Autonomous vessels on inland waterways

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1. De Vlaamse Waterweg nv
The Flemish waterway network, an asset for Europe
De Vlaamse Waterweg nv

_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
2. Framework
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.
3. Our approach
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.
Legislative base

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
Future steps

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Hoe gaat het in zijn werk?

Een organisatie die een test wil uitvoeren, contacteert het Single Point of Contact (SPoC) via het aanvraagformulier. Binnen de drie weken wordt de ontvangenheid van het dossier bevestigd. De Vlaamse Waterweg nv beoordeelt de aanvraag in 8 weken tijd.

Indien de aanvraag goedgekeurd wordt, zal de aanvrager gecontaceerd worden voor een gesprek waarin alle praktische zaken besproken worden en daarna vastgelegd worden in een overeenkomst.

De testen worden uitgevoerd volgens de gedragscode.

Tijdens het testen houdt de testende organisatie een logboek bij van hun test. In dit logboek staat:

a) een beschrijving van de testactiviteiten, staan, inclusief datum, positie en tijd.

b) Een beschrijving van de problemen die de testeerder heeft voorgedaan en hoe die zijn opgelost.
## Timeline

### Next steps to be taken

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<th>2018</th>
<th>2019</th>
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<tr>
<td><strong>Westhoek</strong></td>
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<tr>
<td>The autonomous vessel project ‘Shipping Westhoek starts testing.</td>
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<tr>
<td><strong>Cooperation</strong></td>
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<tr>
<td>Cooperation between government of Wallonia, Brussels and federal government will be set up.</td>
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<tr>
<td><strong>UNECE</strong></td>
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<td>Follow up meeting on smart shipping</td>
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<td><strong>CCR</strong></td>
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<td>Roadmap for adjusting the Traffic Regulations will be designed.</td>
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<td><strong>INAS</strong></td>
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<td>Standards for monitoring test areas will be created</td>
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<td><strong>PIANC</strong></td>
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<td>Working Group Smart Shipping Kick-Off</td>
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<tr>
<td><strong>Cooperation</strong></td>
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<td>Cooperation with the Netherlands to create a transnational test area.</td>
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<tr>
<td><strong>Regulations</strong></td>
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<td>CCR, UNECE, EU</td>
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Cooperation between the Netherlands & Belgium

**Level playing field**
- Similar applications required
- Similar assessment required

**Test zones for autonomous vessels**

**Actual cooperation**
- Similar conditions
- Weather, location, time, etc

GOAL
- Results prove feasibility and safety
- Transnational test zones used on international level
MAHI

First unmanned vessel that will cross the Atlantic Ocean
4. The Netherlands
The Netherlands

Timeline and approach

1 October 2018
Opening test area
Comparable with Flanders

Document concerning the monitoring of test areas → present for EC

Preparing test areas North Sea → In cooperation with North sea countries

Autonomous shipping