Planned	Actual	
Task 1.1					
[Subtask]	[Date]	[Date]	[Date]	[Date]	On-time (100%)
[Subtask]	[Date]	[Date]	[Date]	[Date]	Ahead (100%)
Task 1.2					

[Subtask]	[Date]	[Date]	[Date]	[Date]	Delayed (25%)
-----------	--------	--------	--------	--------	--------------------------

Evidence of Progress

[If there is a long time between interim deliverables, then attach evidence of progress (e.g., test data, early deliverable drafts, product mock-ups, preliminary analyses, architectural diagrams) to allow GO-Biz to review progress and gauge the quality of research results. Provide proof of milestone/deliverable completion as they are achieved and defined in the contract]

Metrics Reporting

[Report on metrics defined in the SOW contract as they are able to be surfaced]

Budget Utilization

[Provide a detailed update on the project budget and expenditures and any potential changes or risks. Have any budget issues occurred during this period? What was done to manage them? Are there any necessary changes to the budget?]

Update on Risks

[Give an update on the risks outlined in the project plan: Has the likelihood changed? What has been done to actively manage them? Have any issues occurred? Did you identify new risks that weren't part of the project plan?]

Lessons Learned

[Describe key takeaways, successes, and lessons learned from this quarter's activities. Examples: What was accomplished through stakeholder engagement? How has stakeholder engagement shaped project implementation? Are there any significant interoperability-related changes as a result of project activities? Have you seen an increase in collaboration among the other California ports? How did this quarter's activities contribute to the implementation status of the MOU?]

Exhibit E - Invoice Summary

Submission Instructions: Submit semiannual invoice summary with timing of respective quarterly report. Category Expenditure Summary and Task Expenditure Summary should be additive each period, meaning that as progress is made, the history will also be reflected in the summary. Tabs 1 - 3: enter recipient header information. Enter authorized budget and expenses by 1) category, 2) task and 3) vendor within corresponding tabs 1 - 3.

Submit all invoices and reporting documents to: supplychain@gobiz.ca.gov and copy GO-Biz Program Manager, Angela Shepard angela.shepard@gobiz.ca.gov

Resources:

DGS State Administrative Manual: <https://www.dgs.ca.gov/Resources/SAM/TOC>

Filename format: Please save file exactly as "PO[/LA/LB/OAK/H/SD]_[year]-S[number]_invoice". Example: **"POSD_2024-S2_invoice.xlsx"**

Attach this invoice summary file to the Invoice Cover Page.

Invoice Cover Page Requirements: to ensure timely processing and payment it is important that the Invoice Cover Page includes the required information

- Letterhead and logo
- Address and remittance payment address
- Invoice number
- Goods and/or services provided
- Amount needed to be paid
- Payment terms
- Tax applied if applicable
- Total amount

Recipient Name: _____
Agreement Number: _____
Invoice Number: _____
Period covered by this request: _____

Category	Agreement Reimbursable Budget	Reimbursable Expenses This Period	Cumulative Expenses Billed to Date	% of Reimbursable Spent to Date	Reimbursable Balance
Direct Labor	\$ -	\$ -	\$ -	#DIV/0!	\$ -
Fringe Benefits	\$ -	\$ -	\$ -	#DIV/0!	\$ -
Travel	\$ -	\$ -	\$ -	#DIV/0!	\$ -
Equipment	\$ -	\$ -	\$ -	#DIV/0!	\$ -
Materials/Misc.	\$ -	\$ -	\$ -	#DIV/0!	\$ -
Subcontractors	\$ -	\$ -	\$ -	#DIV/0!	\$ -
Indirect Costs	\$ -	\$ -	\$ -	#DIV/0!	\$ -
Total	\$ -	\$ -	\$ -	#DIV/0!	\$ -

Match Share

Category	Agreement Match Share Budget	Match Share Expenses This Period	Cumulative Match Share Spent to Date	% of Match Spent to Date	Match Balance
Direct Labor	\$ -	\$ -	\$ -	#DIV/0!	\$ -
Fringe Benefits	\$ -	\$ -	\$ -	#DIV/0!	\$ -
Travel	\$ -	\$ -	\$ -	#DIV/0!	\$ -
Equipment	\$ -	\$ -	\$ -	#DIV/0!	\$ -
Materials/Misc.	\$ -	\$ -	\$ -	#DIV/0!	\$ -
Subcontractors	\$ -	\$ -	\$ -	#DIV/0!	\$ -
Indirect Costs	\$ -	\$ -	\$ -	#DIV/0!	\$ -
Total	\$ -	\$ -	\$ -	#DIV/0!	\$ -

Grand Totals	\$ -	\$ -	\$ -	#DIV/0!	\$ -
---------------------	-------------	-------------	-------------	----------------	-------------

Reimbursement Total This Period	\$ -
Retention Amount:	\$ -
Total To Be Paid This Invoice:	\$ -

Retention Release Invoice
 Retention Release Amount: \$ -
 Final Invoice

Certification

I certify under penalty of perjury that this invoice is accurate, correct, and proper for payment in all respects, and reimbursement for

 Signature of Authorized Representative Date

Recipient Name: _____
Agreement Number: _____
Invoice Number: _____
Period covered by this request: _____

Task Title and Number	Agreement Reimbursable Budget	Reimbursable Expenses This Period	Cumulative Expenses Billed to Date	% of Reimbursable Spent to Date	Reimbursable Balance
	\$ -	\$ -	\$ -	#DIV/0!	\$ -
	\$ -	\$ -	\$ -	#DIV/0!	\$ -
	\$ -	\$ -	\$ -	#DIV/0!	\$ -
	\$ -	\$ -	\$ -	#DIV/0!	\$ -
	\$ -	\$ -	\$ -	#DIV/0!	\$ -
	\$ -	\$ -	\$ -	#DIV/0!	\$ -
	\$ -	\$ -	\$ -	#DIV/0!	\$ -
Total	\$ -	\$ -	\$ -	#DIV/0!	\$ -

Match Share

Task Title and Number	Agreement Match Share Budget	Match Share Expenses This Period	Cumulative Match Share Spent to Date	% of Match Spent to Date	Match Balance
	\$ -	\$ -	\$ -	#DIV/0!	\$ -
	\$ -	\$ -	\$ -	#DIV/0!	\$ -
	\$ -	\$ -	\$ -	#DIV/0!	\$ -
	\$ -	\$ -	\$ -	#DIV/0!	\$ -
	\$ -	\$ -	\$ -	#DIV/0!	\$ -
	\$ -	\$ -	\$ -	#DIV/0!	\$ -
	\$ -	\$ -	\$ -	#DIV/0!	\$ -
Total	\$ -	\$ -	\$ -	#DIV/0!	\$ -

Grand Totals	\$ -	\$ -	\$ -	#DIV/0!	\$ -
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Reimbursement Total This Period	\$ -
Retention Amount:	\$ -
Total To Be Paid This Invoice:	\$ -

