CENTRAL COMMISSION FOR THE NAVIGATION OF THE RHINE (CCNR)

Hester DUURSEMA, Secretary General

20.05.2026

CCNR
CENTRAL COMMISSION
FOR THE NAVIGATION OF THE RHINE

01

The CCNR: more than 200 years of history

CCNR
CENTRAL COMMISSION
FOR THE NAVIGATION OF THE RHINE

THE OLDEST INTERNATIONAL ORGANISATION STILL IN OPERATION

Created in **1815** (Final Act of the Congress of Vienna)

Headquarters: **Strasbourg/Palais du Rhin** since 1920

Today **5 Member States**:
Germany, Belgium, France, the Netherlands, Switzerland

Essential regulatory role

Major principles of the Rhine regime:

» **FREEDOM** of navigation
» **EQUAL** treatment
» **SINGLE** legal regime
» **PROSPEROUS** navigation

HISTORICAL OVERVIEW

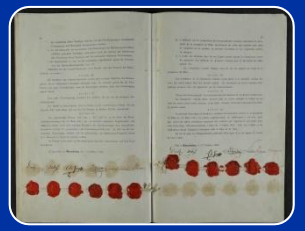
Congress of Vienna

1815

Creation of the CCNR

1831

Mainz Act



1868

Mannheim Act

Palais du Rhin

1920

Setting up of the CCNR in Strasbourg

1939-45

1963

Revision of the Mannheim Act

2003 & 2013

1st arrangements CCNR-EC

2015

Creation of the CESNI

NAVIGATION BY SAIL AND HAULAGE

STEAM NAVIGATION

DIESEL ENGINE NAVIGATION

ALTERNATIVE FUELS

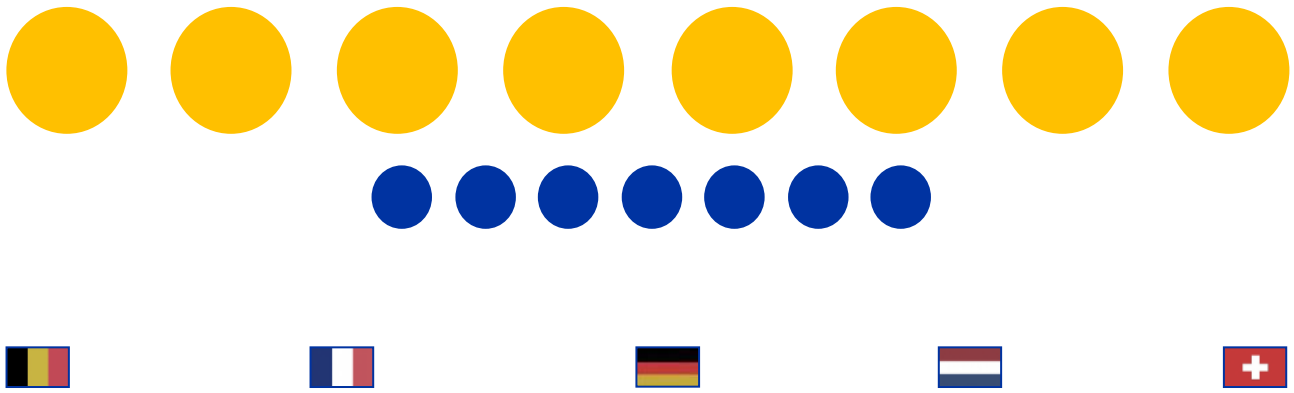
FUNCTIONING

Secretariat
~35 agents
in Strasbourg

organises
and prepares

PLENARY SESSIONS (2x/year)
Resolutions

Twenty or so Committees and Working groups



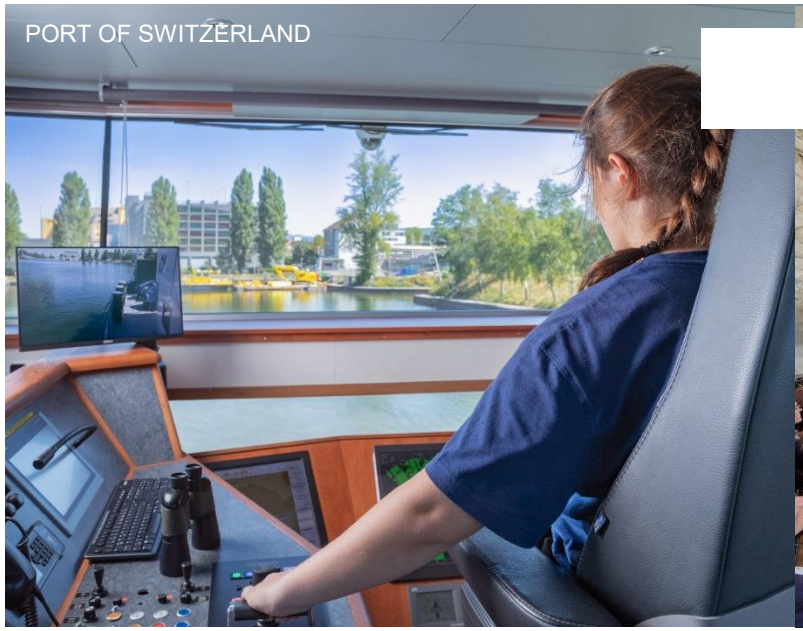
5 Member States each appoint
4 commissioners and 2 deputy commissioners + experts

