MARKET INSIGHTS

IMO will develop global strategy for maritime digitisation

During the latest sessions of the IMO's Facilitation Committee (FAL), held in March 2025 during its 49th session, a work plan was developed to draft the IMO's strategy on maritime digitalization, which is expected to be adopted by the Organization's highest governing body by the end of 2027.

This cross-cutting strategy will encompass various areas of the IMO's work, promoting a fully interconnected, harmonized, and automated global maritime sector. In the words of the IMO Secretary-General: "The IMO's Maritime Digitalization Strategy is a game-changing effort to realize seamless, smart, and efficient shipping. It will help integrate ships and ports, enhance logistics, and optimize routes, while also reducing greenhouse gas emissions. We must work together to ensure the strategy serves us all."

Towards a global maritime digitalization strategy

In the complex machinery of **international maritime trade**, the **facilitation** of **port and administrative procedures** plays a **fundamental role** in ensuring the **efficiency, safety, and sustainability** of operations. Indeed, the **digitalization of maritime transport** has emerged as a **strategic priority** in the pursuit of a smoother, more transparent, and more resilient global logistics model. In this context, the **International Maritime Organization (IMO)** is taking on renewed **leadership** to support **Member States** in this **transition,** positioning **digital transformation** as a **key pillar** of the future of maritime transport.

To this end, the **IMO's Facilitation Committee** (FAL) serves as the **technical body** responsible for **leading efforts** to **simplify** and **harmonize procedures** related to **maritime traffic**. Since its **establishment in 1961**, following the adoption of the **Convention on the Facilitation of International Maritime Traffic (FAL Convention)**, the Committee has focused its work on **reducing documentary** and **operational barriers** that hinder trade fluidity. Its activities are structured around several **key objectives:**

- Simplify and standardize international maritime documentation.
- Promote the use of digital technologies, such as electronic data interchange (EDI).
- Improve interoperability between systems; foster cooperation among states and authorities; and enhance efficiency without compromising safety.
- Protect the human rights of seafarers.

In line with these objectives, during its 49th session held in March 2025, **the Facilitation Committee** approved the development of an ambitious **global strategy for maritime digitalization**, which is expected to be adopted by the **IMO's** highest governing body by **the end** of **2027.** This strategy represents a key step in aligning global regulatory policies with emerging technological challenges, logistical efficiency goals, and international sustainability commitments—consistent with the **Sustainable**

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Development Goals (SDGs), particularly SDG 9 **(Industry, Innovation and Infrastructure),** SDG 13 **(Climate Action),** and SDG 17 **(Partnerships for the Goals).** In this sense, maritime digitalization not only aims to modernize operational and port management processes but also to strengthen the resilience of the global maritime system, promote emission reductions, and enhance international cooperation through interoperable platforms and common regulatory frameworks.

The **strategy proposal**, still under **development,** is **cross-cutting and inclusive** in nature. It covers **multiple areas** of the IMO's mandate, ranging from **documentation facilitation** to **digital interoperability between ships, ports, and authorities**. Its central objective is to foster a fully **interconnected, harmonized, and automated** global maritime sector capable of responding flexibly and efficiently to the evolving challenges of international trade.

At a more concrete level, during the same **49th session of the Facilitation Committee**, several key **initiatives were approved** to support this digital transition:

- **Updated Compendium on Facilitation and Electronic Business**: Incorporates an expanded set of standardized data elements to enhance interoperability between digital systems used by shipping companies, ports, and authorities.
- **New Guidelines for the Maritime Single Window (MSW)**: Introduces automated verification functions, reduces manual burdens, and eliminates redundant checks between administrations.
- **Specific Cybersecurity Framework for MSWs**: Initiates the design of a technical scheme to protect critical digital infrastructure from cyber threats, ensuring data integrity and availability.
- **Joint Guidelines on Electronic Certificates**: Technical guidance was adopted in collaboration with other IMO committees (MEPC, MSC, and LEG) to advance international recognition of digital documents in the maritime sector.

