Testing & Operation of Autonomous Ships in Inland Waterways

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1. De Vlaamse Waterweg nv
De Vlaamse Waterweg nv.

Flanders situated in the TEN-T network
De Vlaamse Waterweg nv in numbers

1076
1264
800
131
120,000
80%
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 traffic management**
  - 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. External data from ships, infrastructure and third parties are taken into account.

- **Smart communication**
  - Enabling smooth and efficient voyages of one particular ship by means of route planning, lock and bridge planning, hydrographic information, ...

- **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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What is Smart Shipping – Components

Smart Shipping
Smart Shipping

**Building blocks De Vlaamse Waterweg nv**

**Autonomous shipping**
- Facilitation through test area
- Creating a framework which allows new types of smart vessels to operate on the inland waterways.

**Smart Traffic Management**
- Provide inland waterway infrastructure with smart technologies such as sensors, CCTV, ...
- Standardizing infrastructure and systems to ensure the reliability of the network.
- Make actual and reliable data streams available with regard to the infrastructure of inland navigation as input for smart data-sharing

**Smart Communication**
- Automatic exchange of open, reliable and actual information to enable a better and broader service
- Make the right data sources and communication channels available to all possible stakeholders
De Vlaamse Waterweg nv

**Division Automation and Traffic Management**

1. **Certification and regulatory framework**
   - **General regulation**
     - Setting up the regulatory framework for the operations
     - Setting up the regulatory framework for the vessels

2. **Infrastructure**
   - **Waterway technology**
     - Automation of the infrastructure
     - Remote control of locks and bridges

3. **Sharing information and providing services**
   - **River Information Services**
     - Defining the framework for the interaction between the vessel and the administration (https://www.visuris.be/)

4. **Guiding innovation**
   - **International representation**
     - Participating in international fora
     - Setting up private/public initiatives/discussion groups
3. Our approach
Our Approach - Regulation

After identifying the benefits, the path towards operating an autonomous vessel on the inland waterways of Flanders has been defined.

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.
Our approach

Timeline – next steps to be taken

Cooperation
In December 2017 the cooperation with the Netherlands was agreed.

Defined test area
The test area was defined and set to the entire territory of 1076 km.

Test Area
In May the Test Area’s will be opened so possible test cases can be done.

FLOAT
Flanders On the Automation Track will be launched in October.

PIANC
Approval establishment Working Group Smart Shipping.

Westhoek
The autonomous vessel project ‘Shipping Westhoek starts testing in September 2018.