

The European strategy in maritime safety and for the development of sustainable ports and logistics*

L'approccio europeo sulla sicurezza marittima e per garantire uno sviluppo portuale e logistico sostenibile

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Abstract [ENG]: This paper examines the EU port strategy for sustainable port and logistics development, with particular attention to the digitalisation and innovation of ports, also in light of the new legislative provisions on the use of alternative fuels and on-shore power supply (OPS) or zero-emission technologies in ports. It also highlights the English legislative framework on the development of Vessel Traffic Services (VTS) in the areas of maritime safety, navigational efficiency, and protection of the marine environment.

Abstract [ITA]: In questo lavoro si esamina la strategia portuale dell'UE per uno sviluppo portuale e logistico sostenibile che presta attenzione alla digitalizzazione e innovazione dei porti anche alla luce delle nuove disposizioni legislative sull'impiego di combustibili alternativi e sulle infrastrutture di alimentazione a terra (OPS) o sulla tecnologia a emissioni zero nei porti. Viene messo in evidenza, inoltre, il quadro legislativo inglese sullo sviluppo dei servizi di traffico marittimo (VTS) in materia di sicurezza marittima, efficienza della navigazione e protezione dell'ambiente marino.

Keywords: European port strategy – Vessel Traffic Services – maritime safety – on-shore power supply (OPS) – port marine safety

Parole chiave: Strategia portuale dell'UE – Controllo del Traffico Marittimo – alimentazione elettrica da terra (OPS) – sicurezza marittima dei porti

SUMMARY: 1. Introductory remarks on rationalization of EU ports and logistics: The European Port Strategy. – 2. The European Maritime Safety Strategy. – 3. Port marine safety legislation in England. – 3.1. Vessel Traffic Services (VTS).

1. Introductory remarks on rationalization of EU ports and logistics: The European Port Strategy.

European Parliament on its Resolution of 17 January 2024 concerning the development of a comprehensive European port strategy¹ underlines the crucial role, the UE Green Deal preserves to ports in the energy transition process, as they are vital for achieving the EU's climate objectives acting as nodes in transport systems supporting the decarbonisation.

In order to achieve its goal of reducing greenhouse gas emissions the EU put in place legislation adopting incentives and financial support schemes for the need of investment in renewable sources, which is increased², and for the development of transport infrastructures. In order to give financial

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¹ See European Parliament resolution of 17 January 2024 on building a comprehensive European port strategy (2023/2059(INI)).

² European Parliament resolution of 17 January 2024 on building a comprehensive European port strategy (2023/2059(INI)) states that by 2030, the EU aims to import 10 million tonnes of green hydrogen and for that purpose a comprehensive strategy on importation, coordination, and infrastructure development should be established promptly as

assistance to Member States for the development of critical infrastructures for the role they play in the energy transition as nodes in the multimodal transport, such as in ports and terminals the European Union has adopted³ Regulation (EU) 2021/1056, in force since 1st July 2021, establishing the Just Transition Fund (JTF). The JTF which assists regions and people to address the social, employment, economic and environmental impacts of the transition, including decarbonisation of the local transport sector and its infrastructure is in line with the principles and the strategic objectives established with the Fund Package set up by Regulation EU 2021/1060⁴.

Investments for sustainable maritime infrastructures are covered as well by Regulation (EU) 2021/523, establishing the InvestEU Programme⁵ which prioritises areas with needs of additional investment. InvestEU Programme works in synergy with other relevant Union programmes in areas such as transport, energy and digitisation and contributes to Union policies through the development of projects and enterprises also in the blue economy with investments in the area of maritime entrepreneurship and industry for an innovative and competitive maritime industry and for the deployment of renewable marine energy⁶.

European Port Strategy emphasizes the demand for a cooperation between the trans-European transport network and the trans-European energy network. The requirements for the development of the trans-European transport network⁷ are set up by the TEN-T Regulation (EU) 2024/1679 of the European Parliament and of the Council of 13 June 2024 as part of the European Green Deal⁸ for a smart and sustainable mobility that is neutral for the climate⁹. TEN-T network is a unique system of infrastructures across EU that comprises railways, inland waterways, short sea shipping routes and roads linking urban nodes, maritime and inland ports, airports and terminals.

Furthermore, EU's Port Strategy is in line with the Alternative Fuels Infrastructure Regulation (UE) 2023/1804¹⁰ (AFIR), in force since 13 April 2024, which sets up mandatory national targets for the deployment of sufficient alternative fuels infrastructure in the Union¹¹ for road vehicles, trains, vessels and stationary aircraft¹² and with focus on innovation, digitalisation and adaptation of ports and ships as they should be able to support the deployment of shore-side electricity supply at both inland and maritime ports. In order to accomplish its purposes, AFIR Regulation requests by each Member State to prepare by 31 December 2025 a national policy framework which should be transmitted to the Commission. This document will cover the national strategy for the advancement

it is essential for the Port Strategy.