INTERNATIONAL PARTNERS

12 Observer States

8 Observer Organisations

21 approved Organisations to the CCNR



RHINE AND EUROPEAN MISSIONS

Regulatory authority

- **Police** regulations
- Technical regulations for **vessels**
- **Crew** regulations
- International carriage of dangerous goods by inland waterways (ADN) with the UNECE
- European standards via the **CESNI**

Analysis and generating momentum

- Infrastructure and environment
- Economic studies
- Harmonisation of the law
- Conferences & workshops
- Technical assistance

But also…

- Chamber of appeal
- Administrative Centre of the Social Security for Rhine Boatmen (CASS)
- Convention on the collection, deposit and reception of waste generated during navigation on the Rhine and other inland waterways (CDNI)

02

Cooperation

CCNR-EU

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HISTORIC LANDMARKS OF THE CCNR/EC COOPERATION

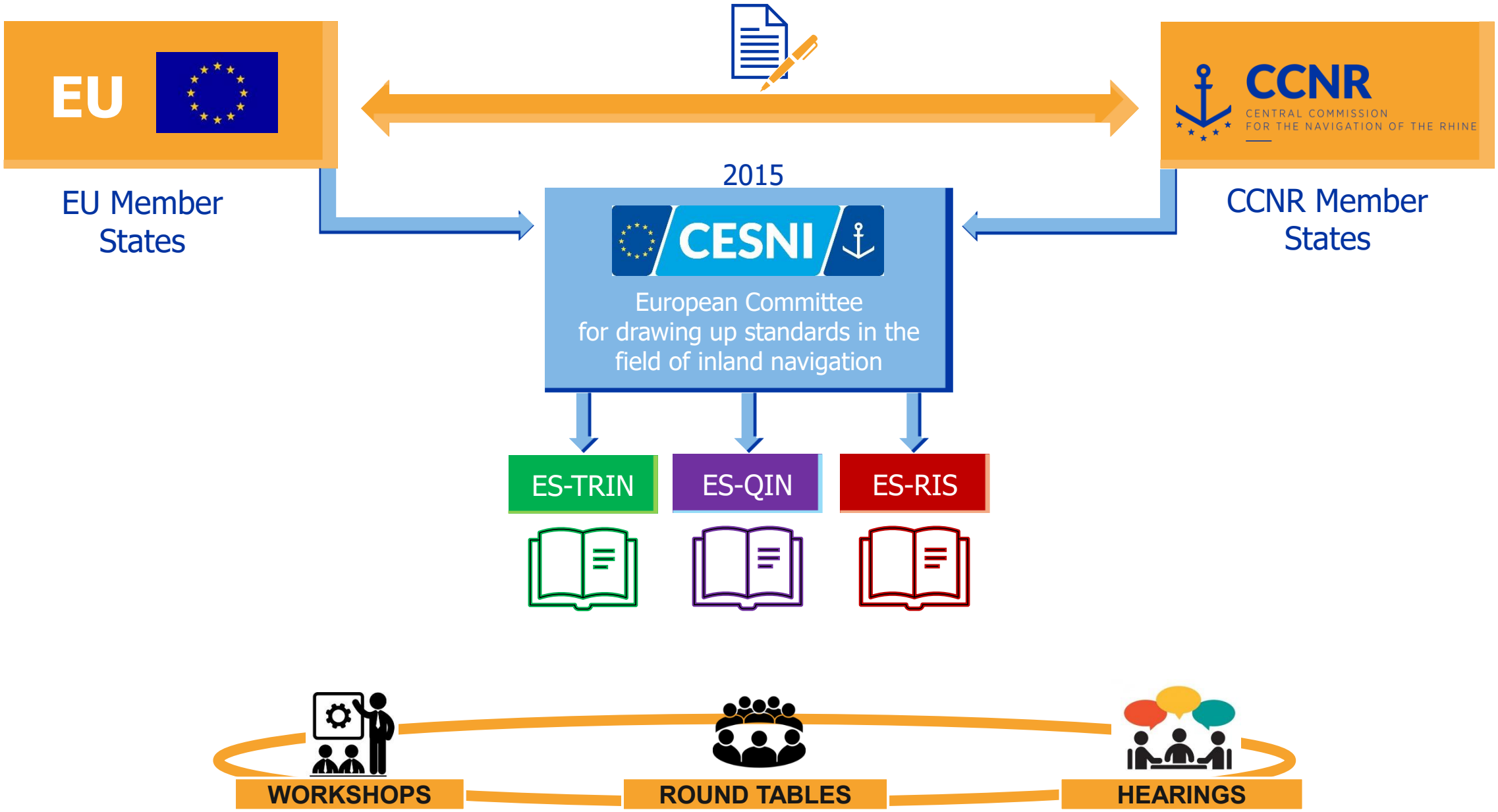
1959 : 1st meeting CCNR/European Commission

1970s and 1980s: discussions on free access to navigation and market liberalisation

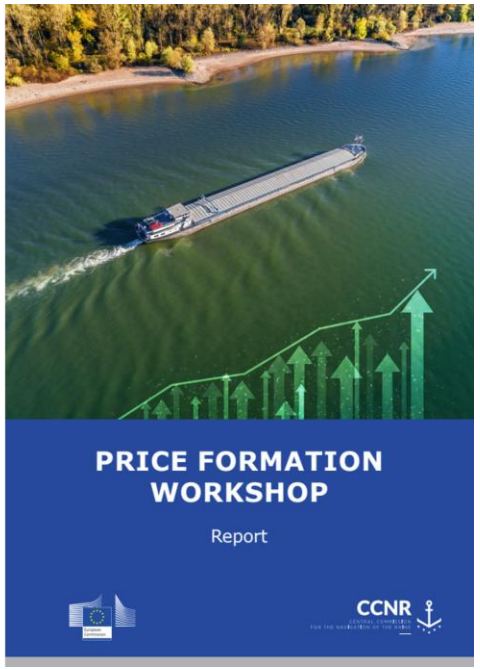
2003: signing of the 1st administrative arrangement on cooperation between the CCNR and the European Commission

