LEGAL APSECTS OF DIGITALISATION, E-NAVIGATION AND AUTOMATION UNDER THE PRESENT IWT LEGAL AND REGULATORY FRAMEWORK

INTRODUCTION: THE CONCEPT OF E-NAVIGATION

1. Maritime and Inland Waterway transport are the backbone of trade and communications within and beyond the EU single market. IWT is mainly concentrated on the Rhine river basin, encompassing not only the Rhine, but also the affluents and confluents (Main, Meuse, Moselle, Neckar, Scheldt), the common Rhin-Meuse-Scheldt delta and the so-called intermediary waterways such as the Rhine-Scheldt connection and the canal from Ghent to Terneuzen. Other inland waterways frequently used for IWT are the Danube and its tributaries, the Main-Danube Canal, the Elbe and the Oder. Thirteen out of twenty-seven Member States have interconnected waterway networks: Austria, Belgium, Bulgaria, Croatia, Czechia, Germany, France, Hungary, Luxembourg, the Netherlands, Poland, Romania and Slovakia. Maritime and inland navigation vessels ([1]) meet each other in the estuaries of rivers and the ports alongside of them. Some smaller maritime vessels however have the ability to navigate further inland. Some of the inland waterways, such as the Danube and the Scheldt, are far inland navigable for maritime vessels. On the other hand, so-called estuary vessels, from a legal point of view qualified as inland vessels, are allowed to operate on a small strip of the territorial sea. All these vessels make use of the same inland waterways infrastructure, despite many differences there are obviously also a lot of similarities. Given the common use of the same infrastructure, it is useful to make a comparison of the yet existing legal framework of maritime and inland navigation relative to informatics solutions and in a broader context e-navigation within the EU-R area (EU and Swiss part of the Rhine).

2. The concept of e-navigation was first brought to the attention by the IMO at the eighty-first session of the Maritime Safety Committee (MSC) in 2006 and defined as *"the harmonized collection, integration, exchange, presentation and analysis of marine information on board and ashore by electronic means to enhance berth to berth navigation and related services for safety and security at sea and protection of the marine environment."* (NCSR 1/9 2014) ([2]). E-navigation is intended to meet present and future user needs of shipping through harmonization of marine navigation systems and supporting shore services. It is expected to provide digital information and infrastructure for the benefit of maritime safety, security and protection of the marine environment, reducing the administrative burden and increasing the efficiency of maritime trade and transport. E-navigation may be seen as a kind of highly efficient network for collaboration, with the integration of intelligent driving, navigation, communications and other functions, to secure a high level of integrity in its application on the shore and on the vessels ([3]).

[1] Neither under international law nor Union law there exists a general definition of maritime and inland vessels. The Court of Justice seems to make the distinction on the basis whether or not a vessel is constructed and built for navigation on the High Seas (C.J., 11 March 2020, Rensen Shipbuilding t. Inspecteur van de Belastingdienst, C-192/19, ECLI:EU:C:2020:194). Estuary vessels, who are not constructed nor built or navigation on the High Seas therefore are inland vessels. However when additional requirements are met these vessels can sail through territorial see. This is required by Belgian shipping law.

[2] See IMO website - https://www.imo.org/en/OurWork/Safety/Pages/eNavigation.aspx

[3] QIWEI CHEN, *The maritime Commons: Digital Repositoy of the World Maritime University. Study of the Research status on e-navigation*, Dalian, World Maritime University, 2015, 3.

3. E-navigation, although originally developed for maritime transport, obviously may also play a predominant role in the ongoing innovation process of the IWT sector. The e-Navigation strategy makes it possible to harmonise data transmission standards used by inland navigation authorities for the purpose of monitoring and strategic planning of the entire transport chain ([4]). The goal of the Digital Inland Navigation Area (DINA) concept, that was launched by the Commission some years ago, is the aim of further integrating and rationalizing the digital services related to IWT. In June 2021, the EC launched the NAIADES-III initiative, which sets a 35-point "Inland Navigation Action Plan 2021-2027" ([5]). Its two core objectives are to shift more cargo to Europe's rivers and canals and facilitate the transition to zero-emission barges by 2050 to boost the role of IWT in environmentally sustainable mobility and logistics systems. One of the eight NAIADES-III policy flagships aims to support the development, demonstration, and deployment of holistic, smart, and automated shipping concepts with a focus on the most promising applications in terms of feasibility and commercialisation, as well as in terms of environmental benefits. According to the EC by 2030, the European inland waterway network can and must be connected as much as possible – both physically and digitally – to other transport modes.

4. Furthermore, the 2018 Mannheim Declaration ([6]), adopted by the Central Commission for the Navigation of the Rhine (CCNR), emphasises that digitalisation contributes to the competitiveness, safety, and sustainability of the inland navigation sector. In 2022, the CCNR published a vision to support the harmonised development of automated navigation via a holistic and technologically neutral approach. 5 levels of automation were recognized: steering assistance and partial automation (levels 1-2), progressive delegation of tasks without intervention of the boatmaster (levels 3-4) and fully autonomous vessels implying independent command with no human involvement (level 5) ([7]). The fully automated and unmanned inland vessel (AV) has a completely automated operating system (AOS) which performs all tasks on board such as navigation and propulsion. The AOS integrates all scanners, devices, the automated engine room, automated docking stations, the automated helmsman, the on-board

[4] LISAJ, A., "Implementation of e-Navigation Strategies or RIS Centres Supporting Inland Navigation", *International Journal on Marine Navigation and Safety of Sea Transportation*, 2019, vol. 13, n° 1, 146. See also: PIANC, *PIANC-Smart Rivers 2017. E-navigation for Inland Waterways – WG 156*, 20.09.2017.

[5] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee of the Regions – Naiades III: Boosting future-proof European inland waterway transport, COM/2021/324final

[6] See points 5 and 6 of the Mannheim Declaration of 17 October 2018 (CCNR website): "5. WE call on the CCNR to press ahead with development of digitalisation, automation and other modern technologies, thereby contributing to the competitiveness, safety and sustainability of inland navigation; 6. WE wish to reinforce the role of inland navigation as an economically relevant means of transport with a high potential for development and innovation. WE therefore request the CCNR: … to accelerate the integration of inland navigation into digital and multimodal logistic chains."

[7] Besides the concept of fully unmanned vessels also the concept of vessels trains, with one fully manned leader *vessel* and several follower vessels that are unmanned. A "vessel train" may be defined as " a convoy of electronically or automatically controlled inland waterway vessels, where navigation is in the hands of one of these vessels or is carried out remotely." Many legal issues discussed in this paper with regard to unmanned vessels, also apply in the case of a vessel train.

bunkering system, automated cargo management system, and maintains communication with the shore control centre (SCC), locks, bridges, ports, terminals, other ships and authorities ([8]).

5. Finally, the European Green Deal, presented by the Commission on 11 December 2019 ([9]) requires sustainable, smart and resilient transport of goods and people ("aka mobility") and demands a full cooperation between the different transport modes to realize this objects. New transport patterns must emerge, according to which larger volumes of freight are carried jointly to their destination by the most efficient (combination of) modes ([10]). Information is a prerequisite for modal split realization ([11]). With a view to optimizing the whole transport chain and tackling the challenges defined in the green deal, in literature the concept of the Physical Internet was launched, based on the idea of synchromodal transport ([12]). Synchromodality is the efficient use of various modes of transport – road, rail, inland waterway, shortsea, ocean freight and air freight – along or combined, with a view to offering an optimal, flexible, sustainable and integrated supply chain solution for clients. Whereas intermodal transport emphasises the utilization of rail or waterborne transport capacity ([13]) in order to benefit from economies of scale and scope (the supply variety in transport modes) and to achieve lower transport costs and emissions, synchromodal transport aims at the integration and cooperation among transport services and modes, in order to give the service operators more possibilities to provide better transport alternatives (with improved reliability) to the shippers by utilizing multiple services of multiple modes ([14]).

6. Therefore synchromodality may be defined as "an evolution of inter- and co-modal transport concepts, were stakeholders of the transport chain actively interact within a cooperative network to flexibly plan transport processes and to be able to switch in real time between transport modes tailored to available resources" ([15]). Climate-neutral, resilient and intelligent synchromodal automated transport in 2050 is promoted by INE (Inland Navigation Europe) and DVW (De Vlaamse Waterweg) as a means in order to reach the ambitions of the Green Deal.

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[8] VERBERGHT, E./VAN HASSEL,E., The automated and unmanned inland vessel, *Journal of Physics: Conference Series*, nr. 1357, 2019, 2

[9] COM(2019) 640 final

[10] EC, White Paper Roadmap to a single European Transport Area) Towards a competitive and resource efficient transport system, COM(2011) 144final, point 19

[11] LANGENUS, M., DOOMS, A., HAEZENDONCK, E., NOTTEBOOM, T., VERBEKE, A., "Modal shift ambitions of large North-European Ports: a contract-theory perspective on the role of port managing bodies", *Maritime Transport Research*, 2022, nr. 3, 100049

[12] CREEMERS, P., "A new era for River Information Services" in *Proceedings of PIANC Smart Rivers 2022. Green Waterways and Sustainable Navigation*, Springer, 2022, (764-768), 765-766

[13] It may be recalled that on EU level the Combined Transport Directive (*Directive* 92/106/EEC) is the only s the only EU legal instrument directly targeting combined transport. The Commission will use its upcoming revision to fully integrate inland waterways as an essential component of intermodal transport. The existing regulatory framework should be turned into an effective tool to support multimodal freight operations involving rail, inland waterway transport and short-sea shipping (see: Naiades III, cited above - Flagship 2: Updating the EU's legal framework for intermodal transport to stimulate IWT).

[14] VAN DUIN, J.H.R./WARFFEMIUS,P.R./ALONS, K., *Synchromodal Transport: from Theory to Practice Case Study Port of Rotterdam: Identifying the Success/Fail Factors*, TRB 2019 Annual Meeting, p. 3

[15] HALLER, A., PFOSER, S., PUTZ, L.-M., SCHAUER, O, "Historical Evolution of Synchromodality: A First Step Towards the Vision of Physical Internet". *Proceedings of the Second Physical Internet Conference*, 6- 8 July 2015, Paris, France.

According to Working Group 125 of PIANC ([16]) synchromodality is: "The most efficient and appropriate transport solution in terms of sustainability, transport costs, duration and their reliability, in which the configuration of the transport chain is not static during transport, but is flexible, being able to adapt the mode of adequate transport according to the conditions in real time of infrastructure and capacity, through collaboration and the exchange of information in real time of all modes of transport, the terminal facilities and the actors involved in the transport logistics chain." It's a logistics concept which strives to increase the share of rail and IWT. Synchromodal planning of IWT requires information on the status of IWT infrastructure and real time traffic ([17]). In order to reach synchromodality a Common Framework for multi-modal digitalisation is a necessary instrument, formulating a shared goal, structuring the way in which the objective can be achieved and pointing out the necessary prerequisites ([18]).

I. THE PRESENT STATUS OF THE LEGAL FRAMEWORK FOR eIWT

7. Most important building block of the deployment of information and communication technologies for inland navigation on inland waterways yet is RIS ("River Information Services"). The concept of River Information Services (RIS) was first initiated within the European Union in 1998, the guidelines for RIS were developed by a PIANC working group established in 2002. Within the EU the legal framework for RIS is laid down in Directive 2005/44/EC ([19]) and four implementing regulations ([20]), and, as regards the principle, in art.