³ Regulation (EU) 2021/1056 of the European Parliament and of the Council of 24 June 2021 establishing the Just Transition Fund, *OJ L 231*, 30.6.2021, p. 1–20.

⁴ Regulation (EU) 2021/1060 of the European Parliament and of the Council of 24 June 2021 laying down common provisions on the European Regional Development Fund, the European Social Fund Plus, the Cohesion Fund, the Just Transition Fund and the European Maritime, Fisheries and Aquaculture Fund and financial rules for those and for the Asylum, Migration and Integration Fund, the Internal Security Fund and the Instrument for Financial Support for Border Management and Visa Policy, *GU L 231 del 30.6.2021*, p. 159–706.

⁵ Regulation (EU) 2021/523 of the European Parliament and of the Council of 24 March 2021, establishing the InvestEU Programme and amending Regulation (EU) 2015/1017, *GU L 107 del 26.3.2021*, p. 30–89.

⁶ P. L. SANCHEZ-GONZALEZ, D. DIAZ-GUTIÉRREZ, T. J. LEO, L. R. NÚÑEZ-RIVAS, *Toward Digitalization of Maritime Transport?* in *Sensors*, 2019, Volume 19(4), 926; T. HOCKSELL, *Regulatory Approaches to Carbon Dioxide Usage and Storage in the European Union*, in *Carbon and Climate Law Review*, 2023, Volume 2, 76–86.

⁷ Regulation (EU) 2024/1679 of the European Parliament and of the Council of 13 June 2024 on Union guidelines for the development of the trans-European transport network, amending Regulations (EU) 2021/1153 and (EU) No 913/2010 and repealing Regulation (EU) No 1315/2013 (Text with EEA relevance).

⁸ European Parliament resolution of 15 January 2020 on the European Green Deal (2019/2956(RSP)) (2021/C 270/01).

⁹ Cfr. EU Focus 2022, 411, 43–44, *New transport proposals target greater efficiency and more sustainable travel*; EU Focus 2023, 429, 40–42, *New proposals to support clean and modern shipping*, Sweet & Maxwell and its Contributors.

¹⁰ Regulation (EU) 2023/1804 of the European Parliament and of the Council of 13 September 2023 on the deployment of alternative fuels infrastructure, and repealing Directive 2014/94/EU.

¹¹ Key “Fit for 55” legislation adopted (Legislative Comment), in *EU Focus* 2023, 433, 11–12.

¹² Art. 1, Reg. (UE) 2023/1804.

of the market on the production and use of alternative fuels in the transport sector and on the deployment of the relevant infrastructure (art. 14).

AFIR Regulation invites Member States to provide a minimum shore-side electricity supply by 2030 for seagoing container ships and seagoing passenger ships in TEN-T maritime ports that experience high traffic of such ships throughout a year¹³ with further distinction to the group of seagoing passenger ships between seagoing ro-ro and seagoing high-speed passenger crafts. These vessel types¹⁴ are the primary contributors to shipping carbon dioxide emissions while they are moored at the quayside and a minimum shore-side electricity supply should be ensured by 2030 (Art. 9, 10 Reg. AFIR). They should use onshore power supply unless they can demonstrate the use of an alternative zero-emission technology, other than OPS, which is demonstrated to be equivalent to the use of OPS¹⁵. With regard to the obligation to connect to onshore power supply Article 6(5) lists some exceptions with some of them to be related to the conditions at berth in the port of call, i.e. incompatibility between port and ship OPS equipment, unavailable OPS connection in the port, lack of sufficient power supplied from OPS.

Combined with the obligation related to ports to provide on-shore power supply (OPS) in order to supply electricity to ships at berth¹⁶, there is an associated and equivalent duty related to ships to connect to on-shore power supply (OPS) infrastructure or zero-emission technology in ports under the jurisdiction of a Member State as provided in Art. 1 (b) of Regulation *Fuel EU Maritime* (UE) 2023/1805¹⁷. In addition, ships have as well a specific duty with regard to the limit on the greenhouse gas (GHG) intensity of energy used on board¹⁸ and in case of non-compliance, penalties will be imposed, following expulsion from ports, flag detentions, and potentially restricted access to ports in multiple Member States, if they do not comply with the penalties.

