Maritime Single Window

Whitepaper by IPCSA and Kale Logistics Solutions

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Preface

The document's primary goal is to spread awareness of the Maritime Single Window (MSW) concept. This includes identifying important stakeholders, comprehending the process flow and essential modules, and the commercial advantages to stakeholders are all part of this. This document will also enable the user to configure the MSW in accordance with IMO standards.

Terminologies

This section includes commonly used terms when describing a Maritime Single Window (MSW) application.

Sr. No.	Acronym	Expanded Form
1	MSW	Maritime Single Window
2	PCS	Port Community System
3	POS	Port Operating System
4	TOS	Terminal Operating System
5	UNECE	United Nations Economic Commission for Europe
6	UN/EDIFACT	United Nations Electronic Data Interchange for Administration, Commerce and Transport
7	IPCSA	International Port Community Systems Association
8	KPI	Key Performance Indicator
9	BL	Bill of Lading
10	SSR	Ship Stay Reference number
11	PHO	Port Health Organisation
12	IMO	International Maritime Organization
13	NOA	Notice of Arrival
14	BI	Business Intelligence
15	PCC	Port Clearance Certificate
16	ETA	Estimated Time of Arrival
17	ATA	Actual Time of Arrival
18	ETD	Estimated Time of Departure
19	ATD	Actual Time of Departure
20	API	Application Programming Interface
21	FTP	File Transfer Protocol
22	PoC	Proof of Concept
23	ICT	Information and Communications Technology

1 Background & Introduction to MSW

The Maritime Single Window (MSW) is a technology neutral platform which includes integrated electronic data exchange on arrival, stay and departure of ships, persons, and cargo at Ports. In other words, Maritime Single Window (MSW) is a single point of data entry for documentary requirements and procedures in maritime transport. Hence, it has significantly changed the process of information exchange between transport stakeholders, particularly in maritime transport and seaport business. Implementation of a Maritime Single Window as a single-entry point has the potential to harmonize and standardize the information exchange between commercial and administrative stakeholders and to provide fast, reliable, paperless, and efficient transactions. MSW includes process integration of all stakeholders in the entire seaport ecosystem.

1.1 IMO Mandates Maritime Single Window (MSW) for all Ports

Standardising and harmonising electronic ship to shore communication is once again high on the agenda across the global maritime industry. The IMO's Facilitation Committee has adopted amendments to the Facilitation (FAL) Convention which will make the single window for data exchange mandatory in ports around the world, marking a significant step in the acceleration of digitalization in shipping. The amendments adopted at the Facilitation Committee (FAL 46) session, which met 9 to 13 May 2022, are expected to enter into force on 1 January 2024.

1.2 Industry Challenges for Vessel & Cargo Clearance

There is broad consensus that administrative costs on shipping must be reduced. In maritime business, there are various formalities involved such as redundant administrative work and physical documents exchange. The exchange and visibility of these documents is seen as a major hurdle across the industry. Few of the major maritime industry challenges highlighted below are:

✓ Absence of standardization towards vessel documents submission and their terminology across geographies.

✓ Lack of synchronization amongst the public and private stakeholders.

✓ Redundant documentation and manual activities.

✓ Complex clearance procedure with dependency on multiple stakeholders.

✓ Lack of transparency leading to more bureaucracy.

✓ Reduced productivity due to infrastructure constraints. Lack of technology adoption among the users.

1.3 Need for MSW

This document's objective is to develop maritime single window environment guidelines and a framework that covers the complete life cycle. The resulting environment is expected to provide:

✓ Crew and cargo safety

✓ Unaffected Global Supply Chains

✓ Data Harmonization

✓ Combat Illegal Trade

✓ Malpractices associated with ship-shore interface

These Guidelines are based on IMO FAL 46 general single window concepts and traits that have been enhanced to integrate the requirements of maritime transport.

2 MSW Procedures

This section will assist in explaining the standard MSW process flow, provide an overview of important modules, and describe the most important documents that are shared among stakeholders.

