De Vlaamse Waterweg nv

Autonomous vessels on inland waterways

Ann-Sofie Pauwelyn
RIS Project Manager Smart Shipping

CIW – Innovatie in het Waterbeheer - 30/11/2018

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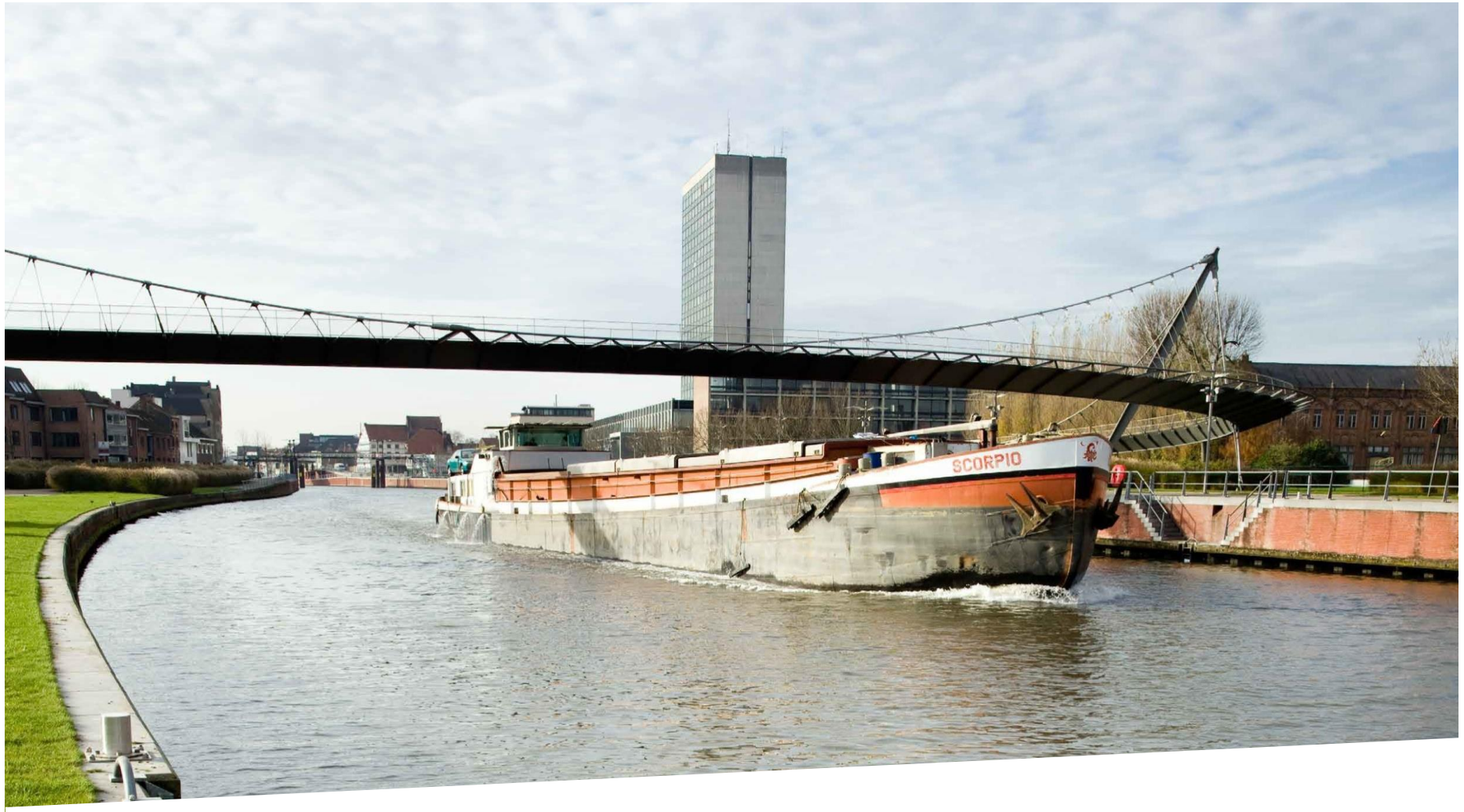

