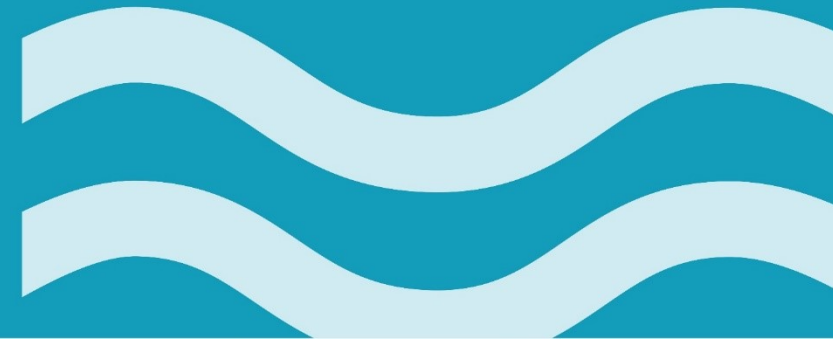




# Masterplan Digitalisation of Inland Waterways

Martijn van Hengstum

22 March 2023



# What has already been done?



Study for investigating potential for digitalization in IWT sector (DINA)

1. The improvement of navigation and management of traffic
2. The integration with other modes of transport, especially in multimodal hubs
3. A reduction of the administrative burden

Conclusion: It is essential for the future competitiveness of inland waterway transport to follow the trends in digitalization



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# The 'DIWA' high level vision

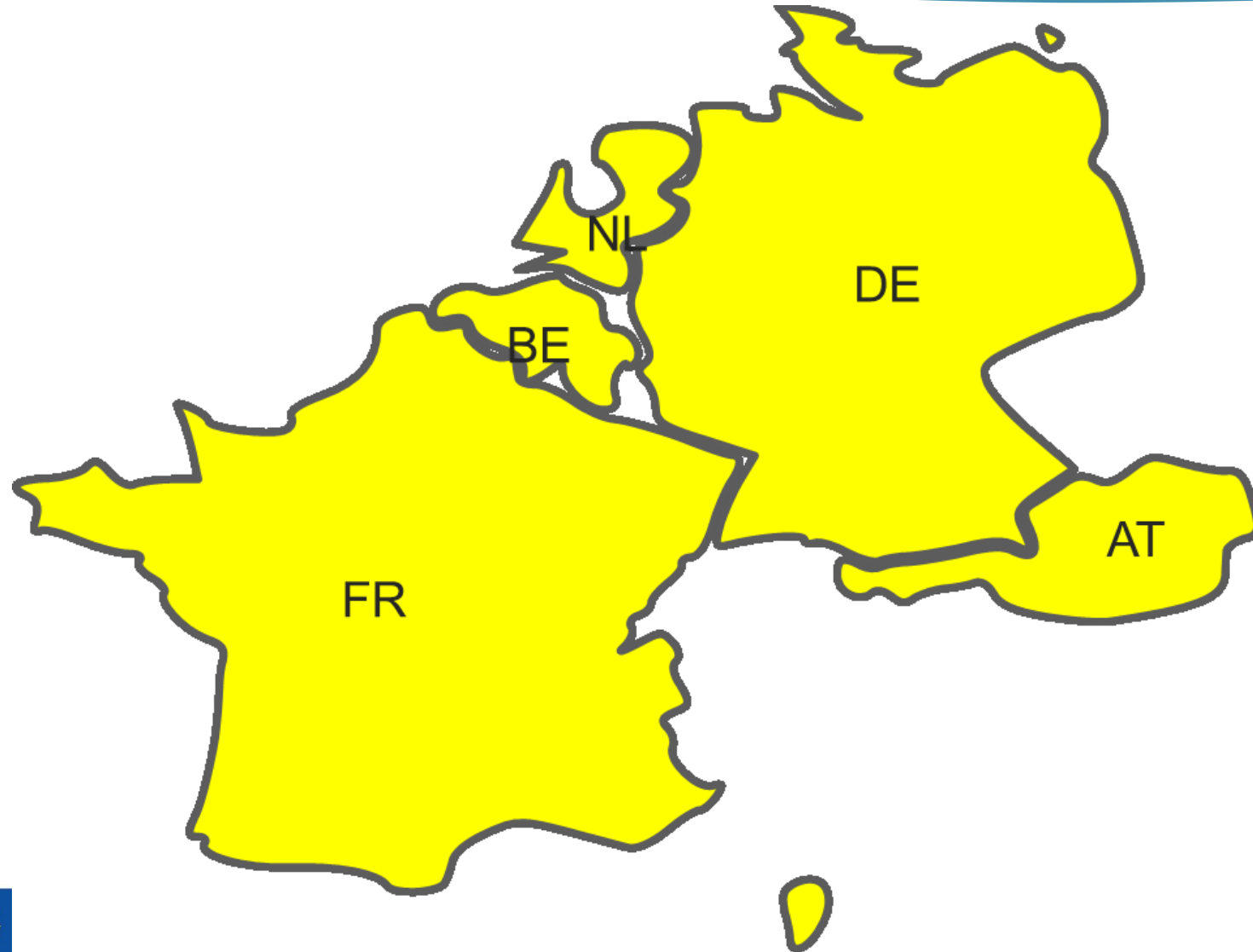
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*“The main objectives of the digital transformation of IWT are to make IWT safer, traffic and transport more efficient, the IWT transport activities and logistics connected, integrated, automated and transparent and the IWT domain more sustainable and attractive. DIWA will study and define a common coordinated approach (i.e. a masterplan) of the fairway authorities towards the digital transformation of IWT in order to strengthen the position of IWT and modal share in the smart, sustainable and synchro modal supply chains in the next decade.”*