Moreover, companies should make available to the verifiers, who are independent entities¹⁹, accurate, complete and reliable data on the GHG emission intensity²⁰, on the sustainability characteristics of fuels and on the use of OPS. The competent authority of the administering State may conduct additional checks on the compliance of the ships with the provisions of *Fuel EU Maritime* Regulation and in case of non-conformities or inaccuracies shall notify to the company

¹³ Art. 9, 10 Reg. (UE) 2023/1804 [AFIR] states that Member States should provide a minimum shore-side electricity supply by 2030 in TEN-T maritime ports for which the annual number of port calls of ships that are moored at the quayside, averaged over the last three years, by seagoing container ships is above 100 or by seagoing passenger ships is above 40.

¹⁴ According to IMO's data collection system container ships and bulk carriers, together with oil tankers are the primary contributors to shipping carbon dioxide emissions.

¹⁵ L. ZHU, X. LI, ST. LI, *Examining existing measures for regulating shipping decarbonisation and exploring the way forward*, in *Journal of International Maritime Law*, 2022, Volume 28, Issue 2, 106–115; B. GARCÍA, A. FOERSTER, J. LIN, *Net Zero for the International Shipping Sector? An Analysis of the Implementation and Regulatory Challenges of the IMO Strategy on Reduction of GHG Emissions*, in *Journal of Environmental Law*, 2021, Volume 33(1), 85–112.

¹⁶ According to Art. 3 (24) Reg. *Fuel EU Maritime* (UE) 2023/1805 “On-shore power supply” (OPS) means the system to supply electricity to ships at berth, at low or high voltage, alternate or direct current, including ship-side and port-side installations, when feeding directly the ship main distribution switchboard for powering hotel and service workloads or charging secondary batteries.

¹⁷ Regulation (EU) 2023/1805 of the European Parliament and of the Council of 13 September 2023 on the use of renewable and low-carbon fuels in maritime transport, and amending Directive 2009/16/EC.

¹⁸ H. K. JESWANI, *Environmental sustainability of biofuels: a review*, in *Proceedings of the Royal Society A*, Vol. 476, 2020, 3. EU Focus 2022, 411, 43–44, *New transport proposals target greater efficiency and more sustainable travel*; EU Focus 2023, *op.cit.*; *New proposals to support clean and modern shipping*, *op.cit.*; B. BEHDANI, B. WIEGMANS, V. ROSO, H. HARALAMBIDIS, *Port-hinterland transport and logistics: emerging trends and frontier research*, in *Maritime Economics & Logistics*, Volume 22, 2020, 1.

¹⁹ Art. 10, para 3, Reg. (UE) 2023/1805 (*ReFuel Maritime*).

²⁰ See Articles 4 & 5 Reg. (UE) 2023/1805 (*ReFuel Maritime Initiative*) where an upper limit is set for the GHG content of the energy used by ship operators and it extends in principle to all ships with a gross tonnage of more than 5,000 calling at European ports in accordance with Article 2 *Fuel EU Maritime* and is addressed to EU and non-EU registered cargo and passenger vessels equally.

concerned the corresponding amount of the FuelEU penalty. The relevant FuelEU document of compliance will be issued by the competent authority only when the FuelEU penalty has been paid and all the other conditions set out in Regulation are fulfilled by the company²¹. In order to keep a record of the verification activities will be operational an electronic database²² which will be accessible to the companies, the verifiers and to any authorised entity, with responsibilities for the implementation of the FuelEU Maritime Regulation.

Lastly, the profits from FuelEU penalties according to Article 23, par. 11, FuelEU Maritime Regulation should be used to accelerate the uptake and the use of renewable and low-carbon fuels in the maritime sector with the support of the most innovative technologies and to promote the development of appropriate bunkering facilities or OPS infrastructure in ports.

With regard to digitalisation in ports and logistics the European Parliament recently adopted the Regulation (EU) 2022/858 of the European Parliament and of the Council of 30 May 2022²³ establishing the legal framework on existing or new market infrastructures permitted to use distributed ledger technology (DLT) in a simplified framework for trading²⁴. The European Union encourages and supports these technologies as they can facilitate the monitoring of the origin of goods and their components, improve transparency, visibility and compliance checking, thus they can reduce the risk of illegal goods entering the supply chain²⁵. Through blockchain technology, indeed, the different components of the supply chain can trace the course of the transactions and monitor the status of shipments and their payments in a way that reduces the possibility of error and at the same time can save time and charges due to the absence of intermediaries.

Port operations comprise a large number of bills of lading, customs declarations and permits, cargo information and plenty of other papers related to the shipping with a serious risk of falsification or transmission of erroneous or inaccurate information which could delay the course of action²⁶. Blockchain technology is coming to ensure secure and transparent transactions for trade documentation, customs clearance, and supply chain management. Furthermore, it can be used as a tool to ensure consumer protection and to improve the efficiency of customs officers for counterfeit checking as it guarantees the traceability of all documents and information in real time²⁷.