[16] Quoted by CREEMERS, *o.c.*, 764

[17] COM(2019) 640 final

[18] In this sense DVW/INE, Climate-neutral, resilient and intelligent synchro-modal automated transport in 2050. A Common Framework for Multi-modal Data-Sharing. Vision and Action Paper, p. 11

[19] Directive 2005/44/EC of the European Parliament and of the Council of 7 September 2005 on harmonised river information services (RIS) on inland waterways in the Community, *OJ*, L 255, 30.9.2005, p. 152–159 For comment on the Directive and its historical background, see also: REGNER, R., *Das Binnenschiffahrtsverkehrsrecht der EG*, Vienna/New York, Springer-Verlag, 2008, 279-302; Via Donau, *Handbuch der Donauschiffahrt*, 3de ed., Vienna, 2013, 126-132.

[20] Commission Regulation (EU) No 164/2010 of 25 January 2010 on the technical specifications for electronic ship reporting in inland navigation referred to in Article 5 of Directive 2005/44/EC of the European Parliament and of the Council on harmonised river information services (RIS) on inland waterways in the Community, *OJ*, L 57, 6.3.2010, p. 1–154 (repealed) defining the specifications for electronic ship reporting; Commission Regulation (EC) No 414/2007 of 13 March 2007 concerning the technical guidelines for the planning, implementation and operational use of river information services (RIS) referred to in Article 5 of Directive 2005/44/EC of the European Parliament and of the Council on harmonised river information services (RIS) on inland waterways in the Community, *OJ*, L 105, 23.4.2007, p. 1–34; Commission Regulation (EC) No 415/2007 of 13 March 2007 concerning the technical specifications for vessel tracking and tracing systems referred to in Article 5 of Directive 2005/44/EC of the European Parliament and of the Council on harmonised river information services (RIS) on inland waterways in the Community, *OJ*, L 105, 23.4.2007, p. 35–87; Commission Regulation (EC) No 416/2007 of 22 March 2007 concerning the technical specifications for Notices to Skippers as referred to in Article 5 of Directive 2005/44/EC of the European Parliament and of the Council on harmonised river information services (RIS) on inland waterways in the Community, *OJ*, L 105, 23.4.2007, p. 88–253. Art. 5.1 of the Directive provides that "In order to support RIS and to ensure the interoperability of these services as required by Article 4(2), the Commission shall define in accordance with paragraph 2 technical guidelines for the planning, implementation and operational use of the services (RIS guidelines) as well as technical specifications in particular in the following areas: (a) electronic chart display and information system for inland navigation (inland ECDIS); (b) electronic ship reporting; (c) notices to skippers; (d) vessel tracking and tracing systems; (e) comptability

15.3c) of the TEN-T Regulation. RIS mean "the harmonised information services to support traffic and transport management in inland navigation, including, wherever technically feasible, interfaces with other transport modes. RIS do not deal with internal commercial activities between one or more of the involved companies, but are open for interfacing with commercial activities" (art. 3a). RIS comprise services such as fairway information ([21]), traffic information ([22]), traffic management, calamity abatement support, information for transport management, statistics and customs services and waterway charges and port dues. Internal commercial operations between two or more private companies are not envisaged by the Directive. Directive (EU) 2016/1629 ([23]), the Rhine Shipping Examination Regulation (RheinSchUO) and the Commission Implementing Regulation (EU) 2019/1744 on technical specifications for electronic ship reporting in inland navigation and repealing Regulation (EU) No 164/2010 lay down the minimum set of hull data to be exchanged among vessel certification and RIS Authorities ([24]). The European Hull Data Base (EHDB) ([25]), provided for in art. 19 Directive (EU) 2016/1629 ([26]), facilitates the data exchange.

8. The scope of the Directive 2005/44/EC does not encompass all EU inland waterways, but only those of the Member States of class IV and above which are linked to a waterway of class IV or above of another Member State, including the ports on such waterways (art. 2.1) ([27]). The scope thus is defined more narrow than under art. 15.3 of the TEN-T Regulation encompassing the rivers, canals and lakes of the connected waterway network, without any restriction to waterways of class IV or above of a Member State linked to waterways of class IV or above of another Member State ([28]). The territorial scope covers the 13 Member States that form part of the interconnected waterways network. In the light of art. 1 ([29]) of the Directive, the scope is only to lay down a framework for further formation of technical requirements and specifications, for harmonised, interoperable and free available RIS on EU inland waterways, build on work carried

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of the equipment necessary for the use of RIS. The time-tables provided for under art. 5.2 of the Directive however could not be observed.

[21] 'fairway information' (art. 3b): "geographical, hydrological, and administrative information regarding the waterway (fairway). Fairway Information is one-way information: shore to ship or shore to office."

[22] Traffic information is subdivided in 'tactical traffic information' and 'strategic traffic information'. The first means: "information affecting immediate navigation decisions in the actual traffic situation and the close geographic surroundings" (art. 3c); the second one means: "information affecting the medium and long-term decisions of RIS users" (art. 3d)

[23] Directive (EU) 2016/1629 of the European Parliament and of the Council of 14 September 2016 laying down technical requirements for inland waterway vessels, amending Directive 2009/100/EC and repealing Directive 2006/87/EC, *OJ*, L 252 van 16.9.2016, p. 118–176

[24] Competent authorities need these data in particular to avoid assigning two ENIs (Unique European Identification Number) for one vessel, whereas RIS authorities need the data for several RIS applications, such as keeping lock diaries and preparing lock statistics (see preamble Directive 2013/49, point 3).

[25] The EHDB should in particular provide an option to verify the history of any pending applications for certificates and information on all valid certificates already issued to the craft in question. It is the task of the European Commission to keep up the database. By now more than 13.800 vessels are available in the database, representing around 80% of the European fleet.

[26] See also: the Annex to Commission Directive 2013/49/EU of 11 October 2013 amending Annex II to Directive 2006/87/EC of the European Parliament and of the Council laying down technical requirements for inland waterway vessels, *OJ*, L 272, 12.10.2013, p. 41–43. The directive requires the national authorities to update the datasets at a regular basis.

[27] Pursuant to art. 2.2 Member States may apply the Directive to inland waterways and inland ports not referred to in paragraph 1

[28] Classes of waterways based on the CEMT 1992 classification system

[29] In the view of REGNER, 290, art. 1 has but a programmatic character.

out in this field by relevant international organisations, such as the International Navigation Association (PIANC), the CCNR and the United Nations Economic Commission for Europe (UNECE) (art.1.2 juncto 4.1 in fine RIS Directive) ([30]). In the view of the EU the deployment of information and communication technologies on inland waterways helps to increase significantly the safety and efficiency of transport by inland waterway.

9. Pursuant to art. 4.1 and 4.2 Member States shall take the necessary measures to implement RIS on inland waterways falling within the scope of Article 2.2. and develop RIS in such a way that the RIS application is efficient, expandable and interoperable so as to interact with other RIS applications and, if possible, with systems for other modes of transport. It shall also provide interfaces to transport management systems and commercial activities. Whereas art. 4.1 and 4.2 lay down obligations imposing on the Member States to develop RIS on the said waterways, there is no obligation to make use of RIS. Art. 4.6 only provides that " Member States, if appropriate in cooperation with the Community, shall encourage boat masters, operators, agents or owners of vessels navigating on their inland waterways and shippers or owners of goods carried on board such vessels to fully profit from the services which are made available under this Directive ([31]). This, of course, does not hamper Member States to make the use of RIS mandatory on waterways situated on their territory.

10. As regards Rhine Navigation the CCNR adopted RIS resolutions and recommendations ([32]). Key stone of the Rhine navigation reporting system is the unique European Ships Identification Number, implemented by art. 2.18 Annex II Directive 2006/87/EC ([33]). With regard to the Flemish region the RIS Directive was implemented by a Decree of 19 December 2008 ([34]). In the Netherlands the provisions of the RIS Directive were integrated via the "Navigation Traffic Law" (Scheepvaartverkeerswet) in the "Governmental decree on reporting formalities and processing shipping data" (Besluit meldingsformaliteiten en gegevensverwerking scheepvaart) and the "Ministerial decree on shipping reporting obligations and communication" (Regeling

[30] See also point 3 of the preamble of Directive 2005/44/EC: "For safety reasons and in the interests of pan-European harmonisation, the content of such common requirements and technical specifications should build on work carried out in this field by relevant international organisations, such as the International Navigation Association (PIANC), the Central Commission for Navigation on the Rhine (CCNR) and the United Nations Economic Commission for Europe (UNECE)." As a consequence any legal conflict or conflict of interests between the EU and the CCNR is avoided, both institutions cooperating.

[31] Point 9 of the preamble of the directive notes that "(i)t should be the responsibility of the Member States, in cooperation with the Community, to encourage users to comply with the procedures and equipment requirements, taking into account the small and medium-sized structure of the companies of the inland navigation sector".

[32] See www.ccr-zkr.org/12040100. also CCNR., Standard for electronic reporting of inland navigation vessels, Annex II of Protocol 2006-II-23, edition April 2013, 24 April 2013

[33] Directive 2006/87/EC of the European Parliament and of the Council of 12 December 2006 laying down technical requirements for inland waterway vessels and repealing Council Directive 82/714/EEC

[34] Decreet van 19 december 2008 betreffende de River Information Services op de binnenwateren (Decree of 19 December 2008 regarding River Information Services on Inland Waterways), *B.S.*, 19 February 2009. See also: Besluit van 23 januari 2009 van de Vlaamse Regering tot uitvoering van het decreet van 19 december 2008 betreffende River Information Services op de binnenwateren (Ordinance of 23 January 2009 of the Flemish Government regarding the implementation of the decree of 19 December 2008 regarding River Information Services on inland waterways), *B.S.*, 19 February 2009. Pursuant to art. 2 of the Ordinance "De Vlaamse Waterweg", the "Agentschap voor maritieme dienstverlening en kust" and the Port Authorities are the competent organisations to perform the RIS tasks provided for under the decree.

meldingen en communicatie scheepvaart) ([35]). In the Westerscheldt River Area save and efficient navigation to and from the ports along the Westerscheldt is ensured by the common Nautical Authority (RIS GNB) On the Danube and the Sava there is yet no specific harmonized regulation ([36]). However initiatives have been taken by some Danubian States to develop RIS ([37]), while as regards the Sava River Basin the International Sava River Basin Commission (ISRBC) has made a recommendation to develop RIS, as a first step on the entire navigable part between Sisak and Belgrade, and, with a view to further implementation, to set up an institutional framework and to appoint the authorities competent for the development and the physical construction of RIS infrastructure, hardware and software ([38]).