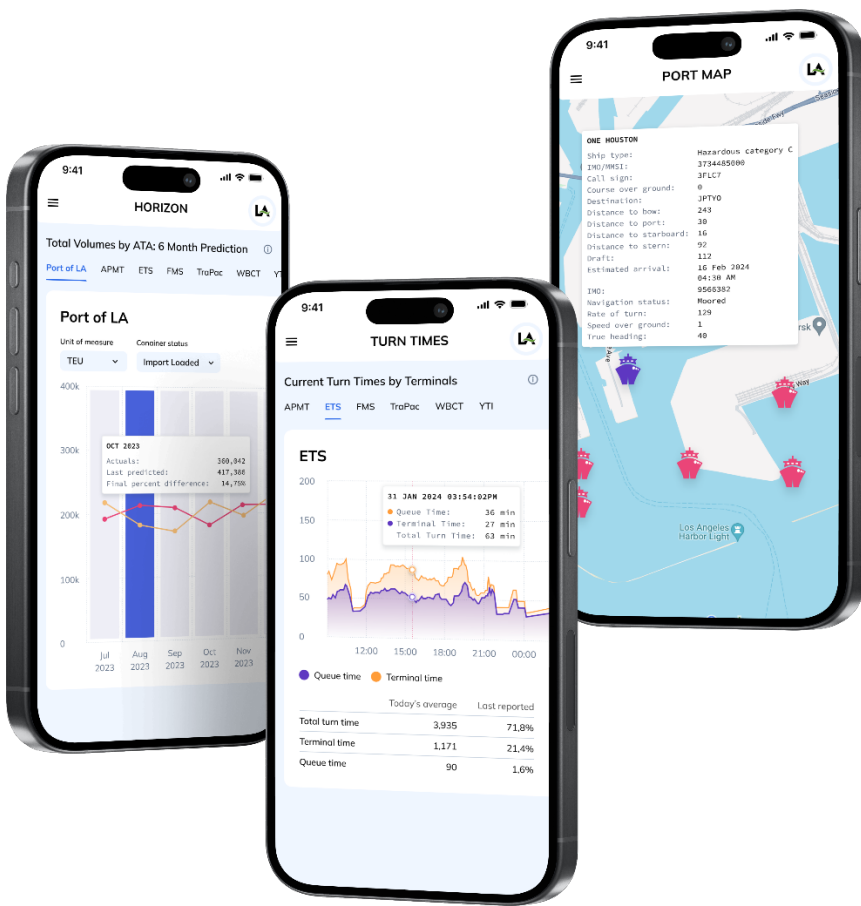
Retention Release Invoice
 Retention Release Amount: \$ -
 Final Invoice

Certification
 I certify under penalty of perjury that this invoice is accurate, correct, and proper for payment in all respects, and reimbursement for

 Signature of Authorized Representative Date

2024

California Port Data Interoperability



CalPorts for Interoperability

Port of Los Angeles

7/29/2024

Cover Page	
Port Name	The Port of Los Angeles (City of Los Angeles Harbor Department)
Address	425 S. Palos Verdes Street San Pedro, CA 90731
Project Name	CalPorts – Mobile Application
Technical Point of Contact	<ul style="list-style-type: none"> • Name • Title • Email • Phone
	<ul style="list-style-type: none"> • Sheeba Varughese • Director of Information Technology/CIO • SVarughese@portla.org • (424) 450-3636
Business Point of Contact	<ul style="list-style-type: none"> • Name • Title • Email • Phone
	<ul style="list-style-type: none"> • Chris Chase • Assistant Director of Marketing • Cchase@portla.org • (310) 732-3846
Total Project Cost	\$1,320,000
Project Summary (500 words max)	<p>CalPorts is a mobile application that would enable information sharing by all California ports. The application would serve as a dashboard, providing cargo visibility of cargo movement KPIs at the Port of Los Angeles and other participating ports (through standardized APIs). Enhanced visibility of container movement information will help cargo owners optimize the flow of goods and reduce the time and cost associated with moving cargo. The application will provide data on the status of cargo, which will help reduce the risk of delays and disruptions and enable public and private sector actors to better anticipate operational issues, thereby reducing congestion and improving the overall efficiency of the supply chain. CalPorts would also provide a platform for sharing information on environmental performance, which would help promote sustainability and reduce emissions. Additionally, the application could be used to share information on port security, cyber security, and ports safety. This, in turn, would help cargo be transported securely, efficiently, and safely. Finally, the application could provide availability of Department of Transportation FLOW (Freight Logistics Operations Works) information for participating members through an access-controlled portal.</p> <p>CalPorts would consist of several modules and features such as the following:</p> <ol style="list-style-type: none"> a. <u>Ports Control Tower</u>: Provides operational status and actionable

	<p>insights into such areas as terminal operations, container dwell, and vessel status. It would also offer analytics & KPIs as a single pane of glass view for Ports-wide analytics.</p> <p>b. <u>Ports Instrument Cluster</u>: Offers a mobile view of Ports congestion, Ports performance and health condition. Depending on data availability, this could also provide a general snapshot of a Port environmental index based on congestion and cargo flow.</p> <p>c. <u>Bird's Eye View</u>: Offers a statewide view of equipment and movement of select assets, vehicles and fleets as enabled by the user to help visualize fleet assignment and distribution. This module would be applicable where GPS sharing is enabled and accessible to POLA and its technology partners.</p> <p>d. <u>FLOW</u>: An access-controlled section of the application designed for participants in the DOT's Freight Logistics Operations Works (FLOW) program, including access to all enabled Federal-level data, including the ability to drill down for actionable insights. Leveraging data sharing of federal agencies such as the Federal Maritime Commission (FMC) and USDOT to provide an enhanced view of the US cargo movement.</p> <p>Current project will consist of the Project Design/planning, including customer discovery, identification of required data elements, including modeling, creating of a data foundation, and ingestion of data sources.</p>
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1. Introduction

The global marine port and service industry is expected to reach an estimated \$105.5 billion by 2027 with a CAGR of 3.5% from 2021 to 2027 according to Globe News Wire. The major drivers for this market are the high growth of the marine freight transportation market and surging demand of containerized and bulk cargo. NB1

In the United States, California ports handle over 40% of containerized cargo entering the nation, thanks to San Pedro Bay complex - comprised of the Port of Los Angeles and the Port of Long Beach - and the ports of Hueneme, Oakland, and San Diego (**The Ports**). Preserving California's share of international container trade volume – and its related jobs and economic activity – will require advanced cooperation across multiple supply chain stakeholders to enable seamless goods movement and an enhanced cargo owner experience.

California's central role in global seaborne trade was highlighted during the recent Covid-19 pandemic-induced supply chain disruption. One of the major challenges identified was a lack of data sharing and information asymmetry across the maritime supply chain. This was recognized by California Governor Gavin Newsom and the State Legislature with the inclusion of the California Container Port Data Interoperability Initiative in the California Budget Act of 2022.

The Port of Los Angeles (**POLA**) is committed to strengthening supply chain data sharing and interoperability. It has invested significantly in the last decade to securely manage, share, and expedite data across port users and relevant transportation providers, including private and public organizations. This was possible through POLA's Information Technology System, Cyber Security Center, Cyber Resilience Center, and Port Community System (PCS) platform. POLA's overall vision is to enable seamless sharing of timely, relevant data to improve supply chain efficiency, resilience, and sustainability.

California and San Pedro Bay represent one of the most active ports in the world. POLA, being one of the busiest ports in the state of California, proposes to strengthen interoperability by building strong, reliable, and secure data systems. This will enable the Port's computerized and cloud-based PCS to securely share information and expedite information to users and supply chain stakeholders to enhance data sharing, port efficiency, and supply chain emissions reductions.

Therefore, as part of GO-Biz initiatives, POLA proposes a set of modules to be built on its existing Information Technology platform and augment it to achieve a greater interoperability among the port community system in California. POLA's proposed project under California Port Data Interoperability will address the following:

- a. Enabling the ports to securely share information and expedite information exchange between port users and relevant transportation service providers.
- b. Achieving congestion reduction and improvement of the quality of California residents who are using highways and roads leading to the Ports.
- c. Driving emissions reduction and enhancement of security and safety of Ports employees and customers.
- d. Providing a "lift and shift" interoperability model to other ports across the United States that will enable incentivizing data sharing and hence enhancing efficiencies in containerized cargo movement throughout the United States and its trading partners.

1.1. Vision

POLA's long term vision for cargo movement across the world is a seamless and a cohesive experience as it transitions from one transportation mode to another: from origin to destination. Further, the goal is to increase cargo velocity and capacity at the port while also increasing the efficiency of those moves. This implies the ability for the relevant ports' IT systems to process and expedite information exchange across the supply chain ecosystem securely and reliably. Supply chain stakeholders from private and public sectors must exchange certain information through their computerized and cloud-based cargo data systems to drive operator safety, operational improvement, efficiency, and emissions reduction.