As the IMO Secretary-General stated during the opening of the FAL Committee sessions: *"The IMO's Maritime Digitalization Strategy is a game-changing effort. Achieving seamless, smart, and efficient shipping requires vision, cooperation, and commitment. This roadmap will allow us to integrate ships and ports, improve logistics, and optimize routes, while reducing emissions at the same time. We must work together to ensure this digital transformation is inclusive and benefits us all."*

The EMSWe in Europe and its implementation

In this context, one of the **most impactful regulatory developments** has been the **entry into force,** in August 2025, of **Regulation (EU) 2019/1239**, which establishes the **mandatory implementation of the EMSWe.** This regulation **requires Member States** to **ensure** the **harmonized electronic exchange of information** related to **ships calling at their ports**, through the implementation of national maritime single windows (National Single Windows, NSWs) that are interconnected and share a common architecture.

The EMSWe **serves** as the **common technical and legal framework** for the **efficient transmission** of **data** between **shipping companies, maritime agents, and competent authorities such as customs, port authorities, health services, border control, and environmental agencies**. Its main objective is to simplify and harmonize reporting procedures, eliminate redundancies, reduce administrative burdens, and improve interoperability between national systems. To visually illustrate how the EMSWe functions and how information flows between the various actors — including port authorities, customs, and other relevant administrations — a diagram provided by the European Maritime Safety Agency is presented below.

|Ilustration 1. EMSWe operation and information flow
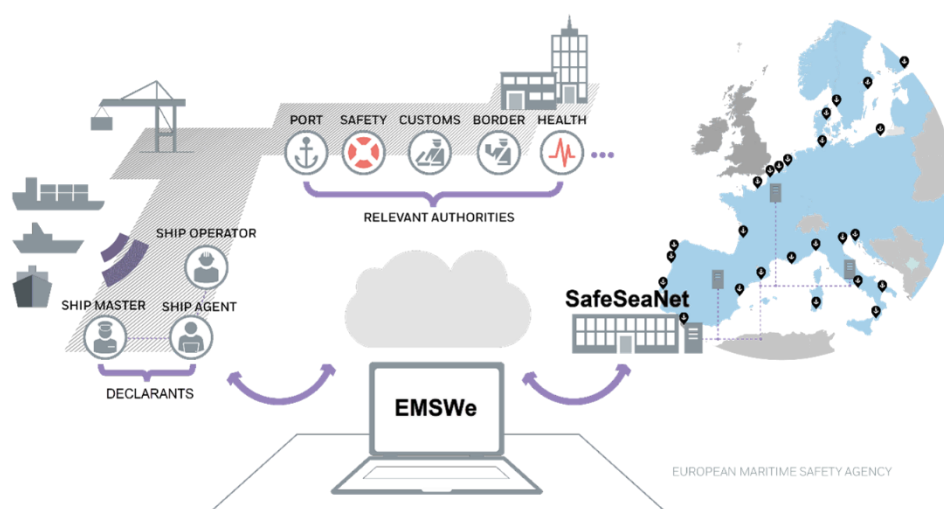
Source: European Maritime Safety Agency (EMSA)

The EMSWe **covers** a **total** of **60 types of procedures, grouped into three main categories: obligations arising from European Union legislative acts**—such as maritime safety notifications, environmental protection, or customs procedures; **requirements linked to international instruments**—such as the FAL forms of the International Maritime Organization (IMO); and national provisions that each Member State adapts **according to its specific legal framework.**

The **European Commission**, **through the Directorate-General for Mobility and Transport (DG MOVE), the Directorate-General for Taxation and Customs Union** (DG TAXUD), **the Directorate-General for Informatics** (DIGIT), and **the European Maritime Safety Agency** (EMSA), has **worked extensively to harmonize** the content and **reception of these procedures**. Nevertheless, legal and operational differences among Member States have led to variations in the data requested and in the technical implementation of each national system.