Moreover, is proved that cyberattacks have inconsiderable impact on these technologies due to their structure so it provides reassurance to all the parties involved²⁸ also in terms of transparency and security against fraudulent actions.

Blockchain technology makes available all the information of the operations to the parties in the transaction by handing over the digitalization and dematerialization of the companies or organizations

²¹ Art. 17, para 3, Reg. (UE) 2023/1805 (*ReFuel Maritime*).

²² Article 19, (UE) 2023/1805 (*ReFuel Maritime*).

²³ Regulation (EU) 2022/858 of the European Parliament and of the Council of 30 May 2022 on a pilot regime for market infrastructures based on distributed ledger technology, and amending Regulations (EU) No 600/2014 and (EU) No 909/2014 and Directive 2014/65/EU, in force since 23 march 2023 also known as *DLT Pilot regime*.

²⁴ For extensive reading on blockchain see: P. TODD, *Electronic bills of lading, blockchains and smart contracts*, in *International Journal of Law and Information Technology*, 2020, Volume 27(4), 339-371; T. KREBBS, *Electronic bills of lading, transnational and English law: blocking the blockchain?*, in *Uniform Law Review*, 2023, Volume 28, Issue 3-4, 323-338; S. TSIULIN, K. H. REINAU, O. P. HILMOLA, N. GORYAEV, A. KARAM, *Blockchain-Based Applications in Shipping and Port Management: A Literature Review towards Defining Key Conceptual Frameworks*, in *Review of International Business and Strategy*, 2020, Volume 30(2), 201-224.

²⁵ G. BAVASSANO, C. FERRARI, A. TEL, *Blockchain: How Shipping Industry is Dealing with the Ultimate Technological Leap*, in *Research in Transportation Business & Management*, 2020, Volume 34, 1.

²⁶ J. HERD, *Blocks of Lading' Distributed Ledger Technology and the Disruption of Sea Carriage Regulation*, *QUT Law review*, 2019, Volume 18, Issue 2, spec. 315; D. TARSCOTT, T. ALEX, *Blockchain Revolution: How the Technology Behind Bitcoin and Other Cryptocurrencies is changing the World*, London, 2016, spec. 241.

²⁷ P. L. SANCHEZ-GONZALEZ, D. DIAZ-GUTIÉRREZ, T. J. LEO, L. R. NÚÑEZ-RIVAS, *Toward Digitalization of Maritime Transport?*, in *Sensors*, 2019, Volume 19(4), 926.

²⁸ See T. TODD, op. cit.; T. KREBBS, op. cit.

involved and for this role has been proved crucial in the realization of smart ports²⁹.

2. The European Maritime Safety Strategy.

The European Union besides the guidelines on the digitalisation in ports and logistics³⁰ and on the reduction of GHG emission³¹ with considerable investments on innovative technologies for the production and use of sustainable fuels sector, is taking action also in the field of safety and security. The sustainability transition along with the low and zero GHG technologies and fuels requires as well the reduction of the overall maritime transport's impact on the marine environment.

The European Commission on 1 June 2023 with a Communication³² called "*Maritime safety: at the heart of clean and modern shipping*" aimed to revise the legal framework on maritime safety and sustainability with the review of the relevant legislation relating to: a) Directive (EU) 2024/3100³³ of the European Parliament and of the Council of 27 November 2024 amending Directive 2009/21/EC on compliance with flag State.; b) Directive (EU) 2024/3099³⁴ of the European Parliament and of the Council of 27 November 2024 amending Directive 2009/16/EC on port State control; c) Directive (EU) 2024/3017³⁵ of the European Parliament and of the Council of 27 November 2024 amending Directive 2009/18/EC establishing the fundamental principles governing the investigation of accidents in the maritime transport sector; d) Directive (EU) 2024/3101³⁶ of the European Parliament and of the Council of 27 November 2024 amending Directive 2005/35/EC as regards ship-source pollution and on the introduction of administrative penalties for infringements³⁷. These four directives

²⁹ Two ports that have been demonstrated to be a tangible example of smart ports are Antwerp port and Rotterdam port as they are working to transition to renewable energy sources, hoping to get entirely electrified. Also, thanks to their digitalization, they can receive autonomous ships. Taking into consideration these two ports we can affirm that the objective of a smart port is accomplished with the simplification and digitalization of logistics and, more particularly, when ports use digital tools to enhance the efficiency in cargo handling and port traffic management and systems for monitoring emissions, and security of port operations. See: A. BASU BAL, *The generative carriage of goods*, in *Journal of International Maritime Law*, 2023, Volume 29(2), 92–118; V. KHAN, J. LEE, *Blockchain and energy commodity markets: legal issues and impact on sustainability*, in *Journal of World Energy Law and Business*, 2022, Volume 15(6), 462; E. GANNE, *Can Blockchain Revolutionize International Trade?*, Geneva, 2018.