2.1 Target Audience

These guidelines are intended for the following stakeholders listed in the below table who are responsible for developing or modifying environments for a Maritime Single Window (MSW).

Maritime Stakeholders	Ship Owner
	Shipping Agent
	Port Authority
Regulatory Bodies	Port Health
	Marine Department
	Port State Control
	Coast Guard
	Port Security
Government Agencies	Customs
	Immigration

2.2 Process Flow

The section covers the high-level process flow of the Maritime Single Window (MSW), which involves important stakeholders.
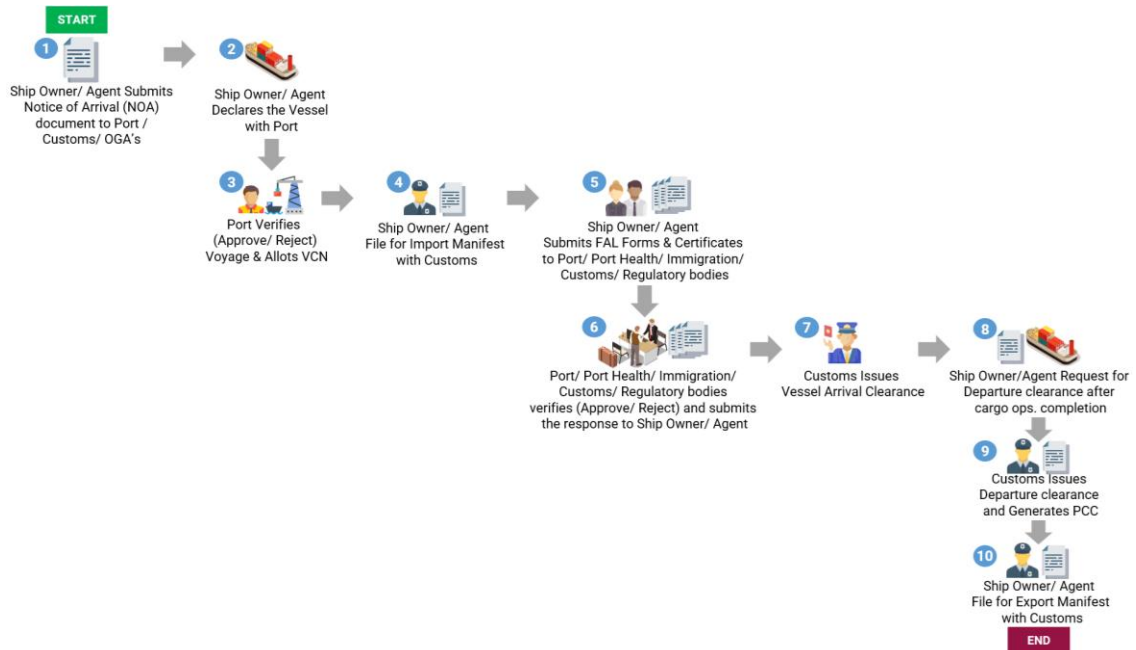
The process flow of the MSW System is depicted in high level in the pictorial diagram above for easy reference. Detailed process is captured in the below section (See Annex 1).

The key stakeholders involved in the process flow are Ship Owner/ Shipping Agent, Port, Customs, Immigration, Port Health, Regulatory Authorities & Coast Guard/ Security. The high-level step-wise process flow explanation for the vessel's arrival and departure is given below:

Step 1	Starting with the first stage, where the Ship Owner/ Shipping Agent submits the Notice of Arrival (NOA) to multiple stakeholders such as Port/ Customs/ Immigration/ Regulatory Bodies
Step 2	Following that, the Shipping Line establishes the Vessel/ Voyage Registration and notifies the Port of the information of the Vessel, Cargo & obtain the SSR (Ship Stay Reference) number from the port.
Step 3	The option exists for the Ship Owner to simultaneously create/upload the Import Manifest file and integrate the data into the Customs system
Step 4	Ship Owner then uploads the IMO Standard FAL Forms & certifications online to the pertinent stakeholders, where each stakeholder gives their permission for the same. The vessel arrival clearance is given to the ship owner, allowing them to perform berthing, harbour marine activities, and cargo loading and unloading