1. De Vlaamse Waterweg nv

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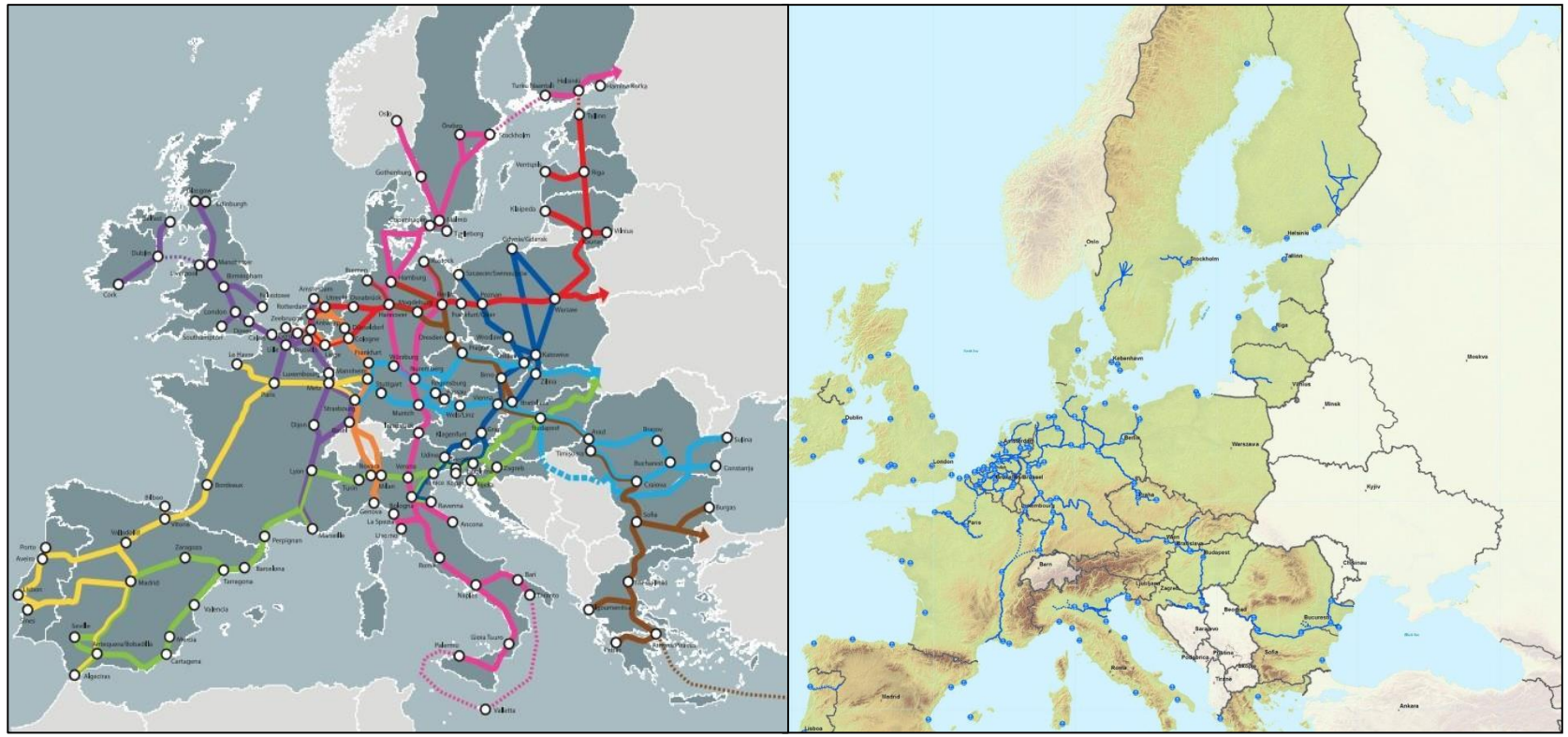
The Flemish waterway network, an asset for Europe