To uniformly make information easily available to the supply chain stakeholders, it first starts by establishing a sound and secure data foundation at the individual port. Ports, however, may be in different stages of digitizing their operation and establishing a data foundation using standard IT protocols that allow for an easy flow of information can assist in that process. GO-Biz, through the California Port Data Interoperability initiative, will encourage the Ports to ensure the IT fundamentals are fully in place to enable building select port systems that will enable stakeholders to interface with other ports. This interaction among ports will increase the efficiency of cargo movements through the ports and improve general port operations.

Many government and private organizations have reached advanced levels of interoperability due to their critical mission and the security and safety risks in their respective industries. POLA is monitoring a few of them closely as a possible benchmark to avoid re-inventing the wheel and to learn from costly oversights as it embarks on its own interoperability initiatives. One example is the California Health and Human Services Data Exchange Framework. This is the statewide data sharing agreement that aims to enable real-time access and exchange of health information among health care providers and payers through any health information exchange network, health information organization, or technology that adheres to specified standards and policies. This framework is designed to accelerate and expand the exchange of health information among health care entities, government agencies, and social service programs and presents many similar attributes and pillars that can be benchmarked to the supply chain industry.

Likewise, commercial aviation relies on interoperability between airports, TSA, airlines, and terminals to communicate and share data with each other about travelers. Interoperability in this case requires that passengers enroll only once at the point of origin and be seen and identified without further action from the passenger until their destination is reached. Thus, many parallels can be drawn with container movement using a unique identifier with consistent, standardized movement data as it moves from its origin through intermodal locations, warehouses, Customs and Border Protection, and, ultimately, destination.

Through its application under California Port Data Interoperability, POLA is proposing three projects that will complement each other, and together build on the existing systems that will drive interoperability even further from different angles. These projects will focus on digital initiatives that will improve visibility and information sharing, improve efficiency, and help optimize cargo movements, and help look to a future of better environmental outcomes, including greenhouse gas reductions, at the California ports.

As a short-term vision, POLA's objective is to eliminate silos within port systems and among the Ports in California and to introduce technologies that improve cargo velocity and increase information sharing. The benefits will help businesses optimize their supply chain, reduce operational costs, and thus help The Ports improve their overall performance. Through interoperability The Ports can collaborate more effectively with each other by sharing data such as shipping schedules, cargo volumes, and other critical information to help each other plan and optimize operations. This can help reduce congestion, improve efficiency, and enhance the overall performance of the supply chain.

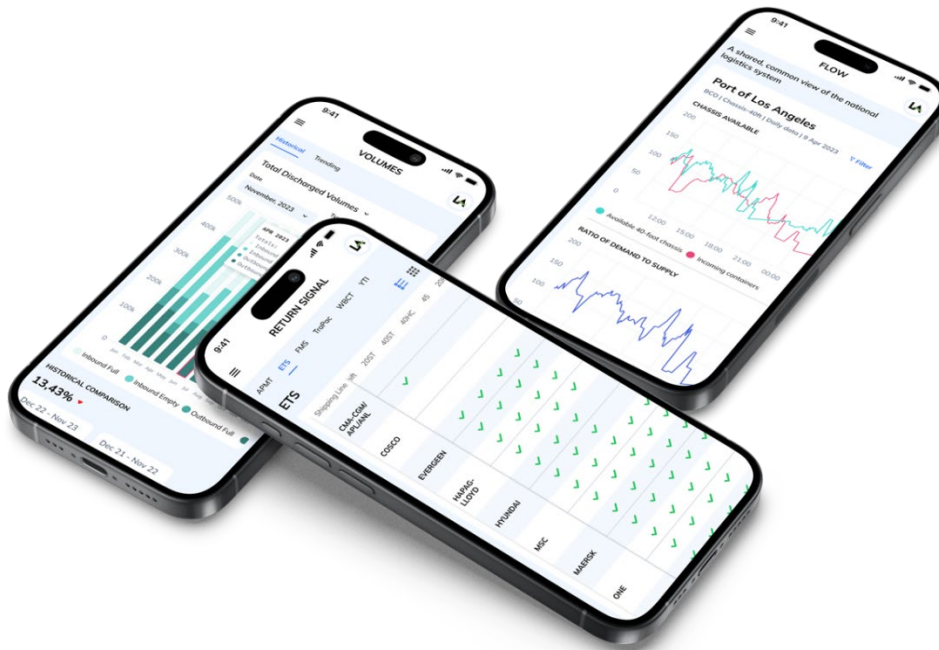


Exhibit 1: CalPorts Application mockups

POLA's proposed CalPorts Mobile application is a major milestone to help the supply chain ecosystem in California benefit from data sharing on-the-go, while providing accessibility to stakeholders of relevant shipping data for smart and optimized decisions. The application builds upon the Port of Los Angeles' existing Port Optimizer™ platform and complements other access options such as raw data imports and exports, historical views, and predictive volumes. Subsequently, CalPorts could provide API and data feeds to existing information from an API store platform into an existing Port Community System, a Port Information ERP system, or into the Freight Logistics Optimization Works (FLOW) program. Stakeholders would consequently be empowered to use the data in ways that suit their needs beyond viewing data in a mobile app.

1.2. Current State

Recent global events such as the COVID pandemic, cybercrimes, and wars (specially in Eastern Europe and the Middle East) have placed a spotlight on the critical role that supply chain plays in a healthy globalization effort. Larger ships have helped ports set new volume records across the globe to accommodate for natural trade increases which are set by an increase in the global population. However, this increase in volume brought new

operational complexities and cargo congestion. All of this comes at a time when consumer demand and expectations for delivery of goods are at an all-time high.

Despite many efforts to bring ports together through digitization, new technologies, and alliances, the port community remains somewhat fragmented and siloed when it comes to data sharing and collaboration of information. This is a result of large supply chain communities that operate several disconnected systems that either don't communicate with each other or have limited interoperability. Some of this limited communication is either due to fear of losing competitive advantage or lack of future vision. Consequently, trying to connect the dots through manual processes such as phone calls, emails and fax not only creates deficiency but also adds the risk of operator error.

Furthermore, post the pandemic era, the global trade is seeing a gradual shift from Asia/United States to Latin America/United States. This puts US based ports on the gulf coast and east coast to be well positioned to cater to Latin American markets which threatens some of the trade bound to the west coast including California. A "Do Nothing" strategy means that the supply chain system continues to operate in a siloed fashion with localized benefits from digital enhancements but will most likely cost California a great deal of trade revenue dollars overall which will harm the economic health of the state.



Exhibit 2: An example of a supply chain ecosystem operating in siloes

1.3. Proposed Future State

POLA proposes a statewide initiative that enables Interoperability between the Ports by establishing a digital foundation for the Ports and their stakeholders powering a mobile application allowing for visibility into current and historical port metrics and KPIs. This mobile application will build on existing supply chain tools, including the Port Optimizer™ application, to bring mobile connectivity at the POLA side initially. This capability could be scaled to the remaining Ports though data sharing via API, EDI, and other standardized data messaging formats. Once CalPorts is enabled for all five Ports, it will represent a major step in Interoperability. A successful deployment is an incentive for decision makers to consider California as an advanced supply chain hub. This will help California not only sustain its competitive advantage as a Supply Chain leader but will ensure it helps in establishing collaboration standards.