Spain: adaptation of DUEPORT and the SEMAS-EMSWe project

To comply with this new regulation, **each Member State** has **designated** a **national authority responsible** for its **maritime single window**. In **Spain's case**, the designated entity is **Puertos del Estado**, which is currently working on adapting the existing single window system (DUEPORT) to the EMSWe environment. Although the Regulation sets August 2025 as the deadline for full implementation, a gradual rollout is expected, potentially reaching completion by the end of 2026.

Since the beginning of this process, **Fundación Valenciaport** has **closely monitored regulatory developments** and **actively participated** in **European Commission working groups**, **representing the Port Authority of Valencia** through the **European Sea Ports Organisation** (ESPO)**.** In 2024, Fundación Valenciaport also **assumed coordination of the European project SEMAS-EMSWe** (*Smart European Maritime Space through the EMSWe*), one of the most ambitious initiatives currently underway to facilitate the technical and operational implementation of the EMSWe.

This project, **funded with €29.8 million** through the **Connecting Europe Facility (CEF)** programme, brings together the national maritime single window authorities of seven countries: **Spain, Slovenia, Finland, the Netherlands, Italy, Portugal, and Sweden**. With a modular and multi-level approach, SEMAS-EMSWe **involves** both the **design of national technical specifications** and the **integration of common EU IT components,** such as the **Reporting Interface Module** (RIM), the **User Registration and Access Management system** (URAM), and the **Common Addressing Service** (CAS).

It also **includes** the **connection** with **systems of competent authorities** and **port service providers**, along with **specific actions on training**, **technical assistance, and communication**. The implementation of this digital environment represents a **deep operational transformation,** bringing **tangible benefits** such as reduced administrative burdens, improved data traceability, better logistical coordination, and reduced environmental impact. However, it also presents **significant challenges**, such as the **need to ensure technical interoperability, overcome national regulatory differences, manage implementation costs, and strengthen cybersecurity.** In this context, digital resilience emerges as a key factor in ensuring the stability and continuity of port operations under the new digital model.

Thanks to the leadership of projects like SEMAS-EMSWe and strong institutional commitment to innovation, the Spanish port system is not only progressing toward EMSWe compliance, but also positioning itself as a benchmark in the maritime digital transformation process at both European and international levels.

International overview of Maritime Single Windows

At this point, it is worth highlighting that the push toward the digitalization of maritime transport is not exclusive to the European sphere. **Globally, numerous countries** and **regions** are **implementing their own maritime single window platforms** as part of a structural transformation aimed at improving the efficiency, transparency, traceability, sustainability, and resilience of international trade.

This trend, driven by technological convergence and the evolution of regulatory frameworks, is shaping an increasingly **interconnected, data-driven port ecosystem.**

One of the most prominent cases is **Singapore**, a global leader in port innovation. Its **MSW** platform, fully operational for several years, enables integrated digital management of port calls, customs declarations, environmental permits, maritime health, and coordination of port services. Based on principles of automation, usability, and interoperability, it facilitates information exchange between more than 20 public and private agencies through a secure, open technological architecture.

In the **Asia-Pacific region**, other countries are also advancing in this direction. **South Korea** has developed **uPort**, a national digital platform connecting port authorities, shipping companies, customs, and inspection agencies, which is already operational and expanding. **Japan**, for its part, is modernizing its port network through the **Port and Harbour Information System**, incorporating emerging technologies such as blockchain and predictive analytics, in a project still under development.

In **Latin America**, notable initiatives include **Chile's VUMAR system**, fully operational and achieving significant improvements in efficiency and document control, and **Panama's Maritime Single Window (VUMPA)**, which unifies maritime traffic, health inspection, and immigration procedures into a single digital platform. In **Brazil**, the **Porto Sem Papel** initiative has eliminated physical documentation in numerous procedures, though its implementation continues to evolve to cover all ports in the country.

Argentina has developed the **Argentine Maritime Single Window (VUMA)**, a digital platform that centralizes vessel entry and exit procedures, with the progressive integration of various state agencies such as the Naval Prefecture, Customs, Border Health, and Immigration. Its implementation has significantly reduced processing times and improved interagency coordination, though it remains in a phase of consolidation and functional expansion.

