News & updates

Technical Updates and Project Highlights

The **DT4GS** project is progressing well towards its objectives and it is our pleasure to present the **6th newsletter** on behalf of the **DT4GS** consortium. In this edition, you will find an overview of the various activities undertaken and the key results achieved by our project partners in recent months.

Advancements in WP2 Implementation

We are excited to share the latest developments from the DT4GS platform, brought to you by our dedicated WP2 partners.

Introducing the Open Model Library (OML)

We are thrilled to announce the launch of our Open Model Library (OML). This innovative library is designed as a central hub where modelers and analysts can submit and access cutting-edge models of

vessel components and functionalities. The OML serves as a collaborative space to foster the development and dissemination of advanced maritime models.

Empowering Simulations with the Model Execution Engine (MEE)

Leveraging the OML, our Model Execution Engine (MEE) now features a Prototype Simulation Interface. This powerful tool allows stakeholders to simulate various decarbonization scenarios using predefined or custom vessel layouts, alongside actual or parameterized data. With the MEE, users can explore diverse operational possibilities, making informed decisions to drive decarbonization efforts.

Enhancing Analytical Capabilities

Building on the progress of the past two years, we are continually enhancing our platform's functionalities. One of the key advancements is in timeseries analysis. We are expanding our capabilities to include multivariate analysis, supporting applications such as:

- **Predictive Maintenance**: More accurate maintenance predictions by analyzing multiple variables simultaneously.
- **Enhanced Data Quality**: Improved data quality through comprehensive multivariate analysis.
- **Real-Time Event Detection**: Superior anomaly detection and event response through advanced data examination.

Advancing Machine Learning with Knowledge Graphs

Our platform is also making strides in automated feature selection using Knowledge Graphs. This approach trains Machine Learning models at the edge, significantly enhancing system intelligence. By leveraging the structured relationships and insights within Knowledge Graphs, we can identify the most relevant features for our models, ensuring high-quality and contextually rich data inputs.

Living Labs: Real-World Applications

As we continue to deploy our solutions, we are keen to observe and incorporate feedback from our Living Labs. Their reflections and

experiences are invaluable as we strive to refine and perfect our offerings.

Advancements in WP3 Implementation

Significant strides have been made in WP3, focusing on refining existing modules and integrating new technological advancements to meet key objectives outlined in the Grant Agreement.

Progress in T3.1: Knowledge Hub Development

Notable progress has been achieved in T3.1 with the development and extension of the Knowledge Hub. This platform is instrumental in defining various Key Performance Indicators (KPIs) and identifying pertinent decarbonization use cases. An automation layer has been integrated atop the existing implementation, ensuring dynamic content updates and maintenance. The finalization of this layer is scheduled for completion by Month 35 (M35).

Enhancements in Operational Optimisation DT (OODT) and Deployment Support Services

The OODT and Deployment support services have undergone significant enhancements. These improvements ensure the seamless integration of the latest advancements of the DT4GS platform described above, including the Open Mode Library (OML), Maritime Energy Efficiency (MEE), Knowledge Hub (KH), and Decision Support System (DSS). This integration streamlines processes and addresses the global use case of Voyage Planning.

Versatile Decision Support System (DSS)

A versatile DSS has been implemented to evaluate the environmental and financial viability of potential mitigation solutions. This assessment covers aspects such as retrofitting, energy management, and routing optimization, providing comprehensive support for decision-making.

Enriched DT4GS User Interface

In recent months, the DT4GS user interface has been significantly enriched with new functionalities. These enhancements form the backbone of the main components of the DT4GS platform, particularly

involving the Open Mode Library (Model Selection - Simulation and Deployment), mitigation scenario assessments, and KPIs visualization.

Successful Workshop on Zero-Emission Waterborne Transport – 17th June 2024!

On June 17th 2024, WEGEMT hosted the workshop *"Empowering Change: Industry-Higher Education Collaboration for Novel Technologies in Zero-Emission Waterborne Transport."*

A workshop, where we delved into electrification and digital twins for green shipping, as explored by the **FLEXSHIP** and **DT4GS** projects under Horizon Europe's ZEWT cpp framework.