2. Scope

2.1. Problem Statement

A study done internally at POLA in 2022 suggests that providing digitized modules such as Track and Trace and KPI Dashboards can shave more than 6,500 hours of manpower in calls and manual searches per year when inquiring about containers and general port operations. This is equivalent to roughly \$4 million USD of productivity loss per year at a single port. This estimate excludes the re-work and the negative impact of the decisions made by other stakeholders without the smart insights provided by such digital tools. The study shows an example of lost productivity at a single port when data sharing is restricted and siloed. However, the impact of the lost productivity is much larger when the major ports within a state are unable to share relevant data that allow shippers, carriers, and beneficial cargo owners to have a full view of the freight demand in a simple and quick access. Enabling this type of access in a mobile application ensures that decision makers and operational actors always have the most current information possible while considering supply chain moves within the port.

Cost Savings Across the Port Ecosystem										
		Port View			BCO View			Dray View		
Digital Track & Trace	Inquiry Type	Pre-Digital (mins)	Post-Digital (mins)	% Savings	Pre-Digital (mins)	Post-Digital (mins)	% Savings	Pre-Digital (mins)	Post-Digital (mins)	% Savings
	Container Tracking	15	2	87%	15	10	33%	20	10	50%
	Customs Holds	50	12	76%	20	12	40%	20	12	40%
	Last Free Day	35	10	71%	20	10	50%	20	10	50%
	Clearance	40	12	70%	30	12	60%	20	12	40%
Avg. Track and Trace (Man Hours/Month):										5,220 hrs
Equivalent Salary Savings* per Year:										\$3,011,250
		Port View			BCO View			Dray View		
Port Control Panel	Inquiry Type	Pre-Digital (mins)	Post-Digital (mins)	% Savings	Pre-Digital (mins)	Post-Digital (mins)	% Savings	Pre-Digital (mins)	Post-Digital (mins)	% Savings
	Future Volume	15	5	67%	15	5	67%	15	5	67%
	Turn Times	12	5	58%	12	5	58%	12	5	58%
	Dwell	23	5	90%	23	5	90%	23	5	90%
	Forecast	32	5	84%	34	5	85%	34	5	85%
	Anchorage	12	5	58%	23	5	90%	23	5	90%
	Historical Volumes	26	5	81%	12	5	58%	12	5	58%
Empty Return	12	5	58%	40	5	88%	40	5	88%	
Avg. Track and Trace (Man Hours/Month):										1,529 hrs
Equivalent Salary Savings* per Year:										\$881,827

Exhibit 3: Productivity Study on data sharing - comparison Before vs. After digital implementation

2.2. Current Data Systems and Processes

Currently, the Port of Los Angeles builds and supports the Port Optimizer™ suite which is made up of two different applications, including a Track and Trace Module and Control Tower, a dashboard based KPI/Metrics tool that helps expose the operational health of the port. CalPorts would specifically build upon the Control Tower application by helping to move this data into a more immediately accessible mobile application, including enhanced data and additional fields.

Port Optimizer™ Control tower utilizes a myriad of different data sources, including direct EDI and API connections with Shipping Companies, Marine Terminal Operators, Dray Providers, Railroad Operators, Chassis Providers, the Port Authority, and selected, relevant 3rd Party resources. These data streams are normalized, sequenced and ultimately served back out into a web-based, desktop front-end via API connections. The existing Port Optimizer™ is designed to accept multiple types of data including standardized formats such as EDI and APIs, but also more manual options such as spreadsheets, OCR, and emails.

2.3. Proposed Solution

CalPorts (To be built as part of the Go-Biz proposal) is a mobile application that facilitates information sharing by California ports. The application, when developed, would serve as a dashboard, providing cargo visibility at the Port of Los Angeles and other participating ports (through standardized APIs). Enhanced visibility of container metrics would help cargo owners optimize the flow of goods and reduce the time and cost associated with moving cargo. The application would provide data on the status of cargo, which would help reduce the risk of delays and disruptions and enable public and private sector actors to better anticipate operational issues, thereby reducing congestion and improving the overall efficiency of the supply chain. The modules within CalPorts would be designed to be user-friendly and easy to navigate, with intuitive visualizations that would allow users to quickly identify trends and patterns. The application would also be highly customizable and allow users to tailor the dashboards to their specific needs. CalPorts would be designed to be responsive, so it can be accessed from any device, including smartphones, tablets, and desktop computers. The application would also be highly secure with robust encryption and authentication features to ensure the safety of sensitive data. The application would provide a platform for sharing information on environmental performance which would help promote sustainability and reduce emissions. Additionally, the application would be used to share information on port security, cyber security, and port safety helping to allow cargo to be transported securely, efficiently, and safely. Finally, the application would provide availability of Department of Transportation FLOW (Freight Logistics Operations Works) information for participating members through an access-controlled portal. CalPorts will provide several modules and features such as the following:

- a. Ports Control Tower: Provides operational status and actionable insights into such areas as terminal operations, container dwell, and vessel status. It would also offer analytics & KPIs as a single pane of glass view for Ports-wide analytics.
- b. Ports Instrument Cluster: Offers a mobile view of Ports congestion, Ports performance and health condition. Depending on data availability, this could also provide a general snapshot of a Port environmental index based on congestion and cargo flow.
- c. Bird's Eye View: Offers a statewide view of equipment and movement of select assets, vehicles and fleets as enabled by the user to help visualize fleet assignment and distribution. This module would be applicable where GPS sharing is enabled and accessible to POLA and its technology partners.
- d. FLOW Link: An access-controlled section of the application designed for participants in the DOT's Freight Logistics Operations Works (FLOW) program, including access to all enabled Federal-level data, including the ability to drill down for actionable insights. FLOW is Initiated by the Biden-Harris Administration in May 2022 to "...Speed Up Delivery Times and Reduce Consumer Costs" through data exchange. The program is a government/industry partnership to exchange information between supply chain stakeholders and is made possible by USDOT/Bureau of Transportation. POLA's objective is to integrate data leveraging the Bureau of Transportation Statistics (BTS) and FLOW participants. As of January 2024, FLOW participants consist of Beneficial Cargo Owner (BCO), Intermodal Equipment Provider (IEP), Logistics Real Estate, Marine Terminal Operator (MTO), Motor Carrier, Ocean Carrier, Rail Carrier, and Third-Party Logistics (3PL). This module aims at leveraging the maturity of other federal agencies such as the Federal Maritime Commission (FMC) and USDOT to provide an enhanced view of the US cargo movement.

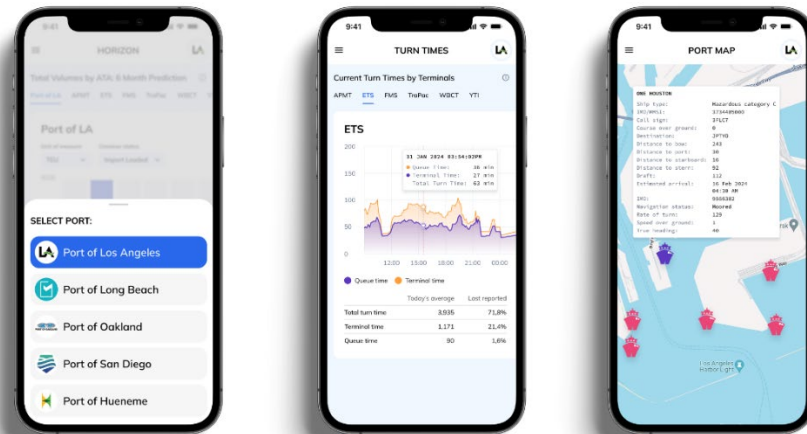


Exhibit 4: Possible examples of CalPorts screens to be deployed under Interoperability

2.4. Scope of Work

The following is high level Scope of Work matrix summarizing the various tasks and sub-tasks. It explains the activities required to deploy the CalPorts App, API development and FLOW integration. As part of the first phase of the CalPorts development, the team will focus on completing the discovery and planning of the application as well as backend development, including establishment of the data foundation, required data needs and the integration of those feeds, and mapping creation of potential future API connectivity. UX/UI development is not part of this initial development phase and would be launched at a later date.