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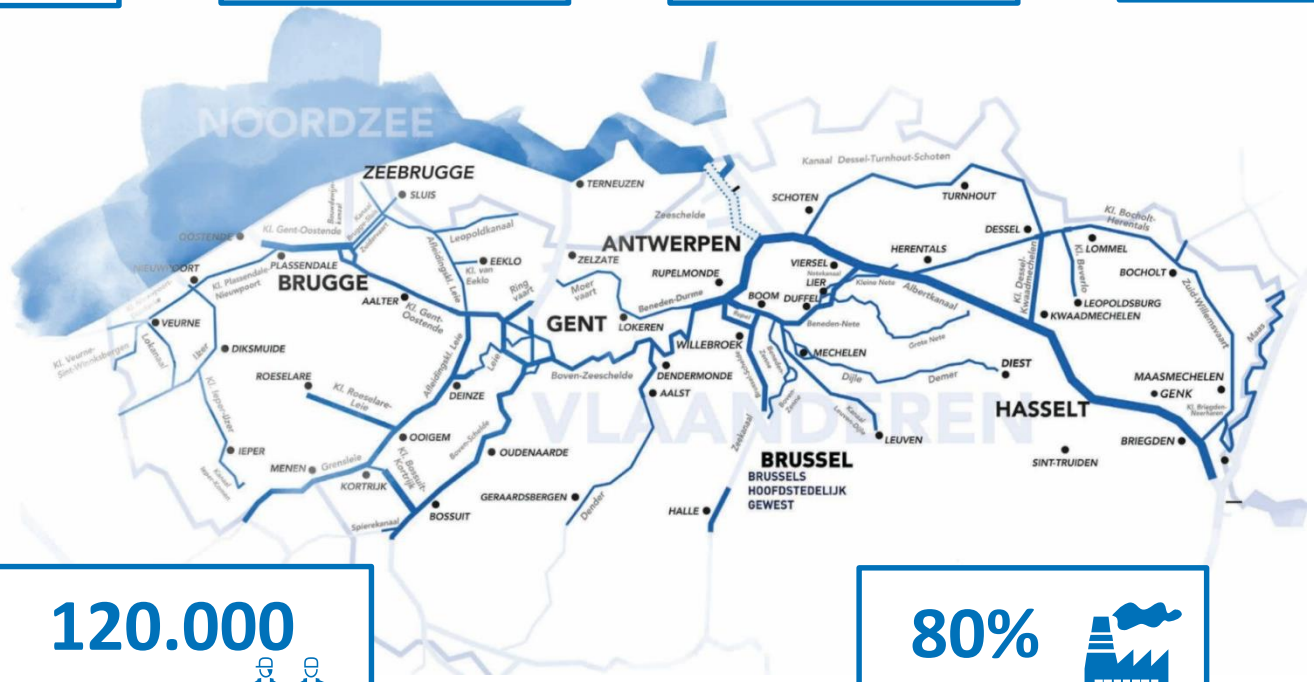
DVW in numbers

1076

1264

800

131



120.000

80%

Focus on the needs of the customers

Stakeholders of inland navigation

Government

- Solution for traffic congestion
- Greening of the transport sector and inland navigation
- Data for statistical research
- Optimal use of existing infrastructure to prevent unnecessary investments
- Simple and transparent administration

Skippers and ship owners

- Up-to-date and accurate navigation charts
- Detailed and actual traffic information (e.g.. calamities, water levels,…)
- Cost-efficient processing of logistic services (e.g.. fuel savings,…)
- High efficiency of the fleet
- Simple and transparent administration

Industry

- Sufficient transport capacity
- Integration of inland navigation with other modes of transport
- Efficient handling of cargo in terminals
- Simple and transparent administration

Safe, reliable, efficient and smart waterway network

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2. Framework

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Smart Shipping

What is Smart Shipping – Components

Smart Shipping includes the following:

Smart ships

Smart ships are vessels that are highly automated and are therefore equipped with automated systems using external data to optimize the key functions of the vessel (navigation, real-time planning, fuel consumption management, etc.).

Smart infrastructure

Infrastructure is operated via remote control from a traffic center. Operation is organised from corridor perspective. In this way, more proactive traffic management can be done. This way it is possible to enable inland vessel traffic services in a more proactive and focused way. With the management and exploitation of the waterway network, actual and external data coming from ships, infrastructure and third parties are taken into account.

Smart communication

Smart communication takes into account real-time external data coming from ships, infrastructure and third parties. This enables smooth and efficient voyages of one particular ship by means of route planning, lock and bridge planning, hydrographic information, etc.

Smart regulation and facilitation

The regulation is adapted in such a way that there are no restrictions hindering the technological evolution of smart shipping, however still prioritizing the safety of the users of the inland waterways and society.