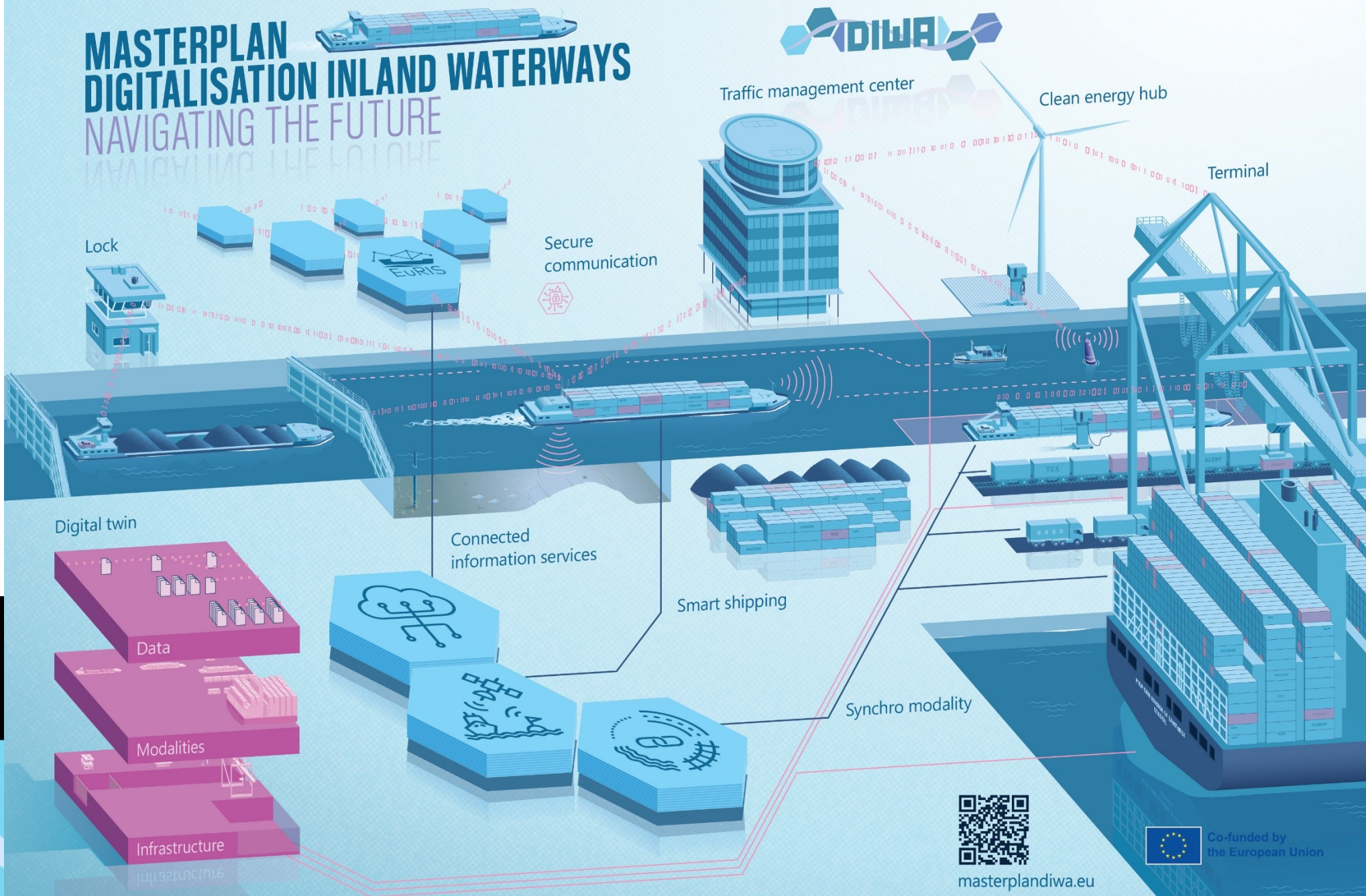


# Participants

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# MASTERPLAN DIGITALISATION INLAND WATERWAYS NAVIGATING THE FUTURE



Lock

EURIS

Secure communication

Traffic management center

Clean energy hub

Terminal

Digital twin

Data

Modalities

Infrastructure

Connected information services

Smart shipping

Synchro modality



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# Flow



## Activity 2 Business Developments

- 2.1 Smart shipping
- 2.2 Synchro modality
- 2.3 Port & terminal information service
- 2.4 RIS enabled corridor management
- 2.5 ITS, ERTMS, e-navigation