³⁰ See P. L. SANCHEZ-GONZALEZ, D. DIAZ-GUTIÉRREZ, T. J. LEO, L. R. NÚÑEZ-RIVAS, *Toward Digitalization of Maritime Transport?* in *Sensors*, 2019, Volume 19(4), 926; G. BAVASSANO, C. FERRARI, A. TEL, *Blockchain: How Shipping Industry is Dealing with the Ultimate Technological Leap*, in *Research in Transportation Business & Management*, 2020, Volume 34, 1.

³¹ T. HOCKSELL, *Regulatory Approaches to Carbon Dioxide Usage and Storage in the European Union*, in *Carbon and Climate Law Review*, 2023, Volume 2, 76-86; L. ZHU, X. LI, ST. LI, *Examining existing measures for regulating shipping decarbonisation and exploring the way forward*, in *Journal of International Maritime Law*, 2022, Volume 28, Issue 2, 106–115.

³² Communication from the Commission to the European Parliament, the Council, the European Economic Committee of the regions, "*Maritime safety: at the heart of clean and modern shipping*" (01.06.2023).

³³ On 1 June 2023, the Commission adopted a proposal for a directive amending Directive 2009/21/EC and the final act Directive (EU) 2024/3100 of the European Parliament and of the Council of 27 November 2024 amending Directive 2009/21/EC on compliance with flag State requirements, *OJ L*, 2024/3100, 16.12.2024, was adopted.

³⁴ Directive (EU) 2024/3099 of the European Parliament and of the Council of 27 November 2024 amending Directive 2009/16/EC on port State control, *OJ L*, 2024/3099, 16.12.2024.

³⁵ Directive (EU) 2024/3017 of the European Parliament and of the Council of 27 November 2024 amending Directive 2009/18/EC of the European Parliament and of the Council establishing the fundamental principles governing the investigation of accidents in the maritime transport sector and repealing Commission Regulation (EU) No 1286/2011, *OJ L*, 2024/3017, 6.12.2024.

³⁶ Directive (EU) 2024/3101 of the European Parliament and of the Council of 27 November 2024 amending Directive 2005/35/EC as regards ship-source pollution and on the introduction of administrative penalties for infringements, *OJ L*, 2024/3101, 16.12.2024.

³⁷ Directive (EU) 2024/3101 of the European Parliament and of the Council of 27 November 2024 amending Directive 2005/35/EC as regards ship-source pollution and on the introduction of administrative penalties for infringements, *OJ L*, 2024/3101, 16.12.2024

were adopted by the Council in November 2024 whilst e) Regulation (EC) No 1406/2002 establishing the European Maritime Safety Agency is currently under revision in areas such as **maritime safety, pollution prevention, digitalisation and decarbonisation**.

Directive (EU) 2024/3100 on flag State requirements aims to enhance safety and to prevent pollution from ships flying the flag of a Member State (Article 1, para 1) and applies to the administration of such Member State in respect of ships engaged in international voyages (Article 2). Introduces an improved framework of ships' inspections and an advanced monitoring of their performance. In addition, introduces the use of the database for assessing a ship's seaworthiness and compliance with regulations before it can operate, ensuring it meets safety and operational standards.

The flag State must ensure that the ship flying its flag holds all required certifications in compliance with all applicable international regulations. According to Art. 4a of Directive (EU) 2024/3100 with regard to international shipping, Member States should apply the mandatory flag State-related provisions and take all necessary measures to ensure full adherence to international norms and standards under the Conventions by ships entitled to fly their flag. They should secure that every ship is inspected at least once every 5 years and that in case corrective measures are needed, these should be guaranteed and rectified within an appropriate timeframe, to be determined by the flag State.

Furthermore, Directive (EU) 2024/3100 in Art. 4c requires competency-related training aimed to ensure that the personnel responsible for performing surveys, flag State inspections, and verifications of ships and companies meets specific standards. To this purpose the European Commission, with the assistance of the European Maritime Safety Agency (EMSA) and the cooperation with Member States, shall organise, relevant training activities for flag State inspectors and flag State surveyors.

Likewise, a secondary safety system should be offered from port State control officers with inspections of foreign-flagged ships in port to ensure they meet international maritime regulations. This reinforced system of prevention will contribute to avoid accident or illegal activities from happening and ultimately to prevent the loss of human life and environmental pollution.