During the workshop, we engaged participants with four groups of questions centered around electrification and digital twins for sustainable shipping. The groups were mainly focused on:

- Vessel electrification and Digital Twins for zero-emission shipping
- Training for pertinent applications in the wider waterborne sector (transferability)
- Long-term skills strategy and higher education training course for seagoing crew and shore-based maritime professionals

Key Note Speakers

- **Chiara Notaro**,
  Board member (Vice Chair) of the Waterborne Technology Platform / **CETENA**
- **Konstantinos Voutzoulidis**, Board member of the 'Zero Emission Waterborne Transport co-programmed Partnership' / **American Bureau of Shipping**
- **Monia el Faziki**,
  Director of EU Social and Public Affairs and coordinator of the Shipbuilding and Maritime Technologies Pact for Skills / **SEA Europe**
- **Lucia Fraga**,Head of Training and coordinator of the ORE Pact for Skills / **CETMAR**

Panelists

Prof. Vicente Díaz Casas (University of A Coruña), **Prof. Hossein Ghaemi** (Gdansk University of Technology), **Prof. Austin Kana** (TU DELFT), **Prof. Mehdi Zadeh** (NTNU), **Monia el Faziki** (SEA Europe), **Chiara Notaro** (CETENA), **Amaya Soto** (CETMAR)

Special thanks to: Mehdi Zadeh, Christopher Lange, Toon Nachtergaele, Álvaro Reina Illanes

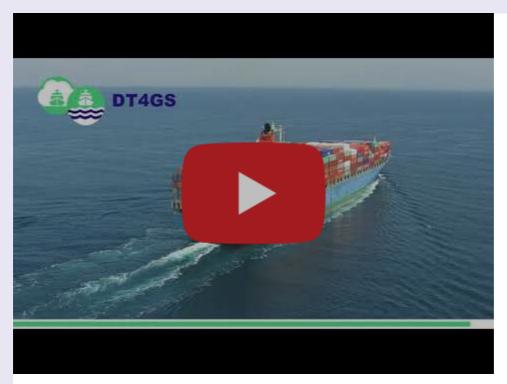*Presentation of a speaker: Konstantinos Voutzoulidis - ABS, Head of Europe Contracted R&D*

Presentation of a speaker: Chiara Notaro, Board Member(Vice - Chair)

COMMUNICATION HIGHLIGHTS

- DT4GS videos are available **here**
- The project's flyer and leaflet available on the **website**.
- Project's press release is available **here**.
- Project's publications are available **here**

DT4GS project , funded by the European Commission (GA N0.101056799) establishes the DT4GS ALLIANCE, a consortium of leading organizations working together to accelerate the decarbonization of the shipping industry through the use of Digital Twin technology.

DT4GS News

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Read more

RINA-S's contribution in Work Package 4!

Insights from RINA's contribution to WP3!

RINA's crucial role in advancing digital twin technology.

Transforming the Maritime Future: Join Our Exclusive Workshop!

READ ALL NEWS

DT4GS Flyer

DOWNLOAD HERE

The Digital Twin for Green Shipping

A decision support system for the waterborne industry to achieve decarbonization

DT4GS will provide an industry-wide decarbonization decision-support system for shipyards, equipment manufacturers, port authorities and operators, river commissions, classification societies, energy companies and transport/corridor infrastructure companies.

DTs can revolutionize the workings of the entire waterborne transport, from preliminary ship design right through to decommissioning across all the industries serving a ship's.

Impact

The results of the project will contribute to the acceleration of **green shipping transformation targets** in the short, medium term and **long term**.

i1 20% reduction CO2e in the short term

i2 20% improvement costs efficiency for GS solutions

i3 55% reduction CO2e by 2030

i4 Zero-emission waterborne transport by 2050

DT4GS will provide an **industry-wide decarbonization decision-support system** for shipyards, equipment manufacturers, port authorities and operators, river commissions, classification societies, energy companies and transport /corridor infrastructure companies.

Go to our website →

For more information about the DT4GS project, please feel free to contact us at **info@dt4gs.eu**

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