In **Africa**, the situation is varied. **Morocco** has the **PortNet** system, fully operational and recognized as a model for digital customs and port management. In contrast, many **Sub-Saharan African** countries are still in **pilot phases** of digitalization, supported by **technical assistance** from **multilateral organizations**.

In this regard, international organizations play a **key role** as catalysts of change. The **United Nations Conference on Trade and Development (UNCTAD)**, through its **ASYCUDA** program, **supports more than 100 countries** in **developing electronic customs** and **port management systems**. In parallel, the **World Customs Organization (WCO)** and the **OECD** promote initiatives for regulatory harmonization and global standards for logistical efficiency, aligned with the **WTO Trade Facilitation Agreement (TFA)**.

The following table presents a summary of the main international initiatives, their technological focus, main objectives, and current implementation status:

|Table 1. Major international maritime single window initiatives: technologies, objectives and level of implementation

Region / Country	Name of the Iniciative / Plataform	Key Technologies / Approaches Main Objective	Principal objective	Implementation Status
Singapure	Maritime Single Window (MSW)	Automation, interoperability, single platform	Efficiency, centralisation of procedures	Operative
South Korea	uPort	Interconnection with customs and maritime control	Logistics optimisation	Operational / expanding
Japan	Port and Harbour Information System	Blockchain, predictive analytics	Technological modernisation	In development
Chile	SISCOMEX	Documentary interoperability, customs digitisation	Reduction of processing times	Operative
Panama	Panama Maritime Single Window (VUMPA)	Comprehensive platform with migration and health modules	Consolidation as a logistics hub	Operative
Brazil	Porto Sem Papel	Paperless, national platform	Administrative simplification	Operational / evolving
Morocco	PortNet	Digital customs and port management	Improving foreign trade	Operative
Argentina	Argentine Maritime Single Window (VUMA)	Inter-institutional integration, single digital platform	Streamlining procedures and state coordination	In consolidation
Sub-Saharian Africa	Various pilot projects	Technical support for digitisation	Institutional strengthening	In pilot phase
Multilateral (UNCTAD)	ASYCUDA	Electronic customs systems, interoperability	Support to developing countries	Multi-country operations
Multilateral (OMA / OCDE)	Standards and harmonisation programmes (TFA, OECD, etc.)	Global standards, document harmonisation	Global trade facilitation	Progressive implementation

Source: own elaboration based on information from official bodies (EMSA, UNCTAD, WCO, OECD, PortNet, Maritime and Port Authority of Singapore, national Ministries of Transport, among others).

Conclusions and global priorities

All of this leaves no doubt that the **digitalization of maritime transport** is becoming a **key tool** for **modernizing international trade**, **improving operational efficiency**, and **enhancing sustainability**. This process, already well underway in Europe and many other parts of the world, is not a passing trend or a mere technical adjustment: it is a structural transformation that is redefining how ports, shipping companies, authorities, and services linked to maritime traffic interact.

International examples — from Singapore to Panama, including Morocco and Chile — highlight that while the **paths taken may differ**, the **goals** are shared: **simplifying procedures, reducing time and costs, strengthening traceability, and ensuring safer and more coordinated operations.** And if these experiences show one thing, it's that the **success** of this digital transition depends not **only on technology**, but also on **institutional cooperation**, **strategic vision**, and **the willingness to change**.

The strategy led by the IMO, along with frameworks like EMSWe in Europe and the SEMAS program coordinated by Fundación Valenciaport, are clear examples of this collective effort. However, there is still work to be done. It will **be essential to continue advancing regulatory harmonization**, ensuring system interoperability, strengthening cybersecurity, and—above all—supporting organizations through this transition.

Because ultimately, **digitalizing maritime transport** is not just about deploying new platforms or automating procedures. It is, above all, about **building** a **more connected, agile, and resilient global logistics model**, one that is prepared for both present and future challenges. And that is a challenge that can only be met through shared **commitment, institutional responsibility, and international collaboration.**

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