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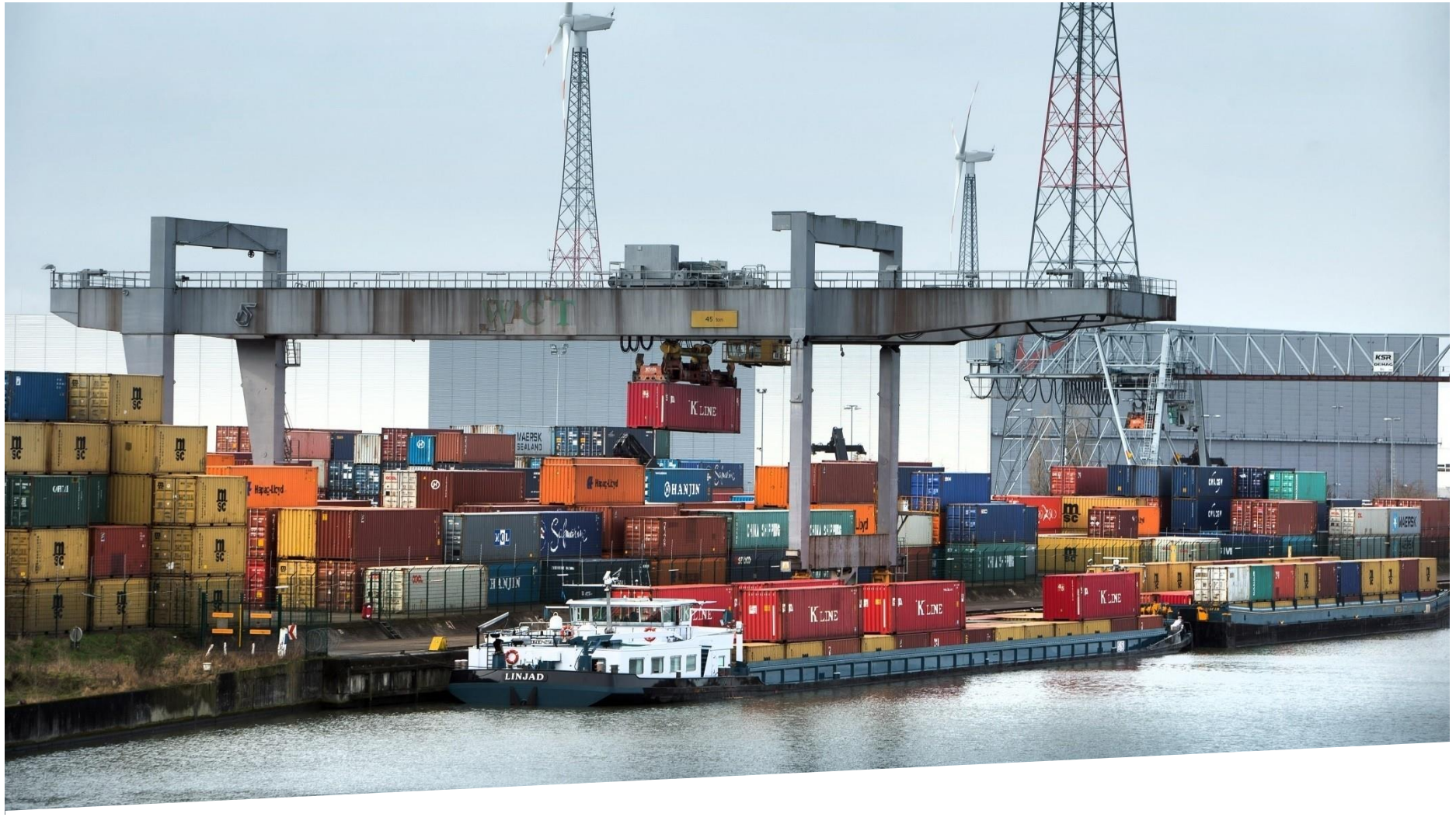

3. Our approach

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Our Approach

Smart ships

Smart regulation and facilitation

Identifying the benefits & defining the approach

1. Identified Benefits

The benefits identified for the people, the organizations and the planet illustrate that the step towards autonomous vessels is something that the authorities should work on.