Task #	Description	Milestones and Deliverables
1.1	Discovery	Research, collect and analyze CalPorts project information and plans. Validate the scope of work, deadlines, and user experience expectations. Ensure necessary data in making technical and architectural decisions are available. Work with different stakeholders, including MTOs, Shipping Lines, BCOs, Dray Providers, Railroads, and others to ensure applicability of data and information.
1.2	Documentation	Establish a repository for software engineers, UX designers and developers to store and maintain processes and functions to develop the application. Deliverables include planning, metrics, scheduling, estimation, and system documentation among others. Provide required project reporting to state agencies as required.
2.1	Data Acquisition	Identifying data sources, from available stakeholders, acquire feeds converting data to a digital content and ensuring data feeds are complete and accurate.
2.2	Data Implementation	Bringing data into the CalPorts data foundation,

		including normalization, and sequencing of data and ensuring that data is split into the proper component database sections.
2.3	API Development	API design and specification. Complete and test API coding including error management.
3.1	Data Modeling	Creation of representation of data, relationship, structure, constraints and rules of organization and data storage. Completion of an Entity-Relationship Diagrams (ERDs).
3.2	Data Foundation	Establishment of Database warehouse and Extract, Transform, Load (ETL) processes.
3.3	Access Controls	Completing authentication, verification, and authorization processes for all users, including special access for certain users (FLOW participants). **Not included as part of GoBiz project Phase 1**
3.4	API Endpoints/Outputs	Define API endpoints and API data output in required format such as JSON and XML.
4.1	UX Development	Content organization by functionality and creation of sitemaps, wireframes, prototypes, and final app UX design. **UX Development not included as part of GoBiz project Phase 1**
6.1	QA Testing	Execute Functional, performance, security and usability testing and User Acceptance Testing. Defect repairs. **UI testing not included as part of GoBiz project Phase 1**
7.1	Deployment	Final push of the code of CalPorts to the production environment including UI. **UI not included as part of GoBiz project Phase 1**

2.4.1. CalPorts would include the following:

- a. POLA based Control Tower: This single pane of glass view for POLA analytics will offer insights such as TEU volumes, Truck Turn Times, Appointment Metrics Data, Days After Discharge and Volume Forecast.
- b. Ports Instrument Cluster: This module of CalPorts addresses port congestion, performance, and various health conditions. Depending on data availability, this module will interface with POLA's Carbon Intensity portal (also presented under the GO-Biz California Port Data Interoperability program) to provide a general snapshot of the port environmental index based on congestion and cargo flow by providing a carbon intensity score by container for specific transportation modalities.
- c. Bird's Eye View: This module offers a statewide view of equipment and movement of select assets, vehicles and fleets as enabled by the user to help visualize fleet assignment and distribution. This module will be applicable where GPS sharing is

- enabled and accessible to POLA and its technology partners. Possible partners will vary from GPS and mapping providers in the state and the port such as ESRI.
- d. **FLOW Link: Leveraging FLOW information from the Federal Bureau of Transportation Statistics**, this module offers an access-controlled view designed for use by all FLOW participants. The module offers an outlook of the Ports condition based on data from the Flow system and customizable by users. The goal of this module is to provide a macro view of California Ports to maintain pulse of freight and marine activity compared to neighboring states and possibly the east coast of the United States (pending data availability). This module is based on FLOW Landside Ratio which represents data provided by supply chain stakeholders to understand the relationship between the incoming containers (demand) and the available assets to move containers (supply) at a given node, such as: $\text{Landside Ratio} = \frac{\text{Aggregate gate demand at node}}{\text{Aggregate supply at node}}$ and $\frac{\text{Containers discharged from vessels}}{\text{Chassis or drayage trucks available to move containers}}$. This module aims at leveraging the maturity of other federal agencies such as the Federal Maritime Commission (FMC) and USDOT to provide an enhanced view of the US cargo movement.

2.4.2. CalPorts Exclusions

At the initial deploy, CalPorts will only project data for the Port of Los Angeles, plus all federal FLOW participants until the existing MOU is executed between the remaining four Ports to make and share relevant data. However, the application will be built using a data architecture design that provisions for additional data sources for the five Ports, including the development of APIs utilizing standardized data elements and the ability to import other existing data formats (EDI, XLSX, etc.). Once the MOU is executed, the application will be able to display the functionality for all California Ports. Furthermore, CalPorts will ultimately interface with other systems such as the Universal Appointment System, the POLA Gateway (developed as part of the DOT's 2021 ATCMTD grant), and other future modules.

3. Software Development, Cloud and System Architecture

3.1. Software Development and Technical Collaboration

The solution architecture for the existing digital supply chain platform is established to ingest data from various stakeholders. This platform interfaces with the stakeholder's ecosystem such as marine terminal operators, ocean carriers, rail operators, chassis providers, beneficial cargo owners and CBP among many others. Through APIs, EDI, and other standard communication protocols, stakeholders can interface with the digital supply chain platform. The existing platform is a cloud based, web-hosted desktop application and is currently not available in a mobile environment. Hence the new content from this submission's scope focuses on augmenting the existing platform to create a secure mobile environment with additional data feeds, dashboards, mapping integration and FLOW integration. FLOW integration will capture FLOW data from the existing BTS portal and repackage it with enhanced analytics to stakeholders depending on their needs and business mission. As FLOW participation grows, our technical team envisions a larger opportunity to create further analytics that report market trends, supply vs. demand trends, and an economic outlook based on the activities reported.

The development environments will utilize AWS components and be entirely hosted in the cloud. In addition to being hosted on AWS servers, the development will include other AWS components such as S3, Elastic Search, RDS, etc. Confluent Kafka and DataDog alerting and monitoring will also be part of the architectural design. The final apps will be developed using responsive web design to allow for both mobile and desktop support. CalPorts will not require any “on prem” hardware or software deployment. All code and development tools/environments are required to undergo full CATO (continuous authorization to operate) validation to ensure adherence to strict cybersecurity standards.

The Port of Los Angeles will work with their existing technical partner in the development of the CalPorts app as it builds upon the work of the existing Port Optimizer™ application. All original data input into the system will remain the property of the original source data provider, while the ownership of any derived data, software, or other IP will be governed by the contract between the Port of Los Angeles and their selected technical partner. Any potential risks associated with vendor lock-in will be mitigated by ensuring that all developed assets are easily portable to a new provider with minimal effort, including source code and underlying databases. Additionally, standardized data formats will be used everywhere possible to ensure easy integration with new providers.

3.1.2. Scalability

CalPorts will be based off the current Port of Los Angeles Port Community System, Port Optimizer™. Port Optimizer™ utilizes a robust backend database structure that is designed for large data sets and is optimized for logistics data. Currently, the Port Optimizer™ data foundation is processing close to 2 billion events annually with room to scale to multiple times that. It is not expected that the new data sets that will be part of CalPorts will cause any concerns with data or system scalability.

DataDog and other in-house monitoring will be used within the system architecture to alert development teams to any potential issues before they happen. Currently, these systems are in place with multiple levels of technical support to handle varying levels of severity with response teams in place to address any potential issues.

3.1.3. Reliability and Resiliency

As part of engineering development of the CalPorts app, all code will be subject to full regression testing ensuring that any potential bugs are identified and addressed prior to production code deployment. Should any potential issues occur, full back-ups of data and infrastructure will be available to ensure minimal downtime and quick recovery.

3.1.4. Usability and Downstream Stakeholder Engagement

CalPorts is designed to be an easy-to-use mobile application that will allow all port stakeholders to access data pertaining to the current state of operations at the Port of Los Angeles (and ultimately the other California ports.) This will include data detailing current and historical dwell times, current and historical truck turn times, appointment metrics, vessel data including interactive maps, predictive volume metrics and other information related to container movements at the port. Additionally, for users that are part of the federal FLOW initiative, access to FLOW data, including the ability to select different data views will be available. This data will be presented via intuitive dashboard segments that include easy-to-read charts and graphs and clearly defined output data. It is expected that access to CalPorts will be a free service provided by the Port Authorities.