2013: signing of the second administrative arrangement signaling the desire for enhanced cooperation

2015: creation of a European committee (CESNI) for developing common standards for the entire EU and CCNR


EU
CCNR
CENTRAL COMMISSION
FOR THE NAVIGATION OF THE RHINE
EU Member States
CCNR Member States
2015
CESNI
European Committee
for drawing up standards in the
field of inland navigation
ES-TRIN
ES-QIN
ES-RIS
WORKSHOPS
ROUND TABLES
HEARINGS

MARKET OBSERVATION ACTIVITIES



https://inland-navigation-market.org/

Analysis of the **European inland navigation market**

In partnership with the European Commission since 2005

To assist **strategic decision making** in this sector in Europe

03

The Rhine
and inland navigation

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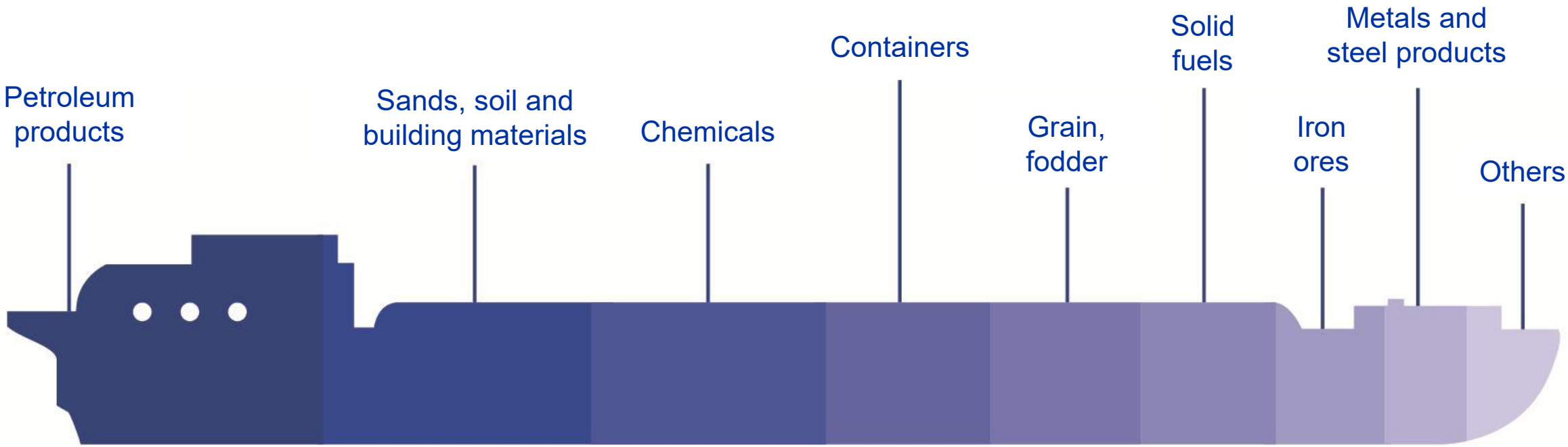
THE RHINE TODAY

» At the **heart** of the European waterways **network**

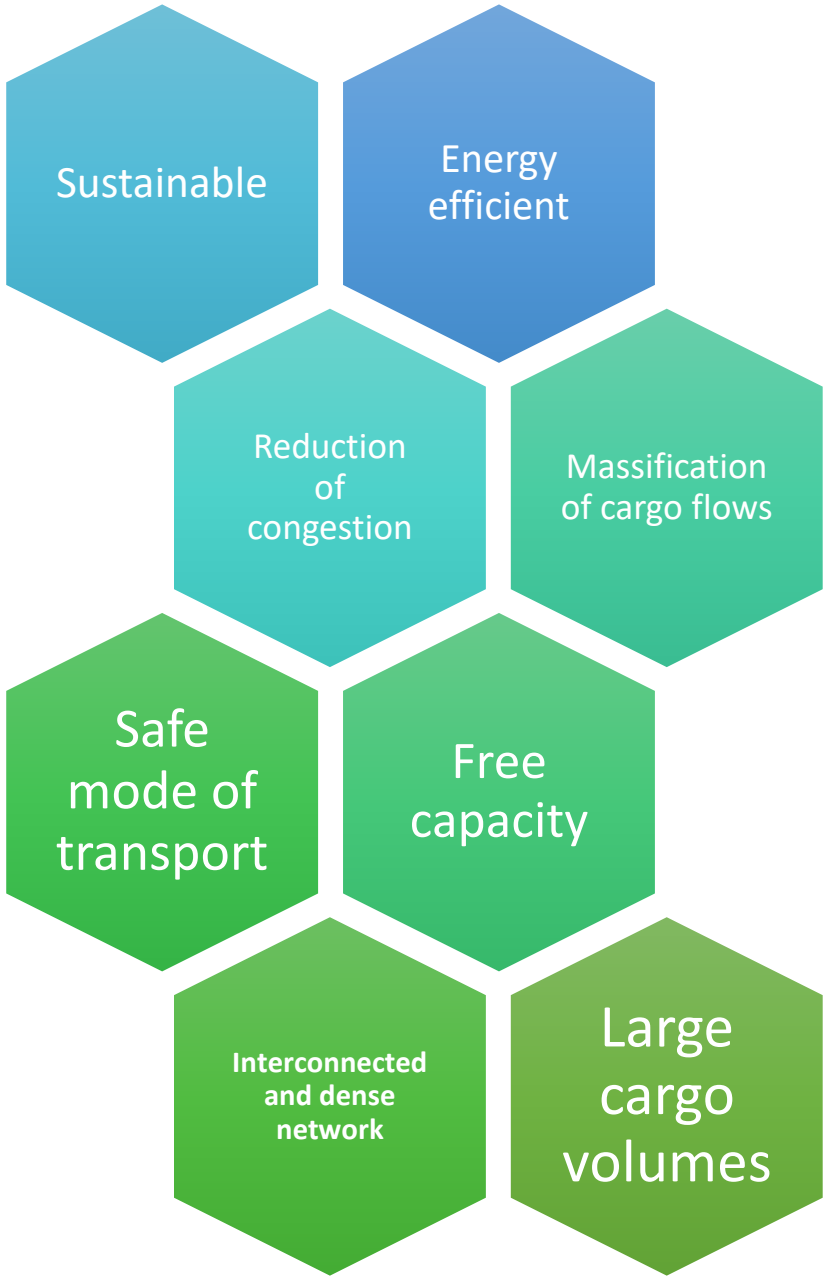
» **The Rhine is the busiest river** in Europe: **2/3 of all goods** are transported on it