11. Also, RIS may be extended to new applications. According to the Joint Research Centre of the European Commission one of the key implementation tools for further integrating and rationalizing the digital services related to IWT, could be eIWT described as an ICT system that would implement, at least, an electronic version of the Service Record Book (SRB) – eSRB – applicable across all EU inland waterways and to all IWT commercial vessels, cargo's and passenger, including cruise vessels, however excluding non-nautical personnel ([39]). According to the report it could become one of the key implementation tools for DINA, if it will be linked, through the river information services (RIS), to the river infrastructure and, through corporate programs, to the cargo management functions. In 2016, the social IWT partners informed the European Commission that in their opinion the implementation of digital enforcement of data regarding professional qualifications and manning requirements can drastically reduce the number of enforced rules, remaining two issues at relevance: was the vessel operated with enough crew members with the required professional qualifications on board and did these crew

[35] Wet 21 juli 2007 houdende wijziging van de Scheepvaartverkeerswet in verband met de implementatie van richtlijn nr. 2005/44/EG van het Europees Parlement en de Raad van de Europese Unie van 7 december 2005 betreffende geharmoniseerde River Information Services (RIS) op de binnenwateren in de Gemeenschap (PbEU L255), *Stbl.* 287 (Act 21 July 2007 amending the Shipping Traffic Act implementing Directive No 2005/44/EC of the European Parliament and of the Council of 7 September 2005 on harmonised river information services (RIS) on inland waterways in the Community (*OJEU* L255), *OJ 287*).

[36] An overview of the implementation status of RIS may be found in the report n° 125 – 2011 of PIANC ("The implementation status of River Information Services – Status 2010)

[37] Inter alia in Serbia and the Ukraine, see: Transport Research Knowledge Centre, *River Information Services. Modernising Inland Shipping through advanced information Technologies*, E.U., 2010, 20. And further in Austria were with regard to the Danube the DoRis system was developed. See: Via Donau, *Handbuch der Donauschiffahrt*, 1st ed., Vienna, 2002, 6 ff. On the Romanian part of the Danube RoRIS is implemented, whereas on the Bulgarian part of the Danube BULRIS started in 2010 (see CCNR, *Leaflet Electronic Ship Reporting in Inland Navigation*

[38] International Sava River Basin Commission, *Sava River Basin Analysis Report*, Zagreb, 2009, 179-180. See also Recommendation 01/10 of the I.S.R.B.C., 9, proposing "a harmonized implementation of the RIS on the Sava River in line with the already undertaken measures by Serbia and Croatia on the Danube, as well as the requirements of the EU *RIS Directive.* Deployment of RIS on Sava river shall improve safety, efficiency and environmental concerns" Nowadays RIS are fully operational on the river Sava in Croatia and Serbia. The operational RIS system consists of the subsystem for Vessel Tracking and tracing (VTT) (11 base stations), subsystem for Electronic Ship Reporting (ERI), subsystem for electronic Notices to Skippers (NtS) and a subsystem for the display of electronic inland navigation charts and additional information (Inland ECDIS).

[39] See JRC Technical Reports, eIWT. Electronic tool for Inland Waterways Transport. Architecture, requirements & stakeholders considerations, EUR 28387 EN, p. 8.

members comply with the rules for navigation-, work- and rest periods ([40]). Also, it is said that paper documents are prone to be tampered with ([41]). In line with Naiades III Communication - "Flagship 7 - Smart and flexible crewing rules" ([42]) – in 2023 a legislative "digital tools" initiative for recording and exchanging information on inland crew and vessels was launched by the UNECE Working Party on Inland Water Transport ([43]), with the intention to make it obligatory for operators to record data on crew and vessels' activities in real time and to make it accessible on a shared platform to authorised users. The objective is to set-up a sort of smart tachograph for inland waterway transport that will replace the system of data recorded in paper service record books and logbooks. In the opinion of the EC a smart tachograph for IWT will help minimize administrative burden, increase the uptake and acceptance of electronic

[40] See JRC Technical Reports, eIWT. Electronic tool for Inland Waterways Transport. Architecture, requirements & stakeholders considerations, EUR 28387 EN, p. 8. The legal framework for professional qualifications in inland navigation is yet laid down in Directive (EU) 2017/2397 of the European Parliament and of the Council of 12 December 2017 on the recognition of professional qualifications in inland navigation and repealing Council Directives 91/672/EEC and 96/50/EC, *OJ*, L 345, 27.12.2017, p.. 53–86. Pursuant to the directive, the navigation time must be verified by means of validated entries in service record books, providing a record of the journeys, and issued by the competent authorities of the Member States (art. 22). According to point 35 of the preamble "With a view to further modernising the inland waterway sector and to reducing the administrative burden while rendering the documents less prone to being tampered with, the Commission should, taking into account the principle of better regulation, consider examining the possibility of replacing the paper version of Union certificates of qualification, service record books and logbooks by electronic tools, such as electronic professional cards and electronic vessel units". Therefore, pursuant to art. 22.5 Directive (EU) 2017/2397 the Commission shall submit to the European Parliament and to the Council an assessment of tamper-proof electronic service record books, logbooks and professional cards that incorporate Union certificates of qualification in inland navigation, by 17 January 2026. Also, with a view to contribute to the efficient administration of certificates of qualification, Member States should set up registers for recording data on certificates of qualification, service record books and logbooks. In order to facilitate the exchange of information between Member States and with the Commission for the purpose of the implementation, enforcement and evaluation of this Directive, as well as for statistical purposes, for maintaining safety and for ease of navigation, Member States should report such information, including data on the certificates of qualifications, service record books and logbooks, by including it in a database kept by the Commission (art. 25). For issues such as navigation, work and rest periods, see Council Directive 2014/112/EU of 19 December 2014 implementing the European Agreement concerning certain aspects of the organisation of working time in inland waterway transport, concluded by the European Barge Union (EBU), the European Skippers Organisation (ESO) and the European Transport Workers' Federation (ETF), *OJ*, L 367, 23.12.2014, p. 86–95

[41] Commission Staff Working Document on digital inland navigation, SWD(2018) 427 final, 12. With regard to the use of tachographs in IWT, with regard to the use of "smart" tachographs in road transport provisions are provided for in art. 8-11 of Regulation (EU) No 165/2014 of the European Parliament and of the Council of 4 February 2014 on tachographs in road transport, repealing Council Regulation (EEC) No 3821/85 on recording equipment in road transport and amending Regulation (EC) No 561/2006 of the European Parliament and of the Council on the harmonisation of certain social legislation relating to road transport, *OJ*, L 60, 28.2.2014, p. 1–33. At first sight re-use of these provisions for tachographs used in IWT does not seem to be hampered by legal barriers.

[42] Flagship 7: Smart and flexible EU crewing rules: "The Commission will assess the need for legislative initiatives for on-board digital tools for recording and exchanging information on crews and vessels, as well as on crewing requirements for better harmonization at EU level." (Naiades III, cited above)

[43] UNECE, Geneva, 15-17 February 2023, https://unece.org/sites/default/files/2023-02/ECE-TRANS-SC3-WP3-2023-inf_05e.pdf

documents/solutions in the sector and improve the enforcement of legislation (on crewing requirements, on working time and on professional qualifications).

12. Furthermore, the recently developed concept of RIS Corridor Management ([44]) aims at improving and linking existing RIS services on a route or a corridor in order to supply RIS not just locally, but on regional, national and international level. It thereby supports route and voyage planning, transport management and traffic management. By sharing information between authorities and with the cooperation of public and private partners, the performance of inland navigation, the use of existing infrastructure and the interaction with the logistic partners improve. Corridor management is situated on three levels ([45]): fairway information, enabling reliable route planning by suppling dynamic an static infrastructure information; traffic information (actual and predicted), enabling reliable travelling times for voyage planning and for traffic management, by providing traffic information; information for logistic users.

13. As regards maritime navigation a vessel traffic monitoring and information system is laid down in Directive 2002/59/EC ([46]). According to the European Institutions, setting up a Community vessel traffic monitoring and information system should help to prevent accidents and pollution at sea and to minimise their impact on the marine and coastal environment, the economy and the health of local communities. The efficiency of maritime traffic, and in particular of the management of ships' calls into ports, also depends on ships giving sufficient advance notice of their arrival ([47]). On board equipment allowing automatic identification of ships (AIS systems) for enhanced ship monitoring, as well as voyage data recording (VDR systems or "black boxes") to facilitate investigations following accidents, are regarded by the EU as key instruments in respect of the formulation of a policy to prevent shipping accidents ([48]). The Automatic Identification System (AIS) is a ship borne radio data system, exchanging static, dynamic, and voyage related vessel data between equipped vessels and between equipped vessels and shore stations ([49]). Ship borne AIS stations broadcast the vessel's identity, position and other data in regular intervals. By receiving these transmissions, ship borne or shore based AIS stations within the radio range can automatically locate, identify and track AIS equipped vessels on an appropriate display ([50]). AIS was developed by IMO for seagoing vessels and is

[44] See the RIS COMEX website

[45] See the EURIS website

[46] Directive 2002/59/EC of the European Parliament and the Council of 27 June 2002 establishing a Community vessel traffic monitoring and information system and repealing Council Directive 93/75/EEC, *OJ*, L 208, 5.8.2002, 10 ff., as amended by Directive 2011/15/EU of the Commission of 23 February 2011, O.J., L 49 of 24 February 2011, 33 ff. and Directive 2009/17/EC of the European Parliament and of the Council of 23 April 2009, *OJ*, L 131, 28.5.2009, p. 101–113. Pursuant to the definition of vessel under art. 3 f the Directive only applies to maritime vessels. In the English definition the term "seagoing vessel" is used, a term that also could be understood as including inland vessels that are going on the sea, in the French definition however is spoken only of "bâtiments de mer". With a view to implement the directive for maritime navigation the information network "SafeSeaNet" (SSN) was set up, a network for maritime data exchange, linking together maritime authorities from across Europe, enabling EU Member States, Norway, and Iceland, to provide and receive information on ships, ship movements, and hazardous cargoes. The ports, as local competent authorities, have to provide Port- and Hazmat Notifications to SafeSeaNet. More detailed information may be found on the EMSA website (European Maritime Safety Agency)

[47] Directive 2002/59/EC, preamble n° 4

[48] Directive 2002/59/EC, preamble n° 7

[49] See CCNR, *Leaflet Inland AIS*, edition 2011, 5.

[50] See CCNR., *Leaflet Inland AIS*, edition 2011, 5. Inland ECDIS is a system for the display of electronic inland navigation charts and additional information, with the purpose to contribute to safety and

since end 2004 obligatory for all seagoing vessels navigating on internationals routes falling under chapter 5 of the SOLAS Convention.

14. Accurate knowledge of dangerous or polluting goods being carried on board ships and of other relevant safety information, such as information relating to navigational incidents, is essential to the preparation and effectiveness of operations to tackle pollution or the risk of pollution at sea. Ships leaving or bound for Member States' ports must therefore notify this information to the competent authorities or port authorities of those Member States ([51]). In order to achieve this objective, laid down in art. 1 ([52]), the directive imposes obligations on the Members States, inter alia to ensure that any ship, falling under the scope of the directive, is fitted with an AIS and VDR (art. 6 and 8), and that, no later than on the 1st January 2015, they take all necessary and appropriate measures to provide themselves with appropriate equipment and shore-based installations for receiving and utilising the AIS information and to ensure that the appropriate equipment for relaying the information to, and exchanging it between, the national systems of Member States shall be operational.

15. Ships fitted with an AIS, shall maintain it in operation at all times except where international agreements, rules or standards provide for the protection of navigational information (art. 6.2 Directive 2002/59/EC). The Directive lays down an obligation for the shipper, not the vessel's operator, to notify dangerous or polluting goods on board ships (HAZMAT). No dangerous or polluting goods may be offered for carriage or taken on board any ship, irrespective of its size, in a port of a Member State unless a declaration has been delivered to the master or operator containing the information listed in Annex I (art. 12). For the operator, agent or master of a ship, irrespective of its size, carrying dangerous or polluting goods and leaving a port of a Member State, there is an obligation to notify the information indicated in Annex I, at the latest at the moment of departure. Furthermore also incidents and accidents at sea must be reported (art. 17 Directive 2002/59/EC).