	Step 5	After procedures are complete, the ship owner can seek departure clearance online and receive a confirmation along with the granting of port clearance. The system enables the MSW stakeholders to monitor the vessel's status in real time

2.3 Stakeholder wise Documents, Systems & Services Exchanged

The following section discusses the documents that are exchanged between stakeholders during the MSW process.

| Service/ Process Name	Stakeholders Involved	Documents Exchanged
Vessel Arrival Info	Ship Owner/ Shipping Agent/ Port/ Customs/ Immigration/ Regulatory Authorities	Notice of Arrival
Vessel Registration	Ship Owner/ Shipping Agent/ Port	Vessel Certificates
Voyage Registration	Ship Owner/ Shipping Agent/ Port	SSR (Ship Stay Reference) number Allotment
Import Manifest	Ship Owner/ Shipping Agent/ Customs	Manifest File
FAL Forms	Ship Owner/ Shipping Agent/ Customs/ Port Health/ Immigration/ Maritime Authority/ Regulatory Authorities	IMO Standard FAL Forms Waste Notification Security Notification
FAL Certificates	Ship Owner/ Shipping Agent/ Customs/ Port Health/ Immigration/ Maritime Authority/ Regulatory Authorities	IMO Standard Vessel Certificates
Vessel Arrival Clearance	Ship Owner/ Shipping Agent/ Customs/ Port	
Departure Clearance	Ship Owner/ Shipping Agent/ Customs/ Port	Port Clearance
Track & Trace	MSW Stakeholders	

3   MSW Solution Overview

This part focuses on the stakeholders who are linked to the MSW portal as well as the business benefits tied to stakeholders as per the definitions provided by IMO. It also covers the important features and functionalities that are applicable for MSW.

3.1   Module Overview

This section provides an overview of the key components, attributes, technologies, and participants in the MSW system. The below functional overview diagram illustrates that the MSW consists of an environment whereby stakeholders can perform various documentation processes and obtain the confirmation from the system. The system will be developed using the most recent technology, be open to integration, and provide a single login for all stakeholders.
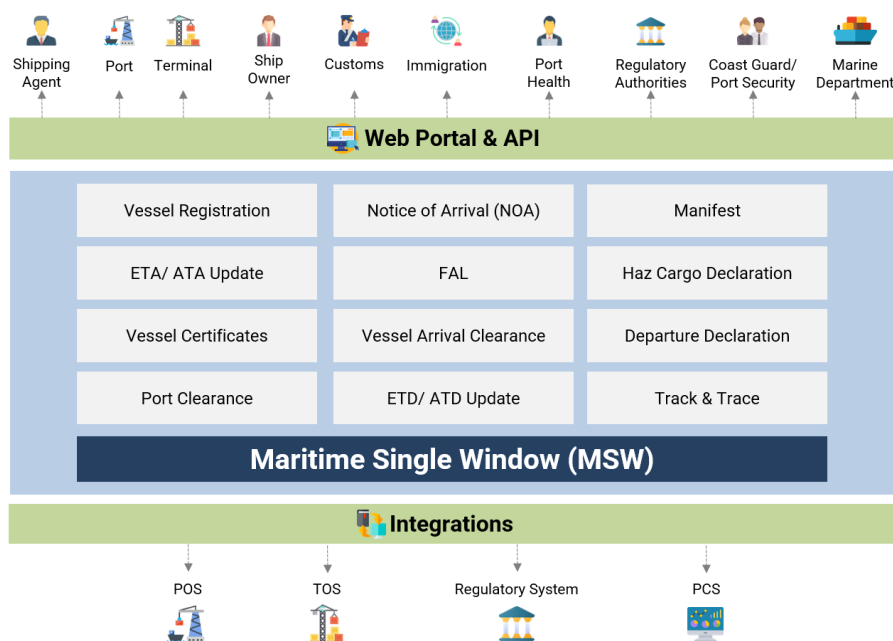
The following sections explain the MSW system's distinctive functional capabilities:

Functions	Features
Notice of Arrival (NOA)	Provision to submit e-Notice of Arrival (Vessel) to multiple stakeholders like - Ports, Customs, Immigration, PHO, and Regulatory agencies.
Vessel Registration	Provisions for Shipping Line Agent to capture vessel particulars, submit vessel, voyage registration to Port, and obtain the Ship Stay Reference (SSR) number.
FAL	Digitally submission of IMO complied FAL forms and certificates to Ports, Customs, Immigration, PHO and Regulatory agencies and obtain e-approvals.

Vessel Clearance	Obtaining vessel clearance from multiple agencies such as Ports (No Dues), Customs (Arrival Clearance, Departure Clearance, Port Clearance), PHO, and other regulatory agencies.
Arrival/ Departure Information	Provision to update and view timely information about ETA (Estimate Time of Arrival), ATA (Actual Time of Arrival), ETD (Estimate Time of Departure) & ATD (Actual Time of Departure).
Manifest	Ability to upload or generate import & export manifest files and files it with the Customs Authority digitally.
Track & Trace	End-to-end tracking of vessel operations on various milestones like - Arrival at Anchorage, Navigation Chanel movement, Berthing, Shifting, Sailing, etc.
Integration	Ability to integrate the MSW data information with MSW stakeholder's systems via API, FTP Folder Mechanism etc.

3.2 Business Benefits to MSW Stakeholders

IMO Objectives	Benefits
Ensuring crew and cargo safety	Minimizing incidents at the ports with advance information sharing
Unaffected Global Supply Chains	Ports can remain fully operational during public health emergency to ensure complete functionality of global supply chains
Data Harmonization	As this MSW-service will be fully compliant with the IMO data Reference Model, designed and developed by the Expert Group on Data Harmonization within the IMO, the MSW-service will bring about greater harmonization and better sharing of the relevant data across governmental systems, bringing meaningful gains to all parties involved in cross-border trade
Combat Illegal Trade	Prevention and suppression of the smuggling of wildlife and cargo theft on ships from mislaid, mislabelled containers.
Malpractices associated with ship-shore interface	Auto-System clearance leading to faster no manual approvals. It can enhance the availability and handling of information, thereby simplifying and expediting information flows between trade and Government

4 Next Steps

This section covers the following implementation strategy that is recommended for successful implementation to convert current reporting and vessel clearance processes into a maritime single window.

4.1 Implementation Guidelines

This section outlines the approaches and procedures for implementing a maritime single window, which should consider the following high-level steps into account:

|	
Step 1: The needs of all stakeholders	The procedures for data harmonization and document streamlining require the connection and participation of all stakeholders. This strategy ensures that all needs are effectively met in the resulting Maritime Single Window by giving equal weight to each individual requirement.
Step 2: Identify Legacy System & Data Harmonization	To carry out their necessary processes, several stakeholders and regulatory bodies may already have ICT systems in place. These may gradually be merged into the Single Window system after existing side by side for a while. The data requirements and message exchange methods should be as closely synchronized as feasible during such transitional stages. There should be every effort made to prevent service interruptions. The Single Window system should build on the experiences of these legacy systems.
Step 3: Identify Lead Agency	Depending on organizational, political, and legal considerations, different countries may have different agencies that are best suited to lead the development of an MSW. For the lead agency to be able to coordinate all vessel clearance and reporting procedures, there needs to be a clear government mandate. It must be a very powerful group, yet also not too numerous for guaranteeing implementation and decision efficiency, with the required political support, legal standing, and vision. Because of their crucial roles and the information and documents they collect, customs or port authorities may occasionally be the organization best placed to lead the creation and implementation of an MSW.
Step 4: Technical Project Management	The establishment of an MSW Project Management Group is strongly advised in order to ensure the success, sustainability, and continued improvement of the MSW facilities. The group should adhere to the methodologies advised from a technical standpoint to implement a single window, such as setting up project plans, analysing As-Is, To-Be, and GAP processes, designing systems and services, implementing and testing the service, operating, and maintaining the system.
Step 5: KPI	Key performance indicators based on the characteristics outlined for a single window environment should be used to evaluate the implementation and operation of an MSW to

