PROJECT NEWSLETTER NO. 4

January 2023

Interreg North Sea Region AVATAR
European Regional Development Fund
Sustainable urban freight transport with autonomous zero-emission vessels

EUROPEAN UNION

AVATAR Newsletter No. 4 | AVATAR tests & demonstrations | iSCSS conference & Smart Shipping Event | AVATAR at North Sea Conference

On our own account: AVATAR Newsletter No. 4 launched

Picture: AVATAR project

31.01.2023 – The AVATAR project consortium is publishing project newsletters at regular intervals, in which key events, results, progresses made and general topics relating to the project are addressed. For more background information on the AVATAR project, please visit the *AVATAR website* and make sure to follow AVATAR on *LinkedIn*.

The new AVATAR vessel under construction!

Picture: SEAFAR

18.01.2023 – Status update. Currently, the necessary equipment is being built in and communication between software of project partners SEAFAR and E. Van Wingen is set up.

Here are a few impressions: AVATAR website

Study Visit of DHL's solar boat parcel delivery service in Berlin, Germany

18.01.2023 - Project partners Logistics Initiative Hamburg and OHB had recently the chance to visit Berlin for a study visit of Deutsche Post und DHL's recently established city freight solution for parcel delivery in Berlin. Since October 2022, DHL is operating a solar vessel to transport parcels.

Read more here: AVATAR website

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Second AVATAR demonstration at TU Delft

Picture: TU Delft, Faculty of Mechanical Engineering

14.12.2022 - TU Delft, Mechanical Engineering, organized a 2nd AVATAR demonstration event showing the latest developments in computer vision research for autonomous vessels.

Read more here: AVATAR website

AVATAR partners up with Smart Shipping Event 2022 in the Netherlands

Picture: Peter Geirnaert

05.12.2022 – More than 250 inland navigation professionals visited the Smart Shipping Event 2022 in Hendrik-Ido-Ambacht (The Netherlands) on 01.12.2022 to learn more about smart shipping and autonomous sailing. AVATAR Interreg North Sea Region co-sponsored the event.

Read more about the key conclusions of the event here: AVATAR website

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SEAFAR & E. Van Wingen receive honours

28.11.2022 - Congratulations to project partner SEAFAR! CEO Louis-Robert Cool received an award from the Flemish Waterway Administration for their innovative role in inland navigation.

Project partner E. VAN WINGEN NV's hydrogen powered combined heat and power installation (ICE CHP) has been recognized by Solar Impulse Foundation as one of the 1400+ clean and profitable solutions.

Read more here: AVATAR website & here: AVATAR website

POM Oost-Vlaanderen · Logistics Initiative Hamburg · KU LEUVEN · Carl von Ossietzky Universität Oldenburg · Hout & Bouw

TU Delft · SEAFAR · SSPA Your Maritime Solution Partner · URBAN WATERWAY LOGISTICS

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First AVATAR demonstration event at TU Delft

Picture: TU Delft, Faculty of Mechanical Engineering

17.11.2022 – On 9.11.2022, project partner TUD hosted their first AVATAR demonstration event in Delft with autonomous emission-free waterways vessels.