16. Under Directive 2002/59/EC, as amended, SafeSeaNet was introduced. 'SafeSeaNet' means the Community maritime information exchange system developed by the Commission in cooperation with the Member States to ensure the implementation of Community legislation rt. 3s). The description and principles of SafeSeaNet are laid down in Annex III. The Commission ensures that SafeSeaNet is operational on a 24 hour-a-day basis (art. 22a.3). Member States must ensure that national or local systems set up to gather, process and preserve that information

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efficiency of inland navigation and thus also to protection of the environment. Simultaneously Inland ECDIS is to reduce the workload when navigating the ship as compared to traditional navigation and information methods. The system is monitored by the European Expert Group ECDIS Inland, serving as independent international platform to ensure a harmonized development of the Inland ECDIS standard in the different international organisations (European Commission, CCNR, Danube Commission, EN/ECE). The European (and Russian) Inland ECDIS standard is based on the standards of the International Hydrographic Organisation (IHO) for maritime Electronic Navigational Chart (ENC), the standards of the Inland ENC Harmonization Group (IEHG) for Inland ENC and the standards of the International Maritime Organisation (IMO) for maritime ECDIS (see RIS website).

[51] Directive 2002/59/EC, preamble n° 9

[52] Art. 1 Directive 2002/59/EC: "The purpose of this Directive is to establish in the Community a vessel traffic monitoring and information system with a view to enhancing the safety and efficiency of maritime traffic, improving the response of authorities to incidents, accidents or potentially dangerous situations at sea, including search and rescue operations, and contributing to a better prevention and detection of pollution by ships. Member States shall monitor and take all necessary and appropriate measures to ensure that the masters, operators or agents of ships, as well as shippers or owners of dangerous or polluting goods carried on board such ships, comply with the requirements under this Directive".

can be interconnected with SafeSeaNet (art. 22a3). The Community maritime information and exchange system, SafeSeaNet, enables the receipt, storage, retrieval and exchange of information for the purpose of maritime safety, port and maritime security, marine environment protection and the efficiency of maritime traffic and maritime transport (Annex III.1). It is a specialised system established to facilitate the exchange of information ([53]) in an electronic format between Member States and to provide the Commission with the relevant information in accordance with Community legislation. It is composed of a network of national SafeSeaNet systems in Member States and a SafeSeaNet central system acting as a nodal point. The SafeSeaNet network links all national SafeSeaNet systems and includes the SafeSeaNet central system (Annex 3.1).

17. Whereas the directive only envisages seagoing vessels, there is no similar mandatory reporting system for inland navigation vessels on EU level ([54]). Art. 4.5 RIS Directive only define that for the use of the automatic identification systems (AIS), the regional arrangement concerning the radiotelephone service on inland waterways concluded in Basel on 6 April 2000 in the framework of the radio regulations of the International Telecommunication Union (ITU) shall apply ([55]), whereas the technical specifications for AIS in inland navigation are laid down in Commission Regulation (EC) 415/2007 of 15 March 2007. However in the Annex of the latter – Annex Vessel tracking and tracing system – Inland AIS – the Commission stresses that, because of mixed traffic areas it is important that the standards, technical specifications and procedures for inland shipping are compatible with already defined standards, technical specifications and procedures for seagoing navigation, and that, to serve the specific requirements of inland navigation, AIS has been further developed to the so called Inland AIS technical specification while preserving full compatibility with IMO's maritime AIS and already existing standards in inland navigation.

18. At the same time within the CCNR framework a program was initiated to develop Inland AIS ([56]). As instrument for "tracking and tracing" of inland navigation vessels Inland AIS is

[53] The main information elements that are contained in the system and made available to users, are summed up on the EMSA website

[54] On EU level the technical specifications for electronic reporting are laid down in the Commission Implementing Regulation (EU) 2019/1744 of 17 September 2019 and repealing Regulation (EU) No 164/2010, *OJ*, L 273, 25.10.2019. Pursuant to appendix 1 in the case that electronic ship reporting in inland navigation is required by national or international law, these technical specifications shall be applied. A mandatory electronic reporting obligation is nowadays laid down in art. 12.01 RPR, in force since 01.12.21, for ships of 110 meters (or longer) or ships transporting ADN goods or liquid goods (with exception of bunker vessels and bilge boats). Also on Dutch waters there is a similar obligation laid down in the (Regeling communicatie en afmetingen Rijksbinnenwateren – Regulation regarding communication and dimensions on national waterways). See also n°. 21 of the contribution.

[55] Pursuant to art. 5.1 in fine Directive 2005/44/EC the Commission obtained mandate to define the technical specifications for "tracking- and tracing systems", established by the said Regulation 415/2007/EC of the Commission of 13 March 2007. As for RIS the directive only lays down an obligation for the Member States to take appropriate measures (art. 4.1) and to encourage boat masters, operators, agents or owners of vessels navigating on their inland waterways and shippers or owners of goods carried on board such vessels to fully profit from the services which are made available under this Directive (art. 4.6).

[56] See: CCNR Resolution 2006-I-21 of 31 May 2006 "Vessel tracking and Tracing Standards for Inland Navigation; Resolution 2007-I-15 of 31 May 2007 and Resolution 2007-II-24 of 5-6 December 2007 – both regarding "Vessel tracking and Tracing Standard for Inland Navigation – Type approval, installation and operation of Inland AIS devices on Inland Navigation Vessels. See also Decision of the Police Committee, CCNR of 22 October 2008 "Test Standard for Inland AIS, Edition 1.01" (Protocol 2008-II-20).

one of four key Technologies of the "River Information Services" for inland waterways, furthering enhanced safety and efficiency of the IWT sector ([57]). AIS does not replace navigation-related services such as tracking and by radar and VTS, but supports them. It supports shore-base monitoring, as part of traffic management services (Vessel Traffic Service - VTS) and other tasks such as calamity abatement ([58]). Except for Hungary ([59]), the Austrian section of the Danube ([60]), the Middle-Weser and in Belgium ([61]) the port of Antwerp and the Ghent port area, and on the Rhine since 1 December 2014, there is, at the moment, neither inside the EU neither on the whole pan-European connected waterway network for inland navigation vessels an obligation to have AIS on board nor an obligation to make use of it. As regards the Rhine art. 4.07 of the RPR (Rhine Police Regulation) initially only provided that ([62]) a vessel equipped with an AIS system, may make use of it if the system complies with the provisions established by art. 7.06 R.O.S.R. However from 1 December 2014 onwards AIS and Inland ECDIS in information modus (or a comparable device) are mandatory (art. 4.07.1), except for some smaller vessels.

19. Pursuant to Directive 2010/65/EU ([63]), commonly known as the Reporting Formalities Directive (RFD), for seagoing vessels arriving in and seagoing vessels departing from ports situated in Member States ([64]), since 1 June 2015 ([65]), the master or any other person duly authorized by the operator of the ship must, prior to arriving in a port situated in a Member State ([66]), notify the information required under the reporting formalities to the competent authority designated by that Member State. All reporting formalities under the Directive build on the international standards developed by the IMO FAL Convention - Convention on Facilitation of International Maritime Traffic, adopted on 9 April 1965, as amended – replacing the said FAL Forms on paper by an electronic system. The information to report is set out in the Annex and includes, beside information to provide in accordance with the FAL Convention and other relevant international legal instruments (inter alia crew and passengers lists), the following information resulting from legal acts of the Union:

1. Notification for ships arriving in and departing from ports of the Member States ([67]).
2. Border checks on persons ([68])

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[57] Together with electronic ship monitoring, Notices to Skippers, and the Electronic Chart Display and Information System for Inland Navigation (Inland ECDIS) (art. 5.1).

[58] CCNR, *Leaflet AIS*, 5

[59] This from 1 September 2011 onwards, see: RIS Website Hungary

[60] Already since 1 July 2008 commercial vessels navigating the Austrian section of the Danube must make use of an AIS transponder, since 1 January 2012 this obligation applies to all vessels navigating on the Austrian Danube section and the tributaries Traun and Enns (see website Via-donau)

[61] Since 1 January 2012 in the Port of Antwerp (see press release GHA) and since 1 January 2013 in the Ghent Port Area.

[62] Art. 4.07.1 : "Les bâtiments doivent être équipés d'un appareil AIS Intérieur conforme à l'article 7.06, chiffre 3, de l'ES-TRIN. L'appareil AIS Intérieur doit être en bon état de fonctionnement "

[63] Directive 2010/65/EU of the European Parliament and of the Council of 20 October 2010 on reporting formalities for ships arriving in and/or departing from ports of the Member States and repealing Directive 2002/6/EC, *OJ*, L 283/1, 29 October 2010.

[64] Art. 2d Directive 2010/65/EU: "ship: seagoing vessel"

[65] Art. 5.1 Directive 2010/65/EU

[66] Art. 4 Directive 2010/65/EU: "a) at least 24 hours in advance, or b) at the latest, at the time the ship leaves the previous port, if the voyage time is less than 24 hours; or c) if the port of call is not known or it is changed during the voyage, as soon as this information is available."

[67] Article 4 of Directive 2002/59/EC of the European Parliament and of the Council of 27 June 2002 establishing a Community vessel traffic monitoring and information system, *O.J.*, L 208, 5.8.2002

[68] Article 7 of Regulation (EC) No 562/2006 of the European Parliament and of the Council of 15

3. Notification of dangerous or polluting goods carried on board ([69])
4. Notification on waste and residues ([70]).
5. Notification of security information ([71]).
6. Entry summary declaration ([72])

20. The obligation of electronic reporting facilitates maritime transport and reduces the administrative burdens for shipping companies ([73]) and does further simultaneous elimination of barriers to maritime transport and the achievement of a European maritime transport space without barriers ([74]). The electronic systems referred to must be interoperable, accessible and compatible with the SafeSeaNet system established in accordance with Directive 2002/59/EC. The Directive ensures the electronic transmission of the said information via a single (national) maritime window and introduces as such the concept of one maritime single window in the EU. In order to further facilitate reporting and further reduce administrative burden, as a next step in 2018 the Commission launched a proposal for harmonising at Union level the front-end interfaces of the National Single Windows, on the side of the declarants, and thus to establish a European Maritime Single Window Environment ([75]). The latter has been established by Regulation (EU) 2019/1239 ([76]). This new regulation shall apply from 15 August 2025 (art. 26) and at the same moment Directive 2010/65/EU is repealed (art. 25).

21. Whereas both Directive 2010/65/EU and Regulation (EU) 2019/1239 envisage only seagoing vessels, there is no similar, comparable EU legislation with regard to electronic reporting formalities, single inland navigation windows or a European IWT single window environment. However, indirectly, the concept of an inland navigation single window has been launched, through the reporting application BICS2/ERI ([77]) and the online variant Erinet, the latter later on replaced by BICS5. Pursuant of art. 12.03 R.P.R. ([78]) on the whole Rhine for vessels and convoys transporting at least one container with dangerous goods or 20 normal containers

March 2006 establishing a Community Code on the rules governing the movement of persons across borders (Schengen Borders Code); *O.J.*, L 105, 13.4.2006.