	determine how well it fulfils its goals. When evaluating the development, implementation, and success of the MSW in accomplishing the set objectives, the key performance indicators should be utilized in conjunction with the characteristics.
Step 6: Post Implementation Challenges	When a Single Window is implemented, a number of challenges remain few of which are: Getting all the stakeholders and procedures on board, achieving KPIs, using effective international standards dealing with regulatory changes, dealing with the advancement of technology, etc. Monitoring the MSW is therefore important to address issues and enhance overall effectiveness.

4.2 Proof of Concept (PoC) Service

It is advised to begin with a PoC because implementing the complete project can be challenging, time-consuming, and involve numerous stakeholders. A proof of concept is a small project that is used to validate technical & functional ideas including integration, technology, and processes. The intention is to evaluate the idea's viability and confirm the underlying presumptions.

A Proof of Concept (PoC) can be a crucial tool to show the software's capabilities and its compatibility with the stakeholder's needs. A successful proof of concept (PoC) connects expectations and reality. It is not only the ideal technique to explain features, functions, and benefits, but it also makes sure that the finished product meets the MSW user's expectations. The following flow outlines the processes required for setting up an MSW Proof of Concept based on prior experience.

| Step 1	Set up an objective and project plan
Step 2	Identify the scope of work and stakeholders
Step 3	Analyse business and business process and map it with the current system
Step 4	Document the requirement gap & derive improvement measures
Step 5	Define services, design user interface, and test the desired implemented features
Step 6	Conduct workshop and provide user training & training documents
Step 7	System release and transactions monitoring
Step 8	POC sign off and submit MSW KPI analysis document
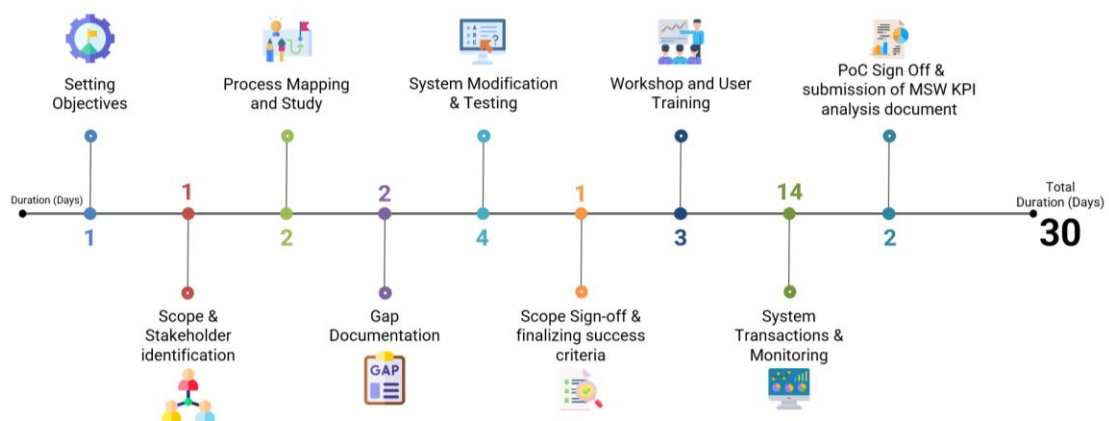
To avail or to know more about the Proof of Concept (POC) services, you can contact the following vendors, who are listed in Annex 3.