Get impressions here: AVATAR website

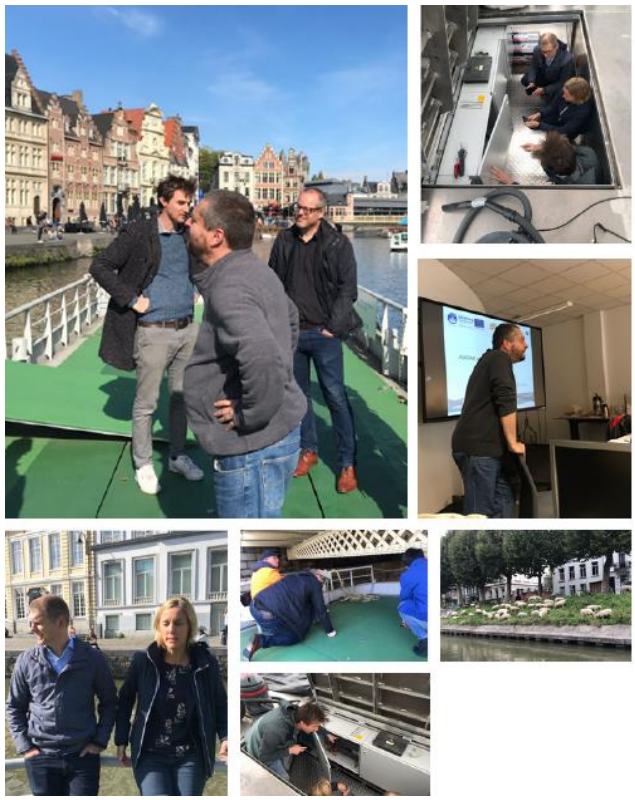
AVATAR at iSCSS conference

Picture: Tom Pauwels

28.11.2022 - The AVATAR Interreg North Sea Region project was sponsor Of the iSCSS-conference in Delft, taking place 8.-10. November 2022. AVATAR project partners actively contributed with presentations and demonstrations. Aim of the conference was "human machine teaming in ship control", which strives to get the best out of collaboration between the human and control systems. In AVATAR, focus is on (highly) autonomous vessels and city freight distribution.

Read more here: AVATAR website

Project partner workshop in Ghent



Picture: Peter & Julie Geirnaert

06.10.2022 - POM Oost-Vlaanderen hosted an internal AVATAR workshop in Ghent on 4. & 5.10.2022. Project partners shared experiences

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about the development of highly autonomous sailing and city freight distribution.

There was also time to sail through the city centre of Ghent with the Green Wave; making it clear again that waterway transport in Ghent is a challenge.

Read more here: AVATAR website

Milestone! Successful deployment of the Maverick

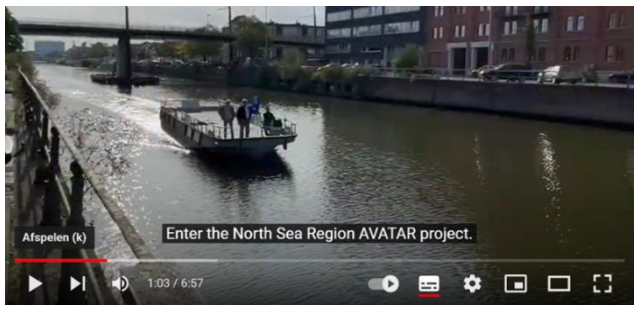
Picture: IMP - Research group KU Leuven

03.10.2022 – An important milestone was reached! The IMP research group of KU Leuven successfully deployed their newly designed 1 ton vessel called "The Maverick" for the first time.

This first experiment already demonstrated the advantages of the AVATAR-driven design choices, in particular the high manoeuvrability required for close-encounter vessel operations in urban waterway transport situations.

Get some impressions here: AVATAR website

AVATAR project presented in INTERREG NSR video



(c) Shane Woodford and Interreg North Sea Region

27.09.2022 – Learn more about the AVATAR project in this video clip, produced by the INTERREG NSR programme in the first episode of their series “Let’s North Sea”.

The video is available here on YouTube. Read more here: AVATAR website

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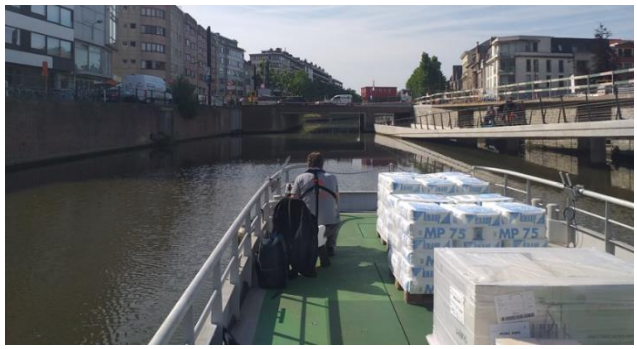
Test Green Wave in Ghent



Picture: Tom Pauwels

07.07.2022 – AVATAR project partners Urban Waterway Logistics and POM Oost-Vlaanderen organized on 6/7/2022 a test run with the Green Wave in Ghent.

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The Green Wave is the full electric urban vessel (with skipper) developed in the #IWTS2.0 project and is being used as a research vessel in the AVATAR project.