The Directive (EU) 2024/3099 on port State control was adopted on 27 November 2024 as part of the EU maritime safety package. It sets out rules on the system for port State control inspections in order to verify whether the crew certifications and the maintenance of the ship's equipment and system comply with the requirements of international conventions on the safety of life at sea, on the protection of the marine environment and on living and working conditions on ships of all flags.

The Directive aims to harmonize the EU legislation with the international policies and guidelines, set by the IMO, the International Labour Organization or the Paris Memorandum of Understanding on port State control signed on 26 January 1982 (the "Paris MoU")³⁸. In the revised Directive the system for prioritizing which ships to inspect is also being enhanced. Inspections should be carried out by at least two port State control inspectors and should be duly recorded any reason (unexpected or overriding factor or objective reasons such as limited staff, problems of accessibility, etc.) for which the inspection is not taking place.

Moreover, Directive places greater emphasis to pollution prevention performance, and compliance with environmental regulations. These terms highlight how a ship's operational practices, maintenance, and adherence to environmental standards³⁹ influence its overall risk assessment.

³⁸ See n. (2), (3), (4) of Directive (EU) 2024/3099 where is stated that Paris Memorandum of Understanding on port State control signed on 26 January 1982 (the "Paris MoU") has been changed and therefore, the new international regulatory environment has been considered, in particular in the Paris MoU and the International Maritime Organisation (IMO) as well as the technological developments. Also a number of international conventions have been ratified by the Member States and have entered into force since 2011. Those are the International Convention for the Control and Management of Ships' Ballast Water and Sediments adopted on 13 February 2004 (the "BWM Convention") and the Nairobi International Convention on the Removal of Wrecks adopted on 18 May 2007 (the "Nairobi Convention").

³⁹ See Article 9 (c) of Directive (EU) 2024/3099: Environmental parameters shall be based on the number of deficiencies relating to Marpol 73/78, AFS 2001, the BWM Convention, CLC 92, the Bunkers Convention, 2001, the Nairobi

Since Port State control imposes new inspection requirements, determined by the new EU provisions or by international practices and standards, there is therefore a need to ensure the development of the training of port State control officers. That will allow port state control authorities, regarding port calls by ships, to ensure they meet international safety and security standards on maritime safety and security, on protection of the marine environment and on living and working conditions on-board.

Another aspect in which Directive pays attention is the digitalisation⁴⁰ and the technological progress in the area of data collection and communication, with the aim of cost reduction and enhancing workforce productivity. Also, port State control should make greater use of electronic certificates⁴¹, which are planning to increase in the coming years allowing more efficient inspections.

The directive's scope is also modified with regard to fishing vessels⁴² of above 24 metres in length in a way that can be inspected from the port State control of Member States that wish to carry out these inspections⁴³. It is provided that a separate module for the existing inspection database should be developed⁴⁴ and the Commission, in cooperation with the State signatories to the Paris MoU, may adopt guidelines establishing the detailed arrangements for such a parallel and separate specific port State control regime for those fishing vessel.

A report on the implementation of the Directive should be submitted every five years with the first to take place by 6 July 2032 subject to further amendments on the basis of the outcomes of the report⁴⁵.

3. Port marine safety legislation in England: Vessel Traffic Services (VTS).

In England, vessel traffic service (VTS) is regulated by the Vessel Traffic Monitoring and Reporting Regulations 2004. This is the Statutory Notice by which the national competent authority for VTS and the Maritime and Coastguard Agency (MCA), regulates VTS. These instructions are the United Kingdom implementation of the European Parliament and Council Directive 2002/59/EC (as amended by 2009/17/EC)⁴⁶, establishing a Community vessel traffic monitoring and information

Convention and the Hong Kong Convention in accordance with Annex I, Part I.3, and Annex II.

⁴⁰ See P. L. SANCHEZ-GONZALEZ, D. DIAZ-GUTIÉRREZ, T. J. LEO, L. R. NÚÑEZ-RIVAS, *Toward Digitalization of Maritime Transport?* in *Sensors*, 2019, Volume 19(4), 926; G. BAVASSANO, C. FERRARI, A. TEL, *Blockchain: How Shipping Industry is Dealing with the Ultimate Technological Leap*, in *Research in Transportation Business & Management*, 2020, Volume 34, 1.

⁴¹ See Article 24a of Directive (EU) 2024/3099: The Commission shall, in close cooperation with the Member States, adopt implementing acts laying down the functional and technical specifications for a validation tool for electronic statutory certificates. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 31(2).