5   Annexes

5.1   Annex 1: MSW Process Flow

This section contains the detailed process flow diagram that explains in-depth understanding of MSW, key stakeholders involved in the process and the documents exchanged between the relevant stakeholders.
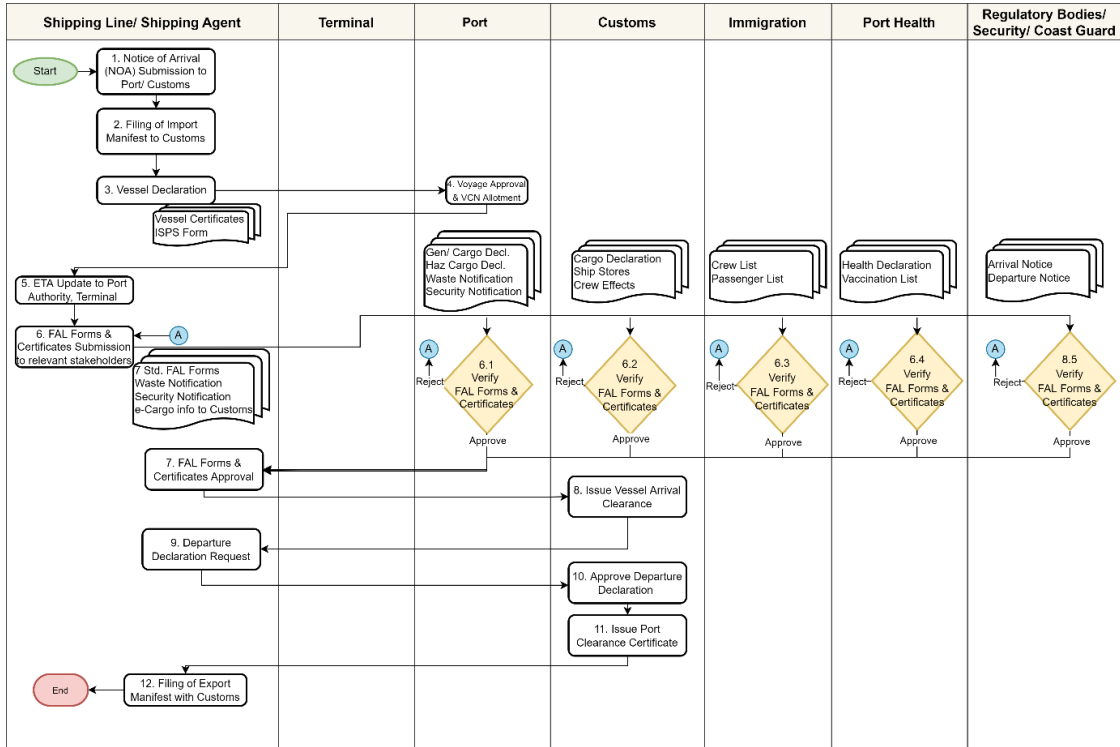
5.2 Annex 2: Journey from MSW to PCS

This section explains the stakeholders about the difference between MSW & PCS. Maritime Single Window (MSW) under the overall aegis of the Port Community System (PCS) is a web-based solution to enable stakeholders to come together on a single platform. It enables seamless exchange of information, to exchange vessel stay, arrival and departure information with each other including regulatory agencies.