## Activity 3 Technological Developments

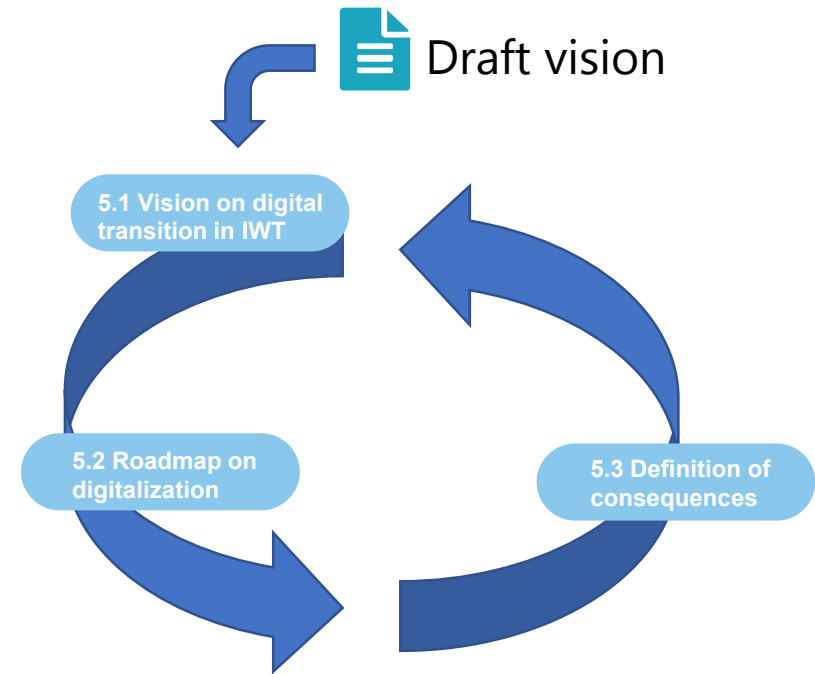
- 3.1 New technologies
- 3.2 IWT connectivity platform
- 3.3 Smart sensing & PNT
- 3.4 Information model & data registry
- 3.5 Tech in other transport domains

## Activity 4 Facilitation topics

- 4.1 Standardization
- 4.2 Legal & regulatory
- 4.3 Cybersecurity & privacy
- 4.4 Data quality

Recommendations,  
actions,  
alternatives,  
Challenges,  
opportunities

## Activity 5 Masterplan



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# Business developments

## Smart shipping

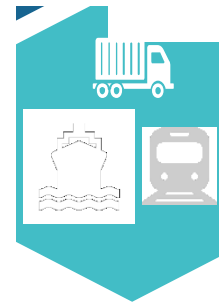
What kind of smart infrastructure, smart regulation and smart data(connections) is needed ?