[69] Article 13 of Directive 2002/59/EC of the European Parliament and of the Council of 27 June 2002 establishing a Community vessel traffic monitoring and information system.

[70] Article 6 of Directive 2000/59/EC of the European Parliament and of the Council of 27 November 2000 on port reception facilities for ship-generated waste and cargo residues, *O.J.*, L 332, 28.12.2000

[71] Article 6 of Regulation (EC) No 725/2004 of the European Parliament and of the Council of 31 March 2004 on enhancing ship and port facility security, *O.J.*, L 129, 29.4.2004

[72] Article 36a of Council Regulation (EEC) No 2913/92 of 12 October 1992 establishing the Community Customs Code, *OJ*, L 302, 19.10.2012, p. 1 and Article 87 of Regulation (EC) No 450/2008 of the European Parliament and of the Council of 23 April 2008 laying down the Community Customs Code (Modernised Customs Code), *OJ*, L 145, 4.6..2008, p. 1.

[73] See point 2 preamble Directive 2010/65/EU

[74] See point 5 preamble Directive 2010/65/EU

[75] Regulation of the European Parliament and of the Council establishing a European Maritime Single Window environment and repealing Directive 2010/65/EU, COM(2018) 278 final

[76] Regulation (EU) 2019/1239 of the European Parliament and of the Council of 20 June 2019 establishing a European Maritime Single Window environment and repealing Directive 2010/65/EU, *O.J.*, L 198 of 25 July 2019, p. 64-87

[77] BICS: Binnenvaart informatie- en communicatiesysteem (Inland information and communication system); ERI: Electronic Reporting International. With a view to further co-operation of other countries in the formation of the system the name BICS was changed in ERI. The system has been further build by the ERI group of experts.

[78] According to art. 12.05 R.P.R. there is an obligation for electronic reporting for the vessels mentioned in the article and the information mentioned. According to art. 12.03 R.P..R. other vessels may choose to report in an electronic manner.

there is an obligation of electronic reporting since 1 January 2010 ([79]). The standard for electronic reporting in Rhine navigation ([80]) is based on internationally applying standards and classifications for trade and transport. To ensure compatibility with maritime navigation consideration is given to the aforementioned Directive 2010/65/EU and Directive 2002/59/EC. A similar obligation as on the Rhine applies, also from 1 January 2010 onwards, on all other Dutch waterways falling under the scope of the Dutch Police Regulation for inland navigation (Binnenvaartpolitiereglement). Also on other EU waterways, such as for instance Austria, the Flemish part of Belgium, Bulgaria, France, Germany, Hungary, Romania and Slovakia initiatives have been taken since with regard to electronic reporting ([81]). On Flemish waterways e.g. the obligation of electronic reporting has been introduced for inland navigation vessels transporting AND goods by decision of 5 February 2021 of the Flemish Government.

22. The introduction of electronic reporting for traffic and transport on inland waterways is seen as a first step moving towards paperless handling of all information required for inland navigation procedures, including controls and services ([82]), the so-called "paperless navigation" ([83]). The purpose of it is to avoid multiple reporting of skippers to competent authorities and to limit the provision of the same data related to a voyage to different authorities and/or commercial parties ([84]). It therefore contributes to one of the main goals of modern European International River Law, namely the abolition of all kinds of administrative barriers for free navigation, and at the same furthers the safety of it ([85]). The idea to set up a "Single Window for Inland Navigation" was launched by the CCNR as a facility that allows parties involved in trade and transport to lodge standardised information and data dealing with all regulatory requirements using one single entry point, in order to reduce the administrative burden for all partners involved which have to deal with legislative requirements in the various countries ([86]). The European Commission, in its report of 2014 to the European Parliament and the Council on the functioning of Directive 2010/65/EU ([87]) made a plea for extending the reporting formalities for the

[79] The obligation was already laid down in CCNR-Resolution 2007-II-20, but due to technical and other problems delayed by CCNR Resolution 2008-I-22 and finally entered into force on 1 January 2010 (CCNR Resolution 2009-I-17). In the view of the CCNR enlarging the scope of the obligation of electronic reporting first required harmonisation of the reporting procedures used on the Rhine (See the leaflet "Invoering verplicht elektronisch melden in de Rijnvaart – Informatief document voor het scheepvaartbedrijfsleven – of 18 March 2008 – Introduction of mandatory electronic reporting in Rhine navigation), which is in the meantime a fact. As explained in footnote 46 the obligation has been extended in 2021.

[80] The standard is laid down in the Annex to CCNR Protocol 2006-II-23, edition 2013, of 23 April 2013, repealing the original standard introduced by Resolution 2003-I-23 of 28 May 2003..

[81] CCNR, *Leaflet Electronic Ship Reporting in Inland Navigation*, Edition 2011, 14-19? See also: CCNR, Leaflet Electronic Ship Reporting in Inland Navigation, Edition, 2015

[82] CCNR, *Leaflet Electronic Ship Reporting in Inland Navigation*, Edition 2011, 14

[83] With regard to "paperless navigating" in the Netherlands a pilot has been set up through cooperation between customs, portbase, Bureau Telematica Binnenvaart and participants from the IWT sector in order to use an electronic loading list instead of one on paper. See: Bureau Telematica Binnenvaart, *Pilot Elektronisch Binnenvaartmanifest. Op weg naar documentloos varen in de containerbinnenvaart*, paper, 2011.

[84] CCNR, *Leaflet Electronic Ship Reporting in Inland Navigation*, Edition 2015, 5

[85] CCNR, Protocol 17 regarding mandatory electronic reporting in Rhine navigation

[86] CCNR, *Leaflet Electronic Ship Reporting in Inland Navigation*, Edition 2015, 14

[87] COM/2014/0320 final: "The maritime and inland waterway transport sectors are two different and separate sectors. The maritime transport sector is already comprehensively regulated by EU and international rules and mandatory administrative procedures, including information sets and reporting obligations. The inland waterway sector on the other hand is regulated to a lesser extent. … The maritime transport sector has developed in the meantime well-established data exchange mechanism such as the

maritime sector to the IWT sector. However, as said above, the scope of Regulation (EU) 2019/1239 is restricted to seagoing vessels.

23. The Proposal for a Regulation of the European Parliament and of the Council on electronic freight transport information (COM/2018/279 final – 2018/0140 (COD)) ([88]) stressed the fact that a large majority of freight transport operators and other transport business stakeholders in the EU continue to use paper documents, preventing considerable gains in efficiency for the various market players, in particular in multimodal and cross-border transport, and hindering the functioning of the EU single market. According to the preamble (1) the efficiency of freight transport and logistics is vital for the competitiveness of the Union economy, the functioning of the internal market and the social and economic cohesion of all regions of the Union. Therefore the proposal aims to establish a uniform legal framework at Union level requiring public authorities to accept relevant freight transport information, required by legislation, in electronic form. The absence of such a framework is considered to be the main reason for the lack of progress towards the simplification and greater efficiency made possible by available electronic means. The lack of acceptance by public authorities of information in electronic form affects not only ease of communication between them and operators but, indirectly, also hampers the development of simplified business-to-business electronic communication across the Union.

24. The general objective of the proposal therefore is to enable wider use of digital technologies to contribute to: (i) removing barriers to the smooth functioning of the single market; (ii) the modernisation of the economy; and (iii) the greater efficiency of the transport sector. By establishing uniform conditions for the further development and deployment of digital technologies for electronic exchange of freight transport information, it will also contribute to the development of the Digital Single Market. The legal basis is provided by Article 91 and 100(2) TFEU, both to be understood in light of article 90 TFEU requiring Member States to pursue a common transport policy. The proposal may be seen therefore as a first attempt to encompass all kinds of transport, inland transport (art. 91 TFEU) as well as sea and air transport (art. 100(2)) TFEU. At the same time the proposal is based on article 192(1) TFEU and thus regarded as an action to achieve the objective of a Union policy on the environment. The Proposal aimed to establish the functional requirements applicable to information and communication technology based platforms which could be used by economic operators to make available the regulatory freight transport information in electronic format (eFTI) to the competent authorities (eFTI platforms). Conditions should also be established for third party eFTI platform services providers (eFTI services providers). Neither Regulation no 11/1960 on the abolition of discrimination in transport rates and conditions, neither Directive 2008/68/EC

SafeSeaNet system. On top of that, the Reporting Formalities Directive foresees now National Single Windows in a simplified and streamlined manner of lodging the information needed for multiple purposes. The electronic data transmission in the inland waterway transport sector is organised through the RIS system, but with no single point of entry of information nor an advanced exchange mechanism comparable to that of the SafeSeaNet system. Simplifications regarding reporting formalities for the maritime sector could possibly be extended to the inland waterway sector, but this would require (1) to harmonise the information sets used in the maritime transport sector with the ones used in the inland waterway sector and (2) a revision of the organisation of the electronic data exchange and possibly also of the legal framework for electronic reporting in the inland waterway sector."

[88] Useful background information may be found in the Commission Staff Working Document Impact Assessment Accompanying the document Proposal for a Regulation of the European Parliament and of the Council on electronic freight transport information (CO (2018) 279 final) – (SEC (2018) 231 final) – (SWD (2018) 184 final).

on dangerous goods in rail, road and inland waterways ([89]) neither the CMNI convention ([90]) provide for the possibility to present the information/documents electronically, but on the other hand do not forbid it. Therefore there are no legal barriers hampering the introduction of a legal IWT framework for an e-communication and information system with the authorities regarding transport documents in inland navigation. Information concerning dangerous goods is nowadays yet accepted when electronically transmitted, pursuant the RIS Directive provisions.

25. The acceptance and use of electronic transport documents has been advocated by the Commission in numerous policy initiatives such as in its 2011 white paper on transport, in 2015 digital single market strategy and in the eGovernement action plan 2016-2020. It also must be recalled that pursuant to art. 54 Regulation 910/2014/EU ([91]) an electronic document shall not be denied legal effect and admissibility as evidence in legal proceedings solely on the grounds that it is in electronic form, and therefore from a legal point of view there are no legal barriers to make use of electronic transport documents. However, this directive does not impose an obligation on Member States' (enforcement) authorities to accept electronic documents as evidence for other regulatory purposes, such as compliance with various legislative provisions, including as concerns the conditions for the transport of goods. As already mentioned, for carriers, with a view to develop a system of paperless navigating, an electronic system has been set up in IWT already years ago, be it for the use by carriers (BICS system).

26. In 2020 the eFTI Regulation was a fact ([92]), establishing a legal framework for the electronic communication of regulatory information related to the transport of goods on the territory of the Union. For that purpose it (a) lays down the conditions under which Member States' competent authorities are required to accept regulatory information when made available electronically by economic operators concerned, and (b) lays down rules for the provision of services related to making regulatory information available electronically by the economic operators concerned (art. 1.1). Scope of the proposed Regulation will be regulatory information requirements set out in Union acts, listed in Annex I, laying down the conditions for the transport of goods on the territory of the Union in accordance with Title VI of Part Three of the Treaty, or laying down the conditions for the shipments of waste, as well as regulatory

[89] Directive 2008/68/EC of the European Parliament and of the Council of 24 September 2008 on the inland transport of dangerous goods, *O.J.*, L 260, 30.09.2008, 13-59. The Directive implements the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways, concluded at Geneva on 26 May 2000, as amended.