The development of CalPorts will kick off with structured discovery sessions with port stakeholders to better understand specific needs and challenges being faced by the community. This will be coupled with ongoing feedback solicitation from partners as the app is developed to ensure that the final product will best meet the needs of the community.

Initial data sets for the application will rely heavily on existing data connections already established at the Port of Los Angeles for the Port Optimizer™ project, including EDI 309/310 manifest files from Ocean Carriers, EDI 322 and APIs from MTOs, and other selected data from additional providers. The Port will work with MTO partners and other stakeholders to ensure that additional data can be added to the system as needed. It will be necessary to ensure that all data providers to the system are aware of the expected usage of the source data within the app and that they are comfortable with sharing that data. The Port will utilize different options to ensure data access including incentive programs and tariffs as needed.

3.2. Sustainability and Maintenance

The software for CalPorts is designed to be easily maintained and sustained post-initial development. This includes ensuring that all code is commented appropriately to allow for future maintenance. Additionally, schema changes will be kept to a minimum with everything tracked and maintained through internal wikis to maintain clarity in design and development. System upgrades will be performed on a pre-published schedule with ample notice provided to all affected users. Additionally, any scheduled maintenance will be prioritized for periods of low usage to minimize disruptions.

Ongoing maintenance budgets will be evaluated and incorporated into both the initial development budget and as part of subsequent development efforts from the Port of Los Angeles and other future participating Ports.

3.3. System Testing Plan

Quality Assurance regression testing will be integral to the success of the CalPorts application. This testing will be developed in cooperation with the development team to ensure that test cases are representative of the user stories and will result in a bug free final product. Test cases will cover both backend development including the validation of data integrations and outputs, as well as full user interface testing, including ensuring proper functionalities for all interactive user elements and access controls. Testing will be tracked through Rally alongside the respective user stories with full QA sign-off required before any code can be deployed to productions. As new features are designed and developed for the application as part of future iterations, the same QA processes will remain in place.

4. Data

4.1. Standardization

The CalPorts application will be designed to adhere to and utilize existing data standards, but also participate in helping to define standards for the next generation of data access. CalPorts will utilize a data foundation that is designed to be agnostic to data formats and input methods, however, it is expected that most data inputs into the application will be variations on existing EDI standards or well-documented APIs. As part of the development of the application, the backend engineering will ensure that any necessary data inputs into the system are well defined to more easily allow future ports to participate. This will include clearly defined data elements and structures, sample files for EDI messages, and JSON

files for API inputs. Wherever it is logical to utilize DCSA standards, CalPorts will endeavor to do so. The Port of Los Angeles will work with other participating ports to help ensure their access is not limited by data format challenges.

4.2. Data Culture and Change Management

One of the advantages of the CalPorts application is that it is built upon the Port of Los Angeles Port Optimizer™ application. As part of the development of Port Optimizer™, the Port of Los Angeles has maintained multiple direct data connections with almost all major ocean carriers, all terminal operators at the Port of LA, Railroads, chassis providers and other data providers with the port ecosystem. These data feeds have been cultivated and maintained for several years and are the product of extensive work between the Port, our technical vendor, and the stakeholders. The Port has spent significant time ensuring that data providers are well-educated in both the use of their data in our programs, but also very aware of all safeguards and monitoring in place to ensure that data remains protected. Well defined data access policies are in place and shared with providers as part of the data acquisition process.

4.3. Data Journey

Data will be ingested into the CalPorts data foundation via various input methods including EDI, API, and other sources. Once ingested, data will be normalized and sequenced based on key values within the data sources as those inputs are broken into their component pieces. These key values will be used to match and sequence disparate sources into a cohesive data story that will be available via clearly defined internal APIs that will feed to the mobile application UI. Depending on the source of the data, it will be processed through as batch data or streaming. Monitoring will be in place to validate data accuracy including, but not limited to, automated test scripts that will look for out of sync/incongruous data. Bad data will be identified and either corrected, if possible, or reported to the source data provider for correction or updates. Data volumes will be expected to be significant as all movement of vessels and containers within the port will be monitored and tracked.

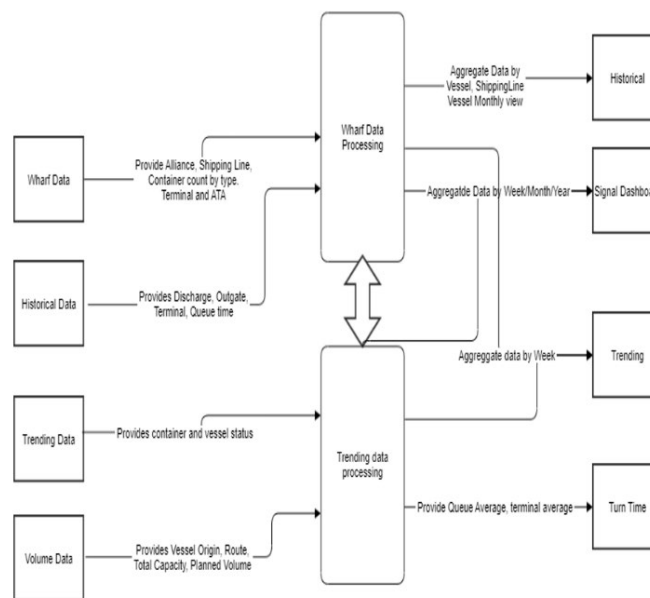


Exhibit 7: CalPorts High Level Data Design

4.4. Governance

POLA's governance of information security is achieved through a cross-functional, coordinated management structure that includes business IT, legal, audit, and risk organizations.

POLA protects its data and underlying infrastructure by relying on controls across the following areas:

- a. Security Oversight
- b. Human Resource Security
- c. Asset Management
- d. Access Control
- e. Cryptography
- f. Physical and Environmental Security
- g. Operations Security
- h. Platform Security
- i. Cloud Operations
- j. Information Systems Acquisition, development, Maintenance
- k. Supplier and Customer Security
- l. Information Security Incident Management
- m. Business Continuity

4.5. Data Privacy

Data Privacy is an integral part of the design of the CalPorts app. As part of our data acquisition process, we ensure that all data is acceptable to be shared by the source data provider. In addition, the application is designed to remove certain information types which might constitute PII or other proprietary data. In general, the application will adhere to both GDPR and CPRA standards. Further to that, the app purposely removes the need for data that could be considered commercially sensitive by truncating any specific entity (shipper, consignee, etc.) information and commodity information (other than hazmat status.). The resulting data is robust in that it provides detailed logistical information, but secure in that the information removes sensitive segments. All data inputs are bound by existing cybersecurity protocols within the Port of Los Angeles and their selected technical partner.

5. Cloud Infrastructure

For Cloud Infrastructure information, please refer to Sections 3 and 4.

6. System Security

In 2014, the Port of Los Angeles was the first seaport in the nation to establish a Cyber Security Operations Center (CSOC) and staff it with a dedicated cybersecurity team. The CSOC currently serves as a centralized hub for proactively monitoring the Port's own technology environment to prevent and detect cyber incidents. In 2015, the Port also became the first port to achieve ISO 27001 information security management certification.



Exhibit 8: POLA a Cyber Security Operations Center (CSOC) Cyber Resilience Center

As the cyber threat and risk landscape continues to rapidly change, the Port continues to research and invest in the most current technology and safeguards to further enhance its cybersecurity management capabilities. Over the last decade, the Port of Los Angeles has increasingly focused on expanding the digitization of its operations and creating an enhanced 'smart port' community. While this increased use of digital technologies has resulted in more efficiencies and cargo planning capabilities throughout the supply chain, it has also prompted the need for the Port to develop more sophisticated systems to protect against cybersecurity risks and disruption threats to both Port operations and the overall supply chain. This need for additional cybersecurity protection became even more evident during the COVID-19 pandemic, when the Port detected a significant increase in the level of cyber threats. Cybersecurity and advocating for a secure and responsible digitized supply chain has long been a priority at the Port, even before the pandemic. The Port's 2018-2022 Strategic Plan identifies cybersecurity as a top priority, both in support of goods movement and overall operational risk mitigation.