During the test, construction materials (such as floor tiles, parquet and spray plaster) were loaded on the vessel at the border of the city of Ghent and unloaded at a wharf in the city center.

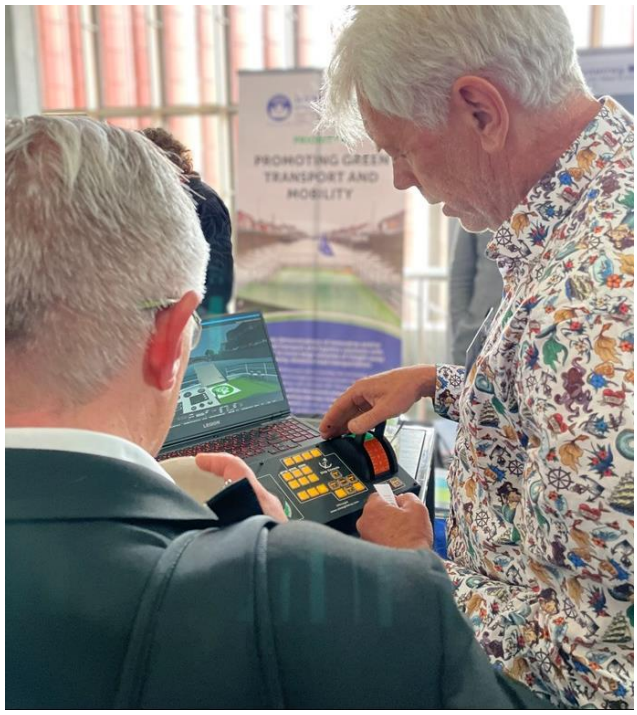
Read more here: AVATAR website

Short news

AVATAR project partners participated in several events: Lerende Euregio Scheldemond, Final conference ST4W, POLIS workshop, LOGIGRID and Hydrogen Technology Day.

AVATAR has been mentioned in different magazines: STERCK Oost-Vlaanderen, Ondernemers (Oost-Vlaanderen) and Logistik Report 2021/2022.

AVATAR at North Sea Conference in Bruges



Pictures: AVATAR project

02.06.2022 – From 23 to 25 May 2022, the North Sea Conference was organised in Bruges, Bel-

gium. AVATAR project partners Logistics Initiative Hamburg, OHB & Urban Waterway Logistics were participating and hosting a project booth at the conference exhibition.

Find a look back with more impressions here: AVATAR website

Water Cargo Barge – Feasibility study on urban waterway logistics in Hamburg published

18.05.2022 - A new feasibility study on urban waterway logistics in Hamburg has been published. The study was recently completed by researchers from Fraunhofer CML on behalf of the Free and Hanseatic City of Hamburg.

The results of the WaCaBa study on the revitalization of Hamburg urban canals for urban commercial transport were presented at the beginning of May 2022 in the context of the AVATAR conference in Hamburg.

Read more here: AVATAR website

Get to know the project partners. TUD and UWL

The Department Maritime and Transport Technology (MTT) of Delft University of Technology (TU Delft) has investigated for more than ten years the possibility of designing hardware and software frameworks to control and supervise multiple autonomous ships, optimize energy consumption and logistics efficiency. Within MTT, the research section Transport Engineering and Logistics collaborates very closely with the Researchlab of Autonomous Shipping (RAS https://rasdelft.nl/). The strong link between MTT and RAS enables industrial partners, policy makers, and local government to test and demonstrate the autonomous vessels in the Netherlands.

MTT has already participated in quite a few EU co-financed projects. In particular, in the past years MTT has been involved in EU projects including NOVIMOVE (H2020), Space@Sea (H2020), NOVIMAR (H2020), ISHY (Interreg 2 Seas programme), i-CAVE (STW Topsectoren), GasDrive (STW Maritime), MAGPIE (H2020 Green Deal), AutoBarge (EU ETN), Digital Twin for Green Shipping (H2020), etc.