[90] Budapest Convention on the Contract for the Carriage of Goods by Inland Waterway (CMNI). The convention applies for international transport of goods on inland waterways and is ratified by the following European states: Belgium, Bulgaria, Croatia, Czech Republic, France, Germany, Hungary, Luxembourg, Moldova, the Netherlands, Romania, Russian Federation, Serbia, Slovakia, Switzerland, Ukraine. The Convention thus is ratified by all Rhine and Danubian States, with the exception of Austria.

[91] Regulation (EU) No 910/2014 of the European Parliament and of the Council of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC, *OJ*, L 257, 28.8.2014, 73-114

[92] Regulation (EU) No 2020/1056 of the European Parliament and of the Council of 15 July 2020 on electronic freight transport information, *OJ*, L 249, 31.7.2020, 33-48. According to the acts listed in Annex I of the Regulation, two acts concern IWT, namely Regulation No 11 concerning the abolition of discrimination in transport rates and conditions, in implementation of Article 79 (3) of the Treaty establishing the European Economic Community, in particular art. 6.1, and Directive 2008/68/EC of the European Parliament and of the Council of 24 September 2008 on the inland transport of dangerous goods, in particular Chapter 5.4 of Part 5 of the Regulations annexed to the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN), concluded at Geneva on 26 May 2000, as referred to in Section III.1 of Annex III to that Directive;.

information requirements set out in Member States' law dealing with matters of transport and requiring the provision of information identical, in whole or in part, to the information to be provided pursuant to regulatory information requirements set out in the said Union acts, listed in Annex I. The eFTI Regulation shall apply from 21 Augustus 2024 (art. 18).

II. EVENTUAL LEGAL CHALLENGES FOR FURTHERING E-NAVIGATION IN IWT

27. Legal competencies with regard to IWT are not only entrusted to the EU Institutions pursuant to the transport and infrastructure titles of the TFEU and to national authorities, inter alia with a view to implementing secondary EU legislation, but also with regard to Rhine navigation to the Central Commission for Navigation on the Rhine (CCNR), based on the 1868 Act of Mannheim ([93]). Contracting States are Belgium, France, Germany, the Netherlands and Switzerland. In the above mentioned 2018 Mannheim Declaration ([94]) these Contracting States acknowledged the Mannheim Act and the principles enshrined therein and emphasised the fundamental importance of the Act to the prosperity of the economy and of inland navigation in the Rhine river basin. The central role of the Mannheim Act in the fruitful collaboration on Rhine and inland navigation matters between the Riparian states and Belgium within the framework of the CCNR was reaffirmed. Although the competencies of the CCNR are restricted to the Rhine, the Rhine regulations nevertheless have a broader impact. Most inland vessels qualify as Rhine vessels meeting the technical requirements of the Rhine Vessel Inspection Regulations. Similar rules as those applying on the Rhine with regard to the manning of a vessel apply also on the basis of police and navigation regulations on other waterways.

28. The CCNR is not the only current river commission dealing with IWT matters. With regard to the Danube in 1948 by the Belgrade Danube Convention the Danube Commission was established ([95]). Current member States are the Republic of Austria, the Republic of Bulgaria, Hungary, the Federal Republic of Germany, the Republic of Moldova, the Russian Federation, Romania, the Republic of Serbia, the Slovak Republic, Ukraine and the Republic of Croatia. Recommendations of the Danube Commission are not binding for the Member States. Furthermore, the Moselle Commission was set up under the 1956 Moselle Convention, having 3 member States: France, Germany and Luxembourg. Based on the latter convention there is a strong alignment between the Rhine regulation and the regulation applying on the Moselle. By the 2002 Framework Agreement for the Sava River Basin the International Sava River Basin Commission (ISRBC) was set up. Member States are Bosnia and Herzegovina, the Republic of Croatia, the Republic of Slovenia and the Republic of Serbia. Pursuant to art. 16.1 of the Framework Agreement the Sava Commission shall make decisions aimed to provide for save navigation, which are binding upon all the Parties, unless a Member withdraws his vote within 30 days after the decision was made. Finally, by the Treaty of Middelburg of 2005 the Common Nautical Authority for the Western Scheldt was installed. Member Parties are Belgium (Flanders) and the Netherlands.

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[93] Competencies laid down in art.45 of the Convention of Mannheim, signed on October, 18, between, Baden, Bavaria, France, Hessen, the Netherlands and Prussia), revised and amended since (*B.F.S.P*, 1868, vol. 59, p. 470; coordinated version on the CCNR website).

[94] Mannheim Declaration « 150 years of the Mannheim Act – the driving force behind dynamic Rhine and inland navigation", Congress of the Central Commission for the Navigation of the Rhine on 17 October 2018

[95] UNTS, no. 518, vol. 33, 181 et seq.

29. The supremacy of Union law concerns the relationship between national laws and European law, not the relationship among international conventions ([96]). European law does not precede international law. In the light of the settled case-law of the Court of Justice ([97]), the first paragraph of art. 351 TFEU implies a duty on the part of the EU institutions not to impede the performance of the obligations of Member States which stem from a prior agreement, provided that the agreement imposes on a EU Member State obligations whose performance may still be required by third parties to the agreement, irrespective whether or not the third state asserts its rights under the agreement ([98]). The decision making process within the CCNR is based on the principles of common consent and unity of the legal regime, both being an expression of the underlying principle of the community of interests of riparian States of international rivers, recognised by the Permanent Court of International Justice in the Oder Commission Case and more recently reaffirmed by the International Court of Justice in the Gabčikovo-Nagymaros case ([99]).

30. Therefore conflicts between both institutions in respect of their competencies may rise ([100]), and to a certain extent also with the commissions of the Danube and the Sava, given the fact that

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[96] MANZINI, P., "The priority of pre-existing treaties of EC Member States within the framework of international law", *E.J.I.L.*, 2001, vol. 12, 790

[97] E.C.J. 14 October 1980, case C-812/79 (Burgoa), *Reports.*, 1980, p. 2787 *et seq.*, paragraph. 9; E.C.J., 4 July 2000, Case C-62/98 (Commission/Portugal), *Reports.*, 2000, I, p. 1571, paragraph 44; E.C.J., 5 November 2002, Case C-466/98, www.curia.eu.int/nl/jurisp, paragraph 24 referring to art. 30, paragraph 4, sub b, Vienna Convention; E.C.J., 21 December 2011, case C-366/10 (Air transport Association of America v. Secretary of State for Energy and Climate Change), ECLI:EU:C:2011:864, para 61 see also e.g.: LEENEN, A.Th.S., *Gemeenschapsrecht en volkenrecht. Een studie naar de draagwijdte van de eigen rechtsorde van de Europese Gemeenschappen*, 's Gravenhage, TMC Asser Instituut, 1984, p. 208; MANZINI, P., "The priority of pre-existing treaties of EC Member States within the framework of international law", *E.J.I.L.*, 2001, vol. 12, (781), p. 783.

[98] E.C.J., joined cases C-364/95 and 365/95, Port T GmbH v. Hauptzollamt Hamburg-Jonas, ECLI:EU:C:1998:95, para 60; E.C.J., 2 August 1993, case C-158/91 (Lévy), *Reports*, 1993, I, p. 4287; see also: LENAERTS, K. and DE SMIJTER, E., "Some reflections on the status of international agreements in the Community legal order" in *Mélanges en hommage à Fernand Schockweiler*, Rodriguez Iglesias, G.C., Due, O., Schintgen, R. and Elsen, Ch. (ed.), Baden-Baden, Nomos Verlaggesellschaft, 1999, p. 366; ROSAS, A., "The Status in EU Law of International Agreements Concluded by EU Member States", *Fordham International Law Journal*, 2011, vol. 34, 1321-1324).

[99] P.C.I.J., Case relating to the territorial jurisdiction of the International Commission of the River Oder, P.C.I.J. Reports, 1929, Series A, n° 23, 26-27 and World Court Reports, 1969, vol. II, p. 609: " ... *when consideration is given to the manner in which States have regarded the concrete situations arising out of the fact that a single waterway traverses or separates the territory of more than one State, and the possibility of fulfilling the requirements of justice and the considerations of utility which this fact places in relief, it is at once seen that a solution of the problem has been sought not in the idea of a right of passage in favour of upstream States, but in that of a community of interests of riparian States. This community of interests in a navigable river becomes the basis of a common legal right, the essential features of which are the perfect equality of all riparian States in the use of the whole course of the river and the exclusion of any preferential privilege of any one riparian State in relation to the others*"; I.C.J., Gabčikovo-Nagymaros case 25 September 1997, I.C.J. Reports, 1997, p. 56, para 8 "*modern development of international law has strengthened this principle for non-navigational use of international waterways as well, as evidenced by the adoption of the Convention of 21 May 1997 on the Law of the Non-Navigational Uses of International Watercourses by the United Nations General Assembly*". Both Cases are discussed in relation to the international status of river acts in DE DECKER, *Europees international rivierenrecht (European International River Law)*, 2nd ed., Antwerp, Maklu, 2023 with references to legal doctrine.

[100] For a recent in-depth study of the legal relationship between the Rhine regime and the EU, see my article "Reflections on the legal relationship between European International River Law and European

some member States of these commissions are at the same time EU member States subject to the obligation of loyalty pursuant to art. 5 TFEU and 351 TFEU, second paragraph, and subject to an obligation of loyalty in respect of the other member States of these international river commissions. On the other hand the presence of international river commissions may be also seen as an opportunity, given the fact that the navigable waterways falling under the scope of these river commissions do not stop at the outer limits of the EU and form a unit that therefore also from a legal point of view should be treated as such. This goal cannot be achieved by secondary Union Law only. With a view to extend, through a legally binding framework, the EU transport market rules, principles and policies to the Western Balkan Parties - Republic of Albania, Bosnia and Herzegovina, Kosovo, Republic of North Macedonia, Montenegro and Republic of Serbia – and recognizing the integrated character of international transport on 12 July 2017 a treaty was signed between the EU and these 6 Western Balkan Parties establishing as an international organisation, the "Transport Community" ([101]), in which the EU and these six States participate. The Transport Community shall be based on the progressive integration of transport markets of the Western Balkan Parties into the EU transport market on the basis of the relevant acquis, including in the areas of technical standards, interoperability, safety, security, traffic management, social policy, public procurement and environment. Through this Transport Community Treaty the RIS Directive also covers the waterways network of Serbia and the Ukraine.

31. The EU however is not a member of the above mentioned international river commissions. Between the CCNR and the European Commission an Administrative Arrangement concerning a framework for cooperation between the Secretariat of the Central Commission for the Navigation of the Rhine and the Directorate-General for Mobility and Transport of the European Commission - DG MOVE, was signed on 22 May 2013 ([102]). This cooperation relates to three priority areas: technical requirements and information technology concerning inland waterway vessels, modernisation of the legal framework on boat master certificates and market observation (paragraph 3). Although the above mentioned RIS directive does not exclude the EU Rhine from the territorial scope of applicability and therefore seems to interfere with the competencies of the CCNR, there is no real conflict with the Rhine Regulation.