» **300 millions tonnes/year** on the Rhine, transported by **10,000 vessels**

GOODS TRANSPORTED ON THE RHINE



Breakdown of transport on the Rhine by type of goods (average for 2014–2023)



ADVANTAGES OF INLAND NAVIGATION

Large container vessel
Length 135 m
Width 17 m
Draught 3.50 m
Cargo capacity 500 TEU

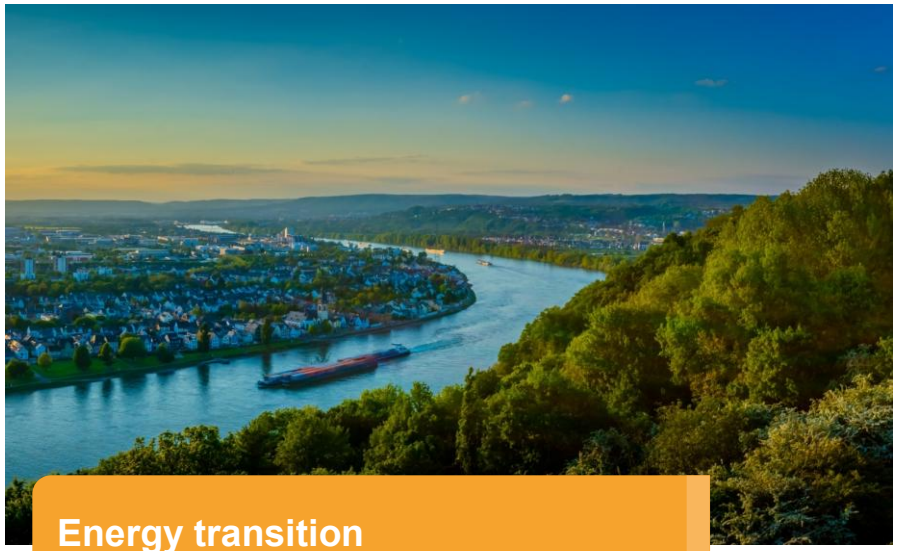
= 250

Large Rhine vessel
Length 110 m
Width 11.40 m
Draught 3.00 m
Cargo capacity 2,750 t

= 120

30 gCO_2/tkm (IWT) = **540 gCO_2/tkm (road)**

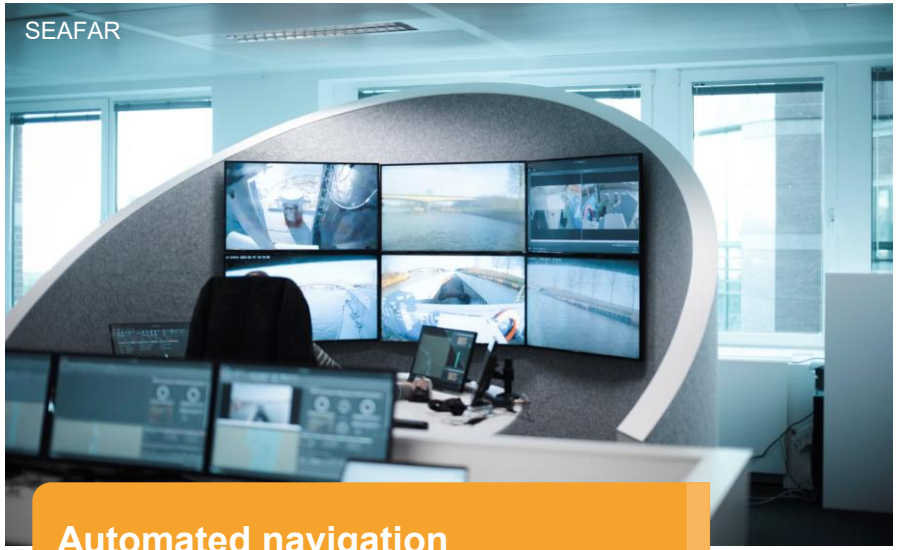
CURRENT CHALLENGES



Energy transition

Climate change and low waters

Digitalisation and other modern technologies



SEAFAR

Automated navigation

PORT OF SWITZERLAND

Attractive jobs and training courses

04

Focus on
Energy transition

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Initial situation

- Energy transition seen as a **crucial challenge** for Rhine and European inland navigation
- Innovations to reduce emissions from **existing and new vessels** have increased but are limited to pilot projects
- Pilot projects are of **utmost importance** to:
  - gain knowledge of new technologies
  - addressing **economic, financial, technical and regulatory obstacles** to their deployment