6.1. Application Security

The CalPorts application will make use of OKTA for user registration and authentication. Users in the application will be required to create a username/login consistent with cybersecurity best practices and will then be registered via two-factor authentication within the OKTA registry. All authorization and access attempts are stored within the AWS cloud environment through secure audit logging. CalPorts will have multiple levels of user access dependent on what sections of the application users should have access to (for example, only registered FLOW participants will have access to FLOW dashboards.) Internal and administrative users will be identified and monitored for continued access via normal security protocols, including but not limited to consistent auditing of user lists and domain-level restrictions. All development code is subject to multiple CP (Cybersecurity Protocol) tollgates to ensure adherence to development policies and best practices.

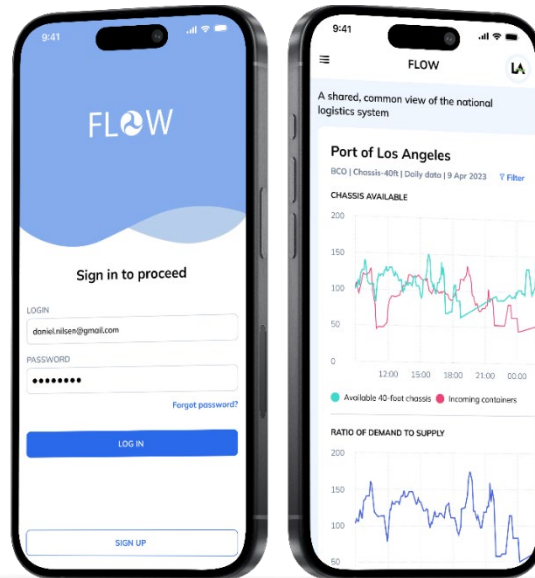


Exhibit 9: Mockup of FLOW dashboard login via CalPorts mobile app

Internationally, the Port of Los Angeles co-chairs the chainPORT Cyber Resilience Working Group. Initiated by the Hamburg Port Authority and Port of Los Angeles in 2018, chainPORT is an international partnership among the world's leading ports, designed to share innovations, strategies, and best practices. On a national level, the Port of Los Angeles chairs the American Association of Port Authorities (AAPA) Cybersecurity Committee for collaboration with U.S. ports and other federal agencies. Locally, the Port of Los Angeles collaborates with law enforcement and other City of Los Angeles departments on cybersecurity. Cyber security and data protection are important considerations in the design and production of all POLA deployed projects and products. POLA understands the importance of integrating industry standards such as National Institute of Standards (NIST) and the International Standardization Organization (ISO) into safeguarding applicable data and infrastructure.

6.2. Cloud Security

This section is not applicable as a third party will be responsible for the cloud environment. However, the Port of Los Angeles will ensure through its bid criteria that suppliers will conform to POLA's and California cloud security regulations, tracking and auditing policies.

6.3. Corporate Security

The Port of Los Angeles will ensure that any technology partners selected to work on this project will adhere to the strictest of cybersecurity standards as governed by CSOC standards. This will include ensuring that access controls are in place for all users, including the monitoring of all hardware and software to ensure compliance. Successful partners will need to demonstrate and provide documentation on security training and awareness as well as needing to provide documented security policies. Any security incidents that are observed will need to be reported and addressed in a timely fashion and will be subject to audit and review from the Cyber Security Operations Center

7. Legal and Regulatory

7.1. Integration and Support of State and Federal Data Initiatives

All POLA built systems built under the GO-Biz funding will support relevant state and federal data initiatives by providing data and reporting. These will include:

- a. The Federal program
 - United States Department of Transportation (USDOT) FLOW Program
 - Ocean Shipping Reform Act of 2022
 - US EPA’s Clean Ports Initiative
 - USDOT and Federal Highway Administration’s Port Cooperative Driving Automation Drayage Truck Development program, implemented by Leidos
 - Additional relevant programs administered by Leidos
- b. State agency and program
 - CARB
 - CalSTA
 - California Freight Mobility Plan
 - California Sustainable Freight Action Plan
 - CalTrans Port and Freight Infrastructure Program

7.2. Environmental Data and Emissions Reductions

Environmental Data and Emissions Reductions data mainly apply to POLA’s Carbon Intensity Gateway project applications. Please refer to the Carbon Intensity Gateway application.

7.3. Labor Protections

The proposal for the Port of Los Angeles does not collect and will not report any data related to labor at the port. All data that is being ingested as part of the application will not be modified from the original source. Additionally, no metrics or KPIs will be created or maintained that relate to productivity or output as it relates to labor and safeguards will be in place to protect these interests.

8. Project Structure

8.1. Project Timeline

Below is a project development timeline that includes Tasks and Milestones described in the Scope of Work and Budget. The timeline is a high-level project plan with defined milestones. Data availability and reliability represent an important component of this project. Project timeline may be adjusted in case reliable and accurate data is not available to accommodate for alternative resolutions. Note that several of the milestones listed extend across multiple quarters as the development work will occur in phases. For the first phase of this project, only the discovery and back-end data work would be in scope. UX/UI and customer-facing portions of the application would be part of a future phase of development. Prior to initiating the project a more detailed project plan will be provided to the Port of Los Angeles.

Task #	Description	Milestones and Deliverables	Start Date	End Date
Task 1 Discovery Phase				

1.1	Discovery	Research, collect and analyze CalPorts project information and plans. Validate the scope of work, deadlines, and user experience expectations. Ensure necessary data in making technical and architectural decisions are available. Work with different stakeholders, including MTOs, Shipping Lines, BCOs, Dray Providers, Railroads, and others to ensure applicability of data and information.	Sept 24	Jan 25
1.2	Documentation	Establish a repository for software engineers, UX designers and developers to store and maintain processes and functions to develop the application. Deliverables include planning, metrics, scheduling, estimation, and system documentation among others. Provide required project reporting to state agencies as required.	Oct 24	Mar 25
Task 2 Data Ingestion and Integration				
2.1	Data Acquisition	Identifying data sources, from available stakeholders, acquire feeds converting data to a digital content and ensuring data feeds are complete and accurate.	Sept 24	Feb 24
2.2	Data Implementation	Bringing data into the CalPorts data foundation, including normalization, and sequencing of data and ensuring that data is split into the proper component database sections.	Oct 24	Mar 25
2.4	API Development	API design and specification. Complete and test API coding including error management.	Oct 24	Mar 25
Task 3 Back-End Environment, Data modeling and Foundation				
3.1	Data Modeling	Creation of representation of	Oct 24	Feb 25

		data, relationship, structure, constraints and rules of organization and data storage. Completion of an Entity-Relationship Diagrams (ERDs).		
3.2	Data Foundation	Establishment of Database warehouse and Extract, Transform, Load (ETL) processes.	Oct 24	Mar 25
3.3	Access Controls	Completing authentication, verification, and authorization processes for all users, including special access for certain users (FLOW participants).	N/A	N/A
3.4	API Endpoints/Outputs	Planning and definition of API endpoints and API data output in required format such as JSON and XML.	Dec 24	Apr 25
Task 4 UX Development				
4.1	UX Development	Content organization by functionality and creation of sitemaps, wireframes, prototypes, and final app UX design.	N/A	N/A
Task 5 UI Implementation				
5.1	Mobile Web	Complete User Interface and visual design for iOS-based platforms.	N/A	N/A
Task 6 QA, Testing				
6.1	QA Testing	Execute Functional, performance, security and usability testing on back-end functionality. Defect repairs.	Apr 25	Jun 25
Task 7 Production Deployment				
7.1	Deployment	Final push of the code of CalPorts to the production environment for back-end development.	Jun 25	Aug 25

8.2. Project Team

Below is an overview of CalPorts Project team.