To operate and validate various control and coordination strategies based on real life, tests are critically important in order to optimize and improve the methods on control of autonomous ship sailing. TU Delft is interested in the upscaling of different technologies that will take place during AVATAR. The main role of TU Delft in the AVATAR project includes:

- involving WP2 Communication Activities, to support project dissemination by means of scientific publications and workshops;
- involving WP3 Engineering, to achieve high-level automation and coordination of multiple model-scale autonomous

ships whilst simulating an urban environment context and to develop and integrate the modular communication layer for a remote control centre;

- leading WP5 Operations: testing and demonstration, aiming at gathering knowledge and experience from demonstrating the usability of zero-emission autonomous urban freight vessels by testing the technologies and vessels developed during AVATAR and by assessing the performance of the vessels in real life on various routes.

URBAN WATERWAY LOGISTICS

- Who are we ? A consortium, a team of entrepreneurs

The traffic congestion, introduction of Low Emission Zones, circulation plans, urban expansion, time slots for transport in and out of the city of Ghent, lack of parking spaces... The building materials traders traditionally based in Ghent had a meeting at the beginning of 2017 to find out how we as a company could best deal with it to give the same level of service to its customers.

These companies (Gedimat De Groote-Houtboerke, Bouwpunt OVB, Gedimat Van Vlaenderen en Containerverhuur Thienpont) have been preparing for the organization of construction logistics by water in Ghent for several years now. Systematically, due to advancing insight, new twists have been made in this story to grow into a strong consortium that is open to all sectors and companies to be able to develop water-bound transport of goods in Ghent.

- Where do we stand for ? Zero emission transport of goods by using inland waterways in a city center

In order to organize the city distribution via the waterway, a hands-on approach is used and various working groups have been proposed to gradually analyse the problems that arise and to offer an answer to them. This planned approach should result in a supported detailed step-by-step plan to integrate the modal shift to the waterway in Ghent's cityscape.

Our main goal, aside reducing CO2 and Nox emission, to help build an environmentally friendly and technically efficient logistics system to supply Ghent companies and customers from our new city distribution center, while following our values of neutrality, collegiality, just in time, professionalism and correctness. We strive to make maximum use of CO2 Neutral in every process and logistical flow. To this end, work is being done, where possible, with electric propulsed boats deployed by UWL in the region of Ghent.

- UWL in the future? Research into autonomous sailing in Living Lab Ghent

The next step in using inland waterways in a city environment is a real challenge considering its great historic value, (noise & air) pollution and a large number of tourists. We want to develop autonomous sailing vessels managed from a command center. Although a lot of technical equipment in hard- and software has been developed, the large amount of water tourism in

the use of the waterways makes it difficult to make a fully autonomous system on board of the ship. Besides that, is the need of a heavy duty, loading & unloading system. Further research will be done on battery packs & fuel cells based on H2 technology.

- Role in AVATAR?

UWL will support in WP5 with the validation of the work done by the other partners and set-up real life trails. As we are a consortium of SME's and business partners we will use the urban zero emission vessel for testing with transport of construction material into the city and waste return from the wharf to the warehouse. This way, we will test the possibilities of autonomous sailing in a real life economically situation and support the SWOT analyses.

In such way we want to promote the use of inland waterway transport and explore new opportunities for urban vessels in urban environments. In a city as Ghent with a dense waterway network, we believe that a significant amount of freight can shift from road to water. This will result in a reduction of traffic jam, road accidents, air & noise pollution, so that the cities will become a good place to live and to work.

Read more here: Urban Waterway Logistics

About the Interreg AVATAR project

AVATAR – Autonomous vessels, cost-effective transhipment, waste return. AVATAR is a project co-funded by the INTERREG North Sea Region Programme 2014 - 2020.

The AVATAR project aims to tackle challenges of city freight distribution by developing, testing and assessing adequate technologies and business models for urban autonomous zero-emission IWT. Through this, the project unlocks the economic potential of urban vessels and corresponding waterways, increases available solutions for full-cycle automation and sets up a sustainable supply chain model for urban goods distribution and waste return.

Further information and project news can be found on the project website and LinkedIn

https://northsearegion.eu/avatar

https://www.linkedin.com/company/avatar-interreg-north-sea-region

A general status of the project is available via this link.

Contact for queries

To get in touch with AVATAR, please contact the lead beneficiary organisation.

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