Push boat with Hydrogen Fuel Cell and batteries (Elektra)

Passenger vessel with batteries (Ducasse sur Seine)

Retrofit of 1931 passenger vessel with batteries (MNE Ceresio)

Vessel with exchangeable battery containers for propulsion

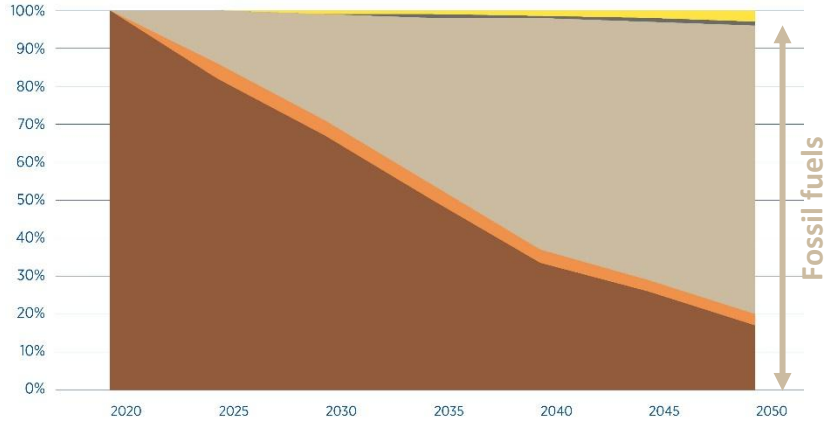
Port of Antwerp-Bruges – European Fastwater (tugboat conversion to diesel-methanol propulsion)

Transition pathways for IWT
by 2035 and 2050

Three possible transition pathways for IWT

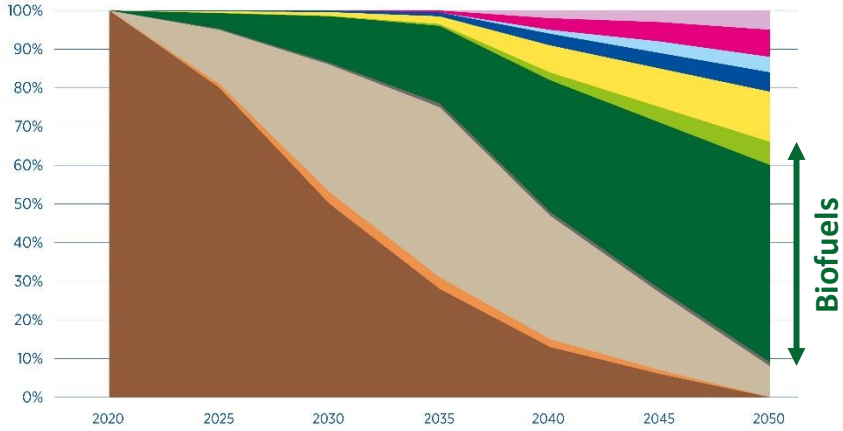
The following figures show the development of fuel share (in %) within the fleet (new and existing vessels) towards 2050 …

1 … in the “business-as-usual” scenario



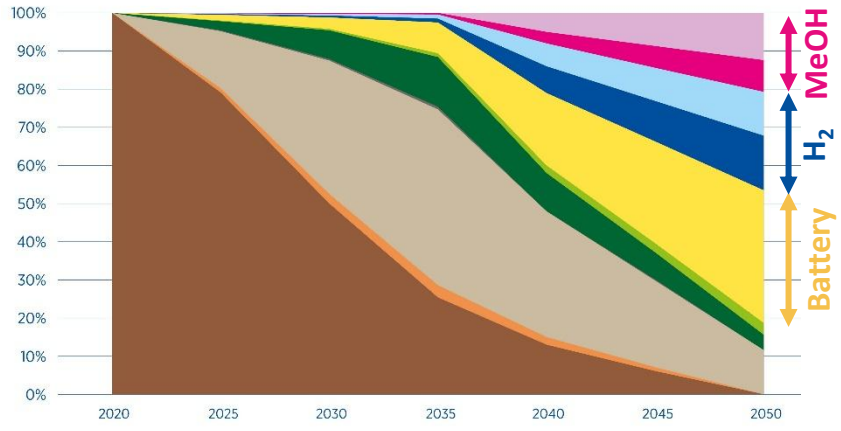
GHG: -22% by 2050
NO_x: -76% by 2050
PM: -83% by 2050