8.2.1. Chief Information Officer

The Port's Chief Information Officer (CIO) will be responsible for ensuring a successful implementation of CalPorts. They will manage the following tasks within this project, including approving the deployment of information technology, delegation of IT tasks, and overseeing new network and system implementations.

8.2.2. Business Development and Marketing Director

The Business Development and Marketing Director collaborates with technology suppliers and will focus on container related activities in the supply chain enhancement and optimization. They will also maintain relationships with beneficial cargo owners and railroads.

8.2.3. Software Engineers and Developers

The software developer team will be responsible for creating, testing, and refining the computer applications as it relates to CalPorts. Their primary role is to build programs required for the application, collaborate with the rest of the teams such as software testers and quality assurance (QA) staff and approve final application design. Software engineers will drive the macro level of the project by designing, developing, and testing the various computer systems and laying out the optimum set up of the software architecture.

8.2.4. Product and Project Management Team

The product and project management team will be leading the product and project from inception to completion. They will ensure the delivery of a high-quality project within the bounds of the project's statement of work (SOW), on schedule, and within the budget. The team will oversee and provide leadership to the technical project team members while keeping all critical stakeholders apprised of the project status.

8.2.5. UX Research & Design Team

The UX Designer team will ensure a first-class user experience for people that are using CalPorts. UX Design is critical in translating user needs, style guides, and requirements into an elegant software solution that addresses all the project goals and objectives. The UX Design team will think not only about meeting requirements, but about how the design choices scale and fit within the larger established platform and exceed user expectations. Our UX Team have excellent problem identification and solving skills and communicate continuously with the technical project manager and contributing team members.

8.2.6. Solutions Architect and Data Scientist Manager

The Director of Software Engineering will lead a group of data scientists who will utilize analytical, statistical, and programming skills to collect, analyze, and interpret large datasets. This team has extensive experience in working with a variety of stakeholders and functional teams to uncover data-based insights to deliver improved business outcomes. This team will be critical in developing the analytical elements of the project, ensuring that the statistical methodologies are sound and scalable.

8.3. Collaboration

A successful deployment of any Interoperability project is heavily dependent on all the

parties' willingness to share relevant information regarding the benefit of the overall Interoperability initiative. Go-Biz is setting a major milestone for this purpose. POLA will be responsible to acquire the necessary data from all the stakeholders that are directly working within its premises such as terminals, truckers, ocean carriers, GPS data providers and CBP. However other data will be needed to make CalPorts a successful and powerful launch. This will require collaboration from the four ports, Port of Long Beach, the ports of Hueneme, Oakland, and San Diego. POLA will leverage its positive rapport with the four Ports to collaborate for the greater good of California. If for some reason some of the Ports are not willing to share or exchange data, it may not necessarily prevent the CalPorts from achieving its objectives, however it could increase the cost of is development to by acquiring data through other means or establishing data capture mechanisms. POLA believes this may not be the case, however, plans are also set to account for the least favorable condition.

8.4. Project Risks

Risk	Risk Level	Mitigations
Some maintenance and hosting cost may be needed post-performance period.	Low	Every effort made in the proposal to use no cost/non-proprietary/existing data sources. Post the performance periods, the port and its suppliers will agree on a sustainable manner to cover the incremental maintenance cost.
Lack of collaboration from certain stakeholders or ports to provide necessary data for a particular module.	Medium	POLA is currently receiving data from the major terminals, CBP, Ocean Carriers, select GPS providers, dray companies among others. The project currently assumes data will continue to flow from these stakeholders. However, there may be new data feeds that will be required to build the mobile applications. In this case, POLA will leverage existing partnership to receive the data. Otherwise, we will have to procure the data at a cost as set in the budget and contingency. If some data is not provided, POLA may reduce the functionality of a select module or delay its deployment until an agreement is reached.

8.5. Project Budget

Below is an estimated project budget using the major tasks and milestones described in the Scope of Work of this application. The project budget is based on the technology as deployed at the Port of Los Angeles and other components implemented within the supply chain ecosystem. The budget may vary slightly at the time of execution due to many factors such data availability, manpower and potential enhancements identified. The budget is derived based on annual salaries and rates of IT developers, software engineers and UX designer using 2024 and 2025 figures that accommodate for a 5% annual increase. Furthermore, the estimates are based on recent implementations of several projects within the industry based on recent RFPs. A contingency factor is also built in to cover for risk items as shown in the risk matrix. All amounts shown below the budget table such as personnel salaries, wages, travel, equipment, supplies etc. are included in the total shown in the budget table and are not incremental to the budget table.

Task #	Description	Grant funds	Outside Funds	Total
Task 1 Discovery Phase				
1.1	Discovery	\$100,000		\$100,000
1.2	Documentation	\$20,000		\$20,000
Task 2 Data Ingestion and Integration				
2.1	Data Acquisition	\$100,000		\$100,000
2.2	Data Implementation	\$200,000		\$200,000
2.3	API Development	\$100,000		\$100,000
Task 3 Back-End Environment, Data modeling and Foundation				
3.1	Data Modeling	\$250,000		\$250,000
3.2	Data Foundation	\$150,000		\$150,000
3.3	Access Controls	\$150,000		\$150,000
3.4	API Endpoints/Outputs	\$150,000		\$150,000
Task 4 UX Development				
4.1	UX Development	N/A		N/A
Task 5 UI Implementation				
5.1	UI Development	N/A		N/A
Task 6 QA, Testing				
6.1	QA Testing	\$50,000		\$50,000

Task 7 Production Deployment				
7.1	Deployment	\$50,000		\$350,000
TOTAL		\$3,520,000		\$3,520,000

1. Personnel Salaries, Wages, and Fringe Benefits

Staff Position	Annual Salary	Annual Fringe	% of Time on Project	Year 1	Year 2	Total
Engineering, Software and Development	\$120,000	N/A	100%	\$232,500	\$232,500	\$465,000
UX/UI Development and Design Team	\$150,000	N/A	100%	\$76,500	\$0	\$76,500
Data Modeling and Foundation	\$71,000	NA	100%	\$119,500	\$119,500	\$239,000

2. Travel

Description	Total Cost
Discovery & Documentation	\$13,000

3. Equipment

Item	Description	Quantity	Cost Per Item	Total Cost
None	Equipment is not applicable in this project			

4. Supplies

Item	Description	Quantity	Cost Per Item	Total Cost
None	Supplies are not applicable in this project			

5. Contractual Costs

Partner	Role	Funding Allocated
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Several metrics will be implemented to measure the success and ROI of CalPorts. During the deployment phase, POLA and its vendors will focus on meeting the deadlines and budget cost while delivering all the tasks described in the scope of work documentation. These metrics will also include the number of stakeholders who are participating in the data sharing program required to deploy the application. Post the launch phase, POLA's metrics will transition into ensuring collaboration from the Ports in California. This will be quantified by the number of stakeholders added to the mobile application enabling a stronger collaboration and driving interoperability.

Finally, POLA will establish a mechanism as a "Before" and "After" view highlighting key metrics both at the Port level and state level including the following:

- a. Container volumes & TEUs: Quarterly and annual comparison of container volume.
- b. Port efficiency: Captures KPIs such as turn time, queue time and empty container management. This can be measured monthly, quarterly, and annually.
- c. Usage of the App: A metric showing the number of users who are consistently using and benefiting from the application as well as information on specific common use cases.
- d. Collaboration: Participation of stakeholders within CalPorts and participation with FLOW.

NB1 Source: [Global Marine Port and Service Market to 2027: Trends, Opportunities and Competitive Analysis \(researchandmarkets.com\)](https://www.researchandmarkets.com)