32. Also, with a view to further the drawing up of common standards in the field of inland navigation "CESNI" (Comité Européen pour l'Élaboration de Standards dans le Domaine de

Union Law, with special regard to the Rhine" in *150 Jahre Mannheimer Akte. Festschrift zum 150jährigen Bestehen der Revidierten Rheinschiffahrtsakte vom 17. Oktober 1868,* Baden-Baden, Nomos Verlaggesellschaft, 2018, 221-306

[101] Treaty establishing the Transport Community, *O.J.*, L 278, 27.10.2017. The TEN-T Network of the Western Balkan Parties includes 1.345 km of Core Network Inland Waterways. With regard to River Informations Services pursuant to Annex I.5 the RIS Directive, the Commission Regulations and the Commission Implementing Regulation form part of the so-called "acquis communautaire fluvial" that must be integrated by the 6 Western Balkan Parties. Pursuant to art. 20.3 the Regional Steering Committee shall, in respect of new legally binding European Union acts: (a) either a decision revising Annex I so as to integrate therein, if necessary on a basis of reciprocity, the new act in question; or (b) adopt a decision to the effect that the new act in question is to be regarded as in accordance with this Treaty; or (c) decide on any other measures to safeguard the proper functioning of this Treaty."

[102] Text on ec.europa.eu/transport/sites/transport/files/modes/inland/promotion/doc/administrative_arrangement_en.pdf

Navigation Intérieure) was established ([103]). CESNI adopt technical standards in various fields, in particular as regards vessels and crew to which the respective regulations at the European and international level, including the European Union and the CCNR, will refer with a view to their application. The Committee comprises experts of the Member States of the CCNR, and of the European Union (EU). The various stakeholders and professions in navigation in Europe are represented. The EU is not a party to CESNI, however may participate in the work of CESNI, along with international organisations whose mission covers the areas concerned by CESNI, without voting rights. Four non-EU-R States have observer status: Serbia (6 July 2017, Ukraine (18 October 2017), the United Kingdom (15 April 2021) and Moldova (20 April 2023). The harmonisation of legislation in the field of professional qualifications in inland navigation and technical requirements of inland vessels is facilitated by this close cooperation between the Union and the CCNR, and by the development of CESNI standards. Pursuant to two EU directives these standards apply on the entire connected EU waterways network, provided that Union interests are not compromised by changes in the decision-making process of CESNI and the standards ensure safety of navigation ([104]) On the basis of CCNR regulations these standards also apply on the Swiss navigable part of the Rhine.

33. Due to the expansion of CESNI's activities in the field of information technologies in 2019, the CESNI Committee established, a permanent working group on information technologies (CESNI/TI) through its resolution 2018-II-16 ("ES-RIS") ([105]). The mission of CESNI/TI is specified in the annex to the resolution and the new working group is at the core of CESNI's activities in the field of information technologies. Accordingly, the CESNI Committee has entrusted its Working group CESNI/TI with the task of gradually integrating the existing RIS expert groups into CESNI's structure and procedures, as well as its work programme for information technologies by 1 January 2020. The fact that the work of the RIS Expert Groups has been gradually integrated into the work programme of the recently established CESNI working group on information technology (CESNI/TI) is acknowledged by the European Commission ([106]). However, the development of CESNI standards with regard to RIS is not provided for under the RIS Directive, a legal mandate in that sense to formalize the situation and the binding force of the CESNI/TI, lacks. Within the context of a possible revision of the RIS Directive one could consider therefore to involve a dedicated standardization body such as CESNI and to formalize the adoption of CESNI standards in a similar way as for technical requirements for inland vessels and crew members' qualifications.

34. Within the context of Naiades II the Commission held the view ([107]) that the implementation of existing, well established inland waterway transport-related policies could benefit from the

[103] C.C.R. Session of 3 June 2015, Protocol 3 European committee for drawing up common standards in the field of inland navigation – CESNI, www.ccr-zkr.org/files/documents/resolutions/ccr2015_Inl.pdf. See: www.cesni.eu/en/about-cesni

[104] Art. 31 Directive (EU) 2016/1629 of the European Parliament and of the Council of 14 September 2016 laying down technical requirements for inland waterway vessels, amending Directive 2009/100/EC and repealing Directive 2006/87/EC, *O.J.*, L 252, 16.9.2016; Art. 32 Directive (EU) 2017/2397 of the European Parliament and of the Council of 12 December 2017 on the recognition of professional qualifications in inland navigation and repealing Council Directives 91/672/EEC and 96/50/EC, *O.J.*, L 345, 27.12.2017.

[105] Text on ec.europa.eu/transport/sites/transport/files/modes/inland/promotion/doc/administrative_arrangement_en.pdf

[106] EC, Commission Staff Working Document. Evaluation of the Directive 2005/44/EC on Harmonised River Information Services (RIS) (SWD(2021) 50 final), p. 3

[107] "The Commission services do not intend to change the current institutional landscape. However,

establishment of broader "joint implementation strategies" with multilevel governance and more oversight of the implementation activities and that it may be more efficient to identify a single international body which uses its institutions and decision-making processes to define new policy initiatives of which the substance is discussed in consultation with the other international bodies. E-navigation and automation may be defined as new policy initiatives. This approach could further the harmonization of IWT as it has already done with regard to technical requirements of inland vessels and crew member qualifications. On the basis of amended EU RIS legislation the ES-RIS (CESNI/TI) Standards shall apply on the entire connected EU waterways network and, on the basis of CCNR regulation on the navigable Swiss part of the Rhine.

35. Automation or the use of unmanned vessels may have positive aspects such as an environmental advantage, increasing cost-efficiency, and even enhancing the safety, but under the present status of IWT law there is no sufficiently adapted legal framework with regard to the use of unmanned vessels. Technical requirements for inland vessels are settled nowadays on Union and international level, but need to be adapted for vessels at CCNR automation level 3 and above. In particular, new technical requirements applicable to smart systems need to be developed ([108]). CESNI having the (technical) mandate and authority to lay down technical requirements for unmanned vessels, legal barriers with regard to technical requirements of the used inland vessels therefore may be tackled. Qualification standards for crew members of

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further discussion with the various international bodies and their Member States is required in order to come to a clearer division of tasks between the various international bodies dealing with inland waterway transport building upon the respective strengths of each organisation. For instance, the Commission services consider that new approaches could be envisaged to better harness the expertise of the Central Commission for the Navigation of the Rhine (CCNR) in the field of the minimum technical requirements applicable to vessels on inland waterways and in the field of market observation. Furthermore, the implementation of existing, well established inland waterway transport-related policies could benefit from the establishment of broader "joint implementation strategies" with multilevel governance and more oversight of the implementation activities, interlinking were appropriate with the governance of the TEN-T corridors. The Commission services propose to "test" such a joint implementation strategy for the RIS policy implementation as outlined above under point 5. Conversely, for new or emerging policies, it may be more efficient to identify a single international body which uses its institutions and decision-making processes to define new policy initiatives of which the substance is discussed in consultation with the other international bodies. Once the policies have been adopted under the procedures of the reference institution, other bodies can complement the process with their decision-making processes. This approach has the advantage of less complexity, shorter policy-making cycles and coherence of approach if all the bodies are dealing with this approach. This model has already proven to be effective in the field of inland waterway transport of dangerous substances. For new or emerging policies, the Commission services therefore consider that dedicated open structures – common expert groups – should be set up. As indicated above, the Commission services intend to put in place such groups for two emerging priority areas: 1) professional qualifications and certification and 2) fleet emission standards. The expert groups should involve the key stakeholders and also key international bodies will be invited to participate." (Commission Staff Working Document – Towards "Naiades II" Promoting, greening and integrating inland waterway transport in the singe EU transport areas, SWD(2012), 168 final, 10-11)

[108] See : NZENGU, W., FAIVRE, J., PAUWELYN, A-S., BOLBOT, V., WENNERSBERG, L.A.L., THEOTOKATOS, G., "Regulatory framework analysis for the unmanned inland waterway vessel", *WMU Journal of Maritime Affairs*, 2021, (357-376), 367-368 and table 2 with a list of topics that need to be adapted

inland vessels are also settled nowadays on Union and international level, but this is not the case for minimum standard qualifications for those who are involved in the operation of unmanned vessels, such as remote operators, and in general those who are involved in the different automation systems. The scope of Directive (EU) 2017/2397 is mainly restricted to 'deck crew members', meaning persons who are involved in the general operation of a craft navigating on Union inland waterways and who carry out various tasks, such as tasks related to navigation, controlling the operation of the craft, cargo handling, stowage, passenger transport, marine engineering, maintenance and repair, communication, health and safety, and environmental protection, other than persons who are solely assigned to the operation of the engines, cranes, or electrical and electronic equipment. Remote-operators are not deck crew members, qualifications for remote-operators are not laid down in EU legislation.

36. Pursuant to the present state of this directive, CESNI can only adopt standards with regard to the qualifications for deck crew members. Setting up minimum qualification standards to deal with the effects of automation systems on required competences for nautical staff in inland shipping, may fall under the scope of the CESNI mandate, but this is not the case for elaborating minimum standards for remote operators. Even if remote operators could, from a legal point be regarded as crew members, which is not certain, it is even more complicated to rank them under the definition of deck crew members. Aboard a vessel navigation time of deck crew members must be recorded in a service record book, if a crew member so requests, whereas, for verifying manning requirements and recording journeys of the craft, crew members must also be recorded in the ships' logbook, which is kept aboard the vessel. In case of unmanned vessels, there are no crew members on board, remote operators have no navigation time. Furthermore, all current police and shipping regulations require that vessels are properly manned, taking in consideration the type of vessel and the navigation scheme. Also, with regard to the transport of ADN goods the presence on board of the vessel of a person qualified as safety adviser is required (see art. 7.1.3.15 en 7.2.3.15 AND juncto art. 14.01 Rhine Shipping Personnel), whereas in general in case of loading, stowage and unloading of inland navigation vessels these operations must be supervised by the carrier or one of his servants, in particular the captain of the vessel (see art. 3.5 CMNI).

37. The establishment of a common Union transport policy involves, taking into account the distinctive features of transport, laying down common rules applicable to international transport to or from the territory of a Member State or passing across the territory of one or more Member States (art. 91.1 a TFEU) and the conditions under which non-resident carriers may operate transport services within a Member State (art. 91.1 b TFEU), measures to improve the safety of transport by inland waterway (art. 91.1 c TFEU) ([109]) and any other appropriate measures (art. 91.1 d TFEU). On this point the Council has a wide margin of discretion ([110]). Article 92 TFEU

[109] Ex art. 71.1 c TEC, that was inserted by the Treaty of Maastricht in order to avoid discussions with regard to the competence of the Community in this field (see for such a discussion: E.C.J., 28 November 1978, case Schumalla, *Jur*., 1978, 2311)

[110] KAPTEYN, P.J.G. and VERLOREN VAN THEMAAT, P., *Introduction to the Law of the European Communities*, 3d. ed., London-The Hague-Boston, Kluwer International, 1998, 1182; Case C-17/90, Pinaud Wieger GmbH Spedition v. Bundesanstalt für den Güternverkehr, *E.C.R.*, 1994, 5253-5283

([111]), considered to be directly effective ([112]), contains a so called "standstill" clause, intending to prevent the introduction by the Council of a common transport policy from being rendered more difficult or from being obstructed, by the adoption, without the Council's agreement, of national measures the direct or indirect effect of which is to alter unfavourably the situation in a Member State of carriers from other Member States in relation to national carriers ([113]). The latter can also consist in an administrative practice ([114]).