2. Law and regulation - Gaps

It has been identified that the current law and regulations are not adjusted to make autonomous vessel operations possible

3. Test areas

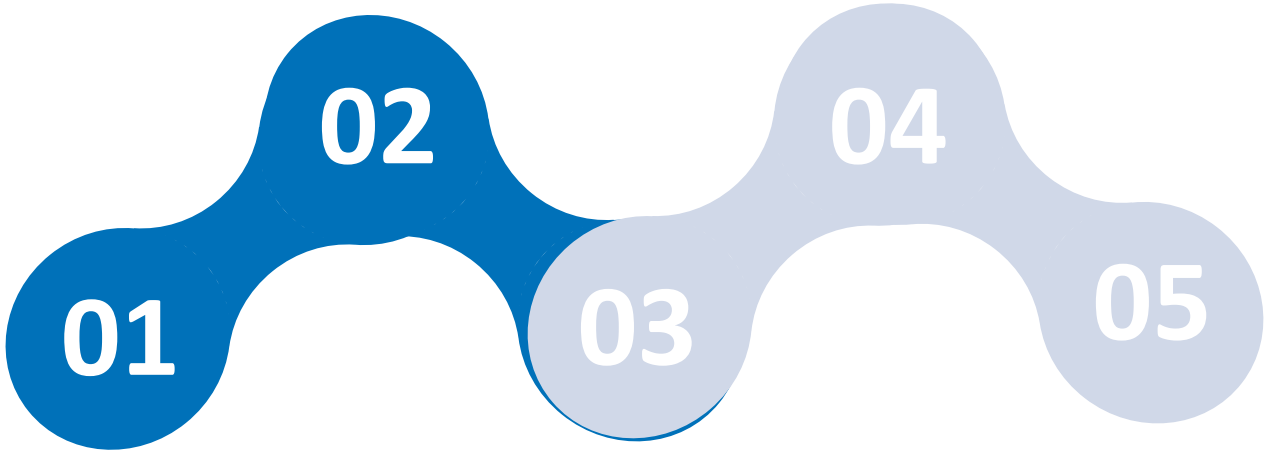
Test areas in which autonomous vessels can operate have been approved. It is however still up to the authorities to decide whether it is allowed to test or not.

4. Adjustment law and regulation

After the test cases, the best practices and missing gaps in the law and regulation will be filled

5. Autonomous vessels in legal framework

The autonomous vessels will be able to operate on the Flemish inland waterways within a well defined regulatory framework



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Legislative base

Today

Current legislative base is used for the test area, but ...

Identified GAPS

Crew member regulation

- It is under no circumstance allowed for any type of vessel to sail without any crewmember

Traffic regulation

- The general traffic regulation including the General Police regulation for vessels on Inland Waterways contain several rules from which cannot be deviated

Dangerous goods

- The transportation of dangerous goods on water has to comply with several strict rules

Kick off meeting June 2018

Cooperation between departments of the Ministry of Mobility to adapt Flemish and international law

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Our Approach

Smart ships

Smart regulation and facilitation

Future steps

1. Identified Benefits

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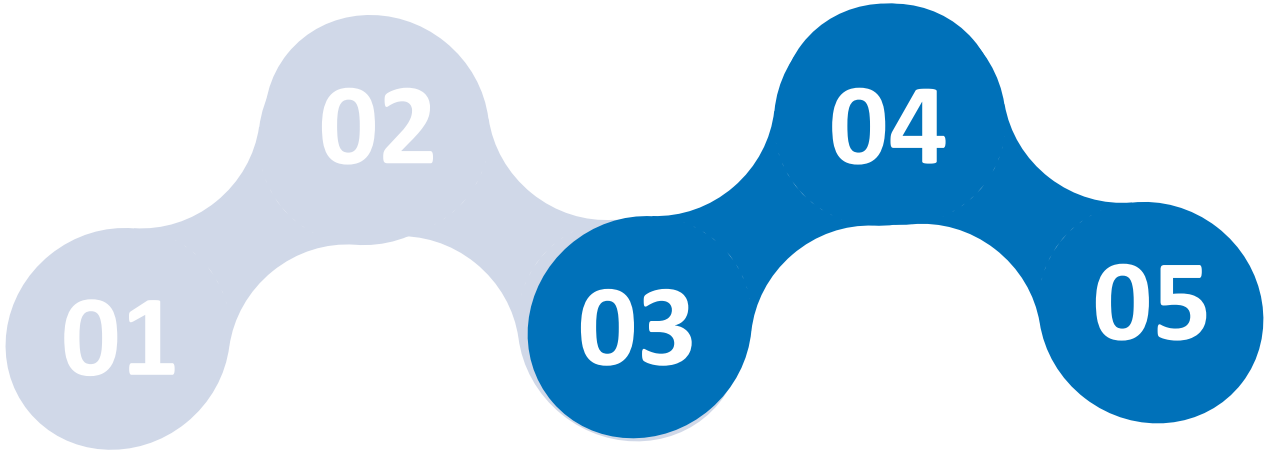