⁴² See International agreements and conventions in fisheries: The Cape Town Agreement of 2012 on the Implementation of the Provisions of the 1993 Protocol relating to the Torremolinos International Convention for the Safety of Fishing Vessels, 1977 (the "Cape Town Agreement"), the International Labour Organisation Convention 188 on Work in Fishing of 2007 and the International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel of 1995 (STCW-F).

⁴³ Article 3, para 4 of Directive (EU) 2024/3099 states: Fishing vessels of less than 24 metres in length, warships, naval auxiliaries, wooden ships of a primitive build, government ships used for non-commercial purposes and pleasure yachts not engaged in trade shall be excluded from the scope of this Directive. For the purposes of this Directive, a fishing vessel's length shall be determined in accordance with the Cape Town Agreement of 2012 on the Implementation of the Provisions of the 1993 Protocol relating to the Torremolinos International Convention for the Safety of Fishing Vessels, 1977.

⁴⁴ Article 3, (b) is inserted of Directive (EU) 2024/3099.

⁴⁵ Article 35, Directive (EU) 2024/3099 of the European Parliament and of the Council of 27 November 2024 amending Directive 2009/16/EC on port State control.

⁴⁶ Directive 2009/17/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2002/59/EC establishing a Community vessel traffic monitoring and information system, OJ L 131, 28.5.2009, 101–113. Directive 2009/17/EC (SafeSeaNet) aimed to improve the framework legal conditions concerning places of refuge for ships in distress and to further develop SafeSeaNet.

system, (SafeSeaNet) aimed to improve the framework legal conditions concerning places of refuge for ships in distress and to further develop SafeSeaNet. These provisions are published also by the UK Hydrographic Office and included in the VTS World Guide.

The Harbours Act of 1964, Section 20, establishes port authorities' orders for securing the safe and uninterrupted movement of ships in their respective areas. A "control of movement" order contains provisions for a number of matters including the relevant harbour's VTS service and the person specified (usually the Harbour Master) to give directions to ships within the harbour and within its approaches, for securing that they move only along specified routes and within specified period of times.

In addition to the Harbours Act, most UK ports have specific supplemental legislation for their individual port authority. The Port of London Act, 1968⁴⁷, for example, provides for navigation of vessels in the Thames and also gives powers to the Harbour Master for "special directions" to any specific vessel. In addition, with regard to London, are published the General Directions for Navigation which requires from vessels to report to the ports' Vessel Traffic Services (VTS) and to comply with the directions given from the VTS⁴⁸.

To mitigate risk, enhance vessel safety and to protect the environment Port Authorities establish VTS and the service must conform to IMO international and national standards and shall operate by personnel trained properly. The VTS must be designated as such by the National Competent Authority for VTS and vessels that enter a port authority's VTS area, operated in accordance with the IMO guidelines, must comply with the rules of that service.

The Port Marine Safety Code⁴⁹ was created following the grounding of the vessel "Sea Empress" in 1996⁵⁰. Such Code sets the National standard for port marine safety and applies to Statutory Harbour Authorities, and all other organisations operating marine facilities in order to enhance safety for everyone who uses or works in the port marine environment.

Vessel Traffic System (VTS) aims to ensure safety of life at sea, safety and efficiency of navigation, and to protect the marine environment, together with the adjacent shore areas and offshore installations from the probable challenging and difficult conditions of the maritime traffic. In Europe, the first sign as regards the monitor and track of navigation of ships emerged during the World War Two with the development of radar⁵¹ when the coastal authority was keeping track of the shipping traffic which was clearly an innovation⁵².

⁴⁷ See Port of London Act, 1968 as amended: the <https://pla.co.uk/sites/default/files/2024-02/portoflondonact1968consolidationjan2014.pdf>

⁴⁸ The Duty Port Controller in the Port of London Authority Thames Navigation Service has the full delegated responsibility of the Harbour Master. Port of London Authority (PLA), *London port Handbook*, in *Navigation*, 2017. See also S. TSIULIN, K. H. REINAU, O. P. HILMOLA, N. GORYAEV, A. KARAM, op. cit.

⁴⁹ The Code has been revised at least every three years; the latest version published in November 2016.