38. In the absence of common Union rules, the right for EU residents to participate in international transport as well as cabotage under present EU law is subject to the laws, regulations and administrative provisions in force in the host Member State in the fields mentioned in art. 3 of Regulation 3921/91 ([115]), inter alia: (c) navigation and police regulations. In the absence of Union rules, this provision may be interpreted in this sense that EU Member States have the authority to lay down in their own navigation and police regulations conditions and standards with regard to the use of unmanned vessels. They are therefore – in principle - free to secure unmanned vessels access to their own waterways or to forbid access. In principle, because the issue of manning rules is now at the agenda of the EU. Although there is under secondary Union law no formal mandate, CESNI had included the elaboration of manning prescriptions in its work program after discussions with the Social Partners and the Member States. The sub-working group CESNI/QP/Crew has now presented the first draft roadmap with preliminary conclusions and recommendations.

39. Taking into consideration that the EU has expressed the intention to lay down manning prescriptions, it is not clear whether or not the EU Member States still have the competence, pursuant to art. 3 of Regulation 3921/91, to lay down standards and conditions for unmanned vessels in the police and shipping regulations applying on their territory. Each time the Union, with a view to implementing a common policy envisaged by the Treaty, adopts provisions laying down common rules, the Member States must abstain, acting individually or even collectively, from undertaking obligations towards non-member countries which affect those rules or distort their scope ([116]). But even if EU Member States can still make use of the competences pursuant to art. 3 of Regulation 3921/91, Member States can anyway only lay down the standards and

[111] "Until the provisions referred to in Article 91 (1) have been laid down, no Member State may, unless the Council has unanimously adopted a measure granting a derogation, make the various provisions governing the subject on 1 Januari 1958 or, for acceding States, the date of their accession less favourable in their direct or indirect effect on carriers or other Member States as compared with carriers who are nationals of that State".

[112] E.C.J., 31 March 1993, cases C-184/91 and C-221/91, *E.C.R.*, 1993, I, 1633 at 16660-1661 and *E.T.L.*, 1993, 587

[113] WÄGENBAUER, R., "Rechtsfragen der stillhalteverpflichtung des EWG-Vertrags auf dem Gebiet des Verkehrs", *S.E.W.*, 1964, 170; E.C.J., case 195/90, Commission v. Germany, 1992, *E.C.R.*, 1992, I, 3141.

[114] See with regard to fluvial transport: E.C.J., 31 March 1993, cases C-184/91 and C-221/91, Christof Oorburg and Serge van Messem v. Wasser- und Schiffahrtsdirektion Nordwest, *E.C.R.*, 1993, I, 1633 at 1660-1661 and *E.T.L.*, 1993, 587

[115] Regulation (EEC) n° 3921/91 of 16 December 1991 laying down the conditions under which non-resident carriers may transport goods or passengers by inland waterway within a Member State, *O.J.*, L 373 of 31.12.1991.

[116] See with regard to bilateral IWT agreements:; E.C.J., case C-266/03, 2 June 2005, ECLI:EU:2005:341 and E.C.J., case C-433/03, 14 July 2005, ECLI:EU:2005:462 (IWT bilateral agreements).

conditions applying on their own waterways. International transport of unmanned vessels therefore cannot be settled by national law but requires solutions at the international level.

40. Pursuant to art. 6 of Regulation 3921/91 does not affect the rights existing under the Revised Convention for the Rhine. With regard to Rhine navigation police and shipping regulations must be taken with common consent of all contracting States. The obligation *to regulate, by common consent, all that regards its navigation*" and the unity of the legal system is secured, in general terms, by art. 32 of the Revised Act of Mannheim referring to "police regulations in regard to navigation on the Rhine decided on by common agreement of the Governments of the riparian States" and art. 45a referring to "regulations drawn up by the contracting Governments and the measures which they have adopted by common agreement". The present Police Regulations for Navigation on the Rhine (RPNR) ([117]) and for the Rhine Navigation Personnel (RPN) ([118]) will have to be amended, because they do not allow the use of unmanned vessels. The European Code for Inland Waterways (CEVNI), which is the basis of almost all police and shipping regulations on EU inland waterways ([119]) provides for similar rules as the RPNR and therefore also will have to be amended. Also, on the basis of the AND Regulations (art. 4.01) ([120]), applying on al inland waterways of the interconnected EU-R waterway network an ADN expert should be on board the vessel.

41. Furthermore, as a consequence of automation and the use of unmanned vessels liability and insurance issues emerge. As a general example with regard to the carriers' liability under the CMNI convention, art. 3.3, the vessel must be manned as prescribed by the regulations in force. Is the vessel manned if it is unmanned, even if the regulation would allow vessels navigating unmanned ? Pursuant to art. 3.5 the carrier shall ensure that the loading, stowage and securing of the goods do not affect the safety of the vessel. How this will be done in case of an unmanned vessel ? Pursuant to art. 17.3 CMNI if an action is brought against the servants and agents of the carrier or the actual carrier, such persons, if they prove that they acted within the scope of their employment, are entitled to avail themselves of the exonerations and limits of liability which the carrier or the actual carrier is entitled to invoke under this Convention. Is a remote operator a servant or agent of the carrier or the actual carrier ? This is not clear. And in general, in practice many documents with regard to the goods to be transported, are directly given by the shipper to the boat master, who normally also signs the documents he receives.

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[117] Art. 1.02 explicitly requires the presence of a person on board of the ship with the necessary qualifications. This person is also responsible for making sure that everybody follows the regulation. Art. 1.03 refers to other people on board of the ship. Pursuant to art. 1.04 the presence of crew on board is required to exercise vigilance. Art. 1.08 explicitly requires the presence of enough crew on board. See further: art. 1.09, 4.06, 6.13.2, 6.32.1, 7.08.1

[118] See art. 3.15 and 4.01 RPN

[119] See e.g. : Dispositions fondamentales relatives à la navigation sur le Danube et recommendations spéciales portant sur les dispositions fondamentales relatives à la navigation sur le Danube, with later amendments ; Navigation Rules on the Sava River Basin (Decision 30/07) ; France : Règlement général pour la navigation intérieure 1973; Germany: Binnenschifffahrtstrassen-Ordnung; Netherlands: Binnenvaartpolitiereglement 1984 ; Belgium: Algemeen politiereglement op de binnenwateren van het Koninkrijk 2006. On inland waterways that are also open for maritime navigation the IMO Convention on the International Regulations for Preventing Collisions at Sea applies, but also regulations based on this convention provide that vessels always must be manned.

[120] Directive 2008/68/EC of the European Parliament and of the Council of 24 September 2008 on the inland transport of dangerous goods, *O.J.*, L 260, 30.9.2008

42. With regard to the CLNI 2012 convention, is a remote operator a person entitled to avail himself of the limitation of liability provided for in this Convention (art. 1.3) and/or may the remote operator be regarded as “operator of the vessel” (art. 1.1) ? Pursuant to art. 5 of the Convention relating to the unification of certain rules concerning collisions in inland navigation Geneva, 15 March 1960, a vessel is also liable for a collision if the fault has been committed by a pilot, even if the presence of a pilot is mandatory. But what if the fault has been committed by a remote operator who is not on board. Is such a fault a navigation fault or error and a fault of a crew member ? Liability issues may also rise in respect of the transport of dangerous goods, given the fact that an ADN expert must be on board.

43. Last but not least, the CDNI convention and Chapter II, Annex II of the convention provide for obligations incumbent on the boat master. The latter is – in the not authentic English text - defined as “the person under whose authority the vessel is placed” (art. 1k) CDNI). In the authentic French text is spoken of the "conducteur", defined as “personne qui assure la conduite du bâtiment”, in the authentic German text is spoken of the "Schiffsführer", being “die Person, unter deren Führung das Fahrzeug steht” and finally in the authentic Dutch text is spoken of "schipper", being “degene onder wiens leiding het schip staat”. The remote operator is not the boat master/conducteur/Schiffsführer/schipper. Art. 11 of the convention provides for a general duty of vigilance: The boat master, the other members of the crew, the other people *on board*, … shall be required to demonstrate the utmost vigilance required by the circumstances in order to prevent polluting the waterway, limit as much as possible the quantity of waste generated on board, and avoid as far as possible any mixing of the different categories of waste.”

44. Art. 11 makes it clear that the remote operator is not the boat master nor a member of the crew or another person *on board* the vessel. Art. 11 does not provide for a similar general duty of vigilance, although it is logical that, given the fact that he is involved in the operation of the vessel, this duty should also be incumbent on the remote operator. Art. 12 and Chapter II, V and IX of Annex II provide for particular obligations incumbent on the boat master. But in the case of unmanned vessels there is no boat master. Pursuant to art. 7.02 of Annex II a copy of the attestation of unloading must be signed by the boat master. Pursuant to art. 16 of the CDNI convention the Contracting States shall sanction any infringements of the obligations and prohibitions stipulated in the present Convention and its Implementing Regulation committed on their territory, in compliance with their respective national provisions. But in the case of an unmanned vessel it is not clear how infringements of the obligation incumbent on the boat master will be sanctioned. A revision of the CDNI convention therefore will be necessary.

CONCLUSIONS AND RECOMMENDATIONS

45. Digitalisation, automation and other modern technologies contribute to the competitiveness, safety, and sustainability of the inland navigation sector. The European green deal requires sustainable, smart and resilient transport of goods and people (“aka mobility”) and demands a full cooperation between the different transport modes to realize this objective. Climate-neutral, resilient and intelligent synchromodal automated transport may be seen as a means in order to reach the ambitions of the Green Deal and the goals of the CCNR Mannheim Declaration of 2018 to accelerate the integration of inland navigation into digital and multimodal logistic chains. In order to reach synchromodality a Common Framework for multimodal digitalisation may be a necessary instrument. This could eventually be done within the context of the revision of the only yet applying Directive regarding combined transport.

46.
Automated shipping and in particular the use of unmanned vessels in international transport requires adaptation of the present IWT legal framework. International transport of unmanned vessels cannot be settled by national law but requires solutions at the international level in close cooperation between the European Commission, the CCNR, the Mosel Commission, the Danube Commission and the Sava River Basin Commission. All current police and shipping regulations require that vessels are properly manned, taking in consideration the type of vessel and the navigation scheme. Also, liability issues involved with the use of unmanned vessels and the call on remote operators, including vessel owners' limitations of liability, are not settled in a proper way, thus creating legal uncertainties. Furthermore, qualifications for remote-operators are not yet laid down in EU legislation. Many other legal issues (AND, CMNI, CDNI) have implications with regard to the use of unmanned vessels.

47.
In order to overcome legal issues related to the competences of the European Commission on the one hand and river commissions on the other, in particular the CCNR, and to take in consideration that IWT does not stop at the borders of the EU, CESNI can play a central role as a go-between in the elaboration of common rules applicable to, at least, the entire European interconnected waterways network (EU + Switzerland) and, if possible, beyond. While the development and use of CESNI standards and the CESNI mandate is already fully integrated into the EU Legal IWT Framework regarding technical requirements for inland waterway vessels and qualifications of deck crew members of inland waterway vessels, it may be desirable to formalise this practice also with regard to technological matters, including matters related to e-navigation, automation and the use of unmanned vessels as well as synchromodality.

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