2 … on the “conservative” pathway



GHG: -91% by 2050
NO_x: -90% by 2050
PM: -96% by 2050

3 … on the “innovative” pathway

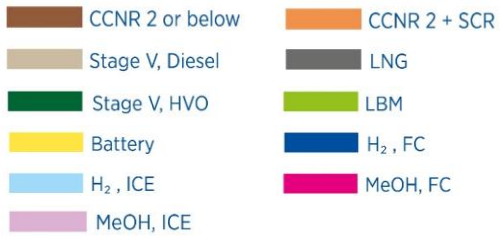


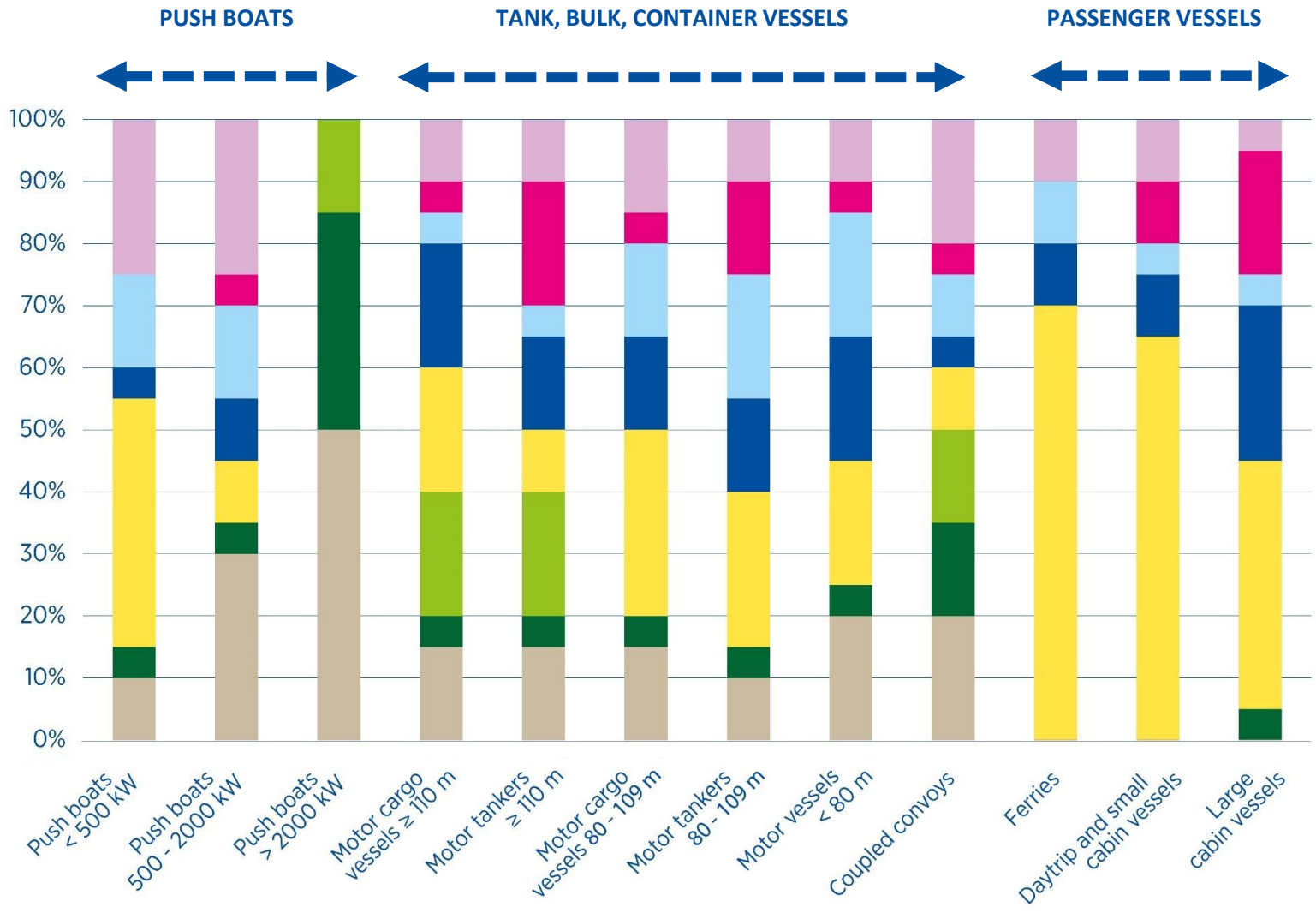
GHG:-91% by 2050
NO_x: -94% by 2050
PM: -98% by 2050

In-depth review of the “innovative” pathway

Technology share for each fleet family in 2050

(new build and existing vessels)





POLLUTION PREVENTION

CCNR police regulations & CDNI

Police regulations of the CCNR

- Chapter 15 on “River protection and disposal of waste produced aboard craft”

CDNI (Convention on the collection, deposit and reception of waste generated during navigation on the Rhine and other inland waterways)

- International convention with 6 Contracting States: Belgium, Germany, France, Luxembourg, the Netherlands, Switzerland
- Seat in Strasbourg

Objectives

- **Environmental**, **water** and **air** protection (ban on degassing)
- Better **control of the production of waste** arising during vessel operation

How?

- Develop and implement **international rules**
- Ensure an **international financing system: “polluter-pays-principle”**

05

Focus on

Climate adaptation & low waters

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CLIMATE ADAPTATION & LOW WATERS

Act now!

- **Low waters, natural phenomenon** on the Rhine (example 2018, 2022)
- **Negative impact** of low water on the **volume of goods transported**, as the draught is reduced
- Phenomenon will increase with climate change even if in average more water over the year
  - More water ≠ more transport capacity
  - **IWT is not a climate change winner**

- "Act Now!" reflection paper on possible measures
  - **No single, universal solution**: combination of different measures
  - Action is needed in several areas: digital tools, **infrastructure, shipbuilding and shippers/logistics sector**

06

Focus on

Digitalisation and automation

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FOR THE NAVIGATION OF THE RHINE

Mannheim Declaration “150 years of the Mannheim Act – the driving force behind dynamic Rhine and inland navigation”

1. *“… WE welcome the CCNR’s leading and pioneering role as a **centre of excellence** for Rhine and inland navigation in Europe and wish to build on this.”*

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.”*

Digitalised Rhine Patent

Electronic documents

Electronic reporting of information

Automated navigation

DIGITALISATION, AUTOMATION

and other modern technologies

MODERNISATION OF THE RHINE POLICE REGULATIONS

Definition of the levels of automation (updated 2023)