⁵⁰ Sea Empress, Wales, UK, 1996, Incident, the oil tanker SEA EMPRESS, carrying 130,000 tonnes of Forties Blend North Sea crude oil, ran aground in the entrance to Milford Haven, South-West Wales on the evening of 15th February 1996. See: <https://www.gov.uk/maib-reports/grounding-of-oil-tanker-sea-empress-in-the-approaches-to-milford-haven-wales-and-the-subsequent-salvage-operation>

⁵¹ The first example of Vessel Traffic Management (VTS) was inaugurated with the world's first traffic surveillance radar in Liverpool England (VHF) in July 1948, designed to facilitate port operations in order to guarantee marine safety. See: I. MCGEOCH, *Secondary radar for Vessel Traffic Services*, in *The Journal of Navigation*, 1985, Volume 38(1), 81-84; T. DEGRÉ, *The Management of marine traffic. A survey of current and possible future measures*, in *The Journal of Navigation*, 1995, Volume 48(1), 53-69. See also B. BEHDANI, B. WIEGMANS, V. ROSO, H. HARALAMBIDIS, *Port-hinterland transport and logistics: emerging trends and frontier research*, in *Maritime Economics & Logistics*, 2020, Volume 22, 1; K. R. MACK, *Navigating the Waters: A Comparative Analysis of Vessel GHG Emissions Regulations Under the Clean Air Act and MARPOL*, in *Tulane Maritime Law Journal*, Forthcoming, 2024, Volume 48, 269.

⁵² The Liverpool example was followed by other English ports such as Halifax, Southampton and London and by other ports in the rest of Europe, in particular: Le Havre, Rotterdam, Amsterdam, Hamburg and Breme. In UK the biggest ports with VTS are the following: Dover, Forth; Harwich; Humber; Liverpool; London; Milford Haven; Southampton; Sullom Voe; Tees; Devonport; Portsmouth. London VTS operates from two state of the art VTS Centres located at the Port

The presence of Vessel Traffic Systems in the English ports satisfies the unique features of every location, as regards either their regulation or their planning and organization with some of them to aimed to achieve the best traffic management, to make safe the transport of dangerous substances within the port or to ensure safety of life at sea and safety and efficiency of navigation. The most important Vessel Traffic System is the London VTS and the *Channel Navigation Information Service* in Dover straight crossings.

The Port Control London Centre, has been established in 1959 and is considered one of the most sophisticated and versatile VTS worldwide and operates from two VTS Centres located at the *Port Control Centre* in Gravesend and at the *Thames Barrier Navigation Centre* in Woolwich.

Port Control London Centre is distinguished for its continuous revision and improvement at technological level as it uses e-business technologies with the extensive use of a system called PACE that holds all the information about ships' manifests whilst POLARIS (Port of London Authority River Information System)⁵³ handles requests for pilots at particular points on the river⁵⁴.

The *Port of London Authority* Vessel Traffic Service (VTS) manages and oversees safety of navigation in one of the largest and the most diverse VTS areas in the UK with large vessels to make their way into and out of the Port of London every year, including cruise ships, containers ships, roll on – roll off ferries, tankers, bulkers and general cargo ships. To coordinate and control all this traffic, and to ensure navigational safety and efficiency the VTS team must work within complex parameters, including berth availability, pilotage and towage. All UK Port Authorities should comply with the Port Marine Safety Code (PMSC), establishing national standards for every aspect of port marine safety and covers all marine facilities, berths and terminals.

Dover Channel Navigation Information Service (CNIS) is another coastal vessel traffic information service, which is established in 1972⁵⁵ and deals with traffic passing through the Dover Strait and supports HM Coastguard in promoting safety of life at sea and improving counter-pollution measures.

4. Conclusive remarks.

The European Union with its strategies in Ports and Maritime Safety aims to address maritime security challenges with legislation that offers guidelines in areas like digitalisation with technological progress in data collection and communication and with greater use of electronic certificates allowing more efficient inspections of ships in EU ports.

Furthermore, is taking action in the field of safety and sustainability with the review of relevant legislation in areas such as pollution prevention, energy transition, investment and financial support. The legal framework aims to harmonize the EU legislation with the international policies and strategies, set by the IMO, the International Labour Organization or the Paris Memorandum of Understanding offering a multilayer safety system to ensure they meet international maritime regulations. This reinforced system of prevention will contribute to avoid accident or illegal activities from happening and ultimately to prevent the loss of human life and environmental pollution.

Control Centre in Gravesend and at the Thames Barrier Navigation Centre in Woolwich.

⁵³ T. HUGHES, *Vessel Traffic Services (VTS), are we ready for new millennium?* in *The Journal of Navigation*, 1998, Volume 51(3), 404-420.

⁵⁴ Port of London Authority (PLA), *London port Handbook*, in *Navigation*, 2017.

⁵⁵ L. CUYVERS, *The strait of Dover, International Straits of the world*, Boston, 1986, spec. 55; H. J. NEILL, *The Channel Navigation Information Service for Dover Strait*, in *The Journal of Navigation*, 1990, Volume 43(3), spec. 339; A. H. GRIFFITHS, *The Channel Navigation Information Service*, in *The Journal of Navigation*, 1994, Volume 47(2), 117-120.