MSW concentrates on FAL Forms, Certificates, & EDI Messages, as well as the Vessel Declaration, Notice of Arrival, Manifest, Arrival & Departure Clearance, as shown in the image below. PCS, on the other hand, focuses on both port and landside operations. Key modules of PCS include MSW modules along with Delivery Order, Truck Slot Management, e-Verified Gross Mass, Container Release Order, Ocean Schedules & Pricing, Berth Management, Gate Management, Shipping Instructions & BL, Container Scanning and Auction & Disposal.
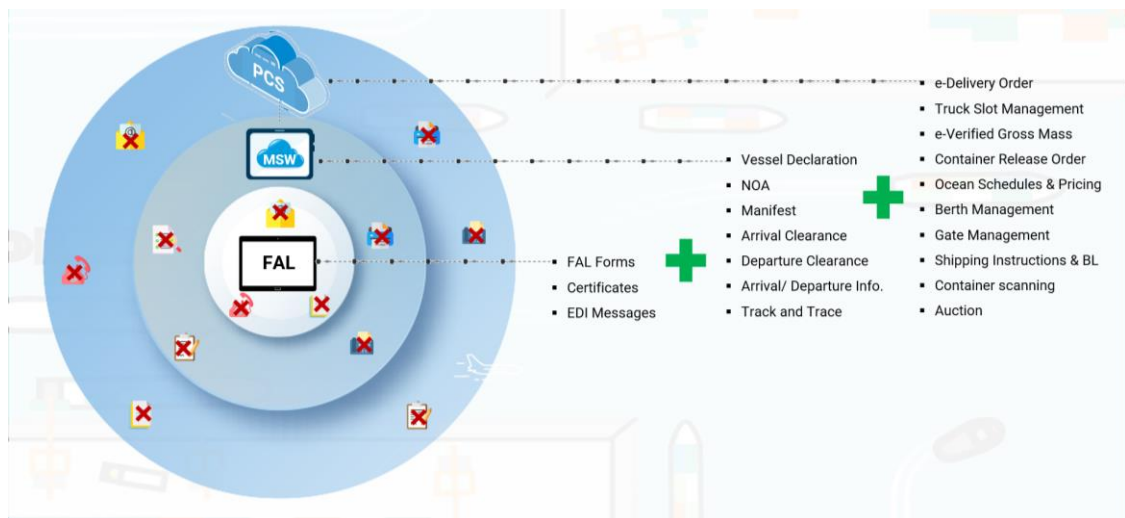
5.3 Annex 3: PoC Providers

This section contains the list of MSW service providers that are offering Proof of Concept (PoC) services:

5.3.1 Kale Logistics Solutions Private Limited

Kale Logistics Solutions is trusted global IT solutions partner for several Fortune 500 companies worldwide, offering a comprehensive and award-winning suite of IT solutions for the Logistics Industry. With in-depth domain knowledge and technical expertise, Kale are the Leading Provider of Operational and Community Integration Solutions to the Government, Maritime, Aviation & Logistics Industry. Kale's broad solution spectrum ranges from 'Internal Business Automation Systems' to 'Community Platforms' that help various players in the logistics value chain from shipper to consignee; to communicate and transact with each other electronically.

✓ **Value System:**

Kale works with a vision to empower & integrate all stakeholders of the logistics value chain to enable, accelerate and facilitate global trade. The organization works passionately with a mission to create innovative digital technology platforms that help the stakeholders of the logistics industry interact with each other digitally and automate their own businesses. We accomplish this through our deep and focused understanding of the global logistics industry and a strong empathy towards the customer.

✓ **Community Solutions:**

Designed to help Various players in the regulatory and logistics value chain to communicate and transact with each other electronically. Following are the solutions provided under this category:

- Maritime Single Window
- Port community System
- Air Cargo community System
- Logistics e-market place

✓ **Enterprise Solutions:**

Designed with the aim of automating the internal business processes of Logistics Service providers and users. Following are the solutions provided under this category:

- Galaxy – Airport cargo management system
- Corvi – Freight Management System
- Canopus- Custom clearance management

✓ **Kale's Maritime Single Window (MSW):**

Kale Logistics Solutions' MSW is designed and built as per the guidelines on IMO. A highly scalable system enables public authorities to combine or coordinate the electronic transmission of the data to ensure that information is submitted or provided only once and reused to the maximum extent possible.

The platform connects Shipping Line Agents, Ports, Customs, Immigration, Port Health Authorities, Coast Guards/VTS, Maritime Authorities, and other Regulatory Authorities in a single window to exchange seamless information. This MSW is applicable to Vessels under Cruise, Containerised, Bulk, Break-bulk, Liquid, and Fishery. It enables seamless exchange of information, to exchange vessel stay, arrival, departure, and maritime information with each other including regulatory agencies. With multiple stakeholders engaged in the marine supply chain, the platform shall be a tech-enabler and provide the required functionalities to connect on a single platform.