## Synchro modality

Information services across the complete multi modal transport chain (B2B, B2A, A2B, A2A)

## Port & Terminal information service

A central hub in transportation and to exchange data



## RIS enabled corridor management

Single EU information window on IWT and the future developments

## ITS, ERTMS, E-navigation

Which data services are operational in other modalities? Re-use of information services from rail, aviation ,maritime and road transport domains in IWT

Reports are final  
[www.masterplandiwa.eu](http://www.masterplandiwa.eu)



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Technological developments



Facilitators

# Technological developments



## New technologies

Application of technologies like Artificial Intelligence and working towards a digital twin

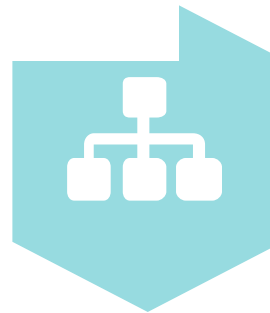
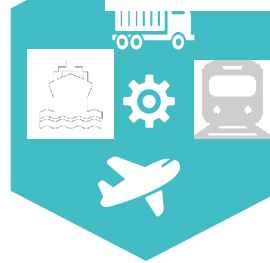


## IWT connectivity platform

Data exchange technology and interconnection in multi modal transport, start with the position of EuRIS

## Smart sensing & PNT

Sensor technology and Position, Navigation & Timing technology requirements, consequences



## Information model & data registry

Elaboration of RIS-net and other reference data

## Technology in other transport domains

Alignment with architectural frameworks across transport modes (like NDLC, MASS and S100)

Reports are available for feedback on [www.masterplandiwa.eu](http://www.masterplandiwa.eu)



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# Facilitators

## Standardization

Collection, integration, exchange, presentation and analysis of data, information and systems



## Legal & regulatory

Overview of obligations and restrictions but also advise on measures to be taken, especially on smart shipping

## Cybersecurity & privacy

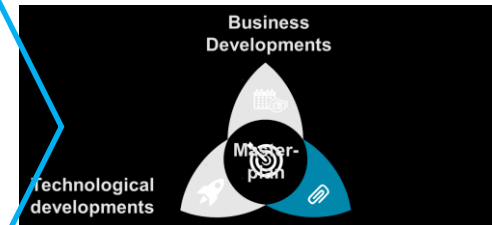
Measures for prevention & awareness, detection and reaction to cyber-attacks



## Data quality

Pre-conditions and requirements on data quality management related to IWT services, systems and information.

Expected  
in Q2 2023  
for  
feedback



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# MASTERPLAN DIGITALISATION INLAND WATERWAYS ROADMAP



## DATA SHARING



- Explore whether EuRIS can serve as
  - Connectivity platform
  - EU mobility data space
  - Data exchange platform with port community systems and terminals

2032

### Goals

- Safe and efficient navigation
- Digital by default
- Synchro modality
- Sustainability
- Digital twin

## HARMONISATION OF MODALITIES

- Support harmonisation of synchro modal transport
- Learn from maritime, aviation, road and rail



## PROCESS AND ORGANISATION

- EU-wide cooperation and development
  - Maintenance EuRIS
  - Reference data
  - Improve data quality
  - Intermodal standardisation



- Cyber resilient organisations
- Secure communication flows

## TECHNOLOGY

- EuRIS
  - Centralise data services
  - Extend and further develop
  - Encourage the use



- Support communication
- Reliable connections
- Support smart shipping
- Adopt new sensors

## DATA QUALITY



- Raise data quality
- Organise feedback loop



# Planning

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Q2 2023:

- Publish reports on facilitating topics (act 4) and the Masterplan DIWA (act 5) for feedback

Q2/Q3 2023:

- Discussion with stakeholder groups about the results, finalizing reports
- Finalizing the project