	Level of automation[1]	Designation	Craft command (steering, propulsion, wheelhouse, etc.)	Monitoring of and responding to navigational environment	Fallback performance of dynamic navigation tasks
BOATMASTER PERFORMS PART OR ALL OF THE DYNAMIC NAVIGATION TASKS	0	**NO AUTOMATION** the full-time performance by the boatmaster of all aspects of the dynamic navigationtasks, even when supported by warning or intervention systems			
	1	**STEERING ASSISTANCE** the context-specific performance by a steering automation system using certain informationabout the navigational environment and with the expectation that the boatmaster performs all remaining aspects of the dynamic navigation tasks			
	2	**PARTIAL AUTOMATION** the context-specific performance by a navigation automation system of both steering and propulsion using certain information about the navigational environment and with the expectation that the boatmaster performs all remaining aspects of the dynamic navigation tasks			
SYSTEM PERFORMS THE ENTIRE DYNAMIC NAVIGATION TASKS (WHEN ENGAGED)	3	**CONDITIONAL AUTOMATION** the sustained context-specific performance by a navigation automation system of all dynamic navigation tasks, including collision avoidance, with the expectation that the human boatmaster will be receptive to requests to intervene and to system failures andwill respond appropriately			
	4	**HIGH AUTOMATION** the sustained context-specific performance and fallback performance, by a navigation automation system of all dynamic navigation tasks without expecting a boatmaster responding to a request to intervene[2]			
	5	**AUTONOMOUS = FULL AUTOMATION** the sustained and unconditional performance and fallback performance, by a navigation automation system of all dynamic navigation tasks, without expecting a boatmaster responding to a request to intervene			

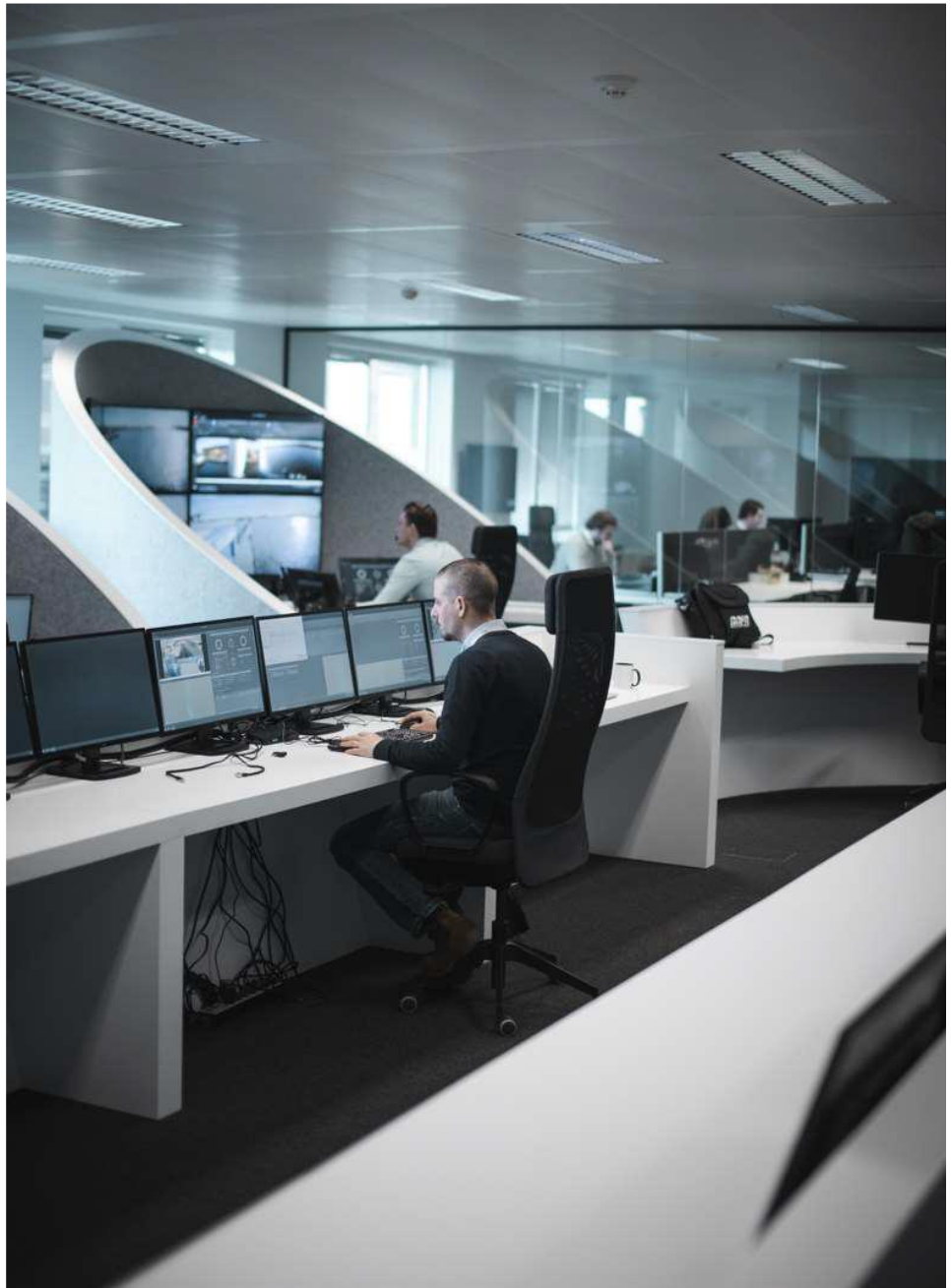
[1] Different levels of automation may make use of remote control but different conditions to be defined by competent authorities might apply in order to ensure an equivalent level of safety.

[2] This level introduces two different functionalities: the ability of "normal" operation without expecting human intervention and the exhaustive fallback performance. Two sub-levels could be envisaged.

Automated navigation: Action taken over by a system

≠

Remote controlled ship: Action performed remotely by a human or a system



In April 2022, the CCNR adopted a vision to support the harmonised development of automated navigation.

SUMMARY OF THE CCNR'S VISION TO SUPPORT THE HARMONISED DEVELOPMENT OF AUTOMATED NAVIGATION

Ref.: CC/CP (21) 08

ABOUT THE CCNR

The Central Commission for the Navigation of the Rhine (CCNR) is an international organisation that exercises an essential regulatory role in the navigation of the Rhine. It is active in the technical, legal, economic and environmental fields. In all its areas of action, its work is guided by the efficiency of transport on the Rhine, safety, social considerations, and respect for the environment. Many of the CCNR's activities now reach beyond the Rhine and are directly concerned with European navigable waterways more generally. The CCNR works closely with the European Commission as well as with the other river commissions and international organisations.

The Mannheim Declaration calls 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". The CCNR is responding to this call and, as it has done with other innovations, is keen to place Rhine navigation at the forefront of the harmonised development of automated navigation, not least through its close cooperation with the shipping industry, while bearing in mind that the development of automated navigation is not an end in itself.

Automation implies a fundamental change for inland navigation and will affect almost all aspects of inland navigation. The CCNR therefore takes a global approach, taking account of legal, ethical and social aspects. Automated navigation is indeed a challenge, as it involves the safe coexistence of automated vessels and "conventional" vessels. Furthermore, this automated navigation will have to be integrated into the existing context of Rhine navigation. Similarly, automated navigation will have to be adapted to the existing physical infrastructure, which is likely to require the provision of additional information.

As a first step in fostering this development, the CCNR will create a framework for the authorisation of pilot projects which require temporary derogations from CCNR regulations. The aim of these pilot projects is to gather experience and to take this into account in future work on adapting the CCNR regulations. The CCNR also hopes that the procedure developed for authorising such projects will inspire its member states to examine projects on their national waterways or transnational projects and thus contribute to harmonisation on an international scale.

In order to face the specific challenges posed by automated navigation, the CCNR has revived its Small Navigation Committee (RN), originally established to tackle and coordinate innovative and cross-sectoral developments in Rhine navigation. The Small Navigation Committee will process applications for approval of pilot projects and, in close collaboration with the other committees concerned, will direct and coordinate all work related to automated navigation.

Given the cross-sectoral nature of automation, the CCNR considers it necessary to develop simultaneously the requirements for the operation of vessels, the training of personnel and the composition of crews, as well as the technical requirements for vessels and those relating to information technology and liability. To this end, the CCNR will update its own regulations (RPNR, RVBR, RPN) and also propose to the European Committee for drawing up Standards in the field of Inland Navigation (CESNI) the development of any standards it deems necessary to ensure the safety of navigation and to allow the harmonisation of regulations on a European scale. The CCNR has already made a start on the work required, in the knowledge that regulations to ensure the safety of navigation will also contribute to greater legal certainty for investments.

During its plenary session in December 2018, the CCNR adopted the first international definition of the various levels of automation in inland navigation. The CCNR believes that this definition will need to be amended to take account of new developments, and a revision of the definition is already planned.

These different levels of automation offer a good starting point for the prioritisation of work. In the short term, the CCNR considers it necessary to work on minimum requirements and/or recommendations for inland navigation guidance aids corresponding to level 2 of the definition (automated navigation system for both steering and propulsion). In parallel with the automation itself, the CCNR also intends to work on the conditions for operating an automated vessel from a central facility for the remote control and monitoring of vessels. In the medium term, work could start on systems that fall under level 3 of the definition.

With this in mind, the CCNR has drawn up this vision as an instrument for directing and coordinating the work to be carried out in the period 2022 to 2028 and beyond.

CCNR
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Automated navigation means a profound transformation of inland navigation.

The development of automated navigation is not an end in itself… but a way of increasing competitiveness or modal share.

New risks need to be overcome to maintain an equivalent level of safety.

Ongoing work related to remotely automated vessels

- Granting **authorizations for pilot projects**
  - CCNR granted 3 first authorization for remotely operated pilot projects on the Rhine in December 2023. Up to now, in total 11 authorizations were granted. (Authorization means derogation from CCNR regulations)
  - Tests are on going. All pilot projects are based on the phase 2 : vessel is remotely operated but with a full crew on board.
  - Objective = gain experience and prepare the phase 3 (reduced or optimized crew on board)

- **On going**
  - **gap analyses of CCNR regulations** (RVIR, RPR, RPN): preparatory work for the gap analyses between CCNR regulations and automation /remotely operated vessels needs
  - **development for requirements** for the ROC and for the vessel, thereby speeding up the assessment of pilot projects

=> Dedicated website on automation : https://www.ccr-zkr.org/12050000-en.html

07

Focus on
Personnel

CCNR
CENTRAL COMMISSION
FOR THE NAVIGATION OF THE RHINE

IMPORTANCE OF WELL TRAINED PERSONNEL

Attractive careers

New chances for **labour mobility**

Qualifications adapted to **new challenges**

Modernise **career pathways** and **control (e-tools)**

The question is not whether inland navigation will change.
The question is whether we can shape that change together