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Test area

Open to external parties

DVW

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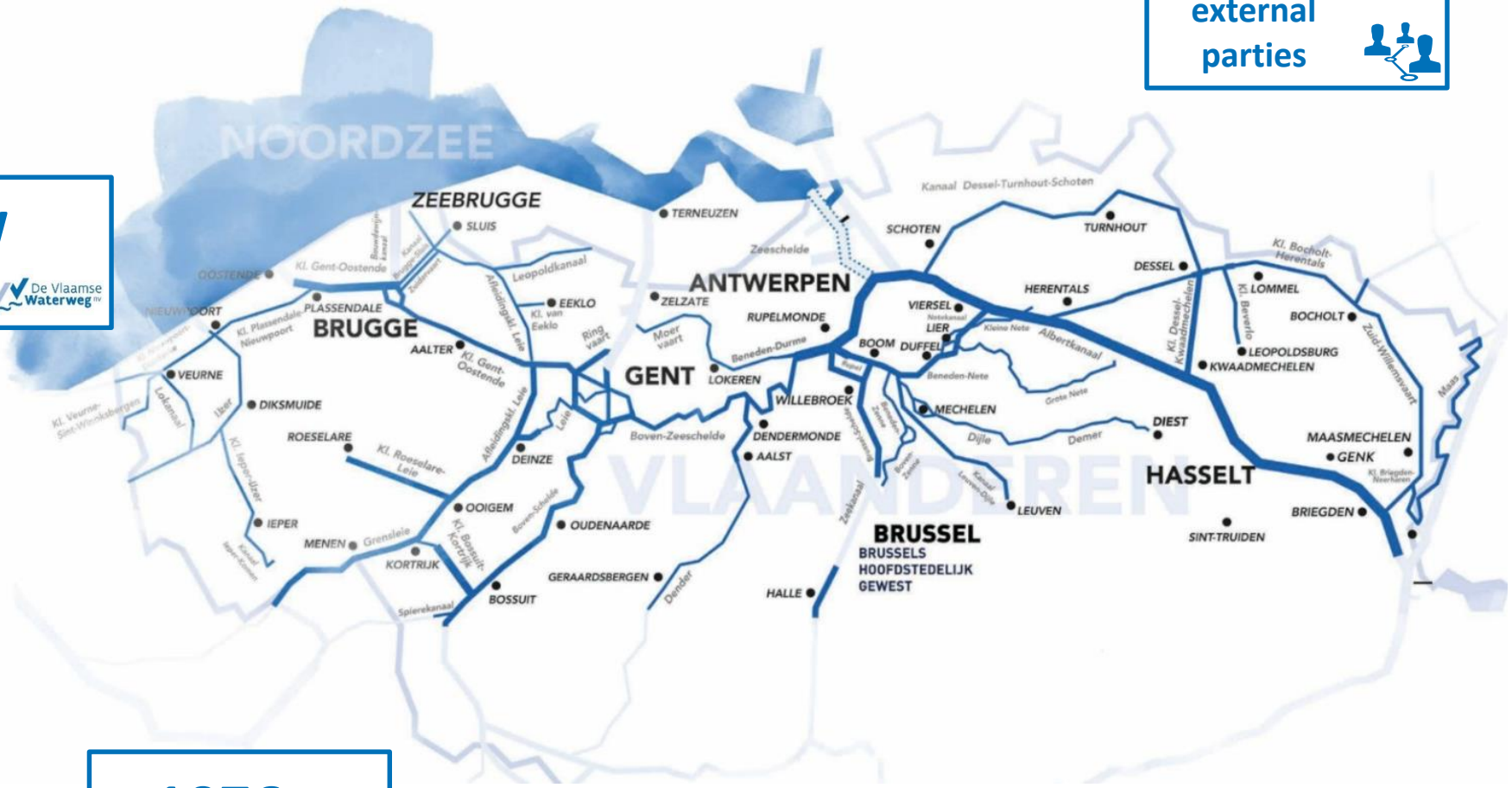

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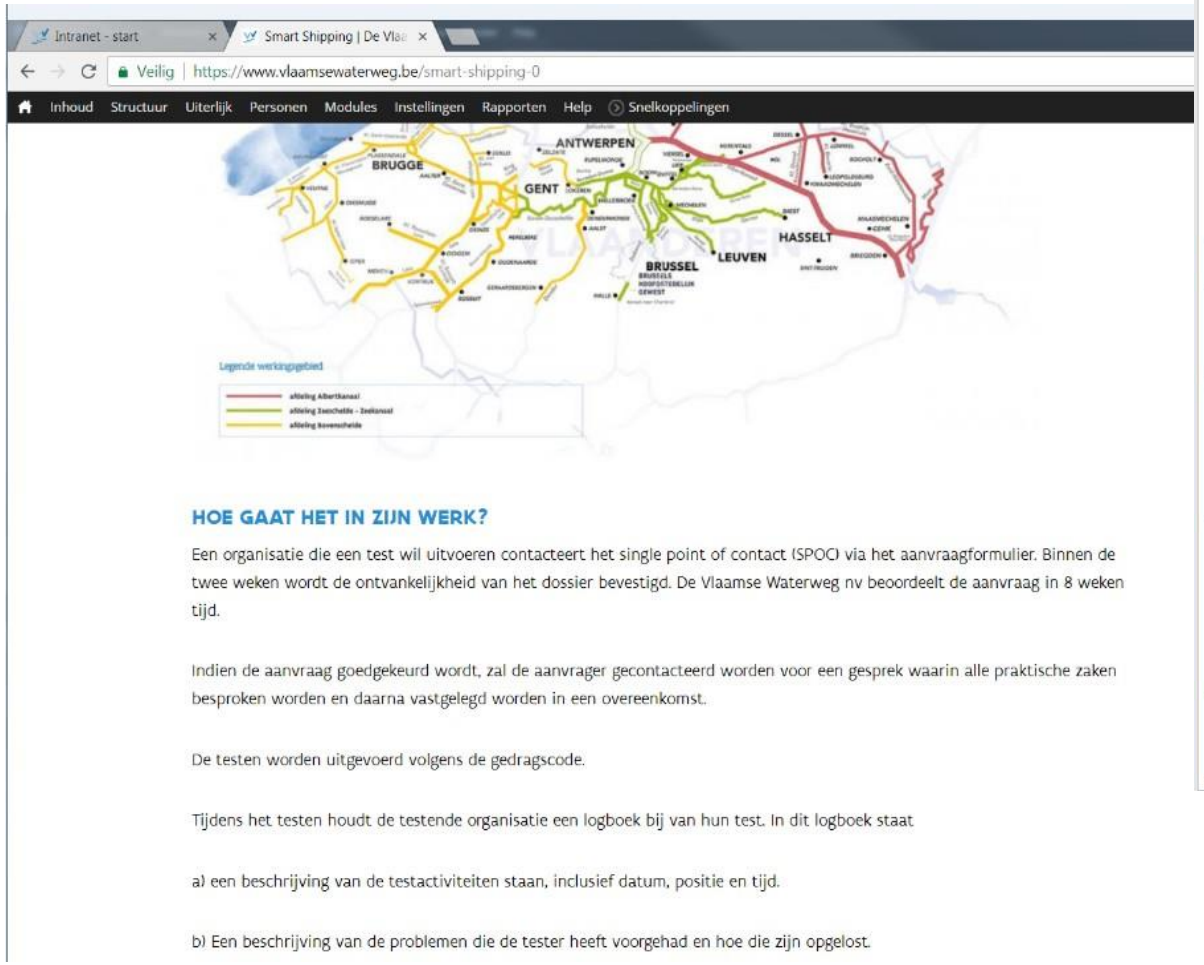
Rules for operation



Timeline

Next steps to be taken

2018

Westhoek

The autonomous vessel project 'Shipping Westhoek starts testing.

FLOAT

Flanders on the Automated shipping Track

Cooperation

Cooperation between government of Wallonia, Brussels and federal government will be set up.

UNECE

Follow up meeting on smart shipping

CCR

Roadmap for adjusting the Traffic Regulations will be designed.

INAS

Standards for monitoring test areas will be created

2019

Smart infrastructure

Smart communication

PIANC

Working Group Smart Shipping Kick-Off

Cooperation

Cooperation with the Netherlands to create a transnational test area.

Regulations

CCR, UNECE, EU

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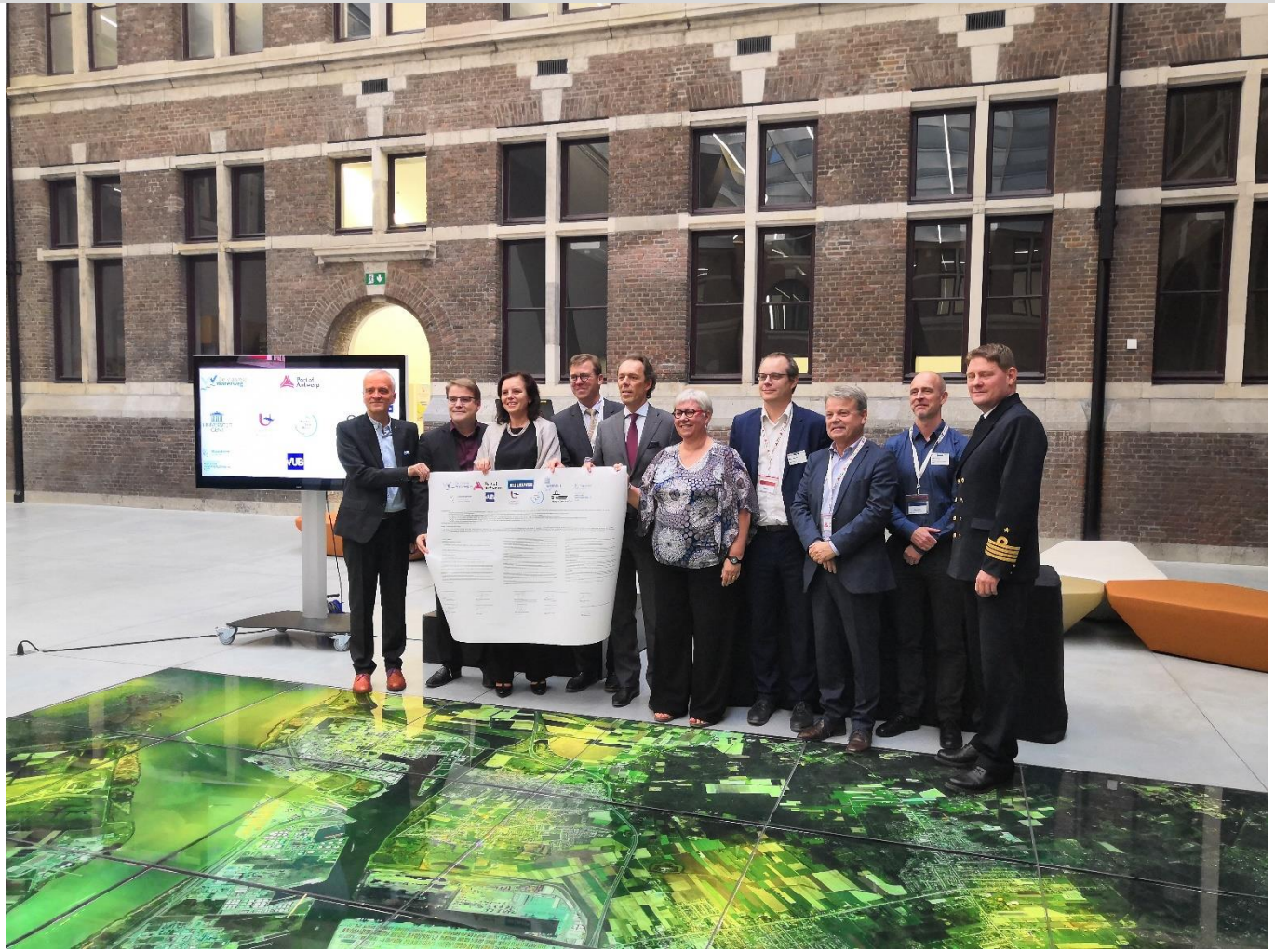
FLOAT

FLanders on the Automated shipping Track



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Cooperation between the Netherlands & Belgium

Level playing field

- Similar applications required
- Similar assessment required

Rijkswaterstaat
Ministerie van Infrastructuur en Milieu

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Test zones for autonomous vessels

Wallonie

SPW
Service public de Wallonie

port.brussels

GOAL

Results prove feasibility and safety

Transnational test